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VOLUME 1

HUMAN RESOURCES AND DEMOGRAPHICS: CHARACTERISTICS OF PEOPLE AND POLICY

STUDIES

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LETTERS OF TRANSMITTAL

DECEMBER 9, 1980.

To the Members of the Joint Economic Committee.

Transmitted herewith is a staff study, printed separately, and technical papers which together form Volume 1 of the Special Study on Economic Change (SSEC).

Volume 1 is entitled "Human Resources and Demographics: Characteristics of People and Policy" and is one of 10 areas on different aspects of the economy published by the SSEC. The SSEC was initiated in 1978 under the direction of the former Chairman of the Joint Economic Committee, Representative Richard Bolling, then Vice Chairman Senator Hubert H. Humphrey, and the former Ranking Minority Member, Senator Jacob K. Javits. It is intended to identify major changes in the economy and to analyze their implications for policymakers. The successful completion of this Study will, I believe, help provide an economic agenda for the United States for the decade of the 1980's.

The views expressed in the technical papers are exclusively those of the authors and do not necessarily represent the views of the Joint Economic Committee or of individual members. The staff study was approved by the Chairman's Special Study Review Committee formed by the Chairman, Representative Bolling, Ranking Minority Member Representative Clarence J. Brown, and Senator Javits.

Sincerely,

LLOYD BENTSEN,
Chairman, Joint Economic Committee.

DECEMBER 4, 1980.

Hon. LLOYD BENTSEN,
Chairman, Joint Economic Committee,
Congress of the United States,
Washington, D.C.

DEAR MR. CHAIRMAN: Transmitted herewith is a staff study, printed separately, and technical papers entitled "Human Resources and Demographics: Characteristics of People and Policy," which constitute Volume 1 of the Special Study on Economic Change (SSEC).

The SSEC was initiated under the leadership of former Chairman of the Joint Economic Committee, Representative Richard Bolling, Vice Chairman Senator Hubert H. Humphrey, and former Ranking Minority Member, Senator Jacob K. Javits. The Study is divided into 10 substantive areas, which together chart major changes in

the economy and analyze their implications for policymakers. Volume 1 comprises a detailed examination of the supply of labor, coupled with probable shifts in the structure of employment over the coming decades.

Demographic patterns such as the maturing of the baby boom and the dramatic increase in the participation rate of women will have profound effects on U.S. labor markets in this decade and beyond. At the same time, new technologies could result in equally profound shifts in demand for employment skills. U.S. policies in education and other programs should take these long-term changes into account if this country is to attain the improved standard of living and increased quality of life which could be possible under optimal conditions. This study takes a hard look at the factors affecting labor supply and demand over the coming decades and lays out a realistic policy program for utilizing fully America's human talent.

It should be understood that the views expressed in the technical papers are exclusively those of the authors and do not necessarily represent the views of the Joint Economic Committee or of individual members. The staff study was approved by the Chairman's Special Study Review Committee formed by the Chairman, Representative Bolling, Ranking Minority Member Representative Clarence J. Brown, and Senator Javits.

Sincerely,

JOHN M. ALBERTINE,
Executive Director, Joint Economic Committee.

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By Robert L. Clark* and John A. Menefee**

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Summary

Future economic conditions in the United States are dependent in part on demographic fluctuations that alter the size and age structure of the population. These demographic changes affect the composition of the labor force and the number of people in the nonworking years. This paper examines projected demographic shifts and identifies responses to them.[1]

Slowing Population Growth

The United States and most other industrialized countries have been experiencing long-term secular declines in their national birthrates. The principal deviation from this trend occurred immediately after World War II when the fertility rate temporarily surged upward. Following this period, fertility patterns dropped sharply and now the United States is approaching zero population growth. Fertility reductions,[2] limited legal immigration,[3] and mortality declines have created a demographic framework that has resulted in slowing population growth and an aging population.

Population projections indicate a slow rate of growth from 218.4 million in 1978 to 243.5 million in 1990 and then to 260.4 in 2000.[4] Important age composition shifts are expected due to fluctuations in past fertility. The number of youths 0–17 years of age will decline between 1978 and 1985 while the number of individuals aged 18–24 falls after 1980. Population growth is centered in the increasing size of prime working age population and those 65 years and older. The ratio of youths to those 18–64 drops from 48.2 percent in 1978 to 43.2 percent in 2000 while the ratio of the elderly population to those 18–64 increases from 18–20 percent. It is significant that the proportion of the total population aged 18–64 is projected to increase from 60 percent to over 61 percent by 2000.

Labor Force Changes

The Joint Economic Committee Special Study on Economic Change is interested in the economic impact of these population shifts. The demographic effects may operate through various economic response mechanisms. This paper identifies and assesses the significance of the demographic-economic interrelationships.

Population changes along with shifts in age-specific participation rates will determine the future composition of the labor force. Over the next 15–20 years, there will be a decline in the number of new entrants

[1] Aggregate effects on the economy are the result of numerous individual decisions. For example, individual family units are continuously making decisions that allocate available resources to alternative desires. Throughout their lives, family members' time and wealth are spent to achieve established priorities. Thus, decisions concerning fertility, migration, labor force participation, and savings are jointly made with each outcome influencing the other options. The primary purpose of this paper is to examine the effects of population growth and varying cohort size on the national economy. It should be remembered throughout this discussion that fertility decisions are also affected by economic variables.

[2] Birthrates differ by race and ethnic groups and such variation could have an impact on the economy. The high fertility groups frequently require greater governmental assistance and also tend to face more adverse labor market conditions. This paper does not examine the potential economic and political implications of rapidly increasing components of the population.

[3] While legal immigration has been severely restricted, illegal immigration may be one of the primary determinants of population growth. It is difficult if not impossible to estimate the magnitude of illegal immigration. While the concept of immigration in general is addressed in the paper, illegal immigration is not directly examined.

[4] These estimates are based on the intermediate projections by the Bureau of Census which assume a fertility rate of 2.1 births per woman and a net annual immigration of 400,000.

into the labor force. As the baby boom cohort ages, the proportion of the labor force aged 25–54 will grow from 61 percent in 1977 to 70 percent in 1990. Despite the growth in the elderly population, the Bureau of Labor Statistics (BLS) estimates that the elderly work force will remain constant as the decline in labor force participation rates offsets the increase in the elderly population.

Impact on Productivity

Slowing population growth will tend to retard the average rate of occupational promotion for workers; however, reduced work effort by the elderly will serve to offset this effect. An aging labor force will also tend to decrease the propensity of workers to shift jobs and location in response to changes in demand. Whether population changes will adversely affect productivity will depend on several other factors in addition to reduced mobility. Reduced numbers of workers may enable greater investment in human and physical capital per worker. Better trained individuals working with increased amount of capital would raise the level of cutput per worker in the economy.

Another factor that has received considerable attention is the relationship between productivity and age. Life cycle patterns of productivity indicating increasing acquisition of skills early in life and productivity declines late in life imply the potential for age structure effects. However, numerous studies indicate that older workers who remain in the labor force are able to continue to perform many job assignments. Even if individual productivity falls at older ages, the aggregate productivity decline due to the growth in the older labor force will tend to be offset by the decline in the number of new relatively untrained youths into the work force. These competing hypotheses lead to considerable ambiguities in the effects of projected demographic changes on future productivity

Sensitivity of the Unemployment Rate

Changes in the composition in the labor force since the 1950's have apparently raised the aggregate noninflationary unemployment rate by over 1 percentage point. The rapid growth in the youth labor force has been the principal source of this increase. Teenagers have significantly higher unemployment rates than other workers and because there has been an increase in the proportion of the labor force comprised of youths, this has raised the general unemployment rate. In addition, the increase in the population age 16–24 has increased the unemployment rate of this group. Future population trends, including the entrance of a much lower rate of young people joining the labor force (compared to the 1970's) will decrease the importance of the high unemployment groups in the 1980's. This and related demographic effects could help lower the unemployment rate during the next decade.

Retirement Behavior

Individual retirement behavior increases in importance in conjunction with an aging of the population. Over the next 20 years, the size of the olderly population will grow as will the proportion of the population in the older age groups. These trends will be intensified early in the 21st century. As a result, early retirement will exacerbate

the mounting pressure for income transfers to the elderly. Projections by the Bureau of Labor Statistics anticipate a continued fall in labor force participation by older individuals. Population aging may necessitate a reevaluation of our national retirement policy and the economic framework within which retirement decisions are made. The raising of the age of eligibility for retirement benefits and other policy modifications would significantly alter the behavior of older workers. The aging of the population is conducive to delayed retirement and these demographically induced pressures should moderate the trend toward early retirement.

Savings and Consumption

Several hypotheses have been advocated outlining the influence of the rate of population growth on personal savings and patterns of consumption. Available evidence is inconclusive and not sufficiently definitive for use in formulating public policy. Despite considerable public discussion, the affect of the major retirement programs on capital accumulation remains uncertain. Age structure changes in the future are likely to alter the emphasis of public expenditures away from youths toward the aged.

Conclusion

The ensuing paper illustrates future changes in population size and age structure. The examination of potential economic responses to these fluctuations indicates a series of relationships through which the demographic changes can alter the Nation's economy. Further research is needed before many of the hypotheses can be confirmed or rejected. There is sufficient evidence, however, to indicate that the demographic-economic relationship is important. Public policymakers must consider the demographic framework when assessing the impact of policy changes and the validity of economic forecasts.

Introduction

This paper examines the relationship between demographic and economic variables and assesses the likely impact of population changes that are projected to occur over the next two decades. The first section reviews the significant demographic shifts that have taken place since World War II. The sharp increase in births in the late 1940's and early 1950's has now been transformed into relatively large numbers of youths entering the labor market. The subsequent fertility decline has reduced the number of children, slowed the rate of population growth, and created a demographic framework for the continued aging of the population throughout the 20th century.

These population fluctuations directly influence the size and age composition of the labor force. These labor force changes may affect the performance of the economy. For example, one of the primary supply side causes of the present high rate of unemployment is the relatively large numbers of youths in the labor force. Population aging in the coming decades should moderate this situation. The changing age structure of the population and hence the labor force has implications for labor mobility, productivity, and aggregate support costs. In addition, the demographic changes may influence the rate and patterns of economic growth and the savings rate.

The size and composition of the dependent populations who typically are not in the labor force determines the demand for many social services. Programs that provide age-related benefits expand in response to growth in the eligible population. In the past, real benefits have been expanded rapidly and this increase has comprised much of the overall increase in the cost of transfer payments. As the future elderly population increases, the public policy debate will continue to focus on the adequacy of these benefits along with the ability and willingness of the working population to provide the tax revenues.

The interrelationship between economic and demographic factors is complex and works through a series of interactive mechanisms. This paper examines these mechanisms and their likely effects to the year 2000. Obviously, such projections contain potential sources for error including changing public policy assumptions. Throughout this discussion, we attempt to indicate the bias of alternative projections. Despite this reservation, the analysis that follows indicates the importance of considering demographic factors in economic planning and the need to employ long-run projections in the consideration of future public policy.

Population Changes

Changes in the size of the population and its age structure are the result of fluctuations in fertility, mortality and immigration. Recent trends in these demographic variables have reduced the rate of population growth and generated shifts in the population age distribution that can best be described as population aging. Current projections indicate that further aging is likely as the Nation approaches zero population growth. Population aging refers to an increase in the proportion of a population in the older age groups combined with a decline in relative number of youths and is reflected in an increase in the population's median age. The process of population aging is of economic significance because of its impact upon individual economic behavior and the ensuing macro-economic response. This section reviews the determinants of population growth and age structure changes and provides projections of further aging. Subsequent segments examine possible economic responses to population aging and future changes in public cost of transfers to economically dependent age groups.

TABLE 1.—ANNUAL MEASURES OF FERTILITY

Year	Total fertility rate [1]	Crude birth rate [2]	General fertility rate [3]
1976	1,760	14.7	65.7
1975	1,799	14.7	66.7
1974	1,857	14.9	68.4
1973	1,896	14.9	69.2
1972	2,022	15.6	73.4
1971	2,275	17.2	81.8
1970	2,480	18.2	87.9
1965	2,928	19.6	96.6
1960	3,654	23.8	118.0
1957	3,760	25.2	122.7
1955	3,574	24.9	118.3
1950	3,091	23.9	106.2

[1] The number of births that 1,000 women would have in their lifetimes if, at each age, they experienced the age-specific birth rates in existence in the specified calendar year. Thus, the estimated completed family size of a woman based on the 1976 fertility rates would be 1.76 children as compared to 3.76 in 1957.
[2] Births per 1,000 population.
[3] Births per 1,000 women 15 to 44 years of age.

Source: U.S. Bureau of Census, Current Population Reports, series P-25, No. 706, "Estimates of the Population of the United States and Components of Change: 1940 to 1976," U.S. Government Printing Office, Washington, D.C. 1977

Determinants of Demographic Fluctuations and Recent Trends

The size and age composition of a population is determined primarily by national fertility behavior, particularly in countries with the relatively low mortality characteristics of the industrialized countries. Several measures of population growth can be used to assess alternative patterns of fertility. The total fertility rate is the number of births that 1,000 women between the ages of 15 and 44 would expect to have in their lifetimes if, in each year of their lives they experienced the birthrates that were in existence during the specified calendar year. The natural increase of the population is defined as the difference between the number of births and deaths in the country.[5] Thus, a high fertility rate and hence a high rate of natural increase produces a growing population and a relatively high proportion of the population being in the lower age categories. Conversely, low rates of fertility imply a population with relatively more older persons. As shown below, projected low fertility rates over the next half century will generate further population aging and a low rate of population growth.

Age-specific mortality rates influence the age structure by determining the proportion of each cohort surviving to older ages. Reduced mortality does not necessarily imply population aging, for a decline in the mortality of the very young affects the age composition in a way similar to an increase in fertility. However, an increase in longevity only at higher ages raises the relative number of older persons. Population projections by the Census Bureau in 1977 estimate that life expectancy will continue to increase. Thus, continued improvements in health care will to some extent offset the effects on the size of the population as fertility declines. However, these declines in mortality will further exacerbate the aging of the population.

Immigration can temporarily modify the age composition of an immigrant-receiving country if the age structure of the immigrants differs from that of the native population. Nonsustained in-migration will have only a transitory effect on the age distribution of a population if the migration does not affect the prevailing patterns of fertility any mortality. Immigration will, of course, affect the size of the population but should have only limited influence on its age structure. Illegal and undetected immigration can cause significant errors in population estimates and result in serious underestimates of future population size.

Recent demographic changes in the United States are examined within this methodological framework. The postwar decline in fertility has dominated the population changes. However, significant advances have been made in health care reducing mortality rates and increasing life expectancy. In addition, shifts in the timing and rate of family formation may have important economic implications. Unforeseen and illegal flows of new immigrants can dramatically alter the population of certain regions. The remainder of this section outlines the changes in the size and composition of the population.

On January 1, 1979, the total population of the United States was 220 million representing a 1.7 million increase over 1978. The annual rate of population growth has fallen substantially since the immediate

[5] See table 1 for an illustration and discussion of the total fertility rate and two other measures of fertility behavior.

post-World War II years. The average annual rate of growth which was 1.71 percent in the 1950's and 1.26 in the 1960's declined to 0.84 from 1970 to 1976. The decline in the population growth during this period was due primarily to fertility reductions. The annual number of births peaked in 1957 at 4.3 million and declined almost continuously until leveling off at the 1973 level of 3.1 million.

The total fertility rate was 1,760 in 1976. Table 1 illustrates the dramatic declines in this and other indicators of fertility that have occurred since the mid-1950's. The total fertility rate has fallen by over 50 percent since 1957 and by 29 percent since 1970.[6] As a result, the total fertility rate is now well below the 2,100 necessary to sustain a zero growth rate of the population if it were maintained for many years. Despite the implied less than subreplacement level fertility, births continue to exceed deaths in the United States by more than 1 million per year because variations in past fertility have generated a relatively large cohort of women in the principal child-bearing years. Thus, in the short run, replacement level fertility does not necessarily produce a no growth population. Without positive net immigration, continued replacement fertility would eventually result in a stationary population.

Continued advancement in health care and personal health maintenance have produced mortality declines and increases in life expectancy The past 40 years, however, cannot be characterized as a period of continuous decline in age specific mortality. A generally rapid mortality decline occurred between 1940 and 1954 as life expectancy at birth rose from just under 64 years to approximately 70 years. Table 2 indicates that the decline was for both *males* and *females* and also for *both sexes* at age 65. Between 1954 and 1968, only minor reductions were recorded in death rates and life expectancy rose only slightly. Since 1968 the fall in the mortality rate has accelerated once again. In the ensuing 9 years, the average annual decline in the death rate for those aged 65 and over was 1.7 percent compared to a 1.5 percent decline during the 1940–54 period.[7]

TABLE 2.—LIFE EXPECTANCY AT BIRTH AND AT AGE 65

Year	At birth				At age 65			
	Both sexes	Male	Female	Difference	Both sexes	Male	Female	Difference
1900–02	49.2	47.9	50.7	2.8	11.9	11.5	12.2	0.7
1939–41	63.6	61.6	65.9	4.3	12.8	12.1	13.6	1.5
1954	69.6	66.7	72.7	5.0	14.4	13.1	15.7	2.6
1968	70.2	66.6	74.0	7.4	14.6	12.8	16.3	3.5
1976	72.8	69.0	76.7	7.7	16.0	13.7	18.0	4.3
2000	74.1	70.0	78.3	8.3	16.8	14.2	19.0	4.8
2020	75.0	70.7	79.4	8.7	17.2	14.5	19.8	5.3

Source: National Center for Health Statistics (U.S. Public Service), the U.S. Bureau of Census, "Advance Report—Final Mortality Statistics, 1976," Monthly Vital Statistics Report, vol. 26, No. 12, supplement (2), March 1978, and Jacob S. Siegel, "Recent and Prospective Demographic Trends for the Elderly Population and Some Implications for Health Care," presented to proceedings of the Second Conference on the Epidemiology of Aging, March 28–29, 1977.

[6] As noted earlier the total fertility rate is the number of births that 1,000 women would have in their lifetimes if, in each year of their life, they experienced the birth rates that were in existence during the specified calendar year. The total fertility rate may be viewed as an estimate of the completed family size of a cohort of 1,000 women. Thus, the estimated family size of a woman based on the 1976 fertility rates would be 1.76 children as compared to the 2.1 births necessary to maintain a constant population.

[7] Jacob S. Siegel, "Prospective Trends in the Size and Structure of the Elderly Population, Impact of Mortality Trends, and Some Implications," testimony before the Select Committee on Aging, U.S. House of Representatives, May 24, 1978. The infant death rate has also declined in recent years falling from 26 deaths per 1,000 to 20 per 1,000 in 1970 and further to 14.6 in 1978. For details, see Vital Statistics Report, Department of Health, Education, and Welfare Publication No. 78–1120, vol. 27, No. 2, May 18, 1978, and the Statistical Abstract of the United States, U.S. Department of Commerce, Bureau of Census, 99th edition, 1978.

Future mortality declines may influence the size and age composition of the elderly population. The increase in the very old population, for example those over 75 and over 85 years of age, could be significantly influenced by any biomedical revolution that some researchers foresee.[8] Another important observation is the increasing gap between the life expectancy of men and women. Table 2 illustrates that the 1976 life expectancy at birth of males was 69 years compared to 76.7 years for females with the majority of the differential remaining at age 65. These differences are shown to have increased during this century and the Census Bureau is projecting a modest continuation of the divergence between male and female death rates.[9]

Net legal civilian immigration into the United States which has been averaging less than 400,000 per year since the 1950's reached 347,000 in 1978. This represented approximately one-fifth of the net population change during the year. Immigration accounted for about one-sixth of population growth in the 1960's and one-tenth in the 1950's. The increase in the relative importance of legal immigration is due to the declining birth rate rather than any rise in absolute levels of immigration.

In recent years, illegal immigration has probably constituted a significant but unknown proportion of population growth. Over 700,000 illegal aliens were apprehended in 1974 and 1975; however, there are no certain estimates of the number who successfully integrated into the Nation's population. The continued existence of unlawful and unknown entrance into the United States produces underestimates of the current population and makes population projections even more uncertain. Certain geographical regions will be more affected by this inflow than others.[10]

In addition to the size and age structure changes, the population has undergone other important compositional changes that may have significant economic implications. Table 3 shows several important indicators of the rate of family formation. The age of first marriage declined from the turn of the century through the 1950's. The decline was from 25.9 years for men and 21.9 years for women in 1900 to 22.6 and 20.2 years, respectively, in 1955. The 1976 age of first marriage represents a rise of over 1 year for each sex. Paralleling this postponement of marriage has been the rise since 1960 in the proportion of population never married. Perhaps due to the same causal factors, the number of divorced persons has risen substantially in the past two decades.

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[8] Harold Sheppard and Sara Rix, *The Graying of Working America*, New York: The Free Press, 1977.

[9] Racial differences in fertility and mortality rates could alter the proportion of the population comprised by various minority groups. Our purpose is to outline the overall population shifts. Aggregate data of this type may mask significant compositional changes and these changes could have an important effect on the economy and government transfers.

[10] Illegal immigration is an important policy issue that directly affects future population estimates. We do not attempt to estimate future waves of illegal immigration as this is beyond the scope of this paper. The economic effect of such immigration depends on the age and skill levels of the immigrants and how they are assimilated into the population. The discussion of the following sections could be modified to include such an analysis.

TABLE 3.—INDICATORS OF THE RATE OF FAMILY FORMATION

Year	Median age at 1st marriage		Percent never married		Number of divorced persons per 1,000 married persons	
	Male	Female	Male	Female	Male	Female
1960	22.8	20.3	26.0	19.0	28	42
1970	23.2	20.8	28.1	22.1	35	60
1976	23.8	21.3	29.8	23.0	58	92

Source: U.S. Bureau of Census, Current Population Reports, series P–20, No. 306, "Marital Status and Living Arrangements: March 1976," U.S. Government Printing Office, Washington, D.C., 1976.

Population Projections and Future Age Structure Changes

Long-term population projections can be a hazardous undertaking as a review of the past studies indicates errors of considerable magnitudes.[11] Yet, long-range planning for many social policies necessitates such information. Forecasts for shorter periods are less subject to error and for many segments of the population can be very accurate. For example, virtually everyone who will be in the labor force in 1995 is already born, thus only a misjudgment of future mortality and migration will bias the estimates of those over 18 prior to 1995. In this paper, we concentrate on the anticipated population changes prior to 1995. As a result, alternative fertility assumptions will affect the size of the total population and of those 0–17 years of age but will not affect the size of other age cohorts.

Table 4 illustrates population projections using series II estimates of the Census Bureau which assume replacement level fertility, a net annual immigration of 400,000, and some mortality improvements. This represents the intermediate set of projections which is generally considered to be based on the most plausible set of assumptions. The population increases from 218.4 million in 1978 to 260.4 million in 2000. The aging of the population is indicated by the increase in the median age from 29.7 years in 1978 to 35.5 years in 2000, and the rise in the number and proportion of the population age 65 and over. While the ratio of those over 65 to those of prime working age (18–64) increases, the youth dependency ratio falls from 48.2 percent in 1978 to 43.2 percent in 2000. As a result, there is a slight rise in the proportion of the population in the prime working years, 18–64. The data presented in table 4 provide a framework for the discussion in subsequent sections relating the projected demographic changes to economic variables.

[11] The difficulty in projecting future population size and age structure is illustrated in a comparison of the 1975 and 1977 Census estimates employing similar fertility assumptions noted in Current Population Reports, Series P–25, No. 704, p. 4. The estimated population size in 2025 has been reduced by 4 million in the new projections with replacement level fertility; however, the predicted number over age 65 has been raised by 2.8 million. In the short term, assumptions about future fertility have been lowered slightly to reflect recent trends in annual fertility and in the birth expectations of young married women, even though the ultimate levels of completed cohort fertility remain the same. In addition, the assumptions concerning mortality have been revised to incorporate the recent decline in age-specific death rates at older ages. These modifications produce a shift in the proportion of the population age 65 and over in 2025 from 16.1 in the 1975 report to 17.2 in the 1977 projections.

TABLE 4.—POPULATION AND AGE STRUCTURE PROJECTIONS WITH REPLACEMENT LEVEL FERTILITY

	1978	1979	1980	1981	1983	1985	1990	1995	2000
Total	218.4	220.2	222.2	224.2	228.5	232.9	243.5	252.8	260.4
0 to 17	63.3	63.5	62.0	61.6	61.5	62.3	64.8	68.4	69.0
18 to 64	131.2	133.3	135.3	137.2	140.8	143.3	148.9	153.0	153.6
65 and over	23.9	24.4	24.9	25.4	26.2	27.3	29.8	31.4	31.8
18 to 24	29.0	29.3	29.5	29.1	29.0	27.8	25.1	23.2	24.7
18 to 64 total	60.1	60.5	60.9	61.2	61.6	61.5	60.7	60.5	61.3
0 to 17/18 to 64	48.2	46.9	45.8	44.9	43.7	43.5	43.5	44.7	43.2
65+/18 to 64	18.2	18.3	18.4	18.5	18.6	19.1	20.0	20.5	19.9
18 to 24/18 to 64	22.1	22.0	21.8	21.2	20.6	19.4	16.9	15.2	15.4
Median age	29.7	30.0	30.2	30.4	31.0	31.5	32.8	34.2	35.5

Source: U.S. Bureau of the Census, Current Population Reports, Series P–25, No. 704, "Projections of the Population of the United States: 1977 to 2050," U.S. Government Printing Office, Washington, D.C., 1977.

At the present time, it appears that the fertility assumption employed in series II may be too high [12] and the expected declines in mortality are too low. Lower fertility would reduce the size of the population and of the cohort 0–17 years of age. Further mortality declines will increase the older population above that shown in table 4. In addition, these population projections assume that a specified fertility rate is attained and then maintained over the forecasting period. A more likely occurrence is that fertility will tend to oscillate around a particular rate, perhaps in response to economic conditions. Such variations in fertility or past irregularities in the age structure give rise to fluctuations in the annual number of births thus producing short-term age structure changes. If mortality is invariant and the fertility rate were to remain constant, these abnormal bulges would be smoothed into a stable population distribution.

Much of the discussion concerning the economic impact of alternative age structures and rates of population growth focuses on the dependency ratios of a population. Dependency ratios are a convenient method of comparing the productive potential of an economy and indicate the number of youths and the elderly per worker in the economy. A higher proportion of the population in the prime working ages is thought to indicate the capacity for increased output per capita and a reduced need to transfer resources to the dependent populations. Table 5 indicates that for the rest of this century the total dependency ratio will be below its 1976 level as the decline in the youth ratio is more than sufficient to offset the rise in the old age dependency ratio.

TABLE 5.—PROJECTED DEPENDENCY RATIOS ASSUMING REPLACEMENT LEVEL FERTILITY [1]

[In percent]

Year	Youth dependency ratio (0–17/18–64)	Old age dependency ratio (65 and over/18–64)	Total dependency ratio [2]
1976	51.3	18.1	69.4
1985	43.5	19.1	62.6
2000	43.2	19.9	63.1
2010	39.2	20.2	59.4
2015	39.8	22.7	62.5
2025	42.1	29.6	71.7
2050	41.7	30.2	71.9

[1] These dependency ratios are derived from series II of the 1977 Bureau of Census projections. (See table 4.)
[2] The total dependency ratio is found by adding cols. 1 and 2 and represents the ratio of all dependent groups to the population 18–64.

[12] Fertility may rise should economic conditions improve and the rate of increase of real wage rates accelerate. Indeed, in 1976 U.S. wives 18–24 years old reported that they expected slightly more than 2.1 children per wife.

Reliance on this single indicator to capture the econmic significance of age structure changes can, however, produce misleading or erroneous conclusions.[13] The total dependency ratio masks rather significant changes that occur in the youth dependency ratio and the elderly ratio. Over the next 20 years, there will be a continuing decline in the ralative number of youths in conjunction with a rise in the proportion of the elderly. Previous work has indicated that government transfers to per elderly dependent are approximately three times as great as the per youth transfer.[14] Thus, the total claims on public resources are not independent of the composition of the dependent population.

The anticipated population aging will also raise the proportion of the elderly population in the oldest ages. For example, the proportion of the 65 and over population that is aged 75 and over is projected to increase from 38 percent in 1976 to 45 percent in 2000. Unforeseen mortality declines would further increase this ratio. To the extent that older people require greater resources, the rise in this ratio will further exacerbate the support burden on the working population. The greater longevity of females results in a large number of elderly widows who are typically among the poorest of the aged. The continued growth in the gap between male and female life expectancies increases the likelihood for additional public resources to be devoted to these elderly widows.

Responsiveness of the Labor Force to Demographic Variables

The size and age composition of the labor force are directly influenced by economic and personal characteristics that affect individual work decisions and by the age structure of the population. The significant increase in the number of births in the late 1940's and 1950's has produced an important shift in the age distribution of the population and the labor force. The impact of these age structure changes upon the labor force will continue into the future as these post war cohorts age. The first part of this section reviews the historical pattern of demographic fluctuations and their correlation with swings in economic growth. The next part is concerned with projections of population and labor force growth.

Demographic and Economic Interaction

Throughout most of the history of the United States, migration has been the main factor that produced the swings in the rate of population and labor force growth. The tightening of immigration restrictions in the early part of this century however, reduced the importance of legal migration in determining fluctuations in population growth. The rate of immigration has exhibited only minor changes since the 1930's. Thus, shifts in the birth rate and age specific labor force participation rates have become the dominant factors governing population and labor force changes. The 1960's marked the beginning of an expansion in the labor force accompanied by a continued decline in the rate of population growth. To understand such developments

[13] Robert Clark and Joseph Spengler, "Dependency Ratios: Their Use in Economic Analysis," in Julian Simon and Julie daVanzo (eds.), "Research in Population Economics," Vol. II, Greenwich, Conn.: JAI Press, Greenwich, Conn., forthcoming.

[14] Robert Clark and Joseph Spengler, "Changing Demography and Dependency Costs," in Barbara Herzog (ed.), "Income and Aging," New York: Human Science Press, 1978.

and their implication, the sequence of economic-demographic interactions must be viewed in conjunction with past historical trends.[15]

Fluctuations in national and regional economic conditions influence demographic movements through their impact on the labor market. Periods of economic prosperity are characterized by rising real wages and low unemployment rates that make relocation to such an area a relatively more attractive alternative. Conversely, recessionary periods tend to reduce the desire of potential immigrants to move to a region where they may encounter greater difficulties in obtaining employment. A considerable body of economic research confirms the responsiveness of migration decisions to employment opportunities and available wages.

Population growth stimulates economic activity through increased consumption expenditures and new household formations. However, the nature of these induced demographic responses varies according to existing labor supply conditions and immigration constraints under which the changes occurred. Prior to World War I, much of the demographic response to economic change was in the form of swings in the rate of immigration into the United States. Subsequent restrictions on immigration have reduced the responsiveness of this form of population and labor force growth. The major upswing in the growth of aggregated demand starting with World War II provides an illustration of economic-demographic interactions in an era of restrictions on legal immigration and the importance of underlying labor market conditions.

The economic growth associated with World War II created a strong demand for labor. A prolonged fall in the fertility rate, however, reduced the ratio of new labor force entrants to the total labor force. The result was a relatively high level of demand for labor and a tight labor market for the younger worker as evidenced in the rapid increase in their relative well-being. The rise in living standards influenced the increase in the rate of new household formations as workers married and began families at an earlier age.[16] Thus, it can be argued that economic expansion induced an increase in the rate of population growth by raising the fertility rate. The tightness of the labor market also encouraged the entry of new workers into the labor force as the increase in the proportion of females in the labor force accelerated.

The underlying age structure of the population and the labor force were prominent factors in the interaction of demographic and economic factors after World War II. However, the sustained economic growth of the 1960's did not induce a continued high rate of fertility and with immigration limited, the growth rate of the population declined. The reduced impact of economic stimulus on population growth reflected a vastly different labor market and population age structure. The baby boom of the 1940's and early 1950's created a large increase in the number of youths entering the labor force.[17] The

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[15] R. A. Easterlin, "Population, Labor Force, and Long Swings in Economic Growth," New York 1968, chs. I-IV, provides a detailed discussion of this evidence.

[16] This pattern is representative of the relative income hypothesis. As this group of workers matured, the following generations' expectations about relative incomes and living standards were based on the rapid growth of the preceding cohorts' relative well-being. The comparison cohort for these workers were individuals who were entering the labor force during the depression years of the 1930's.

[17] Throughout this paper, individuals born from the late 1940's through the early 1960's will be described as the baby boom cohort.

large cohort of younger workers weakened their labor market position as youth unemployment rates began to increase and relative incomes declined. Thus, the advantages experienced by younger workers in the 1940's did not continue into the 1970's. The decline in the relative income position of the younger workers contributed to a deferment of marriage, household formation and reduced fertility. (tables 1 and 3.)

The cohort size effect is not the only factor that influences the fertility experience of a cohort. For example, recent studies on the micro-economics of fertility indicate that rising real wages of females have altered the desired number of children and the timing of births. Families may also be choosing to invest more in each child but to have fewer children. Thus, it seems more realistic to consider fertility, labor force participation, and the allocation of other family resources as decisions that are made simultaneously by individual families. The size of one's cohort will influence the framework within which these decisions are made; however, it will not be the only factor affecting family decisions.

The post-1940 events point out the importance attached to the age structure of the population and its relationship to economic growth. When the dominant factors increasing the size of the potential labor force are the result of past births, then the impact of demographics upon economic growth becomes dependent on the timing of the population cycle. Formerly centered around migration swings, labor force fluctuations tended to be in response to economic changes. When the number of potential workers is governed primarily by past fertility patterns, the economic influence on the size of the labor force is limited to its impact on the age specific participation rates. Thus, swings in labor supply may occur independently of aggregate demand conditions and can serve to exacerbate unemployment conditions rather than moderate them. As a result, current labor force growth may lead, instead of lag, behind economic fluctuations.

The emergence of the natural-increase population cycle as an explanation for present demographic changes suggests some important implications for future labor force growth. Concomitant with population aging, the ratio of youths 18–24 to those 18–64 declines from its high 22.1 percent in 1978 to 15.4 percent in 2000 assuming replacement level fertility (table 4). An application of the previous argument suggests that the relative well-being of youths will rise and this will stimulate a new baby boom.[18] While it appears likely that fertility patterns will continue to fluctuate, available evidence does not indicate an imminent surge in the birth rate. As noted earlier, however, a significant upward movement will be required to achieve the replacement level fertility used to achieve the intermediate set of census projections. One moderating influence of the relationship of fertility with the relative income position of young cohorts is the increasing career orientation of women and the relationship between a wife's wage and the cost of childbearing. Fertility decisions are determined in part by both price and income effects of increasing family size. Higher wages and greater labor force attachment of women tend to reduce fertility during periods of tight labor markets. Thus, women

[18] Richard Easterlin, Michael Wachter, and Susan Wachter, "Demographic Influences on Economic Stability," *Population and Development Review*, March 1978, pp. 1–22.

may attempt to plan childbearing with respect to present and expected future labor market opportunities.[19]

Labor Force Growth and Composition

The U.S. work force has grown rapidly since World War II; however, the labor supply experience among specific age/sex groups has been quite diverse. This growth can be described in terms of autonomous and induced components of labor force changes.[20] The autonomous component reflects age and mortality changes that shape the natural increase of the working-age population in a given period. The induced component is seen as adjustments through migration and participation rate changes in response to changing economic conditions.

The contribution of the autonomous component to labor force growth is largely predetermined by previous demographic developments and is represented by alternative sizes of the working age population over time. The entry of the baby boom cohort of the 1940s and 1950s into the labor force is representative of such an autonomous shift. Reinforcing the autonomous increase in the labor force has been the induced shift in the labor force participation of certain groups, especially married women.[21]

TABLE 6.—CIVILIAN LABOR FORCE PARTICIPATION RATES, INTERMEDIATE GROWTH ASSUMPTIONS

[High and low assumptions are in parentheses]

	Actual rates		Projected rates	
	1970	1977	1985	1990
Total, age 16 and over	60.4	62.3	65.3 (67.7–63.0)	66.2 (69.7–63.0)
Men:				
16 and over	79.7	77.7	77.0 (79.4–74.9)	76.4 (80.0–73.3)
16 to 24	69.4	74.1	76.4 (78.9–74.4)	76.1 (81.0–73.3)
25 to 54	95.8	94.2	93.5 (95.1–92.2)	93.1 (95.6–91.1)
55 to 64	83.0	74.0	68.1 (73.5–64.1)	65.0 (73.3–59.0)
65 and over	26.8	20.1	16.7 (19.7–11.9)	15.0 (18.1–9.4)
Women:				
16 and over	43.3	48.4	54.8 (57.1–52.4)	57.1 (60.4–53.8)
16 to 24	51.3	59.6	69.8 (73.2–66.2)	72.8 (78.2–67.3)
25 to 54	50.1	58.4	68.5 (70.9–65.9)	72.4 (76.1–69.0)
55 to 64	43.0	41.0	40.2 (41.5–38.1)	39.8 (41.8–36.6)
65 and over	9.7	8.1	6.8 (7.8–5.9)	6.2 (7.2–4.8)

Source: Paul Flaim and Howard Fullerton, "Labor Force Projections to 1990: Three Possible Paths," Monthly Labor Review, December 1978, p. 28.

Fluctuations in the autonomous component of the labor force create nonuniform growth among specific age/sex groups while secular trends in labor force participation rates also increase the importance of particular groups. Table 4 indicated current projections of future population shifts. When the population changes are combined with forecasts of trends in participation rates (see table 6), projections of the size and composition of the labor force are produced.

[19] Larry Neal, "Is Secular Stagnation Just Around the Corner?", in Thomas Espenshade and William Serow (eds.), *The Economic Consequences of Slowing Population Growth*, New York: Academic Press, 1978.

[20] For a more complete discussion of this concept see Easterlin, *op. cit.*, Chapter III.

[21] The increase in female participation is due to a secular decline in the fertility rate, shorter work week, increased education, increased wage offers, and greater availability of subsidized child care. For documentation of this significant rise in female participation, see Juanita Kreps and Robert Clark, *Sex, Age and Work*, Baltimore: The Johns Hopkins University Press, 1975; Glen Cain, *Married Women in the Labor Force*, Chicago: University of Chicago Press, 1966; and Valerie Oppenheimer, *The Female Labor Force in the United States*, Berkeley: Institute of International Studies, University of California, 1969.

The most recent projections by the Bureau of Labor Statistics of the trend of participation rates indicate the likelihood of a further rise in the proportion of females 15–64 in the labor force. The intermediate growth assumptions predicate that by 1990 almost three-quarters of all women 16–54 will be in the labor force.[22] This represents a continuation of a trend that has resulted in a 15-percentage point increase in the participation rate of women 20–34 in the past 10 years. During the same period, rates for teenage females and women 35–44 rose by 10 percentage points.

Substantial further decline is anticipated in the work rates of older men. The tendency of males 65 and over to leave the labor force has been one of the most prominent labor supply trends in the post war period. Participation has dropped from 46.8 percent in 1948 to 20.1 percent in 1977. The projections indicate a fall to 15 percent by 1990. The question of labor supply of older workers is reviewed in greater detail later in this report.

TABLE 7.—CIVILIAN LABOR FORCE, INTERMEDIATE GROWTH ASSUMPTIONS

[In millions]

	Actual labor force		Projected labor force	
	1970	1977	1985	1990
Total, age 16 and over	82.7	97.4	113.0	119.4
Men:				
16 and over	51.2	54.4	63.0	65.1
16 to 24	9.7	12.9	12.5	11.2
25 to 54	32.2	35.7	41.8	45.8
55 to 64	7.1	7.0	7.0	6.4
65 and over	2.2	1.8	1.8	1.7
Women:				
16 and over	31.5	40.0	49.9	54.3
16 to 24	8.1	10.8	11.9	11.2
25 to 54	18.2	23.7	32.4	37.7
55 to 64	4.2	4.4	4.5	4.3
65 and over	1.1	1.1	1.0	1.0

Source: Paul Flaim and Howard Fullerton, "Labor Force Projections to 1990: Three Possible Paths," Monthly Labor Review, December 1978, pp. 25–35.

The population changes and participation rate shifts will increase the size of the labor force from 97.4 million in 1977 to 119.4 million in 1990. Tables 7 and 8 indicate the age and sex composition of the labor force based on the forecasted autonomous and induced changes in the Nation's labor force. Employing these projections in conjunction with actual labor force data from 1960–75, table 9 clearly indicates how fluctuations in cohort size can create nonuniform growth among specific age/sex groups in the labor force. The effects of alternative cohort size can be illustrated by following a diagonal pattern in table 9. For example, the experience of the baby boom cohort can be traced by examing first the growth in the youngest age groups between 1960 and 1965 and 1970. As the cohort ages, the corresponding age group of the labor force reflects a high rate of growth. Throughout its worklife, this cohort will have a significant influence on the age composition of the labor force.

Within this framework of compositional changes in the labor force, the rate of growth of the total labor force will, however, begin to slow

[22] Paul Flaim and Howard Fullerton, "Labor Force Projections to 1990: Three Possible Paths," Monthly Labor Review, December 1978, pp. 25–35.

From an estimated annual growth rate of over two percent between 1973–1980, the annual rate of change in the total labor force is projected to be 1.6 percent in the first half of the 1980s and 1.1 percent from 1985 to 1990.[23] Underlying this slowdown is the reduced number of younger workers reaching working age in the 1980's due to the sharp decline of the birthrate that began in the early 1960's.

TABLE 8.—DISTRIBUTION OF LABOR FORCE, INTERMEDIATE GROWTH ASSUMPTIONS

[In percent]

	Actual distribution		Projected distribution	
	1970	1977	1985	1990
Total:				
16 and over	100.0	100.0	100.0	100.0
16 to 24	21.5	24.3	21.6	18.7
25 to 54	60.9	61.0	65.7	70.0
55 to 64	13.8	11.7	10.2	8.9
65 and over	3.9	3.0	2.5	2.4
Men:				
16 and over	61.9	59.0	55.8	54.6
16 to 24	11.7	13.2	11.0	9.3
25 to 54	38.9	36.7	37.0	38.4
55 to 64	8.6	7.2	6.2	5.3
65 and over	2.6	1.9	1.6	1.5
Women:				
16 and over	38.1	41.0	44.2	45.5
16 to 24	9.8	11.1	10.6	9.4
25 to 54	22.0	24.3	28.7	31.6
55 to 64	5.0	4.5	4.0	3.6
65 and over	1.3	1.1	.9	.9

Source: Paul Flaim and Howard Fullerton, "Labor Force Projections to 1990: Three Possible Paths," Monthly Labor Review, December 1978, pp. 25–35.

TABLE 9.—PERCENT CHANGE IN THE CIVILIAN LABOR FORCE BY AGE AND SEX, 5-YEAR INTERVALS

	Actual			Projected (intermediate growth)				
	1960–65	1965–70	1970–75	1975–80	1980–85	1985–90	1990–95	1995–2000
Males:								
16 to 19	21.9	17.9	18.8	5.5	−12.9	−4.0	−8.3	13.1
20 to 24	18.7	16.7	29.6	9.4	−2.0	−14.0	−8.0	−8.7
25 to 34	−3.4	14.2	22.5	17.6	10.0	2.6	−7.3	−10.3
35 to 44	1.4	−5.9	−1.7	12.8	22.5	16.7	3.2	1.8
45 to 54	4.9	3.7	.1	−5.4	−1.7	12.1	16.1	15.8
55 to 64	5.7	5.3	−2.0	2.0	−2.4	−8.2	−6.8	13.7
65 and over	−6.8	1.6	−12.0	4.3	−3.2	−1.9	−4.5	−5.1
Females:								
16 to 19	22.3	28.9	24.7	11.1	−6.6	−1.3	−9.0	10.4
20 to 24	30.5	44.8	24.5	19.7	6.5	−8.5	−6.8	−7.9
25 to 34	4.8	31.6	48.4	31.0	31.8	10.0	−6.3	−9.6
35 to 44	7.9	4.3	8.8	28.1	33.2	24.7	13.4	3.6
45 to 54	8.2	14.4	2.1	−.7	2.2	16.1	23.5	16.5
55 to 64	20.1	15.8	2.2	6.5	.4	5.8	.1	14.8
65 and over	7.5	8.2	−2.2	2.5	−1.5	0	4.0	14.2

Source: C. T. Bowman, "The Labor Force, Employment and Economic Growth," report prepared for the Joint Economic Committee, 1976; Paul Flaim and Howard Fullerton, "Labor Force Projections to 1990: Three Possible Paths," Monthly Labor Review, December 1978, pp. 25–35; and unpublished BLS data.

The slowdown in labor force growth will be most prominent in the youth labor force, age 16 to 24. (See table 9.) Already growing at a slower pace, the youth labor force is projected to decline from 25.0 million in 1980 to 22.4 million in 1990 and then to 20.4 million in 2000.

[23] Norman Saunders, "The U.S. Economy to 1990: Two Projections for Growth," Monthly Labor Review, December 1978, p. 44.

This decline will reduce the youth percentage of the labor force from 24.3 percent in 1977 to only 18.7 percent in 1990 and to 16.3 percent in 2000. One spillover effect of the current large teenage population will be a temporary surge in the labor force group age 20 to 24 through the mid 1980's. Women in this age group are expected to have the greatest growth, increasing by about 1 million.

The prime age labor force, age 25 to 54, should grow rapidly over the next 15 years. This is due to the movement of persons born in the period following World War II entering this age group. Second, participation by women is expected to continue to increase. These two factors should increase the proportion of prime age workers from 61 percent of the work force in 1977 to 70 percent in 1990. Dissecting this projected increase, table 8 notes that prime age women are expected to increase from 24.3 to 31.6 percent of the labor force. Women age 25–54 should account for almost two-thirds of the total labor force growth between 1977 and 1990. It should be noted that virtually all past estimates of the growth of the female labor force have understated the eventual magnitude of the increase in female labor force participation.

The older labor force, 55 years and over, is anticipated to decline from 14.7 percent in 1977 to 11.3 percent of the labor force in 1990. The number of older workers is projected to remain fairly constant in the first half of the 1980's, and then decline in the late 1980's. Participation rates of older men are expected to decline from 47.5 percent in 1977 to 38 percent in 1990 and from 22.9 to 19.3 for women. Much of this decline is attributable to the continuing sharp decline in the labor force participation rate for men aged 65 and over. The participation rate for these men declined from 47.8 percent in 1947 to 20.1 percent in 1977. The decline is due in large measure to the growth in the Nation's public and private pension system along with a rise in real income. More recently, the market activity rate of males 60–64 has also begun to decline. This decline may be traced in part to the payment of early retirement benefits through social security that was initiated in the early 1960's. As a result of the declining incidence of market work, the over 65 labor force in 1990 is projected to be 13.4 million or less than the 1977 level of 14.3 million despite the increasing size of the elderly cohorts. However, the decline in the number and participation of older workers may change as the baby boom cohorts reach this age group. (See section on Retirement Behavior).

In reference to the aging of the work force, the entry of the post war birth cohorts will make the overall work force younger over the next 15–20 years. As the 16–24 age group in 1975 matures, the median age of the labor force will fall from 36 years to 34.9 years in 1980. Even with the decline in the youth labor force after 1980, the median age will only increase to 36.5 years in 1990. Not until 2000 will the median age begin to increase rapidly. This is because the majority of the baby boom cohorts will still be in their thirties in 1990.

To isolate the impact of age structure changes, the projected growth of the labor force can be analyzed by components-of-change analysis. In this procedure, changes in the size of the labor force are divided into factors that cause fluctuations in the labor force—mortality, age structure, net migration and participation rate changes. Table 10 presents labor force growth projected by component analysis for 1965

through 1990. It is apparent that the most significant component reflects the aging and mortality changes of the labor force. The variance of these components reflects the movement of the baby boom cohorts through the work force and the declining fertility patterns of the 1960's.

This analysis may present a somewhat misleading impression in terms of the participation rate change component. The relatively small changes projected conceal the magnitude of the underlying changes in specific age/sex groups. The projected participation rate change basically reflects shifts in the population size. If this component is disaggregated into group-specific participation rate changes and population shifts, one finds a dramatic increase in labor force participation especially by young females (table 6).

TABLE 10.—LABOR FORCE GROWTH BY COMPONENTS OF CHANGE[1]

[Percent per decade]

5-year intervals	Aging and mortality	Net migration	Participation rate change
1965–70	13.1	1.8	2.9
1970–75	12.3	1.2	1.8
1975–80	10.7	1.1	2.1
1980–85	8.2	.97	1.6
1985–90	5.9	.92	.7

[1] The procedure used to calculate these figures comes from R. A. Easterlin, "Population, Labor Force, and Long Swings in Economic Growth," National Bureau of Economic Research, 1961, appendix tables A–3, E–3, and B–7. Revised data were drawn from Fullerton and Flaim, "New Labor Force Projections to 1990," Monthly Labor Review, December 1976.

Implications of Age Structure Changes

The projected shifts in the age composition of the labor force may influence the Nation's economic environment through a variety of mechanisms. In the discussion that follows, we examine several likely economic responses to fluctuations in the demographic characteristics of the work force. Some topics have been the focus of considerable research while other have received less rigorous evaluation.

Labor Mobility

Labor force mobility is essential to the optimal allocation of human resources and to the efficient operation of the national economy. The free movement of workers across industries and regions is necessary if the economy is to be able to respond appropriately to shifts in technology and consumer demand. Population and labor force aging may alter the incentives and ability of the work force to respond to economic fluctuations.

Geographical and occupational mobility decline with age due to the increased cost of the move to the individual and the decline in the remaining working years to receive the benefits from the job change. Thus when viewed as an investment in future well-being, migration and mobility decisions vary inversely with age. The decline in the proportion of the labor force with a greater tendency for mobility may retard the ability of the economy to respond to economic fluctuations. Such a finding raises the spector of higher structural unemploy-

ment in an older population. There is, however, little systematic evidence to support this hypothesis.

Upward mobility or promotional prospects can also be expected to be affected by slowing population growth. The constraint imposed by aging upon vertical mobility is primarily a function of the absence of population growth. As a result, the typical triangular population pyramid is replaced by a comparatively cylindrical structure. Models have been designed to show how the opportunity of a representative individual to move upward through the social hierarchy is associated with life expectancy, the rate of population growth and the corresponding age structure. Population aging decreases the promotional prospects of younger workers as the presence of increased numbers of older workers decrease the advancement opportunity for the young. Early retirement tends to moderate this effect on the advancement prospects of the young worker.[24] Since the supply of young workers relative to the entry level jobs declines even as the relative supply of older workers to the high-status jobs increases, the age-earnings profile may become less steeply sloped. A final point to note is that members of the baby boom cohort will face high levels of job competition from their peers throughout their worklives. Depending on their retirement patterns, this competition could intensify as the cohort ages and its members are bidding for promotions to higher ranking jobs.

Demographic Impact on Unemployment

Levels and patterns of unemployment in the national economy depend on supply and demand conditions in the relevant labor market. Unemployment rates are influenced by economic policy and fluctuations in demand for output in the various sectors of the economy. Thus, projections of future unemployment rates depend on the many assumptions that one must make concerning public policy and economic growth. In this report the concentration is on the effect of demographic shifts on the measured unemployment rate. This demographic influence works mainly through the changing size of various age cohorts and their different unemployment experiences. In addition, the size of any cohort may affect the unemployment position of its members. Thus, by altering the weights of various cohorts and by allowing the labor market experience of the cohort to vary with its size, the demographic effect on the total unemployment rate can be estimated.

At any time there are considerable differences in the unemployment rates for age, sex and race groups in the population. As a result, changes in the weights of the different groups may significantly affect the aggregate unemployment rates. Table II illustrates the rise in the unemployment rates in the United States during the last decade and the considerable diversity of the rates by age and sex. The unemployment rate is highest for new entrants and then declines steadily until it reaches the oldest group. For most years, the unemployment rate for teenagers is over four times that of middle age workers. Therefore, the rise in the number of teenagers in the labor force over the last

[24] In a research project funded by the Administration on Aging, Robert Clark, Steven Cantrell and David Baker illustrated the sensitivity or promotional prospects to shifts in mortality, fertility, and age of retirement.

15 years would be expected to adversely shift the aggregate unemployment rate.

Several methodologies have been employed in efforts to estimate the demographic component of the rise in unemployment rates.[25] One approach adopted by Michael Wachter is to construct age specific unemployment rates from regression analysis that are consistent with "noninflationary" or "full employment." [26] This allows the size of various cohorts and other labor market changes to shift the age-sex specific rates. Shifts in these rates in the past two decades are shown in table 12. These rates are aggregated to produce the overall unemployment rate that would prevail at full employment at any point. Wachter estimates that his concept of the noninflationary rate of unemployment has risen from 4.0 percent in 1956 to 5.5 percent in 1975.

TABLE 11.—UNEMPLOYMENT RATES FOR THE CIVILIAN LABOR FORCE, BY SELECTED CHARACTERISTICS, 1967–77

Characteristics	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Total civilian labor force	3.8	3.6	3.5	4.9	5.9	5.6	4.9	5.6	8.5	7.7	7.0
Male	3.1	2.9	2.8	4.4	5.3	4.9	4.1	4.8	7.9	7.9	6.2
Female	5.2	4.8	4.7	5.9	6.9	6.6	6.0	6.7	9.3	8.6	8.2
Age groups:											
16 and 17	14.7	14.7	14.5	17.1	18.7	18.5	17.3	18.5	21.4	21.1	19.9
18 and 19	11.6	11.2	10.5	13.8	15.5	14.6	12.4	13.3	18.9	17.4	16.2
20 to 24	5.7	5.8	5.7	8.2	9.9	9.3	7.8	9.1	13.6	12.0	10.9
25 to 34	3.2	2.8	2.8	4.2	5.3	4.6	4.2	4.8	7.8	7.1	6.4
35 to 44	2.5	2.2	2.2	3.1	3.9	3.5	2.7	3.3	5.6	4.9	4.4
45 to 54	2.4	1.9	1.9	2.8	3.4	3.0	2.5	2.9	5.2	4.5	4.0
55 to 64	2.4	2.0	1.9	2.7	3.3	3.2	2.6	2.8	4.6	4.5	3.9
65 and over	2.8	2.8	2.2	3.2	3.5	3.6	3.0	3.4	5.2	5.1	5.1

Source: U.S. Department of Labor, "Employment and Training Report of the President," Washington, D.C., U.S. Government Printing Office, 1978, p. 212.

TABLE 12.—NONINFLATIONARY RATE OF UNEMPLOYMENT 1955, 1956, AND 1975: 14 AGE-SEX GROUPS

	1955	1965	1975
Males:			
16 to 19	10.7	13.7	15.7
20 to 24	6.3	7.5	8.2
25 to 34	3.0	3.4	3.6
35 to 44	2.7	2.6	2.6
45 to 54	3.0	2.7	2.5
55 to 64	3.6	3.1	2.9
65 and over	3.6	3.6	3.6
Females:			
16 to 19	9.7	13.9	16.9
20 to 24	5.6	7.6	9.0
25 to 34	4.8	5.7	6.3
35 to 44	3.8	4.4	4.7
45 to 54	3.3	3.5	3.7
55 to 64	3.3	3.2	3.1
65 and over	2.4	3.5	3.5

Source: Michael Wachter, "The Demographic Impact on Unemployment: Past Experience and the Outlook for the Future," "Demographic Trends and Full Employment" special report 12, Washington, D.C., National Commission for Manpower Policy, 1976, p. 51.

[25] For a discussion of these alternative approaches, see Joseph Antos, Wesley Mellow, and Jack Triplett, "What Is a Current Equivalent to Unemployment Rates of the Past?" Monthly Labor Review, March 1979, pp. 36–46.

[26] Michael Wachter, "The Demographic Impact on Unemployment: Past Experience and the Outlook for the Future," *Demographic Trends and Full Employment*, Special Report 12, Washington, D.C.: National Commission for Manpower Policy, 1976, pp. 27–99.

The labor force share of younger workers increased from 16.6 percent in 1960 to 24 percent in 1977 and this has been a factor in the rise in the unemployment rate. As shown in table II, younger workers have relatively high unemployment rates due to their lack of job specific training and permanent attachment to particular employment. As a result, their rates of voluntary and involuntary turnover typically exceed those of older workers. The combination of the growth of these groups and the increase in their unemployment rates have raised the aggregate unemployment rate in the economy.

Changing cohort size has not been the only factor influencing the age specific unemployment rates. In part, the increase in the age specific unemployment rates is a response to governmental policies that have decreased the ability of wages to adjust to economic fluctuations and have reduced the cost of remaining unemployed. The effects of minimum wage policy have been to foreclose many job opportunities traditionally sought by younger workers and females. The expansion in total welfare payments relative to market wages over the past 10 years has lowered the relative cost of not working. Expansion and liberalization of the unemployment insurance system have also increased the duration of period of unemployment.

An alternative methodology to the Wachter approach is to calculate weighted unemployment rates which illustrate the effects of shifts in the age composition of the labor force and the influence of cohort size on participation and age specific unemployment rates. Paul Flaim finds that if the composition of the labor force is fixed at 1957 levels and actual age specific unemployment rates applied to this work force, the overall unemployment rate would have been 6.0 percent in 1977 instead of its actual rate of 7.03 percent.[27]

Future trends in the age structure of the labor force will tend to reduce the upward pressure on the aggregate unemployment rate. The demographic effect due to the decline in the youth population and the growth of the labor force in the prime working-low unemployment ages of 35 to 54 will lower the future unemployment rate. Flaim concludes that during the next two or three years the existing upward pressure on the unemployment rate from population and participation rate changes will decline to zero. "By the early 1980's, the youth population will begin . . . to exert considerable downward pressure on the unemployment rate . . . and should produce about a 0.4-percentage point decline in the overall unemployment rate between now (1979) and 1990." [28] A reduction in the size of the teenage proportion of the labor force may lower the relative unemployment experience of youths and further reduce the total unemployment rate. In general, population aging is conducive to a decline in the overall unemployment rate.

This age composition effect should outweigh any increases in youth participation that would adversely affect the unemployment rate. This optimistic forecast may be an overestimate if the baby boom cohort has permanently higher lifetime unemployment rates. As this large cohort ages, its members may continue to have more unstable employment patterns even in their later years. Throughout their lives,

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[27] Paul Flaim, "The Effect of Demographic Changes on the Nation's Unemployment Rate," Monthly Labor Review, March 1979, pp. 13-23. Flaim attempts to divide this into a pure compositional effect and the interactive effect of the age-sex specific shares of the labor force and the age-sex specific unemployment effect. Also see Antos, et al., op. cit.

[28] Ibid., p. 17.

individuals in this cohort will be competing with a large number of fellow workers of equal age and experience in the labor market. As a result, the anticipated decline in the unemployment rate may be moderated.

Labor Productivity

Individual productivity varies over the life cycle as workers acquire new skills and learn from experience. In addition, knowledge and physical capacity depreciate with time and changing health status. Age specific differences in productivity create a framework within which the total labor force productivity of a nation may be influenced by population aging. If older workers are less productive,[29] then any rise in the percentage of those of working age (note the change in the ratio 55–64/18–64 in table 4) may lower the average rate of productivity. This should be counterbalanced by the decline in those with relatively little job experience, i.e., the ratio 18–24/18–64. The aging of the labor force may not affect productivity as much in the future as in the past if conditions associated with productivity decline, are reduced or averted. This suggests that jobs may be redesigned in line with the changing capabilities of older workers.

Slowing population growth also will lower the rate of introduction of young workers and, therefore, slow the rate of increase of human capital. This should be offset by the increased amount of capital—both human and physical—per worker. (See section on Savings below.) William Serow has examined the effects of age and capital endowments on labor productivity through the remainder of this century.[30] He concludes that lower rates of fertility will increase productivity due to a more favorable age structure and an increased capital-labor ratio.

In summary, there is little actual evidence indicatiing that an aging labor force will adversely affect productivity. The direction and magnitude of this effect will depend on the opportunities and desirability of continued investment in skill acquisition throughout work life.

Retirement Behavior

Retirement has become a distinct period in the life of most Americans only over the last half century. Today retirement is one of the most important individual decisions which also has significant implications for the economy. Population aging in the United States will further increase the importance of retirement behavior. Retirement has an obvious and important influence on expenditures for government support programs, tax revenues, and economic growth.

The labor supply decisions of the elderly are governed by pension-related variables, health status, aggregate economic characteristics. job related factors and a variety of other financial, individual and family characteristics. In a recent review of economic studies, Robert

[29] Many researchers consider the hypothesized negative relation between age and productivity to be invalid. For a review of the research on this topic, see Robert Clark, Juanita Kreps, and Joseph Spengler, "Economics of Aging: A Survey," Journal of Economic Literature, September 1978 and Matilda Riley and Anne Foner, "Aging and Society," Vol. I, New York: Russell Sage Foundation, 1968. In addition, Ross McFarland has found that workers between 60 and 75 function well because of their judgment, experience and safety of performance. See Sheppard and Rix, *The Graying of Working America*, New York: 1977, Chapter 5.

[30] William Serow, "Slow Population Growth and the Relative Size and Productivity of the Male Labor Force," Atlantic Economic Journal, Spring 1976, pp. 61–68.

Clark and Joseph Spengler concluded that retirement systems and health status have been judged to be the primary determinants of reduced labor force activity.[31] An increasing number of studies are finding that there are also interactive effects between the health of an individual and the availability of pension benefits.

Social security and other pension benefits provide non-wage income to the elderly and therefore would be expected to reduce work effort. The receipt of these benefits is, however, in many instances, contingent on the total or partial withdrawal from the labor force by beneficiary, i.e., earnings test, job change or compulsory retirement. Thus, pension systems provide the availability of income if labor force activity is reallocated or reduced. Within this framework, each individual tries to maximize his retirement income and life satisfaction.

The retirement incentive of the present system is illustrated in the following example. A married worker who had reached 65 in 1974 after a lifetime of earning the median wage would have been eligible for a social security benefit of $4,704. If he continued work, his gross earnings would have been $7,723, which would be reduced by a marginal federal income tax rate of 17 percent and a social security payroll tax of 5.85 percent. When combined with the reduction in benefits due to the earnings test, the implied marginal tax rate was 72.85 percent.[32] This effect is moderated to some degree by the rise in future social security benefits due to the additional year of work.

Since 1950, the growth and expansion of the social security system have played an important role in the decline in the labor force participation of older workers. Half of the eligible insured persons aged 62–64 are now taking advantage of the early retirement option. This is, in part, responsible for the recent decline in the labor force participation rate of men aged 55–64. Coverage by private pensions has also contributed to rising incidences of retirement.

TABLE 13.—PAYROLL TAX RATES WITH CONSTANT BENEFIT-EARNINGS RATIO AND REPLACEMENT LEVEL FERTILITY[1]

Retirement age	Year								
	1976	1985	1990	2000	2005	2010	2015	2025	2050
55	2.22	2.18	2.18	2.23	2.41	2.67	3.02	3.42	3.42
62	1.35	1.39	1.39	1.35	1.36	1.46	1.65	2.11	2.10
65	1.05	1.10	1.13	1.10	1.07	1.11	1.25	1.63	1.67
70	.65	.69	.73	.74	.73	.69	.73	.97	1.08

[1] Tax rates are generated from the following model: t=(B/Y)(R/L), where L represents the size of the labor force and is estimated by the population between 18 and the retirement age; R denotes the eligible population and is composed of everyone over the retirement age. (B/Y) is assumed constant over the entire period indicating that benefits remain a constant percent of per capita income.

Source: Robert Clark and Joseph Spengler, "Economic Responses to Population Aging With Special Emphasis on Retirement Policy," in Robert L. Clark (ed.), Retirement Policy and Further Population Aging, Durham, N.C., Duke University Press, forthcoming.

The significant interaction between retirement policy and population aging is illustrated by the growth in the ratio of those 65 and over to the population aged 18–64. Table 13 indicates the related

[31] Robert L. Clark and Joseph J. Spengler, *The Economics of Aging*, Cambridge: Cambridge University Press (forthcoming), Chapters VI and VII.

[32] George Tolley and Richard Burkhauser, "Integration of Social Security into an Incomes Policy," in Tolley and Burkhauser (eds.), *Income Support Policies for the Aged*. Cambridge, Mass: Ballinger Publishing Company, 1977.

increase in the tax rate on the working population necessary to maintain retirement benefits as a constant percentage of per capita income as the elderly dependency ratio rises.[33] Maintaining age 65 as the age of eligibility for such benefits will necessitate a tax increase of 10 percent by 2000 and 67 percent by 2050. Lower retirement ages result in dramatically higher tax rates while a gradual increase in the age of eligibility would moderate the pressure to provide retirement benefits. The tax reductions resulting from higher retirement ages are biased upward due to the fact that not all those 65–70 years of age would remain in the labor force even if the present incentives for withdrawal were removed.[34]

This analysis clearly indicates the importance of the retirement age (or the age of eligibility for old age benefits) in conjunction with population aging. This finding would seem to be in conflict with the projections of a continuation in the decline of labor force participation by older men (table 6). On the basis of recent experience, it is difficult to quarrel with the expectation of lower participation rates for older males, however, events already underway may significantly alter the framework in which retirement decisions are made. Some of these factors are briefly examined in the following discussion.

Mandatory Retirement

In 1978, the Age Discrimination in Employment Act was amended to preclude mandatory retirement prior to age 70 in most industries. Considerable current research is being devoted to explain the use of compulsory retirement and to estimate the impact of its elimination. Employing data from the 1968–70 survey of newly entitled beneficiaries from social security benefits, James Schulz estimated that of the 24 percent of working men who retired at the age of mandatory retirement, approximately 30 percent did not wish to retire, were able to work, but did not find another job.[35] This group of retirees represented about 7 percent of all retired male workers. If these estimates are applied to 1976 CPS-age specific employment data, an estimated 80,000 to 130,000 additional men age 65 to 69 would have been in the labor force if the new amendments had been in effect.[36]

Despite these rather small estimates of the impact of eliminating mandatory retirement, the long-term effects may be greater than first realized as older workers being to assess the advantages of a number of years of continued work. In addition, the removal of compulsory retirement was a necessary first step to any future changes in the Nation's public policy towards retirement benefits. Changes in these programs that are noted below may have a greater effect on retirement decisions.

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[33] As noted in table 5, the total dependency ratio falls prior to 2000 and then rises only slightly above its 1978 level by 2025. The decline in the relative number of youths creates the potential for some financial offsets to the increased costs of supporting the elderly population.

[34] Robert Clark and Joseph Spengler, "Economic Responses to Population Aging With Special Emphasis on Retirement Policy," in Robert L. Clark (ed.), *Retirement Policy and Further Population Aging*, Durham, N.C.: Duke University Press, forthcoming.

[35] James Schulz, "The Economics of Mandatory Retirement," Industrial Gerontology, Winter 1974.

[36] Philip Rones, "Older Men—The Choice Between Work and Retirement," Monthly Labor Review, November 1978, pp. 3–10. Since the base years for the retirement patterns were 1968–70, this should be an overestimate of the effect of mandatory retirement in the late 1970's. Better estimates of the labor supply effects of mandatory retirement policies should be forthcoming from a series of on-going studies.

Social Security

Most evidence indicates that the availability of social security benefits and the amount of monthly benefits significantly influence the retirement decisions of older workers. The pressure of sharply increasing taxes may generate further public debate to reduce benefits or to raise the age of eligibility. To the extent that the benefits structure is altered to decrease the expected value of retirement income, individuals can be expected to delay retirement. Policy options to encourage continued work include a further lowering of the earnings test and monthly benefits, raising the age of eligibility for initial benefits, and increasing the rise in monthly benefits from continued work. These and other modifications of the social security system have received considerable public attention in recent years.

Past increases in the payroll tax to finance the system have been required to support the development and liberalization of the program. In the future, public debate will likely concentrate on ways to reduce the increasing tax burden. Thus, improvements for some beneficiaries will tend to be at the expense of other elderly recipients. Within this framework, social security is unlikely to encourage a continued fall in participation by the elderly.

Private Pensions

The existence of private pensions is due to life cycle planning on the part of individuals and firms. Access to pension benefits encourages a worker to leave his present employer and also to withdraw from the labor force. The relationship of monthly pension benefits, age of the worker, and continued employment is of great importance. The movement over the past two decades away from the actuarial reduction in benefits has encouraged early retirement. The greater the decline in the present discounted value of pension benefits with continued service, the greater the possibility of early retirement.[37] Higher benefits increase the desirability of retirement. With a decline in the number of new labor force entrants, firms may seek to retain their older workers and thereby modify their pension plans to avoid early retirement incentives.

Preferential tax treatment of employer pension contributions and earnings have been two of the dominant factors in the expansion of private pensions. Changes in this tax status would clearly alter the future pattern of employer pensions. This annual tax revenue loss is estimated to be $11 billion and some writers have recently questioned the appropriateness of this form of income transfers. The pressure on national retirement and welfare systems should encourage policymakers to reexamine any subsidies to early retirement. The regulation of private pensions may be one method of eliminating these incentives.

Inflation

The influence of inflation on the retirement decision depends on people's expectations of price changes and the ability of retirement

[37] Richard Burkhauser, "The Pension Acceptance Decision of Older Workers," Journal of Human Resources, Winter 1979, pp. 63–75.

income and wages to adjust to price increases. Older workers anticipating high rates of inflation may choose to delay retirement because future retirement benefits increase as wages rise to reflect price increases and the higher earnings histories are used to determine future benefits. In most cases, if the worker retires, his current benefits will not be automatically adjusted to inflation. For example, the Congressional Budget Office reports that only three percent of private pensions included explicit cost of living adjustments to retirement benefits, while 37 percent provided no increase and 60 percent made ad hoc adjustments.[38]

High rates of inflation threaten to erode the real value of pension benefits. Other personal savings and assets of the older worker may also fail to keep pace with price increases. Thus, the continuation of inflation should encourage older workers to remain in the labor force and continue to earn wages which typically do rise with inflation.

Health

Poor health status or physical limitations have been found to affect significantly the desirability of remaining in the labor force. Health impairments can limit a person's productivity and therefore reduce the wage he is offered. At the same time, work may become more onerous, thus increasing the desire to retire. In general, improvements in health can be expected to increase the proportion of older workers in the labor force. Continued improvement in the health status of older workers may reduce the cost to the firm of providing medical benefits and increase the willingness of firms to employ older workers. Increases in life expectancy should tend to delay retirement as individuals work more years to accumulate savings to finance the longer retirement period. In general, health improvements will tend to increase the participation rate of the elderly.

Flexible Hours and Part-Time Work

As workers age, they may seek to reduce the number of hours they work rather than totally withdrawing from the labor force. An illustration of this tendency is the sharp increase in the proportion of people who work less than 35 hours per week as they grow older. In May 1977, only 2 percent of males aged 25 to 59 who were employed worked part-time and less than 4 percent of men aged 60 worked short hours. The incidence of part-time work rose to 28 percent for men aged 65 and 53 percent for those aged 70.[39]

In many firms and occupations, workers may be precluded from gradually reducing hours due to employment restrictions requiring a minimum number of hours. The elderly may choose to withdraw completely from the labor force rather than continue to work full time. Increased flexibility in hours and job design could alter the retirement plans of many older workers.

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[38] Congressional Budget Office, "Options for Federal Civil Service Retirement: An Analysis of Costs and Benefit Provisions," Washington, D.C.: U.S. Government Printing Office, 1978. In contrast to private pensions, civil service benefits and most other public retirement benefits are increased automatically with changes in the level of prices.

[39] Rones, op. cit., p. 5.

Education

The elderly of the next 20 years will be more highly educated than the present older population. Based on past educational decisions, projections indicate that the median years of schooling for those aged 55 to 64 will increase from 10.6 years in 1970 to 12.5 years in 2000 while the age group 65–74 will increase from 8.8 to 12.3 years of schooling. The percent of these age groups who are high school graduates rises from 40.4 percent to 71.5 percent for those aged 55–64 and from 29.2 to 61.7 percent for those 65–74 years of age. Since the enrollment rates of youths have leveled off and perhaps declined, the relative educational position of the elderly will also be enhanced. The improving educational status of the elderly should increase the demand for older workers as well as their propensity to remain in the labor force. Higher educational attainment is frequently associated with more pleasant job conditions, higher wages, and greater preferences for market work. Better trained workers typically are in greater demand in the labor market and have less trouble in finding and maintaining employment. Therefore, the rising level of education of the older cohorts should tend to prolong their labor force participation.

Labor Supply in the Dual-Earner Family

Perhaps the most important trend in labor market behavior in the American economy has been the increase in the proportion of married women in the labor force. Significant increases in market activity have occurred at all ages between 16 and 64. The rise in the participation by married women in the labor market has invalidated to a considerable degree the traditional family model of husband-wage earner and wife-homemaker. By 1977, the proportion of husband-wife families with more than one worker had risen to nearly 50 percent up from 38 percent in 1960.

The attachment of wives to the labor force is increasingly a permanent bond. In 1974, 69 percent of wives with work experience was employed more than 35 hours per week, with 43 percent of all working wives employed full time for 50 to 52 weeks. During the coming decades, these women who have combined marriage with a market career will be approaching retirement. Currently, we know little about the retirement decision of the female worker. Another significant issue is the relationship of the market activity of the wife on her husband's retirement decision. Will men whose wives have worked throughout their marriages work longer or retire earlier? How will the accumulation of pension credits by spouses affect labor supply? In recent research employing the Retirement History Survey, a stong positive relationship has been found between labor behavior of one's spouse and an older worker's own labor supply. On the basis of preliminary tests, the presence of one's spouse in the labor force tends to delay an individual's retirement. We are currently exploring the implication of these findings for the Nation's retirement systems.[40] These issues will increase in importance throughout this century as more and more women who have achieved their own market careers reach retirement age.

[40] Kathryn Anderson, Robert Clark and Thomas Johnson, "Retirement in Dual Career Families," in Robert L. Clark (Ed.), *Retirement Policy and Further Population Aging*, Durham, N.C.: Duke University Press, forthcoming.

Summary

During the past three decades, the propensity of older workers to remain in the labor force has declined sharply. The continuation of this trend is projected by the Bureau of Labor Statistics. This forecast seems likely to be correct unless the economic framework that confronts older workers is altered. We have argued that population aging produces economic stimuli that should encourage later retirement. Other personal characteristics and economic factors are changing in a manner that should moderate the desire for early withdrawal from the labor force. Significant programmatic changes will probably be necessary if the trend toward early retirement is to be reversed.

Savings, Consumption, and Economic Growth

The relationship between demographic variables and the rate of capital accumulation is examined in this section. To the extent that the size of the population and its age structure influence aggregate savings, the future rate of economic growth is affected by population shifts. Life cycle patterns of savings provide the mechanism through which age structure changes may influence aggregate savings. Age specific patterns of consumption may require resource reallocation as the economy adjusts to fluctuations in product demand based on savings in the size of various age cohorts. Changing patterns of consumption and savings have direct implications for the rate of economic growth.

Savings and Population Growth

Population growth is expected to influence the amount and pattern of savings in the Nation and therefore is likely to alter the rate of economic growth. A growing population and its accompanying higher dependency ratio may necessitate increased consumption outlays on both the individual and national level. The higher rate of consumption would tend to decrease the available resources for capital accumulation. In addition, life cycle patterns of savings also provide a means for age structure changes to influence the aggregate savings rate. This section will explore differences in individual age specific savings rates and the implications of the correlation between age-specific rates and age structure changes in the population.

For an individual, savings can be analyzed within a life cycle framework. During his lifetime, an individual acts both as consumer and producer. The difference between producing (earnings) and consuming (expenditures) yields a surplus (either positive or negative) that can be denoted as savings. In the early portion of the life cycle dissavings occur as expenditures for family and household formation exceed the value of production or income. During the prime working years, savings are typically positive, while in the retirement years accumulated asserts are reduced. In the remaining years of life, individuals are usually dissaving or receiving net social transfers from the government.

The relationship between differences in savings by age reflect the underlying economic factors that influence household formation and related expenditures. Differences in family-size, income and individual characteristics together with age differences create differential savings ratios. Eizenga calculated the differences in savings as the result of

age differences for the U.S. in the 1940s and 1950s [41] and found a distinct savings pattern over the life cycle. He estimated that the savings ratio is negative until age 23, rises until it reaches a peak at age 39 and then turns down and becomes negative after age 69. Examining the impact of age structure changes of the population over the first half of the century Eizenga found that demographic shifts accounted for only a small change in total savings.

This pattern of years of positive savings and net dissaving over the life cycle forms the basis of the evaluation of the aggregate effect of age structure on the savings potential of a population. This relationship was noted earlier in the first section of this paper. Available research indicates that increases in the relative size of the dependent population decreases the savings rate with increases in the proportion of elderly dependents having the greatest effect.[42] A. C. Kelley has found that changes in the age structure had only minor influence on the effective savings rate prior to 1950 and are expected to have little effect on savings until after 2010. The subsequent impact reflects the increase of the older dependent population as the post war birth cohort reaches retirement age.[43]

Generally, the effect of a demographic shift on individual and aggregate savings rates reflects changes that have occurred in the age structure. If the size of the labor force increases with population shifts, perhaps in response to immigration flows, then the supply of individual savings may increase proportionally with the growth in the population. A change in the population's age composition due to declining mortality and fertility rates, however, could dampen the rate of capital accumulation because of an increase in the proportion of the population in the dependent groups. A number of scholars has cast doubt on the existence of an established link between population growth and the rate of savings. Thus, the demographic effect should not adversely affect U.S. capital accumulation in the near future.[44]

Considerable attention has recently been focused on the relationship between pension coverage, individual savings, and the method of funding pension plans. Using a life cycle model of economic decision-making, Martin Feldstein [45] and Alicia Munnel [46] examined the response of individuals to the social security system. They illustrate how individuals incorporate the promise of future benefits into their current consumption decisions. This social security wealth reduces individual savings. At the same time, these benefits may induce workers to retire at an earlier age, thus increasing savings per year in the labor force. Therefore, the net effect of social security is theoretically indeterminant. In their studies, Feldstein and Munnell conclude that the social security program has reduced aggregate savings by decreasing individual savings without building a public fund to pay future benefits.

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[41] W. Eizenga, "Demographic Factors and Savings," North Holland Publishing Co., 1961.
[42] N. H. Leff, "Dependency Rates and Savings Rates," American Economic Review, December 1961, pp. 886–895.
[43] A. C. Kelley, "Demographic Changes and American Economic Development Past, Present and Future," paper prepared for the Commission on Population Growth and American Future, 1972.
[44] As illustrated in the first section of this paper, the total dependency ratio will be below its 1978 level throughout this century. The economic dependency ratio measures the number of nonworkers to workers in the entire population. Under the intermediate growth assumptions of the Bureau of Labor Statistics, this indicator will fall from its 1977 rate of 117.8 nonworkers for every 100 workers to 96.0 in 1985 and further to 94.5 in 1990. Flaim and Fullerton, p. cit., p. 32.
[45] Martin Feldstein, "Social Security, Induced Retirement and Aggregate Capital Accumulation," Journal of Political Economy, September 1974, pp. 905–26.
[46] Alicia Munnell, *The Future of Social Security*, Washington: Brookings Institution, 1977.

Their estimates of the magnitude of this effect are quite disparate with Feldstein's arguing that personal savings were reduced $51 billion in 1969 compared to Munnell's estimates of $3.6 billion.[47]

These studies have been criticized for theoretical and statistical reasons. Sherwin Rosen, in his review of the impact of retirement benefits on private savings, concludes that the empirical findings provide only weak evidence that social security has had an adverse effect on private savings.[48] Other recent theoretical and empirical work cast considerable doubt on the validity of the magnitude of Feldstein's initial results.[49] [50] Most subsequent research has found only minor or insignificant reductions in savings in response to the growth of the social security system.[51]

Consumption and Demographic Fluctuations

The demand for consumer goods and the allocation of that demand vary over an individual's life cycle. Consumption behavior reflects an individual's preferences for various types of goods as social, economic, and physiological factors change. In this section the relationship between the Nation's aggregated consumption decisions and demographic swings will be discussed. The basic concern is the effect of size and age structure changes of the population on sectoral patterns of consumption. As the growth rate of the population slows, what can be said about the role of age-specific patterns of consumption? Secondly, does a society where dependent population contains fewer young but more elderly people exhibit a different pattern of consumption in the aggregate? Finally, what effect do differing levels of per capital consumption have on aggregate consumption patterns?

The most direct effect of demographic fluctuations on consumption is increased consumption expenditures due to population growth. Population growth and age structure changes may alter the distribution of final products demanded. The surge of the post war cohorts created an increased demand for educational services during the 1960s, while the growth of the elderly population generated an increased demand for medical care. Just how the composition of consumer demand can be expected to change over the next two decades involves disaggregating the impact of population growth in terms of age specific patterns of consumption in conjunction with projected fertility rate changes.

A comparison of the aggregate income and expenditures helps to illustrate the basis for age differentials in consumption. Sidney Goldstein provides evidence concerning the percentage distribution of family units, aggregate income and expenditures by the age of the head of household for 1950 and 1960. As suggested by the life cycle consumption profile, consumption expenditures rise with income changes through the middle years 35–54, and then decline. Consumption expenditures are proportionately greater by individuals aged

[47] Alicia Munnell, *The Future of Social Security*, Washington: Brookings Institution, 1977.
[48] Sherwin Rosen, Social Security and the Economy," in Michael Boskin (ed.), *The Crisis in Social Security*, San Francisco: Institute for Contemporary Studies, 1977.
[49] Robert Barro, "Are Government Bonds Net Wealth?" Journal of Political Economy, November 1974, pp. 1095–1118.
[50] Thomas Pogue and L. G. Sgantz find evidence that suggests increased transfers to youths may have come in the form of increased investment in human capital. Intergenerational transfers make it possible for one generation to save for its retirement by investing in the education and training of the next generation. Pogue and Sgantz, "Social Security and Investment in Human Capital," National Tax Journal, June 1977, pp. 157–170.
[51] Louis Esposito, "Effect of Social Security on Savings: Review of Studies Using U.S. Time-Series Data, "Social Security Bulletin, May 1978, pp. 9–17.

35–54 primarily due to their disproportionate share of national income.[52] If family expenditures are examined by family size, the variance among the different age groups' average propensity to consume indicates a positive correlation between family size and consumption. This is especially prevalent for spendings units headed by persons under 35 who are typically involved in childbearing and household formation.[53]

From an aggregate view these age-specific differences in consumptive tendencies are offset by the income differentials of the groups. Even though the young and elderly dependent population have higher propensities to consume, their relative share of total income and their population are smaller relative to the middle-age range groups, thus moderating their impact on aggregate expenditures. The projected increases in the elderly population may increase aggregate consumption especially if their relative income position continues to improve. However, the smaller proportion of younger dependents projected should reduce aggregate consumption tending to neutralize the impact of a larger elderly population. Therefore, the demographic effect of the bulge of population distribution entering the 34–64 age groups during the next two decades should not greatly influence consumption patterns. Age structure changes may influence the initiation and expansion of government programs. Government transfers to youths can be expected to decline in relative magnitude even as expenditures for the elderly are increased.[54]

Although changes in the age structure of the population appear likely to have only minor impacts on aggregate consumption during the next two decades, there may be a significant change in the compostion of consumer expenditures. Thomas Espenshade presents projections of personal consumption expenditures for 1975 to 2020. The projections indicate a decline in the relative demand for nondurables while the demand for services and durable goods rise.[55] The proportion of consumer expenditures devoted to these categories does not appear to be sensitive to alternative fertility assumptions.

The impact of a changing age structure on the composition of product demand will be governed by the age-specific product demand, changes in family size associated with population aging, along with the relationship between aging and per capita income. The influence of age structure changes on the demand for some products is partially revealed by their appeal only to certain demographic groups. The significance of age structure changes on the demand for individual products or commodity groups, however, remains uncertain as manufacturers may be able to alter the age-specific demand for their products by appealing to nontraditional consumers—witness the recent advertising of many baby products. In summary, there is only limited evidence that slowing population growth will affect per capita consumption or patterns of consumer expenditures.[56]

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[52] Sidney Goldstein, "The Aged Segment of the Market, 1950-1960," Journal of Marketing, April 1968. Also, see D. Eilenstine and J. P. Cunningham, "Projected Consumption Patterns for a Stationary Population," Population Studies, 1977.

[53] Eilenstine and Cunningham, op. cit., p. 227.

[54] For a discussion of these issues, see Robert Clark and Joseph Spengler, "Changing Demography and Dependency Ratios: The Implications of New Dependency Ratios and Their Composition," in Barbara Herzog (ed.), *Aging and Income*, New York: Human Science Press, 1978 and Robert Clark and John Menefee. "Increasing Federal Expenditures for the Elderly," presented to the Gerontological Society, November 1978.

[55] Thomas Espenshade, "How a Trend Toward a Stationary Population Affects Consumer Demand," Population Studies, March 1978, pp. 147–58.

[56] Thomas J. Espenshade, "Zero Population Growth and the Economies of Developed Nations," Population and Development Review, December 1978, p. 656.

THE MODERN SERVICE SECTOR: EMERGING PATTERNS OF OUTPUT, EMPLOYMENT, PRODUCTIVITY, AND PRICES IN U.S. SERVICE INDUSTRIES AND SOME IMPLICATIONS FOR FUTURE TRENDS AND POLICY

By Irving Leveson*

CONTENTS

Preface

On June 15, 1978, I testified before the Joint Economic Committee's Special Study on Economic Change that the service industries could no longer be viewed as a lagging sector and increasingly would be seen at the forefront of economic progress. This paper goes beyond "The Service Industries: Entering a New Era" to examine further the changes which are occurring and the issues which they raise. I wish to thank Everett M. Kassalow for his guidance in this effort.

Highlights

The service sector can no longer be considered a lagging sector and will increasingly be seen at the forefront of economic progress. The new conditions necessitate a major new look at the growth of services and their implication for the U.S. economy.

Understanding of service industry developments and behavior is becoming essential for a growing set of issues which include national economic growth, cyclical stability, adjustment to struc-

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tural change, regional economic development, opportunities for new and aspiring workers, effectiveness of macroeconomic policies, measurement of economic performance, consumer behavior and the nature of society and work.

Useful attempts have been made to characterize and classify the service industries according to type of product, whether the industry serves businesses or consumers, and whether its role is knowledge production and information handling. Changes in the scope and diversity of services may make distinctions increasingly difficult, and use of sector aggregates will have to adapt to the purpose intended and will necessarily remain a matter of convention and convenience.

Measurement of output changes in many service industries is increasingly understated and inflation overstated by procedures which do not adequately reflect the rapid changes taking place in service industry innovation, structure and product content, together with other changes such as the growth of the underground economy. However, because of the difficulties in representing these changes in aggregate statistics, a more judgmental effort, rather than costly increases in data collection, is suggested. Rules of thumb based on case studies would be incorporated in an Adjusted Measure of Production which modifies and supplements GNP.

Growth in service employment has been rapid because of growing product demand and in spite of slow productivity growth. In the last decade there has been a genuine acceleration in relative service employment growth, apparently because of the interaction between rising labor supplies with flexible compensation and demand factors associated with economic conditions which most adversely affect capital intensive industries.

Service employment can be expected to continue to grow more rapidly than employment in goods-producing industries. This growth will be increasingly due to high output growth rather than slow productivity growth. Technological changes will reduce demand, particularly in some traditionally female occupations. However, labor supply growth will slow and new opportunities will open for women. Thus, the overall labor supply/demand balance will not deteriorate.

The extensive innovation in services creates a need to rethink many public policy issues and strategies for economic growth. It may be particularly important to: (1) Eliminate or restructure regulations which are not responsive to new conditions and impede advances in productivity; (2) avoid the temptation to interfere with processes to which the private market has responded effectively, and particularly to avoid the temptation to encourage research and development activities to focus on problems in service industries; and (3) avoid macroeconomic policies based on understatement of the real rate of growth and overstatement of inflation, when extensive unmeasured productivity changes take place. There may also be (4) substantial new opportunities to use service industries as the basis for economic growth at the local level; and (5) to use the experience in private services to improve productivity in government and not-for-profit sector activities.

Introduction

The rapid growth in the share of employment in service industries as per capita income levels rise has become one of the central themes in the study of world economic development. As the service share of employment has increased, many feel that greater attention should focus on the changes which are taking place and their implications for society and for public policy. Interest in part has derived from fears that services might be a lagging sector, not very amenable to mechanization and economies of scale, and likely to exert an increasing drag on the rate of economic growth. At the same time there has been concern that the problems of measuring economic activity would multiply in a service economy and that profound changes might take place in the nature of work.

Recent discussions have also emphasized the role service industries have played in the economy's absorption of large new supplies of youth and female labor, providing flexibility which has created opportunities for women, minorities and the disadvantaged, and adding to the stability of overall employment in the face of external shocks and business cycles. Some have noticed too the rising role of services in international trade. But at the same time there has been concern about the impact of a large service sector on inflation. Furthermore, employment adjustment problems tend to be viewed differently when goods-producing industries decline while services grow rapidly, than when changes in labor demand are more evenly distributed. There also arises a host of questions surrounding the appropriateness of current forms of regulation, as well as the responsiveness of regulatory changes to rapidly changing technology, problems with helping professions, the special problems of decisionmaking and productivity improvement in the not-for-profit sector and in government and government enterprises, and the implications of a service economy for the effectiveness of economic controls. This paper studies recent changes in service growth, and some of the implications which may require increasing or continuing attention.

The Nature of Service Industries

The service industries consist of a diverse and complex set of activities, and any attempt to define meaningful aggregates is necessarily a matter of convention and convenience. The principal difference between definitions of the service sector has been whether transportation, communications and public utilities are classified as goods or services. While not the usual practice, construction has even been counted as a service. Even within the broad aggregates, many anomalies and assumptions exist, while important differences are obscured. The Standard Industrial Classification (SIC) treats printing as a component of manufacturing. In the National Income and Product (GNP) Accounts, the largest component of the output of the "finance, insurance, and real estate" industry is the rental value imputed to the housing services provided by owner occupied homes. Some services are closely linked to goods, such as wholesale and retail trade. Sales of service industries (such as hospitals) may include substantial inputs from the goods-producing sector. Services may provide inputs to other

industries (accounting, legal) or create human capital (education, medical), the services of which are used in all sectors. In recent decades government, not-for-profit and quasi-government organizations have grown rapidly. As Arthur Burns states:

> The broad trend of American economic development has been toward increasing emphasis on the service industries, and the government has become the channel through which much of the public's demand for services is satisfied. As our economy has undergone industrialization and urbanization, there has been a steady increase in the interdependence of people—that is, in their reliance on the wisdom and enterprise, and also in their exposure to the folly and indolence, of their neighbors. In such an environment, social and economic problems often arise that cannot adequately be handled by private enterprise, and governmental activities tend to expand.
>
> (Burns, 1979, p. 20).

Ever since Colin Clark (1940) and Allan G. B. Fisher (1935) called attention to the shift in industrial structure from primary to secondary to tertiary industries four decades ago, there have been attempts to refine and redefine the classification of economic activity. Differences between goods and services industries derive in significant part from the nature of the products themselves. Because goods are tangible, their production can be mechanized; they can be stored and transported to dispersed markets. Services tend to be more personal, produced in many varieties and qualities, with the consumer often directly involved in the production process. With the timing of demand for particular qualities and locations uncertain, services have typically entailed smaller firms and operated in local markets.

Friedman and Kuznets (1945, pp. 260–262) made a distinction not only between type of product but also type of customer in explaining the greater importance of self-employment in medicine and dentistry than in certified public accounting, engineering and law. Stigler (1956, pp. 59–60) distinguished between business services and consumer services in the analysis of service industries generally:

> The general picture of the service industries is one of small business units, organized as single proprietorships or partnerships, employing only a small number of workers in each establishment. Yet several important groups of industries depart systematically from this pattern; wholesale trade, a few selected lines of retail trade, hotels, business services, motion pictures, insurance agents, finance, and real estate. The list contains all the important service industries dealing with businesses (except legal and engineering services) and confirms our decision to treat them separately from the consumer service industries.

Singlemann (1979) introduced a sixfold classification consisting of extensive industries, transformative industries, distributive services, producer services, social services and personal services. The addition to the producer/consumer services distinction of a social services category—including medical, educational and various government services, attempts to serve a need for identification of activities with a societal focus. But while seeking to create a more homogeneous set of subaggregates, it combines services associated with standard setting, policymaking, oversight and enforcement with those involving service to individuals, transmission of information and production of human capital. Some sort of "social infrastructure" category might be useful, but the question of how best to combine it with others remains unresolved.

Empirical tests have supported the value of the type of product distinction in explaining the prevalence of important industry char-

acteristics. Results are less clear for the classification of industries by type of customer.[1] Nevertheless, the distinction between business and consumer services is used increasingly. This may well be because of its value, not so much in understanding the nature of the industries, but in understanding the nature of society and the consumer's role in it.

Another major direction for disaggregating service industries involves the definition of knowledge-producing and information industries. Gottman (1961) "wonders whether a new distinction should not be introduced in all the mass of nonproduction employment: a differentiation between tertiary services—transportation, trade in the simpler sense of direct sales, maintenance, and personal services—and a new and distinct quarternary family of economic activities—services that involve transactions, analysis, research or decisionmaking, and also education and government."

The latter require more intellectual training and responsibility and are related to the rise of professions and specialized white collar occupations. Drucker (1968) and Bell (1973) emphasized similar themes. In his seminal study, Machlup (1962) includes education, research and development, communications media, "information machines" and various professional and other "information services" in a set of industries engaged in the production and distribution of knowledge. A further reclassification of information industries was attempted by Porat (1977).

Kahn (1976, 1979) sees a major transition to a quaternary economy consisting of services to consumers, the kinds of intellectual activities emphasized by Gottman, and a series of recreational and other activities. He likens the shift to a quaternary service economy to the agricultural revolution and industrial revolution, seeing it as a third great watershed of history which will become important early in the 21st century. The roles of teacher, psychiatrist, doctor, author, priest and public entertainer will increase and the post-industrial society which emerges will be "characterized as playing games with and against people, with and against communities and perhaps with and against one's self." A principal feature will be the diversity of activities which are pursued and the frequency with which people can move from one to another as activities are increasingly pursued "for their own sake."

The Extent of Measurement Problems

The growth of services has only increased the significance of Kuznets' observation that:

> . . . despite the magnitude of the services sector, the measurement of its output is most subject to error, and data and knowledge are far too scanty to permit

[1] Schwartzman (1963) tested the importance of uncertainty as a source of variation in firm size among industries in a multiple regression analysis across 64 manufacturing industries in 1954. Uncertainty, measured by the ratio of markdowns to sales in the corresponding merchandise department of department stores, was highly significant in explaining the maximum size of the firm and four, eight and 20 firm concentration ratios. It was not significant, however, in determining the importance of output in the smallest firm sizes and was inconclusive with respect to average firm size.

Bain (1956) designated the proportion of output outside the optimal or near optimal firm size as the "inefficient fringe." He found in comparisons of 20 manufacturing industries that the size of the inefficient fringe was greatest in industries with the most product differentiation.

Leveson (1968, pp. 56–62) examined the 1960 percent self-employed in 61 industries classified by goods versus services and by whether they were primarily serving producers, consumers or both. Government, nonprofit and domestic services were excluded. The type of product distinction was highly significant in a two-way analysis of variance. Differences in type of customer, however, were significant only at 0.10 and 0.25 levels of confidence.

adequate analysis. It may seem ironic that we know less about this sector which includes groups engaged in the production and spread of basic and applied knowledge, as well as those concerned with major political and social decisions . . .

(Kuznets, 1966, pp. 143–144)

The emergence of a progressive service sector in the United States raises the likelihood that economic growth will be substantially understated. At the same time, a modern household sector, increasingly educated and automated, makes less meaningful both traditional distinctions between work and leisure (Robinson, 1976) and ways of measuring improvements in the overall efficiency of resource use.

The difficulties and biases at the industry level notwithstanding, it is easier to determine outputs and inputs for each industry than it is to decompose the national rise in productivity into sources. Even Denison's brilliant efforts to allocate growth to its sources (1974 et al.) have received criticism for being only an accounting device which masks more basic changes in demand, incentives and other factors. The combination of regular measurement and simplicity has led to excessive reliance on measurement of productivity by industry. It has always been well understood by both national income accountants and economic growth theorists that many of the most interesting and important changes are interindustry in nature. Developments in transportation, communications and public utilities have always stimulated far more productivity growth than was measured in their own industries. The major changes occurring today in banking and life insurance derive in large part from the development of computers, management techniques and other factors which have an impact on broad parts of society, and improvements in financial services influence every sector. Technological changes have been induced by the entire market in both goods and services.

The use of sector aggregates has not been satisfying because it captures neither the industry-specific elements nor the economy-wide perspective. Different aggregates are desirable for different purposes, and the combinations which make sense can change over time. It is necessary to avoid classifying industries, because at one moment they are capital intensive or are growing rapidly. We are left then with a need for a more complete but more judgmental system of analysis that can look at many levels and relationships.

Measurement problems in the service industries can confound more general efforts to understand the factors contributing to productivity growth. For example, following the work of Denison (1974), it is generally assumed that reductions in the length of the work week are associated with increases in output per man-hour up to a point, and beyond that point further reductions are no longer important. However, the relationship may be "U" shaped, with reductions in hours beyond some point reducing productivity rather than raising it. Possible reasons include relatively fixed costs of set-up time, recruiting and training, and costs of communication which rise with the number of workers. This may be especially important in light of the rapid growth of the part-time work force. In fact, we may be observing the greatest growth in part-time labor in those industries in which production processes are most flexible, so that the productivity disadvantage (and pay differential) of part-time work is lowest. Without reliable output measures such hypotheses are difficult to test.

The extent of deficiencies in measuring service output is exemplified by the practice in the National Income and Product (Gross National Product) Accounts of measuring changes in the production of governments and most nonprofit organizations by employment. Where detailed studies have been possible, the assumptions of no growth in productivity in these industries have not been found valid. Moreover, performance varies enormously from one period to another and may rise or decline sharply. Between 1968 and 1972, for example, productivity in citizens record functions of the Social Security Administration and other parts of the Department of Health, Education, and Welfare increased at an average rate of 4 percent per year, while in the following three years it was virtually unchanged (National Center for Productivity and Quality of Working Life, 1976, p. 62).

Where objectives are more uncertain, productivity is more difficult to gauge and activities often cannot be so easily managed to produce improvements in efficiency. Furthermore, there can be total disagreement over the direction of change in public sector productivity when the role and expenditures of government grow rapidly, or are cut back.

The parallel assumption to the use of employment as an index of government output—that price changes are measured by changes in average compensation—is no more correct. It suffers from the additional problem that government salaries and funding of pension obligations may be artificially managed, shifting costs from one period to another. In fact, restrictions on Federal pay increases are the major reason the Implicit Price Deflator for Gross National Product has been rising significantly less rapidly than the Consumer Price Index for the last several years.

While some of the complexities are absent in the private sector, there are also enormous measurement problems. In goods-producing industries it is often possible to measure real output by the number of physical units of production or by dividing sales by a price index. Where purchased inputs are important, as in many services, the procedure used involves deflating both gross output and purchased inputs by price indexes. The price index for the value added is derived indirectly as the ratio of the current dollar value of output to the constant dollar value. Thus, it is an implicit price deflator, as is the deflator for total GNP. In retailing, which uses this Fabricant-Geary double deflation method, output is measured by gross margin, the difference between sales and purchased inputs. But gross margin says nothing about the level of service provided. Unless the difference between price indexes for purchased inputs and price indexes for sales truly reflects the service added, output of retailing is gauged by a measure of input when margin is used.

In the 1960's economists used a rule of thumb that about 1 percent per year of the rise in the Consumer Price Index was attributable to unmeasured quality changes. Should that still be the case when economic growth has slowed? How is that judgment affected by the introduction of modified procedures in deriving the Index?

Beginning in December 1977, the Bureau of Labor Statistics published a broader Consumer Price Index covering all civilian households living in urban areas (57.9 million consumer units in the 1972–73 weight base), and continued its publication of the index for urban wage

earners and clerical workers (23.5 million). At the same time the number of businesses reporting was expanded from approximately 16,000 to 22,000 for the urban wage earner and clerical worker index. About 19,300 of these were based on the results of a point-of-purchase survey. "In the unrevised CPI, data for selecting retail stores were developed from many secondary sources that were not necessarily consistent or related to each other or the population represented by the index, and probability methods were used only to a very limited extent" (Layng, 1978, p. 9). In the point-of-purchase survey, "families were asked for information on the names and locations and amounts they spent in retail stores for many different categories of goods and services. Data provided from this point-of-purchase survey were used to develop, for the first time, a consistent, objective and probability based sample of retail stores and service establishments for the CPI" (Layng, 1978, p. 9).

Other potentially important changes were made in the CPI, such as specification of a more extensive list of specific outputs in hospitals. As yet, however, there has been no computation of how these changes in methodology have influenced industry productivity measures or whether improved measures provide a significantly different picture of current changes.

In the life insurance industry, U.S. output is based on a deflator which is an average of wages and prices. It has been shown for Canada that the construction of a more appropriate output measure yields vastly greater output and productivity change (Hirschborn and Geehan, 1977). In banking the recent shift to the use of employment as an output indicator was considered a major improvement, because the previous use of constant dollar deposits treated increases in the services provided per dollar of deposit as a decline rather than an increase in productivity (Gorman, 1969).

Particularly serious measurement problems exist when rapid change takes place. A new product may not be included in a price index until its price has fallen substantially, so that much of the decline is not recorded as a gain. Griliches (1978) points out that the convention in national income (GNP) accounting has been to show no change in the price of computers in spite of persistent declines in the cost of computing of 20–30 percent per year.

Shifts among types of establishments which lower cost may not be recorded when the same types of establishments are continuously sampled. Shifts can also produce measurement errors within store types. If a supermarket adds a drug counter which is more efficient than the independent drug store it replaces, the addition of an activity with lower output per worker than in other parts of the store will lead to the appearance that productivity in the supermarket has declined. A number of recent observers, using data without appropriate correction, has fallen into this trap.

Relative value scales, which assign weights to component outputs, have been used successfully to overcome some of these problems in studies of medical care. Relative value scales involve the assignment of weights to specific components of service such as a first visit to a physician or performance of a diagnostic procedure. They provide a judgment of professionals as to the worth of an output or related group

of outputs. Their use has been limited to analysis of costs, and not in measuring productivity or making comparisons at different points in time. Relative value scales could be much more useful in a number of areas, especially financial services. The key to this approach is obtaining agreement on the worth of output components among professionals whose judgments are accepted in the field.

Particularly troublesome problems arise in what has come to be known as "the underground economy." The underground economy consists of at least three quite different kinds of activities—consensual crimes, work performed by undocumented aliens and tax evasion. No reliable estimates exist of expenditures on illicit gambling, drugs, prostitution and other so-called "victimless crimes." Reasonable yearly estimates of the street value of marijuana alone run as high as $10 billion, more than expenditures on cigarettes. Most of the costs are for the "services" of distribution and risk taking. There is also no good way of knowing the number of "undocumented aliens" (frequently cited estimates range from 2 million to 8 million) or how many are already picked up by one or another of the regular sources of information on employment and output.

Perhaps the largest category, and the one that many expect to grow most rapidly, is the range of activities which are carried out without reporting to evade taxation. This includes such diverse practices as painters doing houses "off the books," waitresses using fictitious names to avoid reporting to social security, and formal organizations through which services are bartered. Nonreporting of income and bartering of services appear to have become quite large in the United Kingdom and in Scandinavian countries where tax rates on personel income are high. In the U.S., while tax rates are much lower, these practices have been rising.

Before 1970 the tendency for inflation to push people into higher brackets was relatively modest because inflation rates were lower and because tax cuts tended to be offsetting. Since 1970, however, tax rates on earnings for middle and upper middle income individuals have been rising because of accelerated inflation, lack of offsetting cuts in Federal tax schedules and because of the enactment of highly progressive personal income taxes in many states. As a result the incentive for this kind of behavior has greatly increased.

Ross (1978) cites three types of evidence that the underground economy has been growing rapidly in the 1970's. The number of large bills in circulation in excess of what would have been expected (based on an econometric model by James S. Henry) grew from $8.8 billion in 1972 to $16 billion in 1977. Second, there was a marked decline in taxpayer compliance between 1965 and 1973, based on the Taxpayer Compliance Measurement Program, IRS's exceptionally intensive audit of 50,000 income tax returns. Furthermore, the nonresponse rate on the question about income on the Census Bureau's Current Population Survey rose from 10.2 percent in 1972 to 18.3 percent in 1978.

While there is no question that the underground economy is sizable and growing, the guesstimate that it accounts for 10 percent of GNP by Eli Ginzberg and his associates appears excessive; it depends on maximum estimates of victimless illegal activity; 5 percent is perhaps more correct. However, we can expect that if our tax policies do move

closer to those of Scandinavia, the underground economy will grow enormously—and the growth will be mostly in services.

Employment Trends

The data in table 1 demonstrate an acceleration in the growth of service industry employment. Service employment grew at the same rate as employment in all nonfarm industries during 1962–66. In 1966–73 and 1973–78, however, service employment grew 0.8 percent per year faster than all nonfarm employment.

The rapid growth in service industries has been part of a more general phenomenon in which service type employment (such as professional, managerial, sales, clerical, and domestic) has increased more rapidly than employment in goods production. This phenomenon is pervasive in Emi's (1978) international comparisons. Countries with above average shares of employment in service industries typically have above average shares of employment in service-type occupations by an even wider margin.

TABLE 1.—AVERAGE ANNUAL RATES OF CHANGE OF SERVICE EMPLOYMENT, SUBPERIODS, 1962–78

[In percent]

	All nonfarm	Service industries	White-collar workers
1962–66	2.9	2.9	2.8
1966–73	2.2	3.0	2.8
1973–78	2.5	3.3	3.2

Source: U.S. Bureau of Labor Statistics.

The tendency for service-type occupations to become more important within industries is apparent in the growth of the proportion of nonproduction workers in goods-producing industries. There has been a similar tendency for overhead-type service employment to grow in relative importance even in industries engaged in production of services. In fact, table 2 shows that nonproduction worker employment grew particularly rapidly in service industries. The proportion of non production employment appears to be nearing 25 percent in both goods and service sectors, and substantial increases beyond that point cannot be ruled out.

TABLE 2.—NONSUPERVISORY AND OTHER NONPRODUCTION WORKERS ON PRIVATE NONAGRICULTURAL PAYROLLS AS A PERCENTAGE OF TOTAL EMPLOYMENT BY INDUSTRY, 1966, 1973, AND 1977

[In percent]

Industry	1966	1973	1977
Mining	22.3	24.2	25.0
Contract construction	15.0	17.4	20.5
Manufacturing	25.6	26.5	28.1
Transportation and public utilities	[1] 12.9	13.5	15.0
Wholesale and retail trade	10.8	11.2	11.8
Finance, insurance, and real estate	20.1	22.2	23.8
Services	[1] 8.1	9.6	10.5
Total	16.7	17.1	17.9

[1] 1967.

Source: U.S. Bureau of Labor Statistics, "EMPLOYMENT AND UNEMPLOYMENT," special labor force reports, annual.

In part the especially rapid growth of service employment appears to be the result of many of the same factors which have adversely affected industry. Demand for labor has shifted away from energy and capital-intensive industries which have been particularly hard hit by environmental regulation and toward more labor intensive firms and methods of production. At the same time the service industries have been in a position to benefit disproportionately from the large supplies of labor, especially of women and youth, which have been available since the mid-1960's. Compensation in service industries tends to be much more flexible than compensation in goods production, because of greater reliance on tips and commissions, self-employment and small firms, less unionization and other factors. Moreover, many women and youth seek part time jobs and/or jobs closer to home, consistent with the hours and locations most prevalent in services. As a result, the increased supplies have lowered labor costs and increased availability of labor to service industries more than to goods-producing industries.

While the share of employment in goods-producing industries has fallen, the number of jobs has continued to grow. This is by no means universally true, however. Maddison (1979, p. 1) points out that "in Austria, Belgium, Germany, the Netherlands, Sweden, Switzerland and the U.K., the peak absolute level of industrial employment was in the mid-1960s." These declines cannot be explained by the fact that growth of employment in all industries in those countries has been slower than in the U.S. Absolute declines in employment in industry in other countries raise the question of whether the U.S. will also experience declines as the economy ages. Yet the vitality in the U.S. service industries may be one of the best reasons to hesitate before treating the aging economy paradigm as immediate or inevitable.

Demand, Productivity, and Employment

In the traditional view of service industry growth, as incomes rise, an increasing proportion of income is spent on services. Productivity grows less rapidly in service industries, however, than in goods-producing industries. Consequently prices of services rise more rapidly than prices of goods. As services become relatively more expensive, their consumption is discouraged. This price effect offsets much of the growth in service output due to higher incomes. Nevertheless, service production continues to grow somewhat more rapidly than goods production.

Fuchs (1968) found that in the United States between 1929 and 1965, none of the more rapid rise in employment in goods-producing industries versus service-producing industries could be accounted for by more rapid growth of real output in services. The large rise in service employment was the result of slower growth of output per man. In fact, production in industry grew somewhat faster over the entire period to 1965 because output of industry rose 0.7 percent per year faster than service production during 1929–1947.

Fuchs' (1977) data also show a subsequent return to the more often cited relationship. During the past three decades only a small part of the growth of service industry employment is explained by that sector's

somewhat greater rise in output. Since 1947 service output has grown faster than goods production by 0.2 percent per year (table 3). The great majority of the difference in employment growth between the sectors arises from the slower growth in output per worker.

TABLE 3.—GROWTH OF OUTPUT, EMPLOYMENT AND PRODUCTIVITY IN GOODS AND SERVICE SECTORS, 1929–76.

[Average annual rate of change]

	1929–47	1948–65	1961–76
Output:			
Industry	3.05	3.77	3.52
Service	2.39	3.96	3.67
Service subsector	2.12	3.98	3.97
Employment:			
Industry	1.56	.49	1.14
Service	1.93	2.18	2.48
Service subsector	1.72	1.71	2.56
Output per employee:			
Industry	1.49	3.28	2.38
Service	.46	1.78	1.19
Service subsector	.40	2.27	1.41
Difference between industry and service:			
Output per employee	1.03	1.50	1.19
Output per unit of total factor input	.16	.82	1.07
Difference between industry and service subsector:			
Output per employee	1.09	1.01	.97
Output per unit of total factor input	.91	.50	.66

Note: Industry includes mining, manufacturing, construction, transportation, communications, and government enterprise. Service includes wholesale and retail trade, finance, insurance, and real estate, miscellaneous services, and government. Service subsector includes general government (excluding Armed Forces) and not-for-profit institutions in 1929–47 and excludes government thereafter.

Source: Fuchs (1968), app. C., and Fuchs (1977), tables 1–4.

The role of low productivity growth in the rapid increases in service employment also can be seen in international comparisons. Consider first what happens if we try to explain the U.S. share of services in service plus industry employment on the basis of income alone. U.S. Service employment was 64.7 percent of employment in service plus industry in 1970 (Maddison, 1979, table 2b). Gross Domestic Product (GDP) per capita in the U.S. was one-third higher than a simple average of Germany and France. Suppose that each 1 percent increase in income, measured in this way, led to an increase of 1.25 percent in service production and 0.8 percent in the output of industry. If changes in employment were proportional to changes in output, with a one-third rise in GDP per capita, the average service share of (service plus industry) employment in Germany and France would rise from 51.0 percent to 53.8 percent, only 2.8 percentage points. This compares with the actual gap of 16.5 percentage points. While U.S. service productivity is somewhat greater than Germany's and France's, productivity in U.S. goods production exceeds German and French levels by a much wider margin.[2] The effect of the difference in productivity on employment is too large to be offset by the effects of higher service prices in restraining consumption. In fact unless other factors were responsible, the high employment could be explained only if the demand for services were relatively insensitive to price.

[2] Similar implications could be drawn if a more comprehensive set of countries were used. However, this comparison is exaggerated because, as noted later, the U.S. and several other countries with high incomes have tended to have relatively large shares of employment in services for many years—i.e., the U.S. share of services was greater at the time it had the per capita income France has today.

The assumed values for effects of income and other factors which tend to vary with it are consistent with the limited information which is available. Fuchs (1968) estimated the income elasticity of demand for services in the U.S. based on interstate comparisons of changes in per capita receipts or expenditures between 1939 and 1958. A 1-percent increase in income was associated with a rise of 0.97 percent for retail sales of goods, 1.12 percent for personal services and 1.07 percent for State and local government expenditures. Fuchs further compared population aggregates for 160 income-education-region groups in 1960–61. The income elasticity of demand for services was 1.12 and for goods including food, 0.93. Education also had highly significant effects on the demand for services. Sabolo (1975) calculated the elasticity of consumption of services with respect to changes in all consumption for 28 countries, typically for the period 1958–1967. The median elasticity was 1.4.[3] This is an aggregate measure which includes the effects of changes in education, urbanization and other factors which tend to accompany the growth of income. Haig (1975) has estimated a high elasticity for Australia during 1960–70, a period of extraordinarily rapid growth in government.

While we do not have measures of sector-wide price sensitivity of demand with which to examine directly the effects of prices on the growth of employment, a number of considerations is consistent with the view that price effects add to employment rather than decrease it.

(1) It is not necessary that service demand be totally insensitive to price to explain international differences in service employment, only that the price elasticity of demand for services as a whole relative to goods be (absolutely) less than −1.0. As long as a 1 percent rise in price leads to less than 1 percent decline in quantity, expenditures on services will rise and so will employment. The less sensitive demand is to price, the larger will be the rise.

(2) A rise in price of services relative to goods of 1 percent is likely to be associated with a larger than 1 percent difference in output per worker when capital per worker is rising more rapidly in goods.

(3) Services as a whole represent a large share of the output in the economy. The larger the share, the smaller are opportunities for substitution with other outputs when prices rise. Hence, price sensitivity would be expected to be relatively low.

(4) Many services are complimentary to goods, i.e., they are somehow used either in goods production (such as accounting, law) or in conjunction with their distribution (trade) or consumption (auto repair), limiting the possibilities for substitution when relative prices change.

(5) Much of the rise in employment has been in the government and not-for-profit sectors which, at least until recently, have been relatively insensitive to price.

Employment comparisions omit the input of the time of the consumer, which is often an essential ingredient in services which may be purchased and consumed at the same time. Economists have often assumed that shifts to self-service reflect a substitution of the time of the consumer for the service worker, as the wages of employees in service industries rise to keep pace with wages in other industries experiencing higher productivity growth. Yet the rise in wage rates

[3] The United States is not shown. The elasticity for Canada was 1.44.

makes the consumer's time more valuable also. Hence the move to self-service is not satisfactorily explained.

With rapid increases in incomes and changes in technology, the number and variety of products increased substantially. The older methods of shopping, which required both large quantities of time of the service worker and large amounts of consumer time, may have become too costly in an environment of expanding choices and rising total consumption. Thus, the rise in self-service would have been expected if it were accomplished through methods (e.g. physical layout) which economized on both the time of the consumer and of the employee in making purchases of a given size and composition.

Unfortunately, studies conducted to assess changes in the use of consumer's time have not been carried out in a way which sheds light on this issue, and in fact, they appear to support the opposite conclusion. Studies on time use trends by Robinson and by Walker and Woods show information on shopping and running errands only in combined form, so the effect of performing the same tasks in different amounts of time cannot be separated from the effects of doing more. Also, in tables which compare years no allowance is made for effects of the large changes in the number and ages of children.

During the last three decades, at the same time as the real consumption of goods and services per capita doubled, the role of women was changing significantly, more women were driving and automobile ownership was expanding. These would be expected to affect the number of errands and shopping as a recreational activity, and to be associated with significant effects of changing geographic organization as suburbanization progressed. There is no analysis of the amount of time which would have been used to consume a standard quantity of goods and services in different years. For these reasons, there is no way of knowing from these studies the effects on time use of increases in sizes of supermarkets and department stores or of clustering locations as in shopping centers, as compared with the impacts of changes in technology, sex roles and other developments in society.

The Relationship Between Productivity in Services and Productivity in Industry

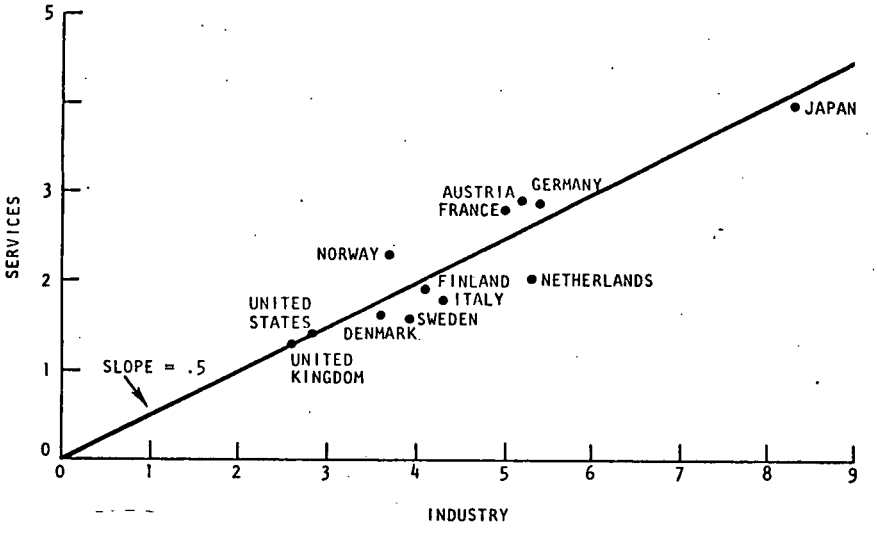
In a number of sections of this paper reliance is put on international comparisons of output, employment and productivity. These are necessarily subject to inconsistency because of variations among countries in definitions, data collection methods and reliability. Nevertheless, they provide an important source of evidence for use in conjunction with single country data over long periods of time, which are also subject to problems of reliability. While some comparisons are necessarily tentative, the most important conclusions appear most unlikely to be unaffected.

Maddison found that Gross Domestic Product per person employed in industry in 12 developed nations grew at an average rate of 4.5 percent per year between 1950 and 1976. During that period output per employee in services grew by only 2.2 percent, one-half the industry rate. Figure 1 compares the growth rates of productivity in industry with the growth rates in services in 12 countries. There is a strong tendency for those countries with high productivity growth in one sector also to have high productivity growth in the other. The inter-

country relationship for 1950–1976 in Maddison's data can be approximated by the assumption that output per man in services grew at one-half the rate in industry, the same as given by the average for the 12 countries.

The use of output per employee or output per man-hour to measure productivity tends to overstate the difference in sector growth rates, particularly since capital inputs have tended to grow more rapidly in industry than in services. Sector differences in productivity based on a ratio of output to all inputs are reflected in relative changes in output prices. Price differences measure sector differences in output per unit of total factor input as long as it can be assumed that a composite index of factor prices (wage rates, rent, interest) changes at the same rate in each sector. The difference in rate of price growth between industry and services in the U.S. was 1.1. percent per year between 1950 and 1976. This compares with a sector difference in output per man growth of 1.4. percent per year.

FIGURE 1.—Annual growth rate of gross domestic product per person employed in services was typically one-half of productivity growth rate in industry in advanced capitalist nations during 1950–76.



Source: Maddison (1979), table 6.

The average difference in price rise between goods and services for nine industrial countries other than the U.S. for which data on both price and output per employee were available was 1.5 percent between 1950 and 1976. (Maddison, 1979, tables 5 and 6).[4] The comparable sector difference in output per man was as follows:

[4] The differences varied widely, ranging from faster growth in services by 3.4 percent in Austria to slower growth by 1.0 percent in Norway. These figures may be influenced by tax and subsidy policies as well as by composition of the services sector and other factors.

[In percent]

	Industry	Services	Difference
Output per employee:			
United States	2.8	1.4	1.4
9 countries	4.2	2.1	2.1
Ratio			1.5
Price:			
United States	2.7	3.8	1.1
9 countries	5.1	6.6	1.5
Ratio			1.4

In the nine countries the difference in price growth of 1.5 percent per year compared with a growth rate of 2.1 percent in output per employee. In both the U.S. and the nine countries the sector difference in price increases was about three-fourths of the difference in growth rate of output per employee.

The difference between goods and services in rate of price increase in the U.S. of 1.1 percent is about two-thirds of the sector difference for the nine countries of 1.5 percent. Similarly, the U.S. sector difference in growth rate of output per employee of 1.4 percent per year is about two-thirds of the nine country-sector difference of 2.1 percent for that measure. From 1950 to 1976 the U.S. growth rate of output per employee in all industries was also about two-thirds of the nine country growth rate. These relationships suggest that the rate of productivity growth in services is roughly a constant proportion of the rate of productivity growth in industry, and that long term increases in a country's productivity growth rate tend to be associated with proportional increases in productivity growth in industry and services.

A different picture is obtained from data developed by Stein and Lee (1977). Between 1963 and 1974, gross domestic product per employee in Japan increased at an annual rate of 11.3 percent, eight times the U.S. rate of 1.4 percent per year (for 1963–73). During that period the average Japanese increase in manufacturing productivity was 10.3 percent, only triple the U.S. rate of 3.4 percent. However, productivity in finance grew 14.3 percent per year in Japan while declining at a .8 percent rate in the U.S. The comparison for miscellaneous services was 11.0 percent (Japan) and −.7 (the U.S.). The data are available for only 10 countries and not all industry groupings are comparable. The information which is available, however, suggests that rather than changes being proportional, service industry productivity growth rates tend to be highest relative to industry productivity growth rates in countries with high industrial productivity growth.

TABLE 4.—GROWTH OF OUTPUT PER MAN-HOUR BY INDUSTRY, 1950–77

[In percent]

Industry	1950 to 1965	1965 to 1973	1973 to 1977
Agriculture	4.9	3.6	3.0
Mining	4.3	1.9	−6.1
Construction	3.4	−2.1	.3
Manufacturing:			
Nondurable	3.2	3.3	2.2
Durable	2.5	2.2	1.2
Transportation	3.0	2.9	1.0
Communication	5.3	4.6	6.7
Utilities	6.1	3.5	.2
Trade:			
Wholesale	2.6	3.4	−.8
Retail	2.3	2.1	.8
Finance, insurance, and real estate	1.6	.2	2.3
Services	1.2	1.7	−.3
Government	.4	.5	.1

Source: "ECONOMIC REPORT OF THE PRESIDENT, JANUARY 1979," p. 71.

The slowdown in productivity growth which has pervaded the economy since 1973 and to a lesser extent before has taken its toll on the service industries. Table 4 shows changes in growth rates of output per man-hour. During 1973–77 productivity in retail trade increased by only 0.8 percent per year while productivity in wholesale trade and miscellaneous services declined. In marked contrast to the trend, measured productivity growth in financial industries greatly accelerated. The slowdown appears also at the detailed industry level (National Center for Productivity and Quality of Working Life, 1978, p. 15).

	Average annual rate of change of output per man-hour	
	1958–67	1967–77
Retail food stores	3.1	0
Gasoline service stations	2.8	4.5
Eating and drinking places	1.1	.5
Hotels and motels	3.0	.9
Boundary and cleaning services	[1] 1.5	.8

[1] 1947–67.

Only in gasoline service stations, where the shift to self-service was strong, did the reverse occur. This is consistent with the interpretation that not only does service productivity respond strongly to conditions which influence productivity growth in goods-producing industries, but that the proportional degree of response is even greater for services.

If more rapid service productivity growth is associated with more rapid productivity growth in goods-producing industries, the dynamics of that relationship becomes of critical importance. Are technologies spilling over from the goods sector? Does the need for wages to rise faster in services, to retain labor when productivity rises more rapidly in goods, cause service firms to seek additional means of innovation? Do societal factors such as rising education create productivity gains which are larger in industries which have tended to have low levels of output per unit of resources?

Has Long-Run Productivity Growth in Services Declined or Accelerated Relative to Industry?

Maddison's (1979, table 7) estimates of productivity growth for four countries show an acceleration between 1870–1950 and 1950–1976:

AVERAGE ANNUAL RATE OF GROWTH OF OUTPUT PER EMPLOYEE

[In percent]

	1870–1950		1950–76	
	Industry	Services	Industry	Services
Germany [1]	1.3	0.7	5.0	2.9
Italy	1.4	.6	4.3	1.8
Japan [2]	1.7	.5	8.3	4.0
United Kingdom	1.2	.2	2.6	1.3
Average	1.4	.5	4.1	2.5

[1] 1871–1950.
[2] 1906–50.

The average rate of growth of output per employee in services was only one-third of the rate in industry in the earlier period while it was three-fifths as large in recent decades. This is true in spite of the fact that the size of government was smaller in the earlier years and the assumption of zero productivity growth for government in the GNP accounts more heavily reduces the recent growth for the service sector.[5]

A similar conclusion is derived from comparisons of value added per worker among 50 countries in 1965. Chenery (1975, figure 9) found that productivity in industry increased faster than in services with rising per capita income, with the increase beginning at an income equivalent to about $500 per capita today. The difference became especially marked above $800 per capita.

Fuchs' (1968) data on output per employee in the U.S. indicate that the rate of productivity growth in services increased from one-third the rate in industry from 1929 to 1947 to one-half after World War II (Fuchs, 1977).[6] Yet the difference between services and industry in price change increased from 0.4 percent per year to about 1 percent per year, implying a slowing in the rate of service sector productivity growth relative to industry. This contrast between findings using prices and output per worker is more general and is central to the question of whether productivity growth in services is accelerating or decelerating relative to goods.

Clark (1978) compared the ratio of service prices to commodity prices with the level of all consumption per capita (valued in 1958 dollars) across countries and for various years over the last half century, where available. Clark used an aggregate of prices of household domestic and furnishing repair services, medical supplies and treatment (including government components), vehicle repairs, recreation education, barber and beauty shops and hotels and restaurants in Kenya, India, Colombia, Japan, Italy, United Kingdom, Ger any and France, based on data from the U.N. International Price Comparison (IPC) study of Kravis and others.

Interpreting a scatter diagram between relative prices and income as represented by figure 2, Clark arrived at:

> . . . the interesting conclusion that there is a point of inflection, in the service/commodity price relationship, where private consumption per head reaches the neighborhood of $1,000 of 1958 purchasing power, i.e., at the stage of development reached by the United States in the 1920's, by Britain in the 1950s, by Japan in the 1960s. In each case a marked upward movement appears in the relationship. But for the three low-income countries included in the IPC survey, and for Japan before 1965, no such upward trend is noticeable. In other words, over this considerable stage in the process of economic development, whether measured by the experience of one country, or by international comparisons, we are led to the unexpected conclusion that productivity in the service industries is rising at nearly the same rate as in the goods-producing countries.
>
> (Clark, 1978, p. 24)

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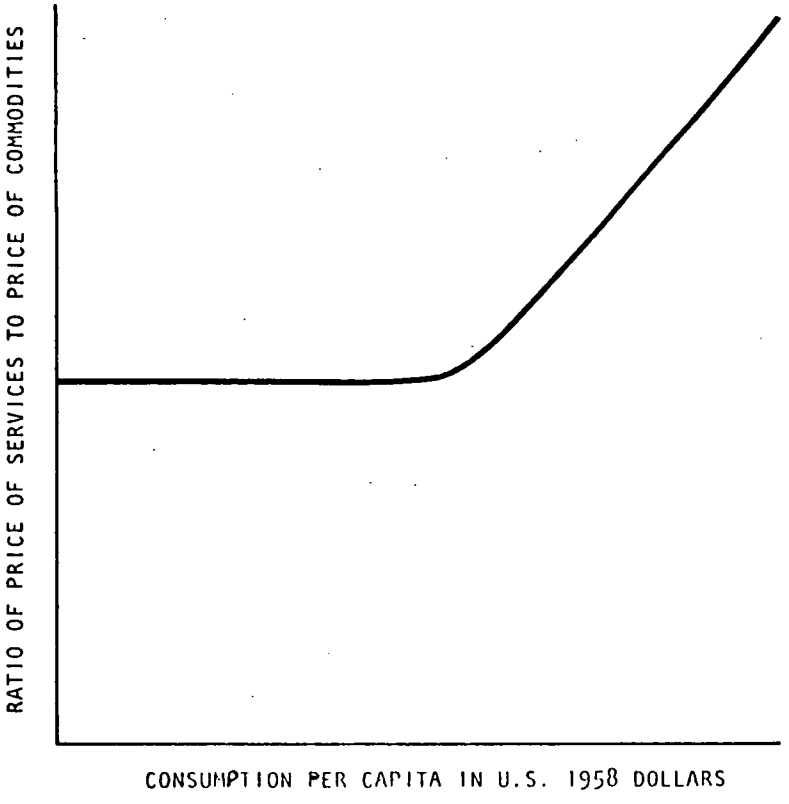
[5] The relative increase in service productivity growth after 1950 came in Japan and the U.K.

[6] Weiss (1978), amid considerable measurement uncertainties, found that for the U.S. from 1840 to 1900, productivity based on a more complete set of inputs did not diverge greatly between sectors. He notes that this result is dependent on the inclusion of transportation in the service sector. No comparisons are provided exclusing transportation from services.

FIGURE 2.—Clark's inflection point



The tendency for prices of services to rise considerably more rapidly than services in advanced nations, while to some extent exaggerated by measurement problems, is without dispute. The lack of a more rapid rise in service prices than in commodity prices among countries at low consumption levels is based on a handful of observations for Kenya, India, and Japan and requires further investigation.

Comparisons among 16 countries in 1970 which draw further on the work of Kravis and his associates provide additional evidence on Clark's inflection point in the relative price of services. The ratio of the average price of nontraded goods to the price of traded goods provides a broad measure of the ratio of the price of services to goods. The price level for traded goods in Kenya was 63.7 percent of the average price in the U.S. but the price level for nontraded goods was only 31.7 percent of the U.S. level. Thus, the ratio of prices of traded to untraded goods relative to the U.S. was 0.50, or 50 in index form $(31.7 \div 63.7 \times 100)$.

Table 5 compares the relative levels of Gross Domestic Product per capita with the price ratio. Overall there is a tendency for service prices to rise with development. The explanation for this is as follows:

(1) International trade tends to equalize the prices of traded goods. (2) Given equal prices, wages will be high in high-productivity countries. (3) Internal factor mobility will lead to high wages also in nontraded goods industries in high-productivity countries. (4) Because international differences in productivity are smaller in nontraded-goods industries (largely personal services) than in traded-goods industries (largely commodities), the prices of nontraded goods will be higher in high-productivity (high income) countries. (5) These high prices of nontraded goods have little if any impact on the exchange rate and thus make possible a difference between the overall purchasing power of the currency and the exchange rate.[7]

TABLE 5.—RATIO OF AVERAGE PRICE OF NONTRADED GOODS TO AVERAGE PRICE OF TRADED GOODS, 16 COUNTRIES BY LEVEL OF GROSS DOMESTIC PRODUCT PER CAPITA, 1970

Country	Real GDP per capita[1] (index, United States=100)	Ratio of average price of nontraded goods to traded goods (index, U.S. ratio=100)
Kenya	6	50
India	7	27
Phi.ippines	12	31
Korea, Republic of	12	44
Colombia	18	42
Malaysia	19	45
Iran	20	41
Hungary	43	44
Italy	49	58
Japan	59	62
United Kingdom	64	68
Netherlands	69	61
Belgium	72	59
France	73	70
Germany, Federal Republic	78	63
United States	100	100

[1] Nominal GDP deflated by index of price level derived from index of purchasing power parity divided by exchange rates.

Source: Irving Kravis, Alan Heston and Robert Summers, "Real GDP per Capita for More Than One Hundred Countries," Economic Journal, No. 350, Vol. 88 (June 1978), table 1.

Countries with per capital GDP below one-half of the value for the U.S. in 1970 tend to have a remarkably constant ratio of prices of nontraded to traded goods—at about 0.4. However, there is a sharp jump at that point. Countries with 1970 GDP per capita between 50 and 80 percent of the U.S. value also tend to have constant price ratios—at about 0.6. The U.S. price ratio is higher than the group below the U.S. in GDP per capital. While relative prices of services rise with development, the discontinuous change does not conform with the continuous rise found by Clark.

There is approximate constancy in the relative prices of services and goods across developed countries (other than the U.S.) at any point in time, and yet there clearly have been rapid price rises for services over time—as Clark notes, for example, for France. This is not because the price of services has outpaced the rise in the price of commodities by a similar amount in all countries. If the comparisons of countries at a point in time are separated from the comparisons of changes in the same country over time in Clark's scatter diagram, the finding of an "inflection point" is dependent on the experience in Japan since 1926. Clark also cites: (1) data from France since 1890; (2) Fuchs data on the deceleration in trend in seven miscellaneous industries between 1939–48 and 1948–63; and (3) studies of U.S. Post Office productivity growth back to 1908. While the evidence is

[7] Kravis, *et. al.* (1978), p. 219.

not completely consistent, the relative price of services starts out constant and rises with development above some point, sharply if not smoothly and to increase within developed countries over time. But there is still a question of whether this means what it appears to mean for productivity comparisons.

The use of relative prices as a measure of relative rates of productivity growth in services versus goods production is dependent on the assumption that a composite index of factor prices changes at the same rate in each sector. That assumption may not always be valid, however. The assumption of similar factor price movements in goods and services may be least valid precisely in the early stages of economic development when service prices rise relatively less rapidly. The growth of income with industralization is associated with a "demographic transition" in which death rates decline and birth rates fall decades later. The result is a rapid growth of the labor force at a time of rapid migration from farms to cities. The large supplies of labor during the transition may lead to much slower growth of wage rates in services than in industry. Under these conditions the price of services need not rise more rapidly than the price of goods even if productivity growth in industry was far outpacing productivity growth in services.

Clark's data show that, rather than rising, the ratio of service to goods prices in Japan fell from 0.9 in 1926 to 0.7 in 1932, 1955, and 1960. The timing of the drop appears consistent with the rapid growth of the labor force once the demographic transition was under way. (Rostow, 1978, p. 25). The U.S. data are consistent in timing as well. While no sharp rise in the labor force due to demographic transition occurred in France during the period examined, the amount of inflection in the price relationship there is weak. The services examined may be explained by differential factor price movements rather than by any real change in relative productivity with economic development at the early stage.

If we rely on output per man rather than on the potentially biased comparisons of prices (whether in Fuchs' contrast of 1947–76 with 1929–47 for the U.S., or intercountry growth comparisons with Maddison's data for 1950–76 and 1870–50), we find no deceleration of the relative growth of productivity in service production, relative to goods. What evidence there is is consistent with the notion that a small acceleration may have already occurred.[8]

The Service Industries Enter a New Era

The image of service industries as a lagging sector with little innovation, exerting a drag on economic growth, always required qualification. In the first half of the century, self-employment declined from one-third of all nonfarm employment to one-tenth. The diverse entre-

[8] The United States experienced a more rapid rise in wage rates at low skill levels than at high skilled levels between 1900 and the early 1950's (Keat, 1960). This was the result of several factors including restrictions on immigration, unionization, New Deal legislation, the slower movement from farms to cities and the rise in skills and capital and other inputs per worker. The rise occurred in a period when service industries contained a disproportionate number of workers with lower than average skills. There has been no similar tendency for earnings to rise fastest at the lowest skill levels since the early 1950's to contribute to more rapid price increases in services.

Fuchs' data show faster relative service industry price growth in the postwar period compared to 1929–47, the opposite of what this trend predicts. However, this may also reflect factor price changes. If the unusual 1929 boom raised service wage rates more than wages in industry, the relative growth between 1929 and 1947 would have been slower than after 1947.

preneurial activities which remained could no longer easily be characterized in toto as marginal. Enormous economies of scale and shifts to self-service were achieved in supermarkets, department stores, and gasoline retailing by the mid-1960's. Important examples of mechanization and use of technology could be found in banking, health care, wholesale trade, dry cleaning, and beauty parlors. Significant portions of the gains which did occur were left unmeasured in the conventional gauges of productivity, and differences in growth of efficiency between goods and service industries were persistently overstated. Moreover, effects on U.S. growth were often exaggerated.

During the last 10 to 15 years important changes occurred which went beyond these traditional differences. Office automation made important beginnings in the widespread use of electric typewriters, cassette dictation, and copying machines. Microfilm and data processing began to make their influence felt in libraries and accounting offices. Vast improvements occurred in medical diagnostic equipment. Banking introduced new machines and computerized hotel and airline reservation systems came on the scene. Fast food restraurants spread a level of efficiency not usually associated with such labor-intensive activities.

These initial developments can now be seen as part of a veritable explosion in the application of modern management and technology to the production and distribution of services. Computerized axial tomography (CAT) scanners and other devices are creating a revolution in radiology. More efficient management of human services—through standardized design procedures, technologies, and organization arrangements for mass production—is leading to great improvement in chains of hospitals, eyeglass centers, dental offices, laboratories, and contract institutional food services. Teller machines are beginning to make a dramatic impact on banking. Office automation has come into its own with the use of text editors, small computers, and continuous processes for copying, along with new telephone equipment and automatic dialing and answering devices. Major changes are occurring with electronic mail and computerized cash registers, and video disc, tape, and cable systems offer enormous potential in many areas of education. There is every reason to believe that real estate agencies, title insurance, legal case searching, and numerous other services will be transformed as well.

Central to many of these achievements is the computer. Its effect on society is only beginning to be understood. But this is only one part of a broader set of technologies—electrical, biological, managerial, and materials that have begun to mature. The changes are extremely recent. When Fuchs' study began in 1963 no such list could have been put together based on actual or imminent experience.

At present these gains are heavily concentrated in the private service sector. How quickly and how fully government will respond to the new opportunities is uncertain. What is certain is that the potential is large. Enormous gains could be obtained through automated determination of program eligibility and record keeping, tax computation, data collection, and numerous other public functions.

Existing measures of productivity have not reflected these gains. In part that is because some of the improvements are poised to occur

and, while important is some communities, have not yet produced large impacts on the economy as a whole. But that is not the whole story. Many improvements have not shown up in existing productivity measures at all. Many appear as declines in productivity because we count the inputs which are necessary to provide a greater quality and variery of service or to introduce change, without measuring the gains which they create.

Large improvements in productivity can be expected in the next decade because women who have recently entered the labor force or who had less frequent attachment to it will gain extensive experience with today's high labor force participation rates. Major gains will also occur as a result of increasing efficiency in the allocation of female labor as role barriers diminish. Together these factors should add about one-half percent per year to U.S. productivity growth in the 1980's (Leveson and Newitt, 1978). Because so many female workers are employed in services, that is where productivity gains from improved utilization and experience will be concentrated. But that is also where those gains are least likely to be measured.

Increasingly, over the decades ahead, the U.S. is likely to have significantly greater growth in output and productivity and slower inflation than existing measures indicate. In formulating economic policy, we must be careful not to be misled by statistics which will increasingly fail to reflect in the aggregate what is really occuring. But at the same time we must think carefully about how to deal realistically with the measurement problems. Billions of dollars for data collection have not helped enough in the past. Modest efforts with imagination and judgment will always be appropriate, but large expenditures do not provide an easy or even likely answer. We may have to conclude that it is simply necessary to rely less on aggregate statistics and more on the detailed information which we encounter daily. We may also have to be more cautious in the use of large econometric models for policymaking, when those models are bound by data whose reliability for gauging current changes is deteriorating.

This is an opportune time for a serious national review of the complex issues of productivity in the service industries and its implications for measurement and policy. Rules of thumb will have to be developed that reflect a consensus on how much error exists. It will probably be necessary to supplement the Gross National Product with a new Adjusted Measure of Production (AMP) which incorporates these rules of thumb into an ongoing gauge of our rate of output and productivity. In a difficult time requiring judgment, when measures necessarily have serious limitations, it is essential that professionals become fully aware of how judgments may be affected and that strong public confidence develops in the knowledge that public officials are responding to situations in ways which are not inconsistent with what people observe in their daily lives.

The Service Industries and U.S. Economic Growth: Quantitive Relationships

The effect of slower service industry productivity growth on aggregate productivity change appears to have been much smaller than usually imagined. This has been demonstrated in studies by

Grossman and Fuchs (1972) and Denison (1973). With prospects for accelerated productivity growth in services, concern that services will exert a drag on productivity growth will be even less warranted.

There are three reasons services do not exert a large drag on U.S. economic growth: (1) The difference in sector rates of output growth is relatively small. Thus there is no large tendency for output to become concentrated where capital per worker is low, economies of scale less important, etc. (2) The difference in productivity growth among sectors is much smaller when a measure of total productivity rather than labor productivity is used, i.e. when productivity is measured as a ratio of output to an aggregate of all inputs rather than as a ratio of output to man-hours. Thus, if the sector difference in output per man-hour increases because capital per worker grows more rapidly in goods-producing industries, the difference in output per unit of total factor input does not rise. (3) The growth of a low productivity sector lowers the growth of productivity nationally. However, the sector difference in levels of productivity is not large. In fact, Fuchs (1968) found that the 1959 sector difference in "expected hourly earnings," a measure which takes account of education, age, sex, and race, was only one cent per hour.

Expected hourly earnings in services was $2.50 compared to $2.51 in goods, reflecting the diversity of the service sector which includes finance, professional services and government. Actual hourly earnings in goods-producing industries was higher than in services—$2.70 vs. $2.31. This difference reflects unionization, firm size and other factors and is only partially indicative of a difference in skill levels. The small differences which remain are totally inconsistent with a view that services as a whole are a backward sector. Reflecting this are recent studies by the Bureau of Labor Statistics which show that changes in industry mix reduced U.S. economic growth by only about 0.1 percent per year (Mark, 1978; Mark et al., 1977). The same kind of reasoning and calculations would likely indicate that the expansion of services will not make a large positive contribution to growth by reducing energy needs.

Economic growth has benefited from the interaction of the conditions of demand with technological change, economies of scale, and physical, human and social overhead capital. Leading sectors have typically been those with product demands especially sensitive to price. Hence, with declines in relative prices, output expanded rapidly. Furthermore, product demand in growing sectors was often particularly sensitive to income, so that increases in income resulting from higher productivity growth led to further increases in production and income.

One reason for concern about growth of services is they appear to involve a major change in these relationships, and with it a change in the prospects for economic growth. For example, Nelson (1979) has suggested that demand for services is less price elastic than demand for goods. However, this may be nothing more than an artifact produced by measurement problems. Changes in product quality are less easily measured in services because services are less standardized than goods. When quality increases are not measured in output or are treated as price increases, the amount of price rise is overstated and the rise in output is understated. As a result the price elasticity

of demand may be understated by a substantial margin. This may be true both in direct observation or in formal attempts at measurement. An understatement of income elasticities also arises to the extent that product quality changes are not measured or are misrepresented as changes in price.

There is also a tendency to understate the role of income effects in demand growth when services are provided through some form of collective insurance mechanism. In assessing the effects of income on the demand for nursing home care, for example, it is necessary to consider not only differences in use of services among persons with the same amount of insurance coverage, but also to consider the demand which results because private insurance or public funding grows as an effect of rising income (Chiswick, 1976).

Once consideration is given to the effect of measurement problems in determination of price and income elasticities of demand, and to the impact of income when services are purchased through collective means, there is no reason to believe that the service sector is any less able to benefit from income and price effects than the goods sector. Consequently, one cannot conclude that, in this sense, reliance on services as the leading sector implies any slower rate of economic growth than when goods industries are in the forefront.

The relationship between productivity change and employment growth across industries also may be confounded by the combined effects of measurement error and varying income elasticities. Studies comparing detailed industries within major industry groups have consistently found that industries with the most rapid rates of productivity growth tend to have the greatest longrun rates of employment growth (Fuchs, 1968, p. 92). This positive relationship implies that rapid productivity growth (which lowers prices relative to products of other industries and tends to occur where product demand is most price sensitive) results in sufficiently large increases in output to raise rather than reduce labor demand. Fuchs found, however, that when comparisons were made across 10 major industry groups covering the entire economy during 1929–65, the relationship between productivity and employment growth was strongly negative.

Fuchs' negative relationship across major industry groups could have been obtained if, in those industry groups in which productivity growth had been slowest, the increase in output had been understated. Correction for measurement error would raise the rate of growth of productivity in slow productivity growth industries, reducing the correlation. Another possibility is that slow productivity growth industries tend to have had higher income elasticities of dee mand and that demand growth stimulated increases in employment. If this were the case, and if only industries with similar incom-elasticities of demand were compared, then the negative relationship between employment and productivity growth would also be weakened. Analyses of detailed industries within the same group may serve to compare industries with similar elasticities, accounting for the different result. Both of these arguments probably have some merit but they do not appear to be sufficient to fully explain the large difference in findings.

Completion of the explanation is suggested by a closer look at the nature of product demand. If some industries within a major industry

group have particularly large productivity growth and price elasticities of demand, then the decline in their product prices would be expected to reduce the demand for products which are substitutes in consumption. The closest substitutes may be the products of other industries in the same industry group. If that is the case, the positive relationship within industry groups may derive from a tendency for slow productivity growth industries to lose employment as much as it derives from the tendency for high productivity growth industries to increase it. Therefore, major industry groups containing the highest productivity growth industries may have either above average or below average rates of employment growth.

Once all considerations are taken into account the interindustry relationship between productivity growth and employment may be little different than the relationship over long periods of time for the economy as a whole, a relationship that has seen neither increasing unemployment nor labor shortages. Analysis of earnings may create an important opportunity to test whether this is the case, and in the process to develop adjustment factors for unmeasured service industry productivity gains.

The competition among industries for labor creates strong pressures for wages to rise at similar rates in different industries over extended periods. As a result, comparisons of detailed industries show no correlation between the rate of growth of average earnings and the rate of growth of productivity (Kendrick, 1961, p. 198). In the short run, however, workers in rapid productivity growth industries tend to attain higher wages because of lags in attracting labor from other industries and entry of new firms. In many instances earnings in such industries have remained high for many years.

The long run lack of correlation between growth of earnings and productivity in detailed industries, typically within the same major industry group, is also in contrast with the relationship across major industry groups. Fuchs (1968) found more rapid increases in compensation per manhour in the major industries with the most rapid increases in productivity. This finding was replicated with various productivity measures. The contrast suggests that industries growing rapidly in productivity can with relative ease employ workers who come from other industries in the same industry group, so that earnings tend to equalize among industries within the group. However, if workers moved less easily between major industry groups because of differences in skill requirements, hours of work, location etc., there could still be greater than average increases in earnings in the major industry groups growing fastest in productivity over rather long periods of time until adjustment occurs.

These relationships suggest a method of testing the hypothesis that the difference in productivity growth between service industries and goods-producing industries has narrowed. The long run relationship between productivity growth and earnings would be expected to shift if service industries experienced a rise in productivity not reflected in conventional measures. Each percentage point difference in the annual rate of productivity growth between goods and services would be associated with a smaller difference in the rate of growth of earnings if the difference in productivity growth had become smaller. Moreover, the short run rate of earnings growth in service industries would be

expected to increase relative to the growth of earnings in goods-producing industries, beyond any change projected based on measured productivity growth. Thus, if a large unmeasured acceleration of service productivity growth occurred (compared to goods), it should be possible to demonstrate the fact with statistical evidence within a decade or so even without any improved ability to measure output. In fact, it could become possible to derive implied output differences based on the behavior of earnings.

The Service Industries and U.S. Economic Growth: Some Policy Considerations

There is a need to reexamine the way public policies are formulated in an age when service industries are a major source of economic growth. Since output in goods-producing industries tends to be more cyclical than service production, there is a tendency to assume that service industry output is relatively insensitive to the effects of efforts to stimulate the economy. Yet in the Congressional Research Service's study of the historical record of economic stabilization policies published by the Joint Economic Committee in 1978, Wharton Econometric Forecasting Associates showed that the 1964 tax cut had quite large effects on output growth in much of the service sector (Congressional Research Service, 1978, tables 111.4 and 111.5).

International development efforts have given great weight to stimulating industries with high income elasticities of product demand. Thus, as income grows, demand rises further and the impacts of development policies are more greatly multiplied. However, U.S. development policies have tended to emphasize goods-producing industries, even though the income elasticity of demand is greater for many services.

In the last few years there has been major recognition of the role of services in economic development at the local level, although that recognition is still limited to relatively few geographic areas. New Jersey has placed strong emphasis on the development of colleges, medical education, the Meadowlands Sports Complex, Atlantic City resorts, and the Princeton office and research market. New York has attempted to develop a banking free trade zone, a reinsurance consortium and the theater district. Several cities have stimulated growth of convention centers, hotels, and shopping malls. Puerto Rico has made a strong commitment to service industries as a central element of its growth strategy, following a period which already saw substantial growth in banking, credit agencies, insurance, health services and other areas. (Ruiz and Zalacain, 1978). Arizona has benefited from advances in architecture, banking, health care, and multiple listing services in real estate, as well as leisure industries based on the Grand Canyon and other natural endowments (Bracken, 1979). In this connection, a recent study had findings which suggest "that the changing role of the core city—to a service orientation and away from a manufacturing orientation—in and of itself does not have an unfavorable effect on city revenues. At least this is the case for New York City" (Ball and Graytak, 1976, p. 427). While no similar consensus on the role of services in local development has emerged at the national

level, Federal public works and urban aid programs have been increasingly used to develop service activities.

These developments raise serious questions about the reliability of economic base studies, which treat an area's economic growth as dependent on industrial activities. Not only can service activities no longer be treated as following passively, but they are increasingly at the heart of the development process.

The impact of services in international economic relationships, especially financial services, already has received considerable attention in policy circles (U.S. Department of Commerce, 1976). There is increased recognition of the potential growth of national and international tourism (Kahn, et al., 1976, Bond, 1978). Services are less frequently tied to specific locations than in the past, opening up potential for more extensive international activities later. For example, there are now several real estate brokers operating on a national scale and services for swapping houses for short periods are growing internationally. A study of 1500 firms in New England engaged in advertising, management consulting, research and development, equipment rental and leasing, engineering, architecture and accounting found that 21 percent sell more than half of their output in the United States outside the region and about 8 percent make more than 10 percent of their sales abroad (Ashton and Sternal, 1978).

The relationship of the growth of services to research and development issues is not yet well understood. There have been concerns that the growth of industries which are less capital intensive and less "science-based" might result in less R. & D. with ultimate effects on the Nation's rate of economic growth. There are several reasons indicating that such suggestions are not well founded. First, some service industries are science based, particularly health services with strong biomedical science foundations and universities which encourage research well beyond immediate industrial considerations. Second, the increasing share of resources devoted to services creates a large incentive for R. & D. activities designed to economize on those resources. There are many indications that research aimed at producing "induced innovation" effects of this kind is quite important. Moreover, the service industries are a potentially large consumer for many of the new products of R. & D.—computers, word processing equipment, automated cash registers and check-out equipment, teller machines and other financial equipment, telecommunications, etc.

Companies deciding whether to invest in R. & D. consider the potential market in the service industries in combination with markets in other industries. Suggestions for government to redirect R. & D. efforts toward service markets make little sense. The private market has already responded to the potential, and intervention in that process likely is to do more harm than good.

With many service industries now undergoing rapid technological and organizational changes leading to higher productivity and new products, the risk is that traditional restrictions on market entry will hold back the grains which are already on their way. As Walter Wriston recently put it, "The biggest problem facing commercial banking today is not the new competition, but the old regulations" (Wriston, p. 6 of Introduction to Sparks, 1978).

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Some Employment Implications of the Growth of Services

The trend in self-employment as a percent of all nonfarm employment showed a sharp decline through the early 1950's which then moderated. The modest decline from the early 1950's to the early 1970's, and especially the acceleration of the decline from the mid-1950's to the mid-1970's, may be a statistical artifact (resulting from the growth of the underground economy) as well as a response to recent economic changes. One indication that part of that decline is real is the fact that the real income of the self-employed also fell, tending to track the decline in corporate profitability.

During the last three years there has been a rapid growth in new business formation. Nonfarm self-employment rose 10 percent between 1976 and 1978. This occurred in a period when employment growth was extraordinarily rapid, especially among newly aspiring female workers, and the rise in the share of service employment accelerated. Further increases can be expected during recessions because of the tendency of some workers to enter self-employment when wage and salary jobs are scarce. Whether the proportion of nonfarm workers in self-employment will grow after 1981 is uncertain, however.

Some observers have expressed the hope that as service industry employment grows, opportunities for self-employment might improve; as services have grown, however, they have begun to look more like goods-producing industries, with larger firm sizes and growing opportunities in wage and salary employment. International comparisons clearly show a tendency for the share of salaried employees in employment within the service sector to rise along with the share of total employment in services (figure 3). The relationship is S-shaped rather than a straight line; the rate of increase in share of salaried employment tends to taper off.

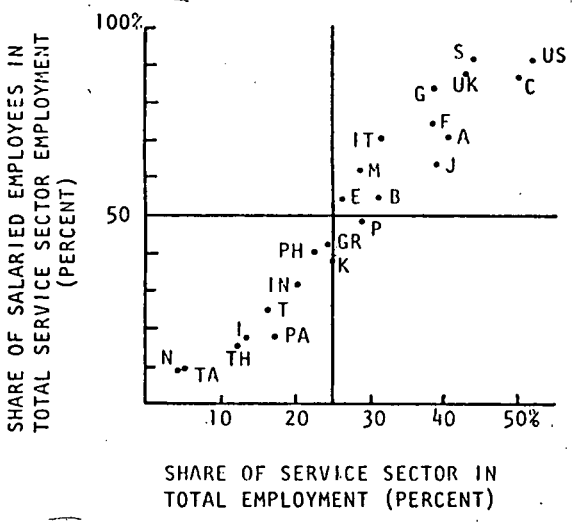
Nevertheless, the services industries have provided a strong source of employment during the heavy growth period of women and youth supplies. Half the recent rise in self-employment occurred among females. Opportunities for part-time work, work close to home and work often requiring rather general types of abilities has been an important factor in allowing such sizeable increases in women and youth employment to take place.

Because the U.S. has a large service sector, the stability of employment has been significantly greater than it otherwise would have been in the face of economic shocks and business cycles. The stabilizing effect is enhanced by the strong long-term trend and by the acceleration of service employment growth in recent years. The stabilizing influence has been emphasized in discussions over European economies (Lengelle, 1979) where high rates of unemployment are of recent vintage.

The relative stability of service employment derives from several sources:

(1) Compensation tends to be more flexible. Service industries include occupations receiving tips, commissions and self-employment income, firms are typically smaller and unions less prevalent.

FIGURE 3.—The relationship between the share of salaried employment in service sector employment and service sector's share in total employment, 1970.



KEY

ARGENTINA:	A
BRAZIL:	B
CANADA:	C
EGYPT:	E
FRANCE:	F
GERMANY:	G
GREECE:	GR
INDIA:	I
INDONESIA:	IN
ITALY:	IT
JAPAN:	J
KOREA:	K
MEXICO:	M
NEPAL:	N
PAKISTAN:	PA
PERU:	P
PHILIPPINES:	PH
SWEDEN:	S
TANZANIA:	TA
THAILAND:	TH
TURKEY:	T
UNITED KINGDOM:	UK
UNITED STATES:	US

Source: EMI (1978), p. 20.

(2) There is less of a tendency toward overexpansion of plant and equipment or excessive buildup of inventories. This results in less pressure for cost cutting in all areas when demand falls.

(3) Employment in government, health care institutions and other quasi-public sectors is relatively insensitive to short-run market fluctuations.

(4) There is greater disguised unemployment in self-employment and part-time work.

The stabilizing effects of service employment are not without their drawbacks. For many of the same reasons that employment is more stable in service industries than in goods-producing industries, productivity and labor compensation tend to fluctuate more over the business cycle (Fuchs, 1968). As service industries become more like goods-producing industries in capital intensity, methods of compensation etc., other things equal, there may be some increase in cyclical variability of employment.

The particularly large share of services in the economic growth of the 1970's has been associated with both advantages and disadvantages. A disadvantage occurs because the problem of adjustment to economic change is intensified. Adjustment would be far easier in an

economy where slower employment growth could be distributed among both goods and services than it is in the one where some goods industries are seriously affected by change while service employment grows rapidly and even accelerates. In spite of the more difficult adjustment problems in the latter situation, overall growth has been allowed to occur. As Kuznets has pointed out:

> One basic requirement of modern economic growth is therefore the capacity of society to accommodate itself to the shifts and displacement involved in the trends in industrial structure of labor and capital, without putting so high a price on this adjustment as to starve the growing industries of the resources needed for growth.
>
> (Kuznets, 1966, pp. 157–158)

The concentration of employment growth in services has made it possible to have that growth without impediments from actions generated in sectors with more serious problems of adjusting to recent fluctuations and structural shifts.

Prospects for Service Employment Growth

Previous studies have suggested vastly different outlooks for service employment depending on the method of projection used. Three methodological considerations appear to account for much of the variation in projections. When allowance is made for biases introduced by inappropriate methodologies, a consistent picture of service employment growth emerges. Nevertheless, there are important reasons why future trends may diverge from simple extrapolations of past experience.

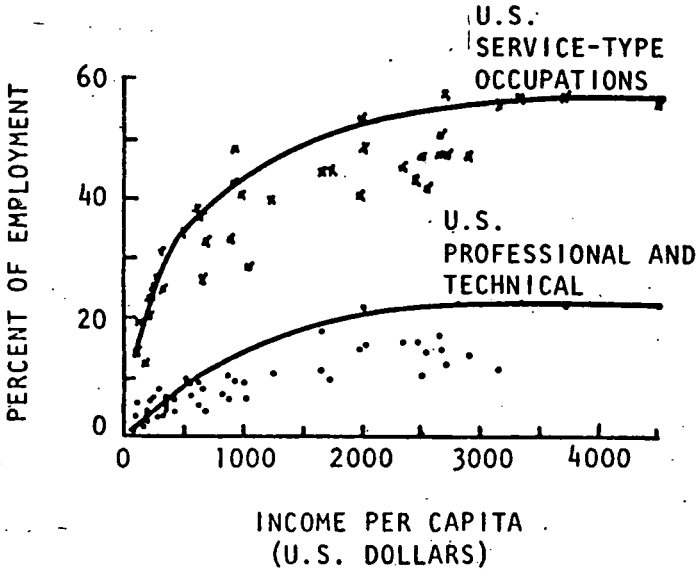
Emi (1978) sees signs indicating the end of shares of service employment growth and of employment growth in professional and technical occupations in comparisons among countries in 1970. His freehand curves in figure 4 purport to illustrate that a plateau has been reached. But curves drawn through the center of the points rather than as an envelope around them would still slope upward. There has been continued growth in the service shares beyond these levels in nearly every industrial country since 1970.

Emi's curves suggest a pervasive tapering of the growth of service employment. But that is to a large extent because the denominator includes agriculture, and the decline in agricultural employment has become smaller. The share of services in service plus industry employment has continued to grow.

A third kind of error in projecting changes over time is introduced by the use of comparisons of countries at a point in time. Countries with the highest share of employment in services at a given point in time have typically had higher than average shares all along.

Therefore, comparisons of the share of services among countries according to per capita income tend to overstate the rise in service

FIGURE 4.—Employment in service-type occupations as a percent of total employment, 1970.



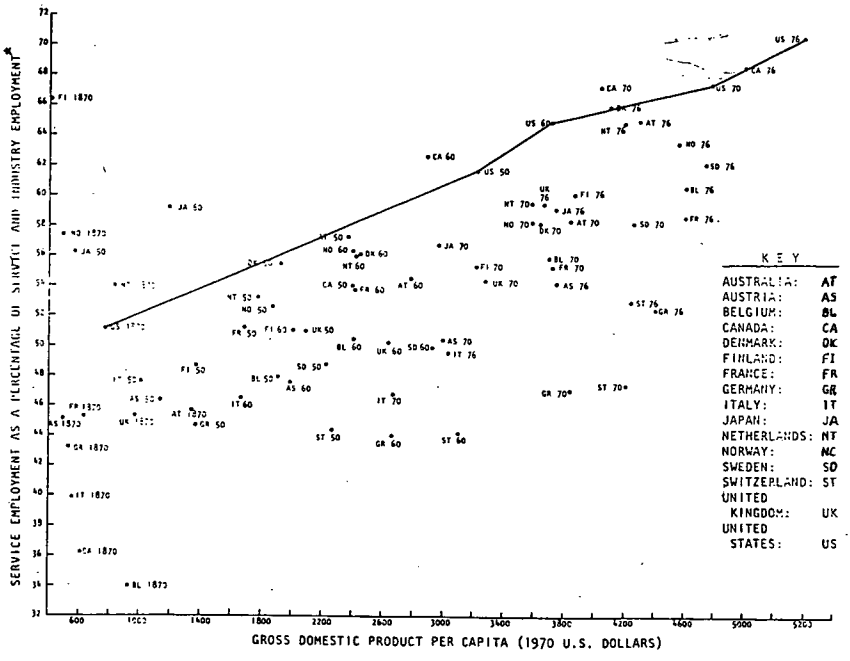
Source: EMI (1978), p. 28.

employment with development, in contrast with the relationship for an industrial country over time. This is illustrated in figure 5.

Lengelle (1979), looking at Maddison's data which include various countries as well as years and which includes agriculture in the denominator suggests that the trend must change greatly or services will exceed 100 percent of employment by the end of the century. A sharp contrast is provided by the straight line projection of historical shares of services in nonfarm employment for the U.S. in figure 6. Continuation of the trend of the past century implies that the service share of employment will reach 90 percent during 2020–2025.

When one looks at the social, demographic economic pressures which are likely to become important in the 1980's and 1990's and at some of the technologies coming along, a rather clear picture emerges that the growth of service employment will slow down. The forces slowing service employment growth will influence both service industries and service-type occupations within industries. But some will also slow goods employment growth so they will not have the same impact on service's share.

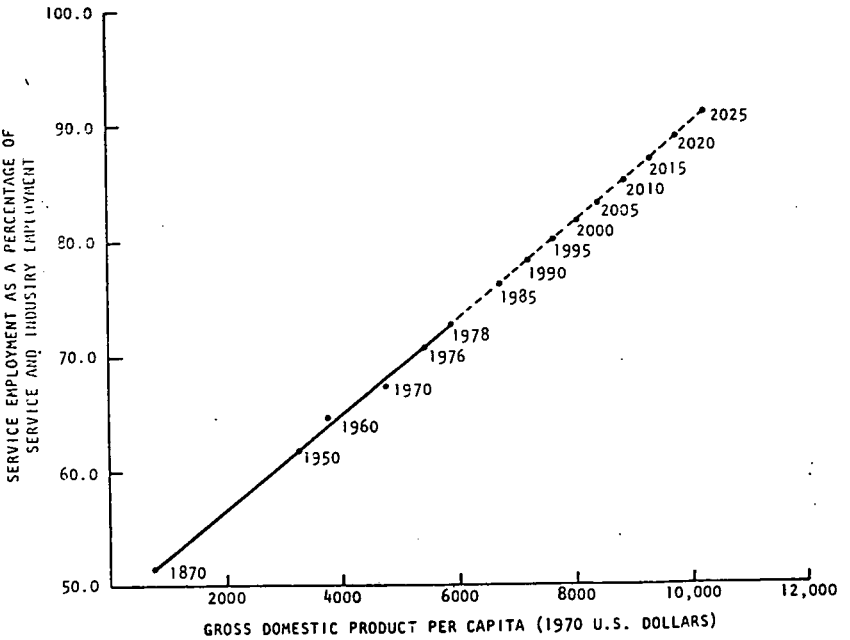
FIGURE 5.—Nonfarm sectoral distribution of employment, 1870–1976.



* Industry includes mining, manufacturing, electricity, gas and water, and construction. Services is a residual including all economic activity other than agriculture and industry, private and governmental (including military).

Source: Maddison (1979).

FIGURE 6.—Nonfarm sectoral distribution of employment by year and level of GDP per capita, 1870–1978 and straight line projection to 2025.



NOTE.—Industry includes mining, manufacturing, electricity, gas and water, and construction. Service is a residual including all economic activity other than agriculture and industry, private and governmental (including military). Assumed average annual growth rates of real GNP: 1978–85, 2.0 percent; 1985–90, 1.5 percent; and 1990–2025, 1.0 percent.

Demographic

The period of rapid growth in the supply of youth is ending. The entrance into the labor force of persons born between 1946 and the mid 1960's when birth rates were high will be over by the early 1980's. This end of rapid supply growth will come first among those who enter the labor force at the youngest ages—persons with the least education who are most likely to go into personnel services and retailing.

While female labor force participation rates may rise gradually for a decade or more, the period of most rapid increase is expected to be over by the mid 1980's, according to the latest BLS projection, and it may be ending now. Furthermore, pressures for equal pay may encourage substitution of capital or reduce product demand in industries which employ large amounts of female labor. However, movement of women into less traditional areas may stimulate employment growth there.

Social

There are immediate and powerful pressures to limit the growth of government spending and to improve the efficiency of public services. At the same time the public sector can benefit greatly from emerging technology, either through its own activities or through contracting out. These pressures also effect not-for-profit organizations and competing organizations including hospitals, private colleges and voluntary agencies.

Economic

The growth of service employment in the 1970's has been stimulated in part by several factors which have had disproportionate effects on capital-intensive industries. These include a high risk business environment, the imposition of costly environmental rules, high energy costs, effects of inflation on the adequacy of depreciation allowances and other aspects of taxation, and impacts of inflation on capital project financing. These conditions may gradually improve in the 1980's, with the relative price of goods moving to encourage relatively more goods production.

Technological

Various new technologies can be expected to reduce the demand for specific service-type occupations. Many of these will have an impact particularly on occupations in which jobs are typically filled by women. Teller machines and other devices should substantially reduce the demand for employees in bank branches. Thousands of telephone operator jobs are being eliminated in the next decade through the introduction of automated systems. Some reduction in demand for secretarial jobs will occur as a result of the wide-spread use of text editing machines and automatic telephone dialing and message systems. Simpler kinds of direct voice imput should come into widespread use. Microwave ovens and retortable pouches (plastic bags which are placed in boiling water) are beginning to make significant inroads in the food service industry. Once cheap supplies of high quality labor are no longer as available, there may be much greater use of automated food service systems in fast food and family food

restaurants. The widespread use of videodiscs, cassettes or cable systems could stimulate extensive catalog shipping once products may be "examined" easily in the home, reducing demand for sales workers. Recorded lectures may have a significant impact on college teaching, while computer instruction may affect education at various levels. These changes may heavily impact some very large occupations and disproportionately affect typically female occupatio_s. However, the slowing of demand may match the slowing of supply and no overall increase in labor force imbalance need be expected.

These forces suggest a slowing of the growth in the share of service industries in U.S. employment by the mid to late 1980's. But that is far from certain. Some of the technologies may never develop sufficiently. The labor force participation rate of women may rise until it approaches the rate for men. Immigrants may further raise the supply of labor. Increases in efficiency may greatly stimulate demand, and labor disemployed in one industry may be available to stimulate growth in another. Furthermore, technological improvements in goods production may substantially reduce employment in that sector, raising the service sector's share of the total. An aging population may have strong demands for travel, medical care and personal services. Thus, while the share of services may not grow as rapidly as in the past, the slowing of growth may be gradual and quite modest. There is certainly no clear reason to believe that the service share of employment will stop growing in the next decade or even the following one.

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WHAT HAPPENED TO THE WORK ETHIC?

By Michael Maccoby and Katherine A. Terzi

CONTENTS

Summary

There have been four work ethics in American history. They have in the past both expressed and reinforced productive strivings in the American character, but they have changed due to new technology and socioeconomic systems. The first was the "Calvinist Protestant ethic"; work was an expression of faith and salvation. The second was the "craft ethic," described by Benjamin Franklin, emphasizing independence and the quality of workmanship. The third was the "entrepreneurial ethic," dramatized by Horatio Alger, which held out the promise of creating one's own business. As America changed from a nation of self-employed farmers, craftsmen and small businessmen to an organizational society, a fourth work ethic emerged: the new "career ethic" stressed that hard work would pay off in promotion to the top.

Today, all four work ethics exist, but they are being eroded. The transformation from a rural to urban society weakens the "Protestant ethic," but it strengthens new demands for equity and participation. The workplace does not sufficiently satisfy strivings for craftsmanship and career development, nor for equity and participation, because leadership is often insensitive to these needs.

Survey findings suggest that a large percentage of workers is now seeking self-fulfillment outside of work, in leisure as well as in family life.

The American character is changing, and so are organizations. Unless leadership in business, unions and government directs and supports a new work ethic of self-fulfillment through self-development, oriented to serving both self and society, it is in danger of undermining the motivation to work.

As the country's productivity growth rate declines and inflation threatens economic stability, social scientists search for understanding. The growth of productivity helps make possible a rising standard of living and keeps American products competitive abroad. Most economists agree with the Department of Commerce view that productivity growth requires more capital investment plus research and development for new products and processes.[1] When machines take over from people, who sometimes are not efficient workers, costs per unit tend to decline. At best, however, experts insist that capital investment and research and development account for only a part of productivity increase. Beyond these inputs the issue is less clear, especially in terms of the human factor. How do human attitudes affect productivity? Is the decline in productivity growth caused at least partly by a change in attitudes toward work? Are Americans less motivated to work productively now than in the past? Some observers think so. They believe that there has been a decline in the work ethic, that Americans no longer are impelled to work diligently.

If this view is correct, the implications are profound and threatening. It would mean that workers increasingly will try to give as little as possible to get as much as they can. Productivity is bound to deteriorate, as is quality which demands care and pride in workmanship. A disappearance of the work ethic implies that people will work hard only if forced to do so, or are bribed by unrealistic wages and benefits. Costs would increase for policing, auditing, and control systems. Even then, who would watch the controllers who presumably would not escape the disintegrating work ethic? At the extreme, the decline in the work ethic would imply a significant change in the American character which would threaten our social system. As Erich Fromm has pointed out, each society must develop a social character that fits its productive system, so that people want to do what they have to do to keep the system functioning in the interests of all. Just as the work ethic has been a form of social cement for the American system, because it has expressed the productive strivings in the national character, its disappearance could weaken society.

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[1] Is this leadership a new form of benevolent patriarchal authority? That is unlikely, since in most large organizations, managers are employees also. Trust depends, not on the owner's good faith, but on a "constitutional" system of rights and obligations. However, even within such a system managerial leadership concerned about people as well as profit is necessary to bring out the best in people.

The contribution of workers to productivity gains is generally not considered a major factor determining increasing productivity. Even in the services and retail trade where the work is not machine paced and worker's attitudes are more important, the workers' contribution to productivity is considered only in terms of the degree of experience and training they have. A less experienced work force is less productive. However, research and experience with workplaces where work has been improved through the participation of workers and managers shows that productivity can be increased significantly when the workers are engaged in improving their own working conditions.

Office of the Chief Economist, U.S. Department of Commerce. "The Decline in Productivity Growth: Its Causes and Approaches to Remedial Actions." Unpublished paper submitted to the National Productivity Council. Washington, D.C.; April 1979.

This paper will first define more precisely what is meant by the work ethic, and explore the historical transformations in this concept due in large measure to new technology, a changing socio-economic system, and new challenges to traditional authority. Second, it will review the current evidence of a decline in motivation to work in relation to different types of jobs and workers. And third, it will interpret these findings in historical perspective and in terms of the challenges presented to leadership in America.

What Is the Work Ethic?

There is some confusion about the definition. Different observers define the "work ethic" differently.

For example, a Washington Post reporter visiting a typical mid-western city (4/22/79) writes about the "erosion of the work ethic" and quotes a union leader: "Guys used to have pride in work. . . Not anymore."

The sociologist, Rosabeth Moss Kanter has a different view: "The so-called work ethic of the past was really a 'progress ethic,' a conviction that hard work would pay off in future gains: a house in the suburbs, a crack at the move from mail room to management." (New York Times, 1/28/79). Does the work ethic mean pride in performance, or the belief that hard work pays off, or both?

The difference is important inasmuch as it implies differences in social character. On the one hand, if the work ethic means pride in workmanship, this implies the character of a craftsman who wants to build products of the highest quality. Such an individual would be most alienated by a job which did not engage pride in workmanship. There would be resentment in assembly line operation which allowed only a minute or so for a repetitive task and did not provide the satisfaction of building something and taking responsibility for its quality.

On the other hand, if the work ethic means payoff for hard work, the type of work done would matter less than would chances for advancement. The ambitious worker would become most alienated by a dead end job. Such an employee might not mind an assembly line job for a while, if there were chances to move up in the hierarchy.

The difference between these two views of the work ethic implies significant differences in ways of organizing work to be most productive. The craft ethic would imply job enrichment, greater autonomy and responsibility for individual workers and organizing production so that the individual worker can build a complete product. The career ethic might involve more rapid advancement and mobility within the firm, chances for training and counseling for career development. It might lead to a system of rank in person rather than job, based on level of skill and accomplishment. Which is closer to the truth?

The answer is that both are accurate descriptions of what the work ethic means and has meant to some, but not all workers. There is no way to study the distribution historically of different work ethics. The hypothesis presented here is an interpretation based on both history and present-day studies of workers in both industry

and government.[2] Most workers do seek meaning in their work, especially the most productive and interested individuals. Some who appear to work merely for pay find meaning in unpaid work done outside the workplace, for example, as parents or parttime farmers or craftsmen. In exploring American history, we can discern four definitions of the work ethic that represent changing socio-economic periods, and a changing American character. (At any time, there is probably a mix of ethics, with more than one existing side by side, but with one dominant.) The four are: (1) The Protestant ethic; (2) the craft ethic; (3) the entrepreneurial ethic; and (4) the career ethic.

At the present, a fifth ethic, a self-development ethic is emerging, the work ethic in America is changing, but it has changed before.

The Protestant Ethic

The Protestant ethic in America grew out of Calvinistic and Quaker individualism and asceticism. To some extent, this religious imperative to work at a calling for the glory of God was later secularized in the craft ethic of Benjamin Franklin which served as the ideal for generations of Americans.

The Puritan version supported a highly individualistic character, oriented to self-discipline and saving, antagonistic to sensuous culture and oriented to deferred rewards. Unlike the Lutheran view that a calling is a fate which should be accepted with good grace, the Calvinistic-Puritan view further demanded constant work at one's calling as proof of one's faith and membership in God's elect. Citing the parable of the talents (Matthew 25), the Puritan was urged to prosper: "You may labor to be rich for God, though not for the flesh or sin."

As Max Weber points out in *The Protestant Ethic and The Spirit of Capitalism*, the Protestant ethic appealed most to small farmers and craftsmen moving up in society and was functional for their success.[3] The Protestant ethic supported the development of a new man, with the individualistic character adapted to early capitalism where the individual could control a farm, business or workshop. Trust no man, repeated the Puritans. Only God should be your confidant. But there are no magical ways toward salvation through priestly intervention. Science, technology, industry and faith became the spirit of early America. The social character that supported this spirit was independent, controlled, and driven—all to overcome every doubt about salvation through work.

Later in American history, other religious traditions influenced attitudes to work. The Catholic sense of family and hierarchy and the Jewish belief in law and learning have contributed to forming the American character. But the Protestant ethic provided the founding spirit, not altogether lost even in a modern, secular society.

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[2] See reports from The Harvard Project on Technology, Work & Character: Michael Maccoby, "Changing Work: The Bolivar Project," *Working Papers*, Summer, 1975. Pp. 43–55.
"The Bolivar Project of Joint Management-Union Determination of Change According to Principles of Security, Equity, Individuation, and Democracy," May 1973–January 1974, *Final Technical Report* to the National Commission on Productivity, February 1974 (with W. E. Upjohn Institute for Employment Research).
"Study Project to Improve the Quality of Work Life at the Department of Commerce," July 1, 1977–October 31, 1978 (Maccoby, Margaret Molinari Duckles and Robert Duckles).
"Why Is It Frustrating To Work At ACTION Headquarters? or Attitudes Toward Work At ACTION Headquarters," unpublished report by Barbara Lenkerd.

[3] Max Weber, *The Protestant Ethic and The Spirit of Capitalism* (New York: Charles Scribner & Sons, 1930).

The Craft Ethic

More than a century and a half after the Puritan colonization of America, Benjamin Franklin provided a rational ideology for this hoarding-productive character in his list of ideal virtues (traits) and in the sayings of Poor Richard. In so doing, he defined the Craft ethic. The names of virtues with their precepts were:

1. *Temperance.*—Eat not to dullness. Drink not to elevation.
2. *Silence.*—Speak not but what may benefit others or yourself. Avoid trifling conversation.
3. *Order.*—Let all your things have their places. Let each part of your business have its time.
4. *Resolution.*—Resolve to perform what you ought. Perform without fail what you resolve.
5. *Frugality.*—Make no expence but to do good to others or yourself; i.e., waste nothing.
6. *Industry.*—Lose no time. Be always employed in something useful. Cut off all unnecessary actions.
7. *Sincerity.*—Use no hurtful deceit. Think innocently and justly; and, if you speak, speak accordingly.
8. *Justice.*—Wrong none by doing injuries or omitting the benefits that are your duty.
9. *Moderation.*—Avoid extremes. Forbear resenting injuries so much as you think they deserve.
10. *Cleanliness.*—Tolerate no uncleanness in body, clothes, or habitation.
11. *Tranquillity.*—Be not disturbed at trifles or at accidents common or unavoidable.
12. *Chastity.*—Rarely use venery but for health or offspring—never to dullness, weakness, or the injury of your own or another's peace or reputation.
13. *Humility.*—Imitate Jesus and Socrates. ("I cannot boast of much success in acquiring the reality of this virtue," wrote Franklin.) [4]

These traits served a society of independent craftsmen who rejected all bosses. We must "oversee our own affairs with our own eyes, and not trust too much to others," writes Franklin under the name of "Poor Richard Saunders." Unlike the Puritans, Franklin's craftsman no longer works for God's glory, but for himself. "In the affairs of this world, men are saved not by faith, but by the want of it," states Franklin, and he concludes: "God helps those who help themselves." The craft ethic was the basis for a nation of self-reliant, independent and mobile individuals no longer part of a religious community. The new character had negative as well as positive traits. Unlike Jefferson, who conceived of a developed heart as well as a disciplined mind, Franklin's list was that of a businesslike, male-dominated work force. It has no place for what have been considered feminine virtues: Charity, love, kindness, compassion, tolerance, and generosity. The negative traits of the craftsman's character not mentioned by Franklin include obstinacy (the negative of resoluteness), stinginess (the negative of frugality), and the inability to cooperate (the negative of imperturbality, silence, and in general of the rugged individualism so admired in a young nation of refugees from authority).

Franklin's moderate, thrifty, independent craftsman distrusts the pursuit of quick wealth. Borrowing is to be avoided: "When you run in debt, you give to another power over your liberty." "There are no

[4] Jesse L. Lemisch, *Benjamin Franklin: "The Autobiography" and other Writings* (New York: New American Library, 1961), p. 95.

gains without pains." The essence of the work ethic, for a nation in which 80 percent of the work force was self-employed (mainly as farmers and craftsmen) is Franklin's resolve:

> To apply myself industriously to whatever business I take in hand, and not divert my mind from my business by any foolish project of growing suddenly rich.[5]

The Entrepreneurial Ethic

In the beginning of the 19th century, a new spirit of the frontier and the industrial revolution began to infuse the Nation's business. A combination of gambling and building, of egalitarianism and ambition emerged in the America of Andrew Jackson.

Studying Americans in the 1830's, Tocqueville questioned why the American shipping industry was able to navigate at a lower rate than the European's. The reason was not that Europeans had cheaper ships, or paid less for labor—American ships cost almost as much to build as European vessels, and pay for the American sailor was higher. "How does it happen, then, that the Americans sail their vessels at a cheaper rate than we can ours?" Tocqueville asked. "I am of the opinion that the true cause of their superiority must not be sought for in physical advantages, but that it is wholly attributable to moral and intellectual qualities." [6]

"The whole life of an American is passed like a game of chance, a revolutionary crisis, or a battle. As the same causes are continually in operation throughout the country, they ultimately impart an irresistable impulse to the national character." [7]

Francis J. Grund, a German visitor around the same time, was also impressed by the spirit of American business:

> There is, probably, no people on earth with whom business constitutes pleasure, and industry amusement, in an equal degree with the inhabitants of the United States of America. Active occupation is not only the principal source of their happiness, and the foundation of their national greatness, but they are absolutely wretched without it, and instead of the dolce far niente, (enjoyment of doing nothing) know but the horrors of idleness. Business is the very soul of an American: he pursues it, not as a means of procuring for himself and his family the necessary comforts of life, but as the fountain of all human felicity; and shows as much enthusiastic ardor in his application to it as any crusader ever evinced for the conquest of the Holy Land, or the followers of Mohammed for the spreading of the Koran.[8]

The frontier offered dreams, hopes and opportunities for the ambitious. The new entrepreneur had lost the craftsman's traits of caution and moderation. As Tocqueville pointed out, Americans wanted to live well, and they were natural businessmen. After the Civil War, the acceleration of the industrial revolution, exploitation of technology and resources favored the rise of a new social character, new ideals, and a new version of the work ethic.

In the era of the Puritan and craft ethics, technology could be created and employed by individuals. The individual craftsman, like Paul Revere, designed, built, and marketed his products, sometimes with the help of apprentices. Factories were essentially workshops in which craftsmen worked together. The first new entrepreneurs

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[5] *Ibid.*, p. 183.
[6] Alexis deTocqueville, *Democracy in America* (New York: Vintage Books, 1958), p. 441.
Ibid., p. 443.
[8] Francis J. Grund, *The Americans in Their Moral, Social, and Political Relations* (Boston: Marsh, Capen & Lyon, 1837), p. 202.

were merchants, not manufacturers, and the entrepreneurial ethic first emerged in a commercial rather than an industrial context. Then the creation and use of productive technology outgrew the reach of single individuals or groups of craftsmen. The entrepreneurs were able to organize and control the craftsmen. Through the division of labor and organized skills they were able to employ unskilled farm labor and the immigrants from Europe.

As Benjamin Franklin expressed the craft ethic, so the heroes of Horatio Alger exemplified the entrepreneurial ethic for Americans. They became the models for success in a society increasingly dominated by rapidly growing business, and full of immigrants seeking employment. In contrast to the conservative, self-contained, and taciturn craftsmen, like Poor Richard, Alger's heroes, like Ragged Dick, are smart talking, tricky, entrepreneurial, and liberal spenders with a taste for elegance. They are poor, but tough and honest, neither mean nor lazy. Dick works hard and charges more than the other boys for his shoe shines because his service is better. In a way, the heroes of Horatio Alger represent the successful barons' version of an inner-directed climb from poverty that justifies their riches.[9] Nonficticious "Horatio Alger" type success stories include Andrew Carnegie, John D. Rockefeller and craftsmen-entrepreneurs like Thomas Edison, Henry Ford, and George Eastman. Small businessmen also identified with these entrepreneurial strivings. However, as the frontier closed, the trend continued toward larger and more powerful business—with many small enterprises becoming less feasible, particularly where large technological systems had been built.

To document the current degree of financial insecurity of small businesses, we tried to find exact statistics on the percentage of small businesses each year which succeed or fail. These precise figures are not available, but the Office for Planning, Research and Analysis at the Small Business Administration reports that for every 9 or 10 businesses that open each year, about 8 go out of business. This is a discontinuance rate of about 80–90 percent and includes small businesses almost exclusively. One source attributed this high failure rate largely to mismanagement and inexperience in business.[10] Some people blame increasing Government regulation which is costly to small business and which calls for administrative rather than entrepreneurial abilities. Another source at the Small Business Administration, (SBA), however, reported that many proprietors go out of business in order to earn better livings as salaried employees. This seems to us the more likely reason to close down shop. Today, even with experience and good management, a small retail business will succeed against the competition of chain stores only if it is particularly favored in location or if the entrepreneur is exceptionally innovative. Even then, he may be stymied by other factors.

The entrepreneurial ethic, the idea that a person with the right attitude can make it on his own, became a justification for inequality and an answer to those who complained about submitting to the discipline of organizations. Auto workers interviewed by Eli Chinoy

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[9] In the works of Horatio Alger, there is the beginning of the career ethic, since successful entrepreneurs like Ragged Dick are often recognized and promoted by a paternal industrialist.

[10] Dun & Bradstreet cites similar causes for failures of businesses in general, regardless of size. Dun & Bradstreet, Inc., The Failure Record Through 1970 (New York: Dun & Bradstreet, 1971) pp. 11–12.

as late as the early 1950's dreamed of opening up their own gas stations or garages.[11] Yet, during the period 1900 to 1970 the number of self-employed in America fell from 80 to 8 percent of the work force.

This trend implies that it is harder and harder for an individual entrepreneur to prosper. Although some opportunities still remain, such as in advanced technology, special services, or the leisure industries, the competition is tough. The scientist-engineer must have a brilliant idea, be able to raise enough capital, learn how to market his product, and, finally administer according to government regulation. The restaurant owner needs a special attraction or elegance, since new "greasy spoons" cannot compete with the technology and organization of McDonald's.

Character traits that formerly served a certain type of independent small businessman in the market are no longer useful in competing with large corporations. The willingness to work long hours and keep the store open on Sundays and holidays used to contribute to success. But what is the use of such sacrifice and durability when large chains such as Safeway decide to remain open on Sundays? In addition, the small businessman must be able to handle increasingly costly and complicated government regulations. In this market, self-employment becomes a realistic possibility only for the brilliant entrepreneur, not for the average American whose work future more often centers in a large organization.[12]

Although the self-employed are still, on the average, more satisfied with work, than wage earners, an increasing percentage of the self-employed perceive disadvantages to self-employment in excessive responsibility, long hours, and economic insecurity, as compared to a career in organizations.[13]

The Career Ethic

As the economic system changed and with it the traits necessary for success, the entrepreneurial ethic no longer expressed the strivings of many of the most talented and highly motivated individuals. At the same time, new technological systems required increased division of labor and complex organizational hierarchies. Success in the large organization depended on administrative rather than entrepreneurial

[11] Eli Chinoy, *Automobile Workers and the American Dream* (Boston: Beacon Press, 1955).

[12] Michael Maccoby and Katherine Terzi, "Character and Work in America" Reprinted from Phillip Brenner, Robert Borosage, Bethany Weidner (eds.), *Exploring Contradictions: Political Economy in the Corporate State* (New York: David McKay, Inc., 1974).

[13] The University of Michigan 1977 Survey reports figures on the declining appeal of self-employment between 1973 and 1977:

[In percent]

	1973	1977	Differences
There are only advantages to self-employment	42.1	31.9	−10.2
There are both advantages and disadvantages to self-employment	56.3	63.5	+7.2
Type of advantage: Independence	41.9	38.6	−3.3
Type of disadvantage:			
Excessive responsibility	19.2	26.6	+7.4
Excessive hours	15.2	22.6	+7.4
Economic insecurity	11.6	16.2	+4.6

Robert P. Quinn and Graham L. Staines, *The 1977 Quality of Employment Survey*. (Ann Arbor, Michigan: Survey Research Center, Institute for Social Research, University of Michigan, 1977).

skills. Business schools began to train managerial technicians with a new managerial—career ethic, replacing the entrepreneurial ethic. Rather than hoping to establish their own businesses, these people sought jobs in the large organizations in business, government and the non-profit sector. Their goal was to move up in the organization toward increased responsibility and organizational status. In the 1950's the career ethic seemed confined to management; in the 1970's, it appears to some observers as the work ethic for labor, as well.

The career ethic implies technology that is less craft like, and more dependent on codified and systematized knowledge which can be applied somewhat independently of a specific organizational context. In entrepreneurial business, cumulative experience pays off, whereas in organizations using new and changing technology, theoretical knowledge becomes more significant than experience, especially experience within a particular organization.[14]

This ethic belongs especially to "the new class" of professionals and technicians who make their living by their ability to solve problems, to apply the latest information, and to manage.[15]

As more young people enter the work force with high school and college education, aspirations for careers emerge in traditionally blue collar workers. These people expect the workplace to be a meritocracy: anyone who demonstrates the indicated skills and abilities should be able to rise in the organization. Talent and hard work should earn success and promotion.

Meritocracy implies a system based on opportunity and fairness. Rights in the workplace are guaranteed. The element of chance and luck should be eliminated. Daniel Bell and Daniel Yankelovich have written that educated people feel that they are entitled not only to a job, but also to a chance for advancement. Meritocracy fosters a new "psychology of entitlement," [16] especially for those who pass the tests. Those with the credentials who do not move up fast enough feel cheated. Those who fail to make the grade become resentful and turned off to work.

Rosabeth Moss Kanter writes:

> Connected with this stronger rights consciousness is the frustration younger workers express about not getting more and further faster. The apocryphal story of the Harvard Business School MBA who expects to go from entry-job to the executive suite in six months now has its counterpart at every level of the organization. My colleagues and I surveyed 150 factory workers at a leading manufacturing company to learn about current reactions to their jobs, as the first step in a process of change. One of the most significant findings was the overwhelming sense of disappointment most of them had about not having enough opportunities for development and advancement. The workers thought advancement occurred too slowly, if at all. Yet this company is one that is well known for promoting people at all ranks relatively rapidly.[17]

Career has become the central concern for an increasingly large number of people. As long as there is a payoff, careerists are motivated to prepare for positions and to do what is necessary to move up. The

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[14] See Daniel Bell, *Coming of the Post-Industrial Society* (New York: Harper & Row).

[15] In 1974 Daniel Yankelovich wrote "The professional managerial and technical categories are the fastest growing occupational groupings in the country . . . increasing numbers of young people are heading straight for these upper-level niches, their eyes fixed on the goal marked 'successful career.' " *The New Morality: A Profile of American Youth in the Seventies* (*New York: McGraw-Hill, 1974*) p. 22.

[16] Daniel Yankelovich, "The Meaning of Work," in Jerome M. Rosow, editor, *The Worker and the Job.* (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1974), p. 30.

[17] Rosabeth Moss Kantor, "A Good Job is Hard to Find," *Working Papers*, May/June 1979.

career ethic, however, has the negative consequences of narrowing intellectual development. Brighter individuals subordinate their learning to the requirements of career, suppressing natural curiosity in college to take courses they will do well in and which will pay off in the workplace.

Each work ethic implies a different social character, different satisfactions and dissatisfactions at work, and a different critique of society. The Protestant ethic implies a character driven to work, consciously to show membership in the elect, unconsciously to overcome any doubts about faith. The Puritan worked for the glory of God, and his own salvation, and reward in heaven. His goal was a community of the elect needing neither kings nor bishops, and he would not tolerate unethical and undisciplined behavior.

The craft ethic implies a hoarding-productive character oriented to saving and self-sufficiency, to independence and self-control, and to rewards on earth. The craftsman is most satisfied by work which he controls, with standards he sets. He believes that only he is close enough to the details of technology to make the right decisions about what should be built and how. But industrial organization is designed to enable ideas conceived by talented people to be carried out by ordinary people. The craftsman's critique is of bosses, either entrepreneurs or company men, who tell him what to do, and threaten his independence. He distrusts bigness and power, even in the face of a technology grown too large to have been created or controlled by individuals.

The enterpreneur implies a bold, risk-taking character, with an orientation toward exploiting opportunities and using people. The entrepreneur is most satisfied by the opportunity to build his own business. Some entrepreneurs are satisfied with economic independence; others seek wealth and are motivated by the gambling spirit. The entrepreneur's critique is of a society that strangles free enterprise and individual initiative. He is critical of bureaucracy, red tape and regulation, and of people who choose security ahead of adventure. He dislikes unions which he feels destroy his relationship with employees.

The career ethic implies an other-directed, ambitious, marketing character. Such an individual is most satisfied by work which gives him the chance to get ahead, to develop himself in a way which fits the requirements of career, to become a more attractive package, worth more in the market. In an organization, the entrepreneur demands complete loyalty from his helpers, and in return rewards and protects them, turning against them only if they are disloyal. The careerist expects fair play in his assigned role, and wants to know the rules of the game, what is expected of him and what he will receive in return. He criticizes a system which blocks him, which leaves him "stuck" in dead end jobs, powerless to move ahead or develop himself. The career ethic challenges both unionism and paternalism with their emphasis on seniority and loyalty because moving ahead to the careerist is based on winning a game with rules in which the best triumph.

More than the other types, the career ethic thus involves a critique of the whole organization and its principles. This critique can call for changes in the organization of work, to increase fairness in promotions, and to provide opportunities for learning and development. The

careerist may recognize that to enjoy greater freedom to make decisions, he must move up the ladder. Failure to do so may also mean loss of respect from others and self-respect.

On a deeper level, many successful careerists suffer from anxiety, guilt and depression. They are anxious about constantly being judged and evaluated and worried about saying or doing the wrong thing. They feel guilty about giving in too much to others, having to judge others, betraying their own beliefs, including a craftsmanlike sense of integrity, and stretching the truth in order to look good. And they are depressed about the competitiveness and unfriendliness of organizational life.[18]

The extent of self-alienation resulting from the career ethic has driven many individuals to question its value. Even some who have reached the top criticize the costs of careerism in family life and the underdevelopment of the emotions.

Recent surveys indicate that a concern with both life outside of work and intrinsic aspects of work is challenging the career ethic.[19] Jerome M. Rosow reports that only 21 percent of workers say that their work is more important than leisure activities.[20] The 1977 Michigan survey found that one-third of married workers feel that their jobs interfere with family life,[21] and more than one-half complain they lack time for leisure activities.[22]

Surveys by both Yankelovich and the University of Michigan indicate that a large percentage of Americans want work that is "challenging" and/or allows the opportunity for "self-expression" and "growth".[23] This seems to contradict the flight from work to leisure activities, unless a reason for turning away from work is the lack of opportunity for growth, or people wanting challenge, but not so much as to make work all absorbing.

Yankelovich believes that the work ethic is being challenged by what he calls a "self-fulfillment" ethic. A growing number of people, espe-

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[18] Michael Maccoby, *The Gamesman: The New Corporate Leaders* (New York: Simon & Schuster, 1976).

[19] The following responses from the 1977 Michigan Survey strongly supports this conclusion (p. 245). The most important things that happend to me involve:

	Percent in agreement
My job	49
Family life	95
Leisure activities	45

[20] Jerome M. Rosow, "The Workplace: A Changing Scene," *Voc. Ed*, (February 1979), p. 23.

[21] Beatrice Walfish, "Job Satisfaction Declines in Major Aspects of Work Says Michigan Study; All Occupational Groups Included," *World of Work Report*, Vol. 4, No. 2, February 1979: 1, pp. 14–15.

[22] Robert O. Quinn and Graham L. Staines *op. cit.*, pp. 264 and 276.
Is this new? Is family leisure more important now than in the past? We do not have trend data.
On the one hand, there are examples of companies like McDonald's for the first time giving workers longer paid vacations rather than a bonus (The Washington *Post*, June 27, 1979).
On the other hand, in the 19th and early 20th century, fears were expressed that Americans preferred consumer enjoyments to work and that the fruits of their industry were undermining the work ethic. (See Daniel T. Rodgers, *The Work Ethic in Industrial America 1850–1920*, Chicago: The University of Chicago Press, 1978.)

[23] Yankelovich writes:

> Despite some difference in future outlook there are remarkably few differences in the job criteria of blue-collar, white-collar, and college-trained, professional young people. While blue-collar workers as a group place greater emphasis on good pay (blue-collar 65 percent. white collar 60 percent, professional/executive 53 percent), they are only slightly less committed to meaningful and interesting work than other young workers.

The top job criteria for the majority of all young working people include:

> Friendly, helpful co-workers (70 percent). Work that is interesting (70 percent). Opportunity to use your mind (65 percent). Work results you can see (62 percent). Pay that is good (61 percent). Opportunity to develop skill/abilities (61 percent). Participation in decisions regarding job (58 percent). Getting help needed to do the job well (55 percent). Respect for organization you work for (55 percent). Recognition for a job well done (54 percent).

Daniel Yankelovich, *The New Morality: A Profile of American Youth in the 70's*. (New York: McGraw-Hill Book Company, 1974).

cially the younger, more educated and affluent are concerned with personal growth and enjoyment of life both at work and leisure.[24] When these strivings take priority over considerations of career, large organizations which count on the career ethic are in trouble. The career ethic implies that employees will strive for promotions and perform even when their work is not particularly interesting or satisfying. Driven by anxiety and their desire to prove their own work by symbols of success and validation by the organization, they will sacrifice other satisfactions (family life, vocational interest, even integrity) overcoming their guilt to adapt themselves to organizations. But what would happen if the career ethic lost its grip on America?

Is there a fifth work ethic of self-fulfillment or self-development? Does it imply a change in the American character? Is it adaptive to changing technology and work? Before considering the meaning and implications of "self-fulfillment" in the context of change in technology and the socio-economic system, we shall examine the evidence of whether Americans are less motivated to work today than in the past.

Is There Less Motivation To Work?

Are Americans less motivated to work now? What is the evidence of a decline in motivation to work? One approach to answering this question is to examine changes in attitudes to work. Another is to examine objective indicators of motivation, such as absenteeism and turnover. Studies over the last quarter century share one conclusion: The issue is complex and confusing. Some groups are satisfied with certain aspects of work and not others. Some groups report high levels of satisfaction and others low levels. This is not surprising. For example, one might expect individuals with strong career ethic to be satisfied if moving up organizational hierarchies, and dissatisfied if stuck. One would not expect the substance of the work itself to be an influential factor. Similarly, in keeping with the theory, one would expect that those with the craftsman's ethic will only be satisfied if given opportunity to perform skilled work for good pay. Unfortunately, the available surveys do not provide information on the correlations among work ethic, social class and job characteristics. Rather, one must infer relationships by focusing on distinctions among different socioeconomic, occupational and cultural subgroups in relation to work attitudes and satisfaction.

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[24] Evidence of the importance of non-work time is available in several studies. A few examples will suffice
62 percent say their main satisfaction in life does *not* come from their work (1977, University of Michigan, p. 239).
Between 35 percent and 60 percent would like to spend less time working and more time with their families, even if it means earning less money (1977, University of Michigan, p. 268).
Only 21 percent say work is more important to them than leisure (Jerome Rosow, "The Workplace: A Changing Scene," *VocEd*, February 1979, p. 23).
Unfortunately we lack trend data to see how much of a change this is.
There is evidence to suggest that this phenomenon is occurring in other countries as well. A Canadian study finds similar work attitudes among Canadian youth, namely a desire to work but not at just any job. To be satisfying the job should offer a chance to develop oneself, participate in decisions, and share in responsibility. If young people can't find it, they may prefer unemployment to a job they find alienating.
Robert Lefebvre, "Young People Want to Work, but. . . . ", *The Quality of Working Life: The Canadian Scene*, Winter 1979.
A Swedish study reportedly arrived at comparable findings. Swedish men asked in 1955 and 1977: "Which gives your life the most meaning—your family, your work or your leisure?" showed a pronounced shift toward leisure and away from work. In 1955, 33 percent chose work, 13 percent leisure, 45 percent family. By 1977 it shifted to just 17 percent work, 27 percent leisure, and 41 percent family.
Jerome M. Rosow, "The Workplace: A Changing Scene," *VocEd*, February 1979, p. 23.

What follows is an attempt to summarize what is known and not known about attitudes to work, and their changes over time. The data are of two kinds: objective indicators of dissatisfaction (absenteeism, poor quality products, turnover); and attitudinal studies. The paper briefly touches on what is known about work attitudes from objective indicators and the relationship between work attitudes and productivity. Then it concentrates on attitudinal studies, reviewing the trend data as a whole, focusing on differences among groups according to demographic characteristics.

Objective Indicators

What is the evidence from objective economic indicators that Americans are losing the motivation to work? Objective indicators do not form a conlusive pattern supporting the hypothesis of a decline in motivation, but there is evidence from cases that when leadership understands and respects the goals and values of different employees, productivity increases.

Although unscheduled absences have until recently been on the rise, this may have been due to more liberal personnel policies rather than to a change in work attitudes. Strikes over working conditions have increased, but they cover a wide spectrum of issues making generalizations difficult.

Other indicators give little or no support to any decline in the work ethic: the absence of any long-term trend in the quit rate, the rebound in the rate of productivity improvement, and the relative stability of labor relations activity. . . . In summary, Americans may be more unhappy at work, but there is very little evidence to show that this has affected their economic performance.[25]

Although the above was written in 1974 before the lag in productivity growth was as apparent as it is now, the *AFL–CIO American Federationist* concurs with this point of view. The decline in productivity gains, it reports, has been exaggerated, and is due mainly to a recession, not to a decline in the work ethic or labor's productivity:

The contention the work ethic has declined is a generalization refuted by the healthy productivity gains in many industries. In several industries, productivity rose more than 5 percent per year from 1972 through 1977. These include telephone communications, synthetic fibers, bottle and canned soft drinks and corn milling. Motor vehicle and several other industries had productivity growth rates of about 3 percent. And for manufacturing as a whole, productivity grew a healthy 3.5 percent in the year 1978. The workers in high productivity industries are no different than those in low productivity industries—so there's simply no support for the notion of a fundamental decline in the "work ethic." [26]

Where technology is highly developed and workers are at a high level of technical skill as in telephone communications, jobs are more likely to fit the career ethic or the craft ethic. Here productivity is in general increasing, although there are industries like coal mining where health and safety measures limit productivity. But in service jobs where new technology is not a controlling factor, productivity gains

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[25] Peter Henle, in Rosow, *op. cit.*, p. 141. Compatible findings are reported also in Sar A. Levitan & William B. Johnston, *Work is Here to Stay Alas*, Salt Lake City, Utah: Olympus Publishing Company, 1973. And in Robert P. Quinn, Graham L. Staines, & Margaret R. McCullough, *Job Satisfaction: Is There a Trend?* Manpower Research Monograph No. 30, Document No. 2900-00195, Washington, D.C., U.S. Government Printing Office, 1974.

[26] Bill Cunningham, "Bringing Productivity Into Focus," *The AFL-CIO American Federationist*, May 1979, Vol. 86, No. 5, p. 5.

have been low. The Federationist's statement that workers in high productivity industries are the same as those in low productivity industries may not be true. In parts of the service and retail sectors, the attitude of the worker—and relationships among people—carry greater leverage for improving productivity, even though investment in automated systems may in the future lower labor costs.

Even in workplaces more bound by advanced technology (for example, the Bell System), there have been significant gains in productivity when installation and repair workers have been actively involved in analyzing their work and proposing, implementing and evaluating changes in it.[27]

If there is a move toward emphasizing greater durability and repairability of goods to save materials and energy, productivity of repair services and maintenance will become increasingly important, requiring not only new technology, but also more involvement of this kind.

The Commitment To Work

For most people the issue is not: Do I still want to work? as much as: Does my job turn me off? Surveys shows a consistently strong affirmation of the value of work for three-quarters of the population. When asked if they would continue to work even if they could live comfortably for the rest of their lives without working, most people choose to work. This holds constant throughout several surveys, percentage choosing to work ranging from 67.4 percent (1969, University of Michigan), 71.5 percent (1977, University of Michigan), 73 percent (1974, Yankelovich, *The New Morality*), to 75 percent (1978, Renwick & Lawler).[28] About the same proportion don't think they would be happier if they "don't have to work at all": 76.3 percent (1977, University of Michigan). A full 84 percent of college-age youth in 1973 believed it was "very important to do any job (one was doing well.)

The American commitment to hard work has been reaffirmed in other studies as well, although there is growing criticism about the quality of work and fairness of rewards. Between 1969 and 1973, the percentage of college students rejecting the statement: "(I) would welcome less emphasis on working hard in the future" grew from 41 percent to 50 percent (Yankelovich, in Rosow, et.al., 1974), perhaps indicating the weakening of the ideology of the 1960's with its appeal "dropping out."

"Young adults [20–24 age group] commitment to the labor force, once about equal to that of the population as a whole, is now far

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[27] This has been documented at Ohio Bell (personal communication).

[28] Daniel Yankelovich, *The New Morality*, (New York: McGraw-Hill Book Co., 1974), surveyed college-age youth only; Renwick & Lawler surveyed readers of *Psycology Today* (May 1978); the University of Michigan Survey of Working Conditions was a nationwide statistical sampling of all employed persons.

A 1955 study suggests this may have declined. In 1955, between 58 percent (unskilled workers) and 91 percent (sales workers) of employed men chose to continue working. Figures are not available as totals, only detailed by occupation and class. Comparability with the more recent studies is further reduced since they surveyed both men and women while the 1955 study included only men. However, additional evidence of a decline comes from the University of Michigan 1969 Survey which reports that a 1960 sample of employed men responded 80 percent in favor of working, up from 78 percent in 1950 (Weiss & Kahn). The 1969 Michigan Survey reported only 73.3 percent of men would continue working, a decline of about 7 percent (University of Michigan Survey, 1969: p. 45), in male workers' attraction to work in general.

N. C. Morse and R. S. Weiss, "Function & Meaning of Work and the Job," *American Sociological Review*, Vol. 20, No. 2, April 1955, p. 197. Cited in: Robert S. Weiss and David Riesman, "Social Problems & Disorganization in the World of Work," *Contemporary Social Problems*, ed. by Robert K. Merton & Robert A. Nisbet, (New York: Harcourt, Brace & World, Inc., 1961).

stronger. On average, three of four young adults were working or seeking work in 1977. Their civilian labor force participation nearly matched that of those age 25–44—the group that is most committed to the labor force." [29]

The labor force continues to grow at an increasing rate, as many people not previously employed, in particular women and the old, try to enter the world of paid jobs. Eli Ginzberg considers: "The rapid entry of women into the labor market is the single most outstanding phenomenon of the century." [30] From a little less than 29 percent of the labor force in 1948, women have increased their share to the point of nearly 42 percent in 1978.[31] The demand for paid jobs is not likely to let up soon. Syndicated columnist Ellen Goodman reported a particularly striking statistic from a national survey aiming to assess future educational needs: In 1973–74 only 3 out of 100 (3 percent) 17-year-old girls claimed "housewife" as their number one career choice. Clearly, they intended to take a job rather than stay home.[32]

The proportion of women in the labor force has also increased, from 32.7 percent in 1948 to 50.0 percent of women in 1978, and the Bureau of Labor Statistics (BLS) estimates that by 1990 the percentage of women in the labor force will increase to between 53.8 percent and 60.4 percent of all women.[33] The exception to increased labor force participation is that of older men, age 55 to 64, which actually declined from 89 percent in 1947 to 80 percent in 1977. (Is this decline voluntary? How much can be attributed to the rate of technological change, displacing workers too old to learn a new occupation. How much is due to the spread of pension benefits, public and private, among so many older workers, since 1947?)

If we accept the premise that Americans still believe in the value of work well done and most want the chance to work, how can we understand indications of dissatisfaction? The first explanation is that while working remains important, other arenas of life—leisure, family—are also gaining in importance. The second explanation, now explored, concerns dissatisfaction, not with work *per se*, but with the actual jobs that people hold and the nature of supervision. Do existing work patterns, rewards and incentives engage and motivate employees? Or do they cause people to withdraw disaffected, perhaps focusing their productive energies outside of work? One observer put it well:

> That the worth ethic—that collection of beliefs, attitudes and aspirations about work—is changing, I have no doubt. Whether it is eroding—in the sense that individuals are losing the commitment to, and pride and satisfaction in, work—remains to be seen. . . . If in the face of changing work values, employers attempt to continue the traditional patterns and habits of organizing, managing and motivating people, they will be on a collision course with the future and the work ethic will most surely be eroded.[34]

There is evidence to suggest some jobs are less satisfying despite a still high motivation to work. One item on the University of Michigan

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[29] Carol Leon, "Young Adults: A Transitional Group With Changing Labor Force Patterns," *Monthly Labor Review*, vol. 101, no. 5, May 1978, p.4.
[30] TAP 17, *The Changing Nature of Work*, (Washington, D.C.: American Council of Life Insurance, undated), p. 3.
[31] BLS *Current Population Survey* figures for women aged 16 years or older in the labor force.
[32] Ellen Goodman, Washington Post, Nov. 23, 1976, "'Happily Ever After'," reporting on the 1973–74 National Assessment for Education Progress survey.
[33] B.S. Report 551, No. 4 Fourth Quarter 1978. BLS Current Population Survey figures on women aged 16 years and older.
[34] Ian H. Wilson, "Here Comes Change, Ready Or Not," *Mainliner Magazine*, Vol. 23, No. 5, 1979

survey supports this view. When asked: "If you were free to go into any type of job you wanted, what would your choice be?", the results were:

[In percent]

	1969	1973	1977
The job he or she now has	49.2	43.7	38.1
Retire and not work at all	6.3	4.6	1.9
Prefer some other job to the job he or she now has	44.4	51.7	[1] 60.0

[1] 15.6 percent increase.

Here we see a striking shift with implications for motivation to work. Of those questioned by the Gallup poll, 50 percent said they "could accomplish more each day if they tried." Those dissatisfied with their jobs tended to say they could do more if they tried.[35] The Harris Poll asked whether people would be "very willing to work harder under certain conditions." Between 46 percent to 64 percent were willing to work harder, depending on the reward. Pay came out ahead (64 percent) but was closely followed by "more to say about the kind of work you do and how you do it" (61 percent); additional schooling or training (59 percent); and being able to work more independently (58 percent).[36]

There is little agreement on the relationship among attitudes, productivity, and other economic indicators. In many workplaces, individuals do not share ideas for improving productivity because they lack the confidence that they will be listened to, or will share equitably in productivity gains.[37]

Studies also indicate a growing crisis of legitimacy, confidence, trust, authority: A crisis of leadership. While reaffirming the importance of work to individual well-being, most people no longer expect to be rewarded equitably, according to their efforts. Between 1967 and 1975 the number of students who believed "Hard work always pays off" was nearly reversed, from 69 percent agreeing in 1967 to 75 percent saying "no" in 1975.[38] A survey undertaken by the American Council of Life Insurance asked a similar question with similar results. Between 1968 and 1978, the percent agreeing with the statement: "Hard work will always pay off if you have faith in yourself and stick to it" declined, from 58 percent to 44 percent. This finding suggests that a key belief which is consistent with both the traditional craft ethic and the career ethic is dissolving.

Daniel Yankelovich also reports a "growing feeling of social injustice—84 percent of the public now believes that those who work

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[35] Gallup Opinion Index, *Job Satisfaction and Productivity*, Report No. 94 Princeton, N.J.: Gallup Opinion Index, April 1973.

[36] Louis Harris & Associates, "The Public's General View of Productivity," October 1972.

[37] At the Harman auto parts plant in Bolivar, Tennessee, before management and the U.A.W. instituted a Work Improvement Program 75 percent of the workers stated they had ideas to improve work but kept them to themselves. Michael Maccoby, "Changing Work: The Bolivar Project," *Working Papers*, Summer 1975, pp. 43–55.

The majority of a small sample of 58 businesses involved in "job enrichment programs" reported improved productivity in terms of better resource utilization, lower absenteeism and turnover, and better quality. Antone F. Alber, "Job Enrichment Programs Seen Improving Employee Performance, But Benefits Not Without Cost," *World of Work Report*, January 1978, Vol. 3, No. 1: pp. 8–9, 11.

[38] Rosow, *op. cit.* Clark Kerr, who takes this as a statement of the work ethic cites a study by Trow showing that most people still believe that "Hard work always pays off." *Work In America, The Decade Ahead*, ed. Clark, Kerr & J. M. Rosow (New York: Van Norstrand Reinhold, 1979) p. xiii.

hard and live by the rules are not getting a fair break." [39] In a country that so highly values fairness and equity, such disaffection may express resentment and withdrawal. It may be related to an increasing level of education combined with a general decline in trust of authority and institutions, especially since the Vietnam war and Watergate. It may support an attitude of looking out for number one and beating the system.

Job Satisfaction—General Data

Job satisfaction implies some fit between motivation and work. Most experts agree that in all surveys, over time, general job satisfaction has been and remains high in all subgroups, although there is growing dissatisfaction expressed with specific aspects of work.

In a 1977 University of Michigan study, 88.4 percent report being "very" or "somewhat satisfied" "all in all" with their job, up slightly from 85.5 percent in 1969.[40] People appear more satisfied in response to a single question, such as: "All in all, how satisfied would you say you are with your job?", in contrast to indexes composed of several such questions. Thus, if a global index composed of several general measures of job satisfaction is used rather than the single measure quoted above, a slight, though significant decline in job satisfaction between 1969 and 1977 is found. The single measure, in contrast, shows a slight increase in satisfaction during this same period. There is general agreement that a higher percentage is positive about overall (global) job satisfaction than about specific aspects of work, (e.g., a chance to use one's abilities, good supervision, resources available to do the job or good pay). The survey also showed that between 1973 and 1974 global work satisfaction increased while specific job characteristics declined between 11 and 43 percent.

Further discussion of the methodology of job satisfaction surveys is needed, here, because the findings are contradictory and hence questionable.

Specific aspects of job satisfaction are assessed differently from overall job satisfaction. People surveyed are asked to rate selected job characteristics (e.g. chance to develop skills and abilities, pay, friendly co-workers) in either or both of two ways: How important that characteristic of the job is to the respondent (in 1969 and 1973); and how true the respondent considers the job characteristic to be of his/her own job (in 1969, 1973, and 1977).

The difference or congruence is sometimes used as a measure of job dissatisfaction or satisfaction in 1969 and 1973. This is a complex and somewhat confusing procedure. Asking whether the respondent's job provides "too little", "too much", or "just the right amount" of each job characteristic would be more direct and easier to interpret. Sometimes the rating of "how true" various characteristics are used by itself as a measure of job satisfaction, even though that aspect of work may not be important to a person. In the 1977 University of Michigan Survey only the "how true" ratings were used; the "how important" question was for some reason omitted. This makes sense for some of the job characteristics which by their wording imply satisfaction/dissatisfaction (e.g. "I am not asked to do excessive amounts of work,"

[39] Daniel Yankelovich, address to the Public Agenda Foundation, March 1979.
[40] "Very satisfied": 1969–46.4 percent; 1977– 46.7 percent; "Somewhat satisfied": 1969– 39.1 percent; 1977–41.7 percent.

authors' emphasis). For most aspects, however, a rating of how true does not automatically imply how satisfied one is. For example, if an individual considers it true he is "given a lot of freedom to decide how I do my own work", does this mean he is satisfied with this situation? Perhaps he would prefer more direction be given him as to how he should carry out a difficult job. We don't know, because he was not asked. When used to gauge job satisfaction, this particular measure carries certain implicit values on the part of the researchers which may or may not be shared by the workers interviewed.

Even with these limitations, the data reveal some interesting trends. Let's look first at what's important to people at work.[41] The University of Michigan surveys in 1969 and 1973 sought answers to this question. There were significant differences in 1969 between white collar and blue collar workers which make further general statements misleading. (Those differences will be considered further later on in this paper.) To summarize, white collar workers put interesting work at the top of their list, with "opportunity to develop my special abilities" second. Information (3), authority (4), help and equipment (5), friendly co-workers (6), and three other attributes all came ahead of good pay (10), job security (12), and fringe benefits (17).

Blue collar workers rated traditional rewards as far more important: good pay came first; job security, third. Help and equipment (2), information (4), and friendly co-workers (5) were more important than interesting work (6).

By 1973, the picture was not very different. Interesting work still headed the list. Opportunity to develop special abilities, friendly and helpful co-workers, information, and a competent supervisor ranked higher in importance in 1973 and 1969; while good pay, good job security, help and equipment, and authority ranked lower.

More recent surveys suggest that the differences between white and blue collar workers are diminishing.[42]

How do jobs measure up to these standards? We do not have importance ratings to compare with job characteristics for 1977, but 1973 importance ratings can be compared to 1973 and 1977 job evaluations (University of Michigan Survey). In selecting specified job characteristics relating to both self-development and financial rewards, gaps occur between what is wanted and what is found at work, indicating pressure points for job dissatisfaction. For example, in 1973 almost 15 percent more people said interesting work was important to them than considered their own jobs to be interesting. Similar gaps were reported in 1973 for the following job characteristics:

	Percent
Opportunity to develop special abilities, gap	25. 8
Chance to do what I do best	17. 8
Good pay	23. 4
Fair promotions	27. 7
Good chance for promotions	36. 3

Desires for good fringe benefits (9.6 percent gap); good job security (1.1 percent); and enough authority to do the job (3.9 percent) were almost satisfied in 1973.

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[41] Some items can be compared only between 1969 and 1973 since the 1977 survey omitted the importance ratings. Figures for 1978 are available for some items from the *Psychology Today* survey, which is weighted in favor of professional, executive, and managerial occupations, full-time employees, women, those aged 25–34, the well paid, and the well educated.

[42] Michael R. Cooper, Brian S. Morgan, Patricia M. Foley and Leon B. Kaplan, "Changing Employee Values: Deepening Discontent?", *Harvard Business Review*, Jan.–Feb. 1979, pp. 117–125.

Since we lack importance ratings for 1977 we cannot compare them with "true" ratings for 1977. But when 1977 true ratings are compared with 1973 importance ratings even greater satisfaction gaps appear, due to the generally lower true ratings in 1977: Interesting work shows a 23.0 percent gap. Good fringe benefits and good job security, although mainly satisfied in 1973 (20.8 percent), show much larger gaps in 1977 (20.2 percent). Other items showed increased dissatisfaction as well:

	Percent
Opportunity to develop special abilities, gap	36. 9
Chance to do what I do best	28. 0
Enough authority	14. 9
Good pay	36. 9
Fair promotions	40. 2
Good chance for promotions	40. 8

In evaluating job aspects between 1973 and 1977, the number of people believing these aspects to be "very true" of their own jobs declined for every aspect but one.[43-44] There was a significant and consistent decline of about 11 percent in key indicators. If positive expectations at work had been constant during this period, a drop in satisfaction at work would have been implied. The average drop between 1973 and 1977 was 8.8 percent. The largest declines were reported for:

	Percent decline
1. Good pay	13. 5
2. Promotions handled fairly	12. 5
3. Enough help and equipment	11. 9
4. Can forget my personal problems	[1] 11. 3
5. Good fringe benefits	11. 2
6. Good job security	11. 1
7. Problems hard enough	11. 1
8. Opportunity to develop my special abilities	11. 1
9. Enough authority	11. 0
10. Responsibilities clearly defined	11. 0

[1] This item is hard to interpret. Perhaps the decrease in jobs where one can forget personal problems is due to the growth of "human relations" types training; perhaps due to pressure to increase productivity; perhaps due to an increase in friendships and personal relationships at work.

NOTE.—The remaining 23 aspects declined by less than 11.0 percent each.

Results of various studies suggest no single factor is universally responsible for job satisfaction.[45] To understand the meaning of satisfaction requires a different kind of study, a more exploratory anthropological method than the survey instruments generally used—one which takes account of differences in both social character and types of work.[46]

These findings appear to indicate a general disaffection with organizations, especially a feeling of inequity. While this may in part, be the result of organization and management insufficiently engaging the work ethic, it also appears to be caused by the increasingly educated and ambitious worker frustrated in an unchallanging job. This latter

[43-44] "I am given a lot of chances to make friends": 51.5 percent, 1973; 56.6 percent, 1977; Robert P. Quinn and Graham L. Staines, *op. cit.*, p. 217.

[45] For an analysis of the meaning of job satisfaction, see Edwin A. Locke, "The Nature and Causes of Job Satisfaction." *In Handbook of Industrial and Organizational Psychology*, edited by Marvin D. Dunnette, pp. 1297-1349. Chicago: Rand McNally, 1976.

[46] For example, see Michael Maccoby, "Changing Work: The Bolivar Project," *Working Papers*, Summer 1975, which reports on a study of different satisfactions at work of different social character types.

conclusion is supported by responses to two questions in the University of Michigan Survey:

> Do you have some skills and training from your experience and training that *you would like to be using in your work* but can't use on your present job? (authors' italic); and
>
> What level of formal education do you feel is needed by a person in your job? What is the highest grade of school or level of education you completed?

More than a third (35.6 percent) of respondents in 1977 have skills and training they want to use at work but can't. This is an increase of 10.5 percent over 1973 (25.1 percent). Turning to formal education, nearly as many (32.2 percent in 1977) had more formal schooling than their jobs required—an increase of 4.5 percent over 1973 (27.7 percent).

These responses clearly point to considerable underutilization of skills, training, and education, and this at a time when our productivity growth is on the decline.

Job Satisfaction—Demographic Differences

Although studies of work satisfaction do not differentiate social character types, they do categorize workers in terms of age, sex, race, occupation, income level and education. The University of Michigan Survey report states:

> In any case, the search for single, simple, and universally relevant explanations for changes in job satisfaction, and other outcome measures, is likely to be fruitless. The explantory factors may be complex, and may well be quite different for the various subpopulations that make up the American labor force.[47]

Who is most dissatisfied? Who is most satisfied' Whose attitudes are changing most? Do we know why?

There is general agreement that the most dissatisfied sectors of the labor force are young (under 30), black, and low income (under $10,000.). The most satisfied are older (over 50), in professional/managerial occupations or self-employed.

Dissatisfaction has been increasing most for those with a range of education from some high school through a college degree, those in the 21–29 age bracket, the wage and salaried, men, professional/administrative/managerial employees, operatives, and non-farm laborers.

Beyond these sketchy generalizations, the picture gets cloudy. Different studies report contradictory conclusions, which is not surprising since demographic categories lump together different types of people in terms of character and competencies.

Despite these limitations, the paper will review suggestive demographic differences, pointing out areas of agreement and controversy. The categories most often referenced and used for drawing distinctions in terms of work attitudes are: *age; *income level; *race; sex; educational attainment; and *occupation (particularly blue-collar—white-collar, and non-managerial—professional/managerial differences).

Those demographic groups which account for clear differences in attitudes to work have been marked with an asterisk (*). The other major groups (sex and education) do not account for clear differences when other demographic characteristics are held constant.

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[47] Robert P. Quinn & Graham L. Staines, *op. cit.*, p. 309.

1. AGE

Numerous reports in newspapers, journals, and television programs—referring to growing unrest among young workers—are supported by surveys. It is generally agreed that the young (under 30) are among the most dissatisfied workers, while older people (over 50) are among the most satisfied.[48]

What contributes to this widespread malaise? Is it really a new phenomenon? Now as always, the young begin their working lives in entry-level jobs which are usually less interesting, less responsible, and lower paid than the jobs reserved for those with more experience and training. They are apprentices who are expected to follow orders. However, young people today, more than ever before, resent autocratic authority.

The new factor is that today's youth have grown up in a socioeconomic context significantly different from that of their parents and grandparents. Most are not immigrants, either from foreign lands or newly arrived from rural areas to cities almost equally alien to them as to their foreign-born counterparts. Unions and government have established basic conditions of employment as rights incorporated into law. Affirmative action and equal access have become rights. The shadow of a major Depression does not linger in the memories of young workers, and most grew up in a period where rising living standards from year to year came to be taken more and more for granted. With the exception of pockets of hopelessness in the inner cities and rural outposts, few people live with the expectation of long periods of unemployment and hardship. Thanks to government programs such as unemployment and workmen's compensation and unions' negotiated supplementary benefits, most workers and their families are protected against at least the worst effects of joblessness. These changes have, of course, had an impact on the population as a whole. But the young, with no other experience, have been most affected by these conditions, which they take as a matter of course and a matter of right. Changes in society have modified the social character to the degree that it has become less intimidated, and more critical of inequity. There is no evidence that large numbers of young people are trying to avoid work. However, their reasons for working and the terms on which they will work show changing values. If these values are frustrated at work, young workers may increasingly seek to disengage themselves from their jobs.

2. INCOME

Of course, low income contributes to job dissatisfaction.[49] The growing concern for nonmaterial rewards at work does not replace the wish for material rewards. Concern for good pay, job security, a decent living, and the opportunities it affords does not exclude a

[48] It is interesting to note the University of Michigan (1977) reports that workers under 21 showed no increase in dissatisfaction between 1973 and 1977. Their dissatisfaction was already among the highest in the labor force. It would be interesting to trace the satisfaction of a cohort of workers through several years, especially if such a study included social character and type of work.

[49] Considered as under $5,000 or between $5,000 and $10,000, depending on the survey used. Patricia A. Renwick and Edward E. Lawler, "What You Really Want from Your Job," *Psycology Today*, May 1978. Sar A. Levitan and William B. Johnston, *Work Is Here To Stay Alas*, Salt Lake City, Utah: Olympus Publishing Company, 1973.

concern for interesting, self-fullfilling work. Those who feel their compensation is inequitable or who feel stuck in low-paying jobs are dissatisfied.

3. RACE

Blacks are consistently less satisfied with their jobs than are whites. This is true of all categories except one: neither white nor black older workers (over 44) are comparatively dissatisfied.[50] Young blacks are especially unhappy about their employment situation, their work *and* lack of it. Estimates of black youth unemployment range from from 46–60 percent.[51] When they manage to find a job, it tends to be both low-paid and low in intrinsic rewards. When young blacks find employment, it is usually in jobs noted for high job dissatisfaction: as unskilled laborers or as operatives. It is not surprising, then, to learn that this group reports the "highest levels of depression", gaged from questions such as "How often do you feel downhearted and blue?".[52] The revitalization of these downhearted, written-off sectors of the population is one of the most complicated and serious challenges facing America. It requires understanding the social character of these young people in relation to their opportunities, and developing social policy which brings out the best in them.

4. OCCUPATION

Operatives and nonfarm laborers are the two least satisfied occupational groups by most accounts. They are also the groups with the sharpest declines in satisfaction between 1969 and 1977.[53] Service workers and clerical workers are the next most dissatisfied groups. In general, blue-collar workers appear more dissatisfied than white-collar workers, but when professional/managerial white-collar employees are excluded, the rest (the clerks, typists, etc.) increasingly resemble blue-collar workers. Professional and managerial employees, in contrast, are among the most satisfied groups, but they are becoming more dissatisfied.[54]

Overall, professional, managerial, highly skilled, and self-employed workers are most satisfied, while the unskilled, clerical, sales, and service workers are least so. A recent Harvard Business Review article calls this the "hierarchy gap," and points to an increasing similarity of attitudes between lower-level employees regardless of collar color, when compared to their professional and administrative higher-ups. They conclude:

> The distinctions that once clearly separated clerical and hourly employees are becoming blurred. Both groups value and expect to get intrinsic satisfactions from work (e.g. respect, equity, and responsiveness), which were formerly reserved for managers. The work force itself and what it demonstrably values are indeed

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[50] Levitan, *op. cit.* It is interesting to note that although their dissatisfaction is lower than blacks, white workers' dissatisfaction is increasing at about the same *rate* as that of black workers.

[51] Daniel Yankelovich, "The New Psychological Contracts at Work", *Psychology Today*, May 1978, p. 47.

[52] Renwick & Lawler, *op. cit.* Granted readers of *Psychology Today* are a specialized sample, this finding is also supported by Gallup poll and other reports, indicating that general life satisfaction and job satisfaction go hand in hand.

[53] Blue-collar craft workers are also reported as becoming more dissatisfied, although still basically satisfied.

[54] Robert P. Quinn & Graham L. Staines, *op. cit.* p. 306. *The Harvard Business Review* article cited below, however, finds that managerial discontent is not increasing.

changing: all parts of the work force are beginning to overtly articulate their needs for achievement, recognition, and job challenge." [55]

5. EDUCATIONAL ATTAINMENT

Level of formal education by itself does not appear appreciably to determine job satisfaction. On the whole, those with most (graduate level) and least (eight years or less) schooling are more satisfied than the vast majority who have some high school education up through an undergraduate degree.[56] Satisfaction has dropped in all categories (except graduate level). The largest numerical increases in the labor force come in precisely those groups which are comparatively less satisfied; that is, those with some high school up through college graduates. This category is growing: Between 1948 and 1972, the average educational attainment of the labor force increased from 10.6 years to just beyond high school (12.4 years). The increase in education of the American population is striking. Between 1950 and 1975, the percent of Americans aged 25 and over with a high school diploma almost doubled, from 34 percent to 63 percent.[57] As we have noted, many of these people are experiencing dissatisfaction with unchallenging work.

The combination of low income and some college is a sure formula for discontent.

Daniel Yankelovich's comparative studies of youth (noncollege, college, some college education) offer evidence for the view that a general change in social character (and the work ethic) is occurring. He concludes that young people without a college education want the same sorts of personal satisfactions and opportunities in their work as do their college-educated peers, but they have little hope of attaining them in a labor market *where one-third already say* they are overeducated for their jobs.[58]

6. SEX

Differences between men and women regarding job satisfaction are not conclusive. Some studies report higher satisfaction on the part of men, some by women, and some no significant differences.[59] Although there was not much difference between men's and women's attitudes in the 1977 University of Michigan Survey, male job satisfaction did show a significantly greater *decline* between 1969 and 1977 than did that of women.[60] Most observers agree that the increase of women in the work force has profound consequences for the organization of work, but there is less agreement on the nature of these consequences. Clearly the desire for flexible working hours was initiated and fueled by the entry of women into the workplace. Still primarily responsible for home

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[55] Michael R. Cooper, *et al.*, *op. cit.*, p. 118.

[56] Robert P. Quinn & Graham L. Staines, *op. cit.*, p. 306.

[57] George Strauss, "Workers: Attitudes and Adjustments", in Jerome Rosow, ed., *The Worker and the Job* (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1974).
Bill Cunningham, "Bringing Productivity Into Focus," *The AFL-CIO American Federationist*, May 1979, Vol. 86, No. 5, p. 6.

[58] Daniel Yankelovich, in Rosow, *op. cit.*, p. 41.

[59] Renwick & Lawler, *op. cit.*, p. 55.

[60] Why is open to speculation in the absence of studies on the question. Daniel Yankelovich foresees an erosion of male job satisfaction as a consequence of the increased female labor force participation rate as the male role as family provider undergoes change. "If . . . the man's role as he-who-makes-sacrifices-for-his-kid's-education-and-his-family's-material-well-being grows less vital the whole fragile bargain threatens to break down. . . . One unanticipated and unwanted by-product of the women's movement may be to intensify men's disaffection with their work. . . (and) puts at risk a fragile psychosocial balance which has supported men's job satisfaction for many years."—Daniel Yankelovich, in Rosow, *op. cit.*, p. 45.

and children but anxious to work outside the home, women are seeking flexible hours in hopes of balancing demands of family and work.

Why are women seeking paid employment in unprecedented numbers? What satisfies and dissatisfies them? And, how does work compare in importance to home and family?

Clearly there are many reasons why women take jobs. First, economic needs. Many married women consider a second income necessary to maintain their standard of living. In 1977, 21 percent of those surveyed said their family income was inadequate for meeting monthly expenses. For 57 percent of those same respondents, this posed a "sizeable" or "great" problem.[61] Also, as divorce becomes commonplace, women can no longer depend on their husbands for support.

The combination of inflation's erosion of household income, expectations of a comfortable standard of living, and changing attitudes of women and men toward working mothers, as well as availability child care, have contributed to a dramatic change in the American household. According to Rosabeth Moss Kantor: "The traditional nuclear family—husband as breadwinner, wife not in the paid labor labor force—now accounts for *fewer than 20 percent of all American families.* The number of single-parent households has risen dramatically"[62] (our emphasis).

Second, independence and self-development are goals which some women try to achieve by taking paid employment. Desiring more egalitarian relationships with their husbands, they want to contribute directly to their family income; or they want their own income separate from their husband's and not subject to his control.

When they take a job, are they likely to find it satisfying? On a number of counts, they may find it wanting: pay status, intrinsic interest, responsibility, authority.

Despite affirmative action programs and gains by women in recent years in advancing to managerial levels and in entering occupations formerly the sole province of men, women remain concentrated in lower-level, lower-paid, and lower-status jobs in a few sectors, mainly clerical and services (52.9 percent in 1974). In 1970 over one-third of working women was concentrated in only seven occupations: secretary, retail saleswoman, household worker, elementary schoolteacher, bookkeeper, waitress, or nurse. Half of all women workers were concentrated in only 21 occupations, in contrast to a much broader distribution of men over 65 occupations. The segregation of women into relatively few sex-specific jobs is further illustrated by the fact that in 1960 over one-half of working women held jobs were 70 percent or more of their co-workers were also women.[63]

These are also sectors where dissatisfaction is concentrated and increasing. Most surveys, however, do not find significantly greater dissatisfaction on the part of women over men. The exception is women with preschool children (under 6 years old). They register higher job dissatisfaction for reasons which we can only speculate about: Perhaps juggling child-rearing responsibilities with a job; perhaps they have lower-paying jobs; [64] or perhaps they would prefer

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[61] Robert P. Quinn & Graham L. Staines, *op.cit.*, p. 48.
[62] Rosabeth Moss Kantor, "A Good Job Is Hard To Find", *Working Papers*, May-June 1979, p. 45.
[63] Carolyn J. Jacobson, "Women Workers: Profile of a Growing Force", *AFL-CIO American Federationist*, July 1974. Also, Eli Ginzberg, "The Changing American Economy and Labor Force," in Rosow, *op. cit.*
[64] Robert P. Quinn, Graham L. Staines and Margaret R. McCullough, *op. cit.*, pp. 10-11.

to spend more time with their children.[65] More in-depth studies are needed to understand the causes of such reported dissatisfaction and to understand the goals of women at work.

SUMMARY

Sorting out reports of demographic characteristics, a general profile emerges of the most and least satisfied sectors of the labor force:

Most satisfied	*Least satisfied*
Middle-aged or older	Under 30 years old.
White	Black.
Graduate education	Some high school through college degree, especially if overeducated for jobs.
Professionals/managers/administrators.	Unskilled laborers or operatives.
	Low income (under $10,000).

Declines in job satisfaction, however, are reported across-the-board for most sectors of the labor force. Demographic differences show some trends, but many researchers consider that they are "not generally the best indicators of job satisfaction." [66] How else can the differences between groups of people be understood? Few studies are available which focus on understanding differences in job satisfaction based on character and culture.[67] Yet many reports allude to such differences. Descriptions of a "new breed" of worker, the "new narcissism", the "me generation" all refer to a change in the American character. There is evidence of such an attitudinal change emerging, from the career ethic to the self-fulfillment, self-development ethic.

No work ethic fits all Americans, but most Americans are motivated to work. For some, work is an expression of religious belief. For some, it is craftsmanship. Some are driven by entrepreneurial dreams. Some strive to climb the corporate ladder to success or at least to a position of status. Some seek a form of self-fulfillment through service.

A large number of individuals who are motivated to work are dissatisfied with employment that blocks their strivings for self-fulfillment, and which does not fit their work ethic. The frustrated craftsman forced into monotonous work may become angry and careless. The hard-working careerist stuck in a dead-end job which allows neither learning nor promotion may become bitter. Many of those who feel bored and powerless at work lose interest and look for satisfactions outside. These can be either self-developing activities: child rearing, community service, gardening, crafts, sports; or they may be activities that support an escapist, consumer attitude, encouraged by T.V. images of enjoyment. The evidence from studies indicates, however, that unfulfilling work stimulates escapist leisure, rather than self-developing ones, and that it is difficult to develop and maintain an

[65] There is some evidence to suggest that many women still prefer to stay home rather than work for pay: as family incomes rise above $7,000, the percentage of wives who work outside the home declines, as family income rises, from nearly 50 percent whose husbands earn $3,000–$7,000, to less than 20 percent whose husbands earn $25,000. Levitan, *op. cit.*, p. 78.

[66] Levitan, *op. cit.*, p. 73.

[67] Charles F. Sabel, "Marginal Workers in Industrial Society," *Challenge*, March-April 1979 is an exception.

active attitude to life when one is continually turned off at work.[68] This issue of human productivity is not limited to the workplace. Rather it is an issue of national character and national vitality. Unless leadership in business, government, and unions understands what motivates people, the worst rather than the best in a changing national character will emerge.

Conclusion: The Changing American Character

To understand the changes in the American character, that have caused increased dissatisfaction with work, two broad interrelated historical currents need to be examined.

One current is the transformation of traditional rural to modern urban values based on innovations in technology, increased education and the disappearance of a sense of independence rooted in self-employment and the entrepreneurial ethic. The other is the decline of patriarchal authority, based on new demands for human rights and the changed role of women including equality in the workplace. These are, of course, trends. Some people, especially in rural areas, are still rooted in the older patterns; and different social character types (e.g. craftsman and careerist) express these changes differently, but they affect everyone.

One of the most significant social changes in America in this century has been the migration from farms and small towns to the cities. Traditional rural values included fundamentalist religious belief and an ascetic ethic of self-sacrifice either for personal salvation or for family welfare.

Unlike the farm, the unity of family and religious community is no longer necessary for survival. The majority today must adapt to a different reality of large organizations, where success depends on technical or professional competence and the ability to cooperate with different types of people. Although Americans are still more religious than many West Europeans, the modern urban individual is more skeptical about religion and beliefs that separate people than his rural counterpart, and more oriented to self-fulfillment rather than to God or family. Technological advances have lessened the need for hard physical work and stimulated new desires for entertainment. Technology for the home as well as telecommunications and personal transportation have freed women from housework and isolation in the household. Education has encouraged more people to aspire to higher status. Freed somewhat by technology and affluence from the tyranny

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[68] There are two theories concerning the effects of the quality of working life on the quality of leisure. One is called "the trade-off hypothesis" and the other, "the spillover argument." The spillover argument maintains that the way people feel about their jobs will "spillover" into their life outside work. People with uninteresting, dissatisfying jobs can't be expected to lead productive, active lives after they punch out. Preliminary studies seem to confirm this view. But caution (and further study) is needed on this point. It could also be that dissatisfying homelife and leisure "spillover" into work.

According to the trade-off or compensatory hypothesis, people dissatisfied at work turn to their life outside for their satisfaction and development. Of course this happens. What is at issue is the quality of non-work activities. Is it possible to sustain an active challenging, leisure time when work is dull and boring? The limited evidence available suggests it's not likely. However, research on this topic is not conclusive, and much more study is needed to understand the ways in which different people adapt to unsatisfying worklife, homelife, free time and the changes in work and culture needed to stimulate human development.

Robert R. Quinn, Graham L. Staines, and Margaret R. McCullough, *Job Satisfaction: Is There a Trend?* Manpower Research Monograph No. 30, Document No. 2900-00195. (Washington, D.C.: U.S. Government Printing Office, 1974).

George Strauss, "Workers: Attitudes & Adjustments" in Jerome Rosow, editor, *The Worker and the Job*, (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1974).

of necessity, individuals of all classes have broken old taboos and chased experiences that in the past were the exclusive property of the rich. From a psychoanalytic point of view, both sexual liberation (based on new contraceptive technology and the erosion of traditional values) and the propagandizing by advertisements to consume rather than save (which in the expansive 1950's and 1960's appeared economically positive) have undermined the main mechanisms of the traditional, "up-tight," hoarding character. The negative traits of the new character are narcissistic modes of self-fulfillment, self-centeredness, greediness, and lack of concern for others. The positive traits are increased concern and personal responsibility for self-development and personal health, freedom to learn and experiment.

The disappearance of self-employment is in large measure a result of the demise of the family farm and the small town services that supported it; and the growth of corporate forms of organization, aided by innovations in telecommunication and data processing. Gone with self-employment is the comforting idea that if one does not like work in the organization, one can always go out and start one's own business. Increasingly, the sense of independence is rooted in technical, professional, and managerial skills, rather than ownership of a farm or a business. The negative traits that have resulted are those of careerist self marketing, the need to sell oneself, to become an attractive package at the expense of integrity. The positive traits are those of flexibility and tolerance, and the need to understand and cooperate with strangers.

The decline in patriarchy has resulted both from urban values, from a science and information based technology, and from many challenges to the domination of the father and the boss. Unions, welfare and unemployment payments, the civil rights movement, the women's movement, and protest against the Vietnam war have enlarged the concept of human rights and destroyed the automatic respect for authority traditionally held by the autocratic patriarchal figure in both business and government. The decline of patriarchy results in the demand for rights, as opposed to protection by a powerful figure (although, like adolescents, some people want both).

For organizations, the negative side of this trend has been the crisis of authority. Lacking respect for traditional bosses and institutions, employees become cynical, rebellious and experts at beating the system. The positive side is a critical and questioning attitude; the wish for mutual respect; and the desire to be cooperatively involved in an organization run on principles of equity and concern for individual development.

The rebellious spirit can either undermine authority or transform the authority structure. How will this transformation take place? One approach has been in the establishment, through collective bargaining, of Union-Management Cooperative Projects chartered to reorganize work in Bolivar, Tennessee (Harman-UAW) and Springfield, Ohio (City Management-AFSCME). They have required managers able to act as resources rather than bosses.

These projects and others have demonstrated that the primary tasks of leadership at work are to understand different attitudes, different strivings for self-fulfillment, and to establish operating principles that build trust, facilitate cooperation, and explain the sig-

nificance of the individual's role in the common purpose. What brings out the worst in employees, including middle and lower levels of management, is a sense of powerlessness due to size and anonymous authority that treats everyone like a part in a large machine and denies individuality. Insecurity, suspicion, rumor, and a sense of injustice grow in organizations where employees do not understand the reasons for decisions and do not have a say in how work is organized and evaluated.

This is a generation prepared to communicate, and be responsive to reasonable explanations. Leadership will bring out the best in the emerging American character only by welcoming the positive aspects of that character: the needs for equity, involvement, personal development—including life-long learning at work. Experience in projects ot improve work in both industry and government indicates that only a small minority of workers has a negative character structure that is immune to organization based on ethical principles and the resulting peer pressure to cooperate. New forms of organization become a necessity in an era of limits when concern for the common good must temper the career ethic.

How will future technology affect these changes? Changing technology in both industry and offices provides possibilities for involving employees in the organization of work, but only if leadership is able to develop the trust and involvement necessary. In an information-based society, there are increasing needs for service, but again, the quality of service will depend on the quality of leadership. Some of the most talented college graduates today seek self-fulfillment by making a meaningful social contribution through public service—believing that business is not an institution that serves society. Often, they are disappointed by the lack of orientation to service in government as opposed to its police and regulatory functions. Real opportunities for service are, in fact, great in both government and business, but again, this requires leadership sensitive to bringing out the best in people by a commitment to ethical as well as economic values.

Is this leadership a new form of benevolent patriarchal authority? That is unlikely, since, in most large organizations, managers are employees also. Trust depends on a constitutional system of rights and obligations—not on the owner's good faith. However, even within such a system managerial leadership concerned about people as well as profit is necessary to bring out the best in people.

If leadership in business, unions and government does not help to establish a new work ethic of self-development and service by appealing ing to the positive elements in the American character, it is likely that the traditional work ethics will be replaced by a negative search for "self-fulfillment." This ambiguous ethic can mean either greedy cravings to have more for oneself, or it can mean demands for employment that serves both personal growth and social welfare. It can mean development of one's authentic interests in the arts, sciences, and professions; or it can mean a drive to win at any price. As long as there is a failure to distinguish ethically based self-development from other modes of self-development, and as long as there is a failure to organize work to support what is most productive in the American character, the new ethic may contribute to undermining the motivation to work.

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EMPLOYMENT AND LABOR FORCE GROWTH: RECENT TRENDS AND FUTURE PROSPECTS

By Murray S. Wernick and James L. McIntire

CONTENTS

SUMMARY

The rapid labor force growth of the past decade, due to the baby boom generation and unexpected numbers of women entering the labor force, is projected to continue at about the same pace through the mid 1980's.

Nearly all the additions to the labor force during the next decade will be in the central working age group, ages 25 to 44, while the proportion of workers under age 25 will level off and begin to decline. Almost two-thirds of the new workers will be women.

Employment has grown by over 10 million persons between 1973 and 1978, registering some of the sharpest gains in the 38-year history of modern employment statistics. In general, the changing occupational and industrial structure of employment opportunities has tended to coincide with changes in the composition of the labor force.

All industries now employ higher proportions of women and youths than 5 or 10 years ago. Nearly two-thirds of the workers added since 1973 were women, and four out of five of the new workers were under age 35.

The U.S. has become a "white collar society" with over one-half of the work force now employed in white collar occupations. Blue collar occupations continue to decline as a proportion of total employment.

Racial minorities have experienced a long-term decline in their ratio of employment to working age population, while this ratio for whites has climbed to historic levels.

The structure of future employment growth may provide substantial job opportunities for women, but the employment outlook for minority groups is not favorable.

The employment growth of young adult workers and women has strengthened the demand for housing and consumer goods and services. This underlying strength is expected to continue through the next decade.

I. Overview and Implications

During 1978 employment rose by an unexpected 3.6 million, about 2 million new households were formed, there was a multi-billion dollar increase in mortgage debt, installment credit jumped by record amounts, and real growth in the economy rose by 4.4 percent.

While each of these developments was the result of many cross-currents in the economy, they did have one factor in common: the under-age-35 generation played a key role.

The bulk of the new jobs during 1978 was filled by men and women under 35 years of age. A large majority of new households, both single and family units, were formed by young adult workers. The rise in mortgage debt stemmed largely from the fact that an estimated 60 percent of the homes bought during the year were purchased by persons under 35 years of age.

Given the large rise in the employment of younger workers and their expectation that continued income increases will match or exceed inflation as they mature, the amount of debt held by younger persons has accounted for a disproportinate part of the large rise in total debt.

In 1978 and other recent years, the growth in real GNP has been reflected in a low rate of productivity growth and a sharp rise in employment. The under-age-35 generation accounted for most of these employment gains, thus providing a primary resource for real growth in the output of goods and services.

These developments are merely some manifestations of the impact of the baby boom population as it moves through the young adult work force. In fact, during the past decade, nine out of 10 new jobs went to persons under the age of 35.

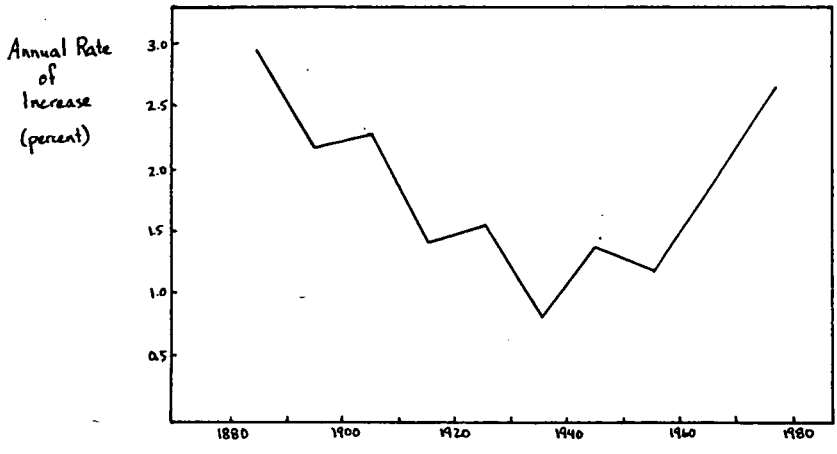
It was about 10 years ago when young persons born during the baby boom first became a significant force in the labor market. Since then, the American economy has been undergoing an immense expansion in its labor force—an increase far in excess of all official projections—as this tidal wave of potential workers passes through the work-age life cycle. One must turn to the late 19th century, the last period of massive immigration, to find a rate of labor force growth equivalent to that which occurred in the past decade (see chart 1).

Between 1968 and 1978, over 21 million persons were added to the civilian labor force, raising the total to well over 100 million. This represents an increase of 25 percent. Moreover, with the growth concentrated almost entirely among young persons, the under-35 labor force showed a 60 percent increase.

A dramatic rise in women's labor force participation has compounded the underlying population impacts on the size and composition of the labor force, contributing appreciably to recent employment

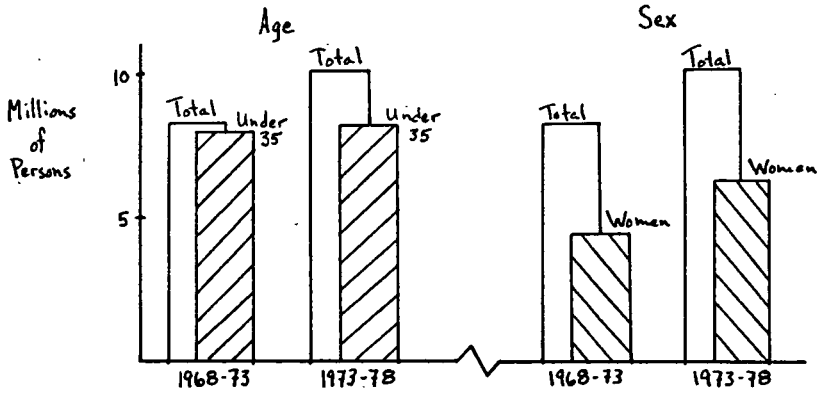
gains and economic pressures. Women's labor force participation has exhibited a long-run, upward trend since World War II. This trend has accelerated substantially during the past five years, an unanticipated conjuncture of job opportunities and changes in social habits and life-styles. About two out of three labor force entrants between 1973 and 1978 were women (see chart 2). In 1978, for the first time, over one-half of all adult women were participating in the labor force. As a consequence of these recent events, women can no longer be characterized as secondary or intermittent workers; they are rapidly becoming a critical component of the primary labor force.

CHART 1.—Civilian labor force growth: 1880–1978



Source: Richard A. Easterlin, "Population, Labor Force, and Long Swings in Economic Growth." (New York: Columbia University Press) 1968, p. 190. For 1965–78 data, see the Bureau of Labor Statistics. Rates are annual averages for 10-year periods.

CHART 2.—Increases in civilian employment



Source: Bureau of Labor Statistics.

The fast pace of labor force growth during the past decade is projected by this paper to continue at approximately the same rapid rate through the mid-1980's before slowing appreciably. Most of this growth is expected to come from continued increases in women's labor force participation rates, in addition to the underlying demographic forces created by the baby boom generation. Consumer demands for housing, durable goods, and services are also expected to retain an underlying strength through the mid-1980's, as the baby boom generation moves through the household formation stage of life and as more and more households increase their incomes by adding a second wage earner.

Dramatic Employment Gains

Employment increased by over 8 million persons between 1968 and 1973 and by an additional 10 million between 1973 and 1978. The figure for the latter five-year period represents a compound increase of 2.3 percent per year, even though the period includes the most severe recession of the post World War II era. In the past two years, employment grew at an unprecedented rate of 3.8 percent per year, bringing the civilian employment total to well over 96 million persons. In no other business cycle in the post-war period has employment accelerated so rapidly in the later stages of a recovery.

These are extraordinary gains, especially in historical perspective. From 1948 to 1968, employment advanced at only about one-half the rate of the past decade. As a result, the ratio of employment to working age population now stands at an all time high of nearly 60 percent. In the long upward swing to this record level, three major trends stand out:

The average age of the work force has been reduced dramatically.—The bulk of the new jobs has gone to the under-35 generation, increasing their proportion of total employment from 39 to nearly 50 percent since 1968.

Increasing numbers of women are seeking full-time jobs.—Women have not only increased their proportion of total employment from 36 to 41 percent in 10 years, but their tendency to remain working for longer periods has also increased.

The employment situation of racial minorities has deteriorated since 1968.—In contrast to the rising employment to working age population ratio for whites, this ratio for nonwhites has declined significantly.

Changes in the Structure of Employment

While almost all industries now employ a much higher proportion of young adult workers and women, almost nine out of 10 of the new jobs added between 1968 and 1978 were in the service industries, both public and private, and in the trade industries. This concentrated growth increased and service and trade sector's share of total employment from three-fifths to two-thirds in the course of the 10-year period. Although the relative share of employment in the goods producing sector dropped sharply, this was almost entirely a reflection of the slow growth in the manufacturing industries. Construction, on the other hand, now has a larger share of total employment than in 1968, while in mining there has been little change.

On the whole, the changing structure of industry and employment tended to coincide with the potential supply of labor. Those industries that increased their share of total employment generally had historically higher proportions of women and younger workers.

Occupational changes during the 1968–78 decade largely paralleled those in industries, with the shift being away from blue collar to white collar jobs. Nearly two-thirds of the 10-year employment growth came in the white collar jobs, while blue collar occupations accounted for only about one-fifth of the employment growth. As a result of this concentrated employment growth, white collar occupations now represent one-half of the economy's total employment, while blue collar occupations account for only about one-third of total employment. The expanding white collar occupations, which now account for over one-half of all workers, include both low- and high-salaried workers ranging from sales clerks to doctors and corporate presidents. As increasingly important participants in the white collar society, women and young adult workers have made substantial gains in the white collar professional and technical positions, and women appear to have made some significant breakthroughs in the barriers to managerial and administrative jobs.

However, despite the unusually large employment gains of the 1968–78 decade, racial minorities have a poorer employment position today than they did in 1968. While nonwhite employment has grown from 10.8 to 11.1 percent of total employment during this time, the nonwhite proportion of the working age population has grown at an even faster pace.

On the surface, this creates the illusion of substantial employment gains for minorities. But a more accurate picture emerges from the fact that the nonwhite ratio of employment to working age population has declined substantially, while the ratio for whites has increased. Thus, although racial minorities are playing a major role in the current demographic trends, they have not reaped their proportional share of the economic benefits.

Impacts of Demographic and Employment Change on Economic Activity

The rise of the employment to working-age population ratio to a record high indicates a close interrelation among demographic factors, employment, and economic activity. The entrance of the baby boom population into the labor force had a thunderous shock effect on the labor market. A large number of young, largely middle-class, and well-educated workers became available at low-entry wages at times when demands in the service and trade industries for white collar workers were growing rapidly. In turn, the new-found incomes of the rapidly growing work force pushed up demand for consumer goods, public and private services, and housing.

Young adult workers are characterized by a high propensity to consume and a willingness to incur high levels of debt to attain their desired levels of consumption. Most of these young workers incur high levels of debt with the expectation that their real incomes will rise with their maturity, skill, and work experience. In addition, many young families have improved their immediate financial position by the addition of a second earner. This added income has enabled them to incur

larger proportions of mortgage and installment debt than young families in previous generations.

The inflation of recent years appears to have led consumers to perceive an advantage in speeding up purchases of major items such as houses, cars, and durable goods.[1] Some economists have suggested that consumers are buying faster to escape higher prices and interest rates in the future.[2] In addition, this trend also reflects the influence of the baby boom generation's expectations for future increases in real income and the underlying strength of their consumer demands as they move through the household formation stage of life.

Heightened levels of consumption, in turn, tend to increase the demand for labor and attract additional workers into the labor force. This is reflected in the rising participation rates, especially of women, many of whom are young and married. Whether this process will continue to be self-perpetuating will depend on complex factors such as the potential supply of labor, capital formation, government policies, the intensity of inflation, and the availability of credit. While a full evaluation of the interaction of these factors is beyond the scope of this paper, two examples of the interrelation of demographic trends, employment, and consumer demand are presented.

AN EXAMPLE: HOUSING

In no sector of consumer expenditures has age played so large a role in recent years as in residential housing. Despite surging prices, rising interest rates, and continued relatively high housing starts, census reports have consistently shown historically low numbers of vacant units for sale or rent.

Much of this almost insatiable demand for housing has been concentrated in the sharply growing, young household-forming groups, ages 25 to 34. In 1977 over one-half of the families of this age group were homeowners. According to the National Association of Home Builders, in 1978 almost 60 percent of the new homes bought were in the sharply growing, under-age-35 group which comprises about one-third of all households.[3] Since this age group has continued to show substantial growth in terms of numbers employed, numbers of households, and dual-earning families, their requirements for housing are likely to continue to be insistent.

Homeownership has also become increasingly associated with dual-earning married couples.[4] In 1978 about two-thirds of all households buying homes for the first time were those with two earners. Households with dual earners should increase substantially during the 1980's, based on projections of the female civilian labor force presented in this paper.

It does not appear that there will be any let-up from the pressure of demography on residential housing through 1985. Over the years, there have been increasing proportions of homeowners to renters in

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[1] See the testimony of F. Thomas Juster, Director of the Monitoring Economic Change Program at the University of Michigan's Survey Research Center. U.S. Congress, Joint Economic Committee, *Special Study on Economic Change, Hearings*, 95th Congress, 2nd Session, June 15, 16, 20, 21, and 22, 1978, Vol. 3, p. 955.

[2] Ibid.

[3] National Association of Home Builders, *Profile of a New Home Buyer, Survey of New Home Owners* (1978).

[4] *Ibid.*, National Association of Home Builders, p. 15.

all family age groups except the youngest group, those under 25. This trend can be seen in table 1. Among heads of families age 25 to 34, over 50 percent owned their own homes in 1977, compared to 48 percent in 1970. About three-quarters of those in the 35-to-44 age group were homeowners in 1977. Thus, over the next decade these trends should create further demand in two ways: (1) Increased penetration of homeowning relative to renting in each age group; and (2) a growth in the proportion of homeownership as the 25–to–34 year cohort moves up in age and income, entering the heavy homeowning 35-to-44 age group.

Probably most important for housing demands is that the total number of family heads in the central age group (ages 25 to 44) will increase by one-third by 1985. In the mid-1980's there will be 87 million households, about 12 million more than now. Of these additional households, 9 million will be headed by persons under 45.[5]

TABLE 1.—HOUSING STATUS OF NONFARM FAMILIES

[Percent distribution]

Age of head	Own home			Rent		
	1965	1970	1977	1965	1970	1977
All nonfarm families	63	62	64	29	30	27
Under 25	19	12	13	63	63	70
25 to 34	47	48	51	45	44	40
35 to 44	69	72	75	25	24	19
45 to 54	75	74	79	19	21	15
55 to 64	71	77	75	23	18	18
65 or over	71	71	74	22	21	20

[1] Percentages do not add up to 100 because families who own trailers, rent part of another family's dwelling, or receive housing as part of compensation are not shown on the table.

Source: Survey Research Center, University of Michigan.

The housing market is but one example of the interrelation between demographic factors, social changes, employment, and economic activity. Unfortunately, critical as these relationships are, they have received little attention by economists in their analyses of current economic developments. These interactions will require more intensive study than is possible in this paper.

The purpose of this paper is more limited. It is to examine the changes in size, structure, and composition of employment as a critical link between demographic factors and economic activity, focusing special attention on the under-35 generation, women, and racial minorities. In this context, emphasis will be given to the remarkable structural changes in industry and occupational employment which have taken place in the last decade, and which suggest significant directions for employment opportunities in the next decade.

Labor Force Projections and Future Growth

The labor force increased by 2.4 percent annually between 1968 and 1978, almost double the annual growth rate of 1.3 percent during the preceding 20 years. In fact, in the past two years, labor force growth has surged to an almost unprecedented 3.5 percent annual rate of growth. While this recent growth rate is probably unsustainable, we

[5] U.S. Bureau of the Census, Current Population Report, Series P-25, No. 607, "Projections of the Number of Households and Families 1975–90," August 1975.

anticipate that at least through 1985 the labor force will grow by about 2.3 percent per year. If this projection is correct, it means that over the next seven years the labor force will continue to grow at a rapid pace similar to that of the past decade.

Nearly all the increase in the labor force during the 1980's will be concentrated in the central age groups rather than among younger persons. As the younger age groups developed patterns of behavior which markedly altered economic trends and social forces in the past 10 years, the dominant economic and social pacesetters will be in the 25-to-44 age group as we move into the 1980's and the baby boom population matures. This age cohort will not only account for almost all the anticipated labor force growth, but it will also reflect the employment needs and rising consumption demands of young and expanding families. Many of these families will be two-earner households, reflecting the expectation that women will account for almost two-thirds of the next decade's labor force growth.

The Structure of Future Economic and Employment Growth

The structure of economic growth and employment opportunities during the next decade will likely follow the trends of the past decade. The influence of the baby boom generation's spending is expected to sustain high consumer demands for housing, durable goods, and services. Most of the new jobs generated by these demands will likely be in the service and trade industries, largely requiring white collar skills. By contrast, manufacturing industries are expected to experience slower growth rates, and the lower demand for blue collar skills is likely to continue.

If the employment trends of the past decade continue, the structure of the demand for labor during the next decade should provide substantial employment opportunities for the large numbers of women projected to enter the labor force. Women have historically held high proportions of the jobs in the service and trade industries and in most white collar occupations—the major growth areas for employment during the next decade.

However, racial minorities have historically held a relatively low proportion of white collar jobs, and a relatively high proportion of blue collar jobs. With the shrinking proportion of job opportunities in blue collar occupations and the rising proportion of racial minorities in the working age population, the employment prospects for racial minorities are likely to be more discouraging during the next decade if the structural rigidities of the white collar job market continue.

The average age and skill of workers in all industries should increase during the next decade as the baby boom generation matures and gains additional work experience. The large numbers of women who have recently entered the job market are also expected to stay in the labor force longer during the next decade than during previous periods, adding valuable work experience to a large segment of the labor force which formerly had been considered intermittent workers. Also contributing to the increased maturity of the work force will be the fact that most of the additions to the labor force during the 1980's will be in the central age group. All of these factors combined should help improve the sagging rate of productivity growth experienced in recent years. Another factor that would help boost the rate of productivity growth significantly during the next decade would be a substantial rise

in the rate of investment in productive capacity—a development that would also be important in creating jobs for the large projected increase in the labor force.

II. Demographic and Social Changes in the Labor Market: An Empirical Examination

Recent years have been marked by dramatic changes in the size and composition of the labor market. Between 1968 and 1978 the labor force expanded by over 25 percent with the massive influx of youth and women. Employment has also experienced extraordinary growth, registering some of the sharpest gains in the 38-year history of modern day employment statistics. The result is a much larger and substantially younger work force, one in which women are playing an increasingly primary role, and one which is finding most of its new employment among the ranks of white collar workers in the expanding service and trade industries.

The labor market, of course, is constantly changing. Members of the population enter and leave the labor force for various age, economic, and personal reasons. The labor force itself is divided between the everchanging levels of employment and unemployment. Yet during the past 10 years, the size and composition of the labor market has been changing more rapidly than in any other time during the post World War II period.

The growth of the labor force is generally dependent on matching a growing population's need and desire for income with opportunities for going to work. In the past this usually meant that as young men matured, married, and became the primary household breadwinners, they developed a primary attachment to the labor force and a strong need for employment. As the size of the working age population grew, the size of the labor force experienced similar growth.

It was about 10 years ago, however, when teenagers and young persons born during the post-war baby boom first became a significant force in the labor market. And in the early 1970's the rate of women's participation in the labor force, which had been rising slowly since the end of World War II, began accelerating unexpectedly. As young adults started postponing marriage and fertility rates dropped, more and more women began to enter the "primary" labor force. In more recent years, as the baby boom generation has matured and begun to marry, the households formed have increasingly included two wage earners. Reflecting these demographic and social changes, the labor force increased at an annual rate of 2.4 percent between 1968 and 1978.

This massive labor supply increase was interrelated with a large increase in the demand for labor. Since 1968 employment grew by about 2.2 percent per year. This represents a rapid absorption of the supply surge of youth and women into gainful employment, raising the ratio of employment to working age population to an all time high. While this growth in the demand for labor has been large relative to earlier periods, it has not been sufficient to employ the entire labor supply increase. However, the absorption of this supply surge has accelerated in the past two years. Employment growth has exceeded labor force growth by about 1.5 million persons and unemployment has declined to the lowest rate in almost five years.

On the whole, the changing structure of industry and employment growth during this period tended to coincide with the large increase in the potential supply of labor. Those industries that increased their share of total employment, such as retail trade, insurance and real estate, and professional services, generally have had historically higher proportions of women and younger workers. Nonetheless, all industries now employ higher proportions of women and young workers.

Occupational changes largely paralleled those in industries, with the shift being away from manufacturing and blue collar jobs to service industries and white collar occupations. Nearly two-thirds of the 10-year employment growth came in white collar jobs, while blue collar occupations accounted for only about one-fifth of the employment growth. Here, too, women and young adult workers made substantial gains in the expanding white collar professional and technical positions, and women appear to have broken many of the barriers to managerial and administrative jobs.

While employment among the working age population has risen to an all time high during recent years, the employment situation of racial minorities with respect to their working age population has deteriorated. This means that racial minorities have enjoyed less than their proportional share of the employment and economic growth of recent years.

This chapter examines the interaction of demographic and social changes and their effects on labor force growth since 1968. This examination provides an important basis for evaluating the Bureau of Labor Statistics' labor force projections for the 1980's. The ability of the economy to adapt to large structural changes in the labor force is crucial in determining the structure of future employment opportunities. For this reason, the chapter also examines the employment patterns of youth, women, and racial minorities. To understand how these groups are being absorbed into the economy, the employment patterns are further broken down and examined by major occupation and industry categories.

A few comments on the methodology for measuring employment and labor force growth trends are appropriate. These trends are frequently concealed on a month-to-month or even year-to-year basis by short-run cyclical factors and generally require longer periods of time to surface. In this paper employment and labor force growth trends are mainly identified by comparing changes between the second quarters of 1968, 1973, and 1978. This period roughly marks the entrance of the baby boom into the working age population and its progress up to the past year. In addition, each of these years was marked by rapidly expanding employment, which eliminates some of the intervening cyclical problems of the two five-year periods.[6]

Labor Force Growth

The labor force grew by 21.2 million persons in the 1968–78 decade, an increase of well over 25 percent. Substantially more than one-half of this increase came between 1973 and 1978, averaging over 2.3

[6] A moderate recession occurred in 1969–70 and a much deeper recession in 1974–75. The recent employment recovery has been sharper and has extended longer than the average recovery period. Although the data used are not adjusted for seasonal variations, the consistent comparison of second quarter data eliminates most of the seasonal patterns as well.

million persons per year despite the worst recession since the 1930's.

This fantastic labor force growth, the largest since the great immigration wave of the 1880's, has been due primarily to the demographic change resulting from the baby boom. Almost all of the increase during the 1968–78 period was among persons younger than 35. And the higher levels of labor force growth in the past five years have reflected the rapid increase in the participation of women. Other significant trends have also been taking place, particularly the early retirement of older workers and a declining rate of participation among nonwhites.

THE IMPACT OF DEMOGRAPHIC CHANGES ON LABOR FORCE GROWTH

The baby boom generation began entering the labor force in large numbers around 1968. Today the oldest members of this group are in their early thirties, while the tail end of the boom generation is just finishing high school. This means that the entire bulge associated with the baby boom is now in the working age population.

The most dramatic impact of the population's changing age structure on labor force growth has been made by the oldest members of the baby boom. Over the past decade, these frontrunners of the population bulge have passed through the age range in which labor force attachment increases rapidly. The rate of labor force participation (combined for both sexes) increases from about 47 to 78 percent as persons mature from age 16 to their late twenties. The dynamic effect of the oldest side of the population bulge passing through this age range thus created an initial shock wave of labor force growth.

The largest portion or "peak" of the population bulge, however, is still in its early twenties. As this group grows older, the effect of its increasing labor force attachment also continues to be a source of substantial labor force expansion. Compared to the labor force growth provided by the older members of the boom generation, the "peak" group is contributing much smaller magnitudes of growth. Nonetheless, the tidal wave of young workers that crashed through the labor market during the past decade is being followed by a sizable swell of youths that have just begun to enter the labor force.

TABLE 2.—CHANGES IN THE CIVILIAN LABOR FORCE

[In millions]

5-yr period	Age							
	16 plus	16 to 19	20 to 24	25 to 34	Under 35	35 plus	35 to 44	55 plus
Total:								
68:2 to 73:2	9.6	1.8	3.4	4.1	9.2	0.3	−0.2	−0.1
73:2 to 78:2	11.6	1.1	2.3	5.9	9.2	2.4	2.1	.5
Male:								
68:2 to 73:2	4.5	.9	2.0	2.2	5.1	−.7	−.5	−.3
73:2 to 78:2	4.4	.4	1.0	2.4	3.8	.5	.7	.1
Female:								
68:2 to 73:2	5.0	.9	1.3	1.9	4.1	1.0	.3	.2
73:2 to 78:2	7.3	.7	1.3	3.4	5.3	1.9	1.5	.4

Source: Bureau of Labor Statistics.

As can be seen in table 2, the baby boom had already registered its most impressive impact on the labor force by 1973. Of the 9.6 million

net growth in the labor force during the 1968–73 period, persons under 35 accounted for 9.2 million.

The epicenter of the boom generation's labor force growth during this period was the 20-to-24 age group. This young adult group encompassed the leading edge of the population bulge throughout most of the five-year period, accounting for 3.4 million additional entrants to the job market. Unusually large numbers of teenagers also made their job hunting debut between 1968 and 1973.

Although the total labor force growth from 1973–78 increased to 11.6 million persons, the addition of persons under 35 remained at 9.2 million. Like the earlier five-year period, the major concentration of growth was led by the baby boom's frontrunners, who were and are now passing through the 25-to-34 age range. This group alone accounted for over one-half of the net labor force additions from 1973 to 1978. Meanwhile, the increase among teenagers and young adults (ages 16 to 24) was somewhat lower than the growth rate of the previous five-year period, reflecting the plateau at the height of the population bulge.

The rest of the labor force growth during 1973 to 1978 came largely in the 35-to-44 age range. This addition reflects, over and above the increased participation of women, a jump in the fertility rate that occurred just at the start of World War II. This surge dropped off toward the end of the war and thus created a fertility "blip," a small precursor to the baby boom.

Two major factors have been important in the rapid labor force growth of recent years: the changing demographic structure of the population and changes in labor force participation rates. To distinguish the independent effects of these two factors, participation rates for all age and sex groups have been held constant at 1968 levels and applied to the changing age structure of the population. Labor force additions that would have occurred if labor force participation patterns had not changed are shown in table 3.

TABLE 3.—DEMOGRAPHIC CHANGES IN THE CIVILIAN LABOR FORCE

[In millions]

5-year period	Age		
	16 plus	Under 35	35 plus
Total:			
68:2 to 73:2	8.3	6.6	2.0
73:2 to 78:2	7.8	5.0	2.9
Male:			
68:2 to 73:2	5.5	4.7	.9
73:2 to 78:2	5.2	3.4	1.9
Female:			
68:2 to 73:2	2.9	2.1	.9
73:2 to 78:2	2.7	1.8	1.0

Source: Bureau of Labor Statistics.

The impact of demographic changes on labor force growth is diminishing. Had participation rates not changed dramatically in the 1968–78 decade, the rate of labor force growth among persons under 35 would be slowing rather than increasing. The modest increases that would be occurring among the older age groups would not be

large enough to offset this decline, leading to a slowdown in the aggregate rate of labor force growth.

ACCELERATED LABOR FORCE PARTICIPATION OF WOMEN

The preceding analysis underscores the significance of the recent participation rate changes in explaining the growth in the labor force. The total labor force participation rate exhibits an upward trend, increasing from about 60 to 63 percent in the 1968–78 10-year period. Nearly three-quarters of this growth occurred within the past 5 years. Almost all of this increase came from the accelerated participation of women.

An upward trend in the labor force participation of women was evident prior to 1968. Earlier, women generally entered the labor force to add to family income, often on a part-time basis, but the proportion of younger women at work remained substantially lower than the proportion of older women. Since 1968, however, the preponderance of increased labor force participation has been accounted for by younger women. Labor force participation rates over the past 10 years are summarized by age and sex in table 4.

TABLE 4.—CIVILIAN LABOR FORCE PARTICIPATION RATES

	Age							
	16 plus	16 to 19	20 to 24	25 to 34	Under 35	35 plus	35 to 44	55 plus
Total:								
1968: 2	59.9	49.5	66.8	68.8	63.0	58.0	72.0	39.7
1973: 2	60.8	54.5	72.3	71.6	67.4	56.0	74.1	36.1
1978: 2	63.1	58.7	76.8	77.9	73.0	55.6	77.9	33.9
Male:								
1968: 2	80.6	57.6	82.9	97.0	82.3	79.6	97.2	57.2
1973: 2	79.0	61.1	85.5	95.6	83.6	75.6	96.1	51.7
1978: 2	78.1	63.2	86.3	95.3	85.0	72.5	95.6	47.5
Female:								
1968: 2	41.7	41.8	54.0	43.0	45.9	39.1	48.7	25.4
1973: 2	44.5	48.0	60.4	49.2	52.2	39.3	53.6	23.8
1978:2	49.7	54.3	67.8	61.5	61.6	41.1	61.6	23.2

Source: Bureau of Labor Statistics.

Women's labor force participation rates are not only growing in all the younger age groups, they are growing at accelerated rates. Women under 35 years of age have shown a sharp acceleration, reaching a 61.6 percent participation rate. The most dramatic of these increases is among women ages 25 to 34, a high proportion of whom are married. This group increased its participation rate by 18.5 percentage points during the 10 year period. Women 20 to 24, the group with the highest rate of participation, have also had a rapid participation rate growth, reaching nearly 70 percent. Female teenagers have maintained a constant but substantial upward trend in their participation rates. Among older women, some notable increase has occurred among the 35-to-44 age group as well.

This acceleration of labor force participation has helped women play an unprecedented role in the massive 10-year labor force growth. As shown in table 2, women accounted for 12.3 million additional labor force participants, 58 percent of the 10-year period's total labor force

growth. The largest portion of this growth came in the most recent five-year period when women added 7.3 million to the labor force compared with only 4.4 million men.

Only in recent years have women dominated the labor force growth in the younger ages. During the 1968–73 period, males had larger labor force additions of persons under 35 than did women. During the second half of the decade, however, women under 35 outdistanced the labor force additions of their male cohorts by a wide margin.

This large labor force growth among younger women was the result of the interaction of a rapidly growing working age population with the accelerated increase in women's participation rates. This is particularly true of the 25-to-34 age range, which included the oldest cohort group of the baby boom during the most recent five-year period. This age bracket alone accounted for nearly one-half of the women entrants from 1973 to 1978—the most impressive increase of any age/sex subgroup during either five-year period.

DECLINING LABOR FORCE PARTICIPATION OF MEN

By comparison with women, men's participation rates present a more mixed picture. The aggregate rate of male labor force participation has been declining slowly for more than 30 years. This trend, however, was reversed among younger men during the 1968–78 decade, and the rate of decline among older men appears to be showing down.

Most of the decline in male participation has been concentrated in the older ages, due largely to earlier retirement. The participation rate of men ages 55 and over dropped off by about 10 percentage points during the 1968–78 decade. However, men ages 35 to 44 reduced their rate of labor force involvement by a smaller margin during the more recent five-year period compared to the 1968–73 period, as seen in table 5. Men in the 25-to-34 age range have registered such a small participation decline between 1973 and 1978 that it appears their long-term decline may be leveling off. The decline in the 25-to-34 age group can be accounted for by nonwhite males, while white male participation rates rose slightly.

TABLE 5.—CIVILIAN LABOR FORCE PARTICIPATION RATES

	White (age)				Nonwhite (age)			
	16 plus	16 to 19	Under 35	35 plus	16 plus	16 to 19	Under 35	35 plus
Total								
1968:2	59.5	50.5	62.8	57.6	63.0	42.7	64.3	62.0
1973:2	60.9	56.8	68.1	55.9	60.0	40.9	62.7	57.5
1978:2	63.3	61.8	74.1	55.4	61.7	41.6	66.1	57.3
Male:								
1968:2	80.8	58.6	82.8	79.7	78.6	50.7	79.2	78.2
1973:2	79.7	63.3	84.7	75.9	73.9	47.2	75.5	72.4
1978:2	78.8	66.4	86.5	72.8	72.2	45.2	74.3	70.1
Female:								
1968:2	40.7	42.8	45.0	38.1	49.9	35 2	51.8	48.4
1973:2	44.0	50.3	52.2	38.5	48.4	35.0	51.8	45.4
1978:2	49.2	57.2	62.0	40.3	53.0	38.1	59.8	47.0

Source: Bureau cf Labor Statistics.

Labor force participation among men in the 16-to-24 age range has shown surprising growth. Teenage males upped their participation

rate by almost 6 percentage points, while young men ages 20 to 24 increased their participation by over 3 percentage points during the past decade. Higher participation in these groups, combined with the leveling off of participation among men aged 25 to 34, suggests that there may be a positive relationship between the baby boom generation and rising participation rates. This relationship will be explored further in chapter III.

Net growth in the male labor force remained relatively constant at about 4.5 million during both five-year periods. During the first five years, the labor force of men under age 35 grew by 5.1 million, largely because of the impacts of the baby boom. Yet part of this increase was offset by declining numbers of older men. As the impact of the changing age structure of the population eased during the second half of the 1968–78 decade, the growth of the male labor force under age 35 fell substantially, registering an increase of only 3.8 million. In this period, however, there was a significant increase among men 35 to 44 years of age, in part reflecting the small fertility "blip" of the early 1940's that preceded the baby boom.

Most of the major changes in male labor force growth have not been heavily dependent on changes in participation rates, but rather have tended to be more closely tied to changes in the demographic structure of the population. Of course, this is because in most age groups men's participation was already high, and most changes have been small compared to those in women's participation. However, the changing trends observed in men's participation, particularly the increase among younger men, may have more significant implications for the future size and structure of the labor force.

DECLINING LABOR FORCE PARTICIPATION OF OLDER WORKERS

One area of widespread decline in labor force participation is among all workers older than 55 years of age, mainly reflecting the long-run trend toward earlier retirement. While the trend toward earlier retirement may have many important sociological and economic implications, its impact on the growth of the total labor force during recent years has been relatively small.

Between 1968 and 1978 the labor force participation of the over-55 age group declined by about 6 percentage points, most of which is attributable to a sharp decline among males. However, the population of this age group grew by over 20 percent during the same time. As a result, the over-55 age group registered a slight labor force increase for the 10-year period, a little less than 2 percent of the total additions to the labor force.

LABOR FORCE PARTICIPATION OF RACIAL MINORITIES

Despite the upward trend in aggregate labor force participation rates, the participation of racial minorities has dropped off during the past decade. The participation rates for nonwhite men have declined, while those for nonwhite women have increased. While white male participation has also dropped off, the decline for nonwhites has been much more rapid. And while nonwhite women have increased their participation, they have done so at a much slower pace than white women. The civilian labor force participation rates of whites and nonwhites are summarized by age and sex in table 5.

The participation rates of white and nonwhite men were fairly comparable in 1968, measuring 80.8 and 78.6 percent respectively. But by 1978 the gap between the two had widened considerably, with white male participation at 78.8 percent and nonwhite male participation at 72.2 percent. Most of this gap is due to the opposite trends among white and nonwhite men under 35. White males in this group increased their participation while the participation of their nonwhite cohorts declined. This divergence of trends is most pronounced among teenagers; in 1978 the participation rate for white male teenagers was 66.4 percent compared to 45.2 percent for nonwhites. This disparity in labor force participation is an indication of the failure of the economic growth of recent years to benefit nonwhite teenagers.

Participation rates among nonwhite women have historically been higher than those of white women, but the gap has narrowed appreciably in the past decade. Minority women increased their participation rate by only about 3 percentage points during the 10-year period, while white women registered a sharp increase of nearly 9 percentage points. These developments have brought a greater degree of similarity to the labor force participation of white and nonwhite women.

The similarity is perhaps most apparent among women under 35. In this age group, white women have increased their participation rate by 17 percentage points between 1968 and 1978, while nonwhite women have upped their rate by less than one-half that amount. As a result of these changes, younger white women now participate for the first time at rates slightly higher than those for minority women.

CHANGING COMPOSITION OF THE LABOR FORCE

The baby boom and the large increase in women's labor force participation have greatly changed the composition of the labor force. Between 1968 and 1978, persons under 35 have increased their proportion of the labor supply from about 40 to 50 percent. And women now account for more than four out of every 10 persons in the labor market. In contrast, men over 35 years of age—generally considered the "primary core" of the labor force—have shown the largest relative decline, falling from over 38 percent of the labor force in 1968 to only 30 percent in 1978.

TABLE 6.—DISTRIBUTION OF THE CIVILIAN LABOR FORCE BY AGE AND SEX

[In percent]

	Age				
	16 plus	16 to 24	25 to 34	under 35	35 plus
Total:					
1968:2	100	20.2	19.9	40.1	59.9
1973:2	100	23.9	22.3	48.2	53.8
1978:2	100	24.5	25.6	50.1	49.9
Male:					
1968:2	63.0	11.2	13.4	24.6	38.4
1973:2	61.3	13.4	14.4	27.8	33.5
1978:2	58.5	13.2	15.2	28.4	30.1
Female:					
1968:2	37.0	9.0	6.5	15.5	21.5
1973:2	38.7	10.5	7.9	18.4	20.3
1978:2	41.5	11.3	10.4	21.7	19.8

Source: Bureau of Labor Statistics.

It is evident from table 6 that the greatest changes in the age composition of the labor force occurred during the 1968–73 period, while the largest changes in sex composition occurred during the more recent five-year period.

Perhaps the most significant development in the labor force has been the increase in the proportion of women under 35 years of age. Spurred by the dynamic interaction of participation rate and demographic changes of young women since 1973, the average age of the labor force has been lowered, and the supply of women workers relative to men has been increased.

Many of the changes in the size and composition of the labor force have been due to the changing age structure of the population and shifts in social and economic values of the maturing baby boom generation. However, these labor force changes cannot have been wholly independent. For the rapidly expanding supply of youth and women workers to be absorbed into gainful employment, comparable increases in job opportunities must have taken place at the same time. For this reason, we now turn to an examination of the magnitude of employment growth and its industrial and occupational distribution during the past decade.

Employment: Growth and Changing Structures

Growth patterns in labor supply, employment, and personal consumption expenditures have closely paralleled each other in recent years. Labor force increases were most substantial among younger persons, especially women, who historically have held a high percentage of jobs in white collar occupations. Most of this surge in the supply of white collar labor was absorbed by the rapid expansion of the service and trade industries, which accounted for nine out of 10 new jobs between 1968 and 1978.[7] Real personal consumer expenditures, meanwhile, have grown at an annual rate of 3.5 percent during the 10-year period (increasing as a proportion of GNP), exerting upward pressure on aggregate demand and employment.

Employment rose by over 10 million persons between 1973 and 1978. The service and trade industries, which employ a large proportion of these added workers, now account for two-thirds of the economy's employment. The shift away from blue collar jobs to white collar employment is a long-run economic trend which seems to have been reinforced by recent demographic and labor force changes. These changes signal the emergence of a "white collar society," one which has significant implications for the economic structure and social character of the entire American culture.

There has been inadequate attention given to the impacts which the growing labor supply of young adults and women have had on the structure of total employment and the economy. Lopsided growth in the service and trade industries, combined with concentrations of young or inexperienced workers, for example, can have substantial impacts on output and the rate of productivity growth. A "white collar society" can also mean important changes in the life-style and economic behavior of households, affecting expectations of employment, income, and inflation as well as the mix of consumer spending and saving.

[7] In the context of this analysis, the "service and trade industries" (or "sector") include the following industries: transportation and public utilities; finance insurance and real estate; household services; miscellaneous services; wholesale and retail trade; and public administration.

EMPLOYMENT GROWTH

The rate of employment growth during the past decade has been an unprecedented departure from the labor market experience of the post World War II period. While employment grew at a modest pace of 1.3 percent per year between 1948 and 1968, the entrance of the baby boom into the work arena raised this rate to 2.0 percent during the 1968–73 period. And combined with the recent accelerated labor force participation of women, continued growth in the supply of younger workers has brought the 1973–78 employment growth rate to 2.3 percent, over 2 million jobs per year.

The rising employment trend has not yet stopped. Employment during the past two years grew by a whopping 3.8 percent annual rate, bringing the ratio of employment to working age population to the highest rate ever achieved.

As in the labor force, this long upward swing in employment totals has also been accompanied by several profound changes in the composition of the employed work force. Three major trends stand out: (a) persons under age 35 are increasing their proportion of total employment; (b) employment of women is increasing faster than that of men, raising the proportion of women in the work force to an all time high; (c) racial minorities are losing important ground in their ratio of employment to working age population.

Employment of persons under age 35

Of the 18 million additions to total employment between 1968 and 1978, 9 out of 10 persons were under 35. This large and unbalanced employment growth is for the most part attributable to the baby boom wave. As the leading edge of the boom generation, now in the 30-to-34 age group, has matured through time, the concentration of the employment increases within age cohorts has also moved with it. This can be seen in table 7. During the 1968–73 period, the largest growth of employment was concentrated among teenagers and young adults, corresponding to the passage of the older cohort group of the baby boom through the 20-to-24 age range. Then, as the frontrunners of the population bulge moved up in age during the 1973–78 period, the focus of employment increases shifted to the 25-to-34 age range. At the same time, employment increases among teenagers and young adults slowed. However, this group still constitutes well over one-fifth of total employment.

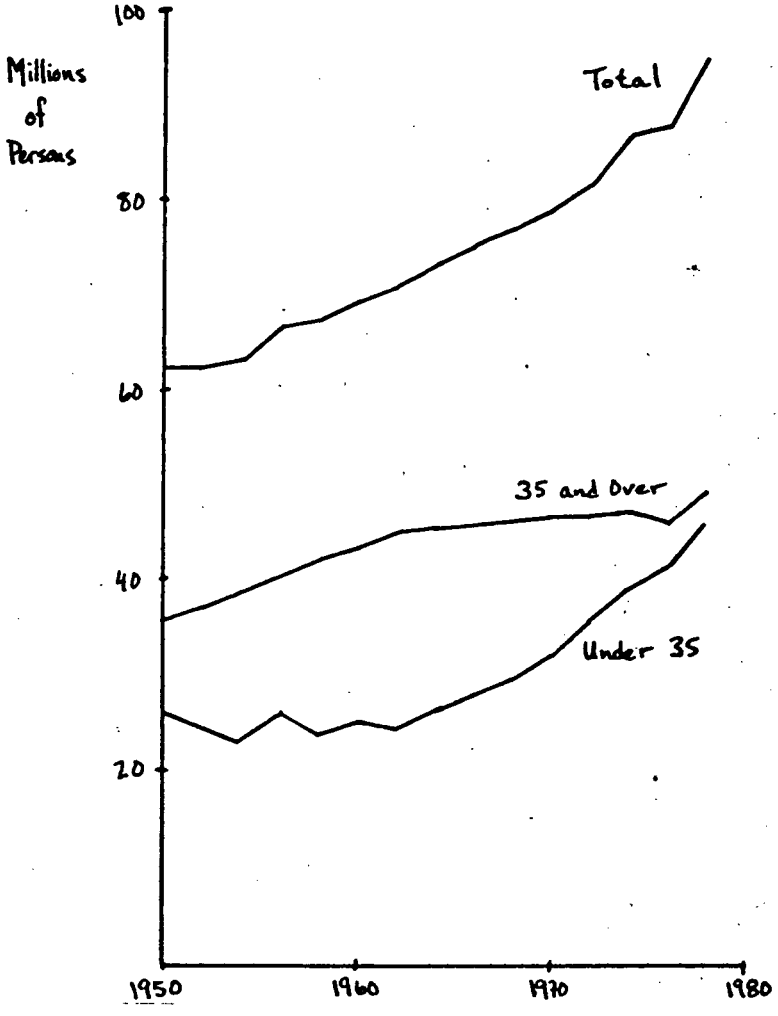
TABLE 7.—CHANGES IN CIVILIAN EMPLOYMENT

[In millions]

	Age							
	16 plus	16 to 19	20 to 24	25 to 34	Under 35	35 plus	35 to 44	55 plus
5-yr period								
Total:								
1968: 2 to 1973: 2	8.1	1.5	2.9	3.7	8.0	0.1	−0.3	−0.2
1973: 2 to 1978: 2	10.1	.8	1.9	5.4	8.2	1.9	1.9	.4
Male:								
1968: 2 to 1973: 2	3.6	.7	1.7	1.9	4.5	−.08	−.5	−.4
1973: 2 to 1978: 2	3.8	.3	.9	2.3	3.4	.02	.5	
Female:								
1968: 2 to 1973: 2	4.5	.8	1.2	1.7	3.7	.9	.3	.2
1973: 2 to 1978: 2	6.3	.5	1.0	3.2	4.7	1.7	1.3	.3

Source: Bureau of Labor Statistics.

CHART 3.—Civilian employment by age



Source: Bureau of Labor Statistics.

The weight of the entire boom generation has raised significantly the proportion of total employment held by persons under age 35 (see chart 3). Their share of total employment increased from 39 to 49 percent during the past 10 years.

While the under-35 age group accounted for nearly all of the employment growth during the 1968–73 period, some additional employment gains were registered by the 35-to-44 age group during the 1973–78 period. A substantial portion of the 1.9 million increase by this group can be accounted for by the brief fertility blip of the early 1940's, the precursor to the baby boom. Another major factor con-

tributing to this age group's employment growth was the sharp rise of employment among married women with children over six years of age.[8]

Employment of women

Women increasingly dominated employment gains during the 1968–78 decade. In the first five years, women claimed over 55 percent of the total employment increase. During the 1973–78 period, their share of net employment gains rose to more than 62 percent.

The leading role of women in employment growth is a relatively new phenomenon, especially among the younger ages. Employment gains of persons under age 35 were larger for men than for women during the 1968–73 period. But during the more recent period, gains among women outstripped those among men of the under-35 age group by an impressive margin.

This pattern of employment growth is similar to the labor force growth trends. For example, women ages 25 to 34 registered a 3.4 million labor force increase in the 1973–78 period. During the same period, this group also accounted for an employment increase of 3.2 million persons, the most significant employment impact of any single age/sex subgroup of the past decade.

However, not all of the employment growth among women has been concentrated in the younger ages. The 10-year employment increase of women over 35 years of age was 2.6 million. This trend among older women presents a marked contrast to the low rate of employment growth among their male cohorts.

The unusually large numbers of women going to work has added a new dimension to the long upward swing of employment totals (see chart 4). Working women have caused a substantial, indeed dramatic, growth in the level of employment with respect to the working age population. The ratio of employment to working age population, frequently used by economists as an indicator of aggregate demand pressures on the labor market, has exhibited an upward trend in recent years. This ratio has increased from about 58 to 60 percent during the 1968–78 decade, the highest rate ever achieved. The ratio of employment to working age population for women, however, increased from 40 to 46 percent during this period, while that for men dropped. This means that all of the improvement in the aggregate ratio has been due to women's increased employment. Thus, the large surge in the supply of women's labor has been concurrent with a substantial increase in the demand for their labor.

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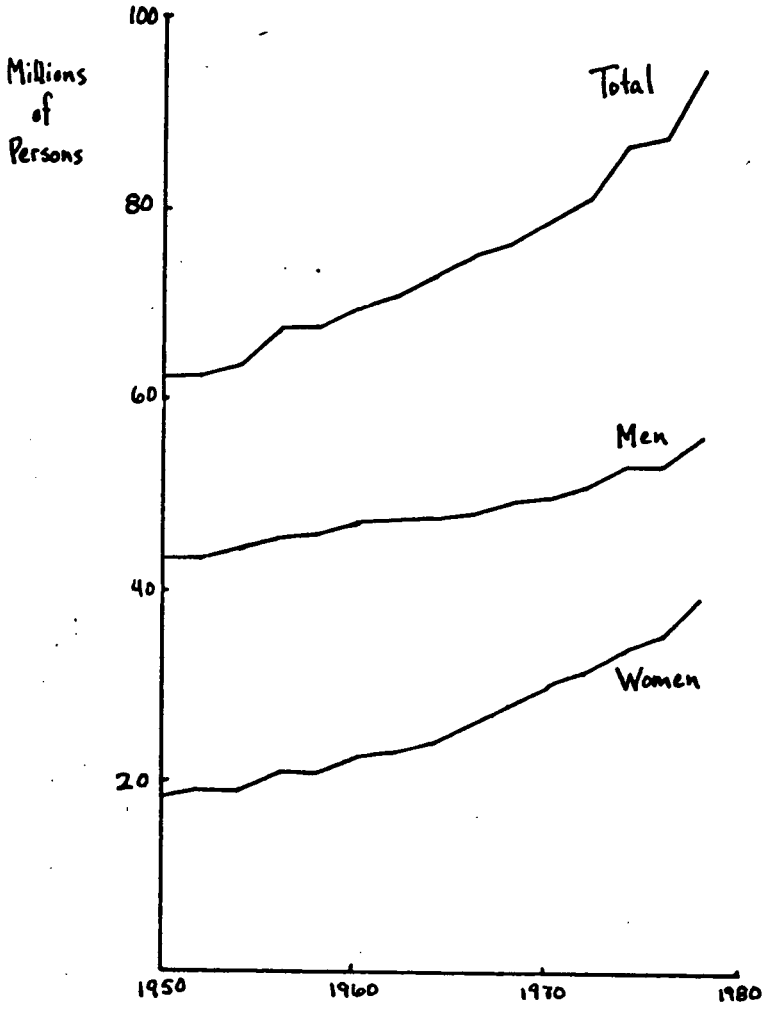
[8] Ralph E. Smith, "Sources of Growth of the Female Labor Force, 1971–75," *Monthly Labor Review*, August 1977, pp. 27–29.

CHART 4.—Civilian employment by sex



Source: Bureau of Labor Statistics.

Employment of racial minorities

However, despite the employment gains enjoyed by the population as a whole, the employment position of racial minorities has deteriorated substantially during the 1968–78 period. The ratio of employment to working age population for nonwhites dropped from about 59 to 54 percent during this time, while the ratio for whites climbed from about 58 to over 60 percent. Thus, nonwhites did not maintain their share of the large employment gains relative to their population during the 10-year period, while whites, especially women, increased their share by a significant margin.

Much of the decline in the nonwhite ratio of employment to working age population comes from the fact that the baby boom was proportionately much larger for nonwhites than for whites. As a result, the working age population of nonwhites has grown twice as fast as that of whites. Although some gains have been made in nonwhite employment, they have not kept pace with increases in the nonwhite working age population. This can be seen in table 8.

TABLE 8.—EMPLOYMENT TO WORKING AGE POPULATION RATIOS (CIVILIAN)

	Nonwhite	White
1968:2	0.59	0.58
1973:2	.55	.58
1978:2	.54	.60

Source: Bureau of Labor Statistics.

The problem of diverging employment to working age population ratios shows up for both men and women but is greatest among men under 35. In this group, the ratio for nonwhites dropped from 72 to 62 percent during the past 10 years, while the ratio for whites increased from 79 to 82 percent. Much of this deteriorating situation reflects the declining labor force participation rates of nonwhtie males, a trend which is particularly acute among the younger ages. By contrast, the ratio of employment to working age population for minority women has remained relatively constant, while the ratio for white women jumped sharply.

THE CHANGING INDUSTRIAL STRUCTURE OF EMPLOYMENT

Nine out of 10 of the additional jobs during the decade were in the service and trade industries, as indicated earlier. Many of these industries historically tend to employ large proportions of youth and women at relatively low-entry wages. In general, this pattern of employment growth has meant a relatively high demand for the large supply of women and young people entering the labor market.

Specifically, four major trends during the 1968–78 period are examined with respect to the age, sex, and race composition of employment by industry: [9]

(1) All industries have lowered the average age of their workers, particularly the rapidly expanding service and trade industries.

(2) The service and trade sector has continued to increase its already large proportion of women employees.

[9] A few general comments on definitions and data are necessary. First, the "service and trade sector" (or industries) includes the following industries: transportation and public utilities; wholesale and retail trade; finance, insurance and real estate; private household services; miscellaneous services; and public administration. Second, "miscellaneous services" include: business and repair, personal services, entertainment and recreation, professional services (medical, welfare and religious, educational, and others), and forestry and fishing. "Miscellaneous services" are frequently referred to as a singular industry group. i.e., the service industry. And third, "public administration" does not refer to all government employees, but only to those with administrative responsibilities. For example, teachers employed by the government would be included under "miscellaneous services" rather than under public administration.

The definitional problem of "public administration" arises from the fact that the data used in this paper were drawn from the Current Population Survey, rather than from the Establishment Survey. While the Establishment Survey is commonly used for analyzing employment by industry, it does not provide employment information cross classified by age. The Current Population Survey does provide the age information and was used for that reason.

(3) The proportions of women working in traditionally male dominated industries, such as construction and automobile manufacturing, have increased markedly but do not account for much of the total female employment growth.

(4) Nonwhites have made substantial gains in their share of employment in the manufacturing industries, but have fared more poorly in the expanding construction industry. However, nonwhites secured their greatest number of jobs in the service industry, particularly in the professional services.

The changing distribution of employment by industry

Table 9 shows the distribution of employment among major industry groups. Among the goods producing industries, only construction increased its share of total employment in the 1968–78 decade, while the rest of the major goods producing industry groups declined as a proportion of total employment with the exception of mining, which remained constant. Manufacturing led the decline, dropping from 27.2 to 22.5 percent of the economy's employment rolls.

By contrast, the service and trade sector expanded its share of total employment dramatically, from about 60 to 66 percent. This expansion was led by an increase of 8.4 million "miscellaneous service" industry workers and 5.3 million wholesale and retail trade workers. Although the transportation and public utility industries did register slight increases in employment, their share of total employment declined. Private household services suffered both a relative and absolute decline in employment, consistent with its long-run trend.

TABLE 9.—DISTRIBUTION OF EMPLOYMENT BY INDUSTRY

[In percent]

	1968:2	1973:2	1978:2
Total	100.0	100.0	100.0
Goods producing sector	39.4	36.3	33.6
Agriculture	5.4	4.3	3.8
Mining	.7	.7	.8
Construction	6.1	6.7	6.6
Manufacturing	27.2	24.5	22.5
Durables	(16.1)	(14.6)	(13.5)
Nondurables	(11.1)	(9.9)	(9.0)
Service and trade sector	60.6	63.7	66.4
Transport and public utility	6.7	6.4	6.4
Wholesale and retail trade	18.4	19.9	20.6
Finance, insurance, and real estate	4.8	5.3	5.6
Private household service	2.8	2.0	1.5
Miscellaneous service	22.2	24.8	26.9
Public administration	5.7	5.3	5.3

Source: Bureau of the Census.

Age composition of employment by industry

In 1978 nearly 50 percent of all employed persons were under age 35. Every major industry group without exception absorbed an increased percentage of workers under age 35 from 1968 to 1978. However, some did so at faster rates than others.

The relationship between the rate of employment growth in the different industries and the concentration of workers under 35 years

of age follows an easily understood pattern. Those industries that increased their share of the total employment pie also tended to have more employment opportunities, and hence a higher than average proportion of younger workers. Conversely, those industries that experienced an actual or relative employment decline tended to have fewer employment opportunities and a higher than average proportion of workers over age 35.

For example, the proportion of workers under age 35 in the manufacturing industries was higher than average in 1968.[10] However, even though the economy-wide average grew from about 40 to 49 percent during the 10-year period, the proportion of younger workers in manufacturing fell below the average for all industries. In fact, in the transportation equipment industry, the proportion of workers under 35 increased only slightly in 10 years, making it far "older" than the rest of the goods producing sector. These trends can be seen in table 10.

TABLE 10.—PROPORTION OF EMPLOYEES UNDER AGE 35

[In percent]

	1968:2	1973:2	1978:2
Total	39.2	45.0	48.8
Goods producing sector	38.2	43.3	46.7
Agriculture	30.9	34.9	43.3
Mining	31.0	41.0	50.9
Construction	37.4	46.9	50.4
Manufacturing	40.1	43.9	46.0
Durables	(40.0)	(44.1)	(45.9)
Nondurables	(40.2)	(43.4)	(46.1)
Service and trade sector	39.7	45.9	49.8
Transport and public utility	37.5	44.0	44.8
Wholesale and retail trade	41.8	50.3	55.6
Finance, insurance and real estate	42.6	46.5	49.4
Private household service	35.6	40.1	45.3
Miscellaneous service	40.3	45.4	48.7
Public administration	33.2	35.6	41.0

Source: Bureau of the Census.

By contrast, both the construction and mining industries went from below average proportions of workers under 35 to proportions that exceeded the average. The proportion of younger construction employees jumped from 37 to 50 percent during the 10-year period, largely reflecting the recent strength in housing construction activity. In mining, the employment activity spurred by the energy crisis helped boost the proportion of young workers from 31 to 51 percent.

Many of the service and trade sector industries already had above average proportions of workers under age 35 in 1968 but managed to keep up the pace in employing younger workers during the ensuing decade. The wholesale and retail trade industry increased its proportion of employees under age 35 by nearly 14 percentage points, reaching the highest proportion in any major industry group. The trade industry expansion was led by the rapid growth in employment opportunities for youth in the low-wage "eating and drinking establishment" industry.

[10] "Average" is defined as the economywide proportion of employed persons under age 35.

Sex composition of employment by industry

Nearly every major industry group increased its proportion of women employees during the 1968–78 period. While several impressive penetrations appear to have occurred in the goods producing industries, nearly 90 percent of the employment increase for women was provided by the service and trade sector. This lopsided growth raised the proportion of women employed in the service and trade sector to nearly 50 percent.

Most of the service and trade sector's 10-year growth in the employment of women was concentrated in the medical and education services, government, and retail trade industries. These industries increased their collective proportion of women from about 52 to 57 percent, adding 4.8 million women to their employment ranks. Other substantial employment gains were made by women in the finance, insurance and real estate industry, where women's share of employment was already substantially higher than the economy-wide average. Table 11 shows these trends.

TABLE 11.—PROPORTION OF WOMEN EMPLOYED PER INDUSTRY

[In percent]

	1968:2	1973:2	1978:2
Total	36.6	38.5	41.0
Goods producing sector	22.3	22.8	24.4
Agriculture	18.4	19.0	20.4
Mining	6.9	10.0	11.3
Construction	5.1	5.6	7.0
Manufacturing	27.3	28.6	30.7
Durables	(19.9)	(21.8)	(24.5)
Nondurables	(38.0)	(38.6)	(40.0)
Service and trade sector	45.9	47.4	49.4
Transport and public utility	19.1	21.2	22.2
Wholesale and retail trade	40.5	42.5	45.0
Finance, insurance and real estate	47.1	50.6	55.0
Private household service	86.8	87.0	85.5
Miscellaneous service	56.9	58.2	59.1
Public administration	30.7	29.3	33.9

Source: Bureau of the Census.

Women's employment growth in the goods producing sector, where their share of employment is below average in nearly all industries, was concentrated in the construction, automobile, instrument, printing, rubber and plastics, and food processing industries. In contrast to the service and trade sector where women gained almost 10 million jobs, the goods producing sector added just over 1 million women employees. Nonetheless, women's gains in many of these industries represent a significant, if not large, toehold in male-dominated workplaces.

For example the employment of women in the automobile industry increased by only 35,000 workers in the 1968–78 decade, while total industry employment (both male and female) grew by 159,000 workers. This proportional increase in the "slow growth" auto industry was enough to raise women's share of the industry's employment from 5 to 13 percent. The 10-year increase of women's employment in the expanding construction industry was nearly 200,000, increasing their share of construction employment from 5 to 7 percent. In the non-

durable goods manufacturing industries, however, women have traditionally held the highest percentage of jobs in the goods producing sector, their share of employment fell behind the economy-wide average. This was due to the slower growth of the nondurable goods industries in general, and the growth of the petroleum industry which has a high concentration of male employment.

Racial composition of employment by industry

The composition of nonwhite employment by industry has undergone several notable changes in the past decade. Like women and persons under 35, nonwhites found over 85 percent of their employment gains in the service and trade sector during the 1968–78 period.

Nonwhites have merely maintained their slightly higher than average proportion of employment in the service and trade sector. While the proportion of racial minorities employed in the goods producing sector has showed some increase between 1973 and 1978, it is still below the economy-wide average. Table 12 summarizes these trends.

TABLE 12.—PROPORTION OF NONWHITES EMPLOYED PER INDUSTRY

[in percent]

	1968:2	1973:2	1978:2
Total	10.8	10.7	11.1
Goods producing sector	9.9	9.9	10.4
Agriculture	12.9	9.0	8.8
Mining	3.4	4.1	3.8
Construction	10.3	8.5	8.5
Manufacturing	9.5	10.6	11.5
Durables	(9.6)	(10.1)	(11.0)
Nondurables	(9.2)	(11.1)	(12.4)
Service and trade sector	11.4	11.2	11.4
Transport and public utility	8.8	11.9	12.2
Wholesale and retail trade	7.8	7.5	8.3
Finance, insurance and real estate	5.9	7.0	9.0
Private household service	42.8	35.0	29.5
Miscellaneous service	12.3	12.4	12.4
Public administration	11.9	14.4	15.1

Source: Bureau of the Census.

Nonwhite employment increases in the service and trade sector were generally widespread, with the only substantial decline being registered during the decade in private household services. However, while nonwhite employment growth in the miscellaneous services category—mostly educational, medical (hospital), welfare, and religious services—was well over 1 million persons, the proportion of total miscellaneous service employment held by nonwhites remained almost constant. By comparison, nonwhite employment in the slower growing transportation and public utility industry increased by only about a quarter of a million persons, yet the nonwhite share of employment in this industry grew from below to above the economy-wide average during the 10-year period.

Only the public administration category exhibited substantial growth in the proportion of nonwhites employed beginning above and extending beyond the economy-wide average. Most of the 15 percent of nonwhite employment in public administration is concentrated in

local and Federal Governments. It should be kept in mind, however, that the public administration category does not include all public sector employment.

Nearly all the relative growth in nonwhite employment in the goods producing sector occurred in the manufacturing industries. Over one-half of this growth was concentrated in the machinery, electrical equipment, textiles, and apparel producing industries. Most of the added nonwhite employment in these slow growth industries went toward raising nonwhite representation from a level substantially below average to a level slightly above average. However, in both mining and construction, the two expanding areas of the goods producing sector, nonwhite proportions of employment fell off sharply. Even though agriculture appears to have halted its long decline in employment, nonwhites have continued to leave the farm at substantial rates.

These shifts in the age, sex, and race composition of employment in industries present only a partial picture of structural changes in employment. While changes in the relative growth rates and composition of various industries indicate significant new patterns in the structure of employment, they do not always reflect the changing occupational structure of employment within an industry. For example, though employment in the manufacturing industries has shown little growth, the proportion of white collar workers in manufacturing is growing at a much faster pace than production workers. Although such a detailed analysis of the occupational structure of employment by industry was not available, a review of changes in the age, sex, and racial composition of occupations is presented.

THE EMERGING "WHITE COLLAR SOCIETY"

The bulk of all employment growth from 1973 to 1978 was in the white collar occupations, accounting for over seven out of 10 new jobs.[11] As a result of this concentrated growth, white collar occupations now represent one-half of the economy's total employment.[12] Blue collar occupations comprise one-third of total employment, and service workers [13] account for about one-eighth of the total.

Most of the additional white collar jobs have gone to workers under 35 years of age, and for the first time, women represent well over one-half of all white collar employees. The impact which the past decade's employment growth has had on the occupational structure of the economy, and the composition of various occupations, is highlighted by the following trends:

(1) White collar occupations have been growing at increasingly faster rates.

(2) Blue collar occupations as a whole continue to decline in relative importance.

(3) The proportion of employees under 35 is growing in all occupations.

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[11] This analysis of employment by occupation focuses on the 1973–78 period rather than the 1968–78 period because of changes made in the occupational classifications in the 1970 census. The 1968 data presented in the tables have been adjusted by the Bureau of the Census, but the adjustment does not render strict comparability.

[12] "White collar" occupations include a wide spectrum of skills, ranging from clerical and sales workers to professional, technical, and managerial workers. Wage and salary levels, of course, also vary substantially among the white collar occupations.

[13] Note that service occupations cannot be equated with service industries. "Service occupations" include: child care, private household, cleaning, food service, health service, personal service, and protective service workers.

(4) Women have increased their proportion of employment in al occupations, particularly among white collar workers.

(5) Racial minorities have increased their proportions of employment in both white collar and blue collar occupations but have declined in the service occupations.

The growth trends of different occupational groups relative to the rest of the economy can be seen in table 13. The increasing role of white collar occupations has been led by rapid growth in the professional and technical category. And the decline in the importance of blue collar workers has been led by a sharp drop in the proportion of total employment held by operatives. Service workers exhibit a continuation of the historical decline among private household services, while other service workers, especially in the cleaning, food, and health services, have shown substantial growth.

TABLE 13.—OCCUPATIONAL DISTRIBUTION OF EMPLOYMENT

[In percent]

	1968:2	1973:2	1978:2
Total	100.0	100.0	100.0
White collar	46.3	47.2	49.7
Professional and technical	13.5	13.6	15.1
Manager and administrative	10.1	10.2	10.7
Sales	6.0	6.4	6.3
Clerical	16.6	17.0	17.6
Blue collar	36.1	35.6	33.5
Craft and kindred	13.3	13.6	13.1
Operatives	13.9	13.0	11.4
Transport	4.1	3.8	3.7
Laborers	4.8	5.2	5.3
Service	12.7	13.4	13.7
Private household	2.4	1.6	1.3
Service	10.3	11.8	12.4
Farm	4.9	3.8	3.1

Source: Bureau of the Census.

The employment growth concentrated in white collar occupations is related to the concentrated growth in the service and trade industries. Both developments are, at least in part, different sides of the same coin. The service and trade industries tend to employ a high proportion of white collar workers. But in addition, many white collar occupations and service and trade industries tend to employ high percentages of youth and women at relatively low entry wages. With the large labor supply of youth and women in recent years, it is likely that wage competition within these groups has tended to limit wage increases in a number of white collar occupations and in service and trade industries.

Occupations are a major bridge between labor supply and employment. When potential workers enter the labor force, they seek a market for their skills and services. These markets are generally identified by occupational categories, and a person's choice of an occupation and skill training is generally (though not solely) shaped by the expected demand for the occupation's skills and services and the resulting wage.[14]

[14] Sociological factors, such as parents' occupations, are also very important. However, these factors generally compound the effect of a growing white collar society.

Thus, white collar skills have been in high demand and have experienced rapid growth in recent years, even though in many instances the level of entry wages has been relatively low.

On the other hand, blue collar skills and services, while expanding only slightly, frequently offer relatively higher wage incentives for entry level positions in industries that are highly organized by labor unions. The job hunter may bag a bigger trophy by bringing home a more scarce blue collar job, rather than taking one of the more plentiful clerical or sales positions. This situation has increased the incentive for youths, nonwhites, and women to enter the blue collar occupations where older white men historically have been predominant.

Age composition of employment by occupation

Between 1973 and 1978, persons under age 35 accounted for nearly two-thirds of the white collar employment growth, more than 90 percent of the additional service workers, and virtually all of the additional blue collar workers (see table 14).

TABLE 14.—PROPORTION OF EMPLOYED PERSONS UNDER 35 WITHIN OCCUPATIONS

[In percent]

	1968: 2	1973: 2	1978: 2
Total	39.2	45.0	48.8
White collar	39.1	43.7	46.8
Professional and technical	41.8	45.5	48.4
Manager and administrative	20.6	28.4	31.9
Sales	37.6	43.5	48.4
Clerical	48.7	51.7	53.9
Blue collar	40.5	47.1	51.1
Craft and kindred	33.9	40.9	45.4
Operatives	41.8	48.7	51.9
Transport	42.7	44.2	46.9
Laborers	53.3	61.8	66.2
Service	39.1	46.9	52.4
Private household	33.6	38.2	42.6
Service	40.4	48.0	53.4
Farm	29.7	32.8	39.9

Source: Bureau of the Census.

The number of young white collar workers increased by 4.5 million during the 1973–78 period. Most of this growth was split between professional and technical workers and clerical workers. Historically, both of these occupational categories have had high proportions of younger workers; these proportions were substantially increased during the past decade. Younger workers made even larger proportional gains among sales workers and managerial and administrative workers, although these occupations are not as large and therefore did not account for as much actual growth as did the professional, technical, and clerical workers. Of the white collar occupations, managerial and administrative positions have the lowest proportion of younger workers, due largely to the maturity and skill requirements for such jobs.

During the five-year period, the total employment of blue collar workers increased by 1.5 million, while the number of blue collar workers under age 35 went up by about 2.0 million. Even though the

blue collar occupations have experienced slow growth, persons under 35 now comprise over one-half of blue collar employment.

The blue collar group with the largest proportion of younger workers is nonfarm laborers. This group's concentration of younger workers is due primarily to the fact that most general laborer jobs are unskilled, low-wage positions and are often available for youths entering the job market. The proportion of workers under age 35 in this unskilled group grew from about 53 percent in 1968 to 66 percent in 1978, a direct reflection of the baby boom and the scarcity of jobs for inexperienced youths.

The number of workers under 35, however, is not above average in all blue collar occupations. Craft and kindred workers and transport equipment operatives have lower than average proportions of younger workers. Although these occupations accounted for the bulk of the blue collar employment gains among younger workers, labor unions, experience, and training requirements still tend to restrict the rate at which younger persons enter these jobs.

Service occupations account for a high proportion of younger workers. During the 1973–78 period, 1.4 million of the 1.6 million service workers added to the employment roles were under 35. Well over one-half of this employment growth among young service workers was in the food services, which accounted for over 167,000 jobs each year. This, of course, reflects the rapid growth of the fast food industry. Cleaning, health, and personal services also added substantial numbers of younger workers.

Sex composition of employment by occupation

Women had a predominant influence on the employment growth of white collar and service occupations from 1973–78. Two-thirds of the persons added to the white collar employment rolls during this period were women, and in service occupations the contribution of women was almost as great. Even in blue collar occupations, women represented one-third of the added employment. Table 15 shows that this wave of working women has raised the proportion of women employed in all occupations during recent years.

TABLE 15.—PROPORTION OF EMPLOYED WOMEN WITHIN OCCUPATIONS

[In percent]

	1968:2	1973:2	1978:2
Total	36.6	38.5	41.0
White collar	46.1	49.0	51.7
Professional and technical	37.6	40.7	42.5
Manager and administrative	16.0	18.9	23.6
Sales	41.4	41.5	43.7
Clerical	73.1	76.7	79.5
Blue collar	16.7	17.4	18.2
Craft and kindred	3.1	4.3	5.5
Operatives	38.3	39.0	40.5
Transport	2.8	4.6	6.5
Laborers	3.5	6.9	10.0
Service	65.8	62.9	62.9
Private household	98.2	98.6	98.0
Service	58.2	57.9	58.3
Farm	18.4	18.5	19.6

Source: Bureau of the Census.

Women's employment in white collar occupations accounted for 4.7 million new jobs between 1973 and 1978, nearly one-half of the employment growth for the entire economy. With these gains, women now represent well over one-half of all white collar workers. Most of this growth occurred among clerical workers, who absorbed a total of 2.2 million additional women workers.

The greatest relative gains by women were made in the managerial and administrative occupations. Compared to the rest of white collar occupations, managers and administrators still have relatively few women in their midst. However while the proportion of women stood at 16 percent in 1968, it grew rapidly to almost 24 percent in 1978. During the 1973–78 period, this meant about 750,000 jobs for women as opposed to 713,000 jobs for men. As the increasing numbers of women enrolled in M.B.A. and other professional programs continue to enter the job market, and as younger women gain work experience, these figures should continue to rise substantially.

Although women appear to account for a high proportion of professional and technical workers, most of this employment has been in occupations with historically high proportions of women. Nurses, dietitians, therapists, and teachers (excluding college and university) represent well over one-half of all women who are professional and technical workers.

The proportion of women employed in blue collar occupations has shown significant growth but remains relatively low. From 1973 to 1978 women's blue collar employment grew by just over half a million jobs. Craft and kindred occupations accounted for almost 200,000 of these jobs, with over 60,000 women finding jobs as mechanics and supervisors. Women also increased their numbers among the ranks of laborers by about 200,000, upping their proportion to 10 percent of all laborers. Among operatives, where women have historically held a higher than average proportion of the jobs, however, women's employment grew slowly and their proportion fell below the economy-wide average. Much of this decline in representation is due to the slow growth of industries employing operatives.

The service occupations accounted for a net employment growth of 1 million women during the five-year period. The food service workers dominated this growth, adding an average of over 110,000 workers per year, nearly all of whom were under 35 years of age. Employment gains of women among personal services workers, airline attendants, recreation attendants, and hairdressers offset employment losses in the private household services between 1973 and 1978.

Racial composition of employment by occupation

Racial minorities increased their total employment by 1.4 million persons between 1973 and 1978. More than two-thirds of this employment increase was among white collar occupations. This concentrated growth has raised the proportion of racial minorities employed in white collar occupations. The proportion of minorities in white collar jobs, however, is still far below the economy-wide average. By contrast, minorities have maintained their slightly higher than average proportion of blue collar employment during the past decade, while their high relative proportions among service workers has declined somewhat. These trends can be seen in table 16.

TABLE 16.—PROPORTION OF EMPLOYED NONWHITE PERSONS WITHIN OCCUPATIONS

[In percent]

	1968:2	1973:2	1978:2
Total	10.8	10.7	11.[1]
White collar	5.6	6.9	7.9
Professional and technical	6.1	7.6	8.7
Manager and administrative	3.0	4.3	5.1
Sales	3.4	3.7	5.0
Clerical	7.5	9.2	10.1
Blue collar	12.5	12.3	12.7
Craft and kindred	6.6	7.1	7.4
Operatives	14.0	13.6	15.5
Transport	13.2	14.8	15.5
Laborers	23.5	20.3	17.6
Service	24.7	20.5	19.3
Private household	45.7	37.2	32.3
Service	19.7	18.3	18.0
Farm	13.1	8.5	8.6

Source: Bureau of the Census.

Most of the white collar employment growth of racial minorities was among professional and technical workers and clerical workers. The relatively small number of nonwhite engineers increased by 90 percent during the 1973–78 period, while the number of engineering and science technicians more than doubled. However, despite affirmative actions policies, nonwhites gained less than 10 percent of the total number of managerial and administrative jobs added during the 1973–78 period. On the other hand, nonwhites gained more than 17 percent of the employment growth among sales workers. Thus, although racial minorities have made significant relative gains in the white collar occupations, they still account for a very low proportion, not quite 8 percent, of all white collar workers.

Among the blue collar workers, racial minorities have maintained a fairly high proportion of employment. Nonwhite employment is above the economy-wide average in all blue collar occupations except craft and kindred workers. Much of the resistance here can be attributed to the difficulty which racial minorities experience in gaining access to skilled trade unions and training programs. Among laborers, the level of nonwhite employment has declined, even though the occupational group as a whole has experienced substantial growth. This situation may reflect increases in both competition from young whites and discouragement among young nonwhites, particularly males; it may also reflect the desire among those who remain in the labor force to pursue higher skilled occupations. Some evidence of the second explanation is indicated in the climbing proportions of racial minorities employed in the more skilled operative and transport occupations.

The decline in the high proportion of employment held by racial minorities in the service occupations is a direct reflection of their long-term exodus from private household service jobs. Excluding private household services, nonwhites upped their employment in other service occupations by about 300,000 workers between 1973 and 1978. This increase has helped nonwhites retain their relatively high proportion of the service occupation jobs.

The Current Employment Situation

In general, the employment trends of the past decade have been clearly evident during the past two years, even though this has been a period of sharp employment recovery following the worst recession since the 1930's.

From fourth quarter 1976 to fourth quarter 1978, employment rose by well over 7 million persons. Nearly all of this increase was above the employment peak prior to the 1974–75 recession: both the magnitude of this employment growth and the length of the recovery period have been far greater than expected.

Well over one-half of the employment increase came from women, and persons under age 35 represented two-thirds of the additional workers. For every 10 workers added to employment during the past two years, five have been in white collar occupations, four in blue collar occupations, and one in service occupations.

As would be expected, white collar employment gains have been higher during the later stages of the recovery. However, gains among blue collar workers have been surprisingly strong during the past two years reflecting both the depth of the 1974–75 recessionary impacts on goods producing industries and the recent strength of demand in the construction industry. Employment in the manufacturing industries has taken much longer to recover from the recession, measuring only about 180,000 persons higher in 1978 than the previous peak in 1973, even though manufacturing employment grew by about 1.5 million during the past two years. Employment in the service and trade industries, however, has shown much more stable growth during recent years, providing most of the employment growth above the employment peak prior to the recession.

These strong employment gains particularly among women, young persons, and white collar workers, are certainly characteristic of the past decade. The fact that the long-term trends observed in this chapter appear as strong as ever in current experience despite cyclical influences is an indication that they may continue well into the future.

III. The Labor Force and Employment in the Next Decade

The Department of Labor's Bureau of Labor Statistics has for many years provided the official government projections of the Nation's labor force.

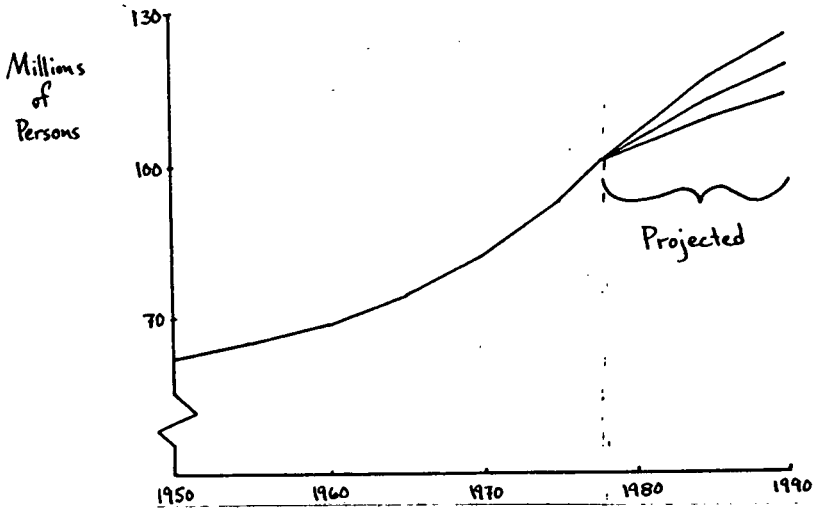
At first, such projections were thought to require relatively simple procedures and methodology. The total working age population had already been born for each new projection, and no estimates of birth rates were required. It seemed mainly to be a matter of extending the current trend in participation rates by age and sex for the next 10 to 15 years and applying them to changes in the age structure of the population. Since the major decisionmaking group was the family, and participation rates of male heads of families as the primary workers were close to universal, little change in participation rates was anticipated for the bulk of the labor force. Youths, women, and older workers were thought to show a less stable pattern, but it was believed that their trends in participation changed only slowly over time, and the secondary nature of their job activity limited the importance of their role in the labor force.

In practice, however, these assumptions have proven to be wrong, especially in the past 10 years. The making of relatively accurate and useful projections of the labor force has become increasingly difficult, and in retrospect often seems to have been beyond the skill and knowledge of the projectionist. The official projections have proven to be inaccurate time after time, almost always understating the actual labor force and subsequent employment growth.

A major cause of the understatement of future labor force growth in past projections was the failure to take into account the accelerating rate of the labor force participation of women. At each time of judgment, the experts basically opted for rates extrapolated from the previous periods which resulted in the projection falling short of actual events. Because of the poor record of past projections, it has been the custom of the Bureau of Labor Statistics to renew its projections every two or three years.

In its most recent projection in mid-1978, the Bureau of Labor Statistics (BLS) decided to make three alternative sets of projections rather than just one. Each of these projections is based on differing assumptions relating to the possible participation of various population groups for 1980, 1985, and 1990, yielding a set of high, intermediate, and low growth projections (see chart 5).

Chart 5.—Civilian labor force: Actual and Projected.



Source: Bureau of Labor Statistics.

In preparing labor force projections, BLS uses a fairly straightforward methodology. Basically, labor force participation rates for each age/sex group are extrapolated based on historical trends. However, any given projection may be modified or adjusted based on knowledge or judgment of socioeconomic factors which may be expected to influence participation rates in the future. BLS has also

attempted to introduce more advanced statistical techniques to improve the quality of the results. In any case, the projected participation rates are then applied to the latest population forecasts provided by the Bureau of the Census.

Some special constraints were applied in making the new sets of projections. For example, the labor force participation rates of women were not allowed to cross those of men for any of the comparable age groups. Extrapolation of white and nonwhite male participation rates was adjusted so that the large gap between the two rates was prevented from further widening.

While the broad general direction and scope of labor force changes seem fairly clear, the difficulty arises in trying to arrive at accurate forecasts for periods of 10 to 15 years in the future for age and sex cohorts. Each of those groups is subject to a host of varying possibilities regarding participation rates, fertility rates, marriage rates, changes in social customs, possible legislative actions, and a host of unforeseeable trends and events. The earlier procedure of extrapolating current trends in labor force participation has been long since improved. But even the more sophisticated procedures have led to projections which often have little relationship to unfolding events.

Projecting participation rates in the past decade has presented the greatest hazard to the projector and has been the major reason for the demise of most recent projections. Participation rates reflect many forces of change in the society as a whole as well as for the economy.

As was indicated in chapter II of this paper, labor force participation of women in recent years has surged at an unprecedented rate. The rate of future growth is an open question. Esteemed experts disagree; some say the rates will be lower, the same, or faster in the next decade than in the prior one.

So far, at no life cycle stage are female participation rates as high as those for males. But the convergence between male and female rates in the past decade has been dramatic. Absolutely and relatively, the female labor force has been growing faster than that for males. The greatest variance in the projections hinges basically on the question of whether female rates will approximate male participation rates, and if so, how soon and for which age cohorts. Since economic factors are so intertwined with age at the time of marriage, fertility, size of family, and other rapidly changing social values and life-styles, any choice would be highly subjective. But there have been certain strong trends underlying female participation developments in recent years, and it seems highly unlikely that these trends will be significantly dampened, at least until the mid-1980's.

In general the major influences or changes in participation rates are said to be either induced or exogenous. The first class is narrowly economic, reflecting changes in demand for labor, job opportunities, and the changing structure of occupations and industries. Exogenous or noneconomic forces are those social and psychological factors causing the response of a potential source of labor, i.e., those outside the labor force, to demand to take a part in this active labor force.

In its current presentation of three sets of projections, the BLS shifts the responsibility for deciding which of the labor force growth projections is most likely from the shoulders of the BLS to those of the data user. While the tendency is to select the intermediate growth

projection, all past experience suggests that an average projection, a compromise between the high and low, has often proved to be unreliable. Thus, users must examine closely each of the alternative sets of assumptions and make a choice as to the appropriate one for their use.

Three Alternative Projections of Labor Force Growth

The Bureau of Labor Statistics now publishes three widely divergent projections of the labor force for the years 1985 and 1990. Table 17 summarizes these projections.

TABLE 17.—CIVILIAN LABOR FORCE PROJECTIONS

	Actual	High	Intermediate	Low
Labor force (millions):				
1978	100.4			
1985		117.0	113.0	108.9
1990		125.6	119.4	113.5
Annual labor force growth rate:				
1973-78	2.5			
1977-85		2.3	1.9	1.4
1985-90		1.4	1.1	.8
Labor force participation rate:				
1978	63.2			
1985		67.7	65.3	63.0
1990		69.7	66.2	63.0
Women's participation rate:				
1978	50.0			
1985		57.1	54.8	52.4
1990		60.4	57.1	53.8

Source: Bureau of Labor Statistics.

Despite these differences, all of the projections suggest important changes in the age structure of the population and a continuation of the growth trend in women's participation. In general, all three sets of projections show:

A large labor force increase in the central age groups, 25 to 34;
A decline in the size of the youth labor force; and
A significant increase in the number and relative importance of women in the labor force.

By 1985 the BLS intermediate growth projection calls for a labor force of about 113 million, or about 10.5 million above the current level of 102.5 million persons. The intermediate level is 4 million persons below the high growth projection and 4 million above the low projection by 1985, or an average difference of one-half million persons per year either side of the intermediate growth rate. These are, by any standard, large differences with significant alternative policy implications.

The basic differences in the projections are evident in three projections of labor force participation shown in chart 6. The assumptions behind these projected rates of labor force participation are summarized below:

HIGH GROWTH ASSUMPTIONS

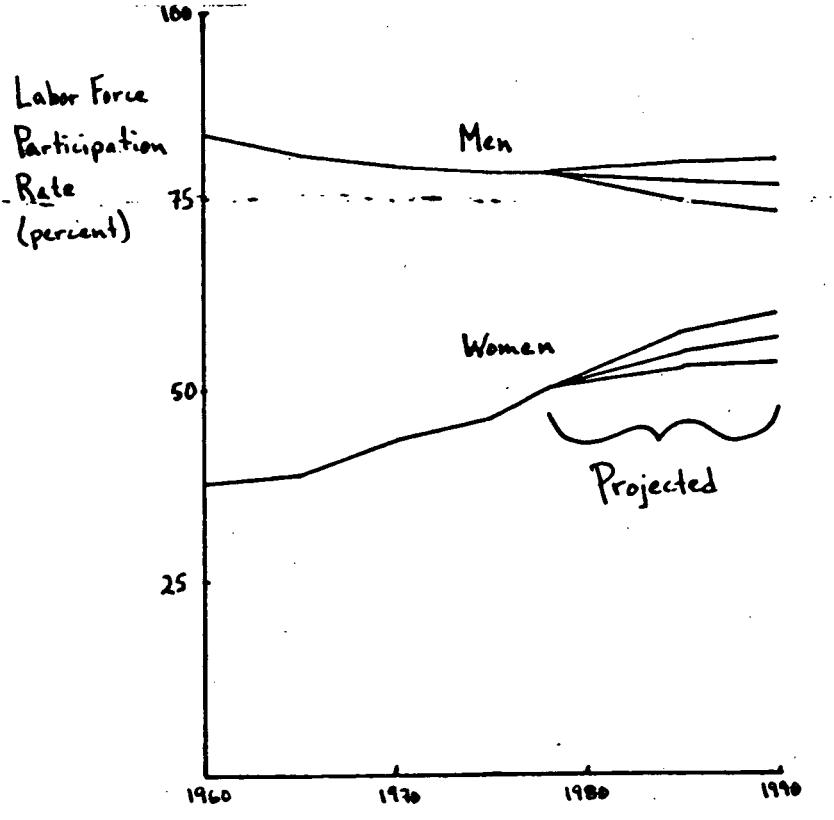
(1) For the period until 1985, the participation rates for women in the younger and central age groups would continue to rise following the patterns of recent years.

(2) The decrease in the participation rate of white men in the central age groups would come to a halt and remain stable or rise slightly during the projection period.

(3) The participation rates for nonwhite men would turn upward but still be well below the rates for white men in 1985.

(4) Teenage participation would continue to rise substantially.

CHART 6.—Civilian labor force participation: Actual and projected



Source: Bureau of Labor Statistics.

(5) Participation rates of persons over 65 would not decline further, reflecting legislation raising or banning mandatory retirement.

INTERMEDIATE GROWTH ASSUMPTIONS

(1) Labor force participation rates of women would continue to rise significantly but somewhat below the 1973–78 pace.

(2) For all men, labor force participation would continue to edge down, although not as fast as in the past 10 years.

(3) For whites the rate of participation would increase faster than for nonwhites.
(4) For teenagers, both male and female participation rates would rise significantly.
(5) For all workers 55 years and older, labor force participation would continue to decline but somewhat below the 1973–78 pace.

LOW GROWTH ASSUMPTIONS

(1) Labor force participation for women would slow down considerably, due to a rebound in the fertility rate of those in the childbearing age group.
(2) Participation rates for adult men would continue to drift downward to below 75 percent in 1985 from about 78 percent in 1978.
(3) The racial composition of the labor force would change very little, because the expected increase in the nonwhite population would be largely offset by the assumed decline in participation for some nonwhite groups.
(4) Participation rates of teenagers would continue to advance but at a lesser pace than implied in the other scenarios.
(5) Participation rates of older workers would decline roughly at the pace of the 1970's.

The Most Likely Labor Force Projection: High Growth

In evaluating the three alternative projections, it is necessary to compare them with recent experience. Between 1977, the base year of the projections, and early 1979 the labor force grew by about 3 percent. This rate is well above the 2.3 percent annual rate projected for the high growth scenario. But more important the rate of women's labor force participation, perhaps the most important factor in all the projections, was almost as high in 1978 as the intermediate projection for 1980. From the actual level of the labor force in early 1979 through 1985, the intermediate projection implies a sharply reduced rate of labor force growth of only about one-half of the current rate.
In light of the current experience and the analysis presented in this chapter, it appears that the BLS high labor force growth projection is the most likely scenario for the future and hence provides the best guide to policy needs.

RAPID LABOR FORCE GROWTH UNTIL 1985

Based on the high growth projection, the labor force will grow by about 2.0 to 2.5 million persons each year until 1985. Women will continue to dominate the labor force growth of nearly all age groups by a margin of three to two. This can be seen in table 18.
Although participation rates among teenagers and young adults ages 16 to 24 are expected to continue to rise, the labor force within this age group will experience no significant change in size. A decline in the male work force of this age between 1978 and 1985 will be offset by an equal increase among their female counterparts, due to the more rapid rise in women's participation rates.

TABLE 18.—PROJECTED CHANGES IN THE CIVILIAN LABOR FORCE

[In millions]

5-yr period	Age				
	16 plus	16 to 24	25 to 44	45 to 54	55 plus
Total:					
73:2 to 78:2	11.6	3.4	8.0	−0.2	0.5
80 to 85	11.5	----------	10 9	.1	.5
85 to 90	8.6	−1.5	8.0	2.5	−.5
Males:					
73:2 to 78:2	4.4	1.4	3.1	−.3	.1
80 to 85	4.3	−.5	4.6	−.1	.3
85 to 90	3.2	−1.0	3.2	1.3	−.3
Females:					
73:2 to 78:2	7.3	2.0	4.9	.1	.4
80 to 85	7.2	.5	6.3	.2	.2
85 to 90	5.4	−.5	4.8	1.2	−.2

Source: Bureau of Labor Statistics.

Nearly all of the labor force growth through the mid-1980's will occur among the central ages, years 25 to 44. This group will increase in size by one-third. Most of this growth is the result of the baby boom wave passing fully into the age range where labor force participation among men is nearly universal, and where women's participation rates are highest and rapidly increasing.

Raising or abolishing the mandatory retirement age should have a slight positive effect on the participation and labor force growth of persons over 55, at least until 1985.

Thus, between 1978 and 1985 the labor force will experience continued rapid growth at a pace similar to that of the past five years, reaching 117 million persons—about 14.5 million above the early 1979 levels.

A SLOWDOWN IN LABOR FORCE GROWTH AFTER 1985

Between 1985 and 1990, the rate of labor force growth will slow to about 1.75 million per year.

Despite the expected rise in participation rates of teenagers and young adults ages 16 to 24, this group will experience significant declines in size during the late 1980's. Both men and women will be affected, although the number of men will decline twice as fast as that of women.

Following 1985 the central age groups (ages 25 to 44) will encompass the entire baby boom generation. This fact will limit further population influence on labor force growth, making most of the labor force increases during the 1985–90 period attributable to rising participation rates. Both sexes, but especially women, are expected to increase their participation in the high growth scenario. Nonetheless, the increase in participation will not be sufficient to offset the slower growth in the working age population.

By the late 1980's, the leading edge of the population bulge will reach the 45-to-54 age range, causing some noticable labor force growth in this age group. This growth will be split about evenly between women and men.

The modification of mandatory retirement age will have registered its one-time effect on the size of the older work force by 1985, and the long-term trend toward early retirement is likely to reassert itself in the last half of the 1980's, further easing labor force expansion.

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Why Expect High Labor Force Growth?

Women's labor force participation, the major variable in future labor force growth, shows no sign of slowing the upward trend of recent years. White males, on the other hand, have exhibited a distinct leveling off in their downward trend in participation rates; and an upward trend for nonwhite males would be consistent with current public policy objectives. As for the participation rates of persons over 55, the removal of mandatory retirement rates will likely be offset by continued early retirement of full-time workers. These projected trends in labor force participation rates of men and women can be seen in table 19. The above trends are assumed in the BLS high growth labor force projection. The reasons they have been selected as the most likely course of future labor force growth are discussed in the following section.

TABLE 19.—PROJECTED HIGH GROWTH CIVILIAN LABOR FORCE PARTICIPATION RATES

[In percent]

	Age							
	16 plus	16 to 19	20 to 24	25 to 34	35 to 44	45 to 54	55 to 64	55 plus
Male:								
1973	79.0	61.1	85.5	95.6	96.1	92.9	78.3	51.7
1978	78.1	63.2	86.3	95.3	95.6	91.3	73.5	47.5
1980	78.3	63.3	86.4	95.5	96.0	91.4	73.9	47.2
1985	79.4	66.8	87.8	96.0	96.4	91.8	73.5	46.1
1990	80.0	70.8	89.1	96.5	96.6	92.4	73.3	43.5
Female:								
1973	44.5	48.0	60.4	49.2	53.6	53.5	41.0	23.8
1978	49.7	54.3	67.8	61.5	61.6	56.0	41.2	23.2
1980	51.9	56.4	71.8	66.2	64.5	57.3	41.3	22.7
1985	57.1	63.5	79.9	76.2	72.3	60.0	41.5	22.1
1990	60.4	68.9	85.2	82.3	78.8	62.4	41.8	20.7

Source: Bureau of Labor Statistics.

WOMEN'S LABOR FORCE PARTICIPATION

The dramatic acceleration of women's labor force participation rates in recent years, and their projected upward climb in the high growth model, is the result of several factors: (1) Changing attitudes of both men and women toward the women's life role; (2) changing patterns of household formation, family income, and fertility; (3) increased attachment of women to the labor force; (4) increased financial incentives; and (5) growth in job opportunities, especially in the service and trade sector.

Changing attitudes

Changing attitudes of both men and women concerning the woman's life role are favoring the increased participation of women in the labor force. With over one-half of all working age women now in the labor force, a "woman's place" is no longer in the home. The identity of a career and the attainment of full personal potential in a work environment are rapidly overshadowing the stereotypical sex roles that traditionally inhibited women's participation in the labor force. This has been combined with the general reduction of discrimination toward women in most sectors of the work force. This reduction has not been complete, but it is more pronounced in expanding industries and in the professional and managerial occupations.

Changes in patterns of household formation, family income, and fertility

Although much has been said about the rapid rise in the labor force participation of married women, about three out of five women added to the labor force between 1973 and 1978 were single, divorced, separated, or widowed. This trend can be seen in table 20. This proportion was even higher for women under 35. The implication is that increasing numbers of women are in household situations where they must support themselves, and often their families. While this trend may frequently be a matter of choice, reflecting increased career orientations, it also reflects the growing necessity for the employment of women as primary breadwinners.

TABLE 20.—CHANGES IN THE FEMALE CIVILIAN LABOR FORCE

[In millions]

	Age		
	16 plus	Under 35	35 plus
Single:			
1968: 2 to 1973: 2	1.4	1.6	−0.2
1973: 2 to 1978: 2	2.8	2.7	.1
Married with spouse present:			
1968: 2 to 1973: 2	3.0	2.1	.9
1973: 2 to 1978: 2	2.9	1.7	1.3
Other marital:			
1968: 2 to 1973: 2	.7	.4	.3
1973: 2 to 1978: 2	1.6	1.0	.6

Source: Bureau of Labor Statistics.

Even still, well over 50 percent of all women in the paid labor force are married and living with their spouses. In families in which the age of the head of the house is under 35 years of age, almost 60 percent of the women are working. While not all married couples can be expected to have two incomes, the incentive of increasing family real income by adding a second worker is a significant factor contributing to the rising participation rates of married women. During times of high inflation, particularly in the past five years, a second income may even be necessary simply to maintain household real income at a constant level.

Declining fertility rates also have been associated with greater labor force participation by women. The total fertility rate declined from 3.8 percent in 1957, to 2.5 percent in 1968, 1.9 percent in 1973, and 1.8 percent in 1977. Fertility rates in the past two years have apparently leveled off, and the Bureau of the Census projects increases to only 1.9 percent in 1980 and 2.0 percent in 1985.[15] Among other things, low fertility reflects the trend among younger persons toward postponing marriage and the rise in two-worker households where couples have fewer children. With less time spent in childbearing and rearing, women are free to spend more time in the labor force.

Ralph Smith, an Urban Institute economist who recently completed major analysis of women's labor force growth for the Bureau of Labor Statistics, has argued that much of the impact of reduced fertility rates on women's participation is now over. He estimates that reduced fertility accounted for nearly one-third of the increase in women's

[15] "Current Population Reports," *Population Estimates and Projections*, Series P-25, No. 706, July 1977. The provisional data reported by the National Center for Health Statistics through August 1978 have been taken into account. These data substantiate the Census Series II projections.

labor force participation. Since fertility rates are expected to remain relatively stable in the near future, Smith argues that the fertility drop had a "one time effect" and has run its course as a cause for raising participation rates. Further, he suggests that this is a major reason for not expecting women's labor force participation to accelerate as fast as the high growth projection in the future.[16]

There is undoubtedly some validity to this analysis. However, Smith goes on to point out that the linkage between child rearing and labor force participation is diminishing. Further, he argues that much of the future growth in women's labor force participation will result from more liberalized social attitudes toward working women with children.[17]

In fact, the group with the sharpest increase in participation rates has been married young women with young children. The rapid growth of child care facilities makes it much easier for women to continue to hold jobs. The decline of the fertility rate has been only one of several sources of reduced child rearing "constraints" on women's labor force involvement. Attitudes toward the husband's responsibility in child rearing are also changing, along with the institutional arrangements of employers and child-care facilities. As social acceptance of combined roles for women as wives, mothers, and workers continues to grow, further reduction of child rearing "barriers" between women and the labor force should be anticipated. Thus, although fertility was the first and perhaps the most obvious restraint to fall, the subsequent decline of other social restrictions associated with child rearing may likewise contribute to the further acceleration of married women's labor force participation.

Increased attachment to the labor force

Increased labor force participation rates reflect not only the number of women who are counted in the labor force but also the number of weeks they work during the year. Increases in the average number of weeks worked during the year will cause the labor force participation rate to rise. Over the past decade women have worked for increasingly longer periods of time during the year. Earlier calculations of the impact of this phenomenon on labor force participation rates found that it accounted for 34 percent of the female participation rate increase between 1960 and 1972.[18] The impact was recalculated for this paper and was found to be 54 percent between 1973 and 1977. Thus, over one-half of the recent increase in women's labor force participation rates was due to a rise in the number of weeks worked during the year, rather than to increases in the actual number of women working or looking for work.

This fact underscores an important change in women's role in the labor market. Not only are the relative numbers of women in the labor force increasing, but the character of the female labor supply is also changing. As economist Nancy Smith Barrett of the Urban Institute summarizes:

> Instead of being an intermittent work force, lacking a commitment to a career or a desire to acquire seniority, and with little interest in long-term opportunities

[16] Ralph E. Smith, *Women in the Labor Force in 1990*, (Washington, D.C.: Urban Institute, October 1978), Working Paper No. 1156-01, pp. 91-96.
[17] *Ibid.*, pp. 91-96.
[18] Andrew Sum, "Women in the Labor Force: Why Projections Have Been Too Low," *Monthly Labor Review*, July 1977, pp. 18-24.

for advancement, women are increasingly demonstrating a disposition to continuous labor force participation, regardless of whether they marry and have children. This means the dead-end job, typically assigned to females under the assumption that they will soon drop out of the labor force, is no longer acceptable to many women.[19]

Increased financial incentives

Financial incentives for women to enter the labor force are also increasing. Between 1968 and 1973, the ratio of women's to men's median money income for year-round, full-time workers showed little change. However, between 1973 and 1978 there was a marked upward trend in the earnings of women relative to men, especially among full-time workers in the under-35 age group, which includes the baby boom. This can be seen in table 21.

TABLE 21.—RATIO OF FEMALE TO MALE MEDIAN MONEY INCOME, YEAR-ROUND, FULL-TIME WORKERS

Age	Calendar year— 1968	1973	1977
14 to 19	110.9	79.4	93.5[2]
20 to 24	73.8	72.8	76.5
25 to 34	63.1	62.6	67.0
35 to 44	53.4	52.4	55.0
45 to 54	55.4	52.0	53.7

Source: Bureau of the Census.

An improving earnings pattern relative to males, of course, may reflect several things. College and university enrollments of women have been rising to the point where they are now equal to those of men. Women have also been accelerating their enrollment in graduate and professional schools. This increased investment in human capital has meant increased access to year-round, full-time jobs and to higher paying occupations previously dominated by men. Financial incentives also may have contributed to the increases in the number of weeks women work during the year. Indeed, with the human capital investments women are now making in preparation for their careers, there is an added incentive to continue working after marriage and the birth of children to realize the rising real income of a lifetime career pattern.

Increased job opportunities

A record increase in employment in the past five years undoubtedly has been a major force in bringing women into the labor market and sharply lifting their participation rates. Changing attitudes and lifestyles would not have been sufficient; the necessary ingredient which linked attitudes and economic advancement for women was job opportunity.

An important incentive for entering the labor force at any time is the probability of finding a job at a suitable wage. The relative rise in wages for young women in recent years suggests an increasing demand for women workers.

But the job situation in recent years has been unique. A large potential pool of women workers became available as the baby boom

[19] Nancy Smith Barrett, "Data Needs for Evaluating the Labor Market Status of Women," (revised). Prepared for the Census Bureau Conference on Issues in Federal Statistical Needs Relating to Women, April 1978, p. 4.

generation entered the working ages and matured. Employers suddenly found a large and ready source of young workers who were willing to accept relatively low-entry wages, who were well-qualified for sales, clerical, and other white collar job openings for which there were unexpectedly large demands.

Of course, as women became employed in increasing numbers, the rising income of single women and dual-earner families contributed to a sharp expansion in consumer expenditures. Higher spending, in turn, stimulated the demand for additional women employees. Even though participation rates for women have increased sharply, the potential supply outside the labor force still remains large. As the baby boom generation moves into the central age groups over the next decade, a high rate of consumer spending should be sustained and help support a continued strong demand for women workers.

Evaluating the high growth projection

For all of these reasons—changing attitudes, household formation, education patterns, inflationary pressures, financial incentives, and improved employment opportunities—labor force participation of women seems likely to continue a rapid rate of increase until at least 1985.

Indeed, it seems probable that some age groups of women may increase their participation more rapidly than the BLS forecasts in its high labor force growth scenario. By relying on linear forecasting techniques rather than incorporating cohort analysis into their projections, the BLS has overlooked the tendency of women in the leading edge of the baby boom to increase their labor force participation by substantial margins as they pass through an age frame (see table 5). As a result, the BLS high growth forecast for the participation of women may be somewhat low in some age ranges.

For example, a close examination of the past trends of the labor force participation of women in the 35-to-44 age range shows that this group has always had higher participation rates than the 25-to-34 age group. Nonetheless, the BLS predicts that participation of women 25 to 34 years old will grow faster than women 35 to 44 until at least 1990, even though the boom generation and its concomitant social and economic changes will be passing through the latter age range during that time. As professor Karl Taeuber of the Institute for Research on Poverty points out:

> . . . regardless of level of childbearing, each successive birth cohort of women since the turn of the century has entered the labor force to a greater degree than previous cohorts, beginning at the teen ages before marriage and continuing throughout the lifecycle.[30]

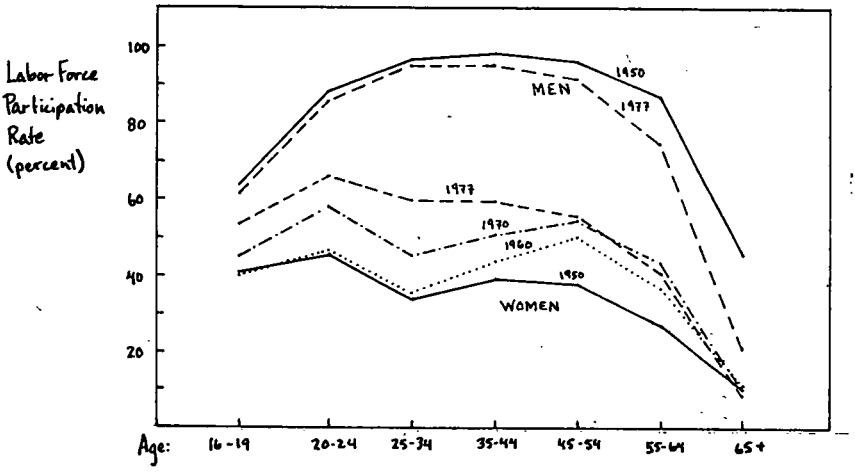
A careful analysis of this cohort of women thus suggests that the BLS projected participation of women 35 to 44 years old is probably too low. Why would the increasing numbers of women that are enrolling in college, finding gainful employment, pursuing careers, and achieving greater equality in the work force suddenly begin dropping out of the labor force at age 35? If the reason is childbearing, why would this phenomenon not have been observed earlier?

The primary working ages for men range from 25 to 54, when their labor force participation rates measure well over 90 percent. If, as the

[30] Karl E. Taeuber, "Demographic Trends Affecting the Future Labor Force," *Demographic Trends and Full Employment*, National Commission for Manpower Policy, special report No. 12, December 1976, p. 132.

BLS assumes, men's participation rates act as an asymptote for women's participation, this would mean that women's labor force participation rates will more closely approximate those of men for all ages over time. This would also imply that women's primary working ages will be similar to men's. The narrowing gap between women's participation rates and those of men can be seen in chart 7.

CHART 7.—Civilian labor force participation rates



Source: Bureau of Labor Statistics.

One factor that might mitigate the continued increase in women's participation would be the leveling off of the decline in male labor force participation rates. As noted in chapter II, the employment of women has increased appreciably in industries and occupations with large proportions of men. The long-run decline in male participation has undoubtedly been a contributing factor to the increased availability of jobs for women. If the rate of male labor force participation does not decline further, or if it increases, women may face somewhat greater competition and resistance in their attempts to penetrate traditionally male-dominated jobs. Hence, the "job opportunity" incentive for increased labor force participation by women could be reduced.

During the past five years, however, it appears as though male participation rates have begun to level off. At the same time, women's participation has been accelerating at its most rapid pace. While this does not necessarily mean that the more favorable trend among men failed to dampen the upward trend among women, it does indicate that the effect of any heightened competition, if it occurred at all, was probably not very strong.

WHITE MALE PARTICIPATION

In its high growth projection, the BLS assumes a constant or slightly increasing rate of participation for white males through the mid 1980's. This outlook appears to be reasonable, in light of the steady

rise in work force rates for white males under 35 during the past decade. In retrospect, it seems that the baby boom generation of white males, as it passes through the working ages, tends to exert an upward pressure on participation rates.

Although the participation rate for all white males declined from 80.8 to 78.8 percent during the past decade, participation among white males under 35 years of age rose from 82.8 to 86.5 percent, with almost all of the gain among youths 16 to 24 years of age. White male teenagers added over 8 percentage points to their participation rates since 1968, and those 20 to 24 years added about one-half of this amount. Since the boom generation's frontrunners have entered the 25-to-34 age group, their participation rate has stabilized, following a small decline between 1968 and 1973. However, the 35-to-54 age group has shown a steady decline since 1968.

Looking toward the future, there are a number of reasons to think that the participation rates for youths will continue to rise. During the 1980–85 period, the population of young white males under 25 will fall. Demands for workers of this age group, however, should continue to be strong. Recent experience indicates that relatively strong demands exist for young white males both because their job qualifications appear to be in line with those required by expanding industries and their relatively low-entry wages. With supply reduced, an increased proportion of the younger age group should be attracted into the labor force.

The baby boom generation will be moving into the central age group in large numbers between 1980 and 1985. The tendency toward high labor force participation associated with persons in the population bulge should act to lift slightly the participation rates of white males 25 to 34 years and tend to stabilize rates in the 35-to-44 age range. There is no basis, however, for suggesting that the steady decline in participation among white males 45 to 54 will be abated. This age group will not be affected by the boom age cohort until after 1990.

Relative changes in the money income for younger men in recent years may also lend support to the assumption of higher labor force participation for white males under age 45 in the period through 1985. Table 22 shows that median-money-income increases for year-round, full-time younger workers have been well below those for older workers. During the 1968–73 period young men 20 to 24 years of age received substantially smaller income increases than men in all other age groups. As the leading edge of the baby boom moved into the 25-to-34 age range, their income increases were also depressed. Apparently the increased supply of labor due to the baby boom tended to limit income increases for younger workers. At the same time, however, it can be a gued that increased demands for workers, due to lower wage levels, may have pulled additional white male youths into the labor force because it provided them with a chance to earn income and helped meet their desired levels of consumption. As this young cohort group gets older, the large supply of labor associated with it may continue to dampen the wage and salary increases of the group and possibly result in the same upward tendency of labor force participation rates as when they were younger.

TABLE 22.—CHANGE IN MEDIAN MONEY INCOME FOR YEAR-ROUND, FULL-TIME WORKERS

[In percent]

	Calendar year—		
	1968–77	1968–73	1973–77
Male:			
20 to 24	73.2	32.5	31.1
25 to 34	80.2	46.9	24.3
35 to 44	92.6	47.9	30.3
45 to 54	103.4	52.5	35.8
55 to 64	105.4	45.9	40.8
All ages	92.9	46.8	31.4
Female:			
20 to 24	77.9	31.5	35.3
25 to 34	93.4	43.6	34.7
35 to 44	99.2	45.6	36.8
45 to 54	96.2	43.2	37.0
55 to 64	89.6	41.2	34.3
All ages	93.2	42.3	35.8

Source: Bureau of the Census.

NONWHITE MALE PARTICIPATION

The assumption of increasing labor force participation rates for minority men, as incorporated in the high growth projections, is a policy-based assumption.

Nonwhite males have been declining in their labor force involvement much more rapidly than white males. Their participation rate has been historically lower than that of white males, and the gap is widening. While white males under 35 upped their participation from 82.8 to 86.5 percent during the past decade, nonwhite males of the same age declined in participation from 79.2 to 74.3 percent. Among men ages 35 and over, nonwhite participation declined faster than that of whites.

Some of this gap is due to the different population trends experienced by whites and nonwhites. The working age population of nonwhite men under 35 increased by over 50 percent during the past 10 years, while the same age group of white men increased by only 40 percent. This faster growing potential labor supply of young minority men is simply not being drawn into the labor force at a rate comparable to whites.

Structural problems

Some of the difficulty arises from structural problems of the occupational, industrial, and geographical mobility of the nonwhite labor supply. Patterns of institutional access frequently differ for minority groups, with many educational, apprenticeship, and training programs being less accessible than others. Another major factor may be geographical access, with many expanding industries such as construction and retail trade located primarily in suburban and sunbelt areas, while slow growing and declining industries, such as durable goods manufacturing, remain closer to large pockets of potential minority labor supply in the older, central cities.

This argument should not be overstated. Testimony before the Joint Economic Committee by Bernard E. Anderson, Wharton

School economist, indicates that the educational attainment gap between teenage whites and blacks had virtually disappeared by 1976. Anderson also noted that unemployment among black youths tends to be just as much a problem in the surburbs as in the central city.[21] Further, the long-term immigration of blacks from southern to northern states has stopped, and the growing importance of Mexican-American workers in the southwest is in line with the general economic expansion of that region.

Racial discrimination

Racial discrimination is another important factor in the low participation of racial minorities. In addition to the unfavorable structure of employment opportunities, discrimination in the job market is a strong disincentive to labor force involvement. As the U.S. Commission on Civil Rights describes the phenomenon:

> . . . Such discriminatory treatment can touch every aspect of work—the type of work a person is encouraged to prepare for, the likelihood of finding work, the type of work done, the job title and rank, the amount of pay, the extent to which individual efforts are rewarded, the chances for advancement or of being laid off or fired, and a host of other facets of work.[22]

The assumption, implicit in the projected increases for minority male participation rates, is that government policies will be undertaken to reverse the present trends. The policies will need to address the problems of structural unemployment, discouragement, and discrimination faced by nonwhites in the labor market.

TEENAGE PARTICIPATION RATES

Rates of teenage labor force participation should be expected to increase substantially during the next decade.

The primary rationale for this projected increase is tied closely to the decline in the teenage population that will begin by 1980. As the teenage population declines, the effect of a constant or increasing demand for teenage labor, in such industries as the fast food industries, will draw an increasing proportion of the shrinking teenage population into the labor force. This should cause teenage participation rates to rise.

Rising participation rates, as the BLS projects, will not offset the declining population of teenagers and will result in a net reduction in the teenage labor force. If the supply of teenage labor declines while the demand for their labor stays constant or increases, three possibilities exist: (1) Teenage unemployment will decline; (2) wages for teenagers will rise relatively faster than for those workers in the boom generation; and (3) an increasing proportion of teenage workers will be drawn into the labor market.

These possibilities are not mutually exclusive and, taken together, they represent a fair evaluation of the BLS high growth projections. Some of the current teenage unemployment should be alleviated by the labor supply reduction and constant or increasing labor demand. However, frictional unemployment among younger persons is generally rather high, making it difficult to talk about the tightness of the teenage labor market. An improved unemployment picture is most likely,

[21] Bernard E. Anderson, "Issues Related to Youth Employment in the Decade Ahead," prepared statement before the Joint Economic Committee Special Study on Economic Change, June 6, 1978, pp. 4–6.
[22] U.S. Commission on Civil Rights, *Social Indicators of Equality for Minorities and Women*, August 1978, p. 28.

but some of the increase in the labor demand relative to supply is likely to provide substantial incentive for additional entrants to the teenage labor market. Whether the teenage participation rate will exceed the projected high growth levels is not certain, although it does seem to be a possibility.

Most of this analysis, of course, pertains to white teenagers. Increases in the labor force participation of nonwhite teenagers will probably continue to depend on government manpower policies.

PARTICIPATION OF OLDER WORKERS

The BLS high growth projection assumes that the labor force participation of workers age 65 and over will stay constant until 1985 and register some slight increases thereafter.

This assumption is based on the expectation that recent legislation affecting mandatory retirement will offset the current trend of declining participation among older workers. The banning of forced retirement among Federal workers and the raising of the mandatory retirement age in general will undoubtedly have some positive effect on labor force participation. The growing trend toward early retirement programs and the indexing of pension benefits to inflation, however, are also expected to reduce pressures for senior citizen involvement in the labor market. This will affect both the 65-and-over age group and the 55-to-64 age group. These factors are projected to counterbalance each other, leaving no net change in the rate of older workers' labor force participation, at least until 1985.

As labor force growth slows during the 1985–90 period, older workers may become a more highly valued source of labor supply. The result may be a slight increase in their rate of participation, as projected by the BLS.

THE CHANGING AGE AND SEX COMPOSITION OF THE LABOR FORCE

In terms of the overall composition of the civilian labor force, the growing importance of women and the weight of the baby boom as it moves through the central age range can be seen in table 23.

TABLE 23.—DISTRIBUTION OF THE CIVILIAN LABOR FORCE BY AGE

[In percent]

	Age				
	16 plus	16 to 24	25 to 44	45 to 54	55 plus
Total:					
1978	100.0	24.5	44.1	16.8	14.6
1385	100.0	21.7	50.7	14.3	13.2
1990	100.0	19.1	53.6	13.5	11.9
Males:					
1978	58.5	13.2	26.1	10.1	9.0
1985	55.6	16.0	27.9	8.5	8.2
1990	54.3	9.5	28.5	8.9	7.4
Females:					
1978	41.5	11.3	18.0	6.6	5.6
1985	44.4	10.7	22.8	5.9	5.0
1990	45.7	9.6	25.1	6.4	4.5

Source: Bureau of Labor Statistics.

Over one-half of the entire labor force is projected to be between the ages of 25 and 44 by 1985; this proportion will continue to increase through 1990. However, the proportion of teenagers and young adults will drop sharply. Workers over age 55 will also fall as a proportion of the total labor force.

Women are expected to continue to raise their proportion of the total labor force, growing from 41.5 percent in 1978 to 45.7 percent in 1990. Most of this increase will be in the central age groups where women should be approaching numbers equal to their male cohorts.

Assuming that nonwhite males increase their labor force participation over the next decade, racial minorities will constitute almost 13 percent of the total labor force.

The Growth and Structure of Employment During the Next Decade

There is great difficulty and uncertainty in projecting employment growth 10 to 15 years into the future, and it is only slightly less hazardous to project the structure of such growth. Based on chapter II's analysis of past trends and the work of the BLS in this area, however, several general comments can be made about the structure of future employment opportunities.

The structure of employment growth may fluctuate with cyclical developments, but generally follows long-run trends and makes future patterns of employment growth easier to project. One approach to projecting the structure of future employment opportunities is to compare anticipated patterns of future major GNP expenditures with the implied employment changes by industry and occupation.

The long-term shift in the pattern of personal consumption expenditures has been away from nondurable goods to services and durable goods. This general trend is projected to continue, as seen in table 24.

TABLE 24.—DISTRIBUTION OF PERSONAL CONSUMPTION EXPENDITURES

[In percent]

	Calendar year—					
	1968	1973	1978	1980	1985	1990
Expenditures	100.0	100.0	100.0	100.0	100.0	100.0
Durables	13.9	15.9	16.2	16.6	17.5	18.4
Nondurables	42.7	40.3	38.0	38.1	36.8	35.4
Services	43.4	43.8	45.7	45.3	45.7	46.2

Source: Data for 1968 to 1978, Council of Economic Advisers; Projections for 1980 to 1990, Bureau of Labor Statistics.

Increased spending for durables and services is a trend which consumers have been setting since the mid-1950's. Real incomes and the standard of living have increased appreciably during this time, and consumers have tended to spend proportionately less of their incomes on nondurable essentials such as food and clothing. Additionally, much of the spending power of the large number of new young adult workers setting up households is focused on the purchase of durables such as autos, furniture, and household appliances as well as time-saving and professional services. This is particularly true of the growing number of two-income families. As incomes of younger workers rise

with maturity, the long-term shift in the proportion of spending on durables and services is likely to continue and, perhaps, accelerate.

The changing structure of consumer spending is reflected, at least in part, in the structure of employment growth during the past decade. The service and trade industries experienced an unprecedented increase in employment, reflecting the increase in consumer spending on services. However, while the relative increase in consumer spending on goods surpassed the spending increase on services, the durable goods industries experienced only a small rise in total employment.

There are two primary reasons why the proportional increase in consumer spending on durables has not had a large impact on the demand for labor in the durable goods industries. First, productivity in the capital intensive durable goods industries tends to increase at a faster rate than in the service and trade industries. As a result, consumer demands for additional output can be met with smaller employment increases in the durable goods industries than in the service and trade industries. Second, with the growth of the "white collar society," consumers have heightened their preference for imported durable goods. Spending for imported durables such as televisions and autos has shown substantial growth relative to domestically produced goods. For example, the proportion of foreign-produced autos purchased by American consumers nearly doubled during the past 10 years.

Based on the projected distribution of consumption expenditures, presented in table 19, it would thus seem likely for the structure of employment growth through the 1980's to be quite similar to that of the past decade. Continued expansion in household formation and in the number of two-income families should keep the demand for housing and household-related durable goods growing at a strong pace. While this demand may not mean any spectacular employment growth in the durable goods manufacturing industries, it suggests that a sustained but moderate employment increase in these industries is probable. Anticipated strong demands for housing may also lead to further growth in construction employment. The mining industry, of course, will likely continue to reap employment benefits from the rising demand for domestically produced energy sources.

However, the bulk of the next decade's employment gains are likely to continue to be concentrated in the service and trade industries. Employment in the finance, real estate, and insurance industries will probably be favorably affected by the sustained requirements for housing and the maturing baby boom's concern for future financial and household responsibilities. Relatively strong, underlying pressures for consumer spending associated with the growing predominance of workers in the central age group should continue well into the 1980's adding substantial employment in retail sales and miscellaneous services industries.

Much of the growth in the service and trade industries will also mean large employment gains for clerical and sales workers, with accompanying notable increases among professional, managerial, and administrative positions as well. Although blue collar employment is likely to become an even smaller precentage of total employment, white collar technical jobs should be expected to expand fairly rapidly in conjunction with advances in technology in the capital intensive goods producing industries.

Slower rates of growth are anticipated in public sector employment than occurred in the preceding decade. Little employment growth will occur in public education, a major source of government employment, as elementary and secondary schools contract following the baby boom and as colleges and universities redirect their programs toward older students interested in graduate level training, refresher courses, new careers, and recreational education. On the other hand, with the continued rapid formation of households and further expansion of the housing industry, the demand for public infrastructure (such as sewers and roads) should be particularly strong, especially in expanding areas of the country.

The bulk of the next decade's employment opportunities will be in the service and trade industries and white collar occupations and will probably favor the large numbers of women expected to enter the labor force. Women have historically held high proportions of the jobs in these industries and occupations, and they are projected to account for nearly two-thirds of the next decade's labor force growth. However, with the shrinking proportion of job opportunities in blue collar occupations and the rising proportion of racial minorities in the working age population, the employment prospects for racial minorities are likely to be more discouraging.

CHANGING DEMOGRAPHIC PATTERNS AND SOME POTENTIAL IMPLICATIONS FOR NONMETROPOLITAN AMERICA

By Dennis L. Little*

CONTENTS

A. Introduction [1a]

Tomorrow will be much like today, only different.
—Anonymous.

In making public policy, the legislator is faced with a dilemma. In essence, all legislative decisions are about the future, but each of their experiences concerns the past. If the legislator was dealing strictly with physical systems, such as celestial mechanics, this might not be a problem, for one merely needs to ascertain the stable patterns of the past and project them into the future. In reality, legislative policy is generally concerned with social systems, economic systems, ecosystems, et cetera. The behavior of the elements in these systems are much more unpredictable and, thus, the behavior of the system has much that is unpredictable. The emergence of an environmental movement, a recession accompanied by double-digit inflation, an energy crisis, a movement back to rural America, and an ideological transformation from a technological paradise to a resource doomsday are just a few examples of the "wild cards" in the systems with which Congress must deal.

Some elements in each of these systems can be described more clearly than others as to their past and future direction and by doing so we can focus more sharply on the areas of uncertainty. Demography [1b]

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[1a] Parts of this paper are drawn from an earlier one, "Changing Demographic Patters and Some Potential Implications for Rural America," which was presented at the National Educational Institute for Economic Development Symposium on the Future of Rural America, Annapolis, Md., March 1980.

[1b] Demography is a branch of the social sciences dealing with the determinants and consequences of population change. It deals with vital and social statistics such as birth, death and marriage, and the size density, distribution and mobility of populations.

is one of the more clearly defined areas. For example, barring a cataclysm, the number of children entering kindergarten or first grade 4 years from now, the aged population for the year 2000, and the size of the labor pool for the next 15 years are essentially known. We can determine this, for in each of the three cases all of these people are already born. On the other hand we are less certain about the geographic distribution and economic activity of the elderly, the number of women entering the work force, and the number of illegal immigrants in the United States.

This paper focuses on those significant changes in demographic patterns which have occurred in our Nation over the last 5 to 25 years and which have or will raise significant policy issues for nonmetropolitan (rural) America in the 1980's. The paper provides a brief picture of the overall population and a more detailed examination of the family structure, an aging population, regional shifts from the "Snow Belt" to the "Sun Belt," and a return to rural America.

B. United States Population: A Decelerating Pattern

The first census of the United States was taken almost 200 years ago in 1790. At that time a little under 4 million people lived in an area of about 865,000 square miles of land, or about 4.5 persons per square mile. By 1977 the population of the United States had increased 55 times; the land area had more than tripled; and the density had grown to 61 persons per square mile. More recently from June 1, 1979, to June 1, 1980, the population of the United States increased 2,240,000, an increase which would fill Detroit almost twice.[2]

Despite the increase in absolute numbers, population growth in the United States has been decelerating markedly. This can best be seen by comparing the rate of growth from 1955 to 1960 with the growth increment from 1970 to 1975 and the growth increment from 1975 to 1980.

TABLE I.—U.S. POPULATION INCREASES

	Numerical increase (millions)	Percentage increase
1955–60	14.8	9.0
1970–75	8.9	4.4
1975–80	9.0	4.2

The 1979 rate of natural growth 0.7 percent adds 1.6 million to the population each year and net immigration (legal and estimated illegal) accounts for between 450,000 and 600,000 of this total or about 25 to 30 percent of the annual growth.[3]

Future population size depends on a combination of the effects of births, deaths, immigration, and emigration. Zero population growth is already a reality in some States (New York, Ohio, Pennsylvania,

[2] American Council of Life Insurance. Social Research Services. Data Track 5 (Washington) 1979, p. 12 and Senator Robert Packwood. U.S. Population, Congressional Record, June 4, 1980, p. S-6285; and Population Clock, U.S. Bureau of the Census.

[3] Sternlieb, George and Hughes, James W. Current Population Trends in the United States. New Brunswick, the Center of Urban Policy Research, 1978, p. 3 and Public Affairs Committee of the Population Association of America. Demographic Perspectives for the 1980's, September 1979: U.S. Department of Commerce, Bureau of the Census. Estimates of Population of the United States to Apr. 1, 1980. Current Population Reports, Series P-25, No. 887, June 1980; and U.S. Department of Health, Education, and Welfare, National Center for Health Statistics. Monthly Vital Statistic Report—Provisional Statistics—Births, Marriages, Divorces, and Deaths for 1979—Mar. 14, 1980.

and Rhode Island) and in many large metropolitan areas. Census Bureau projections for 1990 range from 236 million individuals (series III which happens to be based on the current birth rate) to 255 million (series I which is based on a birth rate of 2,700 births per 1,000 women of child bearing age).[4] If birth rates and death rates continue on converging paths, legal and illegal immigration could become the primary source of this country's population growth. In the next section, I will deal in more depth with the birth rate issue and the question of the nuclear family.

C. The Family: In Disarray or a Mediating Structure

Marriage and the family still appear to be valid and accepted institutions. However, the age at the time of first marriage is increasing; the birth rate is declining; the period of "child free" years is increasing; the divorce rate has risen considerably; and the "reconstituted" or "blended" family is competing actively with the nuclear or extended family.

Marriage

The United States has one of the highest marriage rates for an industrialized country. Marriage rates have fluctuated little since 1975 and in 1978 the rate was 10.2 marriages per 1,000 population. This rate could be driven up by decreases in unemployment rates or a significant decrease in world tensions.

Despite the consistency of the rate of marriage, the median age at first marriage has increased during the last 20 years and the proportion of young adults never married has also increased.

TABLE II.—MEDIAN AGE AT 1ST MARRIAGE[1]

	1956	1978
Men (years)	22.5	24.2
Women (years)	20.1	21.8

[1] Population Reference Bureau, Inc. Population Bulletin: Marrying, Divorcing, and Living Together in the United States Today. vol. 32, No. 5 (Washington) October 1977 and February 1979. Update, pp. 4 and 39, and U.S. Department of Commerce. Bureau of the Census. The Future of the American Family, by Paul Glick (Washington) May 1978, p. 3.

TABLE III.—YOUNG ADULTS NEVER MARRIED[1]

[In percent]

	1960	1976	1977	1978
Men (20–24 yr)		62		66
Women (20–24 yr)	28	43	45	48

[1] See footnote, table II.

In addition to later first marriages, the size of the family has been in general following a downward trend. The family of the early 20th century included four children; of the 1930's, three children; and the family of the 1970's includes two children. Statistically, the period of child bearing has been shortened by 3 years; the period after the

[4] Public Affairs Committee of the Population Association of America. Demographic Perspectives for the 1980's.

children leave home has been increased by 11 years; and thus young couples can expect to live "child free" for about 14 more years than their own parents did. This is approximately one-third of their married lives together.[5]

Divorce

One reason the marriage rates are high is that the divorce rate in the United States is consistently higher than that of any other industrial nation in the world. The country's divorce rate doubled from 2.5 to 5.0 per 1,000 population between 1965 and 1976 and, although these rates have fallen, projections indicate that 40 percent of all marriages will end in divorce. This sharp rise in the divorce rate occurred at approximately the time that all but three States (Illinois, Pennsylvania, and South Dakota) were enacting no fault divorce laws.[6]

Some believe that divorce may be one of the most serious mental health crises facing children of the 1980's, for as the divorce rate has risen, the "reconstituted" or "blended" families have begun to compete with the extended or nuclear family. The statistics indicate some significant social and legal changes are taking place. For example, although the number of children under 18 years of age fell to 64.1 million in 1977—approximately the 1960 level—the percentage of children living with a separated parent doubled from 9 to 18 percent (7.1 million to 11.3 million) the 1960 level. During this same period of time, the percentage living with a divorced parent tripled; the number living with a never-married parent was seven times as high (this number increased by 12 percent from 1977 to 1978); there was a 10-percent decline in the number of children living with two parents (from 56.3 million to 50.8 million) [7] and a sharp rise in teenage pregnancies occurred. There are approximately 12 million children under the age of 18 whose parents are divorced, and approximately 1 million children a year see their families dissolved. Forecasts indicate that 45 percent of all children born in any given year will live with only one of their parents at some time before they are 18. In addition 20,000 to 100,000 children a year are believed to be snatched or hidden by one parent from the other.[8] The "fractured" family may have caused some new employment opportunities for one enterprising Chicago woman has just opened her Rent-A-Mom/Rent-A-Dad employment service in her home with a part-time work force of 100.[9]

With the change in the divorce rates, there have occurred significant changes in child custody practices, family related legislation, and the civil court docket. One hundred years ago custody went with the father after divorce.

It shifted to the mother with the adoption of the "tender-years" doctrine—custody to the women when children are young. Currently, some 26 States and the District of Columbia have discarded the

[5] Population Reference Bureau, Inc. Population bulletin, Marrying, Divorcing, and Living Together in the United States Today, pp. 20-21.

[6] Population Reference Bureau, Inc. Population bulletin, Marrying, Divorcing, and Living Together in the United States Today, pp. 18 and 39.

[7] U.S. Department of Commerce. Bureau of the Census. The Future of the American Family, by Paul Glick, (Washington), May 1978, p. 3.

[8] The problem is perceived to be real, but there is no solid data. The reason for this is there is no established reporting system for such occurrences which are not illegal in many states.

[9] Reeves, Elizabeth Hornsey. Rent-A-Mom (or Dad) care from stand-ins. The Christian Science Monitor. (1979 date clipped), p. 17.

"tender-years" doctrine on the grounds that mothering doesn't necessarily correspond to the gender of the parent, and 8 States now have joint custody provisions. Some 23 States have passed statutes awarding visitation rights to grandparents.[10] More than half of all civil cases filed now are divorce cases, and because the number of judges, in general, has risen only slightly, disputed divorces sometimes take as long as 2 years for their day in court. Some cases are knocked off the docket by criminal matters, which have priority. The problems are beyond the boundaries of metropolitan America. In some areas special family courts have been formed to deal with these problems and elsewhere lawyers designated as referees are ruling on some divorce matters that were formerly assigned to judges.[11] The important thing to note is that the "fractured" family has and will continue to occur in nonmetropolitan America.

D. Our Aging Population

The declining birth rate (described above), major improvements in our health delivery systems, and the establishment of national, as well as State, health and safety codes are some of the major elements accounting for the astonishing growth in the absolute numbers and proportion of elderly in this country. From 1910 to 1950, the total population of the United States grew by 64 percent, but the number of elderly Americans over 65 more than tripled. At the beginning of this century, people 65 and over comprised 4 percent of the population. By 1950 this percentage had doubled to 8 percent, and in 1970 it rose to 10 percent. In early 1980, it stood at 11 percent and by 2030—50 years from now, this number is projected to reach from 17 to 22 percent of the population—the estimates vary according to differing birth and death rate projections. There will also be a concomitant increase in the number of elderly over 75. Table IV reflects the past and projected changes in the composition of our Nation's senior citizens.

TABLE IV.—PERSONS 65 AND OVER[1]

	Number (in millions)	Percent of population	Over 75 as percent of 65 and over
1900	3,099	4.1	----------
1930	6,705	5.4	----------
1960	16,675	9.2	33.7
1977	23,431	10.8	36.8
1990	29,824	12.7	39.4
2000	31,822	12.9	44.1
2010	34,837	13.9	41.8

[1] Newitt, Jane. A Social Trends Handbook for Health Services. Croton-on-Hudson, N.Y. Hudson Institute [1974] p. 29 and U.S. Bureau of the Census.

The current number of aged in the United States is approximately 25 million and their numbers are growing at a rate approximately twice that of the general population. They comprise about 16 million consumer households and about one out of every five households in the United States is headed by a person 65 or older. Some 3.3 million

[10] The Children of Divorce. Newsweek, February 11, 1980, and U.S. News and World Report, April 30, 1979.

[11] Christensen, Kathryn. Breaking the Bond: Dispute Over Money and Children Swamp U.S. Divorce Courts. Wall Street Journal, January 28, 1980, pp. 1 and 21.

older persons (14 percent of the total) are reported to have incomes below the "poverty level." The total number of individuals over 65 is greater than the population of: [12]

	Million persons
Canada	23. 5
Australia	14. 2
Belgium	9. 8
All of Scandinavia	22. 2
The combined population of 21 of our 50 States	25. 0

Currently, a significant portion of our national budget and related health expenditures goes to programs for the aging—approximately one-fourth of the annual Federal budget or $132 billion out of $532 billion (fiscal year 1980). Of this total, $96 billion is for direct cash benefits [13] and $33 billion is for health programs. According to one calculation, if present policies are maintained, the known increase in the number and proportion of older persons in the United States will cause Federal expenditures to more than triple in real dollars early in the next century, and to constitute 40 percent of the total Federal outlays.[14]

The aging constituted approximately 10.8 percent of the total population in 1977, but for the same year they used approximately 29 percent of all health care resources. Statistics indicate that 20 percent of all aging are admitted to a hospital in a given year and almost 25 percent receive at least one outpatient service a year. In addition, approximately 5 percent of the aged reside in long-term care institutions at any one time and comprise 89 percent of all nursing home residents. Wilbur Cohen has speculated that in 2030, unless there is some significant reduction in the utilization or cost of health and medical services by the aged, about one-half of all personal health expenditures might be expended on the aged. Total costs of health and medical services might represent about 12 to 15 percent of the GNP as compared to 8.6 percent in 1976—an almost 50 percent shift.[15]

Life expectancy tables and expected advances in technology lead one to believe that there will be an increasing female majority among the population over 65. Specifically, the estimates show that by the year 2000, there will be 150 women for every 100 men, and widows will outnumber widowers by 6 to 1. At the same time, approximately 10 percent of our older Americans will be either single, never married, widowed, or divorced. Compared to 1975, this is an increase of 100 percent.[16]

Because of their better education and increased social and political awareness, the senior citizens of the year 2000 may have less tolerance for today's kind of custodial care in all of its aspects, including the

[12] Binstock, Robert. A Policy of Aging for the 1980's. National Journal, Oct. 13, 1979, pp. 1711 and 1712 and Carole B. Allan. "The Older Consumer: The Time Is Now." National Journal, Nov. 24, 1979, p. 2000.

[13] The vast majority of this outlay is for social security expenditures.

[14] Binstock, Robert. "A Policy on Aging for the 1980's," pp. 1711 and 1712.

[15] Joint Economic Committee, U.S. Congress. Statement of Mayer Zald, Professor of Sociology, University of Michigan (Washington), May 31, 1978. Testimony at hearings before the Special Study on Economic Change and Stanley J. Brody, the "Thirty-to-One Paradox: Health Needs of the Aged and Medical Solutions". National Journal, Nov. 3, 1979, p. 1869. Based on 1975 per capita health expenditures ($212 for persons under 19, $472 for persons 19 to 64, and $1,360 for persons age 65 and over) and some undefined constant increase in health costs.

[16] This paragraph and the next three are taken from the author's early work. U.S. Library of Congress, Congressional Research Service. "Some Past Trends and Future Demographic Projections for the United States," by Cynthia Huston and Dennis L. Little (Washington) 1977, pp. 10–12. (Report No. 77–162 SP.)

use of rest homes. Also, the aged may be more likely to be financially secure because of more beneficial economic resources through improved pensions and social security, better comprehensive medical care, and increased preparation for and participation in retirement. This improved security and personal role satisfaction could lead to the increased popularity of leisure village and communities designed strictly for our senior citizens. We may likely see fewer extreme cases of disordered behavior (i.e., those which require custodial care). For groups with families and those without, by the year 2000, 25–35 years of retirement might be expected. This may create new sociological divisions; the "young-old," ages 65–80, and the old-old, ages 80 and over.

The questions of aging and life extension coupled with a declining birth raise some major policy questions which require greater exploration. Some of these include:

Who will support the aged and how will this support be financed?

As the average age increases, how will the rate of change in society be affected?

Should our tax laws be revised to make it less costly or even profitable for the extended family to stay together? (i.e., a personal income tax deduction of $5,000 for each individual over 65 living in your home).

How will aging affect education, crime, mobility, family formation, and self-respect?

Will new federally financed services be required (e.g., retirement counseling)?

Will continued inflation and an aging population necessitate rethinking of the public and private economic protection plans for the individual and/or the family?

Implications for Rural America

The growth in size of our Nation's aging population raises some critical issues for rural or nonmetropolitan America. The first is a long- and a short-term issue. Where nonmetropolitan growth is associated with an influx of retirees (upper Michigan, Missouri, Arkansas, New Hampshire, New Mexico, Oregon, California, and Florida) can the particular region provide and make accessible the necessary health services for this category of high users? As existing citizens age, can existing facilities be expanded to handle their expected rate of increased usage? Second, the elderly require a number of services which are home-delivered (friendly visiting; senior wheels to shopping, doctor, dentist, social functions; homemaker service; meals-on-wheels; home health care; and foster home care) and others which are congregate organized (adult education, recreational senior center, nutrition sites, multipurpose senior center; and day care). All of these services require some form of transportation. Yet 15 percent of all rural households, 57 percent of the rural poor, and 45 percent of the rural elderly do not own an automobile. On top of this only 31 percent of the Nation's 20,000 towns with a population of 50,000 or less are served by a public transit system, and since 1972, 1,800 small towns have lost intercity bus service.[17] Can the fiscal resources be found at the

[17] Tobin, Sheldon S. "Social and Health Services for the Future Aged". Aging in the Year 2000: A Look at the Future. The Gerontologist, v. 15, No. 1, February 1975, p. 33, and the Carter Administration: Small Community and Rural Development Policy, Dec. 20, 1979.

national level and at the regional or local level to provide the anticipated increased demand for health services and what can be done to either improve or circumvent our inadequate rural transportation systems?

A third major issue centers on the national political strength of our senior citizens. In a society becoming increasingly dominated by single-interest politics and a declining rate of economic growth, will our senior citizens, with their increasing demands on the Federal budget, block new development money for rural America? [18] If not, what will be the political tradeoffs?

E. Regional Development

With a declining birthrate, regional migration has been a prime factor in explaining an area's population growth or decline. Immigration from other countries is the second major cause of population growth particularly in New York, California, and Texas. Internal migration is not a new phenomenon, for throughout our Nation's history, there has been geographic population redistribution. In an era of slower population growth, however, people's locational choices have taken on greater political weight than before. Before examining these implications in greater detail, it would appear to be useful to examine the extent of regional population shifts over approximately the last 25 years.

TABLE V.—RESIDENT POPULATION AND POPULATION CHANGE BY REGION AND CENSUS DIVISION, 1960-79

	Resident population (in thousands)				Percent change	
	1960	1970	1975	1979	1960-70	1975-79
United States	179,323	203,305	213,051	220,009	13.4	3.3
Northeast	44,678	49,061	49,334	49,002	9.8	-.7
New England	10,509	11,847	12,151	12,291	12.7	1.1
Middle Atlantic	34,168	37,213	37,183	36,711	8.9	-1.3
North Central	51,619	56,593	57,653	58,406	9.6	1.3
East North Central	36,225	40,265	40,910	41,287	11.1	.9
West North Central	15,394	16,328	16,743	17,118	6.1	2.2
South	54,973	62,813	68,117	71,550	14.3	5.0
South Atlantic	25,972	30,679	33,618	34,976	18.1	4.0
East South Central	12,050	12,808	13,536	14,105	6.3	4.2
West South Central	16,951	19,326	20,963	22,470	14.0	7.2
West	28,053	34,838	37,946	41,142	24.2	8.4
Mountain	6,855	8,290	9,630	10,673	20.9	10.8
Pacific	21,198	26,548	28,316	30,469	25.2	7.6

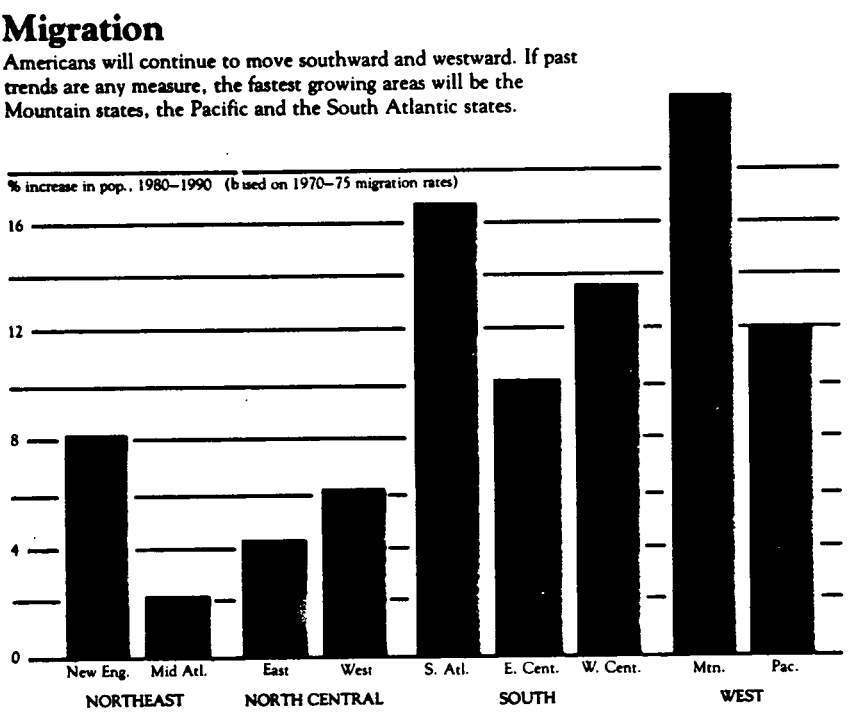
Note: Figures may not add to totals due to rounding.

Source: U.S. Bureau of the Census. Census of the Population: 1970, PC(1)-A1; Current Population Reports, series P-25, No. 828; and U.S. Bureau of the Census. Population Estimates and Projections. Current Population Reports, series P-25, No. 876, February 1980, p. 10.

[18] As illustrative at a 1978 meeting of the International City Management Association's Committee on the Future Horizons of Local Government, the city managers present noted that, for the most part, 10 years ago the dominant interest group in their community was the PTA. Today it is the American Association of Retired Persons.

As table V indicates, the rate of growth of population has been steadily declining in the Northeast and the North Central States. Population growth in the southern region (with the exception of Florida) has been more evenly paced than the rest of the Nation. The population growth rate of the West has been extremely rapid. Between 1970 and 1977, the population of the West grew 31 times faster than the population in the Northeast. By contrast, the Middle Atlantic area experienced a net loss of 502,000 people for almost the same time period.[19] (Regional migratory projections for 1980–90 (based on 1970-1975 trends) are shown in fig. 1.)

FIGURE 1.—Regional migration: 1980–1990[1]



[1] Reynolds, Reid T, Robey, Bryant, and Russell, Cheryl. Demographics of the 1980's. American Demographic, vol. 2, No. 1, January 1980, p. 18.

The contrasting developments in the Northeast and the South demonstrate how recent shifts in net migration, together with the overall drop in the birthrate, have produced sharply diverging rates of population growth. Between 1960–75, the rate of population growth declined sharply in the Northeast so that this area is now experiencing an overall net reduction in population. Outmigration, in this region, has essentially offset the natural population increase and immigration to the New England States. By contrast the population growth rate in the South during the 1970's did not differ appreciably from that of

[19] American Council of Life Insurance. Social Research Services. Data Track 5 (Washington) 1979, p. 32.

the 1960's. What has changed is the source of the South's population growth, (that is, the South's present margin over the Northeast is due to migration whereas in the 1960's it was due to natural increase).[20]

To many, the short-term distinctive feature of migration is that it is a zero-sum situation. That is, one region's growth occurs at the expense of some other region. Others contend that in many cases internal migration is a losing situation for the geographic region gaining the population as well as the region losing population. In general, these two positions raise four basic concerns or issues: (1) Headcount concerns (formulas for distributing Federal largesse typically give weight to number of inhabitants, therefore regions unable to boast the same if not more bodies may lose funds, even though they may need more Federal money for that very reason); (2) concerns about dependency (accumulation of large numbers of people receiving public assistance impose real and perceived costs on certain areas); (3) local shrinking pains (nongrowing areas continue to face problems of residential and productive obsolescence and tax bases will shrink as service demands grow due to selective outmigration and the added dependency burden); and (4) newly experienced growth (arriving migrants cause congestion, sprawl, and support costs adding to the frustration of local officials who are unable to dampen the external forces that attract migrants in the first place).

Regional growth issues are seen by some as political-economic issues rather than economic issues which can be observed through traditional economic models. This perspective emphasizes the need to reconsider and reconstruct existing economic theory rather than to engage in a battle of statistics. By themselves, more refined statistics will not necessarily resolve the critical issue of whether or not the mass movement from North to South and East to West is in the best interest of any region or individual. It is in the context of maximum versus optimum rates of economic growth that total rethinking of the regional issue may be feasible and necessary.[21] Many political leaders of the Midwest and Northeast claim that current Federal policy is unbalanced. They are seeking a comprehensive tax package to stimulate employment and investment in their regions to aid their regional economies to grow once again. They claim that for decades, the taxpayers of the Northeast and Midwest have been generous in providing Federal aid to those regions of the country with low incomes and underdeveloped economies, and that it is now time to reverse the flow of these funds. By contrast, some political leaders of the Sun Belt note the need for increased Federal assistance to expand sewer systems, roads, schools, transportation, and aid to rural poor. In areas of rapid population growth, available funds and tax revenue lag well behind the immediate needs.

It may be necessary to develop policies which would insure that potential migrants have the necessary information available so that they may be aware of the explicit implications of their movement.

In the future, energy changes will probably not cause major new trends in regional development but they may cause areas prime for development to grow more rapidly than they otherwise would have or

[20] Joint Economic Committee. Special Study on Economic Change: A Review of the Panel Meetings May 31 to June 22, 1978. Report. Sept. 29, 1978.

[21] Much of this discussion is taken from Joint Economic Committee, Special Study on Economic Change: A Review of the Panel Meetings May 31 to June 22, 1978, pp. 8–9.

vice versa. Firms, for example, respond to energy price change and seek out lower costs but that does not appear to be a major cost impetus for firms to relocate in general due to energy costs, though surely certain high energy using industries will be more sensitive. There may be a need for systematic inquiry into the range of possible energy development on regional growth and change—and in particular on rural America.

Finally, the regional population shift to the South and West appears to be accelerating and as a result a recent Census Bureau report predicts that based on current estimates, after the 1980 census, there will be a change of 14 House seats between the States. This is up from an earlier estimate of 11 seats and reflects a trend of approximately 25 years, or more. In 1960 the Northeast and North Central regions (the "Frost Belt") had 41 more congressional seats than the South and West (the "Sun Belt"). By 1972, the Sun Belt led the Frost Belt by four seats. By 1984, the Census Bureau estimates that the Sun Belt will have 26 more electoral votes than the Frost Belt. Table VI reflects currently projected shifts.

TABLE VI.—PROJECTED SHIFT IN HOUSE SEATS[1]

State	Change	New total
California	+2	45
Washington	+1	8
Oregon	+1	5
Florida	+3	18
Texas	+2	26
Arizona	+1	5
Colorado	+1	6
New Mexico	+1	3
Tennessee	+1	9
Utah	+1	3
New York	−4	35
Illinois	−2	22
Ohio	−2	21
Pennsylvania	−2	23
Massachusetts	−1	11
New Jersey	−1	14
South Dakota	−1	1
Michigan	−1	18

[1] West Coast States Are Seen Gaining Seats in the U.S. House After Census is Taken. The Wall Street Journal, Jan. 30, 1980, p. 8; and U.S. Department of Commerce News, Public Information Office, Jan. 29, 1980, CB80–22.

Implications for Rural America

There are political, educational, and social issues for rural America which flow from the above trends. Those States which are experiencing an expanding elderly population, or which possess a favorable climate, or which possess an available or competitively priced energy system appear to be the prime benefactors of the projected shift. The issue is whether or not the realignment of House seats will influence the existing federally funded public works and rural economic development programs.

Second, as the traditional Sun Belt sites become more urbanized, will the retirees head for the less crowded and less expensive rural America? Preliminary data indicate that this trend is occurring and with the prospects quite high for double digit inflation for the next 5 to 10 years, it is likely to continue. To some it is a "back-to-the-village movement" while others refer to it as the "Hayseed Revolution." [22]

[22] Gottschalk, Earl C. Jr. Aging Americans: As Some Sun Belt Sites Get Crowded, Retirees Head for the Country. The Wall Street Journal, Nov. 13, 1979, p. 1.

The third issue, the impact of regional migration on educational policy, will be discussed in the section on rural migration which follows

F. Rural Migration

One of the most striking demographic shifts is the movement to nonmetropolitan America. It is also a movement to rural America, but, since there are rural areas within our standard metropolitan statistical areas, there is need to exercise great care in the collection and analysis of our data. Since 1970, for the first time in the Nation's history, the rate of population growth of nonmetropolitan counties has exceeded the growth rate of metropolitan areas. Between 1970–76, rural areas across the country report an influx of 2¼ million people as compared to an outflow of 3 million individuals during the 1960's and between 5 and 6 million during the 1950's. However, in absolute terms most of the population growth in the United States is occurring in metropolitan counties. Table VII reflects these shifts for the periods 1950–60, 1960–70, 1970–75.[23]

TABLE VII.—POPULATION AND NET MIGRATION FOR METROPOLITAN AND NONMETROPOLITAN COUNTIES: UNITED STATES 1950–60, 1960–70, AND 1970–75[1,2]

[Population and migration numbers in thousands]

	Total	Metro	Non-Metro	Nonmetropolitan	
				Adjacent	Not adjacent
Population:					
1950	151,326	100,720	50,606	24,727	25,879
1960	179,311	127,185	52,126	26,107	26,019
1970	203,301	148,882	54,419	28,025	26,394
1975	213,051	155,044	58,008	20,064	27,944
Population change:					
1950–60	27,985	26,465	1,520	1,380	140
1960–70	23,990	21,697	2,293	1,918	379
1970–75	9,750	6,162	3,589	2,039	1,550
Percent distribution of population change:					
1950–60	100.0	94.6	5.4	4.9	0.5
1960–70	100.0	90.4	9.6	8.0	1.6
1970–75	100.0	63.2	36.6	20.9	15.9
Net migration:					
1950–60	2,648	8,950	−6,302	−2,337	−3,965
1960–70	3,165	6,015	−2,850	−635	−2,215
1970–75	2,468	627	1,841	1,139	702
Number of counties	3,100	629	2,471	969	1,502

[1] Metropolitan status as of 1974.
[2] Fuguitt, Glenn V. and Voss, Paul. Recent Nonmetropolitan Population Trends, p. 4.

Peter Morrison and Kevin McCarthy of RAND put nonmetropolitan growth areas into nine types or categories. They are:

1. *Exurbanization and urban sprawl adjacent nonmetropolitan counties.*—Counties surrounding metropolitan Washington, D.C., St. Louis, Nashville, Atlanta, and Minneapolis.

2. *Growth associated with the shift from big-city to peripheral manufacturing sites.*—Idaho, Michigan, Wisconsin, Arkansas, Tennessee, northern Alabama, northeastern Mississippi, western Kentucky, North Carolina.

3. *Industrial revival associated with energy extraction.*—Of necessity, emphasis here is on States in which a sgnificant amount of

[23] Joint Economic Committee, Special Study on Economic Change: A Review of the Panel Meetings May 31 to June 22, 1978, p. 7; and Fuguitt, Glenn V. and Voss, Paul R.. Recent Nonmetropolitan Population Trends. Growth and Change in Rural America, the Urban Land Institute 1979, pp. 1-4.

industrial activity was already under way prior to the oil embargo: Utah, Wyoming, Kentucky, and West Virginia.

4. *Growth associated with an influx of retirees.*—Upper Michigan, Missouri, Arkansas, New Hampshire, New Mexico, Oregon, California, and Florida.

5. *Growth associated with recreation.*—Michigan, New Hampshire, Vermont, Missouri, Arkansas, California, Oregon, Utah, and Colorado.

6. *Growth associated with energy availability or price.*—Tennessee, Alabama, West Virginia, Kentucky, Oklahoma, and Colorado.

7. *Attractiveness of climate.*—Florida, California, and New Mexico.

8. *Alternative life-styles.*—New Mexico, Colorado, and New Hampshire.

9. *Growth of areas containing a State capital, senior State college, dam, or substantial military population.*—States too numerous to list.[24]

On the whole rural migrants tend to be young, well-educated and white. Although, as noted earlier, several hundred rural counties have become retirement destinations, older persons are undoubtedly in a minority in the migration. It is clear that a substantial fraction of the migrants accept an income cut, but the true effect on their cost of living has yet to be determined since the Federal Government does not collect living data for rural and small town areas as a whole. Currently, the income disparity for nonmetropolitan areas is 20 percent less than for metropolitan areas; however, incomes from the two groups are believed to be converging (i.e., from 1970-1977, the growth rate of nonagricultural wage and salary jobs in nonmetropolitan areas has been twice as high as for metropolitan Areas).[25]

Many projections indicate that the above trends will continue into at least the mid-1980's and, as a result, they will raise a number of issues for rural America. These questions and issues focus on the adequacy and effectiveness of rural public services; education and cultural issues; resource scarcities and deficiencies; crime and law enforcement; the permanency or durability of existing energy plans; and the permanency of the economy of some of the energy "boom towns". Some of these are discussed below.

Resources and Public Services

The effect of the new population trend in nonmetropolitan areas is, on the average, thought to be beneficial—for population increases can benefit very small or sparsely settled areas where the efficiency and quality of government services is limited by low numbers of people. Also it can permit small local governments to take advantage of size economies in the provision of local services such as education, police protection, roads and highway systems, and other areas where the economy of scale is visible. The perceived needs and demands for local services will of course depend heavily on the makeup of the new residents. For example, currently education expenditures comprise

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[24] McCarthy, Kevin F. and Morrison, Peter A. The Changing Demographic and Economic Structure of Nonmetropolitan Areas in the 1970s, Santa Monica, RAND, 1978, p. 9.

[25] Joint Economic Committee, Special Study on Economic Change: A Review of the Panel Meetings, May 31 to June 22, 1978, p. 7.

approximately 45 percent of the total local government expenditures. If the school age population rises, local expenditure needs will tend to increase. Local education expenditures tend to decrease, on the other hand, as an area becomes a retirement community.

Where additional population may present costs or problems, however, is in more populous areas, or in areas acquiring population who need costly services, or where rapidity or extent of growth overwhelms the capacity of the local government to respond. In addition, too rapid growth may change the character of an area to the dismay of many of the longer term and established residents. For example, the standard approach of the last 50 years—school consolidation—is likely to be foremost in the minds of many new migrants. On the other hand, local residents may tend to value rural schools for the cultural and social activities which are centered around them. Conflicts in values arising over schools and education could be unsettling to long-term rural residents.

Education

Regional shifts and rural migratory patterns create some problems for the development of Federal educational policy. The decline in the fertility rate of American women from its 1957 level of 3.7 to its current level of approximately 1.8 has lead to a significant decrease in elementary and secondary school enrollment. It does not appear to matter significantly whose numbers or which fertility rate one uses. The overall direction is downward. Yet despite these macronational trends, from 1970–75 almost 40 States experienced an increase in school age population. Ten States, predominantly rural, experienced a 5- to 20-percent increase while 9 of the 10 losers were in the "Snow Belt" States. They include:[26]

Enrollment declines: Connecticut, Illinois, Indiana, Kansas, Louisiana, Missouri, New York, Ohio, Pennsylvania, and Rhode Island.

Five to 20 percent increases: Arkansas, Colorado, Florida, Idaho, Montana, Nevada, New Hampshire, New Mexico, Oregon, and Wyoming.

Congress generally is asked to make Federal educational policy from macrodemographic data. Yet many people do not live in a "typical" school district. While overall elementary and secondary school enrollments are down, some rural or energy related growth areas are experiencing considerable increases. Educational systems, because they are State and local enterprises, are affected not only by national fertility trends but by the fact that Americans do not stay put. Schools are affected by national and local migration trends.[27]

Boom Towns

New energy programs have the potential to cause the affected rural communities to become energy "boom towns." This development may take a decade or two and will affect residents in a variety of different ways. These potential changes need to be analyzed and appropriate responses developed in advance if major economic and social disruption

[26] Reinhardt, Hazel H. The Ups and Downs of Education. American Demographic, vol. 1, No. 6, June 1979, pp. 9 and 10; and National Center for Education Statistics, U.S. Department of Health, Education, and Welfare. The Condition of Education: 1978 edition, p. 33.

[27] This concept is further developed in Newitt, Jane, Future Effects of Decline in New York's School Age Population: An Overview With Recommendations for Further Study. Croton-on-Hudson, August 1979.

is to be avoided. Impact issues which occur with most energy developments include: [28]

Increased employment;
Increased personal incomes;
Migration of large numbers of newcomers into the community;
Housing problems,
Inflation in costs and an inability to pay for housing,
Housing shortages;
Local public finance problems,
Tax leadtime problems causing public sector cash flow difficulties,
High financial risk and difficulty in borrowing,
Shortages in facilities and services,
Jurisdictional mismatches;
Local public finance advantages,
Increased tax bases in jurisdictions which include energy facilities but do not need to accomodate newcomer residents,
Long-term growth in tax bases beyond growth in expenditure requirements for most taxing jurisdictions which include the energy project;
Changes in the local social structure, policy and culture; and
Increased personal, family, and institutional stress resulting from change.

Other impacts which have been observed in some instances, include:

Increased intention of young people to remain who would otherwise leave the community in search of better jobs:
Problems in other sectors of the local economy (for example, agriculture and tourism) due to an inability to compete for scarce resources such as water and labor;
State-level public finance problems;
Urban sprawl;
Public health problems associated with public facilities shortages and/or urban sprawl;
Transportation problems;
Increased stresses between divergent cultural groups; and
Dislocation problems, as the resource is depleted and the energy project closes.

Constraints to mitigation may include:

Lack of experience by local officials in planning, grantsmanship, bond issuance, and cash flow management;
Statutory limitations on public borrowing;
Lack of experience in the private sector in correspondent banking, secondary mortgage brokering, and housing development;
Absence of mechanisms to assist in coordinating development plans by energy developers, public officials, and other private entrepreneurs;
Absence of institutions to assist in managing personal and group stress; and
Lack of credibility in growth and impact forecasts.

In terms of development and planning, two related issues arise. What happens to the infrastructure and the people of the community if our Nation should decide to switch to an alternative energy source?

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[28] Denver Research Institute and Resource Planning Associate. Scoioeconomic Impacts of Western Energy Resource Development, vol. 1: Summary and Implications, June 1979, pp. 6-8.

Also, new energy sources as well as economic development plans take years to materialize. How do we plan and execute development strategies for energy projects that might begin and then not be carried through to completion?

G. Some Concluding Observations

It is clear that the population center of the United States has moved South and West for the past 30 years. It is clear that the birth rate has fallen and with it we have experienced a decline in the rate of population growth. Boom towns, inflation, an aging of our population, a gradual growth in the size of metropolitan areas, et cetera, are factors which will cause some rural areas to grow exponentially; some less rapidly; and some not at all. Changes in the family structure are expected to intrude and permeate our rural centers as it has our metropolitan centers. People can migrate to larger centers to enjoy the benefits of size. At what point people will perceive the loss of scale in these new settlement patterns is unclear. It is clear that at some point, with continued migration the benefits of smallness, space and diversity will be lost.

Demographic shifts are just one element of the future. We need to understand these patterns if we are going to deal with the future. However, not all of these trends can be influenced. Some can be and it may be that consideration should be given to a regional or a national population policy. Perhaps with the shift of our population toward rural areas, greater consideration should be given to shifting some of our research and development expenditures to what is termed intermediate or appropriate technology.

In any event we will need to react and anticipate some shifts. Other shifts, such as the development of "boom towns," may be more within our control. As a nation we need to search for strategies and instruments for developing "boom towns" and for strategies to turn them off and scale down should the Nation change its policy direction. The challenges are great, and need to be addressed.

In the words of C.P. Snow:

> A sense of the future is behind all good politics. Unless we have it, we can give nothing—either wise or decent to the world.

TRENDS IN HOURS OF WORK, 1959 TO 1979

By Janice Neipert Hedges*

CONTENTS

SUMMARY

Since 1959, the length of the average workweek in the civilian economy has declined by about 2 percent per decade—a much slower pace than earlier in the century. However, series on weekly hours at work do not capture the growth of vacations and other "time off." In addition, over a period of time, they represent different industry and occupational structures and workers of different demographic characteristics. This paper seeks to broaden the study of trends in worktime through an empirical discussion of data on the full- and part-time status of workers; hours at work; paid, scheduled, and overtime hours; hours of leave (holiday, vacation, sick, and personal); and estimated annual hours.

Hours per Week

Analysis of data on the full- and part-time status of workers reveals that the proportion of nonagricultural wage and salary employees at work 35 hours a week or more declined from four-fifths in 1959 to three-fourths in 1979, with increases in those at work fewer than 35 hours and those who did not work at all. The prevalence of full-time work for men was slightly higher in 1979 than in 1975–76, but remained below the 1965–74 levels. The proportion of women working part-time schedules by choice peaked in the early 1970's, then edged down.

In terms of average hours at work, May data for all wage and salary workers (full- and part-time combined) show a decline of almost one-

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half hour between 1959 and 1969 and slightly more than one-half hour between 1969 and 1979. This decline reflects in part a growing proportion of youth and women over 25 years of age in the workforce—who tend to work shorter hours than men age 25 years and over.

The proportion of all men at work 40 to 48 hours per week declined substantially between 1959 and 1979, while the proportion who worked either fewer or longer hours increased. Changes in the hours distribution of women differed from those for men principally in that the proportion working long hours did not rise. Average weekly hours for men were about the same in 1979 as in 1959, while those for women declined between 1959 and 1969, then held steady in the next decade.

The average workweek of married men and women declined by more than one-half hour from 1969 to 1979, a change that may reflect the increased prevalence of working couples. Never-married women exhibited no change in weekly hours in the decade, while hours rose for single men.

The workweek shortened more for black men than white from 1969 to 1979. The black-white difference was restricted almost entirely to workers under age 35 years. The average workweek of black teenagers declined by almost 2.3 hours while that of white teenagers rose by a comparable amount. Hours declined more for black than white men in most occupation groups, but particularly in services—in which the proportion of blacks is high. If their occupational distribution had been the same in 1979 as in 1969, average weekly hours of black men would have been still lower.

Average weekly hours of all black women edged up slightly, from 34.9 in 1969 to 35.1 hours in 1979, despite a sharp drop in the hours for teenaged black women. Weekly hours of all black women would have declined except for shifts in their occupational distribution.

All major occupation groups except nonfarm laborers showed declines in weekly hours in the decade ending 1979. A drop of eight years in the median age of service workers and smaller declines in the age of other workers contributed to hours reductions. However, in some occupations in which the median age declined substantially less than the overall average, the workweek nonetheless declined.

Workers on full-time schedules reported average hours of 42.6 in 1979, down from 43.1 hours in 1969. The proportion of full-time workers at work 35 to 40 hours grew in the decade, while the proportion at work 41 to 48 hours declined.

Scheduled hours also declined. The average length of scheduled workweeks in establishments in metropolitan areas declined from 40.5 to 40.0 hours for plant workers and from 38.9 to 38.7 hours for office workers in the period 1961 to 1977.

Leave

In the private nonfarm economy, paid leave rose from 6.2 percent of all paid hours in 1968 to 7.6 percent in 1977. For production workers in manufacturing, paid leave rose from 5.9 percent of all paid hours in 1959 to 8.4 percent in 1977.

The average length of vacations rose from about 1.6 weeks in 1959 to 2.0 weeks in 1979. The prevailing practice of tying vacation benefits to length of service dampened the growth of vacation time in the past decade, when job tenure declined. The average number of paid holidays increased from 7.2 to 9.2 days between 1961 and 1977. The concept of

mini-vacations, exemplified by passage of the "Monday holiday law," is a major recent development. Floating holidays and the growth in personal days have added to the institutionalization of mini-vacations.

Time lost per week as a result of illnesses and injuries averaged roughly one hour per week for workers on full-time schedules in May 1978. The proportion of workers who were absent was about the same in 1978 as in 1969.

Time off for court duty, military reserve service, maternity leave, family responsibilities and other personal affairs amounted in all to about one-half hour per week for full-time workers in May 1978.

Overall, nonagricultural wage and salary employees were at work about 65 fewer hours per year in 1979 than in 1959 as a result of changes in workweeks, vacations, and holidays. The reduction represented about 35 hours from shorter workweeks, and about 15 hours each in longer vacation time and holidays.

Introduction

Since 1959, the length of the average workweek in the civilian economy has declined from 40.5 to 38.9 hours, or about 2 percent per decade. This is roughly half the rate of decline in the 1950's and in the decade encompassing World War II. In the depression-ridden thirties, hours dropped by 10 percent (see table 1).

Although economists tend to think of reductions in hours of work as a dividend paid from productivity gains, many factors play a role in the amount and timing of such reductions. The characteristic path toward shorter hours—notably a step-like progression—has been linked to business cycles, with a downturn in the economy bringing shorter hours and the subsequent recovery less than a full return to the previous workweek.[1] This pattern, clearly evident in the Great Depression, can be seen on a smaller scale in subsequent recessions, most recently in 1974–75.

The extent of hours reductions over a longer period is influenced by the balance that workers strike between additional consumer goods or services and more leisure. Such tradeoffs are in turn influenced by family formation, structure, and size, value systems and tastes, and other social and economic factors which change over time. Changes in the cost of labor in relation to other production inputs, provisions for premium pay for hours in excess of a maximum number per day or per week or for late shift or weekend work, as well as changes in technological requirements also impact on average hours per worker.

Still other factors in hours reductions are changes in the mix of industries and occupations, and of workers. Over the past 20 years, for example, the workforce has included decreasing proportions of agricultural and self-employed workers—groups for whom very long hours are the norm—and increasing proportions of service workers—who tend to work shorter hours. Women and youth, who work substantially fewer hours on average than prime-age men, also fill a larger proportion of all jobs than in 1959.

Some economists, who hold that the hours of adult men are "the most reliable indicator of average work input . . ." consider that hours for the average worker have not changed since World War II.[2] This

[1] Juanita M. Kreps, "Some Time Dimensions of Manpower Policy," in *Jobs for Americans*, The American Assembly, Columbia University, 1976. p. 191.

[2] See, for example, Thomas J. Kniesner, "The Full-time Workweek in the United States, 1900–1970," *Industrial and Labor Relations Review*, October 1976, pp. 3–15 and John D. Owen, "Workweeks and Leisure," *Monthly Labor Review*, August 1976, pp. 3–8.

"majority group", however, represents less than three-fifths of all nonagricultural employees. Even within the group, moreover, the workweek for important segments, such as black men and all men 25 to 34 years of age, has declined significantly.

This paper seeks to provide a broad view of trends in worktime since 1959, including hours of paid leave. The discussion begins with the full- and part-time status of workers, then turns to weekly hours at work, paid hours, scheduled hours, and overtime hours. Insofar as possible weekly hours are examined for men and women, blacks and whites, and for workers in different occupations and industries.

The analysis covers hours per worker and hours per job. The Current Population Survey (CPS), which is conducted for the Bureau of Labor Statistics (BLS) by the Bureau of the Census, is the primary [data] source for hours per worker. The universe selected from this survey is nonagricultural wage and salary workers, a group of about 86 million persons in May 1979 that comprised over nine-tenths of all employed persons in the United States.[3] CPS data in this report are for May, except where noted.[4]

Hours per job are derived primarily from several BLS surveys of establishments, including the Current Employment Survey (CES), the Area Wage Survey (AWS), and Employer Expenditures for Employee Compensation (EEEC), and from its series on Major Collective Bargaining Agreements. These same sources also provide the data on provisions for vacation, holiday, and other types of leave.

Hours per Worker

Full- and Part-Time Status

Grouping workers on the basis of their full- or part-time status shows changes in worktime that are not apparent in hours data for a specific week. The criteria for distinguishing part-time from full-time have been in use for many years: 35 hours or more represent a full-time workweek; 1 to 34 hours, a part-time week.[5]

The proportion of all nonagricultural wage and salary workers who were at work full time in the reference weeks declined from about four-fifths in 1959 to three-fourths in 1979, with corresponding increases in those at work part time and those who did not work at all (see table 2). The group at work full time in 1979, however, was a little larger than in several years, possibly the result of inflation combined with a more favorable employment situation.

Data by sex, available for 1965 to 1979, show a decline in the proportion of male employees at work full time (from 85.1 to 81.7 percent). The change largely represented a doubling in the proportion of men

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[3] Employed persons in nonagricultural industries in May 1979 were comprised of wage and salary workers (92.0 percent), self-employed workers (7.4 percent), and unpaid family workers (0.6 percent).

[4] Although May has been the traditional month of reference for analyses of hours, the availability of data on absences from work and multiple jobholding only in that month is largely responsible for its use here.

[5] The National Commission for Employment and Unemployment Statistics recently reviewed the definitions of full- and part-time and recommended their continuation. See *Counting the labor force*, National Commission . . . Washington, D.C. 1979, pp. 54–55, and Janice N. Hedges and Stephen J. Gallogly, "Full and part time: a review of definitions," *Monthly Labor Review*, March 1977, pp. 21–28.

The part-time categories are subdivided into voluntary reasons (on vacation, on holiday, illness or poor health, bad weather, labor dispute and "does not want full-time work") and involuntary or economic reasons (slack work, could find only part-time work, material shortage or machinery repair, and job started or terminated during the week). See William V. Deutermann, Jr. and Scott Campbell Brown, "Voluntary part-time workers: a growing part of the labor force," *Monthly Labor Review* June 1978, p. 4, Exhibit 1.

on full-time schedules who for various reasons were on leave during part of the reference week, although the proportion who did not work at all during the week edged up slightly. The prevalence of full-time work for men was slightly higher in 1979 than in 1975–76, but below the levels from 1965 to 1974.

During the same period, the proportion of women on full-time schedules who fell into the voluntary part-time category during the reference week roughly doubled, and the proportion with a job but not at work edged up—repeating the trends observed for men. Additional factors, however, contributed to the overall decline in the proportion of women at work full time (from 69.2 to 63.8 percent). One was the growth in the group who regularly worked part time by choice, although this well-reported trend was arrested, at least temporarily, in the early 1970's. A second was a small increase in the proportion who usually worked part time for economic reasons. This increase began about the time that growth stopped in the voluntary part-time group and appeared to be a complementary development.

Hours at Work

When the focus is narrowed to the hours at work in a given week, the data show a decline of almost one-half hour in average weekly hours between 1959 and 1969 and slightly more than one-half hour between 1969 and 1979[6] (see table 3).

The changing composition of the work force was among the numerous factors that contributed to the reductions in the workweek. Women, who tend to work shorter hours than men, comprised 35 percent of all nonagricultural wage and salary workers in 1959, 39 percent in 1969, and 43 percent in 1979. Men in their teens and early twenties, for whom workweeks also are short relative to those of older men, increased from 20 to 23 percent of all workers. However, these changes do not adequately explain recent trends in hours at work. Other forces played a part; some countering, others reenforcing the demographic changes. The effect of a younger work force, for example, was counteracted in part by lengthening workweeks for white teenagers (see below). Hours also lengthened for certain groups of women and declined for men in some prime-age groups.

Changes in multiple jobholding and in overtime were not major influences on overall trends. The multiple jobholding rate for workers with at least one nonagricultural wage and salary job fluctuated narrowly (within the range of 4.6 to 5.3 percent) from 1969 to 1978. Although the rate for women increased (from 2.3 to 3.3 percent) and the rate for men declined (from 7.2 to 6.0 percent), total average hours on all jobs for multiple jobholders edged down only slightly, from 53 to 51 hours.[7] Overtime hours per week were about the same in 1979 as in 1969, although higher than in 1959. (See Work Schedules and Overtime, below.)

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[6] Data on hours at work from the Current Population Survey are reasonably comparable over these two decades. The net effect of new definitions and methodology which were introduced in January 1967 was to lower the reported average hours of all employed persons in nonagricultural industries by .2 of an hour. See Robert L. Stein, "New Definitions for Employment and Unemployment," *Employment and Earnings*, February 1967. However time budget studies (in which respondents record time use) suggest that the difference between hours at work and hours actually worked is significant and increasing. Frank P. Stafford and Greg J. Duncan, "Market Hours, Real Hours, and Labor Productivity," *Economic Outlook USA*, Autumn 1978, Survey Research Center, The University of Michigan, pp. 74–76.

[7] *Multiple Jobholders in May 1969*, Special Labor Force Report 123. Bureau of Labor Statistics, Table C, and *Multiple Jobholders in May 1978*, Special Labor Force Report 221, Table C.

SEX AND AGE

Average weekly hours for men rose and fell irregularly over the two decades and were about the same in 1979 as in 1959. Weekly hours for woman declined from 1959 to 1969, but held steady in the next decade.

The distribution of hours changed markedly during this period. For example, the proportion of men at work from 40 to 48 hours declined from about 69 to 60 percent, while the proportions at work 39 hours or fewer and 49 hours and more both increased. Changes in the hours distribution of women differed from those for men principally in that the proportion working very long hours did not increase overall.

Among men aged 25 to 44 years, average weekly hours were shorter in 1979 than in 1969. The largest reductions, of more than one-half hour, were reported for men aged 25 to 34. The decline for this group figured importantly in the lower average for all workers. Women aged 25 to 44 years, worked longer hours in 1979 than a decade earlier.

Within the youngest and the oldest age groups, weekly hours for men and women moved in tandem from 1969 to 1979, with hours lengthening for teenagers of both sexes and shortening for workers 45 years and older (especially for those over age 64). Decreasing rates of school enrollments may have contributed to the lengthening week of teenagers.

Weekly hours of single (never married) women averaged about the same in 1979 as a decade earlier, while those of single men rose, consistent with the increase for the youngest men. In contrast, the average workweek of married men and women declined by more than one-half hour. The increasing prevalence of working couples, who tend to have higher family earnings than other couples, probably contributed to shorter workweeks for married persons.[8]

RACE

Black men[9] worked substantially fewer hours per week on average than white men in 1979 (39.0 versus 41.9 hours). In the past decade the gap had widened, from 2.5 to 2.9 hours, as workweeks shortened more for blacks than whites. The growing difference was restricted almost entirely to workers under 35 years and was particularly large for teenagers. For these youngest workers, the average workweek was down about 2.3 hours for blacks and up by about the same amount for whites.

The overall effect of shifts in the occupational distribution of black men from 1969 to 1979 was to dampen the decline in the average hours of all black men. If the occupational distribution of this group of men had remained unchanged, their average workweek would have declined even more, to about 38.5 hours.

The growing difference in the length of workweeks for men of different races resulted in part from the fact that the concentration of black men in service occupations, in which hours declined substantially from 1969 to 1979 (see below), was about double that of whites (17 versus 8 percent in 1979). However, hours in those occupations also declined more for men who were black (see table 4).

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[8] All data on marital status refer to March and represent all employed persons, including those who are self-employed.

[9] The term black as used in this report refers to both black and other workers who identified themselves in the enumeration process as other than white. At the time of the 1970 Census of Population, 89 percent of the group were black; the remainder included American Indians, Alaskan natives, Asians, and Pacific Islanders.

In some other occupational groups that represent extremes in job skills—professional or technical occupations and nonfarm laborers—hours moved down for blacks while moving up for whites. The managerial group offered the principal exception to the overall trend of greater hours reductions for blacks than whites within the same occupational group. Hours of black men employed as managers lengthened substantially over the past decade while those of their white counterparts declined slightly.

Disparate rates of change in the length of the workweek for men of different races—and in some cases, even in the direction of change—resulted in some major shifts in the ratio of hours between the two groups of men. In 1969, workweeks in service and nonfarm laborer jobs were longer for black men than for white; in 1979 blacks worked shorter hours than whites in service jobs and the same hours as whites in laborer jobs. In contrast, black managers, who had worked shorter workweeks than their white counterparts a decade ago, worked substantially longer weeks in 1979.

The widening gap in the length of the workweek between men who are black and those who are white explains in part why the ratio of earnings, black to white, has shown little improvement in recent years, remaining in the range of 77 to 78 percent since 1973. (It also may explain why weekly earnings of men, by race, compare less favorably than hourly earnings.)[10]

In contrast to substantial reductions from 1969 to 1979 in the workweek for black men and slightly shorter hours for whites of either sex, the workweek for black women edged up, from 34.9 to 35.1 hours. In a notable exception to the general pattern for black women, the average workweek of those aged 16 to 19 years declined by about 3 hours.

Except for changes in their occupational distribution during the decade, the average workweek for black women—as for men of the same race—would have been shorter than it was in 1979. The proportion of black women employed in service occupations declined from almost half to about one-third from 1969 to 1979, with increases reported for clerical, professional and technical, and managerial occupations. Hours in all these groups average more than in services, and in the professional and technical and managerial groups, they average more than the all-occupation average. If the occupational distribution of black women in 1969 had held steady, their average hours would have declined from 1969 levels (to 34.3 hours) rather than risen slightly.

OCCUPATION

In seven of the eight occupation groups, average weekly hours declined in the decade ending in 1979. Nonfarm laborers, for whom hours held steady, were the sole exception.

For managers and craft workers, the occupational groups with the longest workweeks, reductions amounted to more than one-half hour. However, the largest reduction, well over an hour, was reported for the group which had the shortest workweek in 1969—the service occupations.

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[10] Janice N. Hedges and Earl F. Mellor, "Weekly and hourly earnings of U.S. workers, 1967-78," *Monthly Labor Review*, August 1979, pp. 33, 37-38.

The rapid growth of jobs in food service, in which hours tend to be short, contributed to the rapid decline in hours for the service occupations as a whole. Collective bargaining agreements, particularly those reducing the very long workweeks for police and firefighters, were another factor.[11] In addition, a 1977 amendment to the Fair Labor Standards Act (FLSA) phased out the overtime exemption for employees of restaurants, hotels, and motels (maids and custodial employees were not exempt), bringing them under the general 40-hour standard effective January 1, 1979.[12]

Shifts in age composition were a factor in reducing average hours in some occupations. In services, the median age of the workforce dropped by more than 8 years in the course of the decade, changing it from one of the oldest to one of the youngest. In the craft occupations, the median age declined by almost 5 years (although workers in crafts remained older on average than in any occupation except managers). However, the managerial and clerical occupations, in which the median age had declined substantially less than the overall, nonetheless had declines in the workweek that exceeded the average.

In the four major occupational groups in which weekly hours declined for both sexes (service, clerical, and sales workers, and operatives) the decline was less for women than men. In four other groups in which hours declined or held steady for men (managers, professional workers, craft workers, and nonfarm laborers), hours for women increased in three. In the professional and technical group, however, weekly hours declined for women while holding steady for men.

Full-Time Workers

The examination of hours of work can be restricted further to hours for full-time workers. This device often is used in order to look at trends in hours free from the influence of the growth in the group who regularly work part-time by choice (13.8 percent of all workers at work in May 1979 compared with 13.3 percent in 1969 and 9.9 percent in 1959).

Workers on full-time schedules reported average weekly hours of 42.6 hours in May 1979, down from 43.1 hours a decade earlier. The lower average reflected primarily a growth in the proportions of men and women at the lower margins of full time, 35 to 40 hours, and declining proportions at work 41 to 48 hours.

Among men aged 25 to 34 years, reductions averaged more than one-half hour. Shorter workweeks for this group, which comprised almost one-fifth of all full-time employees, figured importantly in the decline in the average for all workers on full-time schedules. In most age categories, however, both men and women on full-time schedules worked slightly shorter workweeks in 1979 than their counterparts a decade earlier.

In some broad demographic groups, trends for workers on full-time schedules differed from those reported above for all workers. For example, average hours of black men on full time schedules were about the same in 1979 as a decade earlier, in contrast to the shorter hours

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[11] *Collective Bargaining Agreements for Police and Firefighters*, Bulletin 1885, Bureau of Labor Statistics, 1976, pp. 37–38.

[12] *Minimum Wage and Maximum Hours Standards under the Fair Labor Standards Act*, An Economic Effects Study submitted to Congress, 1978, U.S. Department of Labor, Employment Standards Administration, p. 7.

for black men on full- and part-time schedules combined. The situation for black women was the reverse: the workweek for those on full-time schedules declined a full hour whereas workweeks for all black women lengthened.

Shorter work schedules and growth in leave were important factors in the decline in hours for workers on full-time schedules.

Hours per Job

Weekly Hours by Industry

Establishment surveys provide the most accurate information on the workweek by industry. The Current Employment Survey (CES), which provides the widest coverage, reports average hours of production and nonsupervisory workers on nonagricultural payrolls. Hours based on this survey are derived by dividing aggregate hours paid by the total number of workers (full and part time on the payroll).

According to the CES, paid hours per worker in May 1979 averaged 35.5 hours a week, down about 2 hours from a decade earlier. The workweek fell early in the period, fluctuated within a narrow range for several years, and dropped again in 1974 and 1975. Following a slight increase, paid hours generally have edged down since 1977. The decline in actual hours, as distinguished from paid hours, was understated by these data since paid leave increased as a proportion of all paid hours (see below).

With the exception of mining, all major industry groups (contract construction, manufacturing, transportation, trade, finance-insurance-real estate, and services) reported reductions of at least one-half hour. The sharpest reductions in the decade ending May 1979 were in retail trade (3.5 hours) and services (2.0 hours), industries which employ the highest proportion of women. However, hours also declined in contract construction, durable manufacturing, and transportation and public utilities, in which men predominate.

Work Schedules and Overtime

Changes in weekly hours also can be seen in the work schedules established by employers, sometimes unilaterally and sometime under collective bargaining From 1961 to 1977, the average length of scheduled workweeks in establishments in metropolitan areas declined from 40.5 to 40.0 hours for plant workers and from 38.9 to 38.7 hours for office workers.[13]

The 40-hour standard workweek established by the FLSA (beyond which a premium wage is due) has strongly influenced work schedules. In both 1961 and 1977, 82 percent of the plant workers employed in metropolitan areas were in establishments in which a 40-hour workweek was scheduled for the first shift. However, some shortening of schedules was evidenced by an increase from 7 to 11 percent in the proportion employed in establishments in which the scheduled workweek was under 40 hours (and a commensurate decrease in those in plants with schedules over 40 hours).

[13] Area Wage Survey: Metropolitan Areas, United States and Regional Summaries, 1960-61, Part II, Bulletin 1285-84, Bureau of Labor Statistics, p. 48 and unpublished data for 1977.

Although the standard 40-hour workweek was less prevalent in offices, it applied 58 to percent of all office workers in 1977, down from 64 percent in 1961. Growth in schedules of 37½ hours took up most of the slack.

Collective bargaining agreements also showed advances toward schedules under 40 hours a week, some dating back to the 1950's. Most apparel agreements had established 35-hour workweeks before 1960, and schedules of that length were common in printing by the end of the decade. Some agreements covering construction, hotel and restaurant, communication, and tobacco workers also specify schedules shorter than the 40-hour standard.[14] However, competition from unorganized workers brought some reversals in the mid-1970's.[15] Collective bargaining agreements in the automobile manufacturing industry, meanwhile, were approaching shorter workweeks through increases in personal days off (see below).

In some cases, the decline in scheduled hours may have been offset to some extent by an increase in overtime hours. However, data on overtime hours for production and nonsupervisory workers in manufacturing show that overtime per worker in 1978, although higher than in 1959 (3.6 versus 2.7 hours) was about the same as in 1969.[16] For the private nonfarm economy as a whole, overtime hours comprised 4.0 percent of all paid hours in 1977 and 4.8 percent in 1968.[17]

Leave

Leave of various types—including vacations, holidays, civic and personal, and sick leave—reduces actual hours of work below scheduled hours.

In the aggregate, hours of paid leave have been growing more rapidly than hours of work. In the private nonfarm economy, for example, paid leave rose from 6.2 percent of all paid hours in 1968 to 7.6 percent in 1977. For production workers in manufacturing, hours of paid leave comprised 5.9 percent of all paid hours in 1959, 6.7 percent in 1968 and 8.4 percent in 1977.[18]

Vacations account for the largest number of paid leave hours, followed in order by holidays, sick leave, and civic and personal leave. Each category has increased in recent years as a proportion of all compensated hours (see table 5).

Vacation

As the decade of the 1960's opened, the basic vacation benefits sanctioned during World War II by the National War Labor Board—one week after 1 year's service and two weeks after 5 years [19]—were

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[14] *Hours, overtime, and weekend work*, Major Collective Bargaining Agreements, Bureau of Labor Statistics, Bulletin 1425-15, 1974, pp. 4-5 and John Zalusky, "Shorter hours—the steady gain," *AFL-CIO American Federation*, January 1978 Reprint.

[15] John Zalusky, "Vacations—Holidays: Tools in Cutting Work Time," AFL-CIO *American Federationist*, February, 1977.

[16] These are annual averages. *See Employment and Earnings, United States*, 1909-78, Bureau of Labor Statistics, Bulletin 1312-11, and *Employment and Earnings*, March 1979, p. 91.

[17] *Employee Compensation in the Private Nonfarm Economy, 1968*, Bulletin 1722, Bureau of Labor Statistics, p. 39 and unpublished data for 1977.

[18] *Employer Expenditures for Selected Supplementary Remuneration Practices for Production Workers in Manufacturing Industries, 1959*, Bulletin No. 1308, Bureau of Labor Statistics, 1962, p. 100, and *Employee Compensation in the Private Nonfarm Economy, 1968*, Bulletin 1722, 1971, p. 38. Data for 1977 are unpublished.

[19] Termination Report of the National War Labor Board, Industrial Disputes and Wage Stabilization in Wartime, Volume I, United States Government Printing Office, 1948, pp. 338-9.

available to most workers in metropolitan areas who met the length of service requirements, and many were doing better.

Benefits continued to improve as labor organizations sought both to meet workers' needs for rest and relaxation and to reduce working hours per employee in order to maintain or increase job opportunities. Employers for their part hoped that adequate amounts of scheduled leave would lower rates of unscheduled absence and increase productivity.

The growth of vacation benefits can be seen most easily in plans that link the amount of vacation to length of service. Such "graduated plans" cover virtually all office workers and almost 9 out of 10 plant workers in metropolitan areas who are employed in establishments that provide vacation benefits.[20] The remaining plant workers eligible for vacations are covered by "ratio to work plans," that relate the length of vacation to the amount of time worked. A third type, the "funded plan" is used primarily in industries which are characterized by seasonal or irregular employment and frequent job changes, such as building and apparel. This type provides for employer contributions to a fund from which workers draw vacation pay. The type of vacation plan that predominates in Western Europe, a fixed number of vacation weeks for all workers, is rare in the United States.

Office workers, who had received paid vacations long before plant workers, continued to have more liberal vacation benefits. In recent years, however, the gap has substantially closed among plant and office workers with less than 5 years of service, while among very long service employees, vacations of 5 weeks or more have become a little more prevalent for plant than for office workers.

Workers with 5 to 20 years of service made particularly rapid gains in vacation benefits from 1961 to 1977. The proportion eligible for a minimum of three weeks after 5 years more than tripled for plant workers (from 7 to 27 percent) and quadrupled for workers in offices (from 9 to 37 percent). A substantial majority of workers with 20 years of service were eligible for vacations of 4 weeks or more in 1977 (see table 6).

Important gains also were made by workers with relatively short service, particularly those employed in plants. A large majority of office workers in 1961 already had been eligible for 2 weeks or more vacation after the first year. That proportion increased further by 1977 (from 76 to 83 percent). Among plant workers, however, the proportion eligible for those vacation benefits after 1 year of service almost doubled (from 20 to 37 percent).

Vacation provisions in major collective bargaining agreements show a pattern of rapidly expanding benefits. In 1976, nine-tenths of the agreements with graduated benefits provided a maximum of 4 weeks or more paid vacation, and more than three-fifths provided 5 weeks or more.[21]

Extended vacations, for example 10 to 13 weeks every 5 years, were provided in about 5 percent of all major collective bargaining agree-

[20] These and the following data on vacation provisions in metropolitan areas are from the Area Wage Surveys programs. (See Wages and Related Benefits . . . 1960–61, Bulletin 1285–84, Wages and Related Benefits, Part II . . . 1967–68, Bulletin 1575–87, and Area Wage Surveys . . . 1977, Bulletin 1950–77.) Vacation data for which the source is not identified are based on the CPS.

[21] Characteristics of Major Collective Bargaining Agreements, July 1, 1976, Bulletin 2013, Bureau of Labor Statistics, 1979. pp. 60–61.

ments in 1976. Other benefits that represented relatively new departures also were appearing, including paid vacation weeks on certain anniversary dates (such as every fifth year for that year only), extra days for years of service without an injury resulting in lost time or for perfect attendance, and extra vacation as retirement age approaches.[22]

Some workers, however, were ineligible for a paid vacation, either because they did not meet the requirements, such as length of service or full-time work, or because they worked in establishments or jobs that did not provide vacation benefits. This group of workers accounted in part for vacations taken without pay, which in 1978 comprised 14 percent of all full-week vacations among men and 30 percent among women. These figures represented increases over 1968 of 2 percentage points for men and 5 percentage points for women.

The average length of all vacations taken rose from about 1.6 weeks in 1959 to 1.9 weeks in 1969, then edged up to 2.0 weeks in 1979. The practice of tying vacation benefits to length of service dampened the growth of actual vacations in the past decade, when unusually large numbers of older workers with long service were taking early retirement and an unusually large number of women and youth were entering employment, reducing average job tenure for all workers from 3.8 to 3.6 years. In 1978, about 40 percent of all employed persons had over 5 years service; down from 44 percent a decade earlier.[23]

Holiday

The growth of holiday benefits is translated more directly than vacation benefits into actual days off, since the requirements for eligibility are less exclusionary. Length of service requirements for holidays are far less common and those that exist generally specify completion of 30 to 90 days' service or a probationary period.[24]

In metropolitan areas, 95 percent of the plant workers and virtually all office workers in 1977 were employed in establishments that provided some paid holidays.[25] The average number of paid holidays had increased from 7.2 days to 9.2 days since 1961.[26]

Five traditional religious and legal days are provided in most holiday plans: Christmas, New Year's Day, Thanksgiving Day, Independence Day, and Labor Day. A sixth, Memorial Day, is almost as common. Others that are observed widely throughout the nation include Good Friday and Washington's birthday.[27] The holiday roster also includes state and local holidays, such as San Jacinto Day in Texas, Mardi Gras in Louisiana, and Patriot's Day in Massachusetts.

The extension of one-day holidays into mini-vacations is a major development in holiday benefits in recent years. Both public laws and collective bargaining agreements have played a part in this movement.

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[22] John Zaluskly, Vacations-Holidays: Tools in Cutting Work Time," *AFL-CIO American Federationist*, February 1977. Reprint.

[23] *Job Tenure of Workers, January 1968*, Special Labor Force Report 112, Bureau of Labor Statistics, Table D, and unpublished data for January 1978.

[24] *Paid Holidays and Vacation Policies*, The Bureau of National Affairs, Personnel Policies Forum, December 1976, PPF Survey No. 115, Washington, D.C. p. 5.

[25] *Area Wage Surveys* . . . 1977, Bulletin 1950-77.

[26] These are weighted averages, based on data for plant and office workers reported in Area Wage Survey, 1960-61 . . . p. 50, and unpublished data for 1977. The Bureau of National Affairs reports similar increases in paid holidays, from a median of 8 days in 1969 to 10 days in 1976. *See Paid Holidays and Vacation Practices* . . . p. 1.

[27] *Area Wage Survey* . . . 1975, Bulletin 1850-89, p. 95.

The Monday holiday law required Federal agencies to observe four holidays (Washington's Birthday, Memorial Day, Columbus Day, and Veterans' Day) on Mondays, effective in 1971, in order to provide that many three-day weekends each year.[28] States and many private firms quickly took similar action. (However, the Monday observance of Veterans' Day has been rescinded.)

Floating holidays are fixed at the beginning of the year in some firms to provide long holiday weekends or extra days around the Christmas-New Year Holidays. The day after Thanksgiving was a holiday in about three-fifths of the companies reporting in the Personnel Policies Forum in 1975–76, double the proportion in 1969, while "Christmas Eve Day" was a full day holiday in nearly one-half of the companies, compared with 1 percent in 1969.[29]

The growth of personal days off is another recent development. This type of holiday had its roots in provisions for days off for emergencies, birthday or hiring anniversaries. Personal holidays may be less expensive to employers than fixed holidays, which require closing the establishment or paying a premium wage. Four-fifths of the major collective bargaining agreements in 1976 provided premium pay for time worked on holidays. The most common rate was double time and one-half, followed by triple time.[30]

In the late 1970's personal days were becoming the vehicle in the automobile industry for reaching a 4-day workweek. The 1976 agreement between the United Automobile Workers and the industry provided 12 personal days over the 1978 and 1979 contract years, and the 1979 agreement called for a further increase to 26 days to be distributed over the calendar years 1980–82.[31]

Sick Leave

Time lost per week as a result of illnesses and injuries averaged roughly one hour per week for wage and salary workers on full-time schedules in May 1978. The proportion of usual, or scheduled, time lost has ranged narrowly from 2.2 to 2.4 percent since 1973, when such data first became available.[32] Data on the proportion of workers absent per week show year to year fluctuations but no increase for more than a decade.

Although rates of absence resulting from disability vary substantially within industry and occupation groups, they generally are higher in the goods-producing than in the service-producing industries, and in blue-collar and service jobs than in white-collar jobs. Absences also are higher, on average, for women than for men. In May 1978, for example, women workers lost 2.8 percent of their usual hours; men, 2.1 percent. Age is another factor in absences from work, although patterns differ by sex. The proportion of time lost among men is relatively constant for the age groups spanning 25 to 54 years, and lower than for those under 25 years. Rates of time lost are progressively higher for both men and women beyond the mid-fifties.

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[28] Public Law 90-363, June 28, 1968.
[29] Paid Holiday and Vacation Policies . . . p. 2.
[30] Characteristics . . . p. 62.
[31] See "Detroit inches closer to a four-day week," *Business Week*, February 13, 1978, p. 85, and United Auto Workers, *Report on the UAW-General Motors 1979 Tentative Settlements*, September 18, 1979.
[32] Daniel E. Taylor, "Absent workers and lost work hours May 1978," *Monthly Labor Review*, August 1979, pp. 49–52.

The proportion of workers covered by sick leave plans has been increasing. In 1977, 78 percent of the office workers in metropolitan areas were employed in establishments that had paid sick leave plans, up from 69 percent in 1968. The comparable figures for plant workers were 40 and 31 percent.[33] A number of workers not covered by such plans receive some pay in lieu of wages under workmen's compensation and accident or health insurance plans.

Other Time Off

Absences resulting from miscellaneous reasons, including school, family responsibilities, maternity leave, transportation problems, court duty, and military service, accounted altogether for the loss of roughly one-half hour per full-time worker in May 1978. This amounted to a little more than 1 percent of usual weekly hours. Absences of these types have varied little in recent years.[34] Some part of them are included in personal leave, discussed above.[35]

Formal or informal work breaks, including rest and coffee breaks, represent further reductions from scheduled hours. In a majority of the companies in the Personnel Policies Forum of the Bureau of National Affairs in 1977–78, all employee groups were permitted 10 or 15 minute breaks both morning and afternoon.[36]

The Workyear

Annual worktime in 1977 averaged 1,735 hours per worker in private nonagricultural industries [37] while annual hours paid per job in nonagricultural industries were reported as 1,903, down from 1,981 in 1968 and from 2,045 in 1959.[38]

The workyear for persons employed full time, year round can be roughly estimated, using CPS data on the number of weeks worked per year and usual weekly hours, adjusted for vacations, holidays, personal leave, and sick leave. Such estimates indicate that this group of employees were at work, on average, about 2,060 hours in 1977.[39]

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[33] Area Wage Survey . . . 1968, and unpublished data for 1977.

[34] Daniel E. Taylor, "Absent. . . ."

[35] Work stoppages resulting from labor disputes are another factor in losses from scheduled hours, accounting for 10 minutes per worker per week in 1978, or 0.17 percent of total working time. Losses of this nature have been lower in most recent years than during the late 1960's or early 1970's. See *Handbook of Labor Statistics*, 1979, p. 509 and *Employment and Earnings*, January 1979.

[36] Work Scheduling Policies. . . . p. 8.

[37] Unpublished data from the Office of Occupational Safety and Health Statistics, Bureau of Labor Statistics.

[38] Norman C. Saunders, "The U.S. Economy to 1990: Two Projections for Growth," Monthly Labor Review, December 1978, p. 44 and unpublished data for 1959.

[39] These calculations of annual hours were based on tabulations prepared by Shirley Smith, Office of Current Employment Analysis, in conjunction with her research on worklife by sex. Her data were then adjusted to exclude estimated hours on leave, which were assumed to average two weeks of vacation, seven holidays, and absence rates of 2.3 percent for illnesses and injuries and 1.2 percent for miscellaneous personal reasons per worker.

Some indication of the range of annual hours among industries and occupations is provided by estimates that scheduled, straight time hours for workers in unionized automobile factories averaged 1,768 hours in 1976. See Howard Young, "Jobs, Technology, and Hours of Labor: The Future of Work in the U.S." Presented at hearings of the Joint Economic Committee's Special Study on Economic Change, Washington, D.C., June 14, 1978, p. 7.

Nonagricultural wage and salary employees were at work about 65 fewer hours per year in 1979 than in 1959 as a result of changes in workweeks, vacations, and holidays. The reduction represented about 35 hours from shorter workweeks, and about 15 hours each in longer vacation time and holidays.

TABLE 1.—5 MEASURES OF WEEKLY HOURS, SELECTED YEARS, 1879–79

	Hours at work				
	Civilian economy (annual averages)		Nonagricultural wage and salary workers		Hours paid production or nonsupervisory workers (annual averages) [1]
	NBER	BLS	Total (May)	Full-time schedules (May)	
Year:					
1879–88 [2]	53.4				
1889	53.5				
1899	53.4				
1909	52.0				
1919	49.4				
1929	48.7				
1939	43.8				
1943	46.6	48.5			
1944	47.0	47.8			
1945	45.7	46.1			
1946	43.5	44.3			
1947	42.5	43.5			40.3
1948	42.0	42.8			40.0
1949	41.8	42.1			39.4
1950	41.4	41.7			39.8
1951	41.2	42.2			39.9
1952	41.2	42.4			39.9
1953	40.7	41.9			39.6
1954	40.3	40.9			39.1
1955	40.7	41.6			39.6
1956	40.5	41.5			39.3
1957	39.9	41.0			38.8
1958	39.5	40.6			38.5
1959	39.9	40.5	39.5		39.0
1960	40.0	40.5	39.3		38.6
1961	39.7	40.5	39.0		38.6
1962	39.8	40.5	39.4		38.7
1963	39.8	40.4	39.5		38.8
1964	39.8	40.0	39.2		38.7
1965	40.0	40.5	39.5		38.8
1966	39.8	40.4	39.4		38.6
1967		40.4	39.3		38.0
1968		40.1	39.1	43.0	37.8
1969		39.9	39.2	43.1	37.7
1970		39.1	38.6	42.8	37.1
1971		39.3	38.5	42.6	36.9
1972		39.4	38.6	42.8	37.0
1973		39.3	38.8	42.9	36.9
1974		39.0	38.6	42.7	36.5
1975		38.7	38.1	42.5	36.1
1976		38.7	38.2	42.4	36.1
1977		38.8	38.4	42.7	36.0
1978		39.0	38.4	42.6	35.8
1979		38.9	38.5	42.6	35.7

[1] On private nonagricultural payrolls.
[2] Decade average.

Source: Data from the National Bureau of Economic Research are from Long Term Economic Growth, 1860–1970, U.S. Department of Commerce, Social and Economic Statistics Administration, Bureau of Economic Analyis, 1973. All other data are from the Department of Labor, Bureau of Labor Statistics.

TABLE 2.—PERCENT DISTRIBUTION OF NONAGRICULTURAL WAGE AND SALARY WORKERS, BY FULL AND PART TIME STATUS, SEX AND RACE, 1959, 1969, AND 1979 (MAY)

Year and sex	Total		At work						Employed but not at work
				Part time[2]					
					Usually full time		Usually part time		
	Number of workers (thousands)	Percent	Full-time[1]	Total	Involuntary or economic reasons	Voluntary or non-economic reasons	Involuntary or economic reasons	Voluntary or non-economic reasons	
Total:									
1959	52,727	100.0	80.9	16.1	1.6	2.6	2.0	9.9	3.1
1969	67,536	100.0	76.7	19.6	1.1	4.4	.9	13.3	3.7
1979	85,509	100.0	74.0	22.2	1.2	5.2	2.0	13.8	3.9
Men:									
1965[3]	37,983	100.0	85.1	11.7	1.4	2.4	.9	7.0	3.2
1969	41,340	100.0	83.3	13.0	.9	4.1	.6	7.4	3.7
1979	48,683	100.0	81.7	14.6	1.3	4.8	1.1	7.4	3.7
Women:									
1965[3]	22,011	100.0	69.2	27.2	1.4	3.0	2.1	20.7	3.6
1969	26,195	100.0	66.2	30.0	1.3	4.7	1.4	22.5	3.8
1979	36,826	100.0	63.8	32.1	1.2	5.7	3.1	22.1	4.0
White:									
1965[3]	53,302	100.0	79.8	16.8	1.2	2.5	.9	12.3	3.4
1969	60,070	100.0	77.1	19.2	1.0	4.1	.7	13.5	3.6
1979	75,438	100.0	74.0	22.2	1.2	5.0	1.8	14.1	3.8
Black and other races:									
1965[3]	6,689	100.0	74.8	21.8	2.5	4.1	5.0	10.1	3.5
1969	7,466	100.0	73.2	22.4	2.0	6.3	2.4	11.8	4.3
1979	10,071	100.0	73.6	21.9	1.5	6.5	3.0	10.9	4.5

[1] 35 hours or more per week.
[2] 1 to 34 hours per week.
[3] Data available only from 1965 forward.

Note: Because of rounding, detail may not equal totals.

TABLE 3.—PERCENT DISTRIBUTION OF NONAGRICULTURAL WAGE AND SALARY WORKERS AT WORK BY HOURS AT WORK AND SEX, 1959, 1969, AND 1979 (MAY)

Year and sex	Number at work (thousands)	Percent distribution by weekly hours								
		Total	1–14	15–29	30–34	35–39	40	41–48	49–59	60 or more	Average
Both sexes:											
1959	51,109	100.0	5.7	7.3	3.6	6.2	49.7	15.2	6.8	5.5	39.5
1969	65,023	100.0	5.3	9.9	5.1	7.1	44.6	13.3	8.8	5.9	39.2
1979	82,207	100.0	5.2	11.4	6.5	7.5	44.2	11.1	8.6	5.6	38.5
Men:											
1959	33,233	100.0	3.9	4.9	2.8	3.9	51.8	17.0	8.5	7.2	41.6
1969	39,822	100.0	3.4	6.4	3.7	3.8	45.5	16.3	12.3	8.6	42.0
1979	46,867	100.0	3.3	7.2	4.7	4.2	45.9	14.0	12.2	8.4	41.6
Women:											
1959	17,875	100.0	9.0	12.0	5.1	10.5	45.7	12.0	3.5	2.4	35.8
1969	25,201	100.0	8.3	15.5	7.4	12.4	43.1	8.6	3.3	1.5	34.6
1979	35,340	100.0	7.7	16.9	8.9	11.9	41.9	7.1	3.7	1.8	34.5

Note: Because of rounding, detail may not equal totals.

TABLE 4.—AVERAGE WEEKLY HOURS OF NONFARM WAGE AND SALARY WORKERS AT WORK, BY MAJOR OCCUPATION GROUP, SEX, AND RACE, 1969 AND 1979 (MAY)

Year, race, and sex	Professional and technical workers	Managers and administrators	Sales workers	Clerical workers	Craft workers	Operatives	Laborers	Service workers
Both sexes:								
1969	40.9	46.2	37.3	36.4	42.5	40.7	34.8	33.5
1979	40.5	45.5	36.9	35.7	41.6	40.2	34.9	32.2
Men:								
White:								
1969	43.4	47.4	42.8	39.5	42.8	42.5	34.5	38.8
1979	43.7	47.1	42.6	38.9	42.0	42.1	35.1	36.9
Black:								
1969	42.2	43.3	[1]	38.8	40.7	40.5	36.4	40.2
1979	40.1	47.7	39.2	38.2	39.6	40.1	35.1	36.1
Women:								
White:								
1969	37.1	39.2	29.7	35.3	36.0	37.4	30.4	29.7
1979	36.7	40.6	29.2	34.8	38.8	36.9	32.3	28.8
Black:								
1969	38.3	[1]	[1]	35.7	[1]	37.1	[1]	32.9
1979	38.3	40.1	36.6	35.8	[1]	37.1	[1]	31.3

[1] Data not shown where base is less than 75,000.

TABLE 5.—PERCENT DISTRIBUTION OF COMPENSATED HOURS, PRIVATE NONFARM ECONOMY, 1968 AND 1977 AND PRODUCTION WORKERS IN MANUFACTURING, 1959, 1968 AND 1977 (AVERAGE ANNUAL)

Item	Private nonfarm economy						Production[1] workers in manufacturing		
	All workers		Office workers		Nonoffice workers				
	1968	1977	1968	1977	1968	1977	1959	1968	1977
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Work hours	93.8	92.4	92.1	90.7	94.7	93.3	94.1	93.3	91.6
Straight-time hours	89.0	88.4	90.0	89.1	88.6	88.1	89.9	85.1	84.4
Overtime hours	4.8	4.0	2.1	1.7	6.1	5.3	4.3	8.2	7.2
Paid leave hours	6.2	7.6	7.9	9.2	5.3	6.6	5.9	6.7	8.4
Vacation	3.2	3.7	3.9	4.4	2.9	3.3	3.4	3.8	4.4
Holiday	2.1	2.7	2.6	3.1	1.9	2.4	2.2	2.5	3.3
Civic and personal	.1	.2	.2	.3	.4	.2	[2]	.1	.2
Sick	.7	.9	1.2	1.4	.1	.7	.2	.4	.5

[1] Nonsupervisory employees engaged in such activities as production, construction, vehicle operation, and maintenance.
[2] Less than 0.5 percent.

Note: Because of rounding, sums of individual items may not equal totals.

Source: Employee Compensation in the Private Nonfarm Economy, 1968, Bulletin 1722, Bureau of Labor Statistics, 1971, p. 39 and unpublished data for 1977.

TABLE 6.—PERCENT OF PLANT AND OFFICE WORKERS IN ESTABLISHMENTS HAVING PAID VACATION PROVISIONS, 1961, 1968, AND 1977

Amount of vacation pay and length of service	Plant workers			Office workers		
	1961	1968	1977	1961	1968	1977
1 week or more after 1 year	98	98	98	99	99	99
2 weeks or more after:						
1 year	20	25	37	76	78	83
5 years	94	95	95	99	99	99
3 weeks or more after:						
5 years	7	13	27	9	17	37
10 years	29	60	80	41	75	90
15 years	74	81	87	84	90	95
4 weeks or more after:						
15 years	2	12	40	3	14	43
20 years	11	42	67	15	52	78
25 years	25	54	69	37	68	81

Source: Area Wage Surveys: Metropolitan Areas, United States and Regional Summaries, 1976 (Bulletin 1900–82) and 1977 (Bulletin 1950–77), Bureau of Labor Statistics.

HOURS OF WORK—SOME LIKELY EFFECTS OF FUTURE REDUCTIONS IN THE WORKWEEK

By John D. Owen*

CONTENTS

SUMMARY

Some observers believe that we are due for a major reduction in hours of work. Advocates of workweek reduction argue that if we took this step, the Nation could further a number of desirable social goals (including increased leisure, less unemployment, and better utilization of energy) at a modest economic cost. This paper assesses both of these arguments.

The principal source of information on likely future changes in hours of work is of course their past history. But this record has led observers—economists and labor writers among others—to very different conclusions. Weekly hours of work dropped by one-third

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or more from the 1840's to the 1940's. Since then, the weekly hours of adult males have shown little net change.

More detailed analysis does not alter this general picture. For example, an adjustment for the growth of vacations and holidays in recent years does not introduce a significant downward trend in hours. Analysis of the schedules of women and students also does not alter the overall picture of minor gains in leisure over a 30-year period. True, the women and students who have entered the labor market work fewer hours than do adult males, but they have added their market work to responsibilities at home and school.

Economists are much less confident in explaining these movements in hours than they are in describing them. Economists are on fairly firm ground in rejecting the popular view that hours reduction has resulted primarily from union and legal regulation. After all, most of the hours reduction took place before either became effective. Similarly, while economists have always been aware that hours per employed worker fluctuate with the business cycle, they have been more or less unanimous in rejecting changes in the unemployment rate as an explanation of the long-run trend in hours.

Instead, they theorized that the rising real hourly wage rates of the average worker were the basic explanation of long-term hours reduction: the higher wage encouraged workers to seek a shorter workweek, to provide the leisure time needed to enjoy an ever higher material living standard. (This factor was thought to outweigh the opposing force of an ever higher price of time, another product of higher hourly wages.) This hypothesis fit the facts fairly well as long as hours of work were falling, but does not explain the last 30 odd years when hours of work have been stable, while real hourly wages rose at an unusually rapid rate.

Explanations of the leveling-off in hours may be divided into two categories: Those which cite factors which were operative in the period in which hours were very long and helped then to foster hours reduction, but which are no longer important, and those that emphasize new factors that have emerged to stabilize hours. The most important example in the first category is the "fatigue effect," the fact that when hours were cut from very high levels, there was relatively little economic cost because the worker could produce more per hour. This factor is not expected to be nearly as important in fostering work-time reduction below the eight-hour-a-day level (and may be even less important if future gains in time off are in the form of fewer days worked per year, rather than fewer hours per day).

Examples of the second type of factor include the higher education and training costs that now delay the period of full-skill maturity of many Americans to age 30, or older, and the declines in both the mortality rate and the average retirement age that now yield a long period of idleness at the end of working life. These factors make reduction in hours in the comparatively few years of full productivity relatively more costly, and hence tend to stabilize the workweek.

But in spite of this plethora of ingenious arguments developed by economists (or perhaps because of the abundance of explanations), we are still left with the basic question: Have the past 30 years been a temporary interruption of a long-term trend, so that we are now

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"due" for a sharp cut in hours, or have we instead entered a new era, in which, with the achievement of the eight-hour day, there is to be no further downward trend movement in working time?

The approach used here to consider this question is to identify a number of causal variables affecting hours of work, and speculate on their likely future history, and then to use these future histories to develop four major scenarios of plausible developments in hours of work:

(1) Slow growth in real wages, perhaps as a result of increased material and energy problems, and no significant reduction in working hours.

(2) Rapid growth in real hourly wages, and no reduction in working hours.

(3) Rapid growth in real hourly wages, and sharp reduction in working hours.

(4) Slow growth in real wages, but a sharp reduction in working hours.

At first glance, the most reasonable scenarios are one and three. But a severe economic recession could well yield a reduction in hours under unfavorable economic conditions, as in four. If past history is repeated, hours, once reduced, would be maintained at a lower level even after the economy had returned to a normal condition. Finally, scenario two would represent a return to the pattern which characterized the first two decades after World War II.

This scenario method does have a pitfall for the unwary. Consider two plausible scenarios, one and three. This comparison indicates that hours reduction over a peroid of years would probably be accompanied by greater increases in weekly earnings than would constancy in hours. However, one should not be trapped by the "after this, therefore because of this" fallacy. The scenario approach would be *counterproductive* if it obscured the substantial economic costs of hours reduction.

The discussion of the economic effects of hours reduction can be divided into three sections: The predicted reduction in effective labor input (defined as the product of the quantity and quality of labor supply) yielded by a cut in hours; the extent to which a reduction in labor supply is translated into less labor utilized in production; and the extent to which a decline in labor input reduces economic output. Each of these considerations has both a short-term and a long-term dimension.

The discussion of the likely effect on the quality of labor of a reduction in hours hinges on much the same issues as were raised in considering why hours have not been cut in the past 30-odd years. There is not likely to be any large scale "fatigue effect" savings, especially if a future hours reduction takes the expected form of more days off per year, rather than fewer hours per day. Moreover, the large scale outlays now made (by the family, the state and by employers) in educating and training a young person require a reasonably long workweek to make the investment economically worthwhile. A substantial reduction in hours would undermine the rationale for this investment in people, and possibly lead to less of it, with negative long-term consequences for the quality of labor.

Moreover, short-time workers impose higher supervisory, coordination and communication costs. At the present time, such factors lead

to part-time workers being confined to low-level jobs. If hours were cut across-the-board, including the schedules of medium and higher-level personnel, the effects on efficiency could be quite serious.

A consideration of all these factors indicates that a cut in hours might yield proportionate reduction in effective labor supply (so that a 25-percent cut in hours would lower labor supply as much as 25 percent).

A sharper distinction between the short and long run must be made when considering the extent to which a cut in labor supply would yield a decline in the amount of labor utilized. Many American economists believe that the economy can in the long run create enough jobs to provide for the expected growth in the labor force. This positive view gains empirical support from the expected slowdown in labor force growth in the 1980's, as the "baby bust" generation reaches maturity.

But, in the short or medium run a variety of macroeconomic difficulties could create situations in the future (as they have in the past) in which the demand for labor is less than the supply. Under these circumstances, "worksharing" might be justified as an interim measure. In evaluating worksharing proposals for hours reduction, several important policy considerations should be mentioned: (*a*) Should a provision be made for lengthening hours when the emergency is over? (*b*) Should only those firms with a shortfall of demand reduce hours? (*c*) Can worksharing be put on a voluntary or "cafeteria" basis, so that only those workers in the firm who want shorter hours get them, leaving the hours, and earnings, of other workers intact? (*d*) To what extent does present government policy, especially the unemployment insurance system, now bias decisions against worksharing during recessions, and how could a government worksharing program correct this bias? (*e*) Does worksharing simply redistribute a shortfall of labor demand, or does it aggravate the underlying macroeconomic difficulties, yielding a net decline in man-hours employed?

Under more normal conditions (i.e., a reasonably high level of employment), a decline in labor supply does yield a decline in labor utilized by the economy. This has a negative effect upon output. Some economists have argued that the resulting output loss would be less than proportionate to the drop in hours, because the amount of machines and other capital available for production would not be affected, allowing more units of capital to be used per unit of labor. This may, however, be an overly optimistic assessment. In the short run, capital stock is fixed, but a reduction in hours per worker (unlike a cut in the number of workers) can only lead to an effective increase in the capital-labor ratio if employees are willing to work in shifts; in some cases, they can then be moved from day work in older, more labor-intensive production lines to night work on newer, automated facilities. Otherwise, a reduction in hours will just mean more idle capital, not an increase in the effective capital-labor ratio.

In the longer run, capital stock will change in response to a reduction in working hours. It is unlikely that the accumulation of capital stock will follow the path traditionally predicted by some trade union spokesmen, who have argued that a tight labor supply will stimulate a surge in capital investment in order to introduce labor-saving devices, which will partly or altogether offset the effects of hours reduction. Economists instead hold that capital investment is a function of the

rate of return to capital and the supply of investable funds; since both are in turn a function of the amount of profit earned on the existing capital stock, and since a sharp reduction in hours of work would almost certainly cut profits severely, less capital investment is a probable result.

In fact, if hours reduction results in a lower rate of capital utilization, capital investment is further discouraged, and the long-run effect may be a move to a less capital-intensive technique.

In summary, the analysis of the effects of hours reduction on labor supply, labor utilization and capital investment indicates that a reduction in hours of work would in the long run probably yield at least a proportionate decline in output. The same conclusion might also hold in the short run, except under conditions of high unemployment, when an intelligently designed worksharing policy could have less negative effects.

Hours reduction, with its accompanying negative effect on total output, would also have more specific impacts on different areas of the economy. This summary can only list some of the more interesting forecasts made in the paper. Hours reduction might yield:

(1) A tendency to substitute materials and mineral energy for labor, with negative consequences for natural resources policy.

(2) Higher tax rates, but also short or medium-term funding problems for social security, welfare, national defense, and other government programs.

(3) Special fiscal problems for metropolitan areas, resulting from the relocating of residences and jobs, to adjust to the opportunities afforded by a four-day workweek, and to the diseconomy of maintaining mass transit commuting systems after a 25-percent reduction in commuting days.

(4) More leisure time, but dislocation in the recreation industry (since recreation outlays tend to follow movements in per capita income, rather than leisure time).

No policy recommendations are offered in this paper. However, the policy implications of two types of programs are discussed. Those which would help to prevent an "unwanted" reduction in hours of work (i.e., one for which workers are unwilling to pay the resulting loss in income), and those programs which would minimize the economic cost, if hours were in fact reduced.

The first group of policies includes: (*a*) Maintain full employment; (*b*) improve working conditions and job satisfaction; and (*c*) provide more individual schedule flexibility (through the use of flextime, part-time jobs, and so on), so that the minority of workers who find the present standard schedule difficult to adhere to can be accommodated without a general reduction in hours.

Policies that might reduce the economic cost of hours reduction include: (*a*) Productivity bargaining to increase output per hour while mitigating weekly pay loss; (*b*) expanding the employment of women, youths, and older workers where possible; and (*c*) much more widespread use of shiftwork. (A four-day workweek would permit more imaginative shift schedules—for example, a three-day weekend shift.)

I. The Prospects for Hours Reduction

A. Introduction—Statement of the Problem

Some observers say that we are about to see a reduction in hours of work. As evidence they cite increasing female labor force participation, persistent unemployment, and a new generation that they believe to be less attached to the traditional work ethic.

Reductions in hours of work have been an historic method of taking some of the benefits of higher labor productivity. The resulting gain in leisure time along with higher levels of disposable income to use in conjunction with this time, has led to what must be called a new way of life for the average American worker. The two or three-day weekend and the annual summer vacation have now become integral to the American standard of living. Very likely, future generations of Americans will make additional strides toward a lifestyle that is both more affluent and allows more time for leisure.

The case which is made today for a reduction in working hours sometimes goes beyond this simple, positive argument for more leisure and introduces misleading statements: That the economic costs of hours reduction would be minimal (because workers would be less fatigued, or because employers would be moved to raise productivity by introducing labor-saving machinery); and in any case is necessary, to create enough jobs to employ the work force (because the work force will grow rapidly in the 1980's and because employer demand for labor will be reduced as a result of future mechanization). This paper considers these arguments and rejects them, finding instead that the economic costs of hours reduction would be substantial. The paper then analyzes some likely indirect effects of hours reduction. A final section considers the implications of policies which would reduce the likelihood of an "unwanted" hours reduction (i.e., one which was not supported by general acceptance of the necessary economic costs), or which would endeavor to minimize such economic costs if hours were reduced.

B. Recent Changes in Hours of Work

There has been little net change in weekly hours of work since the 1930's and 1940's. Table 1 gives average hours worked per job in manufacturing, mining, retail trade, service, and other sectors. These show an average decline of over three hours or about 9 percent in the last 30 years.

The data for different sectors show wide variation. For example, mining and manufacturing and transportation show little change. On the other hand, hours in retail trade declined by over 20 percent to less than 32 hours per week. A sharper decline occurred in this sector for two reasons. First, the Fair Labor Standards Act of 1938 was not extended to include these workers until the postwar period, whereas the 35–40 hour workweek replaced the 48-hour workweek in many blue collar occupations in the 1930's and 1940's. The second factor was the rapid expansion of part-time employment in the retail trade and service sectors, which brought down the overall average workweek length.

Table 2 presents data on average hours worked per nonstudent male, employed in nonagricultural industries. Unlike the hours data in table 1, these figures show no decline whatsoever in weekly hours over the past 30 years. There are two reasons for this difference: First, the data on individuals are collected from employees, or their families. Hence, these numbers (unlike those supplied by employers) include "moonlighting" jobs. Second, these hours data are restricted to nonstudent males.

TABLE 1.—REDUCTION IN WEEKLY HOURS OF WORK BY INDUSTRY

[Gross average weekly hours of production or nonsupervisory workers [1] on private payrolls, by industry division: selected annual averages, 1948–77]

	Total private	Mining	Contract construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, real estate [2]	Services
1948	40.0	39.4	38.1	40.0	----------	41.0	40.2	37.9	----------
1953	39.6	38.8	37.9	40.5	----------	40.6	39.1	37.7	----------
1956	39.3	40.8	37.5	40.4	----------	40.5	38.6	36.9	----------
1966	38.6	42.7	37.6	41.3	41.2	40.7	35.9	37.3	35.5
1969	37.7	43.0	37.9	40.6	40.7	40.2	34.2	37.1	34.7
1971	37.0	42.4	37.2	39.9	40.2	39.8	33.7	36.9	34.2
1973	37.1	42.5	37.0	40.7	40.6	39.5	33.3	36.9	34.0
1975	36.1	42.3	36.6	39.4	39.6	38.6	32.4	36.5	33.8
1977	36.1	44.1	36.9	40.3	40.1	38.9	31.7	36.6	33.4
May [3] 1978	36.0	43.7	36.5	40.3	40.2	38.8	31.4	36.6	33.2

[1] Mining and manufacturing data refer to production and related workers; contract construction, to construction workers; all other divisions, to nonsupervisory workers.
[2] Excludes data for nonoffice salespersons.
[3] Preliminary and seasonally adjusted.

Sources: "Employment and Training Report of the President," 1977; and "Monthly Labor Review," July 1978, pp. 66–67.

TABLE 2.—REDUCTION IN WEEKLY HOURS OF WORK, ADJUSTED FOR LABOR FORCE COMPOSITION, AND GROWTH OF VACATIONS AND HOLIDAYS

[Average weekly hours of employees in nonagricultural industries]

	Nonstudent males	Adjusted for growth in vacations and holidays
1948	42.7	41.6
1950	42.2	41.0
1953	42.5	41.4
1956	43.0	41.8
1959	42.0	40.7
1962	43.1	41.7
1966	43.5	42.1
1969	43.5	42.0
1972	42.9	41.4
1975	42.4	40.8
1976	42.4	40.9
1977	42.8	41.3

Source: John D. Owen, "Working Hours: An Economic Analysis," Lexington: Lexington Books/D.C. Heath & Co., 1979, p. 10.

Women work about seven hours less per week than men, and mothers with small children at home work fewer hours than other women, partly because so many hold part-time jobs. In the past 37 years, the proportion of the work force that is female has risen from 26 to 48 percent.[1] At the same time, the proportion of women workers

[1] Unless otherwise noted, data on hours of work and on employment are derived from two publications of the Bureau of Labor Statistics, "Employment and Earnings" and "Special Labor Force Reports," and from the U.S. Bureau of the Census, "Current Population Reports," Series P–50, 1947.

who had children under 15, or even under 6 years of age, has also risen sharply. These changes in the labor force composition have pushed down the average workweek.

The proportion of students in the work force has also risen from an insignificant level in 1940 to about 6 percent today. Male students average about 23 hours per week, so that their inclusion also reduces the statistical average of weekly hours.

Mothers and students, however, both have substantial obligations beyond those imposed by their paid jobs. Insofar as their entrance into the labor force represents their taking on an *additional* commitment of time and energy, this should be regarded as a *reduction in leisure*, not an increase as would be implied by the gross data in table 1. Hence, table 2, which excludes women and students, is the most consistent index of long-term shifts in work schedules. And this shows no change.

While weekly hours leveled off, vacations and holidays did show considerable growth in the past 30 years. For example, the one or two-week vacation common in 1948 has been replaced by a vacation of three, four or more weeks, at least for high seniority workers.

Most recently, the 1976 United Auto Workers (UAW) contract calls for supplementing vacations and holidays with seven additional days off per year by the end of the contract period. Some union theorists regard these "personal vacation days" as a first practical step toward a four-day workweek.

Column 2 in table 2 presents the weekly hours series adjusted for this growth in vacations and holidays. The adjusted data do show some minor declines in hours of work over the 30-year period.[2]

The recent leveling-off in hours of work contrasts sharply with earlier history: Hours of work declined in the late 19th century to less than 60 per week by 1900, and the workweek had declined by another 10 hours by 1929. The depression of the 1930's saw a further sharp decline as unemployment rose. The 40-hour workweek had been widely adopted in industry when it was established as a national standard in 1938 by the Fair Labor Standards Act (see table 3).

EXPLANATIONS OF CHANGES IN HOURS OF WORK[3]

The literature analyzing changes in hours of work is voluminous and the explanations offered are sometimes rather complicated. It is not feasible even to summarize the range of discussion here. However, the points of view that have emerged from such discussion are relevant to the present work. First, there now appears to be less emphasis placed by economists on the more immediate causes of hours changes—union action, government legislation, changes in employee attitudes, and so on—and more on what are regarded as basic factors underlying the immediate agents of change.

Thus, the remarkable decline in hours of work from, say, the 1840's to the 1940's has been explained by many economists as being due basically to rising real hourly wage rates, which have permitted workers simultaneously to enjoy a higher material living standard

[2] But even if this estimate understates the growth of vacations and holidays by as much as one week, this would only require an additional adjustment of 0.8 in the hours series—hardly enough to demonstrate a downward trend.

[3] See Owen, "Working Hours," and the references cited there, for more extended discussions of the factors determining workweek reduction in the United States.

and to take more leisure time.[4] In this view, decisions on hours of work made in the competitive labor market, in union negotiating sessions, and possibly in the process of imposing government regulations on hours have all reflected in some measure such effects of higher wages. It has been estimated that in the late 19th and early 20th centuries, as much as one-fifth to one-quarter of wage gains were taken in the form of more leisure, rather than more goods and services.

TABLE 3.—*Long-term movements in the workweek*

[Full employment peak years]

Year:		Year:	
1901	58.4	1948	41.6
1906	57.0	1953	41.4
1913	55.0	1956	41.8
1919	50.0	1966	42.1
1923	49.6	1969	42.0
1926	49.3	1977 [1]	41.3
1929	48.7		

[1] Not a full-employment peak year.

Source: Owen, "Working Hours," p. 13.

But while real hourly wage rates rose at a more rapid pace from 1948 to 1978 than they had in the preceding half century, no comparable reduction in weekly hours took place. This has strengthened the positions of those economists who have stressed other factors in the hours determination process.

At least four plausible explanations have been offered by economists for the leveling-off in hours:

(1) The combination of a baby boom with a remarkable increase in the average number of years of school achieved by young Americans saddles mature workers with enormous expenditures. These could be met only by much higher take home pay—achieved by rapidly rising real hourly wage rates with no reduction in hours of work.

(2) Some believe that firms now make more extensive investments in hiring, screening and especially in training new employees than was the case a generation ago. These initial costs can only be repaid through the subsequent work effort of employees. Hence, it is in the interest of employers to lengthen work hours (by paying overtime and by avoiding payment of standard hourly wages to part-time workers), as well as to endeavor to reduce turnover.

(3) The steady lowering of the average retirement age, together with the increased proportion of the population in the older age groups, has been raising the proportion of the population who must be supported in retirement by the work force.[5] It has been argued that the Social Security tax system, and other ways of saving for an adequate income following retirement have begun to divert the interest of employees from further reductions in hours during their working life.[6]

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[4] On the other hand, a higher wage also raises the value of time, increasing the opportunity cost of leisure, and so discouraging a decline in hours of work. However, while a wage increase would thus be likely to yield a smaller reduction in hours than would a rise in income which did not raise the incentive to work (e.g., the receipt of an inheritance), empirical work suggests that higher wages will yield some net reduction in working hours, ceteris paribus.

[5] See "The Aging of America's Labor Force," 1978 Employment and Training Report of the President.

[6] Richard V. Burkhauser and John A. Turner, "A Time-Series Analysis on Social Security and Its Effect on the Market Work of Men at Younger Ages," Journal of Political Economy, Vol. 86, No. 4 (August 1978), pp. 701–715.

(4) Finally, the earlier reductions in hours of work were not so costly, inasmuch as they were accompanied by a reduction in fatigue, and hence by only modest losses in output, or in weekly wages. Indeed, it is only possible to obtain a rational understanding of the very long hours of the 19th century by remembering that wages were so low that every additional dollar that could be earned was needed to maintain the health of the average working class family. As wages rose, these intense pressures eased, and hours could be reduced from the fatiguing level of the earlier period. However, the situation has changed since the introduction of the eight-hour day. Further reductions in hours would be quite costly. (See the discussion in part II below.)

C. Implications for the Future of Hours of Work

This analysis of past trends can provide a useful guide to the future, even if one does not expect any mechanical replication of the past.

The history of hours reduction shows that there was a sharp reduction, to the 8-hour day and 40-hour workweek, with little change since. One view of this progression is that the past 40 years have simply been a rather long hiatus in an historic, still longer-term process of hours reduction. This appraisal has some merit, especially in view of the rather special factors operative since the years of the Great Depression. However, while not ruling out a forecast of continued downward movement, it is possible to read the past somewhat differently. With hours of work already at low levels, further reductions would be relatively much more costly than was the changeover from a 60 to 40-hour workweek, discouraging future change. Nevertheless, there are several possible future developments which could be supportive of a new movement to reduce hours:

(1) A rapid growth in real hourly earnings. Rising real hourly wages have in fact been supportive of hours reduction in the past, and have been the traditional explanation by economists of hours reduction. Certainly, if a rapid rate of gain in labor productivity is obtained, hours reduction will have less painful consequences. If an annual rate of 3.2 percent is obtained (the rate of gain in productivity in the 1948–69 period), a 25 percent reduction in hours by the year 2000 would still allow for a 50 percent increase in weekly or annual real incomes per worker.[7] But if the rate of gain is less than 1.3 percent (comparable to rates which were obtained in the mid-1970's), a 25 percent reduction in hours over a 22-year period would actually reduce per worker income.[8]

(2) Maintenance of the present low birth rate, a leveling-off in the increase in number of years spent in school, a reversal of the trend toward early retirement, and continued increases in the labor force participation of women, all would help to raise the ratio of the working to the nonworking population, and hence make it easier to reduce hours without reducing living standards.

The war and postwar baby boom, along with the increase in the average school-leaving ages, raised childrearing costs and so was a principal factor in explaining the leveling-off in hours of work since

[7] Average annual rate of increase in output per unit of labor in the U.S. private domestic economy. John W. Kendrick, "Understanding Productivity: An Introduction to the Dynamics of Productivity Change," Baltimore and London: The Johns Hopkins University Press, 1977, p. 31.

[8] Kendrick, "Understanding Productivity," p. 32.

World War II.[9] By the same reasoning, the present low rate of births, and leveling-off in the proportion going to college, might be taken as predicting future hours reductions. However, some feel that the so-called graying of America (the increasing proportion of the population over 65 years of age), together with the trend toward early retirement will impose sharply increased pension payment costs on the working population, unless the retirement age is increased. Steady increases in pension costs could be a deterrent to hours reduction. A reversal of the trend toward early retirement would facilitate hours reductions.

Finally, increases in female labor force participation may become a factor in hours reduction for three reasons: women traditionally have sought to work a shorter workweek than men, presumably because they are assigned more nonmarket work chores under the existing sexual division of labor. The family's income need is reduced by the wife's employment and earnings. And the husband's leisure time is reduced as he comes to take over some of his wife's chores. The great increases in female labor force participation observed over the past several decades have been associated with increased part-time employment, rather than with a reduction in the standard workweek. However, militant feminists are becoming increasingly interested in general hours reduction as a method of equalizing the work responsibilities of men and women, and may increase their efforts to reduce hours in the years ahead, if the trend toward increased participation of women continues.

(3) A continued trend toward a "welfare state". Hours reduction would impose severe economic costs upon society, but the extent to which these costs are felt as such by individuals increasingly depends upon government policy. Through the welfare system, the government now provides a floor for those who choose not to work, at a fairly generous level by historical standards. In addition, there is a trend toward providing many consumer goods and services free of charge or at highly subsidized prices: education, medical care, and outdoor recreation are three examples. At the same time progressive income taxes may also diminish incentives to work. This welfare state trend could eventually produce a paradoxical condition in which perceptions of the sharp social costs of a reduction in work effort are blurred by government policies which penalize the relatively industrious; individual workers, or even industry-wide unions, might then opt for shorter hours, realizing that much of the social cost would actually be displaced to other workers—whose tax rates would be increased as receipts from the taxes of short-schedule workers dropped.

(4) Future changes in the nature of work could either tend to encourage or discourage hours reduction. As increased demand for poorly educated workers and for those with little on-the-job training, and an increase in simple, easy-to-supervise jobs might encourage hours reduction. Short-hour schedules impose fewer diseconomies in this type of work and hence are relatively less costly to employers. Moreover, the job satisfaction literature would predict that an increase in the proportion of such simple jobs, in conjunction with the increasingly high educational level of the work force, could yield increased employee job dissatisfaction: this could lead to hours reduction in

[9] For statistical evidence, see Owen, "Working Hours."

some cases. On the other hand, continued increases in job complexity would make work time reduction more costly, while improvements in the working environment—including further gains in physical working conditions as well as innovative management changes (for example, more use of autonomous small work groups, or matrix management) might make hours reduction relatively less important. The question of the influence of the nature of work on hours of work has received little attention from economists, although some observers predict that this will become an important issue in the years ahead.

(5) Changes in individual "tastes" may promote a reduction in hours. For example, a future change in the emphasis that Americans put on the quantity of leisure or consumption time relative to the quantity of goods and services used in consumption could easily produce a downward trend in hours of work.[10]

(6) An economic catastrophe, analogous to the Great Depression of the 1930's, could lead to drastic hours reduction as a share-the-work remedy. An example of such drastic revision would be a change in the Fair Labor Standards Act so that time-and-one-half overtime premia would be imposed after 30, rather than 40 hours a week. If the experience of the 1930's and 1940's is a guide to the future, the lower level of hours could then become accepted as a new labor standard, and maintained even after the reestablishment of full employment conditions.

In practice, this method of achieving workweek reduction could yield less actual reduction in work time than would a gradual, market solution. In the latter case, workweek reduction would reflect a genuine willingness of workers to sacrifice income to obtain more time off. But, if, during a recession or depression, a law is passed reducing hours permanently, then, when full employment is again achieved, workers can be expected to try as individuals to extend their hours through overtime and through moonlighting (as was indeed the case in the years following the enactment of the Fair Labor Standards Act). At the same time, millions of other workers—the self-employed, and those management, professional and other employees whose hours are not effectively controlled by statute would continue to work long hours. Nevertheless, a significant reduction in labor input could be obtained by changing the hours laws.[11]

(7) Other changes. Obviously, the future need not repeat the past, nor need it appear as a simple extrapolation of past trends and developments.

Some possible new developments can be treated by simple modifications. For example, it would be easy enough to modify the above discussion of a great depression to consider instead the likely impact of a series of serious recessions. (Some observers of the present stagflation might regard this as a more realistic prospect than another depression like that of the 1930's.) In this particular case, the eventual result for work schedules could be much that same—changes in the hours law requiring a shorter workweek.

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[10] This movement could also be supported by possible future gains in recreation technology although it may be unlikely that the recreation industry would be revolutionized by a drastic improvement of the type that occurred in the first decades of this century and helped to reduce hours in the 1900–1929 period. See John D. Owen, "The Price of Leisure," Montreal: McGill-Queens University Press, 1970.

[11] Cf. the further discussion in Part II.A. below.

But very different events may occur, events which would be as disruptive and catastrophic as, say, those which afflicted the European continent between 1914 and 1956. A prudent citizen of the 1980's cannot discount the possibility of future nuclear war, ecological catastrophe, totalitarian government, permanent economic depression or other disasters. Even without so radical a change in society, new developments in the political and economic institutions may well alter drastically the way hours of work are determined in the United States. An American writing in 1929 would have been hard put to use his experience to predict the course of working hours, or of the institutions determining them, in the 1930's and 1940's; very likely, we have even less reason to be smug about our own future.

However, this paper will work within the more narrow framework of using our past experience to develop speculations about the future and, for the most part, will abjure discussion of the intriguing possibilities raised in this discussion of less likely alternative futures.

D. Scenarios for Change

This variety of causes of possible change in hours of work could lead to a much wider variety of possible outcomes. (Even if each of the six major factors discussed in the preceding section is simply divided into three potential levels of intensity, 729 possible combinations are obtained.) Hence, it is useful to think, in terms of a few key "scenarios" for future hours change.

ENVIRONMENTAL VARIABLES

These hours scenarios will be influenced by future changes in the key economic and social determinations: labor force growth, growth in labor productivity and the real wage, and unemployment. Plausible forecasts for these environmental variables are used in constructing the hours scenarios. (These enviornmental forecasts are discussed in greater detail in a working paper, "Forecast of Environmental Variables," available from the author on request.)

HOURS OF WORK SCENARIOS

At least four major scenarios for hours of work should be considered:

(1) No change in hours of work, accompanied by a slow growth rate in real per capita income (say 0 to 1.5 percent per year). This forecast would be most probable if labor productivity grew at a similarly low rate. Other factors that would contribute to a slow growth in per capita income include: an aging population, earlier retirements, and a possible leveling-off of female labor force participation (say, at or near the present level). An increase in the birth rate would have the same effect, by temporarily raising the dependency ratio.

Hence, while a long period of low growth in real per capita income would represent a sharp break with past history, it cannot be ruled out as implausible.

If increases in real hourly wages, based upon long-term growth in labor productivity, are the principal force behind hours reduction, a stable workweek might be a plausible forecast in the low productivity growth scenario.

(2) No change in hours accompanied by a rapid growth in real per capita income (say, 2.5 percent or more per year). If productivity rose rapidly, while the female labor force participation rate also rose (perhaps to near convergence with the male rate), and retirement age was stabilized or increased, per capita income would, of course, increase rapidly.[12]

If per capita income does grow rapidly, there are different paths that hours might take. In the post-World War II decades, hours remained constant, despite a rapid growth in labor productivity and rising female labor force participation. This development was explained above as resulting from special circumstances,[13] but different, though equally special, circumstances could conceivably yield a similar stability in hours in the years ahead.

(3) A sharp reduction hours (to 30 or 32 per week) accompanied by a rapid growth in per capita income. Many observers believe that if a rapid rate of growth in labor productivity was sustained over a long period in the United States—and was accompanied by continued increases in female labor force participation—hours of work would eventually be reduced, perhaps even to the 30-hour-a-week level. This future hours reduction could either occur gradually or in large steps. Or it might proceed by large steps on an industry-by-industry basis, providing a more gradual downward movement in the statistical average of all hours worked.

Future hours reduction is more likely to take the form of an increase in the number of days off than a reduction in daily hours (the rationale for this forecast is discussed more fully in Section II.F. below). However, this need not mean a sharp change from a five to a four-day workweek. Instead, days off per year can be gradually increased until a de facto 4-day workweek—say, 200 working days a year or less—is achieved.

(4) A sharp reduction in hours accompanied by a slow rate of growth in per capita income. This scenario would have the most negative economic implications of the four, since it could well mean an actual decline in material living standards. For this reason, it may appear to some readers as a low probability forecast. In fact, it might occur in a number of situations. For example, it is possible that a future "decline in the work ethic" perhaps accompanied by further movement toward a welfare state would yield this scenario.

Our past history would suggest, though, that a sustained period of high unemployment would be a much more likely cause. It is worthwhile to recall in this connection that the basic-hours law (the Fair Labor Standards Act of 1938) was passed after several years of very high unemployment but then was retained when the economy returned to normal employment levels. Moreover, the unemployment scenario of the future need not be as dramatic as the Great Depression of the 1930's. The United States has been plagued by a combination of what many regard as intolerably high levels of unemployment and inflation in recent years. This pattern may well be exacerbated in the years ahead (especially if productivity growth remains low).[14] It does not

[12] See Paul M. Ryscavage, "BLS Labor Force Projections: A Review of Methods and Results," Monthly Labor Review, April 1979, pp. 15-22.
[13] See Section B above.
[14] See the discussion of "other scenarios" above.

require much imagination to conceive of a situation in which the government on the one hand combats inflation by employing conservative monetary and fiscal policy, and so curtails aggregate labor demand, while, on the other hand, legislates workweek reduction as a fair method for allocating the restricted amount of demand.

Moreover, the widespread belief that workweek reduction is a useful way to deal with the problems of energy supply raises the possibility that [15] an economic crisis induced by material or energy supply problems would produce legislation requiring a shorter workweek. Again, movement to a 30-hour workweek in this scenario could also take place in one step, or in several, following upon a series of economic disruptions.

It is not unlikely that a shorter workweek, once mandated into law to deal with an emergency would be extremely hard to revoke, even after a return to more normal employment conditions. This was certainly the experience with the Depression-born Fair Labor Standards Act of 1938, which is still the basic Federal law governing hours some 42 years later.

(5) An intermediate scenario. These four scenarios represent somewhat extreme, if plausible, forecasts. Some would argue that an intermediate outcome is more likely. For example, in the event that productivity growth is relatively low, while female labor force participation continues to increase, hours reduction might proceed rather gradually.

There are a number of arguments that support a prediction of gradual hours reduction, even in the absence of high productivity growth. First, a statistical analysis of time-series data indicated that hours reduction in the 1948–75 period had been forestalled by the effects of high child-rearing costs, and predicted that with the removal of that deterrent (as a delayed result of the declining birth rate) some future hours reduction would take place without an additional increase in wages. Moreover, a combination of circumstances—for example, some increase in the unemployment rate, a more aggressive union position on hours reduction, some further movement toward a welfare state, and continued changes in values about work and leisure—could also produce at least some significant reduction in hours in the 1980's and 1990's, without high productivity growth, or a period of high unemployment. This intermediate case will be considered as a fifth scenario.

II. The Economic and Social Effects of Hours Reduction

Introduction

The discussion of the likely economic effects of future hours reduction will focus on three issues: (1) The net impact of hours reduction on the effective labor input supplied to the economy. Effective labor input is defined as the number of manhours supplied, times the average quality and efficiency of an hour's work.

(2) The effect of a reduction in labor supply on the amount of labor utilized by the economy. If the demand for labor is not responsive to changes in labor supply, a reduction in hours per worker would simply reduce the number of unemployed workers with relatively little effect on aggregate labor utilized. The flexibility of labor demand

[15] But see Section II.D below for a different view.

is considered in both a short and a long-run context. In the discussion of the long run, interest is focused on whether the economy can eventually expand rapidly enough to provide jobs for a growing labor force; in the short run, on the issue of whether a temporary program of "worksharing" is an effective method for dealing with an economic recession is of primary interest.

(3) What would be the effect of a decline in the amount of labor utilized by the economy on national output? This question is also discussed in both a short and a long-run context. Moreover, since hours reduction has somewhat different effects on output than does a change in the number of people working, special attention is given to the questions of capital utilization and shiftwork (which are most important when labor supply is reduced by a cut in hours).

Much of the analysis in these three sections follows the conventional modern economic treatment, in which output is a function of capital and labor. However, the experience of the past several years has brought out the importance of energy and raw materials as complementary factors of production. The discussion of the result of a reduction in labor on output is treated in this broader context in Section D.

Sections E–H then consider the effects of a combination of a relatively lower material living standard and fewer hours of work on a variety of economic and social issues (leisure time, the recreation industry, metropolitan area growth, and government finances).

A. The Effects of Workweek Reduction on Effective Labor Input Supplied

The effect of workweek reduction on national output will depend first on its effects on the amount and quality of labor supplied to the economy. It is useful to think of the supply of effective labor input as having five dimensions:

Effective labor input supplied = Hours per worker × Effort per hour of work × Economic efficiency of effort × Quality of work force × Number of workers seeking employment.

Effort per work hour is a function of the physical fatigue of the worker, but also of the extent to which he is bored, tired and hostile or indifferent to his work, and the extent to which his employment environment permits him to give less than his full effort to the job. The quality of the worker depends upon his skills, and hence upon his education and on-the-job training. The economic efficiency of the input is determined by such factors as the relative cost of hiring, screening, and training the worker; daily setup costs; and problems of supervising, coordinating, and arranging communications among workers.

A reduction in hours per worker (the first dimension) would by itself yield a proportionate reduction in effective labor input. However, hours reduction can also yield changes in each of the other four dimensions that would reinforce or offset this effect, yielding a net change that was either greater than or less than the percent change in hours per worker.

1. EFFORT PER HOUR OF WORK

Turning to the first dimension, it seems likely that there would be some but not much increase in hourly effort as hours were reduced in the third scenario. Much of our rationale for believing in a fatigue effect is based upon experience accumulated over a century of hours reduc-

tion, as hours declined from high levels to the 40 to 54 per week range, so that it is of limited validity in considering the effects of a reduction to 30 or 32 hours a week schedules. Moreover, the historical evidence is itself open to question. As hours were reduced, other factors which influenced productivity also changed. For example, machinery or other capital was substituted for labor (see section C below). Or management gave more attention to obtaining better results from hired labor (presumably at the expense of the pursuit of engineering, financia or other managerial goals of the firm).

Another problem in measuring the fatigue effect of shorter hours accurately has been that workers often respond well to hours reduction because their morale is improved, and because they want to show management that hours reduction will work (the so-called Hawthorne effect). But this may not be a long-lived result.

An attempt was made to examine these issues more scientifically during World Wars I and II, as hours were increased drastically to accommodate the needs of war industry. Many hold that the best such studies were done in the United States during World War II. But in a reanalysis of these data, Irving Leveson [16] argued that even here other conditions were not kept constant during the hours changes Leveson points out that the measurement of productivity was made not as hours were increased, but as they were reduced, at the end of the war. Large-scale layoffs took place at the same time, enabling firms to discharge many poorly qualified or poorly motivated personnel. Moreover, the turnaround from a period of extreme labor scarcity to one of relative surplus may have had a positive effect upon the motivation of those employees retained.

The empirical evidence based upon industrial experience is complemented by numerous laboratory experiments which have measured under controlled conditions the task performance of human subjects as their hours of work were extended. This laboratory work is valid for a number of purposes, including the light it sheds on the health effects of different hours schedules. It is said to be directly applicable in planning space exploration, and to be of value to the military which is also interested in the effects of extreme stress on human performance.

However, the laboratory work is of less obvious value in studying the effects of hours reduction on productive performance in modern working environments—which requires much more than simple physical fatigue. It is a matter of common observation that workers typically do not provide 100 percent of their physical energies to their jobs today. Numerous psychologists have studied the factors that weaken motivation in individual workers, and the measures that can stimulate a better performance. At the same time, industrial sociologists studying small group behavior tell us that those industrial workers who do decide to produce more than the "norm" dictated by their workmates often find themselves the target of a variety of sanctions.

There is no evidence that the introduction of the 40-hour workweek a generation ago has yielded a reduction in this "on-the-job leisure." Indeed, many believe that poor work performance has become a

[16] Irving F. Leveson, "Reductions in Hours of Work as a Source of Productivity Growth," Journal of Political Economy, Vol. 72 (April 1967), pp. 199-204. See the discussion in Owen, "Working Hours" and "The Price of Leisure," Montreal: McGill-Queens, 1970.

greater problem. Experience with past reductions would predict only a moderate gain in effort per hour on these grounds, if hours were reduced.

In brief, the evidence can be interpreted as predicting only a modest "fatigue effect" from further hours cuts for two reasons. The weekly hours level, and hence the importance of fatigue, is already low in many job situations, making it unlikely that much physical fatigue relief will be obtained from further reductions. Moreover, the problem of "on-the-job leisure" will also continue with a shortened work schedule, since the underlying social and psychological causes will remain.

A third reason should also be cited. It seems unlikely that hours reduction would take the form of a shorter workday. There has been a long-term trend, over the past several decades, to take more free time by reducing the number of workdays per week or per year rather than by a shorter workday, and there are good reasons for expecting this tendency to continue (see Section F below).

However, the importance of the "fatigue effect" will also depend upon the scenario in which hours are reduced. If hours are reduced by law, despite widespread interest by individual workers in maintaining their material living standard—as in the fourth scenario—successful productivity bargaining might yield an increase in effort per hour, in return for a minimal income loss. (This possibility is discussed further in Part III below). But if hours are reduced in the context of a general movement away from the work ethic and toward a more leisurely life style (the third and fifth scenarios), the result could well be less effort per hour as well as fewer hours.

2. ECONOMIC EFFICIENCY OF LABOR INPUT

There is a lack of empirical evidence about the effects on economic output of a general reduction in hours of work to, say, 30 or 32 per week. But a wealth of experience is available at the firm level with employers who have some or all of their workers on partweek schedules. Over one-fifth of the jobs in the United States are held by part-timers. The part-time market is especially useful in helping us to understand the probable impact of a short workweek on economic efficiency.[17]

This experience does not support an optimistic conclusion on the effects of a general reduction in hours. True, there are some jobs, especially those which are unusually boring or fatiguing, in which the hourly productivity of part-timers is reported to be superior to that of full-timers (often because of the increased "effort per hour" that is obtained with a shorter workday). But part-timers are more generally regarded as less productive than full-timers, and are accordingly paid less. When hourly wage data are adjusted for differences in sex, race, education, experience and other background factors, part-timers are paid only 70 percent of the full-time rate. Moreover, part-timers often do not receive the same fringe benefits as full-timers, so that straight wage comparisons underestimate the difference in total compensation.

[17] Cf. the extended discussion of the economics of part-time work in Owen, "Working Hours."

Part-timers are generally denied access to training and promotion opportunities and are largely confined to the lower-paying jobs in the economy. Over two-thirds of the wage gap between them has been found to be due to the fact that part-timers were disproportionately represented in poorly paid industries and occupations.

There are several economic explanations for this poor treatment of part-timers, deriving from the economic inefficiency of using this type of worker in many jobs. The most basic argument is that there are economies of scale in hours of work. There are fixed per employee costs in hiring, screening and training a worker that must be prorated over the term of his employment. Part-timers generally put in many fewer hours with a given employer. A recent statistical study found that part-timers have generally had about the same turnover rate as full timers,[18] but even with the same turnover rate, the part-timer typically works about half as many hours per week as the full-timer, and so will put in about one-half as many hours over the course of his employment as will the full-timer. Hence, fixed per employee costs will have to be spread over one-half as many hours, reducing the efficiency with which the part-timer can be employed.

A second, complementary reason for the lower productivity of part-timers derives from the fact that more workers must be employed to carry out the same work, if each worker puts in fewer hours per week. For example, suppose 100 full-time employees engaged in direct labor are replaced by 200 part-timers (performing filing and other office functions, for example). This increase in the number of employees will raise supervisory, communications, and coordination costs. Thus, an increase in the number of employees either increases the span of control of the supervisor, with presumably negative effects on productivity, or requires an increase in the number of supervisors. Similarly, lines of communications must be established among twice as many people, and their efforts coordinated; this can also require a significant additional amount of indirect labor.

Special problems arise when there are two sequential shifts of part-timers. It can then be significantly more difficult to resolve the coordination and communication problems.

On the other hand, a different type of problem arises in industries such as mining, manufacturing, or railroads: capital-labor ratios are high here, so that capital utilization is a key problem. It may only make sense for part-timers to be used in these sectors if they can be employed in sequential shifts. This constraint introduces a number of secondary problems. For example, if the supply of afternoon workers exceeds that of morning workers, total usage would have to be constrained to the number of morning workers. In any event, little use of part-timers is made in blue collar jobs in these industries [19] (cf. the discussion of capital utilization in Section C below).

The present gap in wage compensation between full-time and short-time employees gives some indication of the decline in efficiency that could be expected with a reduction in hours of work, but it is probably an underestimate. At the present time, part-timers are used most heavily by employers in those jobs where they have a comparative

[18] Stanley D. Nollen and Virginia H. Martin, "Alternative Work Schedules, Part 2: Permanent Part-Time Employment," New York: AMACOM, 1978.
[19] See note 2 above.

advantage, least where their use would be most inefficient. In many jobs in retail trade, recreation and other service industries, the part-timer serves a real need. Whenever there are peaks and valleys of service demands over the course of the business day or week, or where there is a service demand for a few hours in the evening or weekend, the use of part-timers permits the employer to match service needs and work hours. If he were restricted to full-timers, the employer would have to choose between having too much labor during slack periods or losing sales during the peak hours. As one might expect, it is in these situations that we find a very high rate of part-time employment.

And, as was noted above, part-timers are also used on jobs which are especially boring or fatiguing. On the other hand, part-timers are typically barred from the more complex jobs, which require extensive training and complicated interactions with other personnel, and where the use of part-timers would yield inferior results.

Moreover, on a given job, part-timers are usually better qualified in terms of background characteristics such as education. The use of "overqualified" college students or housewives can sometimes overcome the other disadvantages of using part-timers, since a highly intelligent, well-educated employee can usually learn a job faster than a less well-qualified worker, with obvious benefits for the employer. For example, if an employee on the average will stay two years with a company (whether he is a full or a part-timer), then, if a job requires three months for a full-timer to learn, but six months for a half-time employee, the latter is at a distinct disadvantage in competing for the position. But if the pool of applicants for half-time jobs of this type is distinctly superior in quality, perhaps the employer can find half-timers who will be able to learn the work in just three months; then part and full-timers will be competitive.

However, a very different result must be forecast if hours of work for all jobs are substantially reduced. Employers would no longer be able to cream the market for their short-hour jobs. Even more important, short-timers would not be confined to a relatively few positions where their schedules would cause the least problems (or where it would even be an advantage), but would instead be used in mainstream jobs, even in complex situations—as production workers and technicians in capital-intensive industries and even, if hours reduction is truly general, as executives and professionals. This would likely result in a drastic reduction in efficiency.[20]

3. QUALITY OF LABOR SUPPLIED

There is also some reason for a tentative prediction of a negative effect of hours reduction on the education and training, and hence in the long run on the skills of the work force. One might expect, first, a reduction in employer investment in on-the-job training. A rational employer response to a sharp cut in hours would be to redesign jobs so that they were simpler and required less training, where this was feasible. There is evidence that employers do redesign jobs when, due

[20] Some of these negative effects would be reduced, or eliminated, if hours of work are reduced temporarily as a worksharing device. For example, if an employer can hold his trained workforce together during a recession by cutting hours rather than by laying off some employees, he will have fewer workers to hire, screen and train when economic conditions improve.

to social changes in the quality of their local labor supply, they experience an increase in employee turnover and absenteeism. The same economic impetus for job simplification would be supplied by hours reduction.

In the longer run, a reduction in hours of work could also have negative effects on the schooling that the work force receives, and hence on its productivity. The crux of the argument is that a reduction in hours would reduce the financial rate of return to schooling, and so would tend to reduce investment in education.

Economists have for some time now been analyzing schooling as a process of investment in human capital: the student and his family compare the earnings loss and other costs of an additional year of schooling with the financial and other benefits that are expected. The principal expected financial benefit is a higher hourly wage rate in the labor market; when the hourly wage rate gain is multiplied by total lifetime hours to be worked, an estimate is obtained of the expected financial return. By comparing this and other benefits of education with its costs, the family is able to make a rational decision on an additional year of schooling for the youth. A reduction in lifetime hours, through a sharp cut in weekly hours, would reduce the financial return to education, making further schooling less attractive. Some rough calculations [21] indicate that a 25 percent reduction in weekly working hours would reduce the rate of return to education in about the same proportion—e.g., from 8 percent to 6 percent.

The expected effects of a change in the economic return to education on private and social investments in schooling are not so firmly established as the effect of hours reduction on the return to schooling. However, a reduction in work hours which substantially lowered the rate of return to schooling would, other things being equal, be expected to yield a somewhat lower level of investment in schooling, and hence, in the long run, a less productive labor force.

Workweek reduction could be expected to have a similar effect on that portion of the educational investment that is paid by school taxes. The economic return to society from education could be reduced, for the same reason that the private earnings return is cut. Moreover, the tax rate on earnings would have to be increased to pay for the present level of schooling, if earnings were reduced by a cut in hours. These two factors might induce taxpayers to cut back outlays for education. (Cf. the discussion of the effects of hours reduction on public finances in Section H below.)

Hours reduction could also have an important effect on the quality of education. Since the introduction of 40-hour workweeks—along with vacations and holidays and earlier retirement for most people—there

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[21] A widely used, simplified formula for this rate of return is:

$$r=\frac{(w_1-w_2)H}{C}$$

where w_1 and w_2 are hourly wages earned with and without an additional year of schooling, respectively, H is the number of hours worked per year after graduation, C is the cost of an additional year of schooling, and r is the financial rate of return to the extra year of schooling.

As can be seen, a 25-percent decline in hours of work would yield, other things being equal, a 25-percent decline in the financial rate of return to education in this simplified model. See Owen, "Working Hours," for a discussion of a slightly more complicated model (which yields a smaller decline in the rate of return).

has been more concern with "education for life", relative to education for narrow career goals. Very likely, a reduction to a 30 or 32-hour workweek would further stimulate this trend. At least, it is reasonable to speculate that a four-day workweek would yield more interest in courses that would prepare youths for the 82 waking hours a week not at work, possibly at the expense of those which prepared them for their 30 hours of paid work.

Moreover, reductions in the working hours of adults could lead to reductions in the working hours of students and teachers, further weakening the investment in the productive skills of the work force.

Of course, predictions of the effects of hours reduction on investment in the labor supply must be highly speculative. One cannot overemphasize the point that while short-hours schedules in individual firms provide useful information for discussing the problems of fatigue and efficiency there is no analogous source of empirical experience to help in forecasting the effects on education, which responds to many different forces in society. For example, a shorter workweek would certainly make it much easier for working adults to continue their education. But it is difficult to assess the importance of this point. While a 30 or 32-hour workweek would provide ample study time for the ambitious worker, the 35 or 40-hour workweek also provides adequate time, yet most employees do not take advantage of this opportunity. The statistically "average" worker now puts in about 12 minutes a day in study. Moreover, of those workers who have tried evening study and abandoned it, only one in five reports lack of time as a reason for dropping out.[22] Hence, one can only guess at the likely magnitude of the effect of workweek reduction on adult education.

Here, too, the scenario method offers a way to reduce the range of forecast error somewhat. If hours are reduced as a rationing device (the fourth scenario) while most workers are eager to maintain their living standards, one *could* see a significant increase in career-oriented, adult education—as a form of disguised moonlighting. But if workers demand a shorter workweek simply because they want more time to spend with their families and in recreation (the third and fifth scenarios), a much less positive effect should be expected.

4. NUMBER OF WORKERS EMPLOYED

Many writers have speculated that a reduction in working hours would increase the number of people seeking employment. But once again the force of this argument depends upon the scenario in which hours are reduced. If hours are cut by one-fourth to spread the work, then retained at the 30-hour level after full-employment is restored (the fourth scenario), a large increase in the supply of labor cannot be ruled out as implausible. In the first place, a government-imposed income loss from shorter hours would be expected to induce an increase in labor supply (through moonlighting and an increase in the number of family members in the labor force) to maintain living standards. Second, a shorter schedule at primary jobs would itself permit more dual job-holding; it would also permit more sharing of household

[22] John D. Owen, John Haldi, and Thomas Vietorisz, "Alternative Work Schedules: A Technology Assessment," Report to the National Science Foundation, under NSF Grant No. IO–40456, 1977, pp. 183–84.

work by husbands and so would facilitate increased female labor participation. Finally, a 30-hour workweek would enable more women to handle full-time market employment, in addition to their household responsibilities.

Some increase in female labor force participation would also be expected as a result of hours reduction in the fifth scenario, in which productivity growth is slow, but the female labor force participation rate continues to rise. A shorter workweek would facilitate the latter trend. On the other hand, it is true that many women have found work in the part-time labor market (about 36 percent of all new jobs for women in the past 13 years have been part-time),[23] and that this labor market could be further expanded and improved without a general reduction in hours (see the discussion in Part III below). A general reduction in the full-time workweek of all workers in the third and fifth scenarios should perhaps best be regarded as a rather crude method for accomplishing the goal of increased female labor force participation.

If hours are reduced, however, as part of a gradual trend toward placing more emphasis on recreation and family life (the third scenario), no significant increase in the number of jobs sought need occur.

5. SUMMARY

A reduction in hours of, say, 25 percent may yield a decline in effective labor input of 25 percent or more, largely because of the diseconomies of a very short workweek.

However, it is prudent to consider a wide band of error around this forecast. The positive effect on effort per hour could be larger if hours reduction took the form of a shorter workday, rather than, as seems more likely, more days off. Moreover, while the negative effects on efficiency of a short workweek appear to be well established, there is considerable room for error in forecasting the magnitude of the effect. The prediction of a negative effect on the quality of labor is much more tentative, since little is known about the size of the expected responses of employers, schools, parents and youths to a change in the economic return to investing in young people. Also, it would be rash to discount altogether the possibility that a substantial increase in adult education would be stimulated by a sharp reduction in hours.

It is also difficult to predict the increase in workers that might result from hours reduction. (Although, if we accept the recent U.S. Bureau of Labor Statistics forecast of increased female labor force participation to near convergence with the male rates—without a shorter full-time workweek—a rather low upper bound is obtained for any realistic forecast of additional gains through workweek reduction.)

Some reduction in the range of error is obtained by the choice of one or another of the three scenarios of hours reduction. If hours are reduced as a social measure, through legislation (the fourth scenario), widespread evasion of this work rationing system could be expected. Apart from outright deceit, one could expect an increase in effort per

[23] U.S. Department of Labor, Employment and Earnings, January 1979, p. 183; and U.S. Department of Labor, Handbook of Labor Statistics, 1975, pp. 76-77, 79.

hour, where employers rewarded this effort with higher hourly wages; more overtime and moonlighting; increased labor force participation by females, students and other workers; and a larger increase in career-oriented adult education courses. While this pattern would have to be regarded as economically inefficient—a suboptimal use of our human resources—the expected net reduction in labor supply would still be less; probably much less than proportional to the official cut in hours.

In the third and fifth scenarios, in which hours reduction reflects the preferences of individuals,[24] a more substantial cut in labor supply is likely. In the remainder of the paper, a working assumption of an equiproportionate effect on labor supply will be used when discussing these scenarios (so that a 25-percent cut in hours will be expected to yield a 25-percent reduction in effective labor input supplied). Of course, the reader may choose to increase or decrease this estimate somewhat, if he reads the empirical evidence differently.

B. Does a Reduction in Effective Labor Input Supplied Yield a Reduction in Effective Labor Input Utilized in the Economy?

Reductions in hours of work are frequently advocated on the grounds that the supply of job seekers exceeds the demand for labor, requiring some rationing of job opportunities. "Worksharing" via hours reduction is one such method of rationing employment.[25] If worksharing simply redistributes a given amount of labor demand among a larger number of people, the reduction in hours per worker will obviously have no effect at all on total man-hours utilized. The validity of this way of evaluating hours reduction will be discussed in both a long and a short-run context.

WORKSHARING IN THE LONG RUN

A few advocates of worksharing say that hours of work should be permanently reduced by law arguing that our economy will not be able to provide sufficient demand for expected increases in labor supply, even in the long run. These critics cite the recent growth in the labor force, as well as the technical possibilities for automation and other labor-saving devices in the United States. In further defense of their view, they point to the high level of unemployment among

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[24] At least, reasonably full employment is assumed here. Government tax and expenditure policy, work scheduling restraints, and other factors would continue to bias choice even in these scenarios.

[25] For useful discussions of worksharing see Fred Best, "Short-Time Compensation and Worksharing". Washington, D.C.: National Commission for Manpower Policy, April 1978, unpublished paper: Robert Clark, "Adjusting Hours to Increase Jobs: An Analysis of the Options," Special Report No. 15, Washington, D.C.: National Commission for Manpower Policy, September 1977; Commission of the European Communities, "Work-Sharing," Meeting of the Standing Committee on Employment, Brussels, March 1978; Robert Crosslin, "An Operational Model of Short-Time Compensation", Washington, D.C.: U.S. Department of Labor, ASPER, June 19, 1978; Robert Eisner, "Employment Taxes and Subsidies," Work Time and Employment, Special Report No. 22, Washington, D.C.: National Commission for Manpower Policy, October 1978; Daniel Hamermesh, "Unemployment Insurance, Short-Time Compensation, and the Workweek," ibid.; Peter Henle, "Work-Sharing as an Alternative to Layoffs", Washington, D.C.: Congressional Research Service, July 19, 1976; Sar A. Levitan and Richard S. Belous, "Shorter Hours, Shorter Weeks: Spreading the Work to Reduce Unemployment", Baltimore: Johns Hopkins University Press, 1977; S. Martin Nemirow, "Notes on the General Approach of the Poses Work-Sharing Plan", Washington, D.C.: U.S. Department of Labor, November 1975, unpublished paper; Jeffrey M. Perloff and Michael L. Wachter, "Work Sharing, Unemployment and Economic Growth Rates," In Work Time and Unemployment, op. cit.; Sherwin Rosen, "The Supply of Work Schedules," ibid.; Kurt W. Rothschild, "Working Time and Unemployment," Prepared for the Conference on European Manpower Policies, National Commission for Manpower Policy, New York, July 19–21, 1978; and Günther Schmid, "Selective Employment Policy in West Germany: Some Evidence of Its Development and Impact," Prepared for the Conference on European Manpower Policy. National Commission for Manpower Policy, New York, July 19–21, 1978.

youths, housewives, and others without recent labor market experience, as evidence that there already has been a shortfall of economic growth.

This perspective is not shared by the majority of economists. Many of the latter believe that an expansion of the supply of labor in the long run yields greater production and increased demand for labor, not higher unemployment. The American labor force grew from 2 million in 1800 to 102 million in 1978;[26] but capital investment adapted to this enormous labor supply growth by creating a vast number of new jobs, to the point where all but a small fraction of the work force is employed. Moreover, an alternative explanation is available for the relatively high rates of unemployment among those lacking recent experience—the reluctance of employers to make investments in hiring and training those who lack this qualification.

For the skeptic who is not impressed by such academic analyses of past and current experience, there are several specific reasons that can be adduced for not adopting the work-sharing theory as a reason for a permanent reduction in hours of work in the United States in the years ahead:

(1) The American labor force will *not* be growing so rapidly in the future as it has in the recent past, since the work force will soon begin to reflect the much lower birth rates of the past two decades.[27]

(2) While it is true that new technologies can, and probably will, eliminate many jobs, the course that mechanization will take will reflect the relative scarcity of labor, as well as the exogenous progress of scientific discovery. Some believe that easy opportunities for replacing labor are scarcer today, especially at blue collar jobs in industry; others expect major technical breakthroughs that would make it possible to eliminate millions of workers (for example, in clerical jobs). But it is reasonable to expect that the progress of mechanization will depend upon the availability and costs of different types of labor (which help to determine the direction and speed of research to find labor substitutes) as well as upon exogenous developments in the research area.

Moreover, in the long run, the machinery to employ the expanded labor force is produced by labor; reducing the labor supply (by reducing hours of work) will in the long run curtail the supply of new jobs. (Section C explores this argument more fully.)

(3) There are several areas in which the demand for labor is likely to expand in the years ahead. Many of these are in the service industries in which mechanization is difficult, and which tend to receive a larger share of income as we become more affluent. Examples include: health care and care for the aged; protection (including security forces, the criminal justice system and the penal system); childcare (spawned by the declining proportion of full-time housewives); recreation and restaurant and fast food facilities. This brief list could be extended almost indefinitely. The point is that despite the mechanization of many routinized jobs, there remain enormous needs for labor as we endeavor to provide an affluent lifestyle for every citizen. It seems most unlikely that this need will be reduced in the years ahead.

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[26] U.S. Department of Commerce, Historical Statistics of the United States; and Employment and Earnings, January, 1979.

[27] Cf. Section I. D above.

Of course, it is possible that the confidence of economists is misplaced, that in spite of the underlying technological and social demands for labor, institutional contradictions in our capitalist economic system will somehow prevent that demand from being made effective, so that the economy will enter a permanent state of depression. (Cf. the discussion on p. 28 above.) Under these circumstances, permanent work sharing might make sense, but that would depend upon the constellation of political and economic factors maintaining the state of depression. (See the parallel discussion of the macroeconomic effects of work sharing as a short-term policy, in the next section.) And, as noted earlier, the description of the factors generating this additional—and, it is hoped, unlikely—scenario must lie beyond the scope of the present paper.

WORKSHARING AS A SHORT-TERM POLICY

The analysis of worksharing as a short-term policy is a different matter, since there are recurring periods in which the aggregate demand for labor cannot readily absorb the available labor supply. A fairly substantial literature has now accumulated on reductions in hours of work as a policy for dealing with economic recession. Much of this literature focuses on four questions: What are the different types of worksharing policies available? Do government-supported worksharing policies simply offset other government policies which act indirectly to inhibit hours reduction during a recession? Does worksharing produce a more equitable distribution of work opportunities? And does this policy actually ration employment without reducing (or increasing) total man-hours worked? Only the last question directly raises the principal point on which our interest is centered (whether a reduction in hours supplied reduces the amount of labor utilized). But a brief discussion of the other three is necessary as well, as background for understanding the rather complicated problem of worksharing policy.

TYPES OF WORKSHARING POLICIES

Proposed worksharing policies vary widely, in terms of permanency, extent of coverage, active government participation, and individual employee choice, and the evaluation of these policies depends heavily upon the type considered. The discussion in this section will be limited to those worksharing plans which provide a trigger device for raising hours of work to their original level, after normal economic conditions have been restored. Another distinction is between plans to reduce the hours of work of all employees and those that are more restrictive in scope. Worksharing can be confined to employees of those industries or occupations which are experiencing a high unemployment rate. A still more restrictive policy limits worksharing to firms (or even departments within firms) which are experiencing difficulties and would otherwise have to lay off workers.

Worksharing plans also differ in the degree to which they permit voluntary participation by individuals. For example, in a worksharing plan established for employees of Santa Clara County, California, individuals are allowed to take a 5, 10 or 20 percent reduction in

their work time, through an increase in annual vacation days, with a proportional cut in pay.[28]

THE ROLE OF GOVERNMENT WORKSHARING POLICY

Yet another distinction is by the extent of government involvement. After all, employers can and do decide to reduce hours without government intervention. In the 1974–75 recession, average hours of production workers in manufacturing fell 2.4 hours from their 1973 peak.[29] It is likely that more employers would reduce hours if worksharing were given strong moral support by the government and by the news media even if it remained a voluntary program.

However, most advocates of worksharing urge a more aggressive government policy; a common argument is that present government policies have created an institutional framework that biases employers against reducing working hours, and that this justifies corrective government action.

It is said that government-supported fringe benefits which impose fixed per employee costs have been a major factor encouraging longer hours.[30] For example, the rules of the Federal unemployment insurance system provide that employer contributions be charged only against the first $4,200 of annual earnings. This rule increases the relative cost to the employer of using part-time workers. Advocates of worksharing have further argued that the policy of implicitly subsidizing the fringe benefits programs of private companies by not taxing them has also contributed to a longer workweek, inasmuch as the benefits of many of these programs (for example, medical and dental insurance) are calculated per employee, rather than in proportion to employee earnings.

Some argue that the most important government bias against a shorter workweek arises because the benefits of unemployment insurance only go to those who are laid off, not to those on reduced hours schedules (unless their earnings are so reduced that they fall below the level of the unemployment insurance payment). This point is important but can easily be overstated: It is clear that the unemployment insurance system biases employee or trade union choice against workweek reduction; but at the same time, the experience rating system, which calculates the employer's rate of contribution to the system on the basis of the extent to which his former employees have been drawing benefits, influences the employer in favor of cutting hours and against layoffs, to keep his taxes down. One can still maintain that the unemployment insurance system has a *net* bias against hours reduction, but then the argument rests upon the fact that in a number of states the employer's contribution rate is bounded by maximum and minimum levels (restrictiing the scope of experience rating); that in any event the employer's contributions to the unemployment insurance fund will reflect his past record of contributing to unemployment only after a significant lag (often of several years)

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[28] Statements by Dan McCorquodale and Michael Baratz, California Legislature, State Select Committee on Investment Priorities and Objectives, Hearings on Leisure-Sharing, San Francisco, California, November 1, 1977.

[29] Employment and Earnings, various issues.

[30] I.e., that they are complementary with technological and social factors that yield the same result (cf. the discussion in Section A above).

vitiating its effect; or that employers are somehow less sensitive to these financial calculations than are employees and their unions.

A number of proposals have been made to correct this expected net bias in the unemployment insurance system, and so permit employers to decide the layoff-hours reduction issue on the basis of economic efficiency. Legislation adopted in California in June 1978 has afforded a model for advocates of reform in Federal legislation. The California law provides compensation for those on short-time, in proportion to their income loss (so that if a worker would be given one-third of his earnings if laid off, he will, if put on half-time, receive unemployment insurance benefits equal to one-sixth of his full-time earnings). Care is taken to avoid paying workers who would normally work part-time, or experience wide fluctuations in their hours.

Government policy favoring worksharing can, of course, go far beyond eliminating perceived biases against work-week reduction. The time-and-a-half pay for overtime provisions of the Fair Labor Standards Act provides an important example of more aggressive government action. The Walsh-Healey and Public Contracts Acts imposing overtime after eight hours a day on those working on government contracts, or for the government, afford other examples. Some observers believe that these laws need to be strengthened. Because of the many fixed per employee costs, the time-and-a-half premium is not sufficient to prevent many employers from using overtime on a fairly regular basis; but if double time or triple time penalties were imposed, in a revised Federal law, overtime working would probably be sharply reduced. Hours reduction below 40 per week could also be achieved by more aggressive use of these overtime premia, imposing them after 30 or 32 hours per week.

This list of government options is not exhaustive. The Federal Government presumably could simply prohibit working hours in excess of a certain length. Or, if it preferred a more moderate policy it could follow a course suggested by Eisner:[31] Employers would be given tax credits to the extent to which they created new jobs, regardless of how few hours were scheduled per worker. This would be expected to give a boost to part-time jobs, at the expense of full-time employment.

WORKSHARING AND SENIORITY: SOME ETHICAL ISSUES

Many economists advocate worksharing simply because they believe it provides a desirable redistribution of the available work by spreading the costs of a depressed labor demand over a large group and minimizing the number of those who are totally without earnings.

Others object that this argument has to be modified today because of the importance of the seniority principle in determining who shall be laid off. It seems generally agreed that seniority is now more widely accepted as a basis for layoffs than was once the case. The growth of government employment, the spread of unionism in the 1930's and 1940's, and the broader use of the seniority principle in the private nonunion sector, especially in large corporations with a strong interest in a loyal, stable work force, have all contributed to this result.

[31] Eisner, "Employment Taxes and Subsidies."

The seniority system of layoffs, like worksharing, is also based upon ethical considerations, so that its replacement by worksharing certainly cannot be regarded simply as a change from unethical to ethical company practices, but rather as a choice among competing ethics. Some advocates of worksharing contend that the seniority principle is unethical in that it divides the work force into a younger and older group, the "outs" and "ins", and penalizes the first to protect the second. Moreover, during a period of social change, seniority is related to another division between older and newer groups in the work force. In a number of industries and occupations, older, white males tend to have higher seniority than blacks, Hispancies, or women. It is argued that the seniority rule actually distributes unemployment unfairly, leading to de facto discrimination against blacks, women, and others. The extremely high unemployment rate among young blacks is said by some observers to be due in part to this principle of layoffs and recalls by seniority. Moreover, the seniority rule in layoffs is said to undermine attempts to use affirmative action to change the composition of an industry's labor force so that it will more closely reflect the ethnic and sexual composition of the population. For example, if a period of several years of hiring in accord with the principles of affirmative action is followed by a recession which forces a firm to fire most of these new hires, the affirmative action program is virtually negated.

However, these arguments in favor of the equity of worksharing relative to layoffs are not universally accepted. Not surprisingly, some older workers question the morality of layoffs: The older worker has spent years under risk of layoff (and possibly has been laid off a number of times) in order to acquire his precious seniority. To many such workers, equity would require that new employees serve the same apprenticeship of insecurity that they did themselves. Moreover, the prime-aged and older worker today is caught up in a complex of fixed or quasi-fixed charges—mortgage and car payments, medical bills and, in some cases, college tuitions. Recessions generally do mean some reduction in income for the average factory workers, even if he keeps his job; overtime is cut back, and some workers are put on short time. Hence, even without a government-imposed worksharing agreement, the employed worker's discretionary income is often curtailed sharply during a recession.

Sometimes a solution to this conflict can be found. An ingenious example is offered by the Santa Clara County plan which allows workers some individual choice over their hours. Despite a recent budget cutback there, layoffs were avoided altogether because a sufficient number of workers was found which *voluntarily* took a pay cut in exchange for more time off. (About 71 percent of those taking this option were females.)[32]

In any event, the redistributive aspect of worksharing means that its evaluation will invariably raise concerns other than that of maintaining economic production. For example, if one of the variants of worksharing policy is found to be of use in reducing youth unemployment, it might be regarded favorably by some who give a high priority to this goal, even if the effect of the policy on total man-hours employed is negative.

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[32] See McCorquodale, op. cit.

MACROECONOMIC EFFECTS OF WORKSHARING

Direct effects

Worksharing policies may in practice do more than simply share a fixed number of work opportunities: They may reduce the demand for labor, increase (or decrease) its supply, and influence the level of employment, unemployment, and output in other ways. The expected economic effects of worksharing will depend both on the type of plan that is introduced and on the nature of the economic situation to which it is applied.

Clearly, a worksharing policy which was geared to recession conditions, and contained an automatic trigger mechanism for ending the program when full employment is restored, would be less likely to result in a large output loss. Similarly, worksharing is likely to have a smaller negative effect on opportunities and output if it is restricted to just those firms (or, even, just those industries and occupations) which are experiencing economic difficulties, than if it is applied universally.

The timing of a worksharing policy can be important; according to some writers, more stimulus to employment (and hence less reduction in total man-hours) is expected in a recession period if the policy is applied promptly, before firms have had an opportunity to lay off workers. At a later stage in the recession, a reduction in weekly hours may not induce employers to hire new help; hiring, screening, and training new personnel requires a considerable investment in the future, which the firm is usually reluctant to make in an uncertain business environment. But other critics argue that one cannot expect worksharing to be effective even if it is applied promptly. This critique derives from the current interest in the practice of "job hoarding." Because layoffs impose costs upon employers (including those involved in hiring and training new personnel when business revives and conditions improve, as well as unemployment insurance and other direct financial costs), firms will often keep employees on the payroll even after conditions have deteriorated. An economy-wide cut in hours would, according to this argument, permit employers to cut payrolls—eliminating job hoarding—without fear of losing any of their trained personnel.

Another factor determining the economic impact of worksharing is the underlying cause of the unemployment it is designed to reduce. Unemployment is often divided into three types: Aggregate demand unemployment, due in turn to a variety of causes, including government monetary and fiscal policy; structural unemployment, resulting from a mismatch of job availability and job applicants, also deriving from a wide variety of causes, including industrial, occupational, and geographical shifts in the composition of job availability, and a preference for applicants who have special characteristics such as color, sex, education, and experience; and frictional unemployment, a supposedly irreducible minimum of unemployment (since even in good times some workers will be between jobs searching for a better opportunity.)

Aggregate demand unemployment may be alleviated by worksharing, even if the number of new jobs created is much less than the reduction in hours per worker so that a significant cut occurs in the total

number of man-hours worked. But worksharing may also exacerbate unemployment by increasing the supply of workers. Most economists expect an increase in the number of those looking for moonlighting opportunities, if hours are reduced by law. The supply of women, students, and older workers would probably be increased as well (cf. the discussion in Section A above). These increases in labor supply would tend to increase unemployment, when there was a shortfall in aggregate demand for labor and so might partially offset the gain from worksharing.

Structural unemployment can also be reduced by worksharing, especially if it is used to reduce hours in those sectors where demand is declining, or which hire large numbers of the hard to employ. But here too worksharing may lead to a decline in man-hours of employment, partly offsetting job gains.[33] It has also been argued that the use of worksharing instead of layoffs in a depressed industry or occupation in a sense raises the labor supply there, by delaying the exit of workers to new jobs, perhaps indefinitely (just because it does make it possible for more workers to continue to support themselves at their old jobs).

Moreover, a sharp reduction in hours with its expected accompaniment of higher moonlighting rates and increased female labor force participation could also exacerbate one type of structural unemployment—the joblessness of those confined to the lowest ranks in the occupational structure because of discrimination or because they lack marketable skills. There is a well-established tendency for moonlighters to take second jobs at a much lower level of skill and prestige, competing with those further down the occupational ladder. The same tendency has been observed in female reentrants into the work force. A widespread reduction in hours could then lead to an oversupply of labor in lower-skilled jobs.

The effects of worksharing on frictional unemployment are more complicated and difficult to forecast. Perhaps the most likely effect would be a negative outcome. Economists argue that an unemployed worker will compare his expected gain from further job search with the cost of continuing the search. If the gains exceed the costs, he continues looking. A reduction in working hours, and hence in weekly earnings, with no change in unemployment insurance benefits or in welfare payments reduces the net costs of being unemployed, and so would be expected to exacerbate the problem of frictional unemployment.[34]

It is more difficult to predict the result if some of those measured as among the unemployed actually prefer being out of work to accepting employment. Since worksharing would reduce the financial reward from working, it could still tip the scales against employment in the eyes of such unemployed persons, but only if it is assumed that the lower earnings from a 30 or 32-hour schedule would be more important than the lesser exertion required by a shorter workweek.

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[33] This is more likely if work sharing is accompanied by an increase in hourly earnings.
[34] This search theory approach can also be applied to the other forms of unemployment discussed above.

BROADER MACROECONOMIC IMPLICATIONS

Early arguments for worksharing

Worksharing can affect the level of economic activity and unemployment in other ways than by directly reducing the demand for labor and raising its supply. In fact, claims for the positive macroeconomic effects of worksharing were used repeatedly in the century-long struggle to bring hours of work down from 19th century levels. They complemented the fixed demand for labor theory as well as the health, family care, citizenship, leisure and other social arguments for hours reduction.

An important argument for hours reduction in the late 19th century was that long hours of work left the worker with insufficient time to consume the products he made or to develop the sophisticated tastes needed to demand them. This argument seemed plausible to many in the years of industrialization in the United States when hours were still over 60 per week for many workers, and when the industrial production of consumer goods was already soaring.[35]

Henry Ford took up the argument for shorter hours in the 1920's as the pioneer of the 5-day workweek.[36] The new level of complex products available in the decade after World War I did seem to require more leisure to use them. Movies, records, and other inventions had already helped to produce a reduction in hours in the 1900–1920 period (to the 48–54 hour level for many workers).[37] But the new innovations associated with the automobile culture apparently required further gains in leisure time—2 instead of 1 day off per week. In more recent years many have charted the growth of the recreation, restaurant and other leisure-oriented industries as vacations and holidays have spread, and the number of long weekends increased, and a few have argued that total consumption ought to be further stimulated by a new decline in working hours. But this view is not widely held today. The argument rests on two propositions: that Americans do not consume enough of their income—they endeavor to save too much—and that reductions in hours of work will raise the proportion of income consumed. Few economists today accept a naive underconsumptionist explanation of our current economic woes—the savings rate is not high, by historical standards, and many believe that an increase in savings would be beneficial. And, in any event, there is no empirical evidence that an increase in leisure would in itself affect the proportion of income that is consumed.[38]

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[35] Ira Steward, an ardent advocate of the eight-hour day in the late 19th century in the United States, used a variant of this theory as a major argument for shorter hours. Steward argued that only with the consumption habits made possible by a shorter workweek would working men be willing to hold out for the higher wages needed to support a more affluent lifestyle. See George Gunton, "Wealth and Progress," New York: D. Appleton and Co., 1897; and George Gunton, "Principles of Social Economics," New York and London: G. P. Putnam's Sons, 1892.

[36] Ford's full argument for a 5-day workweek was actually somewhat more complex. See Henry Ford, "Why I Favor Five Days' Work With Six Days' Pay," interview by Samuel Crowther, The World's Work, Vol. 52 (October 1926) pp. 613-616.

[37] Owen, "The Price of Leisure."

[38] Although a decline in money earnings, brought about by a reduction in hours might have this effect in the short run, according to a permanent income theory of the consumption function.

THE NINETEEN THIRTIES

The economic collapse of the 1930's gave a new importance to macroeconomic arguments for hours reduction. Advocates relied heavily on the fixed demand for labor, or worksharing theory, that a shorter workweek would provide a more equitable *distribution* of the costs of the Depression. But some advocates also argued that a 40-hour workweek would raise output by speeding economic recovery; worksharing was seen as having two beneficial effects. It would maintain purchasing power among a wide base of workers and so stabilize the retail trade and financial industries; and it would also put a floor under hourly wage rates by helping workers resist wage cuts, thus limiting deflationary expectations, and so further stabilizing the economy.

THE NINETEEN EIGHTIES: WORKSHARING AND STAGFLATION

The complex economic problems of the 1980's appear to be quite different from the difficulties which dominated the 1930's and earlier periods. High levels of unemployment are related to government efforts to use conservative fiscal and monetary policy to control inflation. Many economists argue that in the absence of these restraints, the inflationary process itself would eventually lead to a still higher unemployment level. Hence, it is most important today to consider the effects of worksharing on inflation.

Recall that worksharing was advocated in the 1930's as a way of putting a floor under wages, and hence prices, and so helping to curb deflationary price expectations. Under contemporary conditions, one can argue that worksharing raises money wages for two reasons: Insofar as it lowers the number of unemployed at a given level of aggregate demand, it reduces competition in the job market; and by reducing the earnings of those still employed (by cutting their hours of work), it can be expected to increase their determination to obtain higher hourly wages, so as to maintain their living standards. (In fact, a traditional union position has been that hours reduction should always be accompanied by an increase in hourly earnings at least sufficient to maintain weekly earnings.) But if the wage maintenance function is a valid argument for worksharing in a period of economic deflation, then one must consider whether the wage increasing effects of worksharing are not equally good arguments against this policy in a period of continuing inflation? In fact, one can easily develop a scenario in which worksharing-induced increases in labor costs, and hence prices, in conjunction with present day cost of living escalators in the contracts of millions of workers contribute to an inflationary spiral.

POSSIBLE INDIRECT BENEFITS OF WORKSHARING

An interesting counterargument on the impact of worksharing on inflation can also be developed, however. It is possible that if worksharing replaced layoffs by the seniority principle as a way of dealing with shortfalls of demand during an economic recession, a new type of labor thinking would be developed. Rank and file unionists would know that their hours, and hence their weekly earnings, would be reduced if excessive wage increases led to a cutback in consumer de-

mand, automation, or the export of jobs abroad. This might produce a different orientation among high seniority workers who now know that a moderate reduction in demand is met by layoffs of newer workers (and subsequent nonhires of young people). Today, the economic cost of high wages may be brought home to the high seniority worker only if demand is so curtailed that a plant is shut down. Under the worksharing system, high seniority workers would have a greater stake in keeping down costs. This could have effects upon both the collective bargaining process and on the political goals of workers and their union leaders.

To have a major effect on collective bargaining, worksharing would have to proceed on an industry-by-industry basis, or even firm by firm. If hours were automatically reduced for all workers during a recession (regardless of how moderate the union had been in past wage negotiations), the individual union incentive to keep down wage demands would be weakened.

SUMMARY

Most economists believe that the American economy has the long-term potential for absorbing millions of additional workers in the years ahead, without an increase in unemployment. Hence, it appears to be reasonable to predict that a reduction in labor supply, achieved through hours reduction, would in the long run lead to a proportionate reduction in the amount of labor utilized.

The assessment of worksharing as a temporary anti-recession tool is more complicated. This policy should be sharply distinguished from the fourth scenario, in which hours are reduced during a recession or depression, then maintained at the lower level after full employment is restored. In the fourth scenario, the likely long-term result is again a reduction in labor utilized proportionate to the reduction in labor supplied. But the assessment of a short-term reduction in hours during a recession is much more complex, with evaluations ranging from the very optimistic view that hours reduction will indeed create more jobs with no loss in man-hours worked; to the more moderate view that some but not much job creation will occur (so that a less than proportionate decline in man-hours employed is observed); to the more pessimistic view that worksharing will actually have such a negative effect on the stagflation problem that unemployment will increase (thus, yielding a more than proportionate decline in man-hours employed). Because of the wide range of uncertainty, worksharing as a temporary expedient will not be considered in the remainder of the paper which discusses some possible indirect effects of hours reduction.

C. The Effect of Curtailing Labor Input (Through Hours Reduction) on National Output

The effects of reducing the amount of labor utilized in production, by cutting hours per worker, on national output depends in part upon the interaction of labor input with the Nation's stock of plant, equipment and other capital goods. These indirect effects of hours reduction can be extremely important, although they are most complicated and difficult to forecast. The interaction between hours of work and capital stock is somewhat different in the short than in the long run; in the short, the effects of hours reduction on the use of the existing stock of

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capital goods are considered, while in the long-run analysis the effects of hours reduction on the supply of new machines, and hence on the level of capital stock are also discussed.

THE SHORT RUN

A standard argument in favor of hours reduction is that it will yield a less than proportional decline in output (even under full employment conditions); labor and capital are both useful in producing output, and capital can to some extent be substituted for labor. According to this argument, then, a reduction in labor input which raises the capital-labor ratio to some extent mitigates the effect of the reduction in hours so that output declines less than in proportion to labor input.

However, this abstract argument on the effects of a reduction in labor imput has very little application to the concrete case of a reduction in hours of work. The basic difficulty is the temporal character of change in hours of work. To see this, first consider (for contrast) the more conventional situation where labor supply is cut back by reducing the number of workers through layoffs or dismissals. Then, most observers would agree that (with the possible exception of some continuous processes) there are almost always some ways in which capital can be substituted for labor, often because there is some slack in the use of labor that can be eliminated. In fact, if some overmanning had been practiced, and the layoffs are minor, it may be possible to avoid any serious production loss.

Moreover, in the event of an economy-wide reduction in employment, labor may be transferred from one firm or industry to another to cut production losses still further. This may also raise the effective capital-labor ratio, since movement of labor among firms and industries, and within firms, would likely be toward capital-intensive processes. Output per man-hour is larger there, and a reallocation of labor to minimize the extent to which the more capital-intensive processes have to be shut down would probably reduce the overall output loss, and the financial costs borne by individual companies. [39] Hence, there would be an incentive for this type of movement.

Another predicted shift would be from older to new plants, and production lines, with similar results. Each industry and each large firm uses, machinery of quite different vintages; but when labor is laid off, production can be, and often is, concentrated on the more efficient machinery. In practice, this typically means a shift to newer, labor-saving machinery, and hence an improvement in the capital-labor ratio.

But the situation is very different when we stop considering this more traditional case of varying the number of workers, and instead analyze the effects of varying hours per worker. None of these three methods of increasing the capital-labor ratio—reducing slack labor in the production process, shifting labor to capital-intensive sectors or concentrating production in newer, more heavily mechanized processes—is readily available when hours of work are reduced. Con-

[39] This does not contradict the marginal productivity theory that labor in each process be used to the point that it is equally valuable on the margin. This might occur in different ways: for example, by overmanning in capital-intensive processes, and undermanning in labor-intensive processes. However, a 25-percent reduction in labor is not a marginal change, and would probably have very different effects on output in the different sectors.

tinue to assume full employment in the sense that both labor and capital are fully utilized. Let hours of work then be cut from 40 to 30 hours a week in each sector—say from a standard workweek of five 8:30 a.m. to 5:00 p.m. workdays to four 9:00 a.m. to 5:00 p.m. days, Monday through Thursday.[40] It then follows that at any one time there are still as many people as before per machine in each sector and on each production line. Under these circumstances, it is not clear that a reallocation of labor will raise its productivity.

The only way in which the capital-labor ratio can be increased now is through the use of shiftwork; for example, by transferring day workers in labor-intensive processes to night work in capital-intensive industries (or to Friday work, in our hypothetical case). Of course, shiftwork is already used today, especially where the cost of capital is high relative to the cost of labor. (The important question of whether shiftwork would in fact tend to be increased further as hours are reduced will be discussed below.)

Insofar as the total number of workers employed can be increased when hours per worker are reduced, so that new workers can simply be added as shiftworkers in those sectors which have been most disadvantaged by the reduction in hours of work without cutting back employment in the other sectors, production losses can be minimized. (But cf. the discussion of the problem of increasing the labor force significantly, in section A above.)

However, apart from these potential gains from increases in shiftwork, it is difficult to see how a reduction in hours of work would yield any significant gains in the capital-labor ratio in the short run.

THE LONG RUN

In the longer run, there is an opportunity for the size of the Nation's capital stock to adjust to the new work schedules, as investment and depreciation gradually alter its size. Trade union and other advocates of shorter hours have often argued that in time capital will be substituted for labor at an accelerated pace, so that little long-term reduction in output should be expected. However, it is more likely that a reduction in capital investment, not an increase, will result from a decline in hours of work.

The trade union theory is essentially a generalization to the economy as a whole of experience at the firm or industry level. At this micro level, when the supply of labor is reduced, raising its relative price (or when the price of labor in a sector is increased by trade union action), capital is often substituted for labor, raising the capital-labor ratio in that sector. But the financing for this investment in equipment comes out of the total investment funds available in the economy. If this national total is fixed, increased investment in one sector means less investment elsewhere. Hence, trade union action which leads to accelerated investment in a sector can merely involve a redistribution of investment. But if hours of work are reduced throughout the economy, there cannot be any compensatory increase in capital investment on an economy-wide basis, if the total supply of investment funds is fixed. Capital investment would only be increased if the

[40] These schedules assume a half-hour daily lunch break.

fund is increased. If the fund is reduced, capital spending is reduced. Hence, one should restate the question of whether capital can be substituted for labor to whether the aggregate supply and demand of investment funds would be increased by a reduction in hours?

In most models, the supply of funds for investment is based upon the supply of savings (personal or corporate). This is a function of the level of profits, and to a lesser extent, labor earnings. But both types of income would be reduced sharply by a reduction in hours of work.

In a simple model in which investment is determined by domestic savings, one would predict that when hours of work are reduced, the capital-labor ratio would first rise (because labor input was less) then fall, as the capital stock was diminished (because output and hence savings and investment were at a lower level). In some plausible models, the final result is that the capital-labor ratio is restored to its original level. (These models are presented in Appendix 1, "Mathematical Note" below.) If capital and labor are both reduced by the same proportion, a reasonable forecast would be a cut in output of about the same magnitude. For example, if a permanent reduction in hours of work from 40 to 32 yielded a 25 percent net reduction in effective labor input, and if the long-term consequence was a reduction of capital stock by 25 percent from the level it would otherwise have reached, then it is plausible that national output would also be 25 percent below the level that could have been achieved with a 40-hour workweek.[41]

INTERNATIONAL CAPITAL FLOWS

Economists have paid little attention to the effect of hours reduction on the export or import of capital; Alfred Marshall [42] provides a notable exception, arguing that in the short run hours reduction would reduce profit margins (by reducing the amount of labor per unit of capital). This would in turn induce capitalists to send their investable funds abroad, where the rate of return was higher. Marshall's analysis implies that as the capital-labor ratio was gradually reduced, through lower levels of investment at home, profit margins would gradually be restored, eventually eliminating the incentive to invest abroad. The final equilibrium here is identical to that obtained if international capital flows are ignored, in that the original capital-labor ratio is also restored. The difference between the two assumptions is that capital stock declines more rapidly toward this new level if we allow for the export of profits (since not only is the level of profits reduced by a cut in hours, but a smaller proportion of them is reinvested in home industries during the transition period).

In practice, though, the possibility of international flows of capital requires a still more complicated analysis. In the first place, there are some obstacles to the international movement of capital. Some differences among countries in rates of return could persist for a time because of the preferences companies and individual savers have for investing

[41] Limited materials and energy supplies, economies of scale in production and other factors could lead to a less than or more than proportional production loss. See summary below and Section D.

[42] Alfred Marshall, "Principles of Economics," London: Macmillan and Co., Ltd., 1920.

in their own countries, as well as because of institutional factors. Hence, with hours reduction one might obtain a rate of decline in capital stock intermediate between that forecast with no international flows of capital, and that obtained with full mobility.

A potentially more serious analytical problem is that under some circumstances a reduction in hours could lead to net capital imports. (See the discussion in section B of Appendix 1.) The Marshallian analysis implicitly assumes that each country is a perfect substitute for every other country, which would make sense if each country's economy consisted simply of an abstract combination of capital and labor. Under those circumstances, it is reasonable to agree that if capital is free to move across international boundaries, then, if the labor supply is reduced in one country, capital will necessarily be exported to where labor is still relatively abundant.

But in addition to capital and labor, countries also have special endowments—land, materials, and energy sources, for example—which complicate the analysis. To see the force of this point, take an extreme example: If the workweek in Kuwait or in Abu Dhabi were cut by one-fouth, who would doubt that labor-saving machinery would be rushed into those nations, in order to maintain oil output? The United States is not Abu Dhabi, and is in close competition for investment funds with other advanced industrialized nations. Nevertheless, it does have important immobile resources, such as land, minerals, and other energy sources.

The importance of this point has been little explored in either the theoretical economic or empirical econometric literatures. Analytically, the argument as to the net effect of hours reduction upon capital exports turns upon whether a reduction in labor inputs increases or decreases the productivity of capital. If there are just two factors, capital and labor, it is likely that the productivity of capital will vary positively with the amount of labor available to utilize it. But if capital and labor are themselves being used to work with another input or set of inputs, the productivity of capital could conceivably be increased by a reduction in labor input—as in the hypothetical oil-producing state.

A formal economic analysis predicts that the outcome would depend upon whether there were better substitution possibilities between capital and labor or between variable factors (capital and labor together) on the one hand and fixed factors (land, water, minerals, climate, and so on) on the other, and also on the relative importance of fixed factors. Only if fixed factors are quite important, and the possibilities of substitution between variable and fixed factors small relative to the possibility of substituting capital for labor, will there actually be an increase in the productivity of capital.

In the United States, with its large and highly-skilled labor force and its enormous capital stock, it is unlikely that a reduction in labor would actually increase the productivity of its capital stock, or produce net capital imports. However, the extensive natural resources of our country would be expected to yield some partial restraint on the export of capital which one would otherwise expect if hours were reduced.

CAPITAL UTILIZATION IN THE LONG RUN [43]

The analysis so far leads to the conclusion that the probable long-term consequences of a reduction in hours would be a decline in both capital stock and output in roughly the same proportion as the drop in output. But a more pessimistic conclusion is indicated if the negative effects of workweek reduction on the utilization of capital are taken into account.

In normally prosperous times, machinery in the United States is used an estimated 30 percent of the time. This can be achieved with a 40-hour standard workweek, plus about three to four hours a week of overtime, and the employment of an average of one evening or night worker for every eight day workers. A 25 percent reduction in work hours would, other things being equal (i.e., with the same overtime and shiftwork ratios), reduce the utilization rate by the same proportion—from about three-tenths to about two-ninths.

A decline in the utilization rate has implications for both the short and the long run. In the short-run analysis we saw that the utilization problem was the principal reason for predicting that a decline in labor input via hours reduction (rather than through a reduction in the number employed) would yield a fully proportionate decrease in output—there would not be an increase in the capital-labor ratio in any meaningful sense, but rather an increase in the number of hours each day that capital lay idle.

The utilization rate also has implications for the long-term supply of capital (these are worked out in a less informal way in section C of appendix 1). Assume that in the long run labor and capital are fully employed so that (ignoring shiftwork for the moment) there is always just one "machine" or work station per employee. Then any long-term changes in the capital-labor ratio must necessarily take the form of a change in the amount of capital investment per machine. It follows that the reduction in capital stock predicted as a long-term consequence of a cut in hours would result in each worker having less capital invested in the machine or work station at which he is employed. We have seen (in the short-run analysis) that, even without this negative effect on capital stock, a proportionate reduction in output would be expected with a cut in hours. When this expected long-term negative effect on capital stock is considered as well, a more than proportional reduction is predicted. (Section C of appendix 1 demonstrates this point.)

The long-term analysis can also be modified to take into account any lengthening of the useful life of machinery due to a lower level of utilization, and a consequently lower rate of physical depreciation. Several writers have argued that this adjustment is small, because obsolescence due to technical change is today a more important factor than physical depreciation in many industries and because idle machinery can sometimes deteriorate as rapidly as that in use. Never-

[43] Useful discussions of the relationships between shiftwork, capital utilization and capital intensity can be found in Christopher M. G. F. Robinson, "Allocation of Time Across the Day: An Analysis of the Demand and Supply of Shiftworkers," Ph. D. dissertation, University of Chicago, 1977; Robert R. Betancourt and Christopher K. Clague, "An Economic Analysis of Capital Utilization," Southern Economic Journal, July 1975, pp. 69–78; Gordon C. Winston, "The Theory of Capital Utilization and Idleness," Journal of Economic Literature, December 1974, pp. 1304–20, and the references cited here. An earlier work, Robin Marris, "The Economics of Capital Utilization: A Report on Multiple-Shift Work" (Cambridge: Cambridge University Press, 1964), is especially useful on these points.

theless, this adjustment does moderate the predicted negative result, although it does not change the fact that a somewhat more than proportionate reduction in output will be obtained with a reduction in hours of work (see section D of appendix 2).

The long-run effects of hours reduction may not be so negative if shiftwork is increased. As has been seen, the short-run gains from increasing shiftwork in a fully employed economy are quite limited. But in the long run, plant construction decisions can exploit increases in the proportion of shiftworkers more successfully. So far we have ignored shiftwork in considering how many machines or work stations must be available to maintain full employment; but in practice full employment of labor requires only that there be enough machines to employ the largest shift (presumably the day shift). Hence, as the proportion is increased (and the number of day workers decreased), the number of machines needed declines. This in turn permits employers to invest more capital per machine (other things being equal). In fact, it can be shown that if, when hours are reduced, shiftwork is increased to the point that there is no reduction in the rate of capacity utilization, no long-term net reduction in capital per worker need ensue [44] and output need fall only in proportion to the decline in hours worked. (See section C of appendix 1.)

These points can perhaps be seen more clearly with the help of a simple example. It can be shown that, in the long run, the utilization rate will equal $U=H/H^*(1-P)$, where H is the number of hours per worker, P is the proportion of workers on night shifts, and H^* is the maximum number of hours a machine can be used per week. The argument is that if there are n workers, and $n(1-P)$ of them work the day shift, $n(1-P)$ machines must be available to avoid unemployment of labor. Given full employment of labor, total use of the machines (on both shifts) will equal nH man-hours per week. Capacity will equal the number of machines times the maximum number of hours each machine can be used, or $n(1-P)H^*$. Hence, the utilization rate will equal the ratio of usage to capacity, or $U=nH/n(1-P)H^*$. In principle, then an increase in P, the night shift proportion, can offset a reduction in hours, leaving utilization unchanged.

The economic effect of such a compensatory change in utilization can be further explicated with a numerical example of a hypothetical economy (see table 4). Initially, each worker is employed 44 hours a week on the standard or day shift (including overtime). Since one-ninth of the work force is on the night shift, each machine is utilized about 49.5 hours a week (see line a). If maximum feasible utilization, H^*, is 150 hours a week, the utilization rate, U, is about one-third. If employment equals 100 million workers, 88.9 million machines, or work stations are required $n(1-P)$. Using some hypothetical numbers for the relationship between output and input [45] yields an output of $1,018 billion as the long-term equilibrium level of output, and $4.63 as the long-term level of output per hour worked. Total capital stock of $2,035 billion is generated, while capital per machine or work station is $22,861.

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[44] Since the reduction in the number of machines needed may then just be equal to the reduction in total capital stock.

[45] $0=.376(WH)[C/n(1-P)]^{1/4}$, $C=2\cdot0$. The workyear, W, is assumed to be 50 weeks.

TABLE 4.—LONG-TERM EFFECTS OF HOURS REDUCTION: A HYPOTHETICAL EXAMPLE

	Standard hours per worker	Total hours per worker	Proportion of labor force on night shift	Utilization		Machines or work stations (millions)	Output (billions)	Output per hour	Capital stock (billions)	Capital stock per machine or work station
				Hours per week	Proportion of maximum					
(a)----	40	44	1/9	49.5	1/3	88.9	$1,018	$4.63	$2,035	$22,864
(b)----	30	33	1/9	37.1	1/4	88.9	694	4.20	1,387	15,602
(c)----	30	33	1/3	49.5	1/3	66.7	763	4.63	1,527	22,864

Now let hours be reduced by 25 percent, without a change in the shiftwork ratio (see line b). Utilization will then decline in the same proportion (to about 37.1 hours, or one-fourth of capacity). As a long-term result of the decline in the utilization rate, output per hour drops by another 7 percent, and output (as well as capital stock and capital per work station) decline by a total of 32 percent.

But if shiftwork triples when hours are reduced (line c), utilization is maintained at the original level of one-third of capacity (49.5 hours per week). Moreover, this increase in the shiftwork ratio reduces the number of machines needed for full employment by a quarter, to 66.7 million. As a result, while total capital stock also declines by one-fourth, no reduction is imposed on capital per machine. Similarly, output is reduced 25 percent, but since this reduction is induced by a 25 percent cut in hours, output per hour remains constant.

Of course, this hypothetical example abstracts from many real world problems. For example, expected trends in population growth, labor force participation, and productivity also influence long-term investment decisions. In a growing, technically progressive economy, one is more likely to observe a slowing down of the process of substituting capital for labor, and a lower rate of growth of the labor supply, than actual reversals of these trends as a result of a shorter workweek. (This growth factor is of course predicted to be more important in the third scenario when hours are reduced partly as a result of rapid gains in per capital income.) Nevertheless, one would expect the net effect of a reduction in hours of work to be in the direction predicted by the simpler economic analysis.

THE PROSPECTS FOR SHIFTWORK

The scenario approach is also of some assistance in speculating about the likely response of participation in shiftwork to a decline in hours of work. If hours are reduced by statute, for social reasons, despite the continued preferences by individuals for income over leisure (as in scenario four), one would expect that it would be relatively easy to recruit shiftworkers, if a reasonable premium were paid. But if hours are reduced simply because workers want to spend time with their families, or in recreational pursuits (as in scenarios three and five), they might at the same time wish to cut back their participation in shiftwork. The best hope of the employer under these circumstances is that the increased preference for leisure will not be universal, so that some workers will be seeking ways to supplement the income they can earn with a 30-hour workweek. (By analogy, many workers today moonlight, work overtime, or seek shifts, because of the constraint of a a 40-hour workweek.)

Past trends can provide another guide to the likely future of shiftwork. Unfortunately, the historical data on when people work are vastly inferior to the statistics available on how many hours they put in. Nevertheless, the data do show a clear pattern of increase in the United States from at least the 1920's. About one in nine of all these employed as wage and salary workers in the nonagricultural sector work on nonstandard shifts, while almost three out of 10 production workers in manufacturing are on evening or night shifts.[46] English and European data show a similarly sharp increase since the nineteen fifties. Some observers believe that the rate of shiftwork in manufacturing has about doubled there.

This trend at first appears difficult to explain, since it seems to run counter to a number of changes in work schedules which gives the employee more freedom—shorter hours, the growth of the part-time market, and the development of "flexitime." However, the increase in shiftwork does reflect increased employer demand for them. Workweek reduction has probably been one factor in increased employed usage of shiftworkers. The standard workweek in this country was reduced from 48 to 40 hours in the 1930's and 1940's. A number of European countries carried out this reduction in the 1950's and 1960's; in others, the transition has not yet been completed. This correlation would be consistent with the view that workweek reduction does stimulate shiftwork.

There are, however, competing explanations of increased employer demand for shift work; for example, that as a result of an accelerated rate of technical progress, plant obsolescence has become more important relative to physical depreciation through use as a determinant of the effective life of capital stock. The economic analysis of shiftwork implies that a change in this direction would help to tip the scales in favor of greater use of shifts by employers. Other explanations emphasize technical developments in particular industries which favor the use of shiftwork. Outside the traditional blue collar area, more shiftwork is also required by the expanding health care and protection industries, and by the longer schedules now maintained by many retail trade and service establishments.

Thus, one cannot readily assess the relative importance of past hours reduction as a factor explaining the growth of shiftwork. Looking to the future, one could guess that hours reduction would be likely to yield a large increase in shiftwork if, as some expect, hours reduction took the form of a four-day workweek; then a three-day weekend shift (of from seven-and-a-half to 10 hours per day) could as much as double utilization, without increasing the proportion of workers on evening or night work.

It is difficult to forecast just how large the increase in shiftwork would be. It is not likely though that the increase in shiftwork resulting from hours reduction would be sufficient to prevent some decline in capital utilization. A 25-percent reduction in weekly hours appears to require a tripling in the proportion of shiftworkers, which would be

[46] If a shiftworker is defined as a full-timer who neither begins work between 6:30 and 9:30 in the morning nor ends work between 2:30 and 6:30 in the afternoon, about one in nine workers in the entire nonagricultural economy may be said to be a shiftworker. For manufacturing, see "Area Wage Surveys: Metropolitan Areas, United States and Regional Summaries, 1975" (Washington, D.C.: U.S. Bureau of Labor Statistics, 1977), p. 93.

difficult to achieve for several reasons. The financial incentives of shiftwork do not seem to appeal to some groups of workers; for example, few female employees work night shifts. A very sharp increase in the premium would probably be required to bring about a substantial increase in the proportion of workers on night shifts which many employers would not be willing to pay. Moreover, recent research has focused attention on the physical and mental health costs of shiftwork. It is even possible that the future will see a drastic reduction in night work in the United States, because of government regulations.[47] And the potential of three-day weekend shifts to attract million of workers has not been established.

Perhaps the more plausible forecast at the aggregate level would be some reduction in capital utilization along with some increase in shiftwork. Very likely, those sectors which now make the heaviest use of shiftwork will continue to do so. Indeed, where capital costs are very high, economic pressures may justify paying whatever shiftwork premia are necessary to maintain utilization at the present level. But in other industries a relatively sharp cutback in utilization would be more likely.

SUMMARY

The analysis in this section indicates that a reduction in the labor supply, by means of a cut in hours, would probably reduce national output in the same proportion, or possibly lead to even greater losses.

Moreover, while the discussion so far has ignored the problem of economies of scale in production, empirical studies have found these to be positive and large for economic output in the United States, suggesting yet another source of economic loss from hours reduction.

When the various economic effects of hours reduction discussed in sections A, B, and C are considered together, it appears that the costs of a shorter workweek would be quite high. The costs in foregone goods and services are predicted to be greatest when hours reduction reflects a willingness by individuals to sacrifice income in return for more leisure. Then, the cost in potential economic output could well be in proportion to the reduction in hours of work. The reader should recall, though, that hours reduction in the optimistic third scenario would be accompanied by a sharp increase in real income, so that a shorter workweek would simply provide a method for "splitting the melon" of higher productivity, between leisure and income.

If hours are reduced by law, the economic costs would probably be much less. Even if output declined in proportion to the drop in effective labor supplied, the latter would be expected to fall much less than the official cut in hours, because of the various possibilities for evading the full impact of the regulation. Still, if a law providing for a sharp reduction in hours were passed in a low growth situation, an actual reduction in national output would be a real possibility.

[47] Useful discussions of the social and medical costs of shiftwork are to be found in Marc Maurice, "Shiftwork" (Geneva: International Labor Office, 1975); P. E. Mott et. al., "Shiftwork, the Social, Psychological, and Physical Consequences" (Ann Arbor, University of Michigan Press, 1965); P.G. Rentos and R. D. Shepard, editors, "Shift Work and Health" (Washington, D.C.: U.S. Department of Health, Education, and Welfare, 1976); and Donald L. Tasto and Michael J. Colligan, "Health Consequences of Shiftwork," a report of Stanford Research Institute (SRI) for the National Institute for Occupational Safety and Health, March 1978.

D. Effects on Materials and Energy Management

The experience of the 1973 energy crisis taught economists to put more emphasis on materials and energy as essential factors of production, along with capital and labor. The effects of future reductions in hours on materials and energy problems are, however, quite complex and require a further extension of the usual analysis. Some writers try to simplify the argument; they begin by observing that layoffs result when oil or coal supplies are cut off. It is an easy (if misguided) step to the conclusion that a four-day workweek for all would be a rational, fair, long-term method of dealing with energy or material shortages, on the grounds that if less employment had to be provided, fewer materials and less energy would be needed, even in the long run.

But this is an oversimplification since a reduction in working hours could damage as well as improve long-term prospects for dealing with material and energy problems. It is true that a reduction in labor input would, if factor proportions remained unchanged, lead to less material and energy usage. But in the first place, empirical work indicates that there are considerable substitution possibilities between labor and materials and energy in industries utilizing these scarce resources. And while the country's economic growth in past decades was stimulated by the development of a myriad of devices which fostered the rapid substitution of mineral energy for human labor, energy conservation will probably now require that this trend be slowed down or, possibly, even reversed.

This emerging material and energy constraint has several implications for the discussion of hours reduction. Clearly, it will be much more difficult to achieve increases in per capita income when hours are reduced, if material and energy supplies are being restricted at the same time. (This prospect has been one reason for emphasizing low productivity growth scenarios throughout this paper.) But one can turn the argument around and also argue that it will probably be much more difficult to maintain popular support for conserving energy throughout the economy (by minimizing increases in energy consumption per worker), if a sharp cut in hours of work is already acting to depress material living standards.

In the second place, the supply of materials and energy available is not fixed but can be increased either by using low grade deposits or by the development of new sources of supply. But the use of low grade deposits requires much more labor per unit of energy or material secured, while a large scale input of technical labor will be needed to develop alternative supply sources. Again, a reduction in labor supply would make it more difficult to meet these goals.

SCENARIOS

Since the effects of hours reduction on the management of material and energy supplies are somewhat speculative—inasmuch as they depend in part on political and social reactions to future materials, energy, and labor supply constraints—one might consider some alternative scenarios. For example, some advocates of the anti-growth viewpoint urge a return to a simpler life on philosophical grounds, and

use energy shortages as an argument. If this viewpoint comes to be widely held, and generates a movement which simultaneously reduces working hours, energy demands, and, of course, material living standards, the cause of energy conservation presumably could be benefited.

On the other hand, in the somewhat more likely event that American consumers will continue to press for increases in their material living standards despite future material and energy problems, a cut to 30 hours a week (with a consequent sacrifice of, say, 25 percent in potential income) would be more likely to exacerbate pressures for the substitution of materials and energy for labor as a means for bolstering labor productivity—with harmful results for the management of these scarce resources.

E. Effects on Leisure Time

It may seem redundant to seek to determine the effect of a reduction in hours of work on leisure time. After all, if we are talking about a real reduction in hours worked—not one offset by increased overtime, moonlighting, and female labor force participation, or by a decline in unemployment—a superficial judgment would be that a decline in hours of work would have to increase leisure time. But that result need not follow. Table 5 gives a breakdown of the ways in which Americans spend their time each week. Much of the time not spent at paid employment is actually spent at work or quasi-work activities such as commuting, housework, and childcare. For this reason, many economists specialized in this area prefer to use a three way breakdown of time: paid work or market employment, leisure, and household production. The line between leisure and household production is extremely difficult to draw (e.g., an hour with a child in a park may be childcare to one woman and leisure to another). Yet there is a sufficient difference between housework and leisure to make that distinction worthwhile. For example, it is logically possible that a decline in hours of paid work would yield a sharp increase in household production time. This is not a likely result in the scenario in which a gradual reduction in hours results from increased demands for time off as hourly wages rose (the third scenario). That scenario probably would be accompanied by an increase in leisure.

TABLE 5.—WORK AND LEISURE PATTERNS

[Hours spent per week]

	Married men employed	Married women	
		Employed	Other
Paid work time	44	33	(1)
Household production (including commuting, housework, childcare, shopping)	22	39	55
Recreation	29	24	35
Other (including sleeping, eating, organizational activity, personal care)	73	72	78

[1] Less than 1 hr.

Source: John P. Robinson and Philip E. Converse, "66 Basic Tables of Time Budget Research Data for the United States," Ann Arbor: University of Michigan, Survey Research Center, 1967.

Some rough calculations by the author[48] suggest that on the basis of past experience, the most plausible result would be that the increase

[48] Owen, "Working Hours."

in time off would be divided in roughly the same proportions as the present leisure-household production mix (so that if 60 percent is now devoted to household production time, a 10-hour reduction in market employment time would yield a gain of six hours in household production time and four hours in consumption time). There is no guarantee that the future will repeat the past, especially since this scenario forecasts increases in both time and goods to unprecedented levels of general affluence; one should certainly not rely on any definite forecast of the expected division between leisure and other time. But it does seem implausible that *no* increase in leisure time would result from a decline in working hours, which was a product of an increased preference for time off.

A rather different analysis is called for if hours are reduced by law, with no accompanying change in the willingness of workers to sacrifice material living standards for increased leisure, as in the fourth scenario. Living standards could be at least partly protected by substituting household production time for market production. Sine "do-it-yourself" is a notoriously inefficient substitute for market services, more rather than less total work time would be required if living standards were to be fully maintained. In this scenario, workers might seek to do most home repair and improvement themselves, maintain their own clothes, and even grow a portion of their own food. In the long run, they would be expected to gravitate to less expensive residential areas or suburbs, where land was cheaper (thus obtaining a further incentive to grow food). The substitution of household production time for market work time would also be fostered by the use of slower, cheaper transportation modes—for example, by taking busses rather than a private car.

Of course, workers need not sacrifice to improve their material living standards under these circumstances. In fact, an opposite result could be obtained. An influential book analyzing the allocation of time between leisure and household production, Linder's "The Harried Class," [49] argues that Americans have been condemned to spend large amounts of time in household production because they must service their extraordinarily high level of living. With a myriad of appliances to maintain, with a large wardrobe and high standards of personal cleanliness, but with a dearth of servants, the affluent American today has much less free time than similarly rich aristocrats in earlier generations.

Linder's analysis is somewhat one-sided, partly because economic development has also produced a wide variety of timesavers in the home—from vacuum cleaners to fast foods. The available statistical data show little change over time in the distribution of time between leisure and household production.

Nevertheless, the analysis in Linder's "The Harried Leisure Class" would suggest that a reduction in workweeks—or rather the consequently lower level of income and, hence, material living standard—would mean that individuals would have to spend less time in maintaining and repairing their consumer goods simply because they had fewer of them. In this analysis, workers would have a twofold increase in their leisure since they would work fewer hours for pay and would need to spend fewer hours in household production.

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[49] Staffan B. Linder, "The Harried Leisure Class," New York: Columbia University Press, 1970.

Putting the point more abstractly, the net effect on leisure or consumption time of an enforced reduction in hours would depend upon the relative possibilities of substituting time for goods in household production and in leisure. If it is relatively easy to substitute time for goods in household production (i.e., if people are reasonably successful at do-it-yourself activities), and relatively difficult to substitute time for goods in leisure activities (the case if individuals are unwilling to accept a change in their lifestyles which would involve spending more time at less expensive recreational pursuits), more of the potential gain in time would go to household production, and less to leisure time.

Some calculations of substitution possibilities (based upon past experience) made by the author [50] suggest that here, too, these substitution effects may be roughly offsetting, so that the distribution of additional time between leisure and household production time might not be different from the present distribution.

SUMMARY

A more careful discussion supports the intuitive conclusion that a decline in working hours is likely to yield an increase in leisure time for the average employee.

F. Effects on Recreation

The projected effects of hours reduction on recreation spending are quite counter intuitive: past experience would forecast a net *decline* in recreation spending, perhaps in the same proportion as the reduction in hours.

This rather startling conclusion is based upon a sifting of evidence on the variations in recreation spending over time, and among individuals at a given time.

Research studies have shown that recreation spending is quite closely linked to variations in income. Over 90 percent of the variation over time in per capita recreation consumption can be explained by two variables—income and the price of recreation. Moreover, cross-sectional data on recreation spending show a similar responsiveness to income. Both data sources show that for every 1 percent increase in income outlays on recreation rise by more than 1 percent so that the share to recreation on income increases.

On the other hand, changes in the amount of leisure time have little or no effect on recreational outlays.[51] For example, the share of consumption allocated to recreation did not change much in the 1930's. On the other hand, it rose from 1948 to 1969 when income rose, but hours of work showed no net change.

Hence, if recreation spending is sensitive to income changes but not to changes in leisure time, it would be reasonable to expect recreation spending to decline with a reduction in hours of work.

The logical explanation of the past expansion of the recreation industry is, of course, the seemingly infinite ability of our fellow

[50] Owen, "Working Hours."

[51] In a multiple regression analysis of the demand for recreation goods and services, when income, the price of recreation, and the quantity of leisure time were used as determinants, the first two variables were statistically significant but not the third. See Owen, "The Price of Leisure."

countrymen (and indeed our counterparts throughout the industrialized nations) to move to ever more expensive recreation pursuits, as their income is increased.

When the workweek was 72 hours per week and vacations for workers were unheard of, additional free time probably was essential for the development of a mass recreation market. But the free time available with an eight-hour day, five-day workweek, with half a dozen annual holidays and a two week vacation apparently provides more than enough scope for a continuous upgrading of recreation spending.

Of course, the change in the absolute level of recreation spending (as opposed to its share in total spending) would depend upon the scenario in which hours were reduced. In the high growth scenario, recreation spending might increase with other consumer outlays even if hours were reduced. But in the low growth scenario of hours reduction, recreation spending would possibly decline.

Although the aggregate proportion of recreation spending in total outlays might not vary much with a reduction in hours, the distribution of the recreation dollar among different types of activities is more likely to change. One of the more striking changes in recreation spending in the past 40 years has been the increased share going to outdoor recreation at the expense of other categories, especially paid admissions and reading.

But this reallocation is not so surprising because the changes in hours of work, and hence in leisure time, have been such as to encourage this redistribution of the recreation dollar.

THE TREND TOWARD LARGER LEISURE TIME MODULES

Up to the late 1920's almost all of the progress made in reducing hours was in shortening the workday. The 6-day workweek with no vacations remained the standard. This form of hours reduction made a great deal of sense, because of the harmful effects on health, productivity and family life as a long workday.

But with the establishment of an 8 or 9-hour day in the 1920's, a few pioneering industralists introduced a 5-day week. In the 1930's, the 5-day week became the norm in manufacturing; by the 1960's, the 5-day schedule had been almost universally adopted in nonagricultural industries. The post-war era also saw the extension of annual vacations to blue collar workers and sharp increase in the number of annual holidays. At the present time, there is little sentiment to a 6 or 7-hour day. Polls indicate that those who want a reduction in work time generally would prefer more days off.[52]

The past trend toward larger leisure time modules, as well as the present interest in expanding them, have at least two solid roots: a reduction in the number of workdays reduces the number of commuting trips, and an increase in the size of the leisure time module provides "economies of scale" in leisure activities. Even a one-day holiday permits workers to enjoy the daylight hours, while longer modules permit more ambitious trips and excursions.

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[52] Fred Best, Phillip Bosserman, and Bary Stern, "Income-Free Time Trade-Off Preferences of U.S. Workers: A Review of Literature and Indicators," "Leisure Studies," forthcoming.

IMPLICATIONS FOR RECREATION SPENDING

The past, present, and likely future trends toward larger leisure time modules have definite implications for the recreation industry. Daytime leisure is quite different from evening leisure. Time budget data show that more than one-half of evening leisure time is spent watching television (an inexpensive pastime). Much of the ambitious activity associated with the "leisure revolution" described in the popular press—boating, skiing, for example—occurs in the daytime modules provided by weekends, holidays and annual vacations. Hence, if one forecasts that a reduction in working hours would be taken largely or altogether as a reduction in working days, one would predict a continued increase in the share of recreational expenditures going to those categories associated with outdoor recreation.

In the past, this tendency to spend more time in outdoor recreation activities has worked out well, since it coincided with rapid increases in real income, which could support more expensive diversions. It would also fit in well with the future scenario of high growth accompanied by hours reduction.

But the low growth scenario for hours reduction would require some variation from past recreation trends. With much more time off but with little or no gain in income, less money may be available to spend per hour of free time. One can speculate that this would benefit a variety of inexpensive leisure-time activities. (For example, greater use of public parks near population centers, picnicking and fishing.) One would also predict some slowdown in the current trend to upgrade evening leisure by the purchase of expensive new equipment (for example, video cassettes and discs, giant screen television, and high fidelity sound systems.)

G. Effects on Metropolitan Area Growth

A sharp reduction in working hours would affect where people live and work in metropolitan areas, as well as the location and nature of the types of services they would demand—for recreation, shopping, and professional services. It would also affect urban transit variables, such as the average length of time spent commuting and the balance between mass and automotive transportation. It would have an impact on the relative growth of different types of metropolitan areas (most clearly on the sunbelt vs. snowbelt competition).

The analysis of these effects is complicated, partly because factors that influence hours reduction also influence the various dimensions of metropolitan area growth (see appendix 2). However, some rather straightforward predictions of the likely effect of hours reduction on metropolitan areas can be derived.

If work time reduction is spurred by a rapid increase in real hourly wages (as in the third scenario, in which workers have more of both leisure and income), the shorter workweek would likely be associated with a more rapid expansion of metropolitan areas, as individuals took advantage of both continued increases in purchasing power and less work time and fewer commuting trips to locate further from their place of work, and as employers moved to adjust to the new distribution of their (potential) labor force, and retail trade and service establishments moved to be closer to their new market centers.

In the fourth and fifth low-growth scenarios, people have more time and need to make fewer commuting trips, but have less money as a result of a cut in working hours. Hence, the effects on overall metropolitan expansion are less certain. However, one might predict other effects on metropolitan area problems, for example, increased use of inexpensive commuting methods, such as buses, and longer commuting trips, in those situations where increased distance enables workers to buy residential land more cheaply, to purchase inexpensive homes,[53] and to carry out a variety of do-it-yourself activities, ranging from home repair to vegetable gardening.

Turning to more specific effects of hours reduction, in the high-growth scenario, the expansion of metropolitan areas offering recreational amenities would be favored further exacerbrating sunbelt-snowbelt competition. Moreover, newer metropolitan areas, offering the opportunity for developing urban neighborhoods and suburban communities around recreational amenities (a swimming pool, recreation center, and so forth) would have an advantage over older areas which inherited a stock of residential capital that is wanting in these facilities. Medium-sized metropolitan areas could have an advantage over large areas, where the relatively smaller areas had easier access to attractive outdoor recreation facilities.

The second home movement would undoubtedly be spurred by hours reduction in this scenario. Certain areas (say, 50 to 200 miles from a large metropolitan area, providing recreational attractions such as mountains, lakes, or an ocean) might be utterly transformed if four-day, 30 or 32-hour workweeks became standard (consider, for example, the effect on southern Vermont, or the Berkshires, of a 4-day workweek in New York City).

Important effects would be predicted for urban transit systems. Basically, a reduction of 20 percent or more in the number of work-related trips, accompanied by a sharp increase in the number of trips for recreational, shopping and other purposes, would be expected to reinforce trends away from travel to central locations, and toward more diffuse travel patterns. This would in turn help to further shift the balance away from mass transit and toward automobile usage.[54]

The impact would be most negative on mass transit facilities if employees on a 30 or 32-hour week typically worked the same four days (as they generally now work the same five days), rather than spreading workweeks over five or six days. Mass transit systems would be faced with idle machinery almost half the days in the year. Revenues would decline, unless a sizeable hike in fares was imposed, further reducing ridership. If, as expected in the high-growth scenarios, an outward movement of people and jobs at the same time imposed demands for capital outlays for the construction of new commuter facilities, the fiscal pressures on the transit system would be exacerbated.

Other, more indirect effects of work time reduction could also be forecast, if in a more speculative mode. For example, in the high-growth scenario, further reduction in work times, an increase in income, and a new movement to disperse residences and jobs, would together likely make it more difficult for government policies to promote racial and class integration, as long as individuals continued to have strong preferences for living in segregated neighborhoods.

[53] For a minority, this might mean urban homesteading downtown, rather than a movement to the suburbs. (I owe this point to Wilbur Thompson.)

[54] Similarly, it would give an advantage to bus over fixed rail transport where it is practical to reroute buses for weekend uses.

Prediction of these various specific effects (cities more oriented to recreational amenities, second home construction, and problems in the areas of urban transit and school integration) are all more difficult to make in the low-growth scenarios of hours reduction. The rate of new construction would probably be lower in these scenarios, and the rate at which these various trends in American metropolitan areas would progress might also be slowed on that account, despite the new stimulus afforded by increased leisure and fewer commuting trips.

H. Effects on Taxation, Expenditures, and Other Fiscal Issues

If hours reduction yielded a long-term decline in output (perhaps in proportion to the reduction in hours) then there are just two possible results for our public finances: expenditures must be cut or tax rates must be raised.

In practice, the analysis of the expected outcome is a little more complicated than this arithmetic exercise indicates. In the first place, the scenario approach suggests that a likely way for hours to be reduced would be as an accompaniment to a high rate of growth in productivity and real income. In that scenario, government expenditures could readily be expanded as hours were reduced, if that seemed desirable.

In the second place, some important government programs are directly or indirectly linked to the rate of growth in per capita income. A major portion of Federal outlays is allocated to welfare and social security. But an historical analysis of welfare programs shows that the American commitment to the poor—or at least its concept of the poverty line or of the appropriate "social minimum wage"—rises at about the same rate as does per capita income.

Similarly, social security and other retirement plans have been concerned with providing a limited protection against income *decline* in old age, not simply an absolute income floor. In fact, present social security regulations require that pension benefits be based upon earlier earnings levels.

In addition, certain other outlays which are designed to service business, and consumers (e.g., the postal service) might be expected to decline rather readily with a lower material living standard.

This discussion of offsetting factors should not, however, be interpreted as arguing that hours reduction would pose no difficulties for our public finances. In the first place, the high growth gradual reduction in hours scenario is only one possibility; if hours are reduced in a low-growth situation, possibly quite abruptly as a result of national legislation, government revenues may well level off or decline, for a period of some years. Moreover, while poverty and old age assistance may in the long run adjust to new income levels, that run could be rather long indeed.

While it is true that Congress has the power to reduce social security benefits at its pleasure, it has never done so and might well regard the cuts required by hours reduction as socially undesirable.

Similarly, in the slums and ghettos, a sharp reduction in welfare, food stamps, disability payments and medicaid, the closing of public housing projects, and the termination of summer job programs for youth, and the like could yield unacceptable social consequences.

A third problem is that much of the budget would not be affected at all by hours reduction. The best example here is military expendi-

tures: outlays for this purpose are presumably determined in an international dialectic of forces which is at least partly beyond the control of our national government. A sharp reduction in output might force a hard choice between higher taxes for this purpose, and a reevaluation of political and military commitments throughout the world.

In summary, the most likely short or medium-term effects of hours reduction (at least, in the low-growth fourth and fifth scenarios) would be some increase in tax rates, accompanied by some decline in government spending.

All the fiscal effects mentioned above result from the impact of hours reduction on income. But there are other effects which are directly related to changes in hours as such. The likely problems of education were discussed in section A, including the possibility that a reduction in hours would lead to a reduction in schooling outlays. The discussion of the impact on metropolitan area growth in section II.G predicted that hours reduction could stimulate an outward movement of people and jobs and in consequence would require additional public funds for the construction and maintenance of a metropolitan area social infrastructure. Similarly, increased outlays for public recreation facilities, expecially parks, were predicted in section F.

These few examples suffice to indicate that a reduction in hours would itself change the nature of demands upon the state.

III. Policy Implications

The work-leisure decision is fundamental to our lives. The allocation of time to the marketplace has wide-ranging implications for the economy, for a number of social issues, and for our personal concerns. It would be most presumptuous to offer a recommendation about the appropriate level of hours of work. In a democratic society, this outcome should reflect the interests and views of the 100 million Americans who work in the marketplace and their employers. Nevertheless, an observer of long-term movements in the workweek cannot help but be aware of the possibility that an important future change may take place in the average workweek as an indirect effect of other social phenomena, resulting in a new set of hours and laws regulating hours that the average person really doesn't want. Hence, it may be of some use to discuss policies that would minimize the likelihood of an unwanted reduction in hours.

A second area in which policy implications appear to be needed is in the process of adjustment to a reduced workweek. In the discussion of the possible economic costs of a shorter workweek in Part II, it was clear that there was a sizeable range of indeterminancy; the costs could be very high or more moderate, depending upon a number of factors, including government policy. Hence, an effort will also be made here to bring out the implications of the analysis in part II for the design of government policies which could minimize the economic loss, if hours reduction does take place.

A. Policies That May Prevent an Unwanted Reduction in Hours of Work

(1.) *Maintain full employment.*—Full employment has many social and economic benefits, as well as some costs. A rarely mentioned benefit of full employment policy is that avoiding long periods of per-

sistently high unemployment is an excellent strategy for heading off declines in hours of work, which workers would otherwise prefer to avoid. Prolonged economic depression eventually generates an ideology that work opportunities are limited, which in turn produces a gradually increasing chorus of demands that work opportunities be shared equitably, through a reduction in hours. The experience of the 1930's and subsequent years is that such work restrictions are apt to become permanent, even after full employment has been restored.

Demands for worksharing were muted for some years in this country, but then became more insistent as unemployment levels crept upwards in the early 1970's. The same pattern exists in several European countries where higher unemployment levels have now led to some work sharing, and to demands for further reductions in hours. It is not implausible that a return to 1975 unemployment levels in this country (or worse) would actually lead to national legislation requiring a reduction in hours.

Admittedly, concern about work time restriction imposes just one more constraint on the economic policymaker, who already must maintain a difficult balance in dealing with the twin problems of unemployment and inflation. Still it is not an unimportant consideration for the thoughtful policymaker.

(2) *Devise government policies to improve, not suppress, individual financial incentives to supply labor to the market.*—A complementary factor encouraging workweek reduction is the so-called "decline of the work ethic", which may be related to developments in government tax and expenditure policies. More specifically, arguably, government measures to bolster the income of the poor and to tax heavily the income of those with high earnings will reduce the financial incentive to work long hours. The importance of the present structure of tax and expenditure policies as a determinant of working hours is, of course, a controversial subject. However, it is hard to argue with the view that if a trend toward a "welfare state" were carried far enough, working hours and other measures of labor supply would suffer.

Moreover, there is a sense in which one might term this expected decline in working hours "wanted". When the hours of an individual (or industry) are reduced in a welfare state, much of the cost is actually borne by others, who must then pay a higher tax rate on their own earnings. To make unbiased choices, workers who opt for shorter hours would instead have to have their take-home income reduced by the amount of the decline in their *pre-tax* earnings; then, they would be paying the full economic costs (more or less), and the tax rates of others would not have to be increased. But if, under welfare state conditions, each worker, or union, can pass off some of the costs of hours reduction to others, choice is biased in favor of leisure and it is likely that the hours of most workers will be reduced, and the tax rates of all increased, to a point much beyond that which would be selected if each worker had to pay the full cost of the reduction in his own hours.

Nevertheless, acceptable policy implications here are as difficult to derive as in the case of employment policy. Clearly, recent trends in tax and subsidy policies reflect a number of important social and political developments, and so are not likely to be restructured simply in the interests of protecting work incentives. Still, a case can be made for giving work incentive effects a higher priority when considering the

design of new programs. For example, subsidies to the poor can be especially favored if they encouraged people to make productivity-augmenting investments in themselves (e.g., education and training). These yield the recipients a higher income only in proportion to the number of hours worked for pay, and so are believed to encourage effort.[55]

(3) *Improve job design and working conditions.*—Both the nature of work, and employee job satisfaction were mentioned in part I as potentially important determinants of future reductions in hours of work. At the present time, specialists in personnel management have a wide variety of tools which some believe would make work more pleasant and satisfying to the typical employee. These include, on the one hand, outlays to improve the physical amenities of the workplace and, on the other hand, a variety of changes in the work itself that would be designed to improve its intrinsic interests; for example, job rotation, job enlargement, and matrix management would all fall into this category.

Of course, some attempts to make work more pleasant will also make it less efficient. In fact, an effect to reduce job dissatisfaction, and hence avoid a decline in hours of work, could, in principle, be as costly as a reduction in hours.[56] The evaluation of the feasibility and efficacy of specific changes in job design and working conditions lies well beyond the range of issues usually addressed by the labor economist. However, changes in the scheduling of work and their likely impact on average hours worked is a topic somewhat closer to the traditional interests of the economist. Some possible changes in this area are discussed in the next section.

(4) *Work schedule reforms.*—Work schedules can be made more flexible so that those who find the standard workweek unacceptable can have a different schedule, making it unnecessary to reduce the hours of all workers, including the majority who are satisfied with the current schedule.

STANDARDIZATION OF WORK SCHEDULES

In the United States today, the average employee can set neither the timing nor the number of his hours of work.

One result is that the 40-hour workweek becomes a binding constraint for millions of Americans. Forty hours may be a good *average* number of hours, in the sense that it is a satisfactory level for the average employee. But employees vary widely in their needs, so that many find the standard workweek either too short or too long. Employees with another source of income (e.g., a pension, or the earnings of another family member), with other demands on their time, or simply with an above average preference for leisure are likely to find it too long while those with few time demands on them, but several financial dependents, are more likely to find it too short. Under these circumstances some individuals will turn to the part-time labor market, to absenteeism or to casual labor to shorten their hours, while others seek moonlighting and overtime opportunities. The majority, however,

[55] This point is developed further in J. D. Owen, "School Inequality and the Welfare State," Baltimore: Johns Hopkins, 1975.
[56] See Owen, "Working Hours," op. cit.

find these alternatives unattractive and must tolerate the 40-hour schedule.[57]

A second basic scheduling problem arises because even those who are satisfied with the 40-hour workweek typically find that the lack of control of the timing or "whenness" of their work hours provides a constraint. To some degree, the quality of household production, leisure and work time are each depreciated by rigid scheduling practices.

The worst examples occur in household production time. Here, the most obvious case is provided by the rush hour commuter congestion caused by many enterprises establishing the same beginning and ending times. Leisure activity is also adversely affected by rigid work scheduling, if indirectly, since common work schedules produce overcrowding of recreation sites on weekends and holidays. Finally, the quality of market work activity also suffers since many employees prefer to start work when they choose. (For example, some people are natural early or late starters, and dislike a schedule designed for the average person.)

In a sense, then, rigid schedules mean that workers are supplying "more" time or, at least, a distribution of time that imposes more costs upon them than would hours freely chosen by themselves. Possibly they would trade a reduction in hours for more freedom to schedule their hours of work.

FLEXIBLE WORK SCHEDULES

Management in both the private and public sector has gone much further in designing schedules that permit employees to vary the timing, than the number of their hours of work. There are three basic methods for giving employees more choice in the timing of their hours: staggered hours, flexitime and work modules.

TYPES OF FLEXIBLE WORK SCHEDULES

Staggered work hours provide one of the most elementary and most restricted types of schedule flexibility. In a typical hours staggering scheme, employers in a downtown area will agree to change their closing hours from a common 5:00 p.m., to one ranging from 4:45 p.m. to 5:15 p.m., at five minute intervals. Corresponding changes are then made in opening hours. The principal advantage of the system is the contribution it makes in reducing commuter congestion.

The new flexible hours scheduling programs popularly known as "flexitime" provide a much greater degree of individual freedom in hours scheduling. In a typical pure flexitime system, the employer sets a "core" time during which all employees must be present—for example, from 10 to 12 in the morning and two to four in the afternoon. He also sets a "bandwidth" within which all hours must be worked—say, 6:00 a.m. to 6:30 p.m. The worker is still required to put in the same total working time—say, an average of 40 hours a week. In the most limited variant, schedule flexibility is confined to daily starting and ending times, and the worker must continue to put in a total of

[57] Plus compulsory overtime, when this is demanded.

eight hours each day. In less limited plans, he may vary his total daily hours. In still more generous plans (more common in Europe than in the U.S.), he may even carry hours foward from week to week and month to month. (In practice, an upper limit is usually placed on these carry-forwards—for example, in some firms no more than 10 hours per week and 20 hours per month may be accumulated.)

"Flexitime" is not restricted to this pure type. Sometimes it includes three types of flexible hours schedules: (*a*) The employer offers the employees a wide variety of hours schedules to choose from. Having chosen, the employee is expected to remain on that schedule, at least for a fixed period of time. (*b*) The employee decides a weekly hours schedule for himself. But once chosen, he must stick with it. (*c*) The employee is free to choose his schedule of hours, without advance notice, from day to day, if he so desires—the pure type usually described in the newspapers.

In practice, this pure type is often modified. In one variant, central management retains the formal freedom given by the original flexitime plan, but insists that whatever schedule arrangements are chosen and however often these are changed, productivity must not suffer. Here each work group and its supervisors must arrange hours and workflows in such a way that the individual employee is allowed the flexibility which he values most, while still maintaining the productivity of the group.[58]

Flexitime is said to be enjoyed by 5 to 10 percent of the white collar labor force in several European countries, and to cover as many as two to three million employees in this country.[59]

The available empirical evidence [60] tends to support the view that flexitime is consistent with productive efficiency in a surprisingly wide variety of job situations. A number of observers believe that some

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[58] Alvar O. Elbing and John R. M. Gordon, "Self-Management in the Emerging Flexible Organization," Futures, Vol. 6 (August 1974), pp. 319–28.

[59] See Alvar O. Elbing, Herman Gadon, and John R. M. Gordon, "Time for a Human Time Table," European Business (Autumn, 1973), pp. 46–54. See the discussion by CATRAL (Comité pour l'étude et l'aménagement des temps de travail et des temps de loisirs dans la région parisienne), in L'horaire libre en 1974: synthèse des travaux du groupe d'études rénui à la demande de M. Gorse, Ministre du Travail et de l'Emploi, et présidé par M. de Chalendar, Paris: La Documentation Française, 1974. See also, Virginia H. Martin, "Hours of Work When Workers Can Choose," Washington, D.C.: Washington's Business and Professional Women's Foundation, 1975; and Stanley D. Nollen and Virginia H. Martin, "Alternative Work Schedules, Part 1: Flexitime," New York: AMACOM, 1978.

[60] For a discussion of the American experience, see First National Bank of Boston, "New Flexible Hours Increase Productivity at First National Bank of Boston," mimeo, 1974; U.S. Social Security Administration, "Report on BDP Flexitime Study Midpoint Survey," Washington, D.C.: mimeo, 1974; Robert T. Golembiewski, Rick Hilles, and Munro J. Kango, "A Longitudinal Study of Flexitime Effects: Some Consequences of an OD Structural Intervention," Journal of Applied Behavioral Science, Vol. 10, No. 4 (1974), pp. 503–32; William H. Holley, Jr., Achilles A. Armenakis, and Hubert S. Feild, Jr., "Employee Reactions to a Flexitime Program: A Longitudinal Study," Human Resource Management, (Winter, 1976) pp. 21–23; M. G. Evans, "A Longitudinal Analysis of the Impact of Flexible Working Hours," Studies in Personnel Psychology (Spring, 1975), pp. 1–11; Martin, "Hours of Work When Workers Can Choose"; and Virginia E. Schein, Elizabeth H. Maurer, and Jan F Novak, "Impact of Flexible Working Hours on Productivity," Journal of Applied Psychology, Vol. 62, No. 4 (1977), pp. 463–65. See also, Allan R. Cohen and Herman Gadon, "Alternative Work Schedules: Integrating Individual and Organizational Needs," Reading, Mass.: Addison-Wesley, 1978; and Nollen and Martin, "Alternative Work Schedules, Part 1: Flexitime," for useful overviews.

For a survey of European experience, see George Moller Racke, "The Effects of Flexible Working Hours," Ph.D. dissertation, University of Lausanne, Switzerland, 1975; Michael Wade, "Flexible Working Hours in Practice," Essex: Gower, 1973; Stephen Baum and W. McEwan Young, "A Practical Guide to Flexible Working Hours," London: Kogan Page, 1973; J. Harvey Bolton, "Flexible Working Hours," Wembley: Anbar, 1971; Elbing and Gordon, "Self-Management in the Emerging Flexible Organization;" Heinz Allenspach, "Flexible Working Hours," Geneva: International Labor Office, 1975: and Archibald A. Evans, "Flexibility in Working Life: Opportunities for Individual Choice," Paris: Organization for Economic Cooperation and Development, 1973.

See David Plowman, "Flexible Working Hours—Some Labour Relations Implications, The Journal of Industrial Relations, Sydney, Australia, September 1977, pp. 307–13, for a useful survey of Australian experience.

See Karen Legge, "Flexible Working Hours—Panacea or Placebo?," Management Decision: The European Review of Management Technology, Vol. 12, No. 5 (1974), pp. 264–80, for a more negative view of flexitime.

form of flexible hours schedules would be feasible in a majority of work situations.

It is less surprising to learn that the majority of employees do in fact prefer this system over standard hours: flexitime eases the commuting peak rush hour congestion; makes it easier to use retail trade outlets, government offices and professional services; helps working mothers manage childcare and other family activities better; and greatly facilitates part-time study.

WORK MODULES

A third method for giving employees some choice depends upon computerization. In this system, the schedule preferences of employees and the productivity needs of the enterprise are fed into a computer, and a set of optimal schedules determined. This alternative can be used in a factor layout, with two or three shifts of workers, where schedules for a large work group must be determined simultaneously. For example, once a year the company would enter the preferences of its employees in a computer (using seniority to break ties). Some workers would obtain light schedules in the summer, and others (including, for example, the devoted skiers) might work fewer hours in the winter. Still others might choose to alternate long and short weeks, to provide a pattern of year round recreation opportunities. In this way, a degree of schedule flexibility could be offered even in a heavy manufacturing industry, where it might otherwise appear to be impractical.

CHOICE OVER NUMBER OF HOURS PER WEEK

Managerial experiments have concentrated on methods for giving employees a choice over the timing of hours that they work, rather than providing more options on the number of hours. However, the rapid growth of the part-time job market has in practice afforded some de facto choice over hours to millions of workers—both those who work part-time and those who combine a full and a part-time job.

The relatively low wages and status of part-time workers still make this option unattractive to many employees. Insofar as these conditions result from managerial inertia (the virtually unanimous view of those working for legislation to improve the lot of the part-timer), the long-term prognosis for improvement is quite favorable. But insofar as the poor treatment of part-timers is due to such objective factors as insufficient management incentives to train the part-timer or higher coordination and communication costs (see section I.B. above) the prospects for improved treatment of part-timers are uncertain.

There are some specific changes, however, that could be made here that might not impose much additional cost. For example, the training problem would be solved in part if trained full-time employees were allowed to go on a part-time schedule when the need arose: when a woman became pregnant, or had a small child to raise, when a younger man wanted to return to school, or when an older man wanted to reduce his work effort, they could be permitted to retain their position on a part-time basis. In this case, the training costs to the company

are actually reduced by using part-timers, since this strategy reduces the number of new employees that must be hired.

There are also at least two ways in which the coordination and communication problems of using part-timers could be minimized. One is through "job sharing", in which two workers share a job, dividing up the responsibilities in a manner which is convenient to them, coordinating their own activities, and, of course, sharing the income from the job.

The second depends upon the introduction of flexitime. Flexitime tends to organize compulsory interaction times around the "core" of the day. Where this has been accomplished successfully part-timers could be hired for just this core time, with little loss in extra coordination and communications expense.

Undoubtedly, there will be a number of potential methods by which management could give individuals more choice over the number of hours they work. It is not too implausible to predict that if a significant minority does come to want the 30 or 32-hour workweek management ingenuity will develop new ways to accommodate this group, without a general reduction to a four-day workweek for all employees.

THE ROLE OF GOVERNMENT

Governments at the Federal, State, and local levels have recently shown greater awareness of the social value of developing alternatives to the standard workweek. The Federal Government has now initiated an ambitious program to afford flexitime and other flexible schedules to many of its employees. This program will be monitored and research carried out on its economic and social effects. The Federal Government is also subsidizing and monitoring innovative flexible scheduling schemes in State or local governments or in the private sector, and continues to be interested in the development of a wide spectrum of alternative work schedules, including job sharing, worksharing, permanent part-time employment, and flexitime. The analysis in this paper indicates that these government activities have a potential social benefit—avoiding a reduction in hours unwanted by the majority of workers—over and beyond the more immediate gains which are stressed in the alternative work schedules literature.

B. Policies To Reduce the Economic Costs of a Shorter Workweek

Appropriate government and private sector policies could mitigate the negative economic effects of a reduction in hours of work. Clearly, the efficacy of policies to minimize output loss must depend upon the scenario in which they are introduced: if hours are reduced for social reasons, despite widespread interest by individuals in maintaining their material living standards, one would expect success than if a four-day workweek is introduced simply because the average worker wants more leisure, and is willing to make a substantial economic sacrifice to achieve it.

But aggressive policy could have a positive payoff in either case. Even in the scenario in which the average worker opts for more leisure, one can expect that a minority will be more susceptible to economic incentives. Today tens of millions of Americans moonlight, work overtime or put in long hours at their own business, despite the satisfaction

of the majority with a 40-hour workweek. A similar diversity of tastes could be expected if the Nation moved to a 30-hour workweek under affluent conditions.

Policies to minimize output loss due to hours reduction could further three major goals: increase the number of people working; intensify hourly effort; and maintain capital utilization through an increase in shiftwork.[61]

(1) *Increase labor force participation.*—A 30-hour workweek could permit higher labor force participation, but managerial policies must be designed to foster, not hinder, this result. For example, the 30-hour workweek could be scheduled at times which are convenient to married women. Perhaps the optimal schedule would be a workweek which would be coincident with that used by the public schools. But this in turn requires that we take a hard look at the rationale for our present public school schedules. These may be well designed to meet the needs of agriculture for child labor in the summer, but appear to many to be an anachronism in our urban, post-industrial society. A four-day, seven-and-a-half-hour day, workweek in the schools, combined with a 25-percent increase in the number of days attended per year would permit the coordination of child and adult schedules if adult schedules were reduced to the 30-hour level.

Similarly, a reduced workweek would be complementary with efforts to extend worklife by deferring retirement and by permitting young people to attend college while working full-time. These goals would be facilitated by changing (or eliminating) the earnings test for social security benefits and by revising student aid formulas to provide assistance to students working full-time.

(2) *Reduce on-the-job leisure.*—An increase in labor productivity might be obtainable with a cut in hours for two reasons. First, in some jobs reduction in fatigue may be obtained.[62] Second, union-management productivity bargaining could be expected to be more fruitful in a period of adjustment to a 30-hour week than in more normal circumstances, when attitudes have become more rigidly defined and norms have already been established for a "fair day's work".

This bargaining would probably be more successful in the fourth scenario where workers are reluctant to sacrifice their material living standards for an increase in leisure.

(3) *Maintain or improve capital utilization.*—If hours were reduced, capital utilization could be improved through greater use of shiftwork, part-time work (after the full-time shift leaves), and overtime. Part II discussed some of these scheduling possibilities. For example, a three-day weekend shift of seven and one-half to 10 hours per day would nicely complement a four-day, seven-and-one-half-hour day standard workweek improving capital utilization without imposing any additional evening or night work. Other writers have suggested two five-day six-hour a day shifts (for example, 6:00 a.m. to 12:00 p.m. and 12:00 p.m. to 6:00 p.m.) or, alternatively three 10 hour a day shifts. These schedules could also be supplemented by night work to further improve capital utilization.[63]

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[61] A fourth policy, improve opportunities for career-oriented adult education, is also suggested by the discussion in Part II above.

[62] But, cf. the discussion in Part II above.

[63] But, see the references in footnote 9, Section II.C.

Of course, it is much easier to design shift schedules that would satisfy the engineering requirements of the plant than it is to predict whether workers will be interested in applying for them. Here, too, the scenario approach is useful, in that one would predict less willingness to work inconvenient shifts if hours reductions is a result of a general desire to subordinate material living standards to leisure time and related concerns.

Government policy can encourage the development of shiftwork by fostering a social infrastructure that better serves the evening or night worker. Some possibilities for reducing the social costs of night work include:

Provide all-night programming on television and other government regulated media.

Eliminate local ordinances that put time limits on hours of operation of retail trade and service establishments. This could include bars and taverns.

Maintain 24-hour-a-day seven-day-a-week operation of semi-public or public athletic centers.

Public support for all-night movie houses.

Provide special police protection for night-time users of all such facilities.

Improve the control of daytime noise in residential areas. In some European industrial towns where shiftwork is quite extensive, a portion of publicly supported housing must be effectively soundproofed. This housing is offered to shift workers at subsidized rates.

Appendix 1. Mathematical Note: Long-Term Effects of Hours Reduction on Capital and Output

A. The Simple Case

If output is a linear homogenous function of labor and capital,

(1) $$O=f(C,nH)$$

where O_{nH}, O_C, O_{CnH} are greater than zero and O_{nHnH}, O_{CC} are less than zero.

Then, rewriting (1) in terms of output per man-hour, we obtain

(2) $$O/nH=f(C/nH).$$

Let C/O be proportionate to I/O in the long-run,

(3) $$C/O=mI/O$$

This implies that the effect on C/O and C/nH of a change in H depends upon the effect of the change on I/O. Savings and investment in a closed economy might be assumed in a simple model to be proportionate to output, or, alternatively, to the income received by capital (assumed equal to the product of the marginal product of capital and capital stock); i.e., either

(4a) $$I/O=w$$

or

(4b) $$I/O=O_CCx$$

where w and x are constants.

In the "a" variant, we can write, using (2), (3) and (4a)

(5) $$O/nH=f(mwO/nH)$$

This implies (making the usual assumptions about the differentiability of O):

(6) $$E_{O,\,H}=1+E_f,\frac{C}{nH}(E_{O,\,H}-1)=1$$

where E denotes elasticity

$$\left(\text{and } E_f,\frac{C}{nH}\neq 1\right).$$

In the "b" variant, using (2), (3) and (4b),

(7) $$\frac{C}{mO}=(C/O)O_C x$$

so

(8) $$O_C=m/x.$$

Since O_C is a single valued function of C/nH, (8) implies by the linear homogeneity assumption that C/nH and hence $f(C/nH)$ are constant and so

(9) $$E_{O,\,H}=1.$$

B. International Capital Flows

Let output be determined by a third factor of production, M, representing fixed supplies of materials, energy, and so on, in addition to labor and capital.

(10) $$O=O(L,\ C,\ M).$$

In the two-factor case, it was reasonable to assume that the marginal product of capital would decline with a reduction in labor input, i.e., that O_{CL} was positive. But this is not so plausible an implication in the three-factor case.

It is interesting here to consider production as a two-stage process, in which labor, L, and capital, C, are combined to produce a man-made input, I, which is then combined with a natural resource, M, to yield output, O.

(11) $$I=I(L,\ C)$$

(12) $$O=O(M,\ I)$$

Then

(13) $$\partial O/\partial C=O_I I_C$$

and

(14) $$\partial^2 O/\partial C\partial L=O_I I_{CL}+I_C O_{LL} I_L$$

If (11) and (12) are linear homogenous functions, (14) can be rewritten as:

(15) $$\partial^2 O/\partial C\partial L=[O_I I_C I_L/I][1/s_{LC}-R_M/s_{IM}]$$

where s_{LC} is the elasticity of substitution between L and C, and $R_M=\frac{MO_M}{O}$.

s_{IM} is the elasticity of substitution between I and M. (15) can be rewritten more concisely in elasticity form as

(16) $$\frac{E\partial_O}{\partial C},L=R_L[(1/s_{LC})-(R_M/s_{IM})]$$

Here, the marginal product of capital will be increased by a cutback in hours (the Abu Dhabi case) if and only if R_M exceeds s_{IM}/s_{LC}.

C. The Utilization Problem

The model can also be modified to take into account the effects of variations in the utilization of capital. If one ignores these issues (as we have to this point), variations in the size of the labor force and in the number of hours per worker are treated symmetrically. However, the two dimensions of labor supply have asymmetric effects upon utilization and hence on output. To see this, assume that the labor force, n, and capital stock, C, are fully employed in equilibrium. Let the number of workers on night shifts equal Pn and the number on day shifts equal $(1-P)n$; let $(1-P)n$ exceed Pn. Then $(1-P)n$ machines are required for full employment of labor, and $C/(1-P)n$ capital per machine is required for the full employment of capital. Ignoring for now any relationship between depreciation and utilization, the correct measure of the capital/labor ratio is capital per machine. Using this measure, rewrite (2) as

$$O/nH=f[C/n(1-P)] \tag{17}$$

with O a linear homogenous function of n and C.

In the short run (i.e., holding C constant), equation (2) would imply

$$E_{O,H}=1-E_{f,H} \tag{18}$$

or, using the linear homogeneity property,

$$E_{O,H}=R_n \tag{19}$$

where

$$R_n=\frac{nO_n}{O}.$$

But in the model in which utilization is explicitly considered (equation (17)), we obtain

$$E_{O,H}=1 \tag{20}$$

in the short run.

In the long run, C varies. If equation (3) holds, then using (4a) first, we obtain

$$O/nH=f[mwO/n(1-P)] \tag{21}$$

and

$$E_{O,\,H}=1+E_{f'}\frac{C}{nH}E_{O,H} \tag{22}$$

or

$$E_{O,H}=1/R_n=1+\frac{1-R_n}{R_n} \tag{23}$$

In the (4b) variant, equation (8) continues to hold, but the definition of f has changed. Now, from (17),

$$O_C=\frac{f'nH}{n(1-P)}=\frac{f'H}{(1-P)} \tag{24}$$

and, combining (8) and (24)

$$f'=\left[\frac{m(1-P)}{x}\right]\frac{1}{H} \tag{25}$$

Differentiating both sides of (25) *w.r.t.*, C and H yields

$$[f''/n^2(1-P)^2]dC=-(m/xnH^2)dH \tag{26}$$

or

$$E_{C,H}=\frac{-1}{E_{f'}\frac{C}{n(1-P)}} \tag{27}$$

If (1) can be approximated by a constant elasticity of substitution form, it follows that

(28) $$E_{f'}, \frac{C}{n(1-P)} = -R_n/s$$

where s is the elasticity of substitution between capital and labor. Substituting (28) in (27), yields

(29) $$E_{C,H} = s/R_n$$

In the long run, (17) implies

(30) $$E_{O,H} = 1 + (1-R_n)E_{C,H}$$

or, using (29)

(31) $$E_{O,H} = 1 + \left(\frac{1-R_n}{R_n}\right)^s$$

If $s=1$, this will y eld the same result as was obtained when I/O was assumed to have a constant equilibrium value (see equation (23)).

D. Depreciation

Depreciation can be increased by utilization. Let D equal annual depreciation of the capital stock, and i, investment net of depreciation

(32) $$i = I - D$$

Then

(33) $$v = i/I = 1 - D/I$$

affords a measure of the relative importance of depreciation. The effects of H on v can readily be incorporated into our model. Equation (3) is replaced with

(34) $$\frac{C}{O} = m\frac{i}{O} = mv\frac{I}{O}.$$

If we make the assumption that gross investment is *not* increased as a result of higher depreciation but is entirely borne as a reduction in i, then, in the model in which gross investment is proportionate to output, (4a),

(35) $$C/O = wvm$$

(21) should then be rewritten as

(36) $$O/nH = f[mvwO/n(1-P)]$$

yielding

(37) $$E_{O,H} = 1 + (1-R_n)(E_{O,H} + E_{v,H})$$

or

(38) $$E_{O,H} = 1 + \left(\frac{1-R_n}{R_n}\right)(1 + E_{v,H}).$$

If the model in (4b) is used instead, we have (again using (34))

(39) $$O_C = 1/mvx.$$

(39) and (24) we obtain:

(40) $$1/mvx = (1+f')/1-P$$

Differentiating (40) and calculating elasticities, yields

(41) $$-E_{v,H} = 1 + E_{f'}, \frac{C}{n(1-P)} E_{C,H}$$

or

$$E_{C,H}=\frac{(1+E_{v,H})}{E_{f'},\frac{C}{n(1-P)}} \tag{42}$$

Again using the approximations for $E_{f'},\frac{C}{n(1-P)}$ in equation (28), we obtain

$$E_{C,H}=(1+E_{v,H})s/R_n. \tag{43}$$

Similarly, from (30),

$$E_{O,H}=1-(1+E_{v,H})/E_{f'},\frac{C}{n(1-P)}. \tag{44}$$

Or, using the CES approximation,

$$E_{O,H}=1+\frac{(1-R_n)}{R_n}s(1+E_{v,H}). \tag{45}$$

Again, the result obtained when $s=1$ is identical to that found in the model when (4a) is used (Cf. equation (38)). These results show that depreciation will reduce the importance of utilization to some extent; they also indicate that as long as utilization increases the net investment rate, $E_{O,H}$ will exceed unity.,[64]

Appendix 2. A Schematic Analysis of the Effect of Hours Reduction on Metropolitan Area Growth

The analysis of the effects of hours reduction on the various dimensions of metropolitan area growth is very complicated, partly because the factors that influence the latter also influence the former. This is illustrated in figure 1.

The analysis of hours reduction on the left-hand side of figure 1 incorporate some of the factors discussed in part I of the text. The right-hand side of figure 1 presents a schematic analysis of the determination of one important urban problem, the outward spread of people and jobs in metropolitan areas. The variables in box "B" would generally support this outward movement. Similarly, rising material living standards (and the purchasing power that accompanies this increase) and a rapidly growing population would be expected to increase the effective demand for land-using residences and amenities and to support the outward movement of people and jobs. The availability of materials and energy and the willingness of employees to spend time commuting would also contribute to this movement.

A reduction in working times would in itself be expected to support the outward expansion of people and jobs for two reasons: because of increased demand for land-using recreational and other amenities as a direct result of increased leisure, and because of the reduction in the number of necessary commuter trips as the workweek was cut from five to four days.

But, juxtaposing the left and right-hand sides of figure 1 brings out the complexity involved in forecasting the impacts of likely changes in work schedules on metropolitan growth, and begins to make clear the pitfalls of endeavoring to sub-

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[64] More specific depreciation equations can be assumed. Let depreciation be a weighted average of the amount of capital stock and of utilization, $D=a[bC+(1-b)H(1/1-P)C]$. Each machine is used $H/1-P$ hours. If $C/O=mi/O$,

$$i/O=\frac{I/O}{1+ma\left[b+(1-b)\frac{H}{1-P}\right]}$$

and

$$i/I-\frac{1}{1+ma\left[b+(1-b)\frac{H}{(1-P)}\right]}-v.$$

Here, $E_{-v,H}$ is between zero and minus one. The relative effects of depreciation will vary directly with the relative importance of D in gross investment (depending on C/O and on the rate of depreciation) and also with the extent to which depreciation is increased by utilization. Only if both are important will $E_{v,H}$ be significantly different from zero.

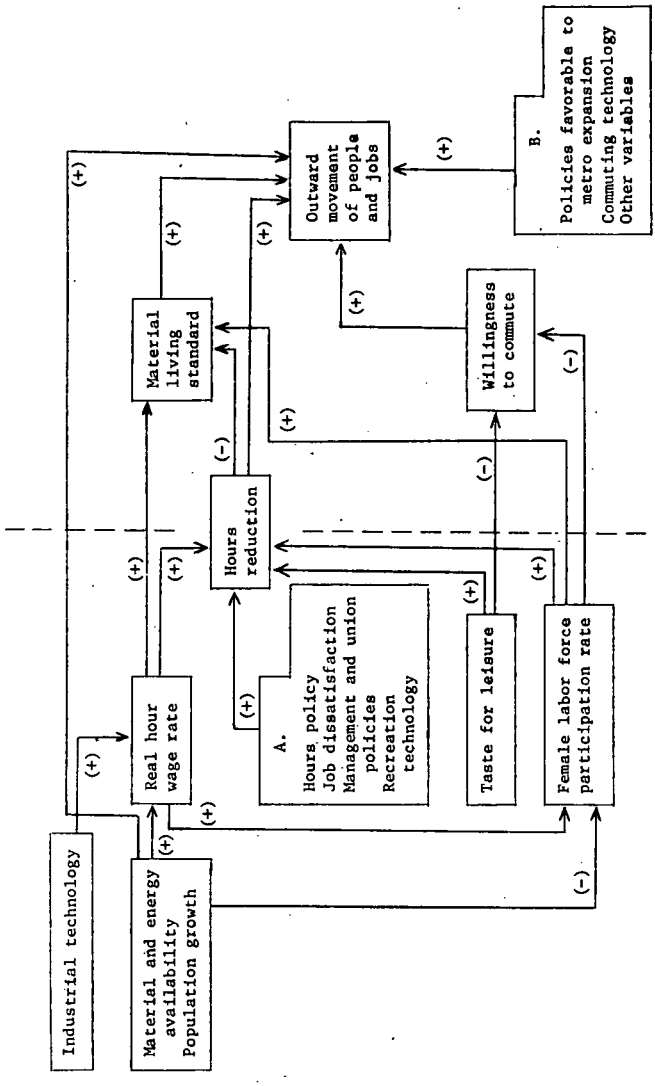
Industrial technology
Material and energy availability
Population growth
Real hour wage rate
A.
Hours policy
Job dissatisfaction
Management and union policies
Recreation technology
Hours reduction
Material living standard
Taste for leisure
Female labor force participation rate
Willingness to commute
Outward movement of people and jobs
B.
Policies favorable to metro expansion
Commuting technology
Other variables
(+)
(-)
Determination of Working Schedules
LHS
Determination of Metropolitan Expansion
RHS

Figure 1

stitute common sense analysis for a less informal structure. There are some straightforward relationships; some variables influence hours but not metropolitan variables (those in box A), while some influence metropolitan but not hours variables (those in box B). Moreover, some variables which operate on both metropolitan and hours variables have a positive effect on each, so that indirect effects will reinforce direct effects. But other relationships are more complex.

For example, while a direct result of hours reduction is predicted to be an outward movement of people and jobs, hours reduction would also reduce purchasing power, and hence the material living standard. This indirect effect would tend to undercut the movement toward expansion.

Analysis of the effects of increases in real wage rates reveals an interesting result: A rapid increase in real wages would be likely to lead both to hours reduction and to a higher material living standard (in the past, hours reductions accompanying increases in hourly wages have never been enough to prevent some substantial increase in annual earnings). Hence, the effect of rapid growth in real wages would be unambiguously positive.[65]

Figure 1 also brings out interesting questions about the effects of other variables. An increase in the "taste for leisure" would contribute to a decline in working hours, but possibly would strengthen resistance to spending time in commuting, so that the net effect on commuting time would be indeterminate. In the same way, an increase in female labor force participation would tend both to increase material living standards and to reduce weekly hours, thus supporting the outward movement in metropolitan areas; but the two-earner families have less time between them for household tasks and leisure (even if hours are cut somewhat) and so may be less willing to spend time commuting. Hence, it is not certain than an increase in female labor force participation would have a net positive effect on metropolitan area expansion.[66]

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[65] Of course, the future is never quite like the past. In the low-wage growth scenario, an increase in materials and energy stringencies are expected to offset gains from technical advances in the design and development of new products and scervices. Because of the key role materials and energy problems play in determining the location of people and jobs, this scenario could have a small net centripetal effect on metropolitan growth. For a still useful discussion of factors determining metropolitan area growth, see John R. Meyer, John F. Kain, and Martin Wohl, "The Urban Transportation Problem," Cambridge, Mass.: Harvard University Press, copyright by the Rand Corporation, 1965.

[66] The analysis is further complicated insofar as hours reduction itself is a positive factor determining female labor force participation (so that a double-headed arrow connects the two variables in figure 1). If this effect is strong, it may undercut the positive influence of hours reduction on the outward movement of people and jobs (at least, if the "willingness-to-commute" effect of higher female labor force patricipation dominates the "material-living-standard" effect).

GROWTH AND AMERICAN PLURALISM: SOCIAL AND POLITICAL FACTORS BEARING ON GROWTH IN THE UNITED STATES*

By Richard J. Krickus

CONTENTS

1. Introduction

Since the early 1970s, the pros and cons of high rates of growth have been hotly debated. The substance of the debate, the diverse opinions expressed, and its twists and turns can be categorized into four phases. The first appeared with a report sponsored by the Club of Rome, The Limits to Growth, predicting that high growth rates would lead to ecological and economic disaster. The second phase was marked by a counterattack disputing this ominous forecast. Recessionary and inflationary setbacks in the 1970s led to a third phase; representatives from business, labor, and government were no longer concerned with the alleged perils of growth but with a specter of whether or not the standard of living to which most Americans aspired could be maintained. This phase has not run its course; on the contrary, if there is a single overriding issue concerning the Nation's leaders, it is economic growth.

During all these phases of the debate, factors other than physical and economic ones were considered but, in most instances, only casually or on an ad hoc basis. This paper will explore the fourth phase of the debate: The dire social and political consequences for the United States should it be afflicted with economic stagnation, and the cultural and political barriers to economic prosperity in the 1980's. To set the stage for this exploration, a brief discussion of the first three phases is in order.

A. The New Malthusians

In 1972, a team of MIT researchers commissioned by the Club of Rome published The Limits to Growth. Its findings were grim:

> If the present growth trends in world population, industrialization, pollution, food production, and resource depletion continue unchanged, the limits to growth on this planet will be reached sometime within the next one hundred years. The

*This paper cannot be quoted without the permission of the author.

most probable result will be a rather sudden and uncontrollable decline in both population and industrial capacity.[1]

Although the book adopted a global perspective, it struck a responsive chord particularly among American intellectuals, journalists, and environmentalists, who dwelt on the fact that with a mere 6 percent of the world's population, the United States consumed 30 percent of the earth's energy. The New Malthusians reasoned, therefore, that it was especially deserving of close scrutiny. Ever since, they have gone about their work energetically. They admit that we have neither the population problems afflicting many developing countries nor the resource limitations of other industrial societies, but nevertheless believe we cannot escape a societal crisis promulgated by our insatiable quest for goods and services.

The New Malthusians proffer two disconcerting scenarios: First, either we drastically curtail growth or at some point in the future—perhaps even before the 21st century—we are bound to experience a cataclysmic economic collapse fostering serious and widespread social unrest and political upheaval culminating in a closed society. Second, even if we somehow avoid the first scenario, our profligate use of energy and chemicals will do irreversible damage to the environment, bequeathing to future generations poisoned air, polluted waters, and vast areas of ravaged landscape.

Acknowledging that prophets of doom like Malthus, Marx, and Spengler were, respectively, wrong about the world's population outstripping its food supply, the destruction of capitalism, and the decline of the West, the New Malthusians assert that we would be foolhardy to dismiss their warnings regarding ecological scarcity. Rufus Miles, Jr., a former HEW official explains why: "The extraordinary affluence of the United States has been produced by a set of fortuitous, non-replicable, and non-sustainable factors." [2] Among those Miles and others have mentioned are an enormous land mass blessed with a cornucopia of raw materials, bountiful fossil fuels available at deflated prices, and unrivalled technological know-how.

The United States still possesses abundant raw materials, but its inventory is shrinking. Moreover, those who depict environmentalists as "cranks" overlook the grim logic of exponential growth. Writing in 1976, William Ophuls remarked:

> Demand for all forms of energy in the United States now grows at a rate of five percent and is projected to grow at a rate of 3.5 percent over the next three decades. Since at this latter rate, demand doubles every twenty years, by the year 2000 Americans will need at least twice the energy they now use.[3]

We are sadly mistaken if we think we can avoid the inevitable resource crunch through recycling and conservation because "actual recycling efficiency for used metals is now on the order of thirty percent or less." Conservation will buy time, but only prolong growth a little while longer.

We cannot bank upon new discoveries and the substitution of materials either. "Most mineralogists and mining engineers are on the whole pessimistic about our finding substantial new supplies of ore." They "believe that the major metallogenic provinces, areas with a

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[1] Donella H. Meadows et. al., The Limits to Growth (N.Y.: Universe Books, 1972), p. 23.
[2] Rufus E. Miles Jr., Awakening from the American Dream (New York: Universe Books, 1976), p. 224.
[3] William Ophuls, Ecology and the Politics of Scarcity (San Francisco: W. H. Freemand & Co., 1977), p. 87.

high concentration of ore deposits, are well known and for the most part well explored." The ocean, moreover, "has been vastly overrated as a potential source of minerals." Substitution is no answer because if we attempt, for example, to "substitute aluminum for copper in most electrical uses, this transfer of demand would simply cause aluminum to be used up even more rapidly than projected." [4]

Finally, the New Malthusians reject the prospect that technological innovation will spare us the worst case scenario publicized by the Club of Rome. According to the British economist E. J. Mishan, technology "over the last 200 years has been based on physical conditions that no longer obtain: virtually unlimited resources and a virtually unlimited assimilative capacity of the biosphere." [5] In this last connection, having unlocked the mysteries of nature, we have produced toxic nuclear wastes and have glutted the air and water with such heavy concentrations of other pollutants that nature is unable to cope with the overload. The course ahead is clear, though exceedingly disagreeable: we must cut back drastically our use of energy and raw materials necessary to maintain economic growth.

B. The Prophets of Abundance

The Limits to Growth produced a storm of controversy, but it was not the first report to warn about the disastrous consequences of growth, so why did it create such an uproar? Several explanations present themselves. In the 1960s a number of books were published warning about ecological destruction, over-population, and dependence upon the Frankenstein monster of technology: Rachel Carson's Silent Spring, Paul Ehrlich's The Population Bomb, and Jacque Ellul's The Technological Society.[6] They helped prime the pump for The Limits to Growth's ominous message. Other factors included its association with prominent scholars, findings generated by computer analysis (Americans are enthralled with computers), and—perhaps most important of all—the energy crunch following the Yom Kippur war.

In late 1973, several Arab states cut off oil to Israel's staunchest supporter, the United States, and afterwards OPEC increased the price of petroleum fourfold, fostering a worldwide energy crisis. The escalating price of petroleum brought home a stark fact to Americans in particular: cheap energy, which fueled our industries, heated and cooled our dwellings, dried our agricultural crops, and provided the petro-chemical industry with inexpensive raw materials was a thing of the past. Could any reasonable person ignore ecological scarcity under such circumstances? [7] The environmentalists, convinced that developments had proven them right, said no.

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[4] *Ibid.*, p. 71, p. 66, p. 67, p. 68.

[5] E. J. Mishan, "Ills, Bads, and Disamenities: The Wages of Growth," in Mancur Olson and Hans H. Landsberg (eds.), The No Growth Society (New York: W. W. Norton & Co., 1973), p. 67.

[6] Rachel Carson, Silent Spring (Boston: Houghton Mifflin, 1962); Paul R. and Ann H. Ehrlich, The Population Bomb (New York: Ballantine, 1968); Jacques Ellul, The Technological Society (New York: Knopf, 1967

[7] Ophuls, (*op. cit.*, p. 9) defines ecological scarcity as follows: "Instead of simple Malthusian overpopulation and famine, we must now also worry about shortages of the vast array of energy and mineral resources necessary to keep the engines of industrial production running, about pollution and other limits of tolerance in natural systems, about such physical constraints as the laws of thermodynamics, about complex problems of planning and administration, and about a host of other factors Malthus never dreamed of. Ecological scarcity is thus an ensemble of separate but interacting limits and constraints on human action, and it appears to pose problems far surpassing those presented to our ancestors by scarcity in its classical form. . . ."

Their detractors admitted that the New Malthusians could not be blithely dismissed—not so much because of their intellectual arguments, but rather because they had organized into an effective lobby. They were blamed for delaying the construction of nuclear power plants, preventing off-shore oil exploration, and imposing new, stringent restrictions upon industrial operations and land use. To a large degree because the environmentalists had become a political force to be reckoned with, the no-growth/growth debate took on a new, practical aspect. The stakes were now higher than the reputations of scholars and polemicists; the advocates of no growth were affecting public policies, business, commerce, and jobs.

This development stimulated pro-growth advocates to launch a counterattack. In a book co-authored by H. S. D. Cole, "Models of Doom, the Limits to Growth" findings were declared unreliable; the methodology adopted by its authors was seriously flawed. Wilfred Beckerman, in his "Defense of Economic Growth," stated in layman's language why this was the case. He asserted that the research team allowed:

> . . . any assumed "bad" trends, such as pollution or the use of raw materials, to continue to rise exponentially, while, the "good" variables, such as techniques for reducing pollution, or for adding to raw materials, supplies, or reducing demand, and so on, are only allowed to increase by finite amounts. This, as anybody could see without a computer, must mean that, some day, the "bads" will outrun the "goods." Many eco-doomsters talk of "exponential" growth as if it were some great new discovery that had, once and for all, demonstrated the impossibility of continued economic growth.

In "The Next 200 Years" the futurist think tank, the Hudson Institute, claimed that there were abundant resources available to maintain high growth rates well into the 21st century.[8]

Carl H. Madden, in a paper produced for the Congressional Joint Economic Committee, disputed those who said we could not rely upon technology to maintain growth:

> It has become fashionable to say that from now on, economic growth will slow down. Yet, there are more reasons than ever to think that after a transition period, economic growth is much more likely to accelerate. For it becomes ever clearer that economic growth depends mainly on the advance of knowledge; indeed, that such growth is itself a form of the advance of knowledge, plus the innovator's drive to put that knowledge into productive effect.[9]

Finally, Daniel Bell stated that the pollution problem—what ecologists call the earth's limited carrying capacity—was not beyond resolution. The market provided the mechanism to deal with pollution. Society had not as yet adopted a solution, however, because the individuals and enterprises generating the costs associated with pollution did not "have to pay for them. But if air and water are treated as scarce resources, one puts a price on their use, and the existence of a price forces a user to economize on the resource." [10]

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[8] H. S. D. Cole et al. (eds.), "Models of Doom: A Critique of the Limits to Growth" (NY: Universe, 1973); Wilfred Beckerman, "In Defense of Economic Growth" (London: Jonathan Cape, 1974), p. 242; Herman Kahn, "The Next 200 Years" (NY: Morrow, 1976).

[9] Carl H. Madden, "Toward a New Concept of Growth: Capital Needs of a Post-Industrial Society," in U.S. Economic Growth from 1976 to 1986, Vol. 8, Capital Formation: An Alternative View (Washington: U.S. Joint Economic Committee, 1976), p. 4.

[10] Daniel Bell, "Are There 'Social Limits' to Growth?" in Kenneth D. Wilson (ed.), Prospects for Growth (New York: Prager, 1977), p. 17.

C. The Specter of Economic Stagnation

Today, the New Malthusians no longer command the high degree of attention they did earlier in the 1970s. Some of them have even changed their assessments of ecological scarcity. In the latest book published by the Club of Rome, Beyond the Age of Waste, one of its founders, Aurelio Peccei, writes, "In the course of several Club of Rome discussions it has been emphasized that the physical limits to man's existence will never be reached . . ." [11] In part because of such admissions, the proponents of growth no longer deign to debate the New Malthusians; besides they have more serious problems to worry about: stagflation and the failure of orthodox economic measures to cure it.

In its mid-year report, Outlook 1980s, the Congressional Joint Economic Committee alludes to a range of factors responsible for fears expressed by the Nation's leaders and the public alike:

> The study concludes that America's standard of living is threatened by slow growth policies. It firmly illustrates that policies which produce slow growth will not also produce price stability. A slow growth pattern for the 1980s implies an attendant rapid rise in the cost of living. (Moreover) if no new steps are taken to address the problem of structural unemployment, lagging capital formation, and a slowdown in productivity, then the American economy faces a bleak future.[12]

This prognosis appears to be the consensus of most economists who are troubled by declining consumer confidence, our balance of payments problem, dollar devaluation, and growing competition from "less developed" countries like South Korea, Taiwan and Singapore, as well as from our advanced industrial cousins. The concern uppermost in the minds of America's business and government leaders, however, is declining rates of productivity in the United States. They argue that the only solution to stagflation involves dramatic increases in the output of American industry which, in the 1970s, lagged behind West Germany, Japan, and even Italy:

> Since World War II, the United States has experienced three distinct periods of productivity growth. From the late 1940s until the mid or late 1960s, private sector productivity increased at an annual rate somewhat greater than three percent; from the mid or late 1960s to the early 1970s, it rose at an annual rate slightly greater than two percent; and from the early 1970s to the late 1970s, it increased at a rate slightly more than one percent. For the first half of 1979, output per hour in the private business sector actually decreased at an annual rate of 5.7 percent, the largest quarterly decline ever recorded in this series which began in 1947.[13]

Statistics of this kind have led many economists to believe it will be difficult to maintain growth rates equaling those of the 1970s, much less matching those of the prosperous 1960s. The pivotal question then is not whether the economy will grind to a halt because of scarce resources, but whether even with sufficient resources we will be able to maintain growth rates that can meet the American people's expectations.

The public understands that slower growth means less disposable income, a cutback on public services, and higher interest rates denying

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[11] D. Gabor et. al., Beyond the Age of Waste (New York: Pergamon Press, 1978), p. vii.
[12] Staff, Joint Economic Committee, Congress of the United States, Outlook 1980s (Washington: JEC, August, 1979), p. 2.
[13] *Ibid.*, p. 7.

millions of families the opportunity to purchase a home. But economic stagnation may have far graver consequences than most Americans realize or wish to contemplate—serious social strife and political upheaval fragmenting the country into numerous warring factions, and a crisis of confidence in the Nation's values and institutions denying us the unity of purpose and will to grapple with grave problems at home and abroad.

It is against this backdrop that we move on to phase four of the debate. It will treat a number of critical questions: What role has growth played in achieving unity out of diversity in one of the world's most pluralistic societies? Will economic stagnation foster serious social strife and political upheaval? And, if so, what form will it take? What are the cultural and political barriers to economic growth? And finally, what conclusions can be drawn from an analysis of the preceding questions?

II. Economic Growth: Achieving Unity Out of Diversity

Most of the world's pluralist societies, lacking a common bond of peoplehood, are wracked with racial, religious and ethnic discord. In others, political adversaries are locked in conflict over the legitimacy of the political and economic institutions. In still other countries, some leaders are striving to achieve rapid modernization while traditional elements are violently resisting them. Although in different ways, the foregoing applies not only to "developing countries" like Pakistan, Cambodia, or Iran, but also to developed countries like Belgium, Spain, Canada, Italy, and the Soviet Union.

It is a sad fact that most societies are attaining social order through coercion, not through a consensus of values, beliefs, and expectations. The United States is an exception.

Americans rarely dwell upon this great achievement, but friends and enemies alike worldwide, whose societies are being torn asunder by the centrifugal forces of diversity or economic inequality, ask the following questions:

How has the United States, with a population of 220 million people representing a cross section of the world's religions, races, and ethnic groups, amalgamated them into a viable nation?

How has it achieved social order on the basis of consensus and not coercion?

Why is it one of the few industrial societies where workers and employers alike are staunch supporters of the free enterprise system?

Why is it that Americans have always associated change with progress and have displayed a confidence in their capacity to solve problems that beguile most other peoples in the world?

If pressed, most Americans would argue that the adhesive binding our diverse society together is the belief in a trinity of convictions—popularly characterized as the American Dream—which are political, cultural, and economic in nature.

The political conviction: in spite of its limitations, the political system is essentially fair and responsive to the demands of its citizens.

The cultural conviction: as a nation blessed with a unique heritage, we possess the know-how to grapple with problems, foreign and domestic, which threaten our cherished values and institutions: it was pre-

ordained (some say by God) that we use science and technology to build a civilization excelling all others in history.

The economic conviction: the living standard of every generation will surpass those enjoyed by preceding generations.

All three are interrelated, but the focus of this paper demands that we evaluate the role economic growth has played in fostering a consensus of core cultural values, in legitimatizing our political institutions and in promoting a sense of peoplehood among one of the world's most diverse populations.

Public opinion polls indicate that most Americans believe economic prosperity is the single most important element in the viability of the American Dream. This does not mean they are crass materialists who deem political liberty, social equality, and religious tolerance to be of little value. They realize rather that our democratic institutions, an egalitarian social system and religious freedom historically have been linked to economic growth. Robert Nisbet says we need not feel guilty about the emphasis we place upon abundance. Indeed, the great thinkers of Greek antiquity were the first to believe "in the value of economic growth and prosperity . . ." and they accepted "material value of economic growth and prosperity . . ." and they accepted "material achievement as one of the signs of intellectual and moral advancement." [14]

The Founding Fathers associated growth with the just society too; but they also had compelling practical reasons to promote prosperity in the new republic. After gaining independence, it was confronted with two pivotal problems. The first was how to develop a national identity—an "American identity"—out of a diverse population that in many places did not share a common language, or religious or cultural heritage. The second problem involved the establishment of a national political authority deemed constitutionally superior to the authority of the 13 States. Seymour Martin Lipset, among other scholars, has observed that the Founding Fathers achieved both objectives in large part because of economic growth.[15] The Articles of Confederation were scrapped essentially for economic reasons and, had the economy faltered badly after the adoption of the new constitution, it is doubtful whether the former colonies would have chosen to remain within a common political community. In this connection, one does not have to be an economic determinist (or cynic) to cite the economic factors that resulted in the Civil War. A strong case can be made that, had the States of the Confederacy and their counterparts in the North not been at odds over economic policies, the South probably would have remained in the Union.

There are few historians, even Marxists, who would deny that economic prosperity in the war's aftermath helped integrate succeeding waves of immigrants into American society. During the tumultuous years from the late 1880s to World War I, when millions of immigrants from Eastern and Southern Europe arrived, they did not prosper as rapidly as our history books allege; but there is no doubt that they accepted the core values native Americans cherished—equality, the work ethos, individualism, etc.—because they did improve their economic position. They did not discard their old world values and

[14] Robert Nisbet, "The Rape of Progress," in Public Opinion (June/July, 1979), p. 5.
[15] Seymour Martin Lipset, The First New Nation (New York: Anchor Books, 1967).

traditions altogether, but this union of an American value consensus with economic prosperity minimized the impact of class and other divisions that later gave rise to communism in Russia, fascism in Italy, and nazism in Germany.[16]

The Great Depression caused millions of Americans to lose faith in the economy's capacity to maintain, much less improve, their living standards but a steadfast belief in the Nation's political institutions and core values helped mollify the discontent which gave rise to extreme right and left wing movements in Europe. The New Deal, of course, helped alleviate the people's plight and assuaged their fears about the future, thereby negating the prospect that more radical changes would be adopted. The resurrection of the AFL and the formation of the CIO also enabled workers to strive for better working conditions and wages within the system's existing institutional framework and henceforth helped harmonize labor-management relations.

World War II ended the Depression but there were those who feared it would resume after the war. Although high rates of unemployment and inflation in the post-war years were a cause for alarm, they soon declined. "The years from 1950 to the early 1970s were the longest period of growth that capitalism had ever experienced, almost a quarter century of nearly uninterrupted expansion." [17] From 1947 to 1965 the buying power of the average worker in the United States rose by more than 36 percent. By the late 1960s the percentage of Americans living in poverty had dropped discernibly. Even black and Hispanic Americans, who previously had been denied the fruits of prosperity, had reason to be reassured. Millions of them, whose parents had struggled a lifetime in poorly paid jobs as sharecroppers, maids, janitors and day laborers, were entering the Nation's colleges, earning middle-class incomes and filling professional and executive positions.

During the tumultuous 1960s, the average American's standard of living rose, denying radical elements mass-based support for change. At the same time, conservatives began to look upon Keynesian economics in a more positive light. The "new economics" had produced prosperity while it provided an alternative to radical left claims that poverty could be eliminated only through a drastic redistribution of wealth, made possible by revolution. Economic inequities could be handled by far less draconian measures within the system, i.e., by enlarging the pie, every segment of society could move up the ladder simultaneously. Meanwhile, liberal intellectuals like Daniel Bell wrote that post-war prosperity had put to rest the old ideological conflict between left and right. In a society where the vast majority of people were in, or would soon be in, the middle class, there was no basis for class strife.[18]

The various interest groups would continue to promote their respective goals and inter-group discord would persist (indeed, the progress minorities and women were making would, for a while, foster even stronger demands on their parts), but all Americans could take comfort in an expanding economic pie promising that one

[16] Richard Krickus, Pursuing the American Dream (New York: Anchor Books, 1976)
[17] Robert L. Heilbroner, Beyond Boom and Crash (New York: Norton, 1978), p. 12.
[18] Daniel Bell, The End of Ideology (New York: The Free Press, 1965).

day even those at the bottom could expect to enjoy the fruits of the world's most productive economy.

III. Economic Stagnation: Social and Political Implications

Because of dislocations suffered since the mid-1970s, confidence in the economy and the "new economics" has slipped, and forecasters looking at the next several years paint a bleak picture: Double digit inflation, interest rates that hover well over 10 percent, a paucity of investment capital, declining productivity, and high prices for energy and other raw materials. On the basis of such forecasts, many economists believe that economic stagnation may be a fact of life for the next several years or longer.

If they are correct, we can assume potentially grave social and political consequences for the United States and for other societies too. These consequences will be treated in this section of the paper.

A. The Social Consequences

Median family income adjusted for inflation rose 3 percent a year from 1960 to 1969, but from 1970 to 1978 it rose by a meager eight-tenths of 1 percent. In 1978 and 1979 the real purchasing power of workers declined: wages in 1978 rose by 7.7 percent while consumer prices jumped 9 percent; and in 1979, although wages increased by 8.7 percent, consumer prices grew by 13.3 percent.

Taking a closer look at income figures, it is clear that disparities between white and minority Americans exist. In 1978, for example, while median family income was $17,640, it was $18,370 for whites, $12,570 for Hispanics, and $10,880 for blacks.[19] Minority Americans also have experienced employment setbacks in recent years. From 1968 to 1978, while the ratio of employment to working age population among whites climbed from 58 to 60 percent, among nonwhites it dropped from 59 to 54 percent. Nonwhite adult males, females and teenagers during this period all lost ground in comparison with their counterparts in the white community. In early 1979, while white adult male unemployment was 3.6 percent, white adult female unemployment 5.0 percent, and white teenager unemployment 13.7 percent, it was 7.8, 10.6, and 32.7 percent respectively among black men, women, and teenagers.[20]

All available forecasts indicate that sluggish growth rates in the 1980s will cause blacks to suffer greater job losses than whites. Those who entered the labor market through affirmative action programs in the last half of the 1970s will be among the first to lose their jobs. From 1975 to 1978, 1.7 million blacks got jobs—to a significant degree through such programs—but because they lack seniority they will find it more difficult to hold onto them than most of their white workmates.[21] Under these circumstances, racial tensions may soar—along with the fortunes of demagogues in both communities who thrive on racial conflict.

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[19] The Washington Post, (November 25, 1979) and (Feb. 29, 1980).

[20] Murray S. Wernick and James L. McIntire, "Employment and Labor Force Growth: Recent Trends and Future Prospects," unpublished paper for the Joint Economic Committee; see also Paul O. Flaim and Howard N. Fullerton, Jr., "Labor Force Projection to 1990: Three Possible Paths," in Monthly Labor Review (December 1978).

[21] The Wall Street Journal (January 7, 1980).

A protracted economic downturn will also penalize women, young workers and senior citizens more than other Americans. Three-fifths of the women who joined the labor force between 1973 and 1978 were single, divorced, widowed or separated. A significant proportion of them are primary breadwinners whose economic situation is precarious. Like many minority workers, they are newcomers to the labor force, their salaries do not match those of white males, and if they are performing jobs traditionally held by men, they will be among the first to be fired in the event of a recession.[22]

The same will hold true for the under-35 generation of young workers who have not reached their peak income potential but who possess high expectations and are saving little and/or are deeply in debt. At the other end of the age spectrum, slow growth means that millions of Americans who have toiled lifelong to achieve a modest degree of economic security in their old age will live out their remaining years destitute. Stagflation is already punishing them severely today.

Poor people of all races, sexes and ages of course will be most seriously affected by slow growth. In 1973, 23.0 million persons lived in poverty, but in the next two years the recession caused 2.9 million people to join the ranks of the poor. By 1976 economic activity picked up and 900,000 persons worked their way out of poverty; but by 1977 only 300,000 could do so and by 1978 only 200,000 were so fortunate.[23] Perhaps the greatest tragedy of all is that the children of the poor, denied productive employment, are destined to become wards of the state for most, if not all, of their lives—robbing them of self-esteem and dignity and guaranteeing society problems of serious proportions.

Advocates of no-growth need to be reminded that, while Americans enjoy one of the highest standards of living in the world, millions of them do not have adequate medical protection, housing, or other essential goods and services their middle-class countrymen possess. Economic stagnation means it will become even more difficult for low income families to secure them.

Just as some New Malthusians choose to ignore this stark fact, many proponents of growth are inclined to be Pollyannish about the existing economic position of the United States and its people. They remind us that the country's GNP continues to grow and is the world's largest. Also, for most of the years over the past decade, American family incomes have kept ahead of inflation. Proponents of these sanguine observations, however, overlook two vital points—the size and the composition of the labor force.

First, between 1968 and 1978 there was a 25 percent increase in the work force; over 21 million persons were added. It was largely this factor, and not rising rates of productivity, which accounted for increases in the GNP during this period.[24]

Second, in most cases American families have maintained, improved, or suffered only slight setbacks in their living standards because of the infusion of women into the labor force—most significantly a growing number of wives and mothers. Between 1947 and 1975, the

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[22] Wernick and McIntire, *op. cit.*, p. 76.
[23] "Money Income and Poverty Status of Families and Persons in the United States: 1978," Census Bureau Advanced Report, P-69 (120) 1979, p. 28.
[24] See Wernick and McIntire, *op. cit.*, p. 4.

percentage of working wives rose by 205 percent, or from 6.5 to 19.5 million; and in 1975, for the first time, a majority of the Nation's mothers with school aged children—ages 6 to 17—held jobs outside the home. Most did so (and continue to do so) for economic reasons, not for self-fulfillment. That year median family income rose by $817 to $13,729, but inflation cut the typical family's purchasing power by 2.6 percent.[25] Not too long ago it was assumed that if a single breadwinner could not provide for the needs of the average family, something was seriously amiss with the economy.

Economic judgments aside, the two-breadwinner family which has become the norm in the United States may produce ominous social consequences. Eli Ginzburg has said, "This growth in female labor force participation (is) the most significant phenomenon of the 20th century." [26] This is an overstatement, but some educators and social scientists believe that poor performance at school, juvenile delinquency, and developmental disorders are all connected to home situations where the parents have little time for their children. Marital problems of all kinds may be exacerbated, seriously jeopardizing the integrity of the family. Increasingly state agencies will serve as surrogate parents, performing functions once monopolized by the family—the intellectual and moral development of children, care of the sick and elderly, etc.

Changes buffeting families may, in turn, be accelerating the erosion of viable local communities—i.e., social settings marked by the sharing of mutual obligations and rights, a commitment to one's neighbors, and concern for them and their welfare. In such places people enjoy a sense of place and well-being, most disruptive members of the community are held in check, and problems afflicting the community are largely handled informally through voluntary associations. Over the last several decades, these subtle mechanisms of social control have atrophied and, increasingly, appendages of the state have been compelled to fill the void left by the unraveling of stable communities. The political arena, in short, has become the focal point for making vital decisions previously the preserve of the family and community. If the insensitivity of large bureaucracies and the poor track record of many public institutions are as prevalent as numerous Americans claim, we cannot look upon this prospect with anything but grave misgivings.

B. The Political Consequences

We noted earlier that, when the Republic was founded, the first generation of leaders faced two serious problems. One involved promoting a national consciousness among a diverse population so that they thought of themselves as belonging to a single political (American) community. The other entailed their accepting a constitutional order which gave the national political authorities greater powers than those enjoyed by the State governments.

It is against this backdrop that three scenarios will be considered to assess the political consequences of economic stagnation: One involving the electorate losing confidence in government to the degree

[25] Urie Bronfenbrenner, "The Calamitous Decline of the American Family," The Washington Post (Jan. 1, 1977).
[26] Sheila Kamerman, Testimony at Joint Hearings, Subcommittee on Child and Human Development (Senate) and Subcommittee on Select Education (House) on February 2-3, 1978 (Washington: GPO, 1978).

that it demands dramatic changes in the constitutional order; a second entailing the people becoming so alienated that they turn their backs on politics altogether and seek solutions to their problems through private endeavors; and a third centered on bitter intergroup conflict resulting in the balkanization of the American political community—a Hobbesian world where each interest is at war with every other one.

1. THE RADICALIZATION OF THE ELECTORATE

According to one commentator, the United States is destined in the future to experience an economic crisis fostering radical political changes:

> Once relative abundance and wealth of opportunity are no longer available to mitigate the harsh political dynamics of scarcity, the pressures favoring greater inequality, oppression and conflict will build up, so that the return of scarcity portends the revival of age-old political evils, for our descendants if not for ourselves. In short, the golden age of individualism, liberty, and democracy is all but over. In many important respects, we shall be obliged to return to something resembling the pre-modern, closed polity.[27]

Not too long ago an observation of this kind would have been dismissed by the vast majority of informed Americans, yet today even judicious economists like Arthur Burns have stated publicly that inflation may destroy our democracy. It makes sense then to ask the following question: If we experience a serious, protracted period of economic decline, will the electorate turn, out of desperation, to far right or extreme left solutions to secure a semblance of economic security?

Since the mid-1950s polls have shown a marked increase in the number of voters who have lost faith in government. From 1958 to 1978 there was a sharp rise in the number of Americans who said:

> Government is run for a few big interests.—18 to 74 percent.
> Government cannot be regularly trusted to do what is right.—25 to 70 percent.
> Government is run by people who don't know what they are doing.—28 to 56 percent (1964).
> Government wastes a lot of tax dollars.—46 to 79 percent.[28]

It is on the basis of such data that pundits claim there is a "crisis of confidence" in the political system. The people agree with them; according to a poll conducted in July 1979, 86 percent was of this opinion.[29] It is conventional wisdom that the Vietnam war and Watergate are responsible for this condition, but surveys show that economic fears loom even larger in the electorates' minds. In August 1979 respondents were asked the following question:

> If there is a crisis of confidence, what do you think are the main causes? For example, do you blame the war in Vietnam for the present mood of the country a great deal, some, only a little, not at all . . .?[30]

Only 22 percent mentioned the Vietnam war; the first choice, 72 percent, was inflation. In assessing survey findings, it is dangerous to rely too heavily upon a single poll or even a series of polls without

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[27] Ophuls, *op. cit.*, p. 145.
[28] Public Opinion (Oct./Nov. 79), p. 29.
[29] *Ibid.*, p. 27.
[30] *Ibid.*, p. 28.

taking other factors into account, such as whether or not the issue is a short-lived one or tangential to people's lives. Unfortunately, inflation has been a persistent affliction over the past several years; there is no sign of its abating soon and it has clearly affected the lives and aspirations of the American people. Walter Dean Burnham has written, "It is hard to imagine how . . . high inflation, possibly substantial increases in unemployment, and persistent declines in the mass standard of living can be sustained indefinitely without producing a political explosion." [31]

If he is right, the electorate may, out of fear and frustration, turn to radical solutions for answers to the Nation's economic ills and press for fundamental changes in our political institutions. To date, however, stagflation has not convinced most Americans that our constitutional order is outmoded and needs to be scrapped or drastically changed. In the spring of 1979, 45 percent of a national sample said "no fundamental changes (were) needed in our political system"; 39 percent said "keep (the) system (but) revise (the) constitution"; and only 16 percent said the "system (was) completely outmoded." [32]

In spite of ample evidence that the electorate's faith in government has declined, support for the traditional institutional composition of our policy remains strong. A truly decisive turn toward the radical left or right will not take place barring economic disaster. This is unlikely because the social welfare programs first adopted during the New Deal will cushion the impact of serious dislocations linked to stagflation. Moreover, the American people have demonstrated on numerous occasions a penchant for incremental and not wholesale change even in the midst of economic hard times.

Although there is no evidence that it will turn to radical solutions in the future, the electorate's mood is volatile and it may become more strident if the economy falters. Economic concerns in the 1970s did not foster widespread political discontent because the people believed the economy was basically healthy and conditions would improve. Even those who expressed concern about the country's future were confident that the prospects of their individual families were good.

Recently, however, polls indicate a change in the public's thinking on both counts. During the 1970s, for example, the American Institute of Public Opinion annually asked a national sample whether they thought "next year will be better or worse" than the previous one. Early in the decade—even during the 1973–75 recession—most people maintained that "next year would be better", but in 1978 a reversal occurred so that by 1979 about 60 percent said "next year will be worse" while a little more than 30 percent said "next year will be better" than a year ago.

That same year the Gallup polling organization uncovered an even more alarming switch in public opinion. For 15 years it had found that even when Americans displayed doubts about the country's future, they reported confidence in their personal destinies. In 1979, however, a majority expressed dissatisfaction with "the future facing (them) and (their) family." Such findings may foretell the resurrection

[31] Walter Dean Burnham, "American Politics in the 1980s," Dissent (Spring 1980), p. 158.
[32] Public Opinion (Oct/Nov 1979), p. 35.

of heightened political discord. Everett C. Ladd has said, "Should the sense of personal welfare fade, American politics would almost certainly become more markedly angry and contentious, for it is personal optimism which has taken the edge off palpable public sector pessimism."[33]

Finally, the safety net provided by welfare state programs may be pulled out from under many Americans as a result of stagflation. "Without a constantly growing surplus, the modern welfare state cannot be supported at levels that the public has been taught to expect."[34] If this should come to pass, millions of low-income Americans who have not taken an active part in electoral politics may enter the political system in massive numbers, providing the conditions necessary for a realignment of political power. This is what happened during the 1930s when the Nation was traumatized by the Great Depression. If we have long-term stagflation in the 1980s, we may once again see a realignment of political power that produces changes which, though not radical, give impetus to a new era of activism and innovation . . . in the private as well as the public sectors.

2. POLITICAL APATHY AND TURNING INWARD

A second political outcome associated with economic stagnation may take the form of pervasive political apathy. In addition to data already cited, political scientists point to decreasing voter turnout (until recently) at all levels of the political process as an indication that the electorate is turned off by government. It is noteworthy also that political, and not just governmental institutions per se, have lost their luster in the eyes of the people. The most widely discussed example involves the electorate's unfavorable perception of the major political parties, a condition responsible for a rise in the number of voters who refuse to identify with either the Democratic or the Republican Party. Since party affiliation is of greater significance to voters in Congressional races, it makes sense to concentrate on off-year election figures to find evidence to this effect. It is revealing. In 1966 more than 45 percent of the electorate went to the polls; in 1970 the percentage dropped to 43.5 percent; in 1974, to 36 percent; and in 1978, to 35 percent. Another index of party decline is that voters (even those who identify with one of the two major parties) do not believe it makes much difference whether Republicans or Democrats win elections. An AP-NBC poll conducted in 1978 indicated that 48 percent of the electorate felt this way.[35]

Some political commentators dispute the claim that Americans are participating less in politics than in decades past: Voting data are misleading because nationwide people are organizing grass roots neighborhood, consumer, ecological and other local organizations to influence the political process. At the same time, single issue lobbies—other than traditional labor, business, and farming PACs—have become prominent in Washington over the past decade and this is further evidence of heightened political awareness.[36]

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[33] Public Opinion (Jan./Feb. 1979), p. 21.
[34] Burnham, *op. cit.*, p. 155.
[35] The Government Research Corporation, Politics, Parties and 1980 (National Journal Special Report, 1979), p. 1733; The Washington Post (November 13, 1978).
[36] For an analysis disputing the "crisis of confidence" in government theses, see Warren E. Miller, "Crisis of Confidence II—Misreading the Public Pulse," Public Opinion (Oct/Nov. 1979).

Even granting that Americans are participating in different ways than they did in the past, and that voter interest in the presidential caucuses and primaries suggests renewed interest in the electoral process, political apathy is a cause for concern. We cannot be sure that what appears to be a resurrection of voter interest (manifested by large turnouts in many primaries this year) is permanent; nor should we overlook the fact that the most vocal segments of the electorate are preoccupied with parochial issues. It is premature, then, to conclude that voter apathy and the electorate's disinclination to rally around programs designed to deal with national problems are behind us.

Political apathy may constitute a less serious threat to the United States than the political chaos (resulting in a closed society) forecast by some pundits, but in the 1980's it may be a more imminent cause for concern. The Nation's elected officials will be compelled to adopt unpopular policies, the success of which will depend upon whether or not the public can be mobilized behind them. Economic stagnation might well prompt millions of voters to adopt a bunker-like posture and turn toward private solutions to their problems. Most Americans welcome greater reliance on private rather than government efforts to solve problems troubling them and their neighbors; but when a society attempts to solve public problems through private solutions it is engaging in a form of social pathology. The Founding Fathers favored limited government, but they recognized that government had to play a predominant role in matters affecting the commonweal.

3. THE BALKANIZATION OF THE POLITICAL SYSTEM

The American people are at odds over which groups should make sacrifices dictated by shrinking public revenues and economic opportunities. We have already noted that the poor, the elderly, women, minorities and newcomers to the labor force will be disproportionately punished by economic stagnation. Should the economy falter badly in the future, social, ethnic and regional divisions latent during periods of prosperity may become manifest.

The "taxpayers' revolt" of the late 1970's has been characterized as a middle class reaction to "wasteful" government spending, but polls show that most Americans favor public programs except those associated with welfare. According to some pundits this may mean that the middle class is compensating for painful economic belt-tightening by denying funds to programs targeted at the disadvantaged. Economic stagnation in the 1980's then may well result in bitter conflict between poorer and more affluent elements of society at every level of government.

Concurrently, even relatively well-off groups and interests may find themselves locked in combat over a shrunken economic pie. In this connection, relations between organized labor and big business have taken a turn for the worse over the past several years. Indeed, many labor leaders believe that certain elements of the business community which previously accepted unions now want to destroy them and to tear up the social contract which has promoted labor/management harmony over the past 30 years.

Business spokesmen deny this. They assert, rather, that organized labor is in trouble for structural economic reasons: jobs lost to foreign

workers, the decline of industries most highly unionized, economic growth in parts of the country and sectors of the economy where unions have been weak, etc.

One thing is certain: A sluggish economy over a protracted period in the 1980's will give rise to clashes between labor and management which may take on an aspect reminiscent of those prevailing earlier in this century. The battle will not be restricted to the collective bargaining table but will spill over into the political arena. It will represent a setback for business, labor, and the country.

In the Nation's capital, meanwhile, political pundits have noted that it has become exceedingly difficult to mobilize support behind programs designed to treat national problems because of the absence of a national constituency and the power of single-issue interests. They cite a host of reasons for this condition which—along with evidence of a return to class politics and regional strife—has prompted commentators to speak of the "balkanization" of the American political community. These include widespread political apathy enabling organized interests to wield greater influence than unorganized segments of the electorate, the saliency of "social issues" like women's rights or abortion, and the power of public and private groups sharing functional interests whose influence is associated with the growth of publicly funded programs—transportation, education, etc.

The single most important development explaining the growing influence of single-issue interests, however, is associated with the decline of the political parties and party professionals. The latter have lost power in part because of the proliferation of binding primaries, the public financing of campaigns, and the importance of television, which has given rise to professional consultants who wield more clout in campaigns than the old party pros. Reforms in Congress reducing the power of the leadership in that body also have diminished the capacity of parties to shape the legislative agenda.

American parties have never been as strong and disciplined as their counterparts in Western Europe, but today they wield even less power than they did in years gone by because men and women running under their banners are less dependent upon them during campaigns and more independent of them once elected. In the past, candidates needed the support of party activists to gain office, but today they can reach more people through television, phone banks, and mass mailings funded by single-issue interests than via party-conducted activities.

Another manifestation of balkanization often cited by political commentators involves the so-called Sunbelt vs. Snowbelt conflict over spending formulas for urban development and other programs, certain tax policies, and the location of Federal installations. Competition of this kind is natural in a Federal system; but during a period of economic austerity it may become aggravated, further fragmenting the Nation and complicating the job of governance.

In summary, there is no reason to believe that the radical scenario will become a reality, but people troubled by a declining standard of living may press for decisive measures to deal with stagflation. Against the backdrop of the Nation's highly publicized "conservative" mood over the past decade, such actions may strike some commentators as "radical." (Others may deem them a precondition to changes which will enhance the prospects for economic growth.) The twin evils of

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political alienation and the balkanization of the political system, however, may be more imminent sources of concern. Persistent stagflation can magnify the scope and intensity of both impulses, doing grave harm to the consensus that has enabled our leaders to govern a large, complex, pluralistic society. To be more precise, they may find themselves grappling with a crisis of political community on the one hand and a crisis of national political authority on the other, denying them the means to resolve serious problems at home and abroad.

C. The International Implications of Economic Stagnation in the United States

Over the past 20 years, the world's countries have become increasingly interdependent economically. Consequently, developed as well as developing countries, and capitalist along with communist economies, have been affected by the soaring cost of petroleum. Some commentators believe the Soviet invasion of Afghanistan is part of a larger design to gain access to the oil-rich Middle East because by the end of the 1980s the USSR will become an energy-importing nation. The energy issue aside, a dramatic downturn in output in any one of the world's larger economies would have a profound impact upon the international market.

The United States no longer enjoys the economic hegemony it did well into the 1960s, but with a GNP approaching 3 trillion dollars it is the largest economy in the world. No other country imports and exports as many goods and services as it does. In 1978 its exports amounted to $207.2 billion while its imports were $217.5 billion.

Internationally traded goods and services now account for 10 percent of our GNP compared with 4 to 5 percent in the years before and after World War II. Since the early 1960s, exports have risen from 3 to 7 percent of manufacturing production, and much more for some categories.[37]

Of larger importance, the United States is the world's major exporter of food; about one-fourth of its farm output is sold outside the country, and for wheat the figure jumps to 50 percent.

In this last connection, some ecologists point out that the use of fertilizers is doing grievous harm to the environment and they advocate lower rates of agricultural output to spare the ecosystem. Without making light of the misuse of pesticides and other chemicals for agricultural purposes, reduced food production in the United States will deny the world food it desperately needs. The poorer nations whose people are starving or undernourished will be hardest hit. This explains why, during the 1972 Stockholm UN Conference on the Human Environment, the Third World countries displayed an indifference to ecological issues and why, at the 1974 Rome World Food Conference, there was a consensus among the delegates that food production must be expanded.

A decline in U.S. manufacturing output per se would not hurt the world market. The West Europeans, Japanese, and even some of the formerly "nonindustrial" countries like South Korea are producing steel, ships, cars and electrical equipment that were primarily produced

[37] Joint Economic Committee, Economic Indicators: November 1979 (Washington: GPO, 1979), p. 1; and Lincoln Gordon, "Growth Policies in a Global Perspective," (Paper prepared for Woodlands Conference on Growth Policy, Oct. 28-31, 1979), p. 37.

in the United States in the early post-World War II years. A serious recession in our country, however, would do grave damage because a collapse in demand would close the American market to them. If the U.S. economy remained stagnant for a year or more, a world-wide depression probably could not be avoided. Karl Marx would roll over in his grave, but the collapse of capitalism would harm many communist economies as well—especially those in Eastern Europe and to some extent the USSR's.

The economic prospects of the poorer countries would certainly take a turn for the worse. The demand for their commodities would decline, denying them the little foreign exchange they currently earn. Slow rates of growth would make it exceedingly difficult for political authorities in the industrialized countries to acquire the public support needed to provide foreign aid to the world's most indigent societies. The OPEC countries would not be spared either: their oil revenues would plunge, disrupting ambitious development schemes promulgated during an earlier era—when they had more petrodollars than many of them knew what to do with—and their investments in the capitalist countries would decline in value too. The ensuing political upheaval would make it even more difficult for the OPEC countries to stabilize political systems which are already precarious.

Under these circumstances, the prospects of military conflict would escalate dramatically and a serious East-West confrontation leading to a clash of arms could not be discounted.

IV. Cultural and Political Barriers to Growth

Although in sharp disagreement over the relationship between ecological scarcity and economic output, the New Malthusians and their critics agree that there are cultural and political barriers to growth. Herman Kahn laments that Americans have adopted counter-cultural values, first popularized in the 1960s, which will dampen productivity, while Rufus Miles, Jr. asserts that "the most significant limits to growth are buried deep within the human psyche and are not yet susceptible of quantification and computerization . . ." and that "it is the political limits that are likely to constrain the continuity of physical growth well ahead of other factors." [38]

A. The Cultural Barriers to Growth

Kahn argues that self-indulgent narcissism, one of the principal features of contemporary society, is linked to the influence of anti-business intellectuals who advocate self-actualization at the expense of material prosperity and deferred gratification. Robert Nisbet, in an even more sweeping indictment, claims:

> I can think of no intellectual change that has come over America in the latter part of the twentieth century that is more pregnant with institutional and material consequences than the almost complete disappearance—among intellectuals, not yet perhaps the majority of the people—of faith in progress.[39]

The so-called "neo-conservatives" (many of who define themselves as New Deal liberals who recognize the limits of government

[38] Miles, *op. cit.*, p. 2.
[39] Nisbet, *op. cit.*

and the positive aspects of the market) have been in the vanguard of those who blame intellectuals for undermining traditional values. But some left-wing writers make similar charges; in his bestseller, The Culture of Narcissism, Christopher Lasch takes a swipe at counter-culture therapists who "define love and meaning simply as the fulfillment of the patient's emotional requirements." Lasch is no fan of capitalism, but he asserts that self-indulgent gurus of the counter-culture who attack traditional ideals like "love" and "duty" have popularized a conception of mental health which "means the overthrow of inhibitions and the immediate gratification of every impulse." [40]

This may strike most students of growth as interesting but far afield from their concerns. They are mistaken; discipline and self-sacrifice are essential to productivity and capital formation . . . they are an integral part of the American business ethos.

In considering who is responsible for the popularity of anti-growth values it is a mistake to cite intellectuals as the only culprits; declining productivity is a multidimensional problem. Indeed, the case has been made that our individualistic business culture and the prosperity it has generated may be responsible for values, attitudes, and expectations that have become barriers to growth. It is noteworthy that one of the first economists to bring this anomaly to our attention was a champion of our system, not a critic.

Joseph A. Schumpeter, writing in the early 1940s, commented in Capitalism, Socialism and Democracy that capitalism's "very success undermines the social institutions which protect it, and 'inevitably' creates conditions in which it will not be able to live." [41] Thirty years later, in The Cultural Contradictions of Capitalism, Daniel Bell saw capitalism as fostering values, attitudes, and beliefs that were undermining the business ethos. The crux of Bell's thesis is that "the Protestant ethic and the Puritan temper were codes that emphasized work, sobriety, frugality, sexual restraints, and forbidding attitudes toward life . . ." [42] These pivotal features of early American culture were congruent with an economic system that stressed hard work, discipline and thrift. The upshot of this marriage was the development of the world's most productive economy. But over time the "traditional bourgeois value system" began to erode, ironically because capitalism produced the world's highest living standard. This transformation first took form during the 1920s when:

> . . . mass consumption . . . was made possible by revolutions in technology, principally the application of electrical energy to household tasks . . . and by three social inventions: Mass production on the assembly line, which made a cheap automobile possible; the development of marketing, which rationalized the art of identifying different kinds of buying groups and whetting consumer appetites; and the spread of installment buying, which more than any other social device, broke down the old Protestant fear of debt." [43]

By the 1950s, "the culture was no longer concerned with how to work and achieve, but with how to spend and enjoy.[44] During the

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[40] Christopher Lasch, the Culture of Narcissism (New York: Warner Books, 1979), pp. 42–43.
[41] Joseph A. Schumpeter, Capitalism, Socialism and Democracy (New York: Harpert Torchbooks, 1962), p. 61.
[42] Daniel Bell, The Cultural Contradictions of Capitalism (New York: Basic Books, 1976), p. 55.
[43] *Ibid.*, p. 66.
[44] *Ibid.*, p. 70.

prosperous 1960s the American people used their bulging paychecks to frenetically purchase goods and services. This self-indulgence carried over into the 1970s, prompting the journalist Thomas Wolfe to speak of the 70's as the "me decade."

It is apparent that there is a relationship between culture and economic growth, although it is a complex one. Is there, however, empirical evidence to support the thesis that changing values and attitudes are, in part, responsible for declining growth?

Most analysts believe this to be the case but to produce conclusive empirical data to this effect, studies indicating a one-to-one correlation between "laid back" values and lower productivity must be undertaken. One thing is sure: Some public opinion surveys indicate a shift away from traditional values like "hard work" and "getting ahead" toward so-called countercultural ones dwelling on "self-actualization" and "quality of life." Daniel Yankelovich and Bernard Lefkowitz, in an exhaustive analysis of polling data, assert that three ideals first promulgated during the 1960s are adhered to by a majority of the population today.

> First, the growing conviction that what is regarded as a "nose-to-the-grindstone" way of life—with its hard work, its unquestioning loyalty to employers and its suppression of desires that conflict with obligations to others—is too high a price to pay for material success.
>
> Second, the feeling that we have devoted too much of our time and attention in this country to the task of how to make a living and not enough to the question of how to live; hence, the current preoccupation with finding a "life style" that precisely expresses each person's unique individuality.
>
> Last, the belief that what counts most in life is that "I keep growing" as an individual, that "I have the opportunity to fulfill my potential," and that "I have a moral obligation to myself to do so." [45]

The authors conclude that "a new synthesis is forming, one that meshes three elements: The pursuit of economic stability (even at the cost of reduced consumption), more modest material expectations, and the drive to establish maximum control over one's own life and destiny." [46] If this is an accurate appraisal of the public mood, it strongly suggests that risktaking, innovation, and the adoption of other measures traditionally accounting for high levels of economic activity are being rejected in favor of a risk-free environment and getting along with less.

The public believes that Americans take less "pride in their work than they did 10 years ago." An NBC/AP poll conducted in the summer of 1979 found 64 percent of the people saying this. A declining number of them believe "hard work will always pay off if you have faith in yourself and stick to it." Fifty-eight percent believed this to be the case in 1968 but only 44 percent felt this way in 1978.[47] Inflation rather than attitudinal changes probably accounts for the shift; but we cannot even take comfort in this fact because the conviction that you don't get as much as you once did for your labor or investments, along with "countercultural" values, are mutually reinforcing and militate against productivity and savings.

Public opinion surveys also provide findings that are disconcerting to those who believe the "environmental movement" has seriously

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[45] Daniel Yankelovich and Bernard Lefkowitz, "National Growth: The Question of the 80's," Public Opinion (Dec./Jan. 1980), p. 56.
[46] *Ibid.*, p. 56.
[47] NBC/AP Survey, 1979.

curtailed growth in the United States. Robert C. Mitchell of Resources For The Future has conducted a study showing that from 1973 to 1978 there was a slight decline from a little over 60 to 52 percent of the population supporting more spending to protect the environment. But this still represents a majority; moreover, during this five-year period the Federal Government spent over $50 billion for environmental protection; yet most people felt more needed to be done. Furthermore, although people are reluctant to sacrifice jobs and energy production to protect the environment, 58 percent of them say that "we must accept a slower rate of economic growth in order to protect our environment" and in 1978, 53 percent said they were prepared to pay higher prices to do so.[48]

To counterbalance evidence suggesting a shift in values that signifies cultural barriers to growth, however, the following data and observations can be cited.

Yankelovich and Lefkowitz assert that, in assessing the relationship between values and growth, there is a "disparity between attitudes and behavior." This observation cautions us to remember that what people say and what they do are not always congruent. Those who are concerned about declining support for the work ethic also might take heart from polls showing that 61 percent of the population believes "people should place more emphasis on working and doing a good job than on what gives them personal satisfaction and pleasure." Among respondents 18–20 years old, however, those agreeing dropped to 49 percent and, although 79 percent of those with grade school educations agreed, only 52 percent of those who were college educated felt this way.[49]

Several factors should be considered, however, before jumping to the conclusion that young Americans and those destined to lead the country are going to oppose high growth rates in the 1980s. Educators nationwide indicate that their students are acutely aware of the Nation's economic difficulties; students at all levels have demonstrated that, unlike their older brothers and sisters, they are more favorably inclined toward a business career. For example, a larger percentage of the 1979 Harvard graduating class entered the job market directly—rather than going on to graduate school—than in years gone by. According to a Harvard report, the 1979 figure "represents the highest percentage entering the job market directly in 20 years." A study of the 1979–80 college freshman class nationwide also indicates that they are more concerned about their economic prospects than their counterparts in the past and more of them are headed for business careers.[50]

Finally, one can make the case that the "new values" adopted in the 1970s were made possible by prosperity generated in the preceding decade. Changing economic conditions at home and abroad, however, are compelling us all to acknowledge that we will have to work harder to maintain our high living standard. Americans probably will not discard their new values or concerns about the environment altogether, but if they find that their standard of living is eroding in the 1980s—and will continue to do so for several years—it is a safe bet that they

[48] Robert C. Mitchell, "Silent Spring/Solid Majorities," Public Opinion (Aug./Sept. 1979), p. 18.
[49] Public Opinion (Aug./Sept., 1979), p. 25
[50] The New York Times (Jan. 20, 1980); The Washington Post (Jan. 20, 1980).

will place more emphasis on traditional values like hard work, discipline, delayed gratification, and material prosperity.

More research is needed to determine whether or not changing cultural values are contributing to lower growth rates and, if so, to what degree, and whether or not such values will pervade throughout the 1980s. There is reason to believe, however, that lower rates of productivity among workers, mismanagement in government and the corporate community, declining student scores and the erosion of excellence among professionals have their roots in changing cultural values. Leaders in both the public and private sectors, therefore, must take them into account in seeking insight into growth related problems.

B. The Political Barriers to Growth

We mentioned earlier how economic stagnation is both producing political apathy among the electorate and fragmenting the American political community.

Together, these phenomena deny the Nation's political authorities the public support necessary to adopt unpopular measures or national initiatives which promote economic growth. In this section additional observations bearing on this problem will be explored, along with other political and administrative variables that may check productivity, fuel inflation, and make it difficult to implement pro-growth policies even if the American people support them.

Since the New Deal, government has increasingly played a pivotal role in economic affairs in terms of regulatory activities and a burgeoning public sector. During the 1970s, even supporters of positive government acknowledged that public regulation of business had gone too far. Deregulation in many sectors of the economy would encourage greater productivity, innovation, and competition. Today there is widespread agreement along these lines, although considerable disagreement about what areas and how far government should go in reducing its regulatory activities. These issues have been closely and exhaustively studied by economists and will not be treated here.

The issues of "big government"—more precisely heavy government spending in a range of areas—also has been the subject of much discussion and study. Among elected officials, and presumably with the support of most Americans, there is a consensus in favor of reducing government spending. But as Gary Shilling has observed in The Wall Street Journal, "while most (Americans) seem amenable to the rhetoric of fiscal austerity, a majority also have their feet in the government trough." [51] He is referring to the estimated 53.5 percent of the population who benefit from public spending, such as government employees and dependents, people in the private sector whose firms depend upon government contracts, and beneficiaries of government transfer payments and pensions. Public expenditures have escalated dramatically over the past 40 years with the expansion of the welfare state, and most people believe they are entitled to government monies made available through a variety of programs, tax schemes, etc. Efforts to curtail spending on domestic programs, therefore, will continue to encounter stiff resistance, especially since—contrary to

[51] See A. Gary Shilling, "A Majority Wants High Government Spending," reprinted in The Washington Post (Dec. 16, 1979).

popular wisdom—the politically potent middle class has received more in the way of benefits than the politically impotent poor.

An unstable international political system in the 1980s indicates, moreover, that government spending on defense is certain to escalate. Heavy Soviet investments in nuclear and conventional weapon systems, the Soviet invasion of Afghanistan, growing anti-American sentiment in the Third World, and a new mood among the electorate favoring the United States' adoption of a more aggressive posture abroad will result in mounting pressures for the procurement of new weapon systems, a larger standing Army, Navy and Air Force, and more overseas bases.

In spite of public displeasure with "big government" and growing support for government deregulation then, problems at home and abroad in the 1980s will necessitate close cooperation between the public and private sectors. Indeed, this may entail more intimate cooperation between the two than at any time since the 1930s.

This compels us to consider the prospects of achieving three privotal objectives in the 1980s: (1) Accomplishing compromises among various interests and groups which have a stake in government spending so that national programs can be adopted to fight inflation and foster higher rates of growth; (2) coordinating public and private economic activities; and (3) fostering closer cooperation among various disciplines which have a bearing on growth.

Daniel Bell succinctly summarizes why it will be difficult to accomplish these objectives. "Western society lacks both civitas, the spontaneous willingness to make sacrifices for some public good, and a political philosophy that justifies the normative rules of priorities and allocations in the society." In a similar vein, Irving Kristol laments the absence of a "transcending ideal" which fosters a sense of national purpose enabling us to set aside our particular interests to solve problems affecting the commonweal.[52]

The vast majority of Americans would like to return to the private sector functions which government has usrped, but there is no escaping the fact that government has a legitimate role to play in fighting stagflation and maintaining growth. Indeed, even prominent business leaders like Felix G. Rohatyn anticipate that in order to generate the capital the business community desperately needs to modernize and expand its enterprises, government may have to provide it and play a larger role in overall economic planning.[53] The problem here is how to coordinate the actions of decisionmakers in the private sector with those of their counterparts in government. A related question is how we deal with the large bureaucracies, public and private, which prevail in advanced industrial societies. During the 1970s conservatives accurately pointed out that, because of self-interest, idealism, and bureaucratic rigidity many managers of public programs fought for them even though they proved to be wasteful or poorly designed. Companion criticisms, however, can be made of large enterprises in the private sector whose productivity has declined because in many instances they have been protected from the discipline of the marketplace, while in other cases they have become victims of bureaucratic rigidity.

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[52] The Cultural Contradictions of Capitalism, *op. cit.*, p. 25; Irving Kristol, Two Cheers for Capitalism (New Yerk: Basic Books, 1978).

[53] Cultural Contradictions, *op. cit.*, p. 241.

To complicate matters further, how do we manage an increasingly complex society, fragmented into many parts, each of which is dominated by experts? This observation is proffered not to support those who are making a wholesale attack on expertise and excellence; on the contrary, it is presented to make the best use of the knowledge, technology and ingenuity which are hallmarks of our society. For many years social critics have dwelt upon the vertical gap separating experts from the man and woman on the street. Oftentimes "populist" critics stress the problem of accountability, and in a democratic society it cannot be ignored. But there is another issue at stake here which is linked to solving many of society's problems. Ordinary men and women in their capacity as workers, consumers, small business people, taxpayers, and residents of local communities, possess knowledge pertinent to the success of public programs. That knowledge must be tapped to enhance the performance of these programs. It is noteworthy, for example, that urbanologists now acknowledge that viable neighborhoods are vital to the health of our cities. But for years most "urban experts" simply did not appreciate the value of local communities and it was only after organized pressure from the grassroots compelled them to do so that they began to perceive this fact.

In assessing the complex problem of growth, there also is a horizontal gap separating members of various disciplines and areas of expertise which needs to be addressed. Our society has become so specialized that experts within the same discipline often cannot communicate with one another, much less with "outsiders." Jealous of their prerogatives and well organized, they often are disinclined to work with professionals in other fields even though the problems they are dealing with are systemically related. This means that, although the United States has a massive amount of data and sophisticated technology, it is becoming increasingly difficult to make use of it in solving problems that span several disciplines, industries, or the public and private sectors.

Another critical roadblock to the adoption of programs that meet the Nation's needs involves alliances of experts in the public and private sectors who share functional areas of interest and thereby monopolize policymaking in these areas. Even though they may not conspire to achieve their goals at the public's expense, their expertise legitimatizes their control of the policy-making process—problem definition and program development, implementation and evaluation. Since neither the public nor other interests possess the "necessary credentials," the people dominating the process cannot be held accountable for their actions. Democratic norms aside, this condition may perpetuate bankrupt policies which exacerbate rather than solve problems.

While political barriers to growth within the United States are the major focus of this paper, those existing in the international political system cannot be ignored. It is obvious that international economic interdependence demands closer cooperation on the part of the industrial societies, but economic stagnation may make such cooperation exceedingly difficult. If anything, students of the international economic system see rising signs of economic nationalism. Edward L. Morse notes:

> It is clear that economic nationalism today is motivated, wherever it appears, by the fear of economic vulnerability to processes that are poorly understood or

lie outside a government's control. It is motivated by the apprehension that unless certain actions are taken—the imposition of quotas, the use of export subsidies, and the protection of high technology sectors—a government will lose power to opposition forces at home because of its failure to cope with unemployment or, in a longer run, will relinquish the opportunity to provide the basis for national advancement.[54]

Policymakers acknowledge that the industrial societies must cooperate if they are going to enjoy the fruits of growth, but faced with well organized interests at home, what is economically rational may be politically suicidal during periods of economic uncertainty. An unpleasant related fact is that in what promises to be an unstable international environment in the 1980s, it is likely that the flow of petroleum will be disrupted, prices will be erratic, and efforts to achieve economic cooperation will be more difficult to arrange than in the past.

V. Conclusions and Recommendations

The New Malthusians are guilty of underestimating the importance of economic prosperity to the welfare of the United States. It is one of the major sources of cohesion in our society, an integral part of a democratic order sustained by a consensus of political, cultural and economic values and expectations. Protracted economic stagnation will do grievous harm to that consensus, opening up fissures—racial strife, for example—not long after we have made impressive strides toward closing the opportunity gap separating minority and white Americans. Currently, there are signs that stagflation has contributed to widespread apathy among some segments of the public, while the political loyalties of others are confined to single-issue interests reflecting a balkanization of the polity. The union of both afflictions—exacerbated by slow rates of growth—will make it difficult to mobilize popular support behind measures necessary to overcome serious problems within our society. At a time when relations between the United States and the U.S.S.R. have taken a turn for the worse, a viable economy and a unified Nation are vital prerequisites to a security posture that will deter agggression against us or our allies.

Economic dislocations in the United States will also damage the global economy, setting in motion political discord and social upheaval that will destabilize the international environment. In the wake of declining output, the plight of the world's poor will deteriorate even further. The fortunes of the West Europeans and Japanese—although they are among the eonomically priviledged—will suffer too, and their economic troubles will complicate our own. Under these circumstances, one does not have to be an alarmist to declare that the security of the democratic world will be placed in jeopardy. Against this backdrop of persistent economic difficulties at home and a climate marked by instability, unrest and aggression abroad, the United States must nevertheless press forward to expand its economic output.

Despite a paucity of data, we must at this point ask, "How do we grapple with the political and cultural factors affecting prosperity?" The following recommendations are by no means exhaustive, but are illustrative of the kinds of measures which must be taken to overcome noneconomic barriers to growth.

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[54] Edward L. Morse, "The New Economic Nationalism and the Coordination of Economic Policies," in Werner Link and Werner J. Feld, (eds.), The New Nationalism (New York: Pergamon Press, 1979), pp. 66-67.

A. Educating the Public About the Problems of Growth

The public and opinionmolders alike must be made aware of the importance of growth to our society, the factors threatening to slow it down, and ways to sustain it. Because we are dealing with a national problem, the entire country must be mobilized to overcome it. Our failure to adopt an adequate response to the energy crisis provides insights into the pitfalls to be avoided in educating the public about growth. Myths, half-truths and uncertainty about whether or not the Nation really faces an energy crunch have prevented the adoption of programs to reduce dependence on imported oil, conserve existing energy resources, and create new sources of energy—to cite just a few of the options that present themselves.

People must be persuaded that for the next several years there are serious economic problems in our path—as well as cultural and political barriers—which may prevent us from coping with stagflation. They must appreciate the reality that there are no magical solutions (increased defense spending may prevent a recession, but it will fuel inflation), and certainly no painless ones. Elected officials, who swim in the unpredictable tides of electoral politics, may be reluctant to share such disagreeable facts with their constituents lest they are deemed "prophets of doom" who have lost faith in our cherished institutions or, worse yet, oppose them altogether. A successful public education program, however, demands that they do so.

Proponents of growth must avoid the pitfall of ignoring the legitimate concerns of ecologists or depicting them as irresponsible "flakes" who would sacrifice jobs, profits and public services for frivolous reasons. Practices of this kind foster a credibility gap among millions of well informed, politically active Americans who realize that we do have serious ecological problems, and they lend credence to New Malthusian claims that growth and environmental protection are incompatible. The proper response to those who express concern about environmental problems is that they (and the serious disruption slow growth will foster) can best be treated through innovation and growth. We must, however, also develop growth policies which protect the environment and this means exploring new ways of doing things. Ironically, the doomsday forecasts of the New Malthusians encourage a mind set that could lead to fatalistic acceptance of a stagnant society which is ill prepared to grapple with the real ecological problems degrading the environment, and which confines tens of millions of human beings to a life of subsistence or less.

Another pitfall to be avoided is that, in making the case for greater "productivity" and "self-sacrifice," we not use them as code words which lay the blame for low productivity and inflation at the feet of working people or needy recipients of government assistance. The stark truth is that all segments of society share the blame for declining rates of productivity . . . top government officials and corporate executives as well as low level public employees and ordinary workers. Low productivity, then, is truly a societal problem. At the same time, those who are concerned about the poor must appreciate the fact that without economic growth the very people who need help most will not get it.

The crux of the matter is that the Nation's leaders must be prepared to air their concerns, insights and differences openly—emphasizing that it will be difficult to maintain high growth rates in the 1980's—and to provide options (few of them cost free) promulgating the prosperity to which Americans believe they are entitled.

B. Adopting a Holistic Approach and Exploring Institutional Changes

The problem of growth is complex and multifaceted and, therefore, does not lend itself to a one-dimensional approach. One of the contributions ecologists have made to our better understanding growth is that the hard sciences, the social sciences, and the humanities possess knowledge and methodologies which, integrated into a comprehensive intellectual framework, can enhance our understanding of the problem and suggest solutions to it. Most sophisticated students of growth concede as much, but given their diverse training, different needs, and distinctive areas of responsibility, they nevertheless address themselves to components of the problem and avoid looking at it comprehensively. The explosion of knowledge in the 20th century, prompting specialization and bureaucratization, accounts in large part for this anomaly. Clearly, an intellectual paradigm enabling us to place the vast amount of information we have in perspective, and paving the way for multidisciplinary approaches to societal problems, is a categorical imperative.

There are scholars and policy-oriented researchers associated with universities, large business firms, independent think tanks, and government agencies engaged in multidisciplinary studies of growth; but they are exceptions. Moreover, the "thinkers" and "doers" rarely are integrated into problem-solving teams; their interaction is restricted largely to occasional conferences, workshops and such. Given the complexity of the problem and the high stakes, perhaps the time has come to create a quasi-public agency which takes the Manhattan Project as a prototype. It would not be an ad hoc national commission, but a permanent organization bringing together representatives from the humanities, the natural and social sciences, government, business, labor, and voluntary organizations to conduct studies and design and implement programs bearing on growth. The problem areas treated would include the social, political and physical costs of growth as well as barriers to it, ways to overcome them, the coordination of activities across disciplinary lines, cooperative public and private endeavors, etc.

Consistent with this recommendation, we should consider other institutional adjustments that will enhance our ability to cope with the difficult years ahead of us. It is essential that we study new ways to organize society at the workplace, in the community, and in the political arena. Much has been written about making the workplace more appealing to the worker—e.g., auto workers performing several different tasks during the work day or allowing a team of them the option of building an entire car rather than pieces of it. It is too soon to determine whether such experiments will increase productivity or not, but more of them must be developed and tried. The same goes for programs linking the workplace to the community, such as day care centers and other programs reflecting the important role women play in the labor force today.

We should also reevaluate our educational curriculum. At present we provide the student with instruction in physics, economics, English, etc. and each discipline has its distinctive body of knowledge,

methodology and language. The student is asked to integrate the disparate information, insights and analysis made available. We must explore ways to provide students with a curriculum which, from the outset, seeks to integrate knowledge and methodology gleaned from the natural sciences, the humanities, and the social sciences.

Given the dramatic changes which have taken place in the population, size, and complexity of our society since the Constitution was adopted in the 18th century, we must explore the relationship between government and the delivery and financing of public services which represent a large part of our GNP.

The single most important and far-reaching institutional readjustment which needs to be considered, however, involves the relationship between the public and private sectors. The failure of economies in the communist world to achieve high rates of productivity and a quality of output comparable to the capitalist societies is compelling evidence that a free market economy is perferable to a state-controlled one. This knowledge, in part, has contributed to mounting pressure for government to reduce the role it has played in our economy. Most economists argue that higher productivity is the only real answer to stagflation and that the private sector offers us the greatest hope of improving it. But an important caveat needs to be underlined here; in the 1970s, by assigning functions to government which it was not prepared to handle, we contributed to declining confidence in the political system. In the 1980s, we must be careful that we do not undermine faith in the private sector by implying that it can resolve problems beyond its capacity; that is, we must recognize the limitations of the market.

As Lincoln Gordon, a forceful advocate of the free enterprise system, has observed:

> . . . market forces . . . are comparatively efficient allocators of resources and means of linking together an enormous web of economic activities. Yet it is hard to believe that they are a sufficient guide to the longer-term processes of structural change in which all societies are involved.[55]

He favors government largely taking responsibility for structural growth policy, while the private sector through the free market—where possible—implements it. He proposes that the "cardinal aim of structural growth policy should be to provide resilience" which he describes as "the capacity to adapt smoothly and rapidly to unexpected change, whether its sources are shifts in preferences, technological innovations, the curtailment of foreign markets or supplies, or new competition from some unexpected source." [56] Resilience, he observes, is "a necessary but not sufficient component of planning for structural change." Gordon would:

> . . . complement it with affirmative guidance for certain strategic sectors, using market forces to the maximum for the implementation of those objectives and retaining a very broad area for untrammeled initiative and competition, including real reward for successful innovation.[57]

The truism that neither the public nor the private sectors alone can solve our problems has undermined the utility of traditional right/left labels. In their place one finds growing appreciation for solutions to pressing problems whatever their source. What the vast majority of Americans want is to strike a balance between government and free market activity fostering material prosperity, political

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[55] Lincoln Gordon, *op. cit.*, p. 34.
[56] *Ibid.*, p. 35.
[57] *Ibid.*, p. 36.

freedom, and a culture that encourages individual initiative and expression. This is consistent with Gordon's recommendation. Unfortunatley, it cannot be said with confidence that we know how to proceed along the lines Gordon proposes, but there is no doubt that we must attempt to move in that direction.

C. Encouraging International Cooperation

International cooperation will be exceedingly difficult in the 1980s. It is ironic that, at a time when the world's countries are becoming more interdependent economically, the political environment has become unpredictable and unstable. Events in Iran indicate that centuries-old diplomatic norms have been violated. The Soviet invasion of Afghanistan has set back US-USSR efforts to develop more harmonious relations politically, economically and militarily. It has compelled the West to reappraise the merits of detente and it appears that relations between the two superpowers may get worse before they get better.

Ever since OPEC quadrupled the price of petroleum in the early 1970s, the industrial countries have displayed fears associated with the availability and soaring costs of oil. High energy prices have destabilized the international monetary system, fueled inflation, and caused serious balance of payments problems. To deal with these problems, greater international economic cooperation is imperative. But domestic factors and differences among the Western democracies suggest that such cooperation will be difficult to achieve.

Since the 1960s, the expectations of people residing in the industrial countries have risen dramatically, and today governments are held responsible for the health of the economy. To a greater degree than at any time in history, the legitimacy of political authorities is "based upon their ability to deliver jobs, maintain relatively stable prices, distribute wealth equitably, enlarge the economic pie, and provide a better quality of life." [58] Their existing economic difficulties have made them even more aware of this truism. Consequently, they will be reluctant to adopt economic policies consistent with greater international economic cooperation if they cause economic hardships at home.

At the same time, because allies like West Germany and Japan are more dependent upon foreign oil than the United States, it has been difficult for the democracies to develop a coherent and consistent policy toward the OPEC cartel. Our massive appetite for energy, meanwhile, is cited by them as contributing to worldwide inflation, which threatens the global economy. The inability of the industrial states to cooperate on a range of important economic fronts has caused some commentators to speak of a "new mercantilism"—i.e., the adoption of defensive economic policies which protect one nation's economy at the expense of other ones'. Edward Morse explains why policy coordination among the industrial countries has become increasingly difficult:

> . . . the United States no longer has the authority or capacity to impose economic guidelines or to enforce them. A world that is becoming more multi-polar and pluralistic is simply incompatible with economic hegemony. Historical experience does not warrant optimism that a group of governments will be able to adjust their interests in compatible ways without the pressure of strong international leadership by one state.[59]

[58] Morse, *op. cit.*, p. 68.
[59] *Ibid.*, p. 77.

Although its ability to wield economic power on the world stage has declined, the United States must take the initiative in forging economic cooperation among its trading partners. It is foolhardy to think the United States alone can develop a range of policies that enable the industrial democracies to work together toward sustaining high rates of economic growth. Nonetheless, it has the largest economy, it is less vulnerable to military and political intimidation than its allies, and the United States, therefore, must take the lead in developing long-term policies to accomplish that objective. The Soviet's fateful decision to employ force outside their traditional spheres of influence makes this even more imperative.

D. Developing a Public Purpose

Public opinion surveys indicated that there is a crisis of confidence in our Nation's institutions and leaders, and ambivalence about the values past generations of Americans have cherished. This national malaise, moreover, has fostered disunity among the people. The cumulative traumas of Vietnam, Watergate, and most recently stagflation are cited as the basis for both conditions. This depiction of the public's mood may be overdrawn, but a pivotal question confronting our society as we enter the 1980s is: "How do we restore confidence in our institutions and forge a public purpose around which the people can unite—a purpose enabling them to apply their impressive resources to the resolution of problems threatening their welfare and the severity of their country?"

History instructs us that a societal vision unifying a people around a common agenda cannot be legislated. A religious covenant served that purpose when the Puritans first colonized the country, and a secular one inspired a later generation of Americans to fight for its independence. The country was stricken by a civil war when that common bond was broken in the 19th century. During the 20th century, the Great Depression and World War II unified the people and inspired them to act decisively.

Americans, then, throughout their history have shared a vision of the public good, although sometimes it has been more widespread and compelling than at others. Circumstances—economic, political and social—have had a lot to do with the form it has taken and the impact it has had upon the people.

Today, there may be a positive side to our Nation's economic difficulties and to an international environment which over the past year has taken on a more ominous aspect. It is perhaps premature, but reports from around the country indicate that the American people are displaying a new consciousness. This could indicate that we are about to embark upon a cycle in our history when the people recognize that unity and sacrifice are prerequisites to solving problems, domestic and foreign, which threaten their well-being.

This transformation of the public's mood would provide the Nation's leaders with the opportunity to adopt measures previously lacking electoral support. To secure a popular mandate, however, it must be demonstrated that the political system can be responsive to the people, that the "new values" are not necessarily incompatible with the old ones, and that the country's output of goods and services will be made available to all Americans.

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