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S. HRG. 102-1096

# **THE U.S. INVESTMENT GAP**

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## **HEARING**

BEFORE THE

## **JOINT ECONOMIC COMMITTEE CONGRESS OF THE UNITED STATES**

**ONE HUNDRED SECOND CONGRESS**

**SECOND SESSION**

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**MAY 8, 1992**

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Printed for the use of the Joint Economic Committee



U.S. GOVERNMENT PRINTING OFFICE  
WASHINGTON: 1993

69-451cc

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For sale by the U.S. Government Printing Office  
Superintendent of Documents, Congressional Sales Office, Washington, DC 20402

ISBN 0-16-041081-9

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# THE U.S. INVESTMENT GAP

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FRIDAY, MAY 8, 1992

CONGRESS OF THE UNITED STATES,  
JOINT ECONOMIC COMMITTEE,  
*Washington, DC.*

The Committee met, pursuant to notice, at 10:35 a.m., in room SD-628, Dirksen Senate Office Building, Honorable Paul S. Sarbanes (chairman of the Committee) presiding.

Present: Senator Sarbanes and Bingaman, and Representatives Arme and Obey.

Also present: Lee Price and Mark Forman, professional staff members.

## OPENING STATEMENT OF SENATOR SARBANES, CHAIRMAN

SENATOR SARBANES. We will now turn to our second hearing this morning. The Joint Economic Committee is meeting to examine investment in the U.S. manufacturing sector, relative to our major foreign competitors. If Mr. Curtis, Mr. Choate and Mr. Barfield would come forward, we will commence with our second hearing this morning.

[Pause.]

In our second hearing this morning the Joint Economic Committee is meeting to examine investment in the U.S. manufacturing sector, relative to the investment made by our major foreign competitors.

Twenty or thirty years ago, few American businesses or policymakers paid much attention to the investments being made by foreign competitors. American producers held a strong technological lead in most major industries. Rivals here at home posed the primary competitive threat to most American producers. So, when they talked about competition, they thought about other American producers rather than producers overseas.

Today, virtually all major American producers face stiff competition from foreign producers. A growing number of U.S. industries no longer hold technological leadership and some have fallen behind their foreign rivals. The future prosperity of the American economy will hinge less on whether we do better than our own past history, and more on whether we can do better than our foreign rivals.

Unfortunately, debates over investment in the United States too often ignore the importance of foreign competition. Some point to one set of numbers to argue that investment in the 1980s was modestly better than the 1970s, while others point to other numbers indicating that the 1980s were much worse. In other words, they make a chronological comparison solely within the United States. Meanwhile, major foreign rivals such as Japan and Germany, are investing at higher rates than the United States by virtually all measures.

At today's hearing, we want to put aside the comparisons of U.S. time periods and focus on current international comparisons. In particular, we have asked our witnesses to compare the recent investment patterns of the United States and our major foreign economic rivals, particularly Japan.

In recent years, while U.S. investment in the manufacturing sector has been slumping, Japanese investment in manufacturing has been booming. Despite a population half our size, Japan's manufacturers have spent more on investment than manufacturers in the United States, both in R&D and in plant & equipment. Other evidence shows Japanese producers investing more than American producers to train the average manufacturing worker.

This "investment gap" between the U.S. manufacturing sector and its major foreign rivals will have a lagged effect on U.S. producers. It will take several years for Japan's spurt of investment in new product design and process modernization to work its way through the factory and to then be reflected in a greater share of world markets. Likewise, a slump in our investment would take a period of time to work itself through and be reflected in a declining share of world markets. Thus, we will not observe the full effect of this gap on sales and in jobs and on the trade balance until later in this decade.

We have with us this morning some witnesses who have analyzed the recent investment patterns in the United States and abroad, and they will share with us their observations of the likely effect that this will have on U.S. producers in the years ahead. We are particularly interested in hearing about their perspective on the competitive position of specific U.S. industries.

Mr. Ken Courtis is a financial analyst based in Tokyo who is thoroughly familiar with the investments being made in the Japanese manufacturing sector, and has also been examining U.S. industries.

Mr. Claude Barfield is a trade economist at the American Enterprise Institute. He has written about American research and development activities. Mr. Pat Choate is the director of the Manufacturing Policy Project and has had a longstanding interest in the competitive position of U.S. manufacturing industries. Gentlemen, we are very pleased to welcome you to the committee. We are looking forward to this panel.

We have your full statements, so if you could, please summarize them for the record. After we have heard from all three of you, we will go to questions. Before I turn to you, Mr. Courtis, I will defer to any of my colleagues who may have some remarks.

#### **OPENING STATEMENT OF REPRESENTATIVE ARMEY**

REPRESENTATIVE ARMEY. Thank you, Mr. Chairman. I'm going to ask that my formal remarks be placed in the record. In addition to that, let me thank you for calling these hearings, and I express my welcome to each of the panel members. Particularly, I am delighted to see Mr. Choate, a former graduate school colleague of mine. I should mention, Pat, this last week I had the opportunity to visit with Professor Hibden,

and we still agree that microeconomics is number one. I should think Jim and I will always share that conviction.

Mr. Chairman, other commitments will not allow me to remain for the hearings and so I must go. Before I do, I wonder if I could anchor my side with a couple of quotes from Adam Smith. In the hearings, I always worry about the fact that they may go astray and down the primrose path of protectionism or national industrial policy, so if I could just cite Smith, with respect to both of those.

With respect to the question of whether or not there should ever be public direction of the Nation's capital, Smith's great observation, and my favorite Smith quote is:

No where would it be so dangerous as in the hands of those who had folly and presumption enough to think themselves fit to exercise it.

Then, secondarily, with respect to the fear that we may move in a protectionist direction, let me just cite Smith's observation about trade, as he cited the wonders of specialization and exchange and said:

What is wise and prudent for individual families can scarce be folly for great nations.

With two quotes from Adam Smith, I am absolutely confident that we have built a foundation of truth that can not be endangered and I therefore must move on to my other duties.

Gentlemen, again I thank you for being here and I look forward to reading your testimonies. Thank you, Mr. Chairman.

SENATOR SARBANES. Congressman Obey, any comments?

[No response.]

SENATOR SARBANES. We are pleased to be joined by Senator Bingaman, who has taken a keen interest in this competitive issue. Senator Bingaman, any comments?

SENATOR BINGAMAN. I have no statement. I appreciate the witnesses and appreciate your having the hearing.

SENATOR SARBANES. Mr. Courtis, we would be happy to hear from you, sir.

### **STATEMENT OF KENNETH COURTIS, FIRST VICE PRESIDENT, DEUTSCHE-BANK CAPITAL MARKETS**

MR. COURTIS. Mr. Chairman, members of the Committee, I am delighted to be here with you this morning. I express my gratitude for the gracious invitation to come and share with you a few ideas that we have in looking at the investment and research figures about Japan and North America.

You have asked me today to address these issues and to set them into perspective. I think that it is interesting to take a minute or two to consider the serious problems that Japan faces today. The economy is in a recession, a recession that will take another two or three years to really unwind itself. This recession comes after a remarkable growth faze in Japan. In just the last 60 months, compared to America over the last decade, the Japanese economy has increased by 30 percent in real

terms, from 1979 to 1989, which grew at 30 percent. Japanese manufacturing has increased by 34 percent in real terms over that period.

Over the last 60 months, that growth cycle in Japan was essentially driven by capital investment. From 1986 to 1991, that economy invested just over three trillion dollars in net new manufacturing plant and equipment investment and another 500 billion dollars in R & D. That has given this economy even more momentum, such that, as it goes through this recession, it melts off the fat that was accumulated during the heady growth period of the 1980s and restructures and slashes costs. And I believe it will come out of this recession even stronger than it has been in the past.

But this massive investment in Japan that we have seen over the last five years is not something new. Indeed, it is characteristic of the Japanese economy over the last 30 years. Indeed, as a proportion of GNP, Japan has invested more than the United States every year for the last quarter of a century. But it probably didn't matter much in the 1960s when Japan, relative to America, was about the size of Korea today but it certainly does now when that economy is 60 percent the size of the United States.

If you take the figures that the IMF released two weeks ago about long-term sustainable growth rates, if these trends were to continue over the next decade, the economy of the United States and the economy of Japan would be about the same size, on the basis of current figures.

Mr. Chairman, you mentioned the things that are now in the pipeline, on the basis of investments that have already been made by the mid-1990s, Japan will have a manufacturing base that is larger than that of the United States.

Already we can see in the trade numbers the effects of this massive investment in R&D. Remember the Plaza Accord? The devaluation of the dollar was designed to resorb the Japanese trade account surplus.

Remember on the eve of Plaza in 1984, the trade account surplus was 44 billion dollars. So far this year, the trade account surplus of Japan is running at an annual rate of three times that, at 132 billion dollars a year. The increase in the trade account surplus is a direct result of Japan's increased competitiveness, which itself is an increase as a direct result of this massive investment and R&D.

On a per capita basis—and I submit that that is a proper basis for evaluating these numbers—in 1991, Japan outinvested America by about \$3,200 per capita. Japan's investment was \$5,320 per capita. America was \$2,177 per capita.

At that point, the gap is no longer a quantitative one. It starts to become qualitative. If I am investing \$2,000 a year, maybe I have the best electric typewriter available. If my competitor is investing \$5,400 a year, his people have an engineering work station, and it doesn't matter how long or how hard I work with my typewriter. I can't be competitive over the long term with someone who is working with an electronic work station.

So it is that investment gap that I think is critical to the economic position of this country during the period ahead. When you look at that

investment gap on a per capita basis and you aggregate it, the numbers then become really of the type that should focus our mind. The investment gap screams out to be addressed. The investment gap is about three quarters of a trillion dollars on a nominal basis, when we aggregate it for population size.

But even if we were to use, Mr. Chairman, the purchasing power parity index that the OECD or the IMF proposes—and I hesitate to do this because the purchasing power parity index is based on the price of consumer goods and there is no agreement about what PPP should be: Estimates vary between 138 yen to the dollar and 212 yen to the dollar. But let's just take the recent IMF, one which is 192 yen to the dollar. Even on that basis, Japan outinvested America last year on a per capita basis, aggregated for the population, by \$400 billion. You can make the argument that the yen is undervalued at these exchange rates, otherwise why would this economy have a \$130 billion trade surplus.

So how ever you cut the numbers, even if you take the approach that minimizes the gap, the gap is huge and increasing, and will increase at an increasing pace through the 1990s, unless the current course of affairs is reversed.

Let me go on to the second gap that I see emerging, and that is the gap in research. In 1991 the Japanese invested about \$825 per capita in research. North America and America invested about \$600 per capita. Of the research in North America, the research of the United States, about 45 percent is government funded. Of that government funded research, about four-fifths of that is related to military expenditure.

If, in the post-Cold War era, military budgets are unwound, we will find very quickly that that small gap is now starting to open up in the research field is going to very quickly accelerate. Certainly, the Japanese are moving on their part to accelerate, to deepen the gap, because they have established as a research target for 1996 3.5 percent of GNP. Research to GNP in North America peaked in the mid-1980s and is now running at 2.8 percent of GNP. So the gap now will become increasingly important if military research cannot be replaced by corporate-sector research.

Mr. Chairman, I submit that what we are seeing in the marketplace today, the new products coming out of Japan, the lower cost structure coming out of Japan is really the result of decisions made in Japan by corporate Japan in the mid-1980s, in the post-Plaza period. The things that are coming out of the pipeline by the mid-1990s will be the result of decisions that are made now.

When we look at the decisions that Japan has made over the early 1990s, we can already see where their position is. In the 36 fastest growing industrial sectors in 1980, America was ahead or leading in 31, Japan ahead or leading in nine. In 1990, of the 36 fastest growing industrial sectors, America was ahead or leading in 24, Japan in 17.

On the basis of the best information that we have with capital investment and on R & D and talking to what I think are the best minds on these issues around the world, our projections are that if the current course of affairs is not changed by the year 2000 in the 36 fastest growing industrial sectors, Japan will be ahead or leading in 31 and America



will be ahead or leading in only 16. That is the nature of the shift in the international economic industrial balance of power that I think, over the long term, would condition the international political role that America can play.

Thank you very much.

[The prepared statement of Mr. Courtis, together with attachments, follows.]

## PREPARED STATEMENT OF KENNETH COURTIS

Good Morning,

My name is Kenneth Courtis; I am First Vice-President of Deutsche-Bank Capital Markets, and lecture at Tokyo and Keio Universities. As Strategist and Senior Economist for the Deutsche Bank Group in Asia, I conduct analysis on major economic, industrial, technological and financial developments in Japan and the Pacific, and attempt to assess their impact on the world economy. It is an honour to be with you today.

You have asked me today to address the questions of recent developments in the Japan's domestic economy and financial markets, the longer-term trends at work in the Japanese economy, and to compare these with U.S. industrial performance.

Japan today is facing a number of serious problems. After five years of unprecedented expansion, during which the economy grew by an amount equal to the entire annual GNP of France, the world's fourth largest economy, Japan is today in recession. Although both the equity and real estate markets have fallen substantially from the peak of early 1990, both markets are yet to bottom. More pain is ahead. Caught in the tightening jaws of a policy-induced liquidity squeeze, a sharp decline in earnings, and the inability to raise new funds in the equity market, corporate Japan has entered still another phase of sharp cost cutting, and rationalization.

One immediate result of this situation is that wage increases this year will be the lowest since 1985, and so consumer spending, which has already slowed from the heady pace of the late 1980's, will slow still further. That is the key reason why imports to Japan have been so weak in recent months, and are set to remain anemic during the period ahead. At the same time, Japan's exports have surged.

The direct and immediate result of these dynamics is that Japan is currently running a trade account surplus at an annual rate of \$132 billion. That

is two and half times the trade surplus in 1984, on the eve of the Plaza Accord which was presented at the time as the panacea for eliminating Japan's trade surplus.

The key reason that Japan's exporters have moved so aggressively back on to the attack in world markets, however, is not the recession in Japan's domestic economy. Rather, it is the result of the unprecedented levels of private sector plant and equipment investment and the building commitment to research and development that now characterize Japan's domestic economy.

From 1986 through the end of last year, total private sector plant and equipment investment in Japan's domestic economy exceeded \$3 trillion dollars. In addition, Japan committed another \$500 billion to research and development. It is this massive investment that has been critical to the strategic repositioning of the Japanese economy since the mid-1980's and which, despite the present recession, positions Japan to continue to have the fastest growing economy in the OECD economy through the 1990's.

Indeed, rather than the current recession announcing the eclipse of Japan as an economic super-power, analysis of the deeper, long-term forces at work in the economy suggests that the effect of the current transition will be to set the economy on track for a new period of explosive expansion, and a still stronger international competitive position than the country enjoys today.

Further, should current long-term trends continue, I expect Japan to become the world's number one manufacturing power by the mid-1990s, and surpass the United States as the world's largest economy early in the next decade. That would perhaps leave the United States as the world's leading political power, but would mean that America would have slipped to second place as a world economic power.

Today, America's manufacturing sector is roughly \$1.2 trillion and that of Japan \$1 trillion. Should present trends remain in place, Japan's manufacturing sector would exceed that of the United States in absolute terms as early as 1996.

Three forces at work in the economies of Japan and the United States are key to driving these shifts in the international economic, industrial, and financial balance of power:

1. A building investment gap between Japan and the United States which is seeing Japan widely out-distance America in the installation of new investment in plant and equipment.

2. An widening deployment gap that sees Japan deploy state of the art manufacturing equipment faster and more widely than the United States.

3. An expanding performance gap which is seeing Japan's leading corporations play an increasingly dynamic and leading a role overall in an ever larger number of critical industrial sectors for the future.

Of these, the most striking factor is the investment gap between Japan and the United States.

In absolute dollar terms, Japan has been out-investing the United States by an increasing amount since the late 1980's. On the basis of nominal data, Japan out invested the United States by just over \$110 billion in 1991.

When one thinks of the relative price structure of the two countries, the widely documented difference in prices between the two countries leads at first to think that nominal figures overstate the investment gap. Is it not the case that typically Japanese products that one finds in the shops of America are cheaper than they are in Japan?

That certainly is the case for a wide variety of consumer products. But when one considers only investment goods, it is the reverse that is the case. Capital equipment is typically cheaper in Japan than it is abroad. As a result, when investment figures are set on a real basis, after adjusting for inflation, the investment gap widens still further, and was some \$230 billion last year.

But even these figures do not allow to measure the real extent of the building investment gap between Japan and the United States.

Japan's economy is only three-fifths that of the United States, and its population is only just half of that of America. What is critical from an international competitive perspective is not absolute dollar values of capital investment, but rather the investment effort a country is making relative to its overall GNP.

From this perspective, not once in a quarter of a century has America invested as much as Japan. And the gap has doubled since the mid-1980's, such that while America has invested just over 10% of its GNP in new plant and capital equipment in recent years, Japan has climbed up to 20% of its GNP.

In absolute dollar terms, on an inflation-adjusted basis, that means that Japan out-invested America last year by some \$440 billion. While capital

investment will be down this year and next in Japan because of the recession, this already massive investment gap is set to widen still further through mid-decade.

When measured on a per capita basis, which analysts agree is the most appropriate base of measure, the investment gap takes on its full, critical importance. In 1991, Japan invested some \$5,320 per capita, while America invested \$2,177. When measured on a total population basis, that means that the investment gap was an enormous \$794 billion dollars in 1991.

Some analysts contest these figures and argue that purchasing price parity (PPP) adjustments to the data must be made in order to take a real measure of the comparable investment effort being made in the two economies. With estimates of the PPP yen to dollar exchange varying between 138 and 212 yen to the dollar, it is far from clear how useful such calculations are for analytical work.

Further, PPP calculations are based on comparable baskets of consumer goods, between economies, and so do not capture what is really at issue: the international competitive effect of the widely different investment effort being made by Japan and the United States. Since capital equipment is typically cheaper in Japan than the U.S., it makes little sense to use the consumer PPP to measure differing levels of investment between the two nations.

But even when the PPP exchange rate most favorable to the United States is used, the trend to a widening investment gap remains unchanged. America's investment gap with Japan is absolutely enormous, and continues to expand on a long-term basis.

Mr. Chairman, I would ask permission at this point to submit for the record a series of charts on the investment performance of the United States and Japan.

I would be happy to respond to any questions. Thank you.

**JAPAN AND UNITED STATES  
THE WIDENING INVESTMENT GAP  
AND  
THE EMERGING RESEARCH GAP**

**KENNETH S. COURTIS  
STRATEGIST AND SENIOR ECONOMIST  
DEUTSCHE BANK CAPITAL MARKETS  
(ASIA)**

**HONG KONG AND TOKYO  
MAY 1992**

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# JAPAN AND UNITED STATES TOTAL CAPITAL INVESTMENT

(In NOMINAL U.S. \$ BILLIONS)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<b>JAPAN</b>	163	173	194	217	317	386	498	534	596	661
<b>UNITED STATES</b>	414	400	469	504	492	497	545	571	587	550
<b>INVESTMENT GAP (US MINUS JAPAN)</b>	251	227	275	287	175	111	47	37	-9	-111

**NOTE: Data are nominal and based on total private sector plant and equipment investment for Japan and U.S.  
Currency conversions are based on average annual exchange rate.**



**JAPAN AND UNITED STATES  
CAPITAL INVESTMENT TO GNP  
(PERCENT OF NOMINAL GNP)**

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<b>JAPAN</b>	14.9	14.5	15.2	16.1	15.9	15.9	17.1	18.5	19.5	19.5
<b>UNITED STATES</b>	13.1	11.7	12.4	12.5	11.5	10.9	11.1	10.9	10.6	9.7
<b>INVESTMENT GAP (US MINUS JAPAN)</b>	-1.8	-2.8	-2.8	-3.6	-4.4	-5.0	-6.0	-7.6	-8.9	-9.8

**NOTE: Data are based on total nominal private sector plant and equipment investment for Japan and U.S.  
Currency conversions are based on PPP exchange from IMF.**

**JAPAN AND UNITED STATES  
CAPITAL INVESTMENT PER CAPITA  
(IN NOMINAL U.S. DOLLARS)**

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<b>JAPAN</b>	1,372	1,449	1,610	1,791	2,601	3,159	4,057	4,331	4,672	5,320
<b>UNITED STATES</b>	1,783	1,707	1,979	2,106	2,036	2,037	2,213	2,308	2,348	2,177
<b>INVESTMENT GAP (US MINUS JAPAN)</b>	411	258	369	315	-565	-1,122	-1,844	-2,023	-2,324	-3,143

**NOTE: Data are based on total nominal private sector plant and equipment investment for Japan and U.S.  
Currency conversions are based on average annual exchange rate.**

# JAPAN AND UNITED STATES TOTAL CAPITAL INVESTMENT

(In REAL U.S. \$ BILLIONS)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
JAPAN	164	178	198	222	331	422	552	590	640	725
UNITED STATES	418	406	473	504	483	481	513	524	530	495
<b>INVESTMENT GAP (US MINUS JAPAN)</b>	<b>253</b>	<b>228</b>	<b>275</b>	<b>282</b>	<b>152</b>	<b>59</b>	<b>-39</b>	<b>-66</b>	<b>-110</b>	<b>-230</b>

NOTE: Data are based on total real private sector plant and equipment investment for Japan and U.S.  
Currency conversions are based on average annual exchange rate.

**JAPAN AND UNITED STATES  
CAPITAL INVESTMENT TO GNP  
(PERCENT OF REAL GNP)**

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<b>JAPAN</b>	15.8	15.8	16.7	18	18.5	19.2	21.1	23.2	25.1	25.3
<b>UNITED STATES</b>	11.6	11.0	12.5	12.5	11.8	11.8	12.3	11.7	11.6	11.2
<b>INVESTMENT GAP (US MINUS JAPAN)</b>	-4.2	-4.8	-4.2	-5.5	-6.7	-7.4	-8.8	-11.5	-13.5	-14.1

**NOTE: Data are based on total real private sector plant and equipment investment for Japan and U.S.  
Currency conversions are based on average annual exchange rate.**

**JAPAN AND UNITED STATES  
CAPITAL INVESTMENT PER CAPITA  
(IN REAL U.S. DOLLARS)**

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<b>JAPAN</b>	1,375	1,455	1,615	1,791	2,635	3,257	4,201	4,527	4,831	5,491
<b>UNITED STATES</b>	1,800	1,733	1,996	2,106	1,999	1,972	2,083	2,118	2,120	1,960
<b>INVESTMENT GAP (US MINUS JAPAN)</b>	425	278	381	315	-636	-1,285	-2,118	-2,409	-2,711	-3,531

**NOTE: Data are based on total real private sector plant and equipment investment for Japan and U.S.  
Currency conversions are based on average annual exchange rate.**

# JAPAN AND UNITED STATES TOTAL CAPITAL INVESTMENT

(U.S. \$ BILLIONS on a PPP basis)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
JAPAN	147	161	188	217	287	316	382	404	411	464
UNITED STATES	414	400	469	504	492	497	545	571	587	550
<b>INVESTMENT GAP (US MINUS JAPAN)</b>	267	239	281	287	205	181	163	167	176	86

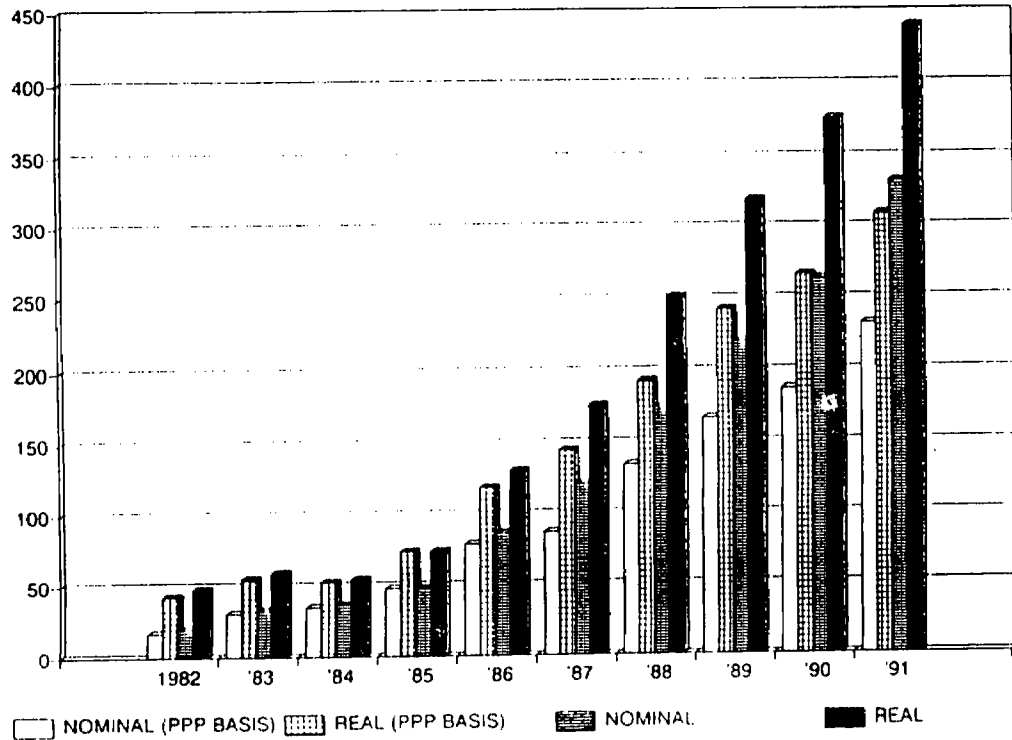
NOTE: Data are based on total real private sector plant and equipment investment for Japan and U.S.  
Currency conversions are based on PPP exchange rate from IMF.

**JAPAN AND UNITED STATES  
CAPITAL INVESTMENT PER CAPITA  
(IN U.S. DOLLARS ON A PPP BASIS)**

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<b>JAPAN</b>	1,240	1,351	1,584	1,791	2,356	2,586	3,108	3,275	3,317	3,735
<b>UNITED STATES</b>	1,783	1,707	1,979	2,106	2,036	2,037	2,213	2,308	2,348	2,177
<b>INVESTMENT GAP (US MINUS JAPAN)</b>	543	356	395	315	-320	-549	-895	-967	-969	-1,558

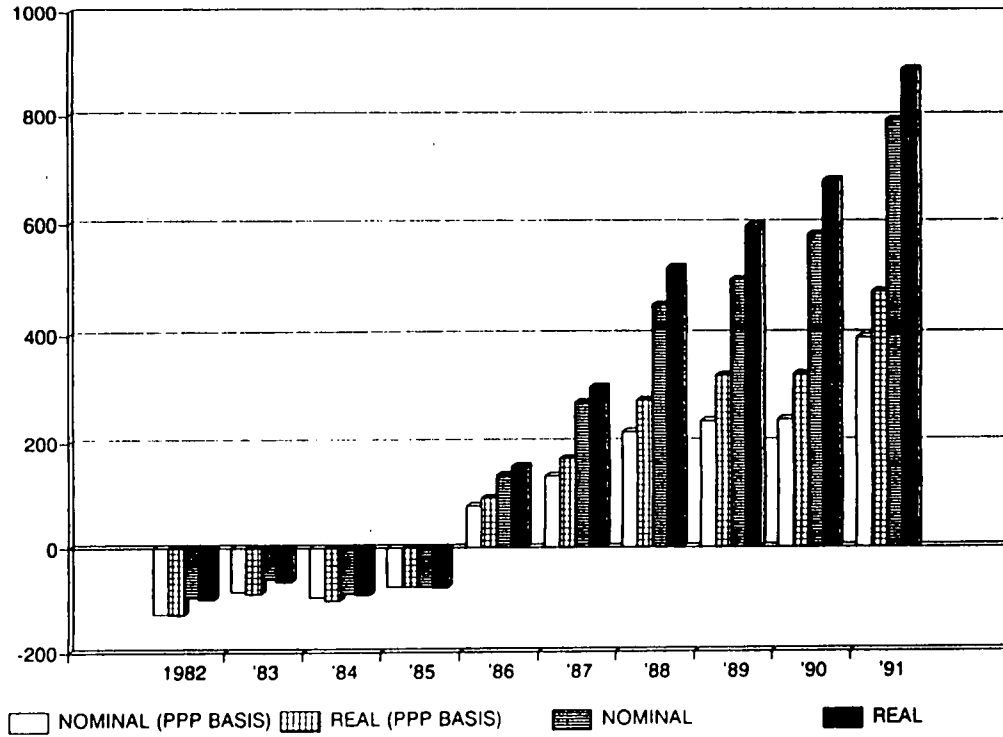
**NOTE: Data are based on total private sector plant and equipment investment for Japan and U.S.  
Currency conversions are based on PPP exchange from IMF.**

# JAPAN AND UNITED STATES INVESTMENT GAP ON A PROPORTION OF GNP BASIS (IN US \$ BILLIONS)





# JAPAN AND UNITED STATES PER CAPITA INVESTMENT GAP ON A TOTAL US POPULATION BASIS (US \$ BILLIONS)



**JAPAN AND UNITED STATES**  
**PER CAPITA INVESTMENT GAP ON A TOTAL US POPULATION BASIS**  
 (IN US \$ BILLIONS)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<b>NOMINAL (PPP BASIS)</b>	-126	-83	-94	-75	77	134	220	239	242	394
<b>REAL (PPP BASIS)</b>	-129	-88	-101	-75	94	169	279	323	327	478
<b>NOMINAL</b>	-95	-60	-87	-75	137	274	454	500	581	794
<b>REAL</b>	-98	-65	-90	-76	154	302	522	596	678	891

**JAPAN AND UNITED STATES**  
**INVESTMENT GAP ON A PROPORTION OF GNP BASIS**  
 (IN US \$ BILLIONS)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<b>NOMINAL (PPP BASIS)</b>	17	31	35	48	79	87	134	166	187	232
<b>REAL (PPP BASIS)</b>	43	55	53	74	119	144	192	242	267	309
<b>NOMINAL</b>	20	33	36	48	87	121	174	220	264	332
<b>REAL</b>	20	33	36	48	87	121	174	220	264	440

## JAPAN AND UNITED STATES TOTAL R&D

(IN NOMINAL U.S.\$ BILLIONS)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
JAPAN	26	30	33	37	55	68	83	86	90	100
UNITED STATES	81	88	100	116	122	128	136	145	151	157
INVESTMENT GAP (U.S. MINUS JAPAN)	55	58	67	79	67	60	53	59	61	57

**NOTE:** Data are nominal and based on total R&D spending for Japan and U.S.  
Currency conversions are based on average annual exchange rate.

**JAPAN AND UNITED STATES  
R&D PER CAPITA**  
(IN NOMINAL U.S. DOLLAR)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
JAPAN	221	253	276	308	448	556	675	695	725	854
UNITED STATES	349	376	422	485	503	523	554	585	603	622
INVESTMENT GAP (U.S. MINUS JAPAN)	128	123	146	177	55	-33	-121	-110	-122	-232

**NOTE: Data are nominal and based on total R&D spending for Japan and U.S.  
Currency conversions are based on average annual exchange rate.**

**JAPAN AND UNITED STATES  
R&D TO GNP  
(% OF NOMINAL GNP)**

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
JAPAN	2.4	2.5	2.6	2.8	2.7	2.8	2.9	3.0	3.0	3.1
UNITED STATES	2.6	2.6	2.6	2.9	2.8	2.8	2.8	2.8	2.7	2.8
INVESTMENT GAP (U.S. MINUS JAPAN)	0.2	0.1	0.0	0.1	0.1	0.0	-0.1	-0.2	-0.3	-0.3

**NOTE: Data are based on total R&D spending for Japan and U.S.  
Currency conversions are based on average annual exchange rate.**

## JAPAN AND UNITED STATES TOTAL R&D

(IN REAL U.S.\$ BILLIONS)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
JAPAN	27	31	34	37	55	68	84	85	89	102
UNITED STATES	87	92	102	116	120	124	129	133	134	137
INVESTMENT GAP (U.S. MINUS JAPAN)	60	61	68	79	65	56	45	48	45	35

**NOTE: Data are based on total real R&D spending for Japan and U.S.  
Currency conversions are based on average annual exchange rate.**

**JAPAN AND UNITED STATES  
R&D TO GNP**  
(% OF REAL GNP)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
JAPAN	2.4	2.5	2.6	2.8	2.8	2.9	2.9	3.1	3.2	3.3
UNITED STATES	2.4	2.5	2.6	2.9	2.9	2.9	2.9	2.9	2.9	3.0
INVESTMENT GAP (U.S. MINUS JAPAN)	0.0	0.0	0.0	0.1	0.1	0.0	0.0	-0.2	-0.3	-0.3

NOTE: Data are based on total real R&D spending for Japan and U.S.  
Currency conversions are based on average annual exchange rate.



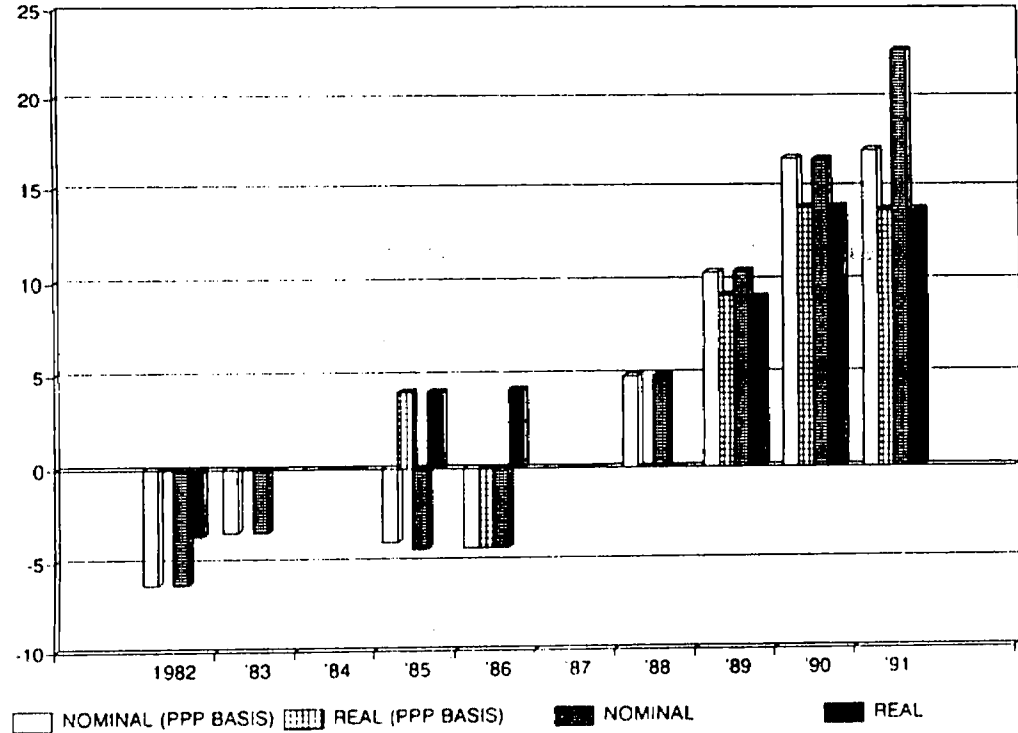
## JAPAN AND UNITED STATES R&D PER CAPITA

(IN REAL U.S. DOLLAR)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
JAPAN	229	259	279	308	448	559	681	690	716	822
UNITED STATES	375	393	432	486	497	509	526	536	537	544
INVESTMENT GAP (U.S. MINUS JAPAN)	146	134	153	178	49	-50	-155	-154	-179	-278

**NOTE: Data are based on total real R&D spending for Japan and U.S.  
Currency conversions are based on average annual exchange rate.**

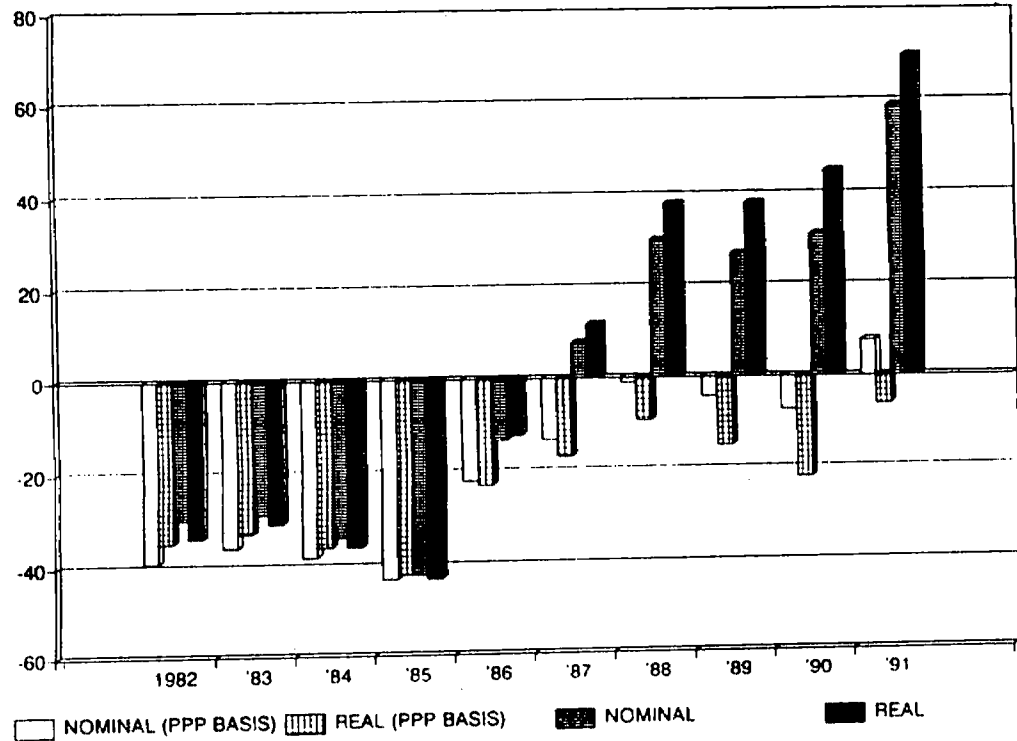
# JAPAN AND UNITED STATES R&D GAP ON A PROPORTION OF GNP BASIS (U.S. \$ BILLIONS)



**JAPAN AND UNITED STATES**  
**R&D GAP ON A PROPORTION OF GNP BASIS**  
 (U.S. \$ BILLIONS)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<b>NOMINAL (PPP BASIS)</b>	-6.3	-3.4	0	-4	-4.3	0	4.9	10.4	16.6	17
<b>REAL (PPP BASIS)</b>	0	0	0	4.1	-4.2	0	0	9.2	13.9	13.8
<b>NOMINAL</b>	-6.3	-3.4	0	-4.4	-4.3	0	4.9	10.5	16.5	22.7
<b>REAL</b>	-3.6	0	0	4.1	4.2	0	0	9.1	13.9	13.8

**JAPAN AND UNITED STATES  
PER CAPITA R&D GAP ON A TOTAL US POPULATION BASIS  
(U.S. \$ BILLIONS)**



**JAPAN AND UNITED STATES**  
**PER CAPITA R&D GAP ON A TOTAL US POPULATION BASIS**  
 (U.S. \$ BILLIONS)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<b>NOMINAL (PPP BASIS)</b>	-39	-36	-38	-43	-22	-13	-1	-4	-7	8
<b>REAL (PPP BASIS)</b>	-35	-33	-36	-42	-23	-17	-9	-15	-22	-6
<b>NOMINAL</b>	-30	-29	-34	-42	-13	8	30	27	31	59
<b>REAL</b>	-34	-31	-36	-43	-12	12	38	38	45	70

SENATOR SARBANES. Mr. Barfield, we would be very happy to hear from you.

**STATEMENT OF CLAUDE BARFIELD, COORDINATOR, TRADE POLICY STUDIES, THE AMERICAN ENTERPRISE INSTITUTE**

MR. BARFIELD. Thank you very much, Mr. Chairman.

Because the hearing was put together fairly quickly and I had to think about what would be a contribution, in terms of testimony, to launch us into questions, and because with much of what Mr. Courtis has to say about the investment gap, I don't disagree, I thought I would look at the outputs out of the United States for the last decade to give us another launching point for whatever discussion you want for the rest of the time period.

So what I have done is put together a group of charts, and I would like to walk briefly through them and then we can get on to the discussion. You have, I think, the charts in front of you.

Basically, what I wanted to do was take a look at U.S. manufacturing vis-à-vis not so much Japan—not Japan at all—but vis-à-vis the rest of the world and vis-à-vis where the restructuring of our economy, vis-à-vis earlier times, to give us some sense of where it seems to be trending.

SENATOR SARBANES. Could I interject? When you say the rest of the world, you are talking about everybody, is that right?

MR. BARFIELD. Yes. You will see that when I talk about growth rate, I am focusing on either externally everyone or what is happening internally in the United States. I'm not particularly focusing on Japan.

SENATOR SARBANES. Or even the industrial countries?

MR. BARFIELD. NO.

SENATOR SARBANES. You are including all of the underdeveloped countries?

MR. BARFIELD. That's right. I don't think it would be important in the equation—the underdeveloped—except for those countries, such as the gang of four, which are now appearing in terms of percentages of exports, percentages of GNP. I don't think the lower level of the world economies are important in any sense for our discussion today.

From Chart 1, you can see manufacturing import into the United States has grown faster than the rest of the world, from 1979 to 1989. Chart 1 shows, according to World Bank data, U.S. output of manufacturing grew at an average compound rate of about 3.8 percent. From 1980 to 1989, world manufacturing grew at a somewhat lower rate of 3.5 percent. Our output, just for comparison with the World Bank, does have comparisons for the United States. It doesn't have them for the rest of the manufacturing world from 1965 to 1980, which is not on here. Our average compound rate was about 2.5 percent.

SENATOR SARBANES. Would those figures change significantly if the base year was not a recession year? 1980 was a recession year.

MR. BARFIELD. I think 1980 would be a lag in output. You are comparing the same years roughly. It is not a peak. 1989 is the end of a growth period for the United States, where you're actually slowing

down a little bit. From 1979 to 1980 was about the same. There may be some adjustment, but it has not been thrown in to say it is a year of recession and a year of growth.

U.S. manufacturing grew somewhat more rapidly than the average growth of nonmanufacturing sectors in the U.S. economy. As Mr. Courtis pointed out, I think the constant dollar output of U.S. manufacturing grew by about 34 percent. Since the rest of the U.S. economy did not grow quite so fast, this meant that the share of manufacturing in U.S. constant dollars between 1979 and 1989 grew from 22.3 percent of GNP to 22.6 percent.

I want to talk a little bit about the other charts and tables—the restructuring within the manufacturing sector. While U.S. manufacturing overall has experienced substantial growth changes in output for individual industries, manufacturing has varied widely. Machinery has been the fastest growing U.S. manufacturing industry, with production more than doubling in ten years, and here I would refer to Chart 3 and Table 1.

Exceptionally strong growth was also recorded for petroleum and coal products, up 80 percent. Transportation equipment, other than motor vehicles, is up almost 80 percent. Rubber and plastic products, 56 percent. Electric and electronic equipment, up about 50 percent.

The other end of the spectrum: manufacturers of tobacco, leather products, natural resources and primary metals, as you can see, have declined dramatically.

Look at Table 2. If you would refer to these next changes, it relates to changes in industry shares of total U.S. manufacturing input. Table 2 shows the share of total manufacturing output accounted for by each manufacturing industry in 1979 to 1989, as well as their rank order in each year.

The largest single change or gain has been the rise in the share of machinery, from 12 percent of U.S. manufacturing since 1979 to 18.8 percent in 1989. The largest single decline in share or gain is primary metals, down from 7.4 percent to 4 percent in 1989.

Now, Chart 4 shows the change in the share of U.S. manufacturing output, between 1979 and 1989, for each of the 21 manufacturing industries. It is striking that U.S. manufacturing sectors gaining share tend to be those that one would expect the production of higher technology products are located: machinery and electronic equipment, non-automotive transportation equipment—aircraft, in particular—chemicals and allied products. In fact, these four sectors increase their collective share of U.S. manufacturing output, from 33 percent, or just over 33 percent, in 1979 to 43 percent, to almost 44 percent in 1989.

The point that is made by these charts is that what you are seeing, in terms of the internal restructuring of the American economy, is a gradual shift, and this was not new to this decade. I think the trend went along at the same pace that you would have found if you had taken 1970 to 1980 or 1960 to 1970, from lower to higher value manufacturing products; or in a simply form, from lower technology to higher technology products. This has been, I think, a long-term trend in the U.S. economy, and it continued unabated in the 1980s.

There are numbers of export expansions. Export expansion has aided the growth of manufacturing output. Between 1979 and 1989, U.S. real, nonagricultural exports—90 percent of which are manufacturers—rose at an average compound rate of 4.6 percent—and here I would refer you to Chart 7—compared to a 2.5 growth in real, gross domestic product. As a result, nonagricultural exports rose from 5.1 percent of constant dollar GNP in 1979 to 6.4 percent in 1989.

Before I get to the final point on exports, there is a final chart, which I included that also shows, in terms of our exports and international competitiveness, what you have seen from the restructuring internally, and that is our high technology exports from 1982, when we came out of the recession—excuse me, 1986—at the point where the recovery was in juxtaposition with a lower dollar, increased dramatically to about \$37 billion by 1990, which is the last year that I take.

I should make one point. This is at a time, if you take the rest of the 1980s when the manufacturing trade balance went deeply into deficit, but the high technology exports—and I should say that what I am using here is a Department of Commerce measure, which is now standard, and which they just brought into effect about two or three years ago, where they abstract out from the individual, larger sectors. From electronics, they abstract out the higher value-added elements of electronics machinery—steel or whatever. So it is disaggregation that gets you to the most intensely R&D components or R&D-based components of our export performance. There we did quite well, as one would have expected, from the restructuring of the economy internally.

SENATOR SARBANES. Do you take the aerospace category as being a high technology category?

MR. BARFIELD. Yes. I'm sure they do. This is not mine. This is the Commerce Department. I'm sure that this particular measure does. As I say, what they're trying to do is to go beyond the disaggregation that they had attempted earlier within sectors so that there may be some component. I'm not familiar enough with the internal dynamics of the way they do this to know if there is any particular component. In aerospace I would think most of it is included.

Thank you very much.

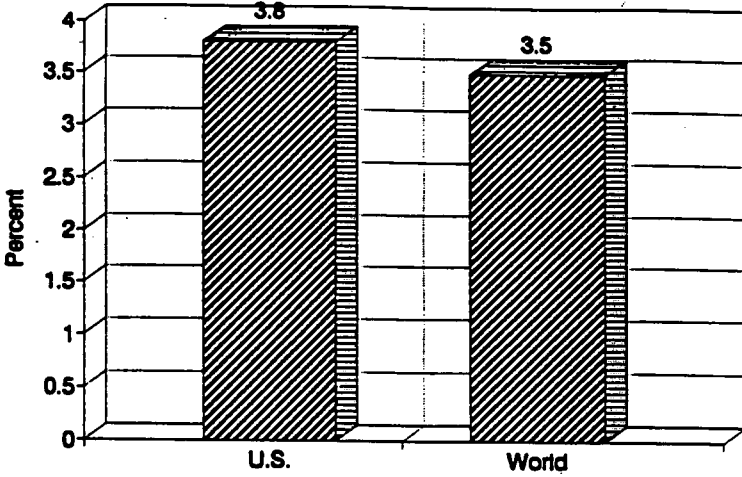
[The tables of Mr. Barfield presented at the hearing follow:]



## Annual Average Growth Rate for Manufacturing Output: 1980 to 1989

Source: World Bank (See Text)

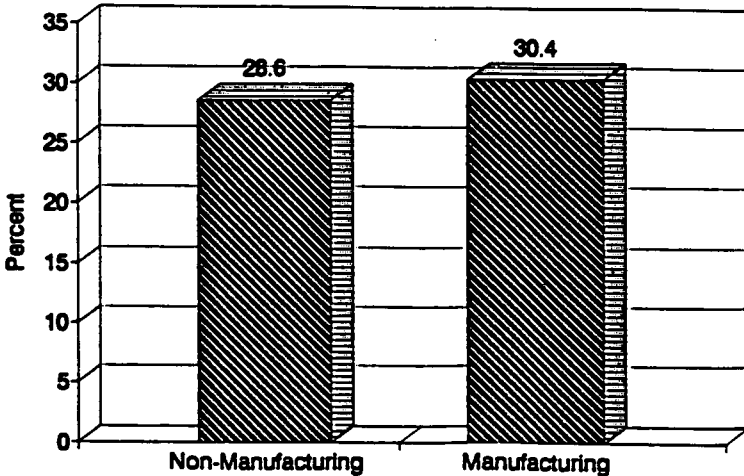
Chart 1



## Growth of Real U.S. GNP 1979 to 1989

Source: See Text

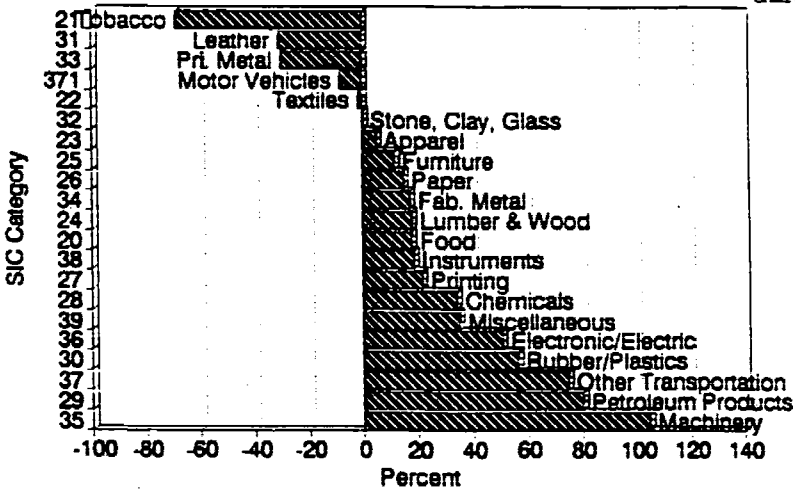
Chart 2



# Growth of U.S. Manufactures by SIC Category: 1979 to 1989

Source: See Text

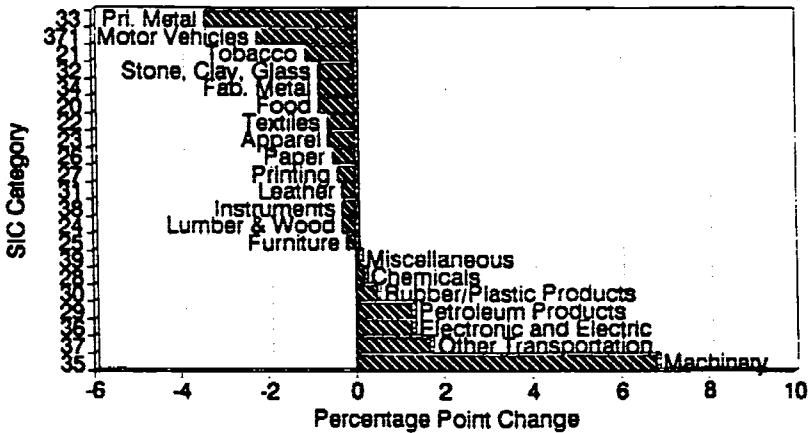
Chart 3



# Change in Share of U.S. Manufacturing Output 1979 to 1989: 21 SIC Categories

Source: See Text

Chart 4



## Annual Average Change in GDP Components Constant Dollar Basis: 1979-1989

Source: See Text

Chart 7

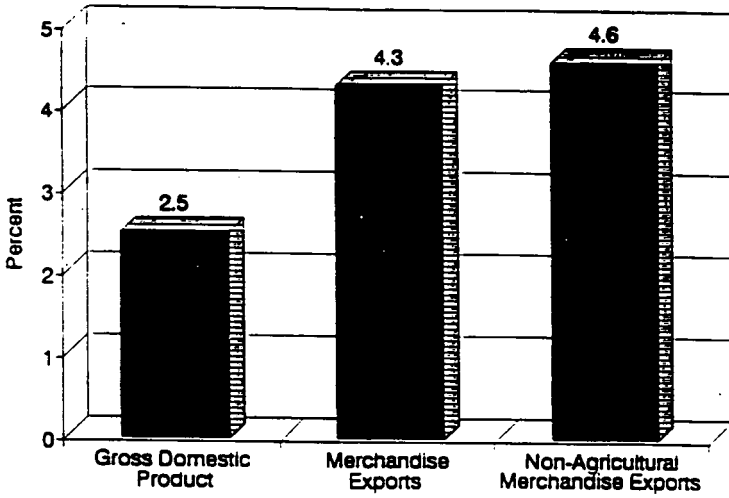


Table 1

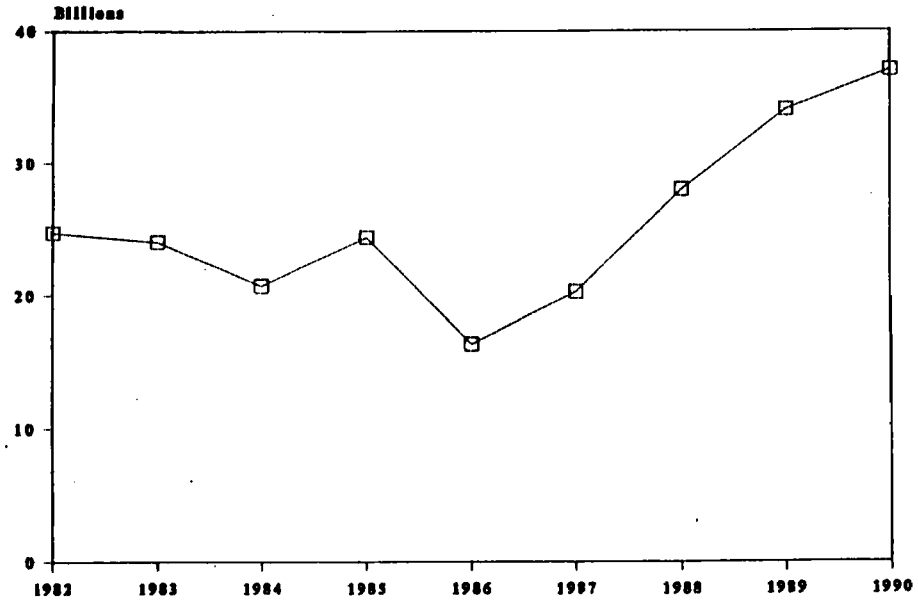
	Percent Change 1979 to 1989	1989 (\$Billions Constant 1982)	1979
Gross National Product	29.0%	4,117.7	3,192.4
Non-Manufacturing	28.6	3,188.7	2,480.2
Manufacturing	30.4	929.0	712.2
Durable Manufactured Goods	34.8	583.7	433.1
Lumber and Wood Products	18.0	25.6	21.7
Furniture and Fixtures	11.9	12.2	10.9
Stone, Clay and Glass Products	0.4	23.6	23.5
Primary Metal Industries	- 30.0	36.9	52.7
Fabricated Metal Products	17.5	65.8	56.0
Machinery, except Electrical	104.3	174.9	85.6
Electric and Electronic Equipment	50.8	90.8	60.2
Motor Vehicles and Equipment	- 8.3	47.3	51.6
Other Transportation Equipment	79.2	63.8	36.5
Instruments and Related Products	18.8	26.6	22.4
Miscellaneous Manufacturing Industries	35.0	16.2	12.0
Nondurable Manufactured Goods	23.4	345.4	279.0
Food and Kindred Products	18.2	70.3	59.5
Tobacco Manufactures	- 68.7	3.1	9.9
Textile Mill Products	- 1.8	16.7	17.0
Apparel and other Textile Products	5.2	22.4	21.3
Paper and Allied Products	15.0	33.0	28.7
Printing and Publishing	21.6	45.1	37.1
Chemicals and Allied Products	34.2	76.1	56.7
Petroleum and Coal Products	80.3	44.9	24.9
Rubber and Miscellaneous Plastic Products	56.3	30.8	19.7
Leather and Leather Products	- 31.0	2.9	4.2

Table 2

<u>Industry Rank in 1989 (and Share of Total Production of Manufactures</u>	(100.0%)	ALL MANUFACTURING INDUSTRIES	(100.0%)	<u>Industry Rank in 1979 (and Share of Total Production of Manufactures</u>
1.	(18.8%)	Machinery, except Electrical		1. (12.0%)
2.	(9.8%)	Electric and Electronic Equipment		2. (8.5%)
3.	(8.2%)	Chemicals and Allied Products		4. (8.0%)
4.	(7.6%)	Food and Kindred Products		3. (8.4%)
5.	(7.1%)	Fabricated Metal Products		5. (7.9%)
6.	(6.9%)	Transportation Equipment, except Motor Vehicles		9. (5.8%)
7.	(5.1%)	Motor Vehicles and Equipment		7. (7.2%)
8.	(4.9%)	Printing and Publishing		8. (5.2%)
9.	(4.8%)	Petroleum and Coal Products		11. (3.5%)
10.	(4.0%)	Primary Metal Industries		6. (7.4%)
11.	(3.6%)	Paper and Allied Products		10. (4.0%)
12.	(3.3%)	Rubber and Misc. Plastic Products		16. (2.8%)
13.	(2.9%)	Instruments and Related Products		13. (3.1%)
14.	(2.8%)	Lumber and Wood Products		14. (3.0%)
15.	(2.5%)	Stone, Glass and Clay Products		12. (3.3%)
16.	(2.4%)	Apparel and Other Textile Products		15. (3.0%)
17.	(1.8%)	Textile Mill Products		17. (2.4%)
18.	(1.7%)	Misc. Manufacturing Industries		18. (1.7%)
19.	(1.3%)	Furniture and Fixtures		19. (1.5%)
20.	(0.3%)	Tobacco Manufactures		20. (1.4%)
21.	(0.3%)	Leather and Products		21. (0.6%)

Chart 2.

## HIGH TECHNOLOGY TRADE BALANCE



Source: Department of Commerce

SENATOR SARBANES. Thank you.  
Mr. Choate, please proceed.

**STATEMENT OF PAT CHOATE, DIRECTOR,  
THE MANUFACTURING POLICY PROJECT**

MR. CHOATE. I would submit my statement and I would like to make three sets of comments, one on some highlights on a statistical compendium, which I enclose; second, what this means; and, third, some areas that I think merit some attention.

As to the question of the status of American manufacturing, what we see in comparison with Germany and Japan is that the United States is not making the investment that is necessary to retain our competitiveness vis-à-vis those economies, as Mr. Courtis indicates.

I would also suggest that when one takes a look at American manufacturing over time, the United States is not making the investments that are required to retain its prior role in our economy and to maintain its prior competitiveness levels.

I could point out a number of statistics that indicate something about this. First, manufacturing has fallen from 23 percent of all jobs in 1969 to roughly 14 percent today.

SENATOR SARBANES. 14 percent?

MR. CHOATE. 14 percent. Government now accounts for more jobs in the United States than manufacturing. A dramatic change.

Third, more manufacturing jobs were lost than gained in our Nation's top 20 cities. Of the nine cities that lost jobs, they lost more than two million manufacturing jobs. Of the 11 cities that gained jobs, they gained fewer than 825,000 jobs.

The manufacturing share of the gross national product, as measured in actual dollars, declined from 28 percent in the mid-1960s to roughly 19 percent in 1989. The manufacturing share of the state gross product declined in 42 states over the past decade. And the net fixed U.S. investment, as a share of the GNP, has declined steadily since 1989.

This measures and reflects itself in our trade balances, obviously. Between 1983 and 1991, the United States accumulated a manufacturing trade deficit of \$739 billion. Between 1980 and 1991, the United States manufacturing trade deficit with Japan was \$590 billion. When we take a look at Japan and Germany and exclude them in the period 1980 to 1991, the United States actually had a manufacturing trade surplus. It really says that our competitors are getting real benefits from their investments and activities.

What are the consequences of this? I think there are several, and I will expand on others, which are not my comments. First of all, the manufacturing base by being strong and growing, as is happening in Germany and Japan, is a major source of wealth creation.

Second, it underpins the service base. Increasingly, what we see as foreign companies move abroad with a manufacturing base, they bring service industries: architectural services, engineering services, financial services. If you lose your manufacturing base, it will not necessarily be replaced by the high value-added business service base.

When we take a look at the Japanese in our markets today, we find, for example, that they now do roughly 16 percent of all of the commercial banking. They've brought their banking system with them. In California they now do roughly 36 percent of all of the commercial banking activities.

SENATOR SARBANES. That is what the British thought they would do, and it did not work.

MR. CHOATE. Absolutely.

SENATOR SARBANES. The British thought that manufacturing goes somewhere else, but they would do the banking, and the insurance, and the legal work. They did it for awhile. They had a lag, but then it just de-routed right away and went right to the manufacturing base, didn't it?

MR. CHOATE. Absolutely. And it is particularly critical in economies, such as in Germany and in Japan, where you are dealing with these large conglomerates, where all of the the elements—manufacturing, service, architect, engineering—are found within one financial or economic group itself—the Kereitsu relationship. As you lose the manufacturing base, you have a diminished capacity to create jobs and, particularly, to create jobs in certain parts of the country where you want and need jobs, as in the urban areas.

Fourth, as you lose the manufacturing base you lose a certain know-how. As a consequence of that, you lose succeeding generations of technology. For example, as the United States has moved out of the consumer electronics industry, we have lost the capacity to go to the succeeding ways of consumer electronics industries.

Fifth, as you lose wealth creation, you lose a certain political influence in the world. I believe that we are at a point now, at the end of the post-Cold War period, that political influence is going to come more from economics and science and technology and wealth creation than it is from the tools of war. We see ourselves already in a diminished capacity, vis-à-vis Europe and Japan because of the weakening of our economy, vis-à-vis their economy.

And, sixth, and perhaps most importantly, we lose our capacity as a society to undertake and make certain social investments that we need, in truth because of the weakened condition of our economy. Over a long period of time as a country, we have been unable to make the necessary investments that we need, the training that we need in infrastructure, that we need in housing.

As to some actions that are required, above and beyond the micro-economic measures that have been discussed many times here before this Committee, I would bring attention to three actions that require special attention if we are going to have the levels of investment that we need.

The first is that we must reduce the pressures on American business to go for the short-term results. As I trace this out—and I have testified before this Committee before on this—the primary source of those pressures for short-term results is found in the operation today of the New York capital markets.



What we now find is a circumstance in which the majority of the shares of our 200 largest corporations are owned by institutions, pension funds, insurance companies, etc. Pension funds and institutions own 39 percent of the equities listed on the New York Stock Exchange. Since 1921, institutions have been given exemptions from certain taxes on the assumption that they would be the most patient of capital, that they would think in the long term.

What we have seen over the past 12 or 15 years, is that they have been the most impatient of capital. Today, institutional investors do roughly 90 percent of all of the trades on the New York Stock Exchange, we find, from the mid-1980s to the present. Where in the mid-1960s, for example, institutional investors were doing nine large block transactions a day. That's 10,000 shares. By 1980 they were doing slightly less than 600 per day. We are now to a point where they are doing roughly 4,000 per day.

We find a circumstance in the 1960s and 1970s where the total value of the New York Stock Exchange was turning over roughly every four or five years. It is now turning over roughly every 24 months. This is the source of pressure on companies. Their owners, which are the institutions, are demanding short-term results, and if they do not give those results, they will walk away from them.

Now, that must be solved if we are going to have the long-term, patient investment that is required to compete with the Japanese and Europeans.

The second major area is an area that received a great deal of attention early on in this century, but over the past 20 or 30 years has fallen out of disfavor for discussion. That is, competitive policy, particularly as it pertains to cartels:

As we now look around the world, what we find is that large numbers of our competitors operate in cartels. And what we also find is that those cartels are sanctioned and supported by the state. Time and again, in industry after industry, these cartels, working with their governments, have been able to close off their market from foreign competition, earn substantial monopoly profits, take those monopoly profits, and then target industries and countries and be able to subsidize market penetration, dumping and other anticompetitive actions by market share, and take over industry.

Now, for roughly 20 years, the policies of the United States government has been, by and large, to overlook those cartels and those actions, even when they extend their operations into the United States.

I am suggesting that if we are going to have an environment that will permit American companies to invest, it requires now that the United States make an aggressive attack upon those cartels, particularly when they are operating within our economy.

And, finally, what we require now that the Cold War is over is a major re-thinking of American trade policy. In the Cold-War era, we could have a trade policy that, in effect, said that we wished other countries to alter their institutions, financial organizations and approaches so that they would be like the United States. We would make that demand under the assumption that others may or may not do it but we could

overlook the fact that they didn't do it because we wanted to maintain them into the strategic lines against the Soviet Union.

We're now at the point where we know that other economies are essentially organized around four different types of economic models: a communist model, a mixed model in Europe, a network capitalist model in Japan, and then a more or less market economy here. The Japanese, the Europeans and others are not going to make the fundamental shifts in their institutions so that they can be like us and have theoretical free trade.

The question for us then is to think our way through on how we are going to expend trade with other countries and play by whatever rules they want to play with. If, with the Canadians, you can have a free-trade agreement, free trade makes sense. If, with the Europeans, a mixed trade arrangement is necessary, some free trade, some managed trade, then we should have that. And with the Japanese and other economies where free trade is simply impossible, then it becomes necessary for us to find a way to have a relationship that accepts their economic model as it is, but expands trade and does not sacrifice the interest of our companies and our workers.

Thank you.

[The prepared statement of Mr. Choate, together with attachment, follows:]

**PREPARED STATEMENT OF PAT CHOATE**

Mr. Chairman and Members of the Committee:

I am pleased to have this opportunity to share some thoughts with you on American investment, manufacturing and jobs.

As part of my testimony, I am attaching a compendium of statistics that will be part of a forthcoming report, *The Status of American Manufacturing and Jobs*. For today's hearing, information is provided on the status of manufacturing in the home states of each Member of this Committee.

**HIGHLIGHTS OF AMERICAN MANUFACTURING TODAY**

The United States has a strong and diverse manufacturing base. Yet, it is neither keeping pace with either its prior performance nor with that of its competitors. As a consequence, the job and tax base of the nation, and particularly many of our major urban areas, are threatened.

Specifically:

- Manufacturing has fallen from 23 percent of all jobs in 1969 to less than 14 percent today;
- Government now accounts for more jobs in the United States than manufacturing;
- More manufacturing jobs were lost than gained by the nation's twenty largest metropolitan areas between 1969-89. Nine cities lost a total of 2 million manufacturing jobs and eleven cities gained 825 thousand jobs;
- The manufacturing share of the Gross National Product (GNP), as measured in actual dollars, declined from 28 percent in 1965 to 19 percent in 1989;
- The manufacturing share of the Gross State Product (GSP) declined in 42 states between 1979 and 1989;
- Net fixed U.S. investment as a share of GNP has declined steadily since 1985.

- Between 1983 and 1991, the United States accumulated a manufacturing trade deficit of \$739 billion.
- Between 1980-91, the U.S. manufacturing trade deficit with Japan amounted to \$590 billion.
- Excluding Japan and Germany, the United States had a manufacturing trade surplus between 1980-91.

## WHAT MUST BE DONE

If America is to have a strong manufacturing base in its future, the nation urgently needs to increase its investment in manufacturing. Beyond increasing savings, three other actions are required if this is to happen -- reduce the pressures on companies for short-term results, attack foreign cartels, and adopt pragmatic trade policies.

### Reduce Pressures for Short-Term Results

If American manufacturers are to make the investments that are required to remain competitive, they require an economic environment that permits and encourages long-term action. The creation of such an environment hinges on a reduction in the demands of investors for immediate returns, regardless of longer-term consequences.

In turn, this requires a recognition that control of America's major corporations has steadily shifted from individual investors to financial institutions -- pension funds, insurance companies, foundations, investment companies, educational endowments, trust funds, and banks. This shift has far-reaching consequences, because individuals and institutions invest in the stock market for sharply different reasons: individuals are primarily investors looking for long-term performance; institutions are pursuing short-term profits. Thus, at a time when U.S. manufacturers need to be making long-term investments to meet global competition, the new owners -- the institutions -- are pressing for quick results.

Institutions now hold so much equity and are such a powerful presence in stock markets that most corporations must respond to these demands. Specifically, institutions hold more than 39 percent of all equities listed on the New York Stock Exchange (NYSE) and hold half to two-thirds of the stock of the nation's 200 largest corporations.

Yet, their biggest impact comes not through mere ownership but through the growing pace of their transactions. In 1953, when institutions controlled about 15 percent of the equities listed on the NYSE, their trades constituted a quarter of stock market transactions. Today, institutional trades constitute almost 90 percent of transactions.

As a result of such hyperactive trading, the fundamental focus of the stock market has been transformed from long-term investing to short-term speculation. This shift can be gauged by both the rising volume of large-block stock transactions (10,000 shares or more) by institutions, and the quickening pace at which the entire value of stocks listed on the NYSE is traded.

The exchange reports a two decade trend of steady increases of large-block transactions, and they are overwhelmingly by institutions. In 1965 there were, on average, only nine large-block transactions a day, constituting 3 percent of the daily volume of the market. By 1980 the average number had risen to 528 per day. By 1991, it had risen to more than 3,878 per day, or half of the total volume on the NYSE.

Because institutions own such a large share of all stock, and trade that stock so zealously, there has been a sharp increase in the turnover rate of the entire NYSE (the pace at which the total value of stocks listed on the exchange is traded). Until a decade ago, the turnover rate was less than 20 percent a year. By 1991, it was up to 48 percent. At the 1970s pace, it took 5 years for the entire value of the stock market to turn over, but today it takes only 24 months. This is speculation, not investing.

In the speculative, short-term-oriented equity markets that now exist, only a few American firms have sufficient profits and assets to make the commitments that long-term global competitiveness requires without sacrificing shorter-term earnings. Most companies are obliged to focus their efforts and resources on results that can bolster the price of their stock.

Fast results and short-term earnings have become the obsessive goal of too many American companies. The pursuit of these objectives diverts resources from investment in modern plant and equipment, research, technology and training to clever financial manipulations. It sacrifices market share to high quarterly earnings. And it discourages workers from making long-term commitments to companies.

The solution is relative simple. Create an environment that will encourage institutional investors to invest rather than speculate. Two possibilities would be to impose a stock transfer tax or impose a capital gains tax on the short-term trading profits of institutions. Either approach will encourage long-term investment.

### **Attack Foreign Cartels**

A growing body of evidence reveals the existence of anti-competitive cartels in other nations.

As these foreign companies have extended their investments and operations inside the United States, they have brought their cartels and anti-competitive practices with them.

Generally, these cartels are tolerated, even sanctioned, by their home governments. Often, they are supported by their governments with policies that restrict foreign imports, thereby allowing the cartels to generate monopoly profits that can be used to subsidize dumping and other predatory practices in targeted markets.

When targeted by a cartel and its mother country, American manufacturers are vulnerable, and as the experiences of the U.S. consumer electronics industry reveal, they can be destroyed.

The United States Government has long been hesitant to investigate antitrust violations by foreign cartels, even those operating inside the United States. For many years, the guiding principle adopted by a succession of Administrations has been to ignore predatory pricing and related anticompetitive practices as long as no harm was done to consumers. Recently, the U.S. Justice Department has indicated that it may alter this position.

Yet, the principal action taken to date has been to encourage foreign governments to enforce their antitrust laws on their own companies.

If American manufacturers are to make the investments that are necessary to meet the global competition that they face, they require assurances that foreign cartels cannot operate with impunity inside the United States.

## Adopt Pragmatic Trade Policies

American manufacturers do well in the global marketplace. But if they are to continue to do well and provide the profits that they need for additional investment, the United States requires trade policies which recognize and accept the fact that other nations have organized their economies in ways that are both manifestly and subtly dissimilar from ours, reflecting inherent differences in history, national aspirations, and institutions.

The structure and dynamics of the various national economies -- what for simplicity can be called rules -- can basically be classified as either operating by American rules, European rules, Japanese rules or Communist rules.

Communist rules foster a command economy in which the state owns the means of production and makes virtually all of the decisions on outputs and distribution. European rules nurture a mixed economy. American rules foster market capitalism. Japanese rules foster what economists call "network capitalism" -- an approach to production, distribution and competition that closely blends the power of the state with the flexibility of the marketplace.

It is unlikely that other nations will reorganize their production and distribution systems, their industrial structures, their financial methods and their business-government relationships so that they simulate America's and thereby adopt a free trade international trade regime.

The practical solution, of course, is for America to deal with other nations as they are and not as we wish them to be. For those nations that organize their economies with American rules, or something close to them such as Canada, we can pursue a free trade strategy. Managed trade is required with those nations that operate under Japanese rules. For Europe, the answer is some combination of free and managed trade.

The goal, in all cases, is to expand trade with other nations for the mutual benefits that can be created, and do so without punishing others for their success or sacrificing the interests of American workers and industry.

A more practical trade policy will provide an environment that will allow American manufacturers to invest with greater confidence.

## CONCLUSION

Manufacturing is a primary source of America's wealth, but it is now being seriously challenged by foreign competitors. If this challenge is to be successfully met, U.S. industry must produce fully competitive goods and American government must create an economic environment that enables manufacturers to innovate, invest, and quickly take a product from development to market domination.

Nothing less will do.



**THE STATUS OF  
AMERICAN MANUFACTURING AND JOBS**

[Preliminary Information from the Forthcoming Report]

Prepared by:  
Dr. Charles W. McMillion  
President  
MBG-Washington: The Information Company

For:  
The Manufacturing Policy Project  
Washington, D.C.

May, 1992

## THE STATUS OF AMERICAN MANUFACTURING AND JOBS

Charles W. McMillion  
MBG-Washington

### An Overview

1. **United States Business Cycles and Job Growth: Three Recent Economic Expansions**
  - \* In the 1982-89 economic expansion, manufacturing jobs growth was the slowest on record.
  - \* High wage durable manufacturing experienced especially sluggish growth.
2. **Charting Job Loss in Manufacturing: 1969-1992**
  - \* Manufacturing has fallen from 23% of all jobs in 1969 to less than 14% today.
  - \* There are now fewer jobs in manufacturing than at any time since the mid-1960s.
3. **Recent U.S. Manufacturing Job Loss: 1985-90**
  - \* Manufacturing employment declined in the five years leading to the 1990-91 recession.
  - \* Job losses in manufacturing were led by electronics and machinery.
4. **Manufacturing Job Losses Continue in the Recovery Year to March, 1992**
  - \* A traditional engine of recovery, 194,000 durable goods jobs were lost in the past year.
  - \* Machinery, electronics and precision instruments have accounted for most job losses.
5. **The State of the States: Manufacturing Job Loss/Gain, Year to February, 1992.**
  - \* New Mexico, Rhode Island, Maryland and Massachusetts suffered the most severe job losses
  - \* Several smaller states continue to create small numbers of manufacturing jobs.
6. **Employment Structure in the 20 Largest Metropolitan Areas, 1969-89**
  - \* New York: lost 750,000 manufacturing jobs between 1969-89.
  - \* Los Angeles: manufacturing fell from 25% of all jobs in 1969 to 16% in 1989.
  - \* Chicago: lost 380,000 manufacturing jobs in the twenty years to 1989.
  - \* San Francisco: manufacturing job growth has not quite kept up with overall growth.
  - \* Philadelphia: lost 240,000 jobs in manufacturing from 1969-89
  - \* Detroit: lost 33,000 jobs between 1969-79 but lost more than 141,000 from 1979 to 1989.
  - \* Boston: added manufacturing jobs in the 1970s but lost 47,000 from 1979-89.
  - \* Washington, D.C.: manufacturing jobs have remained about 3.3% of total jobs since 1969.
  - \* Dallas-Fort Worth: manufacturing job growth has not kept up with total growth.
  - \* Houston: added manufacturing jobs in the 1970s but lost jobs in the 1980s.
  - \* Miami: added manufacturing jobs in the 1970s but lost jobs in the 1980s.
  - \* Atlanta: manufacturing jobs have fallen from 20% of all jobs in 1969 to 10% in 1989.
  - \* Cleveland: lost more than 150,000 manufacturing jobs in the 20 years to 1989.
  - \* Seattle: manufacturing jobs have not kept up with total job growth
  - \* San Diego: manufacturing jobs increased by almost 70,000 between 1969-89
  - \* Minneapolis-St. Paul: Total job growth has outstripped manufacturing job growth
  - \* St. Louis: the share of total jobs accounted for by manufacturing declined from 27% to 15%.
  - \* Baltimore: manufacturing fell from 21% to 9.5% of total jobs between 1969-89.
  - \* Pittsburgh: between 1969-89, manufacturing fell from 29% to 12% of total jobs.
  - \* Phoenix: total job growth has outstripped manufacturing job growth.



7. U.S. Job Structure: March, 1992
  - \* Government now accounts for more jobs than manufacturing.
  - \* Services and Retail Wholesale trade accounts for 50% of nonfarm jobs.
8. Employment Structure in the States
  - \* Manufacturing accounts for more than 20% of jobs in only 14 states.
  - \* Services account for less than 20% of jobs in only 3 states.
9. Net Fixed Investment and Business Investment in the U.S.
  - \* Net fixed investment as a share of GNP has fallen well below trend since 1981.
  - \* Business investment in new plant and equipment have declined sharply since the 1960s.
10. U.S. Manufacturing Trade Imbalance
  - \* Between 1983 and 1991, the U.S. accumulated manufacturing trade deficits of \$739 billion.
  - \* Improvement since 1988 has come principally from sluggish imports rather than export growth.
11. U.S. Manufacturing Trade by Industry: 1991
  - \* Clothing, new cars from Japan and telecommunications equipment account for the entire deficit.
  - \* Airplanes provide the U.S. with a \$21 billion trade surplus.
12. U.S. Manufacturing Trade Deficits with Japan and Germany
  - \* Between 1980-91 U.S. manufacturing deficits with Japan amounted to \$590 billion.
  - \* At \$60 billion in 1991, the deficit with Japan exceeds the entire U.S. manufacturing trade deficit.
  - \* Excluding Japan and Germany, the U.S. had a manufacturing trade surplus between 1980-91.
13. Major U.S. Imports to and Exports from Japan
  - \* Autos, electronics and nuclear reactors account for 72% of U.S. imports from Japan.
  - \* Nuclear reactors, electronics and aircraft account for 27% of U.S. exports to Japan.
14. Major U.S. Imports to and Exports from Germany
  - \* Nuclear reactors, autos and electronics account for 57% of U.S. imports from Germany.
  - \* Nuclear reactors, aircraft and electronics account for 50% of U.S. exports to Germany.
15. Manufacturing Share of Gross National Product
  - \* The actual dollar share of manufacturing declined from 28% of GNP in 1965 to 19% in 1989.
  - \* So-called "constant output" measures of manufacturing share of GNP are severely flawed.
16. Manufacturing Decline: Graphing the shares of GSP in the States
  - \* Indiana and Ohio
  - \* Massachusetts and Maine
  - \* Wisconsin and Delaware
  - \* Tennessee and New Hampshire
  - \* Maryland and Florida
  - \* Texas and New York
  - \* Idaho and California
  - \* Nevada and New Mexico
17. Manufacturing Growth and Decline: Share of GSP in the States, 1979-89
  - \* New Mexico, the Dakotas and Mississippi saw manufacturing rise of GSP share in the 1980s.
  - \* Maryland, New York and Connecticut suffered steep decline in manufacturing during the 1980s.
18. Manufacturing Decline in the States: Full Table of Manufacturing Share of Gross State Product
  - \* Seven states had manufacturing sectors account for more than 25% of GSP in 1989.
  - \* In 1989, manufacturing accounted for less than 10% of GSP in 9 states.

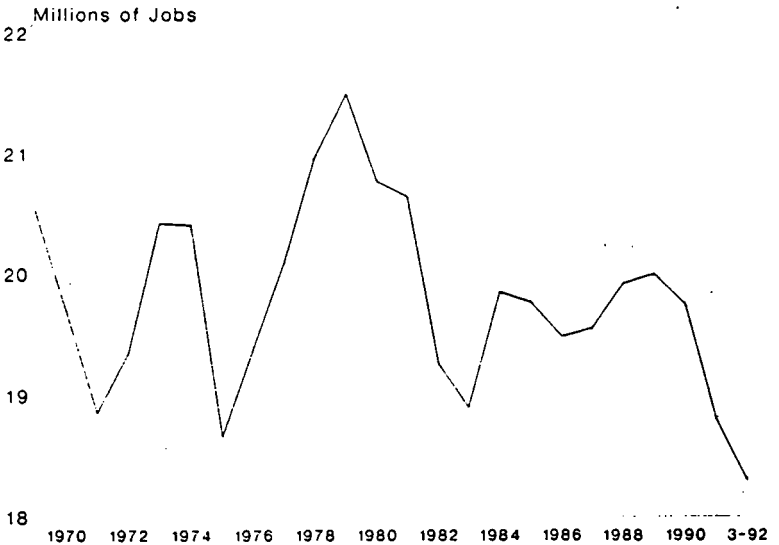
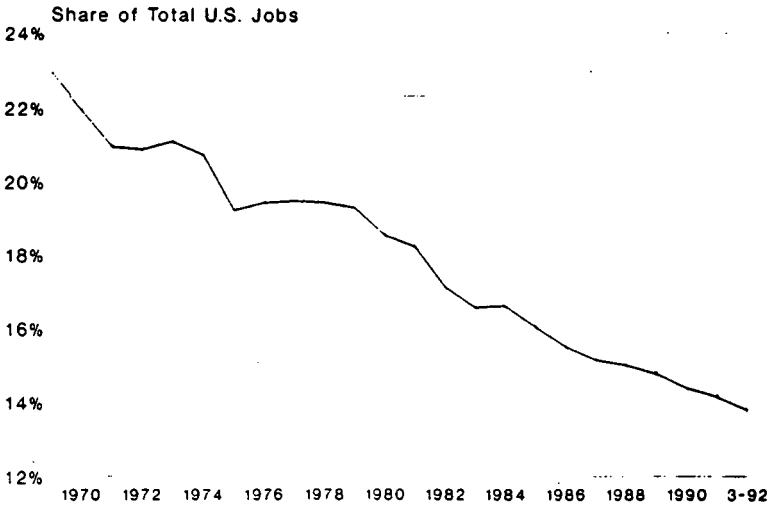
# UNITED STATES BUSINESS CYCLES AND JOB GROWTH

## THREE RECENT ECONOMIC EXPANSIONS

INDUSTRIES/SECTORS	ANNUAL JOB GROWTH			SHARE OF JOB GROWTH		
	1982-89	1975-79	1970-73	1982-89	1975-79	1970-73
TOTAL EMPLOYMENT GROWTH/YEAR	3,254,043	3,613,625	2,387,233	100.00%	100.00%	100.00%
WAGE AND SALARY	2,712,857	3,147,750	1,964,333	83.37%	87.11%	82.98%
PROPRIETORS	541,186	465,875	402,900	16.63%	12.89%	17.02%
FARM	(64,714)	(25,000)	(21,687)	-1.99%	-0.69%	-0.92%
MINING	(62,300)	63,675	6,700	-1.91%	1.76%	0.28%
CONSTRUCTION	266,071	307,100	229,300	8.18%	8.50%	9.69%
GENERAL BUILDING CONTRACTORS	71,266	91,875	85,400	2.19%	2.54%	3.61%
HEAVY CONSTRUCTION CONTRACTORS	(11,114)	45,175	18,900	-0.34%	1.25%	0.80%
SPECIAL TRADE CONTRACTORS	205,900	170,050	125,000	6.33%	4.71%	5.28%
MANUFACTURING	107,214	707,575	245,667	3.29%	19.58%	10.39%
NONDURABLE GOODS	46,857	173,475	31,833	1.44%	4.80%	1.34%
FOOD AND KINDRED PRODUCTS	29	17,200	(22,967)	0.00%	0.48%	-0.97%
TEXTILE MILL PRODUCTS	(4,266)	5,275	16,900	-0.13%	0.15%	0.71%
APPAREL AND OTHER TEXTILE PRODUCTS	(6,457)	16,175	15,033	-0.20%	0.45%	0.64%
PAPER AND ALLIED PRODUCTS	4,686	16,250	(667)	0.14%	0.45%	-0.03%
PRINTING AND PUBLISHING	47,771	45,125	4,833	1.47%	1.25%	0.20%
CHEMICALS AND ALLIED PRODUCTS	(1,086)	23,625	(5,233)	-0.03%	0.65%	-0.22%
PETROLEUM AND COAL PRODUCTS	(6,286)	4,550	(1,200)	-0.19%	0.13%	-0.05%
TOBACCO PRODUCTS	(2,271)	(975)	(667)	-0.07%	-0.03%	-0.03%
RUBBER AND MISC. PLASTICS PRODUCTS	28,557	46,025	32,787	0.88%	1.27%	1.38%
LEATHER AND LEATHER PRODUCTS	(11,800)	225	(6,967)	-0.36%	0.01%	-0.29%
DURABLE GOODS	60,357	534,100	214,033	1.85%	14.76%	9.04%
LUMBER AND WOOD PRODUCTS	27,986	40,950	23,433	0.86%	1.13%	0.99%
FURNITURE AND FIXTURES	13,829	19,750	25,633	0.42%	0.55%	1.08%
PRIMARY METAL INDUSTRIES	22,614	27,250	2,233	-0.69%	0.75%	0.09%
FABRICATED METAL PRODUCTS	2,386	63,150	40,033	0.07%	1.75%	1.69%
MACHINERY AND COMPUTER EQUIPMENT	(14,800)	111,000	36,433	-0.45%	3.07%	1.54%
ELECTRONIC EQUIP. EXC. COMPUTER EQUIP.	(39,829)	106,225	35,667	-1.19%	2.94%	1.51%
TRANSPORT EQUIP. EXCL. MOTOR VEHICLES	23,400	41,750	(19,967)	0.72%	1.16%	-0.84%
MOTOR VEHICLES AND EQUIPMENT	20,414	53,350	51,600	0.63%	1.46%	2.16%
STONE, CLAY AND GLASS PRODUCTS	3,586	21,400	17,600	0.11%	0.59%	0.74%
INSTRUMENTS AND RELATED PRODUCTS	-5,600	35,525	10,033	1.40%	0.98%	0.42%
MISC. MANUFACTURING INDUSTRIES	600	13,750	12,333	-0.02%	0.38%	0.52%
TRANSPORTATION AND PUBLIC UTILITIES	109,957	161,275	71,067	3.38%	4.46%	3.00%
COMMUNICATIONS	(17,671)	34,350	18,467	-0.54%	0.95%	0.78%
WHOLESALE TRADE	140,543	200,325	120,533	4.32%	5.54%	5.09%
RETAIL TRADE	642,000	653,500	445,800	19.73%	18.08%	18.83%
FINANCE, INSURANCE AND REAL ESTATE SERVICES	316,029	357,025	270,667	9.71%	9.88%	11.43%
HOTELS AND OTHER LODGING PLACES	68,557	37,775	38,133	2.11%	1.05%	1.61%
PERSONAL SERVICES	61,514	47,525	(16,600)	1.89%	1.32%	-0.70%
PRIVATE HOUSEHOLDS	(28,714)	(30,500)	(61,000)	-0.88%	-0.84%	-2.58%
BUSINESS SERVICES	275,971	268,300	153,333	8.48%	7.98%	6.48%
AMUSEMENT AND RECREATION SERVICES	93,043	45,050	52,500	2.86%	1.25%	2.22%
MOTION PICTURES	43,771	4,200	1,967	1.35%	0.12%	0.08%
HEALTH SERVICES	285,757	239,125	269,533	8.78%	6.62%	12.23%
LEGAL SERVICES	56,886	38,650	29,833	1.75%	1.07%	1.26%
EDUCATIONAL SERVICES	58,443	21,325	41,100	1.80%	0.59%	1.74%
GOVERNMENT AND GOVERNMENT ENTERPRISES	310,857	185,000	224,000	9.55%	5.12%	9.46%
FEDERAL CIVILIAN	37,143	9,750	(21,000)	1.14%	0.27%	-0.89%
MILITARY	21,571	(57,750)	(155,333)	0.66%	-1.80%	-6.56%
STATE AND LOCAL	252,143	233,000	400,333	7.75%	6.45%	16.91%

MBG—Washington and the U.S. Department of Commerce, BEA: All Full and Part Time Employment.

# U.S. MANUFACTURING JOBS



MBG-Washington & US Dept of Labor, BLS

## RECENT U.S. MANUFACTURING JOB LOSS

INDUSTRY/SECTOR	NET JOB CREATION
	1985-90
TOTAL EMPLOYMENT	13,977,600
WAGE AND SALARY PROPRIETORS	12,478,000
FARM	1,499,600
NONFARM	(353,000)
PRIVATE	14,330,600
MINING	12,454,600
COAL MINING	(274,200)
OIL AND GAS EXTRACTION	(49,100)
CONSTRUCTION	(233,200)
GENERAL BUILDING CONTRACTORS	826,900
HEAVY CONSTRUCTION CONTRACTORS	146,600
SPECIAL TRADE CONTRACTORS	(36,100)
MANUFACTURING	716,400
NONDURABLE GOODS	(21,800)
FOOD AND KINDRED PRODUCTS	296,400
TEXTILE MILL PRODUCTS	68,500
APPAREL AND OTHER TEXTILE PRODUCTS	(1,500)
PAPER AND ALLIED PRODUCTS	(73,400)
PRINTING AND PUBLISHING	21,700
CHEMICALS AND ALLIED PRODUCTS	194,200
PETROLEUM AND COAL PRODUCTS	45,000
TOBACCO PRODUCTS	(21,100)
RUBBER AND MISC. PLASTICS PRODUCTS	(10,000)
LEATHER AND LEATHER PRODUCTS	104,800
DURABLE GOODS	(31,800)
LUMBER AND WOOD PRODUCTS	(318,200)
FURNITURE AND FIXTURES	62,000
PRIMARY METAL INDUSTRIES	15,000
FABRICATED METAL PRODUCTS	(53,700)
MACHINERY AND COMPUTER EQUIPMENT	(51,800)
ELECTRONIC EQUIPMENT, EXC. COMPUTER EQUIP.	(77,200)
TRANSPORTATION EQUIP. EXCL. MOTOR VEHICLES	(514,600)
MOTOR VEHICLES AND EQUIPMENT	79,300
STONE, CLAY AND GLASS PRODUCTS	(55,100)
INSTRUMENTS AND RELATED PRODUCTS	(6,800)
MISCELLANEOUS MANUFACTURING INDUSTRIES	286,100
TRANSPORTATION AND PUBLIC UTILITIES	(1,400)
WHOLESALE TRADE	652,800
RETAIL TRADE	508,400
FINANCE, INSURANCE, AND REAL ESTATE SERVICES	2,534,800
HEALTH SERVICES	1,071,300
GOVERNMENT AND GOVERNMENT ENTERPRISES	6,910,300
FEDERAL, CIVILIAN	1,774,600
MILITARY	1,876,000
STATE AND LOCAL	224,000
	(70,000)
	1,722,000

MBG—Washington and U.S. Department of Commerce, BEA.  
All full and part-time jobs.

**RECOVERY YEAR TO MARCH, 1992  
MANUFACTURING JOB LOSS CONTINUES**

INDUSTRY	NET JOB GAIN/LOSS	PERCENT GAIN/LOSS
Total.....	(16,000)	-0.01%
Total private.....	(159,000)	-0.18%
Goods-producing industries.....	(385,000)	-1.61%
Mining.....	(55,000)	-7.70%
Oil and gas extraction.....	(37,000)	-9.20%
Construction.....	(136,000)	-2.88%
General building contractors.....	(68,000)	-5.69%
<b>Manufacturing.....</b>	<b>(194,000)</b>	<b>-1.05%</b>
Production workers.....	(50,000)	-0.40%
Durable goods.....	(203,000)	-1.92%
Production workers.....	(70,000)	-1.01%
Lumber and wood products.....	14,000	2.02%
Furniture and fixtures.....	1,000	0.21%
Stone, clay, and glass products.....	(6,000)	-1.15%
Primary metal industries.....	(24,000)	-3.31%
Blast furnaces and basic steel products.....	(8,000)	-3.05%
Fabricated metal products.....	(19,000)	-1.40%
Industrial machinery and equipment.....	(89,000)	-4.40%
Electronic and other electrical equipm.....	(44,000)	-2.75%
Transportation equipment.....	(1,000)	-0.05%
Motor vehicles and equipment.....	73,000	9.89%
Instruments and related products.....	(32,000)	-3.27%
Miscellaneous manufacturing.....	(3,000)	-0.82%
Nondurable goods.....	9,000	0.11%
Production workers.....	20,000	0.37%
Food and kindred products.....	(12,000)	-0.71%
Textile mill products.....	16,000	2.42%
Apparel and other textile products.....	27,000	2.68%
Paper and allied products.....	(3,000)	-0.43%
Printing and publishing.....	(32,000)	-2.07%
Chemicals and allied products.....	1,000	0.09%
Petroleum and coal products.....	(1,000)	-0.63%
Rubber and misc. plastics products.....	15,000	1.76%
Leather and leather products.....	(2,000)	-1.65%
Service-producing industries.....	369,000	0.43%
Transportation and public utilities.....	(27,000)	-0.46%
Transportation.....	22,000	0.62%
Communications and public utilities.....	(49,000)	-2.15%
Wholesale trade.....	(118,000)	-1.93%
Durable goods.....	(108,000)	-3.04%
Nondurable goods.....	(10,000)	-0.39%
Retail trade.....	(110,000)	-0.57%
General merchandise stores.....	(71,000)	-2.96%
Food stores.....	(47,000)	-1.45%
Automotive dealers and service station.....	(2,000)	-0.10%
Eating and drinking places.....	31,000	0.47%
Finance, insurance, and real estate.....	(29,000)	-0.43%
Finance.....	3,000	0.09%
Insurance.....	(25,000)	-1.17%
Real estate.....	(7,000)	-0.54%
Services.....	510,000	1.78%
Business services.....	73,000	1.39%
Health services.....	384,000	4.73%
Government.....	143,000	0.78%
Federal.....	29,000	0.98%
State.....	(10,000)	-0.23%
Local.....	124,000	1.12%

MBG—Washington and the U.S. Department of Labor, BLS.  
Nonfarm Establishment Survey, Seasonally Adjusted.

# U.S. MANUFACTURING JOBS

## THE STATE OF THE STATES

STATES	JANUARY		FEBRUARY		CHANGE: YEAR TO	
	1991 (Thousands)	1992	1991 (Thousands)	1992	1-1992 (Percent)	2-1992
1 New Mexico.....	42.6	39.5	42.4	39.4	-7.28%	-7.08%
2 Rhode Island.....	93.0	88.2	92.8	87.5	-5.16%	-5.71%
3 Maryland.....	197.1	186.2	194.4	183.8	-5.53%	-5.45%
4 Massachusetts.....	496.9	470.3	492.3	466.7	-5.35%	-5.20%
5 Arizona.....	181.0	171.0	179.5	170.3	-5.52%	-5.13%
6 Oklahoma.....	167.7	166.2	169.6	161.4	-0.89%	-4.83%
7 New Jersey.....	561.2	539.0	562.6	535.8	-3.96%	-4.78%
8 District of Columbia.....	15.0	14.5	15.2	14.5	-3.33%	-4.61%
9 New York.....	1057.9	1013.0	1059.3	1013.8	-4.24%	-4.30%
10 California.....	2041.8	1964.1	2039.3	1959.4	-3.81%	-3.92%
11 Connecticut.....	330.3	318.2	327.3	316.1	-3.66%	-3.42%
12 Utah.....	106.8	103.2	106.8	103.6	-3.37%	-3.00%
13 Hawaii.....	20.8	19.6	20.7	20.1	-5.77%	-2.90%
14 Pennsylvania.....	986.2	957.1	976.2	951.9	-3.15%	-2.49%
15 Oregon.....	208.7	202.5	208.0	203.0	-2.97%	-2.40%
16 New Hampshire.....	100.2	97.1	98.8	96.5	-3.09%	-2.33%
17 Vermont.....	44.2	42.7	43.7	42.7	-3.39%	-2.29%
18 West Virginia.....	84.4	82.3	83.9	82.1	-2.49%	-2.15%
19 Florida.....	502.1	489.7	499.5	489.0	-2.47%	-2.10%
20 Illinois.....	954.1	932.3	949.1	929.3	-2.28%	-2.09%
21 Maine.....	97.4	95.1	96.0	94.2	-2.36%	-1.88%
22 Iowa.....	232.4	225.1	231.3	227.4	-3.14%	-1.69%
23 Louisiana.....	184.5	185.6	185.4	182.7	0.60%	-1.46%
24 Virginia.....	414.9	405.9	411.2	405.4	-2.17%	-1.41%
25 Washington.....	346.5	343.2	346.8	342.0	-0.95%	-1.38%
26 Colorado.....	186.4	184.2	185.1	182.8	-1.18%	-1.24%
27 Ohio.....	1073.9	1046.1	1058.9	1046.4	-2.59%	-1.18%
28 North Dakota.....	17.9	17.6	17.9	17.7	-1.68%	-1.12%
29 Wyoming.....	9.5	9.4	9.2	9.1	-1.05%	-1.09%
30 Nebraska.....	98.8	98.9	99.6	98.7	0.10%	-0.90%
31 Texas.....	989.8	978.8	986.3	977.7	-1.11%	-0.87%
32 Nevada.....	26.4	25.9	26.2	26.0	-1.89%	-0.76%
33 South Carolina.....	371.4	367.5	368.6	366.1	-1.05%	-0.68%
34 Missouri.....	415.7	404.8	411.8	410.3	-2.62%	-0.36%
35 Minnesota.....	392.2	387.6	387.9	387.9	-1.17%	0.00%
36 Montana.....	21.7	21.6	21.4	21.4	-0.46%	0.00%
37 North Carolina.....	830.2	828.9	823.9	824.8	-0.16%	0.11%
38 Tennessee.....	500.3	501.0	497.8	499.2	0.14%	0.28%
39 Kentucky.....	277.9	279.2	279.0	279.8	0.47%	0.29%
40 Georgia.....	541.3	543.7	537.1	539.4	0.44%	0.43%
41 Michigan.....	895.4	876.2	884.9	890.0	-2.14%	0.58%
42 Wisconsin.....	542.0	540.4	536.8	540.0	-0.30%	0.60%
43 Indiana.....	615.1	610.5	606.3	610.3	-0.75%	0.66%
44 Alabama.....	376.8	378.2	374.8	377.3	0.37%	0.67%
45 Kansas.....	181.9	183.2	181.9	183.2	0.71%	0.71%
46 Mississippi.....	243.7	248.3	241.1	247.0	1.89%	2.45%
47 Arkansas.....	229.6	235.3	229.1	234.8	2.48%	2.49%
48 Idaho.....	61.1	63.1	61.3	62.9	3.27%	2.61%
49 Delaware.....	71.4	69.3	66.0	69.0	-2.94%	4.55%
50 Alaska.....	13.3	14.0	14.7	15.5	5.26%	5.44%
51 South Dakota.....	33.9	36.3	34.2	36.5	7.08%	6.73%

MBG—Washington and the U.S. Department of Labor, BLS  
 Nonfarm Establishment Series: Not Seasonally Adjusted

## NEW YORK-N. NEW JERSEY-LONG ISLAND, NY-NJ-CT (CMSA)

SECTOR/INDUSTRY	FULL & PART TIME JOBS			SHARE OF TOTAL			JOB GROWTH	
	1969	1979	1989	1969	1979	1989	1969-79	1979-89
TOTAL EMPLOYMENT	8 348 696	8 584 531	10 211 154	100.0%	100.0%	100.0%	235 835	1 626 623
WAGE AND SALARY	7 684 963	7 784 445	8 967 414	92.0%	90.7%	87.8%	99 482	1 182 969
PROPRIETORS	663 733	600 086	1 243 740	8.0%	9.3%	12.2%	136 353	443 854
FARM PROPRIETORS	6 798	7 253	5 327	0.1%	0.1%	0.1%	277	(11 248)
NONFARM PROPRIETORS	656 935	793 011	1 238 013	7.9%	9.2%	12.1%	136 076	445 002
TOTAL FARM	14 642	15 400	11 437	0.2%	0.2%	0.1%	758	(3 963)
TOTAL NONFARM	8 334 054	8 569 131	10 199 717	99.8%	99.8%	99.9%	235 077	1 630 586
PRIVATE	7 158 952	7 311 220	8 533 419	85.7%	85.2%	86.5%	152 268	1 522 199
AG SERV/ FOR FISH AND OTHER	30 565	39 654	53 000	0.4%	0.5%	0.6%	9 089	23 346
Mining	7 307	9 458	13 875	0.1%	0.1%	0.1%	2 149	1 419
CONSTRUCTION	132 765	285 592	458 829	1.6%	3.3%	4.6%	(47 173)	183 237
MANUFACTURING	1 980 328	1 598 789	1 255 179	23.7%	18.6%	12.3%	(383 539)	(341 210)
TRANSPORTATION AND PUBLIC UTILITIES	575 803	549 170	572 770	6.9%	6.4%	5.6%	(26 633)	23 609
WHOLESALE TRADE	538 792	607 024	693 950	6.4%	7.1%	6.8%	70 232	86 926
RETAIL TRADE	1 168 040	1 200 131	1 392 941	14.0%	14.0%	13.6%	32 091	192 810
FINANCE INSURANCE AND REAL ESTATE	72 580	796 076	1 997 447	0.9%	9.3%	10.7%	73 496	301 371
SERVICES	1 804 772	2 227 328	3 278 439	21.6%	25.9%	32.1%	422 556	1 051 091
GOVERNMENT & GOVT ENTERPRISES	1 125 102	1 257 911	1 308 298	14.1%	14.7%	13.4%	82 809	108 387
FEDERAL CIVILIAN	191 281	174 985	190 438	2.3%	2.0%	1.9%	(16 296)	5 673
MILITARY	1 177 673	1 088 844	1 117 860	14.1%	14.7%	13.4%	(88 392)	(111 187)
STATE AND LOCAL	356 148	1 012 082	1 113 259	4.3%	11.6%	11.0%	145 814	106 197

## LOS ANGELES-ANAHEIM-RIVERSIDE, CA (CMSA)

SECTOR/INDUSTRY	FULL & PART TIME JOBS			SHARE OF TOTAL			JOB GROWTH	
	1969	1979	1989	1969	1979	1989	1969-79	1979-89
TOTAL EMPLOYMENT	4 404 191	6 913 899	7 517 365	100.0%	100.0%	100.0%	1 609 699	1 948 175
WAGE AND SALARY	3 958 315	5 335 074	6 950 359	90.0%	88.7%	86.1%	1 336 764	1 515 289
PROPRIETORS	4 5 476	6 73 811	1 118 527	0.1%	0.1%	0.1%	272 025	427 886
FARM PROPRIETORS	9 994	10 843	11 282	0.2%	0.2%	0.1%	995	393
NONFARM PROPRIETORS	345 982	667 022	1 105 415	9.0%	11.1%	13.8%	271 940	427 483
TOTAL FARM	11 876	14 455	11 744	0.3%	0.2%	0.3%	2 529	(2 661)
TOTAL NONFARM	4 392 315	6 903 488	7 511 321	99.0%	99.3%	99.5%	1 607 170	1 945 836
PRIVATE	3 784 187	6 175 216	6 593 389	85.7%	86.1%	87.9%	1 489 729	1 817 473
AG SERV/ FOR FISH AND OTHER	29 488	25 529	33 493	0.7%	0.4%	0.4%	26 441	32 874
Mining	59 358	21 854	19 485	1.4%	0.4%	0.2%	2 795	(3 408)
CONSTRUCTION	182 213	263 564	4 426	4.1%	4.4%	5.1%	82 052	141 782
MANUFACTURING	1 100 755	1 268 412	1 311 658	25.0%	21.1%	16.5%	165 857	45 246
TRANSPORTATION AND PUBLIC UTILITIES	221 811	277 492	282 925	5.0%	4.6%	4.1%	56 081	50 933
WHOLESALE TRADE	232 509	349 462	474 298	5.3%	5.8%	5.8%	116 962	115 226
RETAIL TRADE	693 734	961 969	1 314 712	15.8%	16.0%	15.5%	268 265	274 703
FINANCE INSURANCE AND REAL ESTATE	278 975	482 243	1 111 111	6.3%	8.0%	8.8%	203 268	219 528
SERVICES	333 014	1 491 522	2 111 431	21.1%	24.9%	30.6%	567 808	940 609
GOVERNMENT & GOVT ENTERPRISES	676 128	793 569	927 932	15.4%	13.2%	11.0%	117 441	128 363
FEDERAL CIVILIAN	119 200	113 187	123 967	2.5%	1.6%	1.5%	987	12 880
MILITARY	120 220	84 883	104 376	2.7%	1.4%	1.4%	(35 337)	25 493
STATE AND LOCAL	436 708	596 499	699 589	10.1%	10.0%	8.7%	151 791	89 990

MBG-Washington and the U.S. Department of Commerce, BEA, Table CA25: Full &amp; Part Time Employment, May 1991.









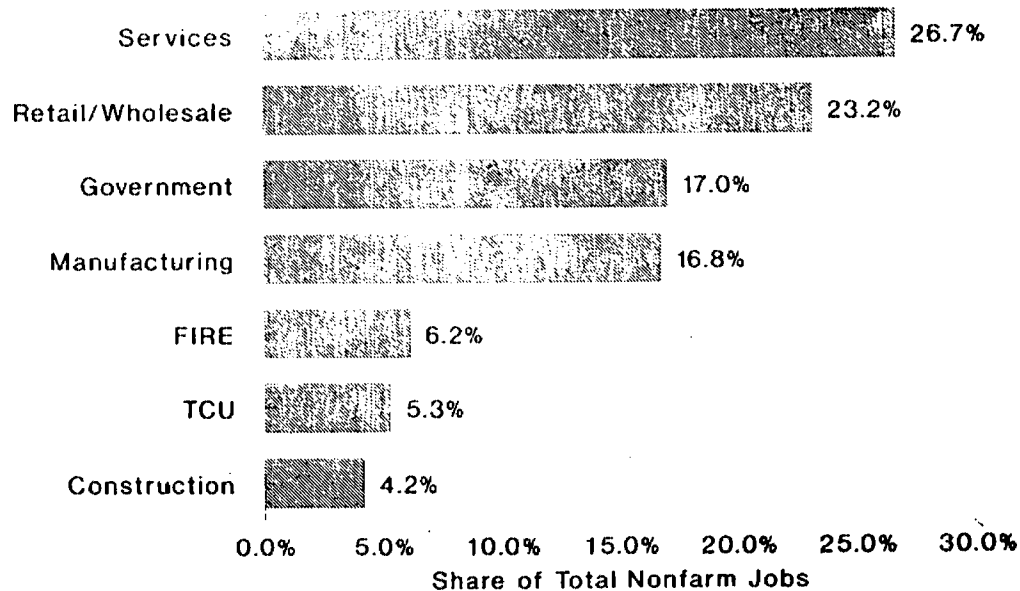






# U.S. JOB STRUCTURE

(March, 1992)



MBG-Washington and U.S. Dept. of Labor

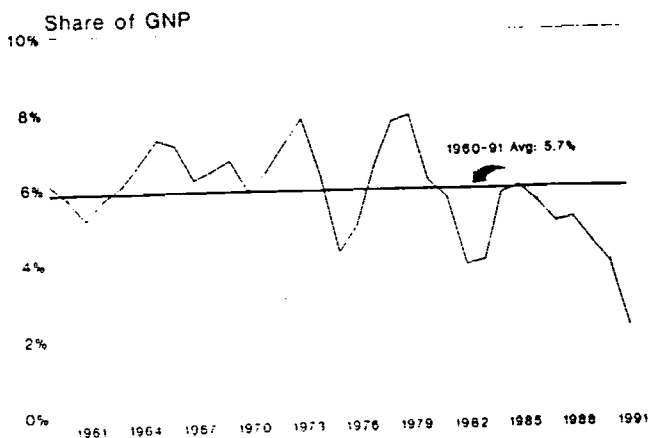
TCU: Transport, Communication, Utilities

## EMPLOYMENT STRUCTURE IN THE STATES

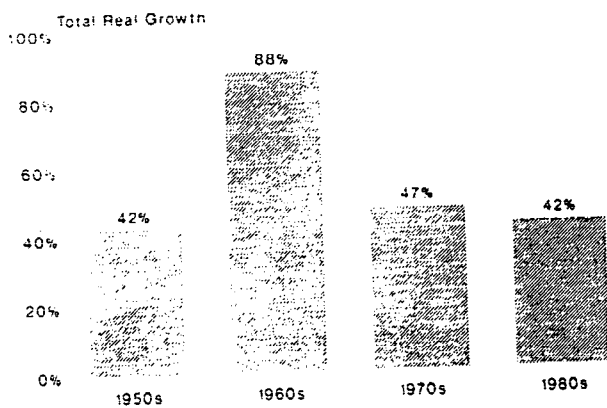
STATE	TOTAL EMPLOYMENT	Employment Shares						
		Const.	Mfging	TCU	Trade	FIRE	Services	Government
Alabama	1,643,500	4.62%	23.07%	5.09%	21.70%	4.42%	20.02%	20.30%
Alaska	232,000	3.64%	5.09%	8.84%	20.17%	4.40%	21.77%	31.25%
Arizona	1,548,100	5.14%	11.48%	5.26%	25.22%	6.10%	27.77%	18.17%
Arkansas	971,600	4.08%	24.60%	6.03%	22.25%	4.00%	21.19%	17.47%
California	12,856,300	4.68%	15.54%	4.92%	23.72%	6.52%	27.88%	16.45%
Colorado	1,571,800	4.23%	12.14%	6.27%	24.54%	6.27%	26.87%	18.48%
Connecticut	1,590,700	2.96%	20.26%	4.46%	22.54%	9.17%	27.23%	13.33%
Delaware	343,500	5.30%	20.70%	4.43%	21.95%	9.37%	24.48%	13.74%
Dist. of Columbia	678,600	1.75%	2.23%	3.40%	8.81%	4.69%	38.68%	40.42%
Florida	5,404,400	4.68%	9.18%	4.88%	26.90%	6.52%	30.85%	16.85%
Georgia	2,965,000	4.18%	18.32%	6.70%	24.90%	5.44%	21.72%	16.36%
Hawaii	546,900	5.96%	3.68%	7.79%	25.36%	7.04%	29.51%	20.66%
Idaho	405,800	5.08%	15.80%	5.08%	25.65%	5.10%	21.46%	21.17%
Illinois	5,284,400	3.90%	18.15%	5.78%	24.40%	7.06%	25.65%	14.88%
Indiana	2,558,700	4.58%	24.55%	5.33%	23.79%	4.88%	21.62%	14.97%
Iowa	1,240,400	3.35%	18.53%	4.46%	25.25%	5.76%	24.22%	18.26%
Kansas	1,110,300	3.90%	16.68%	6.34%	24.59%	5.21%	22.71%	19.69%
Kentucky	1,505,200	4.48%	18.97%	5.55%	24.00%	4.05%	22.60%	18.14%
Louisiana	1,634,500	5.89%	11.34%	6.72%	23.40%	4.82%	23.65%	20.89%
Maine	513,500	4.23%	18.56%	4.17%	24.73%	4.81%	24.28%	19.20%
Maryland	2,140,300	6.53%	9.17%	4.75%	24.61%	5.93%	28.96%	19.95%
Massachusetts	2,814,700	2.43%	16.92%	4.36%	23.41%	7.28%	31.97%	13.57%
Michigan	3,912,500	3.12%	23.04%	3.97%	24.06%	4.93%	24.37%	16.29%
Minnesota	2,154,500	3.18%	19.03%	5.12%	24.37%	5.87%	26.71%	16.35%
Mississippi	955,500	3.59%	25.34%	4.68%	21.65%	4.04%	17.56%	21.95%
Missouri	2,337,600	4.09%	17.89%	6.59%	23.96%	5.89%	25.13%	16.24%
Montana	302,700	3.50%	7.53%	6.84%	26.46%	4.46%	25.54%	23.75%
Nebraska	780,200	4.11%	13.32%	5.91%	25.26%	6.45%	25.22%	19.51%
Nevada	643,200	6.98%	4.13%	5.25%	20.51%	4.51%	43.03%	13.40%
New Hampshire	490,200	3.22%	20.38%	3.51%	24.50%	6.26%	26.40%	15.67%
New Jersey	3,570,100	3.48%	15.18%	6.51%	24.38%	6.42%	27.87%	16.09%
New Mexico	586,300	5.08%	6.96%	5.01%	24.05%	4.43%	25.56%	26.16%
New York	7,930,400	3.31%	13.25%	5.25%	20.44%	9.45%	29.93%	18.32%
North Carolina	3,140,200	4.90%	26.68%	4.89%	22.94%	4.28%	19.64%	16.51%
North Dakota	173,800	3.29%	6.54%	6.28%	26.77%	4.67%	26.26%	24.54%
Ohio	4,953,100	3.82%	21.80%	4.45%	24.23%	5.16%	24.99%	15.22%
Oklahoma	1,000,800	2.94%	13.90%	5.57%	23.48%	4.82%	23.26%	22.64%
Oregon	1,277,500	4.15%	15.89%	5.03%	25.63%	6.58%	24.25%	18.31%
Pennsylvania	5,171,500	4.08%	18.51%	5.34%	23.30%	5.81%	28.80%	13.68%
Rhode Island	435,400	3.17%	21.06%	3.51%	21.38%	5.93%	30.00%	14.91%
South Carolina	1,561,700	5.81%	23.74%	4.28%	22.30%	4.20%	20.12%	19.43%
South Dakota	321,700	3.91%	12.20%	4.64%	26.68%	5.47%	24.56%	21.66%
Tennessee	2,152,600	3.81%	23.47%	5.28%	23.99%	4.59%	22.33%	16.07%
Texas	7,193,000	4.76%	13.49%	6.06%	24.29%	5.93%	24.51%	18.50%
Utah	763,400	4.13%	13.96%	5.72%	24.31%	4.78%	25.66%	20.32%
Vermont	252,100	4.60%	17.10%	4.24%	23.13%	4.40%	28.20%	18.13%
Virginia	2,394,300	5.44%	14.33%	5.15%	22.84%	5.19%	25.98%	20.57%
Washington	2,176,600	5.05%	16.49%	5.19%	23.98%	5.36%	24.35%	19.39%
West Virginia	633,300	4.15%	13.11%	5.78%	23.35%	3.92%	24.15%	20.33%
Wisconsin	2,317,900	3.35%	23.66%	4.83%	23.52%	5.29%	23.92%	15.36%
Wyoming	200,500	5.13%	4.99%	7.23%	22.68%	3.59%	18.10%	28.81%
U.S. TOTAL	109,668,000	4.13%	16.71%	5.34%	23.56%	6.09%	26.40%	17.16%

TCU = Transportation, Communications and Public Utility Services FIRE = Finance, Insurance and Real Estate Trade = Wholesale/Retail  
 MBG = Washington and the U.S. Department of Labor, BLS. (Actual Unadjusted Establishment Data: December, 1991)

## NET FIXED INVESTMENT IN THE U.S.



## U.S. BUSINESS INVESTMENT (Constant 1982 Dollars)

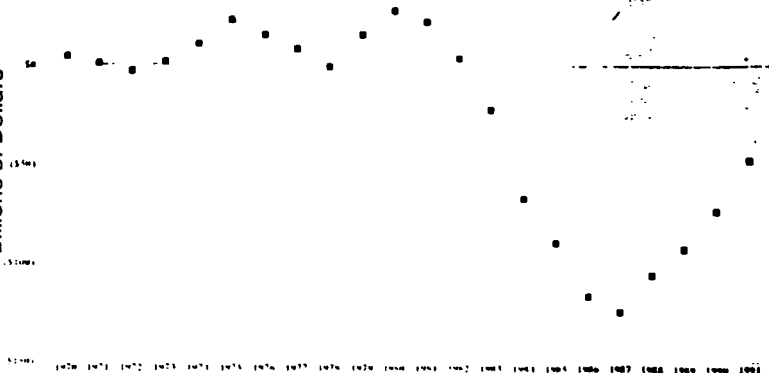


MBG-Washington & US Dept of Commerce/BEA



# U.S. MANUFACTURING TRADE IMBALANCE

Billions of Dollars



YEAR	MILLIONS OF U.S. DOLLARS			EXPORT GROWTH
	EXPORTS	IMPORTS	BALANCE	
1970	\$31,720.1	\$27,332.0	\$4,388.1	N/A
1971	\$32,904.6	\$32,103.7	\$800.9	3.73%
1972	\$36,503.2	\$39,710.0	(\$3,206.8)	10.94%
1973	\$48,467.7	\$47,130.6	\$1,337.1	32.78%
1974	\$68,512.6	\$57,829.7	\$10,682.9	41.36%
1975	\$76,869.5	\$54,004.0	\$22,865.5	12.20%
1976	\$83,120.2	\$67,631.8	\$15,488.4	8.13%
1977	\$88,901.7	\$80,504.0	\$8,397.7	6.96%
1978	\$103,633.8	\$104,334.4	(\$700.6)	16.57%
1979	\$132,745.4	\$117,130.9	\$15,614.5	28.09%
1980	\$160,651.4	\$132,986.5	\$27,664.9	21.02%
1981	\$171,749.3	\$149,752.1	\$21,997.2	6.91%
1982	\$155,305.4	\$151,727.9	\$3,577.5	-9.57%
1983	\$148,664.7	\$170,865.2	(\$22,200.5)	-4.28%
1984	\$164,071.3	\$230,909.6	(\$66,838.3)	10.36%
1985	\$168,025.0	\$257,477.6	(\$89,452.6)	2.41%
1986	\$179,818.6	\$296,652.7	(\$116,834.1)	7.02%
1987	\$199,883.5	\$324,443.9	(\$124,560.4)	11.16%
1988	\$255,638.7	\$361,381.0	(\$105,742.3)	27.89%
1989	\$287,017.5	\$379,425.4	(\$92,407.9)	12.27%
1990	\$315,747.3	\$388,806.2	(\$73,058.9)	10.01%
1991	\$345,377.0	\$393,070.0	(\$47,693.0)	9.38%

MBG—Washington and the U.S. Department of Commerce, I.T.A.

## U.S. MANUFACTURING TRADE: 1991

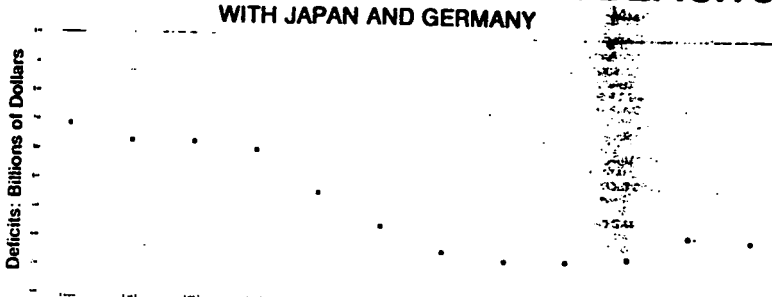
(MILLIONS OF DOLLARS)

INDUSTRY	EXPORTS	IMPORTS	BALANCE
TOTAL	\$345 377 0	\$393 070 0	(\$47 693 0)
Clothing	\$3 211 6	\$26 205 8	(\$22 994 2)
Vehicles new cars - Japan	\$497 3	\$20 387 7	(\$19 890 4)
Telecommunications equip	\$9 965 8	\$23 469 0	(\$13 503 2)
Footwear	\$542 5	\$9 561 0	(\$9 018 5)
Vehicles new cars - Other	\$3 077 2	\$10 853 1	(\$7 775 9)
Vehicles new cars - Canada	\$6 189 5	\$13 543 6	(\$7 354 1)
Toys games sporting goods	\$2 085 5	\$8 823 6	(\$6 738 1)
Electrical machinery	\$29 935 2	\$35 103 1	(\$5 167 9)
Other manufactured goods	\$25 108 7	\$30 064 2	(\$4 955 5)
Vehicles trucks	\$3 869 2	\$8 261 4	(\$4 392 2)
ADP equip office mach	\$25 953 6	\$30 064 3	(\$4 110 7)
Iron and steel mill prod.	\$4 214 1	\$8 312 3	(\$4 098 2)
Gem diamonds	\$209 2	\$4 006 1	(\$3 796 9)
Furniture and parts	\$2 113 2	\$4 938 3	(\$2 825 1)
Travel goods	\$1 590 0	\$2 345 3	(\$2 186 3)
Paper and paperboard	\$5 961 8	\$8 024 4	(\$2 062 6)
Watches clocks parts	\$225 3	\$2 286 6	(\$2 061 3)
Textile yarn fabric	\$5 457 1	\$6 990 8	(\$1 533 7)
Platinum	\$313 8	\$1 663 9	(\$1 350 1)
Metal manufactures in e s	\$5 169 2	\$6 376 2	(\$1 207 0)
Pottery	\$87 1	\$1 244 8	(\$1 157 7)
Rubber tires and tubes	\$1 272 7	\$2 310 2	(\$1 037 5)
Metalworking machinery	\$2 706 3	\$3 622 6	(\$916 3)
Plastic articles in e s	\$2 236 7	\$3 115 4	(\$878 7)
Nickel	\$217 9	\$1 062 7	(\$844 8)
Cosmet goods	\$711 5	\$1 485 5	(\$774 0)
Artwork antiques	\$1 240 2	\$1 980 8	(\$740 6)
Photographic equipment	\$2 926 2	\$3 652 7	(\$726 5)
Wood manufactures	\$1 244 0	\$1 907 8	(\$663 8)
Basketware etc	\$1 288 6	\$1 913 0	(\$624 4)
Zinc	\$39 4	\$651 5	(\$612 1)
Glassware	\$447 9	\$938 0	(\$490 1)
Lighting eq. home	\$874 0	\$1 247 2	(\$373 2)
Motorcycles bicycles	\$1 302 6	\$1 635 9	(\$333 3)
Copper	\$1 325 6	\$1 600 9	(\$275 3)
Vehicles chassis bodies	\$239 9	\$406 8	(\$166 9)
Rubber articles in e s	\$574 5	\$704 8	(\$130 3)
Silver and gold ion	\$238 8	\$366 2	(\$127 4)
Vehicles parts	\$14 301 5	\$14 073 0	\$228 5
Chemicals - dyeing	\$1 647 5	\$1 415 8	\$231 7
Soapdeterg	\$257 3	(-)	\$257 3
Glass	\$1 127 8	\$770 7	\$357 1
Aluminum	\$3 124 6	\$2 409 1	\$715 5
Chemicals - inorganic	\$4 102 0	\$3 298 7	\$803 3
Shoes boots	\$1 154 3	\$248 1	\$906 2
Chemicals - cosmetics	\$2 350 8	\$1 417 3	\$934 5
Gold nonmonetary	\$3 295 1	\$1 934 8	\$1 360 3
Records magnetic media	\$4 263 0	\$2 786 5	\$1 476 5
Chemicals - medicinal	\$4 606 2	\$3 052 8	\$1 553 4
Printed materials	\$3 578 8	\$1 705 3	\$1 873 5
Chemicals - fertilizers	\$2 980 0	\$919 2	\$2 060 8
General industrial mach	\$17 107 1	\$14 422 5	\$2 684 6
Power generating mach	\$16 967 5	\$14 230 3	\$2 737 2
Chemicals - organic	\$10 927 9	\$8 156 8	\$2 771 1
Chemicals - in e s	\$6 019 8	\$2 123 0	\$3 896 8
Specialized ind. mach	\$16 565 2	\$10 914 2	\$5 651 0
Airplane parts	\$10 263 6	\$4 085 4	\$6 178 2
Chemicals - plastics	\$10 322 4	\$3 785 1	\$6 537 3
Scientific instruments	\$13 487 6	\$6 757 4	\$6 730 2
Airplanes	\$24 158 2	\$3 436 1	\$20 722 1

MIU - Washington and the U.S. Department of Commerce, Bureau of the Census, P1900.

# U.S. MANUFACTURING TRADE DEFICITS WITH JAPAN AND GERMANY

Deficits: Billions of Dollars



Deficit With Japan      Deficit With Germany

Year	MILLIONS OF U.S. DOLLARS			YEN PER DOLLAR
	EXPORTS TO JAPAN	IMPORTS FROM JAPAN	BALANCE WITH JAPAN	
1980	\$8,947	\$30,471	(\$21,524)	225.7
1981	\$10,080	\$37,285	(\$27,205)	220.8
1982	\$9,984	\$37,365	(\$27,381)	248.8
1983	\$10,815	\$40,731	(\$29,916)	237.5
1984	\$12,161	\$56,535	(\$44,374)	237.5
1985	\$12,368	\$68,093	(\$55,725)	238.7
1986	\$16,871	\$81,202	(\$64,331)	168.4
1987	\$16,317	\$83,868	(\$67,551)	144.5
1988	\$21,948	\$89,123	(\$67,175)	128.2
1989	\$26,982	\$92,925	(\$65,943)	138.1
1990	\$30,904	\$89,086	(\$58,182)	144.9
1991	\$31,385	\$91,006	(\$59,621)	134.6

YEAR	MILLIONS OF U.S. DOLLARS			DMARKS PER DOLLAR
	EXPORTS TO GERMANY	IMPORTS FROM GERMANY	BALANCE WITH GERMANY	
1980	\$8,000	\$11,449	(\$3,449)	1.815
1981	\$7,623	\$10,884	(\$3,261)	2.254
1982	\$7,050	\$11,450	(\$4,400)	2.428
1983	\$6,489	\$12,089	(\$5,600)	2.554
1984	\$7,372	\$16,427	(\$9,055)	2.845
1985	\$7,493	\$19,527	(\$12,034)	2.942
1986	\$8,809	\$24,398	(\$15,589)	2.170
1987	\$9,784	\$26,421	(\$16,637)	1.798
1988	\$12,184	\$25,901	(\$13,717)	1.757
1989	\$14,894	\$24,206	(\$9,312)	1.881
1990	\$16,665	\$27,449	(\$10,784)	1.617
1991	\$19,442	\$25,489	(\$6,047)	1.681

MBC - Washington and the U.S. Department of Commerce, I.T.A.

## MAJOR U.S. IMPORTS FROM JAPAN

INDUSTRY (Customs Basis)	THOUSAND DOLLARS			SHARE OF TOTAL		
	1991*	1990	1989	1991*	1990	1989
<b>ALL COMMODITIES</b>	574 807 012	588 834 279	591 841 786	100 00%	100 00%	100 00%
87--VEHICLES, EXCEPT RAILWAY OR TRAMWAY AND PARTS ETC	524 946 525	529 331 228	530 499 942	33 31%	33 02%	33 21%
83--ELECTRIC MACHINERY ETC SOUND EQUIP TV EQUIP PHS	515 890 188	518 547 792	519 729 290	21 21%	20 80%	21 40%
84--NUCLEAR REACTORS BOILERS MACHINERY ETC PARTS	515 080 580	518 731 275	519 084 568	20 99%	21 00%	21 44%
90--OPTIC PHOTO ETC (MEDIC OR SURGICAL INSTRUMENTS ETC	54 605 417	55 128 441	55 122 070	8 15%	5 77%	5 58%
95--TOYS, GAMES & SPORT EQUIPMENT, PARTS & ACCESSORIES	51 245 496	52 507 989	52 072 633	1 06%	2 82%	2 26%
72--IRON AND STEEL	51 140 704	51 592 527	51 063 308	1 52%	1 70%	2 05%
73--ARTICLES OF IRON OR STEEL	51 084 719	51 351 919	51 426 784	1 40%	1 50%	1 53%
29--ORGANIC CHEMICALS	5085327	5082 862	51 075 915	1 29%	1 11%	1 17%
40--RUBBER AND ARTICLES THEREOF	5769 950	51 061 896	51 190 545	1 02%	1 20%	1 22%
37--PHOTOGRAPHIC OR CINEMATOGRAPHIC GOODS	5787 950	5853 237	5868 834	1 02%	1 01%	0 95%
39--PLASTICS AND ARTICLES THEREOF	5752 755	5905 413	5881 740	1 00%	1 00%	0 96%
98--SPECIAL CLASSIFICATION PROVISIONS, NESOI	5688 754	5830 993	5563 136	0 92%	0 94%	0 83%
82--TOOLS, CUTLERY ETC OF BASE METAL & PARTS THEREOF	5558 209	5588 422	5503 729	0 74%	0 44%	0 55%
91--CLOTHS AND WATCHES AND PARTS THEREOF	5463 368	5398 221	5248 990	0 62%	0 45%	0 27%
88--AIRCRAFT, SPACECRAFT AND PARTS THEREOF	5457 270	5441 106	5384 127	0 81%	0 50%	0 42%
98--SPECIAL IMPORT PROVISIONS, NESOI	5444 415	5529 542	5470 601	0 59%	0 60%	0 51%
96--MISCELLANEOUS MANUFACTURED ARTICLES	5308 589	5342 151	5316 130	0 41%	0 39%	0 34%
99--CERAMIC PRODUCTS	5288 058	5381 276	5475 529	0 41%	0 42%	0 45%
92--MUSICAL INSTRUMENTS, PARTS AND ACCESSORIES THEREOF	5209 129	5222 265	5248 483	0 26%	0 25%	0 40%
93--TEXTILE FABRICS	5203 328	5251 147	5170 222	0 27%	0 23%	0 19%
94--FURNITURE, BEDDING ETC, LAMPS, NESOI ETC, PREFAB 60	5195 366	5177 468	5161 020	0 26%	0 20%	0 18%
32--TANNING & DYE EXPT ETC, DYE, PAINT, PUTTY ETC MIXS	5184 942	5203 484	5151 010	0 25%	0 23%	0 16%
38--MISCELLANEOUS CHEMICAL PRODUCTS	5180 874	5221 625	5226 342	0 24%	0 27%	0 25%
16--PAPER & PAPERBOARD & ARTICLES, INC PAPER PULP ARTLY	5177 503	5222 026	5206 003	0 24%	0 26%	0 22%
85--MISCELLANEOUS ARTICLES OF BASE METAL						

## MAJOR U.S. EXPORTS TO JAPAN

INDUSTRY (FAS Value)	THOUSAND DOLLARS			SHARE OF TOTAL		
	1991*	1990	1989	1991*	1990	1989
<b>ALL COMMODITIES</b>	538 520 856	546 138 436	542 784 273	100 00%	100 00%	100 00%
81--NUCLEAR REACTORS, BOILERS, MACHINERY ETC, PARTS	55 188 106	56 329 716	55 474 898	13 47%	13 07%	12 80%
83--ELECTRIC MACHINERY ETC SOUND EQUIP TV EQUIP PHS	53 308 178	53 216 020	52 988 004	7 81%	8 87%	6 94%
84--AIRCRAFT, SPACECRAFT AND PARTS THEREOF	52 364 957	52 482 038	52 011 911	5 98%	7 55%	4 70%
44--WOOD AND ARTICLES OF WOOD, WOOD CHARCOAL	52 173 476	52 794 785	52 816 887	5 94%	6 06%	6 56%
40--OPTIC PHOTO ETC (MEDIC OR SURGICAL INSTRUMENTS ETC	52 266 867	52 157 398	52 139 442	5 36%	4 68%	5 00%
10--CEREALS	51 748 837	52 390 778	52 402 823	4 59%	5 18%	5 82%
11--FISH, CRUSTACEANS & AQUATIC INVERTEBRATES	51 634 378	51 729 990	51 520 812	4 24%	3 77%	3 58%
12--TOBACCO AND MANUFACTURED TOBACCO SUBSTITUTES	51 361 913	51 616 747	51 170 705	3 54%	3 50%	2 74%
13--MEAT AND EDIBLE MEAT OFFAL	51 291 834	51 532 286	51 603 332	3 35%	3 32%	3 75%
14--ORGANIC CHEMICALS	51 225 416	51 376 552	51 454 075	3 18%	2 98%	3 40%
15--ALUMINUM AND ARTICLES THEREOF	51 224 352	51 791 758	51 562 072	3 19%	3 02%	3 65%
27--MINERAL FUEL, OIL ETC, BITUMIN SUBST, MINERAL WAX	51 123 935	51 426 648	51 510 818	2 92%	2 15%	3 33%
87--VEHICLES, EXCEPT RAILWAY OR TRAMWAY AND PARTS ETC	51 086 812	51 487 580	50 113 810	2 62%	3 18%	2 14%
28--INGR CHEM, PREC & RARE-EARTH MET & RADIOACT COMPO	50 111 826	50 275 527	51 148 434	2 37%	2 11%	2 69%
12--OIL SEEDS ETC, PREP, SEED, FRUIT, PLANT ETC	48 225 410	47 321 981	47 046 385	2 14%	2 21%	2 45%
39--PLASTICS AND ARTICLES THEREOF	47 935 235	47 819 810	47 31 238	1 82%	1 63%	1 71%
08--SPECIAL CLASSIFICATION PROVISIONS, NESOI	46 980 681	47 588 862	47 573 884	1 81%	1 84%	1 34%
47--PULP OF WOOD ETC, MAS ETC, OF PAPER & PAPERBOARD	45 980 839	46 775 014	46 000 503	1 55%	1 68%	2 34%
06--EDIBLE FRUIT & NUTS, CHRL, FRUIT OR MELON PEEL	44 671 808	44 718 182	44 526 073	1 22%	1 04%	1 25%
38--MISCELLANEOUS CHEMICAL PRODUCTS	44 671 836	44 718 182	44 475 855	1 21%	1 04%	1 05%
8--PAPER & PAPERBOARD & ARTICLES, INC PAPER PULP ARTLY	44 365 278	44 174 724	44 338 905	1 12%	1 12%	1 28%
39--PHARMACEUTICAL PRODUCTS	44 233 385	44 665 213	44 599 964	1 10%	1 01%	1 08%
71--NAT ETC PEARLS, PREC ETC, STONES, PRHET ETC, COM	44 200 927	44 576 040	44 627 366	1 09%	1 03%	1 47%
72--COPPER AND ARTICLES THEREOF	44 145 348	44 118 122	44 251 969	1 08%	0 91%	0 59%
41--RAW HIDES AND SKINS, INC FUR, SKINS AND LEATHER	43 935 967	46 110 945	44 925 178	1 02%	1 32%	1 16%

\*1991 data are through October. MBO--Washington and the U.S. Dept. of Commerce, Bureau of the Census.

## MAJOR U.S. IMPORTS FROM GERMANY\*

INDUSTRY (Customs Basis)	THOUSAND DOLLARS			SHARE OF TOTAL		
	1991**	1990	1989	1991**	1990	1989
<b>ALL COMMODITIES</b>	521 149 523	528 035 442	524 774 360	100.00%	100.00%	100.00%
84--NUCLEAR REACTORS, BOILERS, MACHINERY ETC. PARTS	53 661 166	57 222 478	56 225 363	26.77%	25.76%	25.12%
87--VEHICLES, EXCEPT RAILWAY OR TRAMWAY AND PARTS ETC	54 476 536	57 340 205	56 328 653	21.17%	26.18%	25.52%
85--ELECTRIC MACHINERY ETC SOUND EQUIP. TV EQUIP. PTS	51 797 323	52 028 836	51 896 539	9.80%	7.23%	7.54%
90--OPTIC. PHOTO ETC. MEDIC OR SURGICAL INSTRUMENTS ETC	51 448 555	51 664 356	51 529 336	9.85%	9.54%	6.18%
29--ORGANIC CHEMICALS	51 028 012	51 123 276	51 180 037	4.98%	4.01%	4.68%
98--SPECIAL CLASSIFICATION PROVISIONS NESOI	5578 228	5688 859	5562 292	2.73%	3.17%	2.27%
39--PLASTICS AND ARTICLES THEREOF	5527 059	5650 359	5613 090	2.49%	2.32%	2.48%
72--IRON AND STEEL	54122 118	5641 912	5693 839	1.95%	1.63%	1.71%
73--ARTICLES OF IRON OR STEEL	3500 897	5642 110	5693 839	1.95%	2.29%	2.80%
28--INORG CHEM. PREC & RARE-EARTH MET & RADIOACT COMPD	5324 947	5434 969	5341 327	1.54%	1.55%	1.38%
32--TANNING & DYE EXTRACT ETC. DYE, PAINT, PUTTY ETC. INKS	5271 499	5344 615	5264 795	1.52%	1.23%	1.30%
38--MISCELLANEOUS CHEMICAL PRODUCTS	5226 126	5296 950	5215 407	1.07%	0.95%	0.87%
48--PAPER & PAPERBOARD & ARTICLES, INC. PAPER PULP ARTL	5195 915	5297 682	5323 753	1.89%	1.63%	1.71%
94--FURNITURE, BEDDING ETC. LAMPS NESOI ETC. PREFAB BO	5184 951	5239 806	5222 019	0.87%	0.80%	0.90%
40--RUBBER AND ARTICLES THEREOF	5184 631	5248 290	5222 113	0.87%	0.89%	0.90%
30--PHARMACEUTICAL PRODUCTS	5170 816	5174 012	5137 203	0.81%	0.81%	0.55%
71--NAT ETC PEARLS, PREC ETC STONES, PRMET ETC COIN	5164 474	5200 211	5178 126	0.78%	0.71%	0.71%
82--TOOLS, CUTLERY ETC. OF BASE METAL & PARTS THEREOF	5160 818	5182 819	5122 514	0.76%	0.65%	0.49%
75--ALUMINIUM AND ARTICLES THEREOF	5152 991	5204 484	5190 220	0.72%	0.72%	0.72%
77--BEVERAGES, SPIRITS AND VINEGAR	5128 766	5184 824	5162 120	0.81%	0.66%	0.65%
79--AIRCRAFT, SPACECRAFT AND PARTS THEREOF	5128 269	5184 722	5174 299	0.81%	0.66%	0.70%
74--COPPER AND ARTICLES THEREOF	5127 900	5164 304	5151 181	0.60%	0.59%	0.61%
95--TOYS, GAMES & SPORT EQUIPMENT, PARTS & ACCESSORIES	5106 063	5147 893	5151 491	0.50%	0.53%	0.51%
	5106 762	5131 296	508 652	0.48%	0.47%	0.40%

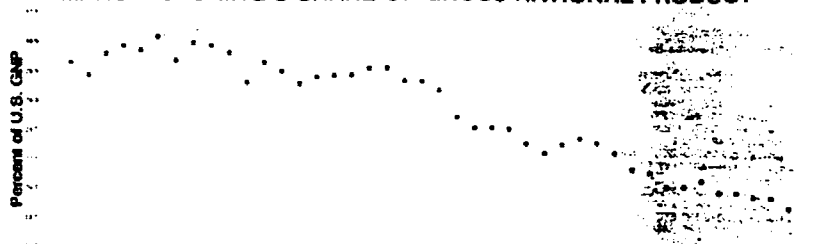
## MAJOR U.S. EXPORTS TO GERMANY\*

INDUSTRY (FAS Value)	THOUSAND DOLLARS			SHARE OF TOTAL		
	1991**	1990	1989	1991**	1990	1989
<b>ALL COMMODITIES</b>	519 460 587	517 635 380	516 068 190	100.00%	100.00%	100.00%
84--NUCLEAR REACTORS, BOILERS, MACHINERY ETC. PARTS	54 191 320	54 498 495	54 118 235	25.10%	25.40%	25.62%
87--VEHICLES, EXCEPT RAILWAY OR TRAMWAY AND PARTS ETC	52 532 314	52 062 974	52 245 260	15.20%	11.70%	13.97%
85--ELECTRIC MACHINERY ETC SOUND EQUIP. TV EQUIP. PTS	51 493 959	51 876 824	51 481 328	8.97%	10.64%	9.22%
90--OPTIC. PHOTO ETC. MEDIC OR SURGICAL INSTRUMENTS ETC	51 466 996	51 463 553	51 424 409	8.49%	8.80%	8.86%
87--VEHICLES, EXCEPT RAILWAY OR TRAMWAY AND PARTS ETC	51 183 753	51 021 650	50 789 200	7.11%	5.70%	4.79%
98--SPECIAL CLASSIFICATION PROVISIONS NESOI	5551 156	5615 926	5398 447	3.31%	3.49%	2.48%
39--PLASTICS AND ARTICLES THEREOF	5427 998	5472 347	5412 884	2.57%	2.68%	2.57%
72--IRON AND ARTICLES THEREOF	5277 949	5423 467	5358 261	2.23%	2.40%	2.23%
73--ARTICLES AND ALIUMINUM, PARTS & ACCESSORIES THEREOF	5255 617	5350 802	5452 334	1.84%	1.99%	2.31%
47--PULP OF WOOD ETC. WASTE ETC. OF PAPER & PAPERBOARD	5189 433	5286 746	5362 394	1.14%	1.63%	2.26%
30--PHARMACEUTICAL PRODUCTS	5236 384	5277 704	5290 394	1.42%	1.57%	1.81%
28--INORG CHEM. PREC & RARE-EARTH MET & RADIOACT COMPD	5219 410	5253 374	5264 214	1.32%	1.44%	1.64%
74--TOBACCO AND MANUFACTURED TOBACCO SUBSTITUTES	5218 406	5250 032	5212 879	1.31%	1.42%	1.32%
12--EDIBLE FRUIT & VEG. ETC., OF FRUIT OR MELON PEEL	5141 741	5234 330	5217 300	0.85%	1.35%	1.35%
12--OIL SEEDS ETC. (INC. GRAIN SEED) FRUIT PLANT ETC	5259 402	5234 476	5114 881	1.56%	1.33%	0.71%
38--MISCELLANEOUS CHEMICAL PRODUCTS	5205 438	5229 722	5208 876	1.23%	1.30%	1.29%
71--NAT ETC PEARLS, PREC ETC STONES, PRMET ETC COIN	5131 559	5217 919	5160 553	0.79%	1.24%	1.00%
38--EDIBLE FRUIT & VEG. ETC., OF FRUIT OR MELON PEEL	5141 716	5214 569	5174 427	0.85%	1.22%	1.00%
48--PAPER & PAPERBOARD & ARTICLES, INC. PAPER PULP ARTL	5292 209	5154 644	5103 631	1.21%	0.88%	0.64%
52--COTTON, INCLUDING YARN, AND WOOLLEN FABRIC THEREOF	510 825	5147 419	5121 937	0.48%	0.84%	0.76%
40--RUBBER AND ARTICLES THEREOF	508 607	5112 871	505 658	0.53%	0.64%	0.60%
97--WORKS OF ART, COLLECTORS' PIECES AND ANTIQUES	5143 990	5107 465	501 486	0.86%	0.81%	0.51%
27--MINERAL FUEL, OIL ETC. BITUMINOUS MINERAL WAX	593 387	5194 718	5104 790	0.56%	0.59%	0.65%
95--TOYS, GAMES & SPORT EQUIPMENT, PARTS & ACCESSORIES	5109 773	597 268	593 561	0.66%	0.55%	0.58%
73--ARTICLES OF IRON OR STEEL	590 429	592 567	587 173	0.54%	0.53%	0.42%

\* Data are for the former West Germany only \*\*1991 data are through October, 1991

MBG--Washington and the U.S. Dept. of Commerce, Bureau of Census

## MANUFACTURING'S SHARE OF GROSS NATIONAL PRODUCT

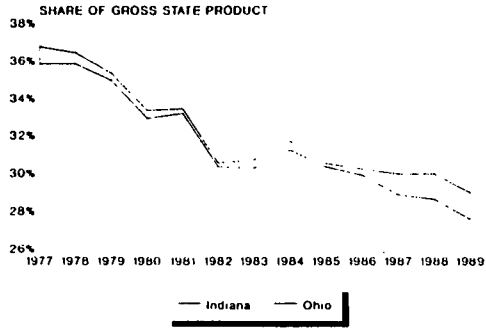


	Actual Dollar Value				"Constant Output"						
	1949	1952	1957	1961	1963	1968	1973	1977	1981	1985	1988
<b>GNP (S Bases)</b>											
ACTUAL VALUE	260.4	371.6	451	533.8	555.1	963.9	1359.3	1989.3	3052.8	4014.9	5200.9
CONSTANT 1982 OUTPUT	1199	1453.3	1551.1	1708.7	2067.6	2423.3	2744.1	2958.8	3248.8	3618.7	4117.7
<b>MANUFACTURING</b>											
ACTUAL VALUE	72.2	112.5	131.8	145	198.4	257.1	326.4	463.2	643.1	799.3	960
CONSTANT 1982 OUTPUT	226.3	319.9	332.5	339.4	462.3	536.7	621.3	664.8	678.6	779.2	829
<b>NON-MANUFACTURING</b>											
ACTUAL VALUE	188.2	259.1	319.2	388.8	506.7	706.8	1032.9	1526.2	2409.7	3225.4	4234.9
CONSTANT 1982 OUTPUT	682.7	1115.4	1218.6	1369.3	1625.1	1886.6	2122.8	2293.8	2570.2	2839.5	3188.7
<b>MANUFACTURING SHARE OF GNP</b>											
ACTUAL VALUE	27.73%	30.27%	29.22%	27.16%	26.14%	26.67%	24.01%	23.39%	21.07%	19.69%	18.37%
"CONSTANT 1982 OUTPUT"	20.41%	22.29%	21.44%	19.86%	22.15%	22.15%	22.64%	22.47%	20.89%	21.59%	22.56%
<b>NON-MANUFACTURING SHARE OF GNP</b>											
ACTUAL VALUE	72.27%	69.73%	70.78%	72.84%	73.36%	73.33%	75.99%	76.62%	78.93%	80.34%	81.43%
CONSTANT 1982 OUTPUT	79.59%	77.71%	78.56%	80.14%	77.85%	77.85%	77.36%	77.53%	79.11%	78.47%	77.44%

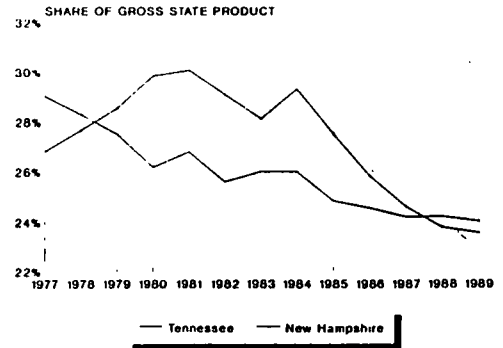
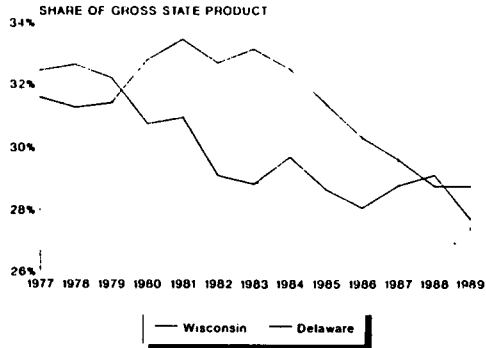
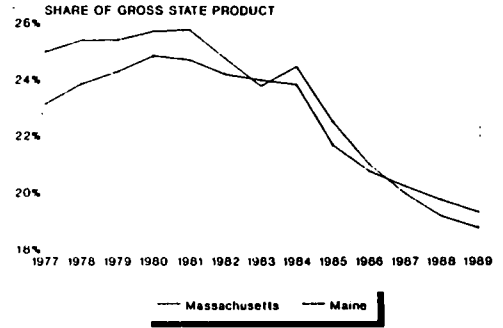
the formidable statistical problems of measuring prices of many services are still present in the new ("Constant Output") estimates; only a substantial research effort over many years holds any promise of overcoming these statistical problems."

Frank de Leeuw, Michael Mohr, and Robert P. Parker, "Gross Product by Industry, 1977-88: A Progress Report on Improving the Estimates," in the SURVEY OF CURRENT BUSINESS, January, 1991, p. 26

### MANUFACTURING DECLINE IN THE STATES



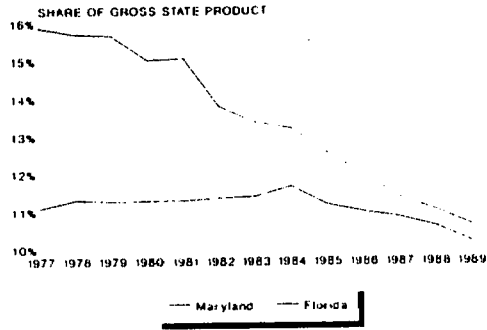
### MANUFACTURING DECLINE IN THE STATES



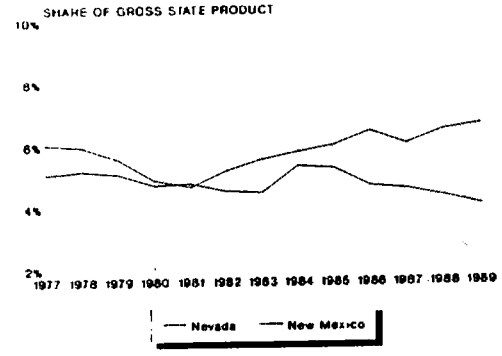
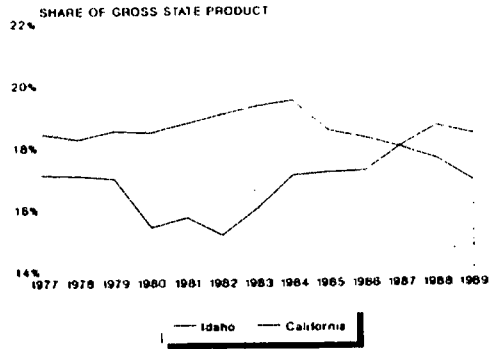
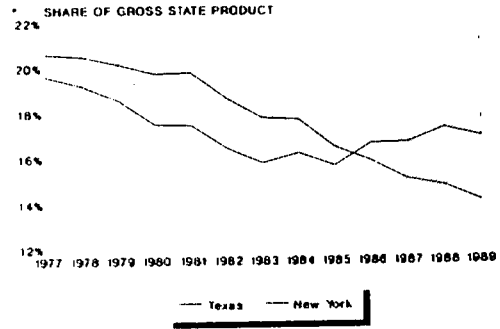
MBG-Washington & US Dept of Commerce BEA

Data are in Actual Unadjusted Dollars

## MANUFACTURING DECLINE IN THE STATES



## MANUFACTURING DECLINE IN THE STATES



MBQ-Washington & US Dept of Commerce BEA

Data are in Actual Unadjusted Dollars



## MANUFACTURING GROWTH AND DECLINE

STATE/REGION	SHARE OF GSP: 1979	SHARE OF GSP: 1989	CHANGE IN SHARE
NEW MEXICO	5.57%	6.64%	19.24%
SOUTH DAKOTA	8.46%	9.82%	16.20%
NORTH DAKOTA	5.25%	6.01%	14.49%
MISSISSIPPI	24.42%	27.57%	12.90%
IDAHO	16.98%	18.37%	8.20%
UTAH	15.61%	16.47%	5.50%
LOUISIANA	14.97%	15.66%	4.59%
ROCKY MTN	12.90%	13.16%	1.99%
DIST OF COLUMBIA	3.26%	3.32%	1.87%
ARKANSAS	25.39%	25.00%	-1.53%
MINNESOTA	21.50%	21.13%	-1.75%
WYOMING	3.92%	3.81%	-2.57%
PLAINS	20.51%	19.76%	-3.64%
MISSOURI	23.63%	22.69%	-3.98%
OKLAHOMA	14.88%	14.20%	-4.58%
COLORADO	13.77%	13.12%	-4.77%
KANSAS	19.59%	18.52%	-5.50%
NEBRASKA	14.63%	13.49%	-7.80%
SOUTHWEST	16.86%	15.47%	-8.22%
ALABAMA	25.27%	23.18%	-8.28%
DELAWARE	31.39%	28.72%	-8.50%
CALIFORNIA	18.49%	16.89%	-8.66%
TEXAS	18.53%	16.86%	-9.03%
FLORIDA	11.27%	10.19%	-9.53%
IOWA	24.15%	21.68%	-10.25%
ARIZONA	14.19%	12.71%	-10.44%
FAR WEST	18.72%	16.63%	-11.19%
NORTH CAROLINA	33.93%	29.96%	-11.70%
SOUTHEAST	22.23%	19.63%	-11.72%
ALASKA	5.50%	4.81%	-12.53%
TENNESSEE	27.50%	24.02%	-12.66%
KENTUCKY	27.14%	23.48%	-13.51%
WISCONSIN	32.19%	27.69%	-13.99%
WASHINGTON	19.90%	16.75%	-15.87%
SOUTH CAROLINA	30.67%	25.67%	-16.29%
GEORGIA	23.00%	19.23%	-16.39%
NEW HAMPSHIRE	28.54%	23.55%	-17.50%
INDIANA	35.31%	28.94%	-18.06%
UNITED STATES	22.85%	18.70%	-18.16%
OREGON	24.01%	19.62%	-18.27%
VIRGINIA	19.63%	16.04%	-18.31%
NEVADA	5.08%	4.08%	-19.80%
VERMONT	24.72%	19.74%	-20.13%
MAINE	24.24%	19.29%	-20.44%
HAWAII	5.39%	4.25%	-21.15%
OHIO	34.92%	27.53%	-21.17%
GREAT LAKES	32.44%	25.38%	-21.75%
MONTANA	9.89%	7.71%	-22.07%
WEST VIRGINIA	20.03%	15.59%	-22.19%
MICHIGAN	36.12%	27.43%	-24.05%
ILLINOIS	26.37%	19.85%	-24.72%
PENNSYLVANIA	29.08%	21.58%	-25.81%
NEW ENGLAND	27.06%	20.06%	-25.87%
MASSACHUSETTS	25.37%	18.74%	-26.16%
RHODE ISLAND	29.00%	21.27%	-26.66%
NEW JERSEY	25.77%	18.41%	-28.56%
MIDEAST	22.52%	16.07%	-28.63%
CONNECTICUT	30.04%	21.25%	-29.25%
NEW YORK	20.13%	14.06%	-30.15%
MARYLAND	15.65%	10.63%	-32.10%

MBG - Washington and the U.S. Department of Commerce, BEA.

### MANUFACTURING DECLINE IN THE STATES

STATE/REGION	SHARE OF GROSS NATIONAL/STATE PRODUCT												
	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
UNITED STATES	23.7%	23.4%	22.8%	21.7%	21.5%	20.4%	20.4%	20.8%	19.3%	19.6%	19.3%	18.3%	18.2%
NEW ENGLAND	25.4%	26.0%	27.3%	27.1%	27.2%	25.3%	25.3%	25.7%	22.4%	22.5%	21.4%	20.3%	20.0%
MIDWEST	25.3%	25.7%	25.2%	24.3%	24.4%	23.4%	23.3%	22.7%	21.6%	21.7%	20.7%	19.7%	19.2%
SOUTHWEST	23.8%	23.6%	22.4%	21.7%	20.7%	19.7%	19.7%	19.0%	17.9%	17.3%	16.5%	15.4%	15.2%
SOUTH	22.6%	22.6%	22.1%	21.2%	20.7%	19.4%	19.4%	19.3%	18.3%	18.2%	17.3%	16.3%	16.1%
ALABAMA	23.4%	23.1%	22.5%	21.7%	21.8%	20.2%	20.1%	19.5%	18.1%	18.2%	17.3%	16.3%	16.1%
ALASKA	1.3%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.1%
ARIZONA	18.7%	18.7%	18.5%	18.1%	18.1%	17.7%	17.7%	17.5%	17.3%	17.3%	16.8%	16.4%	16.3%
ARKANSAS	25.7%	25.7%	25.4%	24.7%	24.7%	23.2%	23.2%	22.7%	21.8%	21.8%	20.9%	19.9%	19.6%
CALIFORNIA	18.4%	18.2%	18.4%	18.3%	18.3%	18.2%	18.1%	18.1%	17.8%	17.8%	17.5%	17.3%	17.3%
CONNECTICUT	27.4%	27.3%	27.1%	26.9%	26.9%	26.2%	26.2%	26.0%	25.2%	25.2%	24.6%	24.2%	24.2%
DELAWARE	21.7%	21.7%	21.6%	21.5%	21.5%	21.3%	21.3%	21.2%	20.8%	20.8%	20.6%	20.3%	20.2%
DIST. OF COLUMBIA	22.5%	22.5%	22.5%	22.4%	22.4%	22.3%	22.3%	22.2%	21.8%	21.8%	21.6%	21.3%	21.2%
FLORIDA	19.1%	19.1%	19.0%	18.8%	18.8%	18.4%	18.4%	18.3%	17.8%	17.8%	17.5%	17.2%	17.2%
GEORGIA	25.0%	25.0%	24.8%	24.5%	24.5%	23.9%	23.9%	23.6%	22.9%	22.9%	22.4%	21.9%	21.8%
HAWAII	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%
ILLINOIS	24.0%	24.0%	23.8%	23.5%	23.5%	22.8%	22.8%	22.5%	21.8%	21.8%	21.3%	20.8%	20.6%
INDIANA	23.4%	23.4%	23.3%	23.1%	23.1%	22.6%	22.6%	22.4%	21.7%	21.7%	21.2%	20.7%	20.5%
IOVA	23.4%	23.4%	23.3%	23.1%	23.1%	22.6%	22.6%	22.4%	21.7%	21.7%	21.2%	20.7%	20.5%
KANSAS	21.9%	21.9%	21.8%	21.6%	21.6%	21.1%	21.1%	20.9%	20.2%	20.2%	19.7%	19.2%	19.0%
KENTUCKY	24.5%	24.5%	24.4%	24.2%	24.2%	23.7%	23.7%	23.4%	22.7%	22.7%	22.2%	21.7%	21.5%
LOUISIANA	22.4%	22.4%	22.3%	22.1%	22.1%	21.6%	21.6%	21.3%	20.6%	20.6%	20.1%	19.6%	19.4%
MAINE	23.3%	23.3%	23.2%	23.0%	23.0%	22.5%	22.5%	22.2%	21.5%	21.5%	21.0%	20.5%	20.3%
MARYLAND	21.4%	21.4%	21.3%	21.1%	21.1%	20.6%	20.6%	20.3%	19.6%	19.6%	19.1%	18.6%	18.4%
MASSACHUSETTS	26.7%	26.7%	26.6%	26.4%	26.4%	25.8%	25.8%	25.5%	24.8%	24.8%	24.3%	23.8%	23.6%
MICHIGAN	24.9%	24.9%	24.8%	24.6%	24.6%	24.1%	24.1%	23.8%	23.1%	23.1%	22.6%	22.1%	21.9%
MINNESOTA	23.4%	23.4%	23.3%	23.1%	23.1%	22.6%	22.6%	22.3%	21.6%	21.6%	21.1%	20.6%	20.4%
MISSISSIPPI	22.4%	22.4%	22.3%	22.1%	22.1%	21.6%	21.6%	21.3%	20.6%	20.6%	20.1%	19.6%	19.4%
MISSOURI	23.4%	23.4%	23.3%	23.1%	23.1%	22.6%	22.6%	22.3%	21.6%	21.6%	21.1%	20.6%	20.4%
MONTANA	19.9%	19.9%	19.8%	19.6%	19.6%	19.1%	19.1%	18.8%	18.1%	18.1%	17.6%	17.1%	16.9%
NEBRASKA	21.4%	21.4%	21.3%	21.1%	21.1%	20.6%	20.6%	20.3%	19.6%	19.6%	19.1%	18.6%	18.4%
NEVADA	18.7%	18.7%	18.6%	18.4%	18.4%	17.9%	17.9%	17.6%	16.9%	16.9%	16.4%	15.9%	15.7%
NEW HAMPSHIRE	23.4%	23.4%	23.3%	23.1%	23.1%	22.6%	22.6%	22.3%	21.6%	21.6%	21.1%	20.6%	20.4%
NEW JERSEY	25.4%	25.4%	25.3%	25.1%	25.1%	24.6%	24.6%	24.3%	23.6%	23.6%	23.1%	22.6%	22.4%
NEW MEXICO	18.7%	18.7%	18.6%	18.4%	18.4%	17.9%	17.9%	17.6%	16.9%	16.9%	16.4%	15.9%	15.7%
NEW YORK	23.4%	23.4%	23.3%	23.1%	23.1%	22.6%	22.6%	22.3%	21.6%	21.6%	21.1%	20.6%	20.4%
NORTH CAROLINA	21.4%	21.4%	21.3%	21.1%	21.1%	20.6%	20.6%	20.3%	19.6%	19.6%	19.1%	18.6%	18.4%
NORTH DAKOTA	19.9%	19.9%	19.8%	19.6%	19.6%	19.1%	19.1%	18.8%	18.1%	18.1%	17.6%	17.1%	16.9%
OHIO	23.4%	23.4%	23.3%	23.1%	23.1%	22.6%	22.6%	22.3%	21.6%	21.6%	21.1%	20.6%	20.4%
OKLAHOMA	19.9%	19.9%	19.8%	19.6%	19.6%	19.1%	19.1%	18.8%	18.1%	18.1%	17.6%	17.1%	16.9%
OREGON	23.4%	23.4%	23.3%	23.1%	23.1%	22.6%	22.6%	22.3%	21.6%	21.6%	21.1%	20.6%	20.4%
PENNSYLVANIA	25.4%	25.4%	25.3%	25.1%	25.1%	24.6%	24.6%	24.3%	23.6%	23.6%	23.1%	22.6%	22.4%
RHODE ISLAND	23.4%	23.4%	23.3%	23.1%	23.1%	22.6%	22.6%	22.3%	21.6%	21.6%	21.1%	20.6%	20.4%
SOUTH CAROLINA	22.4%	22.4%	22.3%	22.1%	22.1%	21.6%	21.6%	21.3%	20.6%	20.6%	20.1%	19.6%	19.4%
SOUTH DAKOTA	19.9%	19.9%	19.8%	19.6%	19.6%	19.1%	19.1%	18.8%	18.1%	18.1%	17.6%	17.1%	16.9%
TENNESSEE	24.5%	24.5%	24.4%	24.2%	24.2%	23.7%	23.7%	23.4%	22.7%	22.7%	22.2%	21.7%	21.5%
TEXAS	21.4%	21.4%	21.3%	21.1%	21.1%	20.6%	20.6%	20.3%	19.6%	19.6%	19.1%	18.6%	18.4%
UTAH	19.9%	19.9%	19.8%	19.6%	19.6%	19.1%	19.1%	18.8%	18.1%	18.1%	17.6%	17.1%	16.9%
VIRGINIA	23.4%	23.4%	23.3%	23.1%	23.1%	22.6%	22.6%	22.3%	21.6%	21.6%	21.1%	20.6%	20.4%
WASHINGTON	23.4%	23.4%	23.3%	23.1%	23.1%	22.6%	22.6%	22.3%	21.6%	21.6%	21.1%	20.6%	20.4%
WEST VIRGINIA	23.4%	23.4%	23.3%	23.1%	23.1%	22.6%	22.6%	22.3%	21.6%	21.6%	21.1%	20.6%	20.4%
WISCONSIN	23.4%	23.4%	23.3%	23.1%	23.1%	22.6%	22.6%	22.3%	21.6%	21.6%	21.1%	20.6%	20.4%
WYOMING	19.9%	19.9%	19.8%	19.6%	19.6%	19.1%	19.1%	18.8%	18.1%	18.1%	17.6%	17.1%	16.9%

WFG - Washington and the U.S. Department of Commerce. All states are in Actual Unadjusted Current Dollars for each year.

SENATOR SARBANES. Thank you very much. It was a very helpful presentation. I am going to yield to Congressman Obey to take the first round.

REPRESENTATIVE OBEY. I'm sorry. I have to leave very quickly and I didn't think I would stay to ask questions. Let me ask a quick one.

You indicated in your statement, Pat, that two possibilities would be to impose a stop transfer tax, or capital gains tax, on short-term profits of trading institutions. The argument raised against the transfer tax is that the action will just move to some place else outside of the country. How do you respond to that argument?

MR. CHOATE. On the stop transfer tax, you may have some of that action, but if you impose a capital gains tax, you don't really care. Whoever holds that, you're going to be able to take a tax if they sell it, let's say, within two years or three years. The other point that comes to it is that most of this is done by our own institutions, our own pension funds.

Now, what is ironic is that when I take a look at this over the decade of the 1980s, the institutions, when measured on a performance basis on the S&P 500, these folks fell below the standard of the S&P 500. Here they are making the market, and most of them are not hitting the averages. Now, what it really means is that it is not only causing deviant behavior, I would call it, on behalf of corporate America, they're not even getting their returns. They would be better off on returns if they would hold their portfolios long term and help grow the economy and the underlying companies.

REPRESENTATIVE OBEY. Thank you, Mr. Chairman.

SENATOR SARBANES. I think it is a very powerful point. In fact, I am just going to read into the record two paragraphs of your statement that you moved over, because I think they are very important.

I am now quoting you.

In the speculative, short-term-oriented equity markets that now exist, only a few American firms have sufficient profits and assets to make the commitments that long-term global competitiveness requires without sacrificing shorter-term earnings. Most companies are obliged to focus their efforts and resources on results that can bolster the price of their stock.

Fast results and short-term earnings have become the obsessive goal of too many American companies. The pursuit of these objectives diverts resources from investment in modern plant and equipment, research, technology and training to clever financial manipulations. It sacrifices market share to high quarterly earnings. And it discourages workers from making long term commitments to companies.

Now, let me ask this question: Do you correlate and trace this movement—fast results, short-term earnings—to the nature of the ownership in the marketplace?

MR. CHOATE. Yes, sir.

SENATOR SARBANES. How much of a correlation do you put on that and how much do you think that it is a factor, as compared with other factors?

MR. CHOATE. I think it is a major factor. When we go back, for example, into the early 1950s, what we saw is that institutions owned roughly a fifth of the equities on the New York Stock Exchange. Now, that has only risen to about 39 percent. It is less the ownership, which is large, but it is what these owners are doing with their portfolios, that you measure by the large block transactions and by the turnover rates on the total value of stocks held in the New York Stock Exchange.

What you see is that this really began to take off in the late 1970s and then it really picked up speed in the 1980s where you had these takeovers, these buyouts, and the churning like activities. The New York Stock Exchange, in the late 1980s, did a survey of 353 portfolio managers as to what they were looking towards. Roughly 80 percent of them said they didn't even look at the company, didn't look at the investment, didn't look at the products, didn't look at their market share, they only looked at the numbers, quarterly numbers.

So what you have here is a circumstance where productivity, growth, union agreements, all of the basics that one would take a look at on a long-term basis, are simply discounted. The reason that this occurs and the reason that this can happen is because pension funds pay no taxes. There is no penalty in the current system.

My preference would be a capital gains tax on pension funds and institutions. You buy the stock, you sell it within a year's period of time, you're going to pay a 20 or 30 percent tax rate. If you hold it over that period of time, there will be no tax rate, in other words. So the pension funds and others that are holding and investing long term are really investing rather than speculating. It won't effect them at all, but it will say to the others that are speculating, if you want to do it you can do it, if it makes business sense. You're also saying to them that we are going to bias the rules to the long term over the short term.

What is now happening with our capital markets is that they are responding as rational people in response to the rules that now exist. If we want a long-term attitude and a long-term performance, we have to change the rules, and the capital markets will respond, I think, very profitably to that, and not only to themselves but to society as a whole.

SENATOR SARBANES. I am reminded by your reference that they do not look at the company or its products, but just at the numbers. The same thing, of course, was happening in the S & Ls with the brokered deposits that were coming out of the big investment houses. They did not look at the soundness and the effectiveness of these at all. All they did is find the S&L that was paying the highest rate, and then they made sure that their clients were not already in that S & L so that they had exhausted their Federal Deposit Insurance or their FSLIC insurance coverage. Then they would go ahead and place the deposits to draw the highest return, in effect putting them in the weakest institutions—those that were paying these high returns in order to get an inflow of deposits in order to keep going. If it did not work, then the taxpayer, as we have unfortunately discovered, would end up carrying the burden to honor the insurance.

Again, there was no evaluation of the institution. There was only the attempt to find the highest rate, making sure that the client had not used up his or her insurance coverage, and then funneling the deposit.

MR. CHOATE. That is analogous to what has happened here, the cut research that Ken talks about. You have firms, so they can get their quarterly earnings up, the easiest way to get your quarterly earnings up is to hold back on research. Just cut back on your R&D activity and that will go straight to your bottom line.

You also see another misuse of capital, When they have a cash reserve, they're out buying back their own stock so that they will have fewer shares of stock, and their earnings will have a higher ratio to push up the price of stock.

So, rather than investing in modern plant equipment and R&D, we see these companies spending five hundred million dollars or a billion dollars buying back stock. That is not a way to prepare for the future. That is simply to torque yourself up a little bit as a company so that you look good to the stock market.

MR. BARFIELD. I'm not an expert on capital markets, but on the last point, I would like to make a comment. All of the studies that I know of that were done in the 1980s, which took a look at the impact on R&D by mergers and acquisitions, did not find that R&D had been affected greatly. In fact, it was a wash.

The idea that the fact that you loaded up with debt because of the takeover, using junk bonds or whatever, and that, in turn, had some direct effect on R&D, is just not shown by the empirical evidence.

Now, I make no judgment beyond that, to the larger questions that Pat was talking about, except to say this: Without being qualified to speak about the impact that the tax he proposes would have, I would suggest that the issue on which this is put forward for the short term, quarter-to-quarter, goes much deeper into American capitalism. There are other intrinsic characteristics that the tax may not get at. The way our corporate governance has been handled, our laws about the rights of stock holders vis-à-vis the governing board, the way that our managers operate. In other words, I don't think that this is any panacea to the question of short-termism. They are not all just dependent on the turnover of stock.

SENATOR SARBANES. I understand that, but the factors you are now pointing to have been constant throughout this period. The factors that Mr. Choate was pointing to have changed over this period.

MR. BARFIELD. We may be saying the same thing, Senator, in the sense that I'm saying, if the constant is there, this doesn't have much impact on it. You still may have a set of factors that are constant and may not be effected by the changes that Pat suggests. I'm just saying that this is a more difficult and a more complex question that will not lend itself just to a change in the taxes.

SENATOR SARBANES. All questions are difficult and complex. But, if you have had a trend that you regard as negative, and you have a factor that was present throughout, and you have another factor that changed, it is reasonable to look at the latter factor. That does not mean that the

former factor may not also have had an impact, but it would seem to me to be less directly connected.

Mr. COURTIS, I wanted to ask you, how long have you been in Japan?

MR. COURTIS. I first started working in Japan when I was in the strategic management consulting business in the 1970s. I then taught at Tokyo University from 1983 to 1986, and I have been in this current position with Deutsche Bank in the global strategy group since the end of 1987, and continue to teach at Tokyo University. So off and on, it could be a decade.

SENATOR SARBANES. How important is this interrelationship that we read and hear about between the government and industry in Japan, in terms of enabling them to mount an overall worldwide economic strategy?

MR. COURTIS. The member of the Committee who had to leave early mentioned Adam Smith, and he said, if we started with Adam Smith we would be in good shape.

That's basically what the Japanese Government also believes. They believe that the role of government is to play the role that Adam Smith indicated, and that is, in a sense, to help formulate the consensus to help build the leadership, to help in the process of determining how strategic resources should be allocated, but leave the actual allocation of those strategic resources to the big corporate groups, to the Kereitsu groups. I think you have a similar situation in a number of European countries.

So the government is not really involved in the implementation of the decision, and you can see that very clearly in the R&D. In fact, in America the government is much more involved in R&D than the government is in Japan. The role of the government then is to essentially provide leadership, bring companies together on major issues of long-term significance.

The other issue that I think is important in this regard, Mr. Chairman, is that the Japanese Government believes that ownership is very important. In Japan, for example, we have the shares in the stock market, rather than being constantly traded and washed, and are largely held by other companies. You have this cross-ownership structure that is very important, and in many respects, it is America that is the anomaly. America is the only economy in the world where ownership is constantly up for grabs. It is constantly thrown like dice on the table.

Among the competitors of America that are doing best ownership is very stable and that stable ownership, that long-term ownership, with capital gains tax and indeed the whole tax structure to promote long-term stable ownership, you have a structure where risk is shared among companies. Where companies share a common objective of building their long-term competitive position because they believe that it is through this long-term, patient investment in R&D, over the long term, they can be competitive.

SENATOR SARBANES. It is your view that that characterizes not only Japan but the European community as well?

MR. COURTIS. There are nuances from one country to another, but the pattern is, in some sense, similar. In Japan, it is the big Kereitsu groups.

You take the six biggest Kereitsu, they represent 20 percent of GNP. That is where the key strategic decisions are made. Once the big Kereitsu get on site, the key ministries—MITI, FINATS and the central bank—plus the academic community, pull the rest of the economy with it.

In Germany and France, you have a slightly different system, but it essentially gets to the same point. In France it is the strategic core holdings around the big banks, and I suppose in Germany it is also around the big banks where it occurs.

I want to submit for the record, Mr. Chairman, that what I think is important in these investment in R&D numbers is that there seems to be a tremendous consensus in Japan that this is important. There seems to be also in Europe a consensus that investment like this and research at this level is important for their future.

What surprises me in the debate in America is that there is still a debate about this, that there is still a question about this that we don't have to make these levels of investments to maintain the standard of living that this economy has. I find that paradox extremely curious.

SENATOR SARBANES. A couple of years ago, the Committee did a study that indicated that the percent of GNP committed to civilian research and development was significantly greater in both Germany and Japan than in the United States. Part of the problem is that we have a heavy commitment to military R&D.

We also have had testimony before this Committee that the transfer from military R&D to the civilian sector is much less now than it used to be. It has become much more highly specialized. There is still some transfer, but there is much less, and we do not get the same benefit in the civilian sector out of the military R&D that we might have at earlier times when the military R&D was less specialized.

MR. BARFIELD. I would like to add just a word about that. I think you have to parse this a little bit further. I agree. I think we need to look at those numbers a little bit.

As Mr. Curtis has said, and I don't think it has been picked up on, a key characteristic that is ignored when we talk about competing with Japan, particularly when people talk about targeting, is that the targeting, certainly since the 1960s, whether you say it has been done by the Kereitsu or individual firms, targeting has been done by the private sector. The Japanese Government public investment in R&D is much less in Japan than it is in the United States, or most other industrial countries.

And then I think you take that a step further and look at the nuances of the European experience where you have had high public investment and a high degree of—

MR. BARFIELD. This is private investment. This is not the government investing.

SENATOR SARBANES. Are you including investment in military R&D when you make that statement?

MR. BARFIELD. Sure. In Japan, you don't have investment in much military.

SENATOR SARBANES. That is right. So, if you compared investment in R&D in Japan with the U.S. investment, obviously the U.S. investment is much greater because we have a heavy military component.

MR. BARFIELD. Even if you take that out, it is still greater. The point is that the investment in Japan has by and large been private investment, and there is a commitment and a consensus that the government—this gets back to the question of investment here—ought to give incentives and to have an economy that allows private companies to invest.

The French have had a very different experience and one in which I would suggest is not the way that we want to go when one thinks about investment. There has been a great deal of public investment. There is a lot of discussion about the EC having spent billions of dollars in electronics, or billions of dollars in Jesse or Esprit. None of these are public subsidy programs. None of those programs actually is working out very well, and they are now in process of rethinking.

So I think that my point is that, in terms of our thinking about the United States economy, we ought to be thinking about how one induces more private investment, not necessarily more public investment.

So, as you come down off of that defense slope with defense R&D coming down, it ought not be substituted, it seems to me, in the first instance by public subsidy or public investment, but by inducement of private investment.

SENATOR SARBANES. Maybe, we need both.

MR. BARFIELD. I don't doubt that you do, but by and large, I don't think economists would disagree with this, that direct private investment has a much greater payoff to society, to an economy, than public investment.

SENATOR SARBANES. I do not know. We get disturbing testimony about the state of higher education in this country and the impact of that on developing the next generation of scientists. Did you want to comment on that, Mr. Choate?

MR. CHOATE. I would like to comment. I would argue, I think, along the lines of Mr. BARFIELD. That the United States does it in the most expensive and the least effective way going.

But an advantage that our competitors in Japan have over us is, yes, their government will put money into research project, but their government will also bring together the companies so that when the companies are putting money into a project, at least at the pre-competition stage, they are not duplicating each other and wasting money. In many cases, it is a government formed research cartel that is operating so that all of the results are shared, so when benefits come out there will be a patent pool, and everyone gets the advantages of it, and the government will play the role of coordinator on that.

The companies themselves who are engaged in these processes know, as Mr. Courtis suggests, that they are part of a stable group where 60-plus percent of the stock will be held inside the family of corporations. So there is no risk of take over and just given their sheer size, they will be able to fully exploit the technology.

It seems to me that what we must do in this country is first find ways to be able to work together. And, second, I do think that we have an



enormous backlog of investments that we have to make, not only in our infrastructure of activities, but putting money into what are going to be the cutting-edge technologies that Mr. Curtis refers to, that we're falling behind in in the 1990s.

SENATOR SARBANES. I am going to yield to Senator Bingaman now. Before I do that, Mr. Barfield, I would be less than candid with you if I did not tell you that I remain disturbed by this use of the 1980 year in your chart. In your other charts, you use 1979 to 1989. I think, in terms of picking points in the business cycle that are roughly comparable, the use of 1979 and 1989 is appropriate. I do not think that the 1980 to 1989 reference is appropriate, and we have some federal figures from the Federal Reserve index of manufacturing output, which is the subject of your first chart that indicates that from 1979 to 1980 it, in fact, dropped 2½ percent. If the comparison were made between 1979 and 1989 instead of 1980 to 1989, it would be six-tenths of a point less. And if your figure was brought down six-tenths of a point less, instead of a comparison that had U.S. growth at 3.8 percent and the rest of the world at 3.5 percent, it would be 3.2 and 3.5 percent.

You could ask if a 3.5 percent figure still holds, changing the reference date from 1980 to 1979. I do not have those figures, although my guess is that the rest of the world was not in a comparable downturn from 1979 to 1980. A change of that reference point by one year would completely alter the message of your chart, and I just want to make that point to you.

MR. BARFIELD. Let me add finally that I am very much aware of the years and everything I do, or that we do, that we try to do comparable points. This was a U.S. Trade Representatives chart that I was using. I will go back and find that out. I agree that it makes no sense to go from a trough to a peak. It has to go to comparable years.

SENATOR SARBANES. Thank you very much. Senator Bingaman, please proceed.

SENATOR BINGAMAN. Mr. Curtis, let me ask a couple of questions about the charts that you have provided us. This chart on capital investment, Japan and U.S. capital investment to GNP, it shows that Japan is making something around twice the capital investment that we are.

This investment gap, just as a general matter, to put this in some context, are we out of step with the rest of the industrialized world, or is Japan?

MR. CURTIS. I think we are out of step in North America, and I just brought the figures for other countries. Let me just take the 1991 figures. Canada was 15 percent. Korea was 29 percent. Germany was 15 percent—16.2 percent, actually. So it seems to me that the slip is in America.

There was some confusion earlier about research and investment, and it got mixed up. So let me also put the record straight on that. For civilian, nonmilitary R&D in 1991, the United States invested \$400 per capita. Japan invested \$685 per capita. In 1991 Japan invested, for capital equipment, \$5,320 per capita and America \$2,174 per capita.

SENATOR BINGAMAN. And those figures combine the public- and private-sector investments?

MR. COURTIS. No. This is only private-sector plant and equipment—\$5,320 per capita versus \$2,174 per capita.

SENATOR BINGAMAN. And the R&D figures were also private-sector R&D figures?

MR. COURTIS. Private sector, nonmilitary R&D.

SENATOR BINGAMAN. Let me ask about another issue that is not part of what you describe, but see if you can tell us anything about it.

I would assume that your ability to maintain a robust economy and generate decent paying jobs also ties to investment in skill training, job training, and education generally. Is there anything that you can tell us by way of comparison between ourselves and the Japanese, with regard to those kinds of investments?

MR. COURTIS. Yes, I can, Senator. In 1990 the United States had research scientists and engineers working in research in the private sector. Seventy-seven people for every 10,000 workers. The Japanese had 89. The Japanese policy target for the year 2000 is to have 110 scientists—research scientists and engineers engaged in private-sector research for every 10,000 workers.

I don't know what the policy target for the United States is, or indeed if there is one, but if I look at what universities are planning, my figure is that the United States would have about 85 engineers and scientists per 10,000 versus 77 today. Japan would go from 89 to 110. So they have an increase of about 25 percent and America would have an increase of about 10 percent.

SENATOR BINGAMAN. Let me shift to another subject—

MR. BARFIELD. That was private sector.

MR. COURTIS. Yes, that was private sector.

MR. BARFIELD. If you take the total public and private and the number of technology-type technologists, I think it is higher in the United States. It has traditionally been substantially higher.

MR. COURTIS. I don't have those figures with me. I have the overall number of engineers and scientists engaged—

MR. BARFIELD. I think his point is a correct one. It goes back to my point about the private sector. The usual figure given for a nation includes both the scientists and engineers who are working in government laboratories, which are not included in that.

MR. COURTIS. The figures I have are for the overall number of scientists and engineers engaged in research and development for the two economies. In Japan, in 1990, it was 210,000, so it's over all sectors. In the United States, 138,000. In the year 2000, Japan is projecting to have 365,000 scientists and engineers engaged in all activities of research, all sectors. My estimate for the United States is about 180,000.

SENATOR BINGAMAN. Let me ask about this other subject, and get any of you to comment. I guess, Mr. Courtis, I would be interested in your view on it.

I have the distinct impression that investment in high technology manufacturing capability today is not the same kind of investment in manufacturing capability that we faced ten years ago, 20 years ago, in previous periods.

For example, if you want to put in a plant to produce state-of-the-art semiconductors, or microprocessors, or flat-panel displays, the investment is enormous today. In order to do that the entry barrier is substantially greater than it ever has been.

What that leads me to is a concern that gaining an advantage in manufacturing capability, as the Japanese have in some areas, such as flat-panel displays, gaining that advantage gives them a capability to maintain an advantage that didn't exist in previous periods. It gives them an ability to maintain it because they have the availability of cash from the sales, the capital generation that they develop from that. The technology needed to stay at the forefront is difficult and the capital cost of building the plant is just prohibitive.

As I see it, that is why none of our major companies have been willing to invest in flat-panel display production. They can not see any way to get in there and compete, considering the size of the investment that is required.

Give us any thoughts on the general problem of what kind of an advantage being ahead gives us, in the present context, in which we find ourselves.

MR. COURTIS. The liquid-crystal display market is an interesting market, because by the mid-1990s we won't buy a computer that doesn't have a flat screen, and by the late-1990s we won't buy a television that doesn't have a flat screen. That is a \$7 billion market that we estimate for 1996. There are 52 Japanese companies fighting for that market. I believe there are four American companies involved in that market.

Take the leader in that field for the moment—Sharp. They have already invested \$1 billion in R&D in that field, and they are committed to putting another \$600 million in R&D and manufacturing capability between now and 1994. So that is an effort of \$1.6 billion.

What we see emerging in these new high-tech information-intensive industries is that the separation between R&D and advance manufacturing is collapsing. That the manufacturing technology that is required to produce these new products, based on these new technologies, is increasingly in itself being generated by the R&D effort. There is a merging of the two. For example, the 50 largest Japanese industrial companies have research projects that are now bigger than their investment budgets. What we see here is a cumulative effect that puts the entry barrier higher and higher and higher.

There is some debate recently, which has occurred in Japan and is being picked up internationally, that Japanese companies in the future will be less and less interested in market share. Nothing could be further from the truth. You have to, in these industries, have a world market base and be competitive on a world scale to remain competitive.

Let's take the example of biotechnology. Over the 1990s, leading-edge biotechnology companies, I estimate, will have to commit to R&D between 16 and 18 percent of their sales on a global basis. But if you aren't competitive on a global basis and you're only working within one market, you will have to fund the same amount of R&D, but only on the revenues coming from one market. So if North American companies fall behind and are pushed out of third markets, pushed out of Asia

and Europe, they will have to fund the same amount, carry the same amount of R&D, but on a shrinking revenue base.

That's where it starts, where we go from a cumulative gap to what becomes a qualitative gap, and I think that that's where we are now. That's why it is so important to start to reverse the course.

SENATOR BINGAMAN. Let me ask just a general question. The obvious point that you are making very strongly, Mr. Choate, is that we need to find ways to move from a consumption-based system to much more concentration of an investment for the future.

I guess the idea is that we can do this in our federal budgeting of resources through the tax code. For the private sector, we can build incentives in such things as Mr. Choate referred to, to give the private sector the nudge that they need to look long term and make investments rather than engage in short-term consumption.

I don't know if any of you have things to say about additional actions, or an overall strategy, to get us from such a focus on immediate consumption to long-term investment, but I think that is the crux of where we are falling down.

MR. COURTIS. Senator, I think it is not one policy or another. I watch things in this country from afar, but I am struck by the way the debate often seems to go. It is this policy, or it is more money for research, or it is that tax credit, or it is this change in the banking law that allows the banks to be more actively involved in company ownership, or it is that change in antitrust law.

My sense is that it's not that at all. It is all of it and more. In a sense, it seems to me that we in America have been dealing with this issue on an ad hoc basis. You could deal with these issues on an ad hoc basis when you had the power, the power that America had in the 1950s, 1960s and 1970s.

Just think of it, in 1960—not going from the base year just after the war, but after the rest of the world was largely on a course of rebuilding itself—America represented 34 percent of world GNP and Japan three percent. In 1990 America was 21 percent of world GNP and Japan at 16 percent. By the year 2002, if you take the IMF figures, the United States will be 18 or 19 percent of world GNP and Japan will be 18 or 19 percent of world GNP. And you have similar developments in Europe.

In this world, you can't take ad hoc decisions. You can not take run-off decisions. Voluntary export restraints were going to solve the car problem. Plaza devaluation was going to solve another problem. Semiconductor agreements were going to solve another problem.

What we need now in America, I think, is an overall economic strategy that brings together the resources of this country. Tax policy needs to be mobilized, but trade policy has to be mobilized. Technology policy, education policy, competitive policy, microeconomic policy—it has to be put together in an overall coherence.

The key issue is leadership. Government can't do it. Government can't make the decisions. But what government can do is to provide the leadership, as Smith said, to represent the future to the present, to build a consensus around these long-term goals of rebuilding this economy

so that the issues of environment, of the cities, of education, can be dealt with.

It is not only that the Japanese or the Europeans are putting more capital into the hands of their workers but they are also putting more capital into the hands of workers who benefit from more training, who benefit from more intense education, and who work from a stronger infrastructure basis.

It is the whole together, I think, that is now the issue. Now that we are in the post-Cold War era, the issue really is what is America's number one strategic priority? I submit respectfully that the number one strategic priority of America is rebuilding its economic security.

SENATOR BINGAMAN. Mr. Choate, did you want to comment on any of that?

MR. CHOATE. No. I fully agree. Competitiveness is ultimately a package of measures, and that must be our primary national goal in the 1990s.

SENATOR BINGAMAN. Mr. Barfield, do you have a comment?

MR. BARFIELD. We would probably disagree strongly with some pieces of how you got to that, but you cannot disagree that we need a competitiveness package.

I will say, though, on a more pessimistic note, that what Mr. Courtis and even Pat did not say is that, it seems to me, we are still far from a consensus on that. What is the right combination of strategies. It is not, I think, just a question of the fact that we have a President from one party and a Congress from another.

When you get to the specifics of what you would talk about to induce savings and investment—and you may say that this comes back to a failure of political leadership, without assigning blame in any sort of partisan way—the country is ready to turn from consumption to investment, or to reign in those elements of the federal budget that might free up elements to do other things for investment. Whether you're talking about capital gains tax or something else, you're talking about cuts in entitlements.

This gets back to the issues that you guys face up here all the time. Mr. Courtis sounded a clarion call. When you get down to the nitty gritty you're talking about the individual tax bills and entitlements, and what you do about subsidies or trade policies. That kind of thing. I see no sense, yet, that there is a consensus on that.

MR. CHOATE. May I bring a bit of a more optimistic note? As I take a look back over this century, what I observe is that the policy shifts that come when you're going to have a major shift of national direction do not come incrementally. They literally come almost in a seismic shift. That's what happened in 1913 with Woodrow Wilson and the New Freedom; in 1933, with the New Deal and Franklin Roosevelt; in 1980-81, with the Reagan revolution. You get a package of measures.

It seems to me that we are at a point in our national life where such a shift is going to come. Be it 1993 or 1995 or 1997, it's going to come because it has to come, and we can't run with \$400 billion budget deficits.

The question is, is what should be in that package of measures? That, it seems to me, is the real challenge. Is to fill up the intellectual cupboard so that when that time comes that our policymakers and our opinion makers can have agreement because ultimately that shift is going to come because it has to come, because we cannot operate much longer in the way that we are now operating.

SENATOR SARBANES. Perhaps. But I am struck by your discussion on the trade question, which I thought was very sensible. You head it "Adopt Pragmatic Trade Policies."

My perception of what has happened in this country is that, unfortunately, it used to be that we regarded the Europeans as caught up in dogma and ideology, so they would not really deal with the real world in a practical, common sense way. They came with ideological fixes, and that is what they tried to impose. Therefore, they had problems. The United States, on the other hand, was pragmatic and practical.

My perception is that, to some extent, that has reversed itself. You talk about free trade, meaning expanding the open-world trading environment, the basic thrust of which is correct. But how to achieve it, as you point out, with others appearing to play by different sets of rules, is a different problem.

The one encouraging sign that I see is that the implosion of the Soviet Union has offered an opportunity, not heretofore present throughout the postwar period, to radically change where we commit our resources, what burdens we bear, how we reallocate those burdens internationally, and what we do with our resources.

But I think, regarding many of the specifics that Mr. Barfield focused on, where there might be disagreement, the extent of the disagreement is heightened if we do not get this basic framework of changes into proper balance.

I think it is very tough on our competitive industries if they are competing on a playing field that is not level because of the way the other economies are working, in particular because of the government's involvement.

We give the Exim Bank a war chest to try to fight the underwrite, which these countries use in their aid program in order to gain the contracts. Our competitors ask, what can we do? We can beat them on cost and quality, and then they take the contract away from us because their government comes to the bargaining table and says to some developing country, if you give us the contract to develop this communications network for your country, we will give you \$50 billion, or \$100 million, or \$200 million of aid.

You do not want them to do that. But if they will not back out, I think that you have to fight fire with fire, and that is why we gave the war chest.

I'm sorry; Jeff?

MR. BARFIELD. I would like to interject on the trade issue. It may not be popular here, but I think, as to pragmatic ideology, we can defend the trade policy, with both parties as highly pragmatic, since 1945. We have greatly benefited by the multilateral system. We have greatly benefited by trading, by gradually moving tariffs down and then

gradually moving to try to do something about nontariff barriers. You would have to go back to the so-called golden age between 1870-1914 to see economies benefiting as much as they have since 1945.

It is simply not true, and it is a delusion to think that our problems are because we do not have level playing fields. We have uneven ways of screwing things up over here, with buy America products and voluntary export agreements, and all kinds of ways that we try to manage trade. Our competitors are saying, you guys are screwing around with the system, too. The point is not to look at the way that people distort trade, but to try to find ways to get out of doing that.

To come back to your point, it is certainly a delusion for the United States to think that if somehow the trade practices of Japan or Brazil or whatever country were changed that we would be more competitive. That starts with the trade balance. Our trade problems in the 1980s, which produced so much discussion, were basically a result of micro-economic factors. And some, you are getting at, and I applaud you in this hearing; that is, that we did not save to cover our investments and expenditures. If you don't do that, the money comes in to help you out. We were lucky to have that. It was not because of some uneven playing field.

SENATOR SARBANES. The difficulty I have with that analysis is that it is searching for a factor, and my view is that there are many factors. Of the many factors, I am sure you would agree with a great number of the ones that I would detail. We probably differ in that I think that the other countries have played the trade rules.

MR. BARFIELD. A minor factor.

SENATOR SARBANES. The PRC has a surplus. Our trade balance is the second largest negative trade balance with the People's Republic of China. Next week, we are going to have testimony from Secretary Moford, required under the 1988 Trade Act, about countries that are manipulating the currencies and trading arrangements in order to gain advantage.

When he reported six months ago, the PRC was highlighted as a nation that was doing exactly that through their licensing process and their currency process. They have gone from a roughly equal trade balance in 1986 to where they are going to have a \$15 billion trade surplus with the United States. That is only one example. I can cite others. Taiwan, which had begun to improve its position, is now lapsing back, and I can go through the list for you.

I am not asserting that that is the only cause of the trade imbalance and, in fact, I think that there are other very significant causes. We have been touching, I think, on a lot of those here today as the focus of this hearing. But I do not accept the proposition that that is not relevant.

MR. CHOATE. I would argue that it is very relevant. You see slave labor with the economies, you see child labor, but with the Japanese and the Europeans you see a fundamentally different economic structure. For example, Japanese manufacturers have open access to buy manufacturing capacities, to locate facilities and to sell here. Sixteen percent of our manufacturing base is foreign owned. Less than eight-tenths of 1 percent of the Japanese manufacturing base is foreign owned.

SENATOR SARBANES. Eight-tenths of 1 percent?

MR. CHOATE. We have open distribution systems here. You have exclusionary control distribution systems there. We wind up here where banks cannot own and hold major equity. The banks stand at the center of the Kereitsu relationship inside Japan. So what we are really seeing here are economies that are fundamentally organized differently. It has a major effect upon not only trade, but investment as well.

It seems to me that our challenge, now that we are freed up from the Cold War, is one of three things. One, we ignore the differences, but I think it will cost us greatly. Second, we attempt to bully the Japanese and others into being like us, which is going to cause enormous frictions and I think is most inappropriate. Or, third, we find a way to deal with them as they are and not as we want them to be.

The objective is to expand trade, not to impose a free-trade model. We equate free trade with expanding trade. We can get expanding trade in ways other than free trade. If the Japanese and Korean and Taiwanese economies are not structurally possible of having free trade, then the question for us pragmatically is to figure out a way to expand trade with them.

SENATOR SARBANES. Mr. Curtis, you said in your statement that you expect Japan to surpass the United States as the world's largest economy in the next decade. Then you said that that would, perhaps, leave the United States as the leading political power, but it would mean that America would have slipped to second place as a world economic power.

I have to say I have my doubts about how long you can remain the leading world power if you have lost your economic position—particularly in a world which hopefully appears to be changing in the direction where military power will be less relevant, because you do not confront another hostile superpower in which you then assume the leadership of the other block in containing that superpower.

If that position fades, it seems to me that the competition in the future is going to be more and more in the economic arena, or at least that is going to be an essential underpinning. I am deeply concerned that the United States has moved from being a creditor to being a debtor nation, beginning in the late 1970s and then intensifying through the 1980s, with these large trade imbalances. It is hard to stand tall in the saddle if you owe money to everybody you see as you ride into town.

I think that we find ourselves in that position, so I have a little more concern about this than the "perhaps" comment would indicate in your statement. Do you have any reaction to that?

MR. COURTIS. I agree totally with you, Senator. I would go further and say that if this were to happen, we would be setting ourselves up for a great deal of instability in the world, because my view of the way things are evolving is that it is not obvious that we can depend on Japan, at this juncture, of being willing and ready to step in and assume a political center of gravity for the international political system in this eventuality.

Indeed, were they to step in they would, of course, do it on their own terms and with their own values, and America would have to deal with



that. America would have to deal with the issue of control, where an increasing element of control over major strategic decisions about technology, industrial base, financial decisions would be made elsewhere.

Small countries have had to deal with that. My country, Canada, lives with that. Belgium lives with that, but they don't have the pretension and they don't have the responsibility of being the ballast for the international political system. So, if we get ourselves into that situation, then what could become a golden era with the end of communism could very quickly slip through our fingers and, like in a fog, it would be difficult to find that opportunity again.

That's why I think it is so fundamentally important for America—and I say that as a non-American—to address this issue today, because, in a sense, what is going to happen through the mid-1990s is already decided. It is already in the pipeline. So, if America does not address this issue and turn the ship of state in a new direction from an international competitiveness perspective, the next decade will be over before it begins.

SENATOR SARBANES. I think that that is a very perceptive point. I heard Shirley Williams speak on this issue, and she said that no one but the United States could play this leadership role. No one else. The other countries do not want to play it, as a general proposition, and, if they tried to play it, they would get a negative reaction from a number of other countries.

It is interesting now that the Europeans want the United States to continue its presence in Europe because they perceive it as an important balance in that environment. My own view is that the American people are prepared to meet that responsibility, but it has to be in a context that is broad enough to encompass meeting what they perceive to be our domestic needs as well.

In other words, I do not think that there is a strong "America first" sentiment, but there is the notion that America ought to be equal. Our own domestic needs need to be addressed at the same time that we meet our international responsibilities. If we fail to meet the domestic needs that we have been talking about today, we will lose the capacity over time to meet our international responsibilities.

Domestic and international responsibilities are interrelated, and our ability to address the competitiveness and productivity questions here at home, these investment questions that you are talking about, are directly related not only to our own internal standard of living, but our ability to help sustain a peaceful and prosperous world environment in which to move forward.

Gentlemen, we thank you very much. It was a very helpful panel, and we appreciate it. The Committee stands adjourned.

[Whereupon, at 12:15 p.m., the Committee adjourned, subject to the call of the Chair.]

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