567

STUDIES IN PUBLIC WELFARE

PAPER No. 5 (Part 3)

ISSUES IN WELFARE ADMINISTRATION:
IMPLICATIONS OF THE INCOME MAINTENANCE
EXPERIMENTS

A VOLUME OF STUDIES

PREPARED FOR THE USE OF THE

SUBCOMMITTEE ON FISCAL POLICY

OF THE

JOINT ECONOMIC COMMITTEE
CONGRESS OF THE UNITED STATES

MARCH, 12, 1973

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LETTERS OF TRANSMITTAL

MARCH 2, 1973.

To the Members of the Joint Economic Committee:

Transmitted herewith is a volume of studies entitled "Issues in Welfare Administration: Implications of the Income Maintenance Experiments," submitted to the Subcommittee on Fiscal Policy of the Joint Economic Committee. This is the final part of the fifth volume of papers in a series being prepared as part of the subcommittee's comprehensive study of the Nation's welfare-related programs.

The views expressed in these studies do not necessarily represent the views of members of the subcommittee or the subcommittee staff.

WRIGHT PATMAN,
Chairman, Joint Economic Committee.

MARCH 1, 1973.

Hon. WRIGHT PATMAN,
Chairman, Joint Economic Committee,
U.S. Congress, Washington, D.C.

DEAR MR. CHAIRMAN: Transmitted herewith is a volume of studies entitled "Issues in Welfare Administration: Implications of the Income Maintenance Experiments." This is the final part of the fifth volume of studies released by the subcommittee under the general title of "Studies in Public Welfare."

The administrability of welfare programs is the foundation upon which any sensible and realistic reform of our public welfare programs must be based. In this volume the expertise acquired in administering the several Federal experiments in income maintenance is applied to the many technical and policy issues involved in reforming the administrative structure of welfare programs. The authors have been closely involved with the experiments and we are pleased to be able to present their findings and observations. The income maintenance experiments have been unique in domestic social policy, and their results should be widely disseminated to provide factual information for the public debate on welfare reform.

Subcommittee staff members James R. Storey, Alair A. Townsend, and Vivian Lewis were responsible for compiling and editing this volume.

The papers contained herein represent only the opinions of their authors and are not necessarily reflective of the views of the subcommittee members or staff.

MARTHA W. GRIFFITHS,
Chairman, Subcommittee on Fiscal Policy.

FOREWORD

As the crisis in public welfare has deepened over the years, increasing attention has been given to the fact that many of the problems with welfare programs have grown out of certain administrative practices which may have outlived their usefulness in the face of changes in clientele, in administrative personnel and workloads, and in public expectations about program management and integrity. On the other hand, it is becoming more and more obvious that good management of welfare programs at all levels of government may be impossible, given the inequities and inefficiencies built into our present welfare law and the enormous administrative burden that a thorough implementation of present law would demand.

Because the administrability of welfare programs is necessarily the foundation upon which any sensible and realistic welfare reform must be based, the Subcommittee on Fiscal Policy has taken steps to insure that management problems and potential solutions are fully aired before the public. The subcomittee has already held public hearings in Washington and in three other cities to hear firsthand of the administrative problems being grappled with by agency heads and welfare caseworkers.[1] In this volume (*Paper No. 5, Issues in Welfare Administration*) the subcommittee is presenting the work of several authors who have analyzed these problems and considered possible alternatives for future program design that would restore effective management of public welfare funds.

Issues in Welfare Administration is being released in three parts. The first part, written by Sharon Galm of the staff of the Subcommittee on Fiscal Policy, discusses the many administrative problems which now beset welfare programs and the feasibility of solutions within the present program framework.

Part 2 includes four papers dealing with the difficulties prompted by the involvement of all three levels of government—Federal, State, and local—in welfare administration. These papers were written by Joel F. Handler, Irene Lurie, and Joseph Heffernan of the Institute for Research on Poverty, University of Wisconsin, and by Peter E. Sitkin of the Hastings College of the Law, University of California.

Part 3 applies the expertise acquired in administering the several Federal experiments in income maintenance to the many technical and policy issues involved in the reform of the administrative structure of welfare programs. David N. Kershaw of Mathematica Incorporated describes in a comprehensive fashion the administrative structure needed to operate at a national level the type of income maintenance programs experimented with by the Office of Economic Opportunity and the Department of Health, Education and Welfare. Jodie T. Allen of the Urban Institute presents a detailed analysis of the

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[1] *Problems in Administration Public Welfare Programs: Hearings before the Subcommittee on Fiscal Policy of the Joint Economic Committee,* 92d Cong., 2d sess. (1972).

implications for costs, equity, and incentives resulting from different approaches to accounting for changes in recipient income over time and the consequent adjustments in benefit levels necessitated. The third paper in part 3, by D. Lee Bawden of the Institute for Research on Poverty, University of Wisconsin, considers the special administrative problems likely to be incurred by any income maintenance program which covers large numbers of self-employed individuals.

The studies included in this part (part 3) of paper No. 5 have been developed by people who have played major roles in the design, implementation, and analysis of the OEO and HEW income maintenance experiments. The experiments were designed to test behavioral responses of recipient and control groups under various negative income tax schemes with varying degrees of associated manpower training and supportive social services. The OEO experiments were conducted in urban areas in New Jersey and Pennsylvania and in rural areas in Iowa and North Carolina. The HEW experiments are located in Gary, Seattle, and Denver.

To operate these experiments, which are really income maintenance programs in microcosm, it was necessary to set up new administrative structures completely independent of any existing agency. David N. Kershaw, in his paper entitled "Administrative Issues in Establishing and Operating a National Cash Assistance Program," draws on his experience in setting up such an administrative apparatus to speculate on how administration should be designed for the operation of a negative income tax on a national basis. His paper covers a broad range of subjects, from local office staffing requirements to the technical issues associated with reporting and checking incomes.

The second study, "Designing Income Maintenance Systems: The Income Accounting Problem," was prepared by Jodie T. Allen and examines one of the most crucial elements in the formulation of a system for determining income maintenance eligibility and benefits. The period of time over which countable income is accrued and the methods used in having income changes reported and in making resultant benefit changes are factors which have a major impact on program costs and workloads, on responsiveness to client need, and on the equity and incentive features of the program. Using experimental data, Mrs. Allen examines the pros and cons of different income accounting alternatives.

The third study in part 3, "Administrative Guideline for Income Maintenance Programs Covering the Self Employed," was written by D. Lee Bawden. Welfare programs have had little involvement with persons who are self-employed. The experiments, dealing with broader population groups, had to develop policies with respect to definitions of income and assets for the self-employed which would treat them equitably when compared to the treatment of wage-earners. Mr. Bawden thinks through the problems which arise and suggests the appropriate alternatives for application in a national program.

It should be emphasized that, while these three papers deal mainly with particular types of cash assistance programs, many of the ideas discussed here are equally relevant to other cash programs and to income-tested programs offering aid in the form of food, shelter, medical care, and so forth. No matter what form the aid takes, the measurement and reporting of income, assets, family composition, and the like require solutions to very similar issues for all of these programs.

CONTENTS

ADMINISTRATIVE ISSUES IN ESTABLISHING AND OPERATING A NATIONAL CASH ASSISTANCE PROGRAM

By DAVID N. KERSHAW*

INTRODUCTION

Since the early 1960's when Milton Friedman published his book, *Capitalism and Freedom*,[1] there has been an increasingly active debate revolving around the conceptual issues of a guaranteed income. Discussions of administrative problems have been much more rare,

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*With the assistance of B. Levitz Lindheim and Andrea J. Schutz.
[1] University of Chicago Press, Chicago, 1962.

(1)

primarily because it was assumed that the administration of a system of cash grants was straightforward and simple. In fact, Friedman gave a great deal of impetus to this view with his own theory on how one ought to go about distributing grants. Since that time, discussions of administrative techniques have passed through four major stages.

The first was Friedman's own, in which he proposes that grants be handled by employers in much the same way that IRS deducts from paychecks. Friedman felt that a negative income tax system should simply be a downward extension of the positive tax system, administered by the same agency and disbursed in the same way that positive taxes are collected.

The second stage began with an article by James Tobin, Joseph Pechman and Peter Mieszkowski, "Is a Negative Income Tax Practical?," [2] in which the authors speculated about guarantee levels, tax rates, and the very practical issues of the definition of income and the family unit. This was a well done and policy-oriented article, but it still did not address other practical issues of operations, primarily because the reality of a negative income tax-type program seemed far away.

The third stage began with the introduction of the Office of Economic Opportunity negative income experiment in New Jersey. The operation of this experiment required the planners to develop a set of regulations and operating procedures. Their concepts of how the system might work were tested by the actions of over 750 experimental families. The experiment created a need for more thinking about administrative issues and stimulated the publishing of a number of operationally oriented articles discussing administrative problems.[3] Although these early writings proved to be a valuable basis for additional work, the subject itself was still limited by the small scale of the experiment and the limited public attention it received. Additional experiments in Iowa and North Carolina, Seattle, Gary, and Denver helped to increase substantially the useful body of knowledge by bringing together a number of creative people on problems of administration.

The fourth stage was launched when President Nixon announced the Family Assistance Plan in August of 1969. A Welfare Reform Planning Staff was created in Washington to begin the task of fielding a national program with characteristics very similar to the negative income tax. As an adjunct to this planning effort, a pretest planning project was begun in the State of Vermont with the intention of testing administrative procedures which would be used in a national program. While the pretest was never actually implemented, a number of planning papers were done addressing some practical questions.[4] The prob-

[2] *Yale Law Journal*, vol. 72, No. 1, November 1967.
[3] See particularly, Kershaw, David N., "Administrative Issues in Income Maintenance Experimentation," in *Income Maintenance*, Orr, Hollister and Lefcowitz (eds.), Markham, 1971; Klein, William, "Familial Relationships and Economic Well Being: Family Unit Rules for a Negative Income Tax," *Harvard Journal on Legislation*, vol. 8, March 1971; and Klein, William, "The Definition of Income under a Negative Income Tax." Institute for Research on Poverty Discussion Paper 11–72, 1972.
[4] In particular see State of Vermont and Mathematica, *Family Assistance Program Planning Papers*, "Administrative Structure and Procedures" (Vol. I), "Regulations" (Vol. II), "Accounting Period Implications and Options" (Vol. III), March 1971.

lem with this fourth stage effort, however, was the opposite of the other three. While the previous administrative thinking had flaws traceable to its having been developed virtually from scratch, this planning attempt suffered from the inability of the planners to step back and view the new system as being separate from the confusing array of social programs which already existed. The planning was done by two groups: those who had operated the current welfare system (the Social and Rehabilitation Service of the Department of Health, Education and Welfare and the Social Security Administration.) These people were the obvious ones to turn to given their substantial experience in the field, but as time passed, it became clear to many that new techniques had to be developed and that this would be hard for the SRS and SSA people to accomplish. This was due partly to their natural inclination to rely on tried methods as well as to the fact that the population to be covered in the new system (the working poor) were very different from the aged, the group with whom SSA had had so much success. In addition, whatever system did come from the administration was further complicated by the Senate Finance Committee.

The result of this process appears to the author to be a basic conservatism in planning, and a tendency to structure the administrative system toward a nonrelevant population. The results have been disappointing to date; the proposed administrative system would have been characterized by excessive interagency cross-checking, a punitive approach to many issues, overlapping bureaucracies, and the maintenance of virtually all of the worst features of the current system (no declaration system for eligibility; the work registration requirement; a grant structure complicated by State supplementation which is almost impossible to comprehend).

In order to develop an administrative system for a new program, we will take relevant experiences from the income maintenance experiments and tailor them to some of the real-world constraints which will exist even under the best of conditions in a national income maintenance program. The experiments themselves indicate that administering cash grants is not very difficult. In all of the experiments regular monthly payments are made to families on the basis of frequently filed income report forms filled out by the families themselves; declarations of income are accepted by the administering agency; audits are conducted randomly; and the entire system costs about one-third of the current one (approximately $75 to $100 per case per year). There have been no serious problems with fraud or misreporting although there is enough to make the system seem realistic—about as much as under the positive tax system—and the reports filled out by the families with no assistance are usable as filed about 95 percent of the time. A comprehensive description of how this system works can be found in the current procedures manual of the New Jersey experiment and from the memos and manuals in the other experiments as well.

Some of the major constraints which will be taken as given for the purpose of this paper are the following:

1. A large number of existing and planned redistribution systems will continue to remain in existence (social security, public housing, housing allowances, health insurance, training supplements);

2. Any new system will have critical participation by a number of different Federal agencies (the Departments of Health, Education, and Welfare, Labor, Housing and Urban Development, and Agriculture) ;

3. The new program will be implemented primarily by the same people who run the current system;

4. The attitude of the public and of a large number of public officials toward the poor will necessitate special administrative procedures (e.g. mandatory work registration and heavy audits of income reporting and eligibility), at least in the beginning.

Given the above considerations, it is clearly not possible to provide a comprehensive and detailed administrative system for a new program of income maintenance in a short paper such as this. Instead, we will suggest some practical administrative approaches to what we regard as the key operational issues. We will cover the following aspects of an income maintenance system :

1. Organizational structure and personnel costs.
2. Techniques and schedule for the enrollment of new eligibles.
3. Procedures for income reporting.
4. Audit procedures.
5. Administration of a work registration requirement.
6. Issues and techniques for on-going evaluation of an operating system.

As a final introductory note, it should be said that one of the most important administrative tasks is not covered in this paper: regulations. Any individual who has been involved in the administration of a large-scale program realizes the critical impact that the regulations have on the equity, efficiency and general tone of the program. This is such a large issue, however, and so related to a very specific program that it is not dealt with directly here (although a number of the issues raised will have a bearing on the regulations).

Finally, we would like to mention that the administration of a work requirement is only included here because of the strength of prevailing public and congressional attitudes. The author regards a work requirement as financially wasteful, contrary to the intent of an income maintenance program, potentially inequitable, and virtually impossible to administer properly. A new cash assistance program should provide the same work incentives to the poor that the positive tax system gives to the rest of the population. There is ample evidence that if the current restrictions on work effort are removed the poor will manifest the same attitudes toward financial gain as the rest of the population. The way to facilitate the movement of families out of poverty is to make it possible for them to retain the financial gains from working, not to provide yet another bureaucracy to force them into the labor market. However, under the assumption that some work requirement will accompany any legislation in the near future, we have attempted to suggest means for making it as equitable and efficient as possible.

I. Organizational Considerations

Administrative Structure

Any income maintenance organization must contain the following functions:
1. Central management and control.
2. Personnel and training.
3. Administrative services (physical plant, supplies, etc.)
4. Auditing.
5. Payments processing.
6. Hearings and appeals.
7. Data storage and retrieval for information and evaluation.
8. Research and evaluation.
9. Inter-agency liaison.
10. Field assistance to families (including referrals for services).
The problem is to perform these functions in a way and at a level so as to maximize efficiency, promote service to the recipients, and maintain accountability to the public. We would propose the organizational model depicted in figure 1 as the best way of achieving each of these goals.

FIGURE 1.—Model organizational structure of a cash assistance agency.
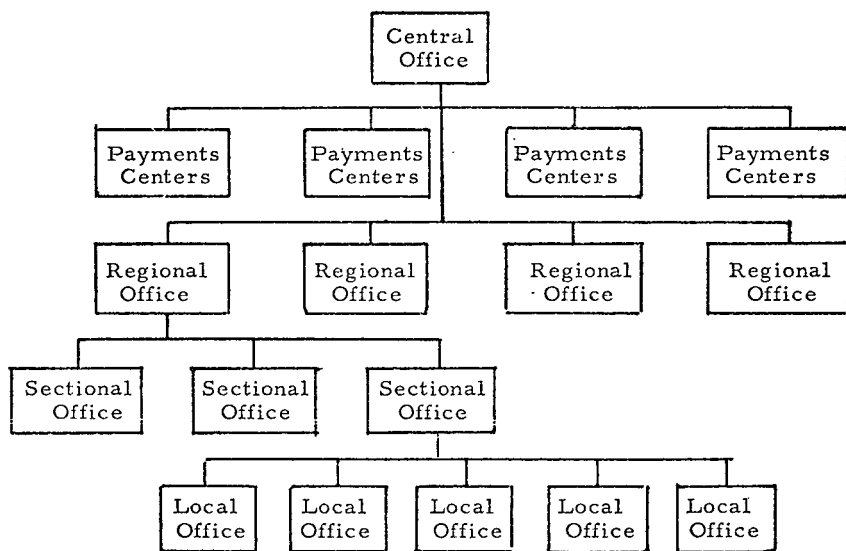
The payments centers are set up as the processing point for the checks for the families and will be described below. There would be 11 of them, conforming to the Department of Health, Education, and Welfare (HEW) regional structure. The administrative control would flow from the central office (Washington), to the 11 regular HEW regional offices, to about 100 sectional offices, and to about 2,000 local offices which would deal directly with the families. There would be no State offices in this model, since a national cash assistance program would be far more efficient and serve the population more effectively if that layer is removed. We will describe each of the offices in the model organization below.

A. THE CENTRAL OFFICE

This is the office located in Washington containing the head of the agency, the research and evaluation personnel, and staffs in charge of promulgating new regulations, developing computer programs, storing data not immediately in use by the payments centers, relating to the general public and the Congress, developing new administrative techniques and policies, and so forth. In short, it would be analogous to the Baltimore headquarters of the Social Security Administration.

B. THE PAYMENTS CENTERS

The advantages of batch processing make it likely that data processing and payments systems will be centralized, especially in view of the fact that in a national cash assistance program the enrollment, payments calculation, audit, referrals, research and evaluation, and report preparation activities should be relatively automated. The organization of both the local offices and the sectional office assumes that income reports will be coded and machine tabulated, and the checks will be generated automatically.

While it may be required by law that all checks be printed by the Treasury Department centrally, it is preferable that the entire operation be performed in the 11 payments centers. This means that less than 450,000 payments must be calculated and printed monthly at each center, rather than 5 million at the Treasury. Such a system could be structured as follows (see also the flow chart, figure 2).

FIGURE 2.—Data entry and validation.
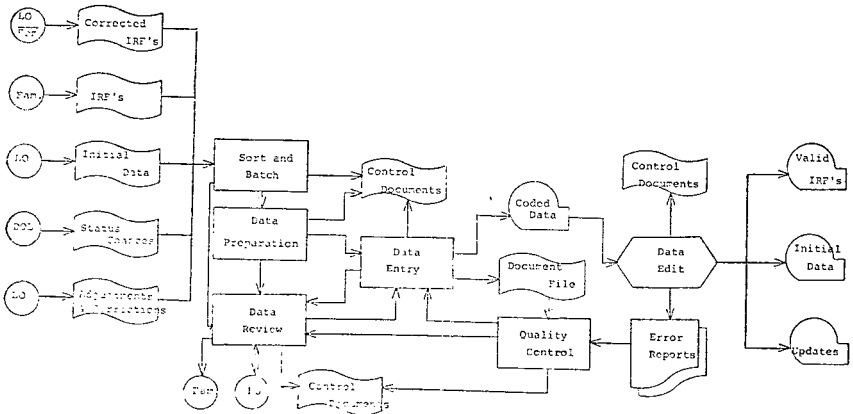
LO—Local office.
Fam.—Family.
IRF—Income report form.

a. Data entry and validation

1. Data enters the processing unit

All incoming mail will be received in a centralized mailroom where it will be sorted and batched. Preliminary data identification is done at this point. All data are date-stamped, numbered, batched, and micro-

filmed (unless the original will be the permanent record). Income report forms (IRF's) are sorted and batched as current, late, and forfeited as determined by the date or sequence number of the IRF. After duplicate and corrected IRF's have been sorted out, they are sent directly to data review, bypassing data preparation.

2. Data preparation

This is another type of sorting process of a more specific nature, requiring a more highly trained person than in sort and batch, but not as highly trained as the payments analyst. At this point basic decisions are made as to the reliability of the data.

3. Data review

A person familiar with the complete payment formula and process (same level as a payment analyst) will examine the forms rejected by data preparation and make a determination as to how to correct the insufficiencies. If any substantive changes are made, notification is sent to the local office. If further information is needed, a local office contact is made. There is no direct contact with the family.

4. Record control

A report of the number and types of documents processed is produced at each processing station. These are received at a central point (records control) for regular reconciliation (on a daily, weekly, or monthly basis). This station makes it possible to locate the status of a given document at any point in the process. This would probably be the job of one supervisory level person.

5. Data entry

At this stage all data are coded. No decisionmaking is done by the coder.

6. Data edit

Data editing is the first computerized operation. Individual data fields are checked for validity and documents are checked for completeness and consistency. An error report is generated which goes to the quality control section for review. Files of clean data are produced for further computer processing.

7. Quality control

The error messages generated during data edit are checked against the original documents. If a coding error is found the document is forwarded to the coding section for recoding. If the data were in fact coded correctly, the document is sent back to audit review for resolution of the problem.

b. Payment processing

1. File maintenance procedures

This is a computerized procedure which adds and deletes families to and from the master file.

2. Updating procedure

Families for which there are status, income, or any other types of changes are located in the current master file. The new data are compared to the existing data, and, if certain conditions are satisfied, the change is made. A corrected current master file is made for success-

fully completed updates. A change report is also produced as an audit trail of the data through the system.

3. Payment procedure

This operation consists of the current payment calculation, recalculations, and reconciliation of adjustments. An edit procedure based on pre-established administrative criteria audits income and family composition data.

4. Payment calculation accounting reports

A report for accounting purposes including such items as number of payments made, total payments, and other statistical summaries is made.

5. Payments review

Problems requiring the attention of the payments analyst, generated by the payment calculation, are reviewed.

FIGURE 3.—Payments processing.
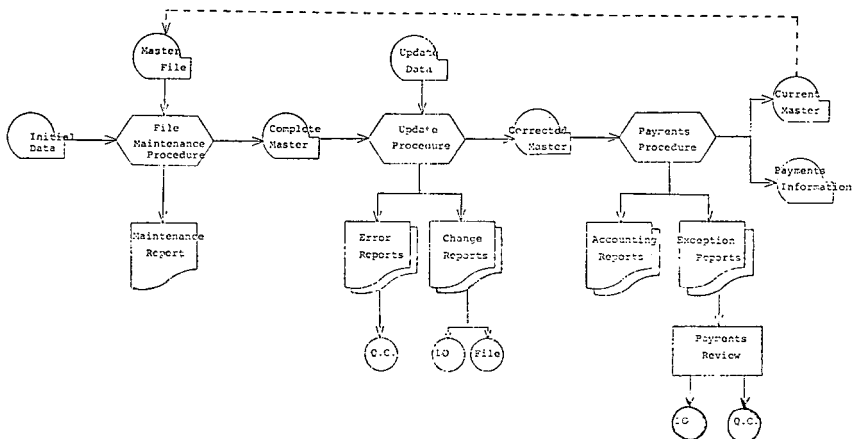
LO—Local office.
Q.C.—Quality control.

FIGURE 4.—Payments and information distribution.
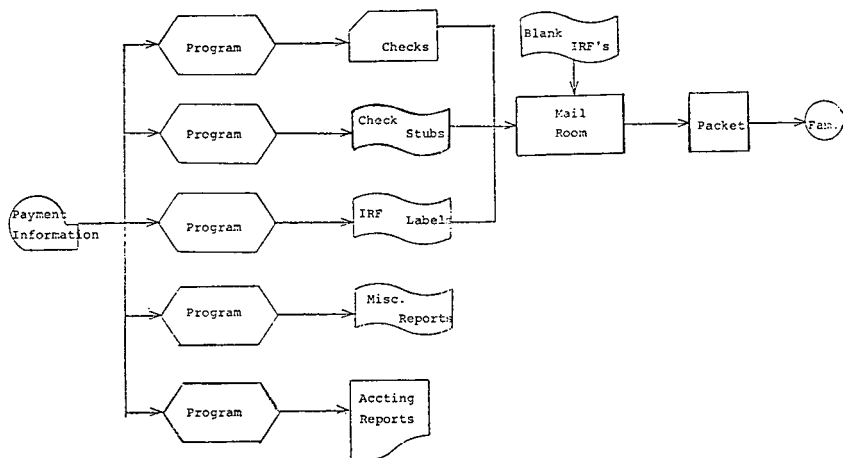
Fam.—Family.

The payments analyst will then attempt to resolve the problem
either from the master file or through the local office. Certain reports
will also be generated for use by the payment analyst and the local
office.

6. Output of payment calculation

Payment information to be sent to the check printing station, in-
cluding any notices to accompany the check, are produced. New data
is then entered on the current master file.

C. THE SECTIONAL OFFICE

The sectional office is added to the structure for both administra-
tive control and to deal with activities such as appeals, investigations,
facilities, and personnel which are subject to economies of large scale
operation. A sectional office should be set up to include the following
functions:

Supervisory.—As the primary administrative unit of the cash assist-
ance system, the sectional office should have a major supervisory com-
ponent. This would include offices responsible for overall program
direction, operations, and ongoing evaluation of performance. The
director and his staff would work closely with the chief of operations,
who would have direct responsibility for overseeing and coordinating
field operations. The directors of the local offices would report directly
to the chief. The operations section would have a number of assistants
and a policy and procedures officer.

The research and evaluation section would aid the supervisory staff by having responsibility for developing and publishing regular statistical reports on caseloads, work measurement, the utilization of related programs, operation of the referral process, and so forth. It would report both to the sectional office director and to central office personnel in charge of long-term measurement and evaluation efforts.

Support.—These activities would be handled by the administrative service section and the personnel and management section. Administrative services would have primary responsibility for finding and maintaining office space, ordering supplies, furniture, and equipment and generally servicing both the sectional office and the local offices in its jurisdiction. The chief would be aided by an assistant for physical facilities and planning and related staff.

The personnel and management section would handle hiring and personnel matters for the jurisdiction. In addition to the personnel director and assistants, this unit would contain a public affairs officer.

Adjudication.—The sectional office would have some fraud and investigation functions, participate in the ongoing development of regulations and procedures, and serve as the locus for hearings and appeals. The investigations and fraud section would include a chief, senior examiners, and field investigators. It would have major responsibility for representing the agency at hearings and investigating fraud cases. A separate audit division would conduct any field work required by the random audit.

Program development activities would be conducted in the office of the director. The director, administrative assistants, and general counsel would all play some role in interpreting and applying procedures.

The sectional office will thus be an administrative link between the local offices and the regional and central agency offices, the location of fraud investigation and hearings, the source of research and evaluation studies, and the lowest level unit charged with modifying and interpreting regulations.

D. THE LOCAL OFFICE

The local office will be the contact point with recipients. It will handle applications, most claims development, filing problems raised by the families, all inquiries from families, any required or requested referrals, and new enrollments.

In keeping with the spirit of a cash assistance program, these offices should be relatively small to insure prompt, equitable, and objective attention.

The only role local offices play in the benefit calculation process is as a communication link between the payments center and the family. Income report forms will be sent directly to the payments center and checks will go directly to the families.

In some areas, smaller suboffices could be established. Itinerant assistance representatives may operate out of other offices.

Local offices would contain an office manager, assistance representatives, receptionists, and clerks.

11

Personnel and Costs

Considerable work done in the income maintenance experiments on staffing and administrative costs has produced results relevant to a national cash assistance program.[5] We have drawn heavily both on specific data and on our experience in administering cash assistance projects in deriving the following estimates. Although only a portion of the staffing figures are based on hard data, this portion includes over 80 percent of the entire staff. The next largest component, the sectional office, is based on our experience with closely related functions in the experiments. Only the central and regional office estimates are founded more on our "best guesses" than on actual experience. However, they represent such a small proportion of the overall staff that they add very little to the variance of our total figures, which we believe are within ten percent of the staff requirements of a national program.

We have quite reliable data on the staffing of the local office and the payments center. The local office in the Seattle experiment has the same functions which a national program's local office would have and requires 3.5 staff members per 1,000 families. The national program, in addition, would have ongoing enrollment, roughly estimated at 20 percent new families per year. Accordingly we increase this estimate of 3.5 by 20 percent to 4.2 staff members per 1,000 families, which may cover the additional staff needs.

The payments center is very similar to the experimental payments offices, which require 3.4 staff per 1,000 families.

Less applicable information exists regarding the functions of the sectional office. Based on our experience, we estimate that each office would require the following number of individuals to perform the functions listed below:

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Supervision of local offices ---------------------------------------   25
Regulations development ---------------------------------------------    5
Facilities and personnel --------------------------------------------    5
Administrative hearings ---------------------------------------------    5
Research and evaluation ---------------------------------------------   10
Field investigations ------------------------------------------------   20
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    Total ---------------------------------------------------------    70
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We have allocated 50 staff to each regional office, the relatively small number reflecting the fact that few functions other than liaison will take place there. Finally, we place 2,500 staff in the central office.[6]

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[5] For detail, see "Estimating the Costs of an Income Maintenance Program Based on the New Jersey Experiment," J. Fair, Mathematica, May, 1971; and "Estimates of the Costs to Administer Payments to Families," J. A. Brewster, Mathematica, November 1971.

[6] Much more carefully defined manpower and time estimates have been prepared for the Office of Family Benefits Planning which refines these estimates. However, the administrative system of H.R. 1 and the one described here are not the same so that totals should not be expected to bear a close resemblance. See "Caseload and Workload Estimates for FAP/OFP: vol. 1: National Estimates," Mathematica, September 1972 (available from Mathematica).

The staffing levels are summarized as follows:

Location:	Number	Staff in each	Total
Central	1	2, 500	2, 500
Regional	11	50	550
Sectional	100	70	7, 000
Payments center	11	1, 545	17, 000
Local	2, 000	10. 5	21, 000
Total			48, 050

It is instructive to those who have assumed that a simplified cash assistance program "runs itself" to see that it will take almost 50,000 Federal employees to operate the system. At the same time, this number is far fewer per case than exists in the current State and Federal welfare bureaucracy, and is dependent in part upon the development of a Federal program more conducive to efficiencies than the present system.

We have made some rough cost estimates of this level of staffing, although it is not our intent to provide a precise estimate of program administration costs. To give some idea, however, of the approximate expenditures such a structure would entail, we have estimated an average salary for the different administrative units, based on government salary scales and the level of personnel who will predominate in each.

Location:	Average salary	Total salaries
Central	$15, 000	$37, 500, 000
Regional	12, 500	6, 875, 000
Sectional	11, 500	80, 500, 000
Payments center	7, 000	119, 000, 000
Local	8, 000	168, 000, 000
Total		411, 875, 000

Adding to this figure funds for leave and benefits, and such overhead expenses as office space, materials and supplies, postage, computer facilities, et cetera, should still keep the total administrative costs well below $1 billion, probably in the neighborhood of $700 to $800 million, or about $150 per case per year.

II. ENROLLMENT

Enrollment is a particularly sensitive aspect of any new system since the tone of the program and public attitudes toward it are often established at the same time that normal start-up difficulties are likely to occur. On the face of it, enrollment seems rather straightforward: merely decide who is eligible and let it be known, through appropriate publicity techniques, that the new offices are open. However, as we have indicated in the introduction, one of the operating constraints is that a large number of other assistance programs will continue along with the new one. The problem is to enroll new eligibles who may or may not have been covered by other programs in the past, while converting existing recipients, most of whom will fall under the new program.

Objectives of the Enrollment

The initial enrollment period should be designed with several objectives in mind, the most important of which are the following:
1. A smooth transition from existing programs to the cash assistance program without loss or interruption of payments.
2. Enrollment of a maximum number of eligible families.
3. Enrollment done as quickly as possible to minimize costs of peak enrollment activity and to get the program on a regular operating basis with minimal delay.

These objectives are best achieved by: taking special care regarding the hiring and training of an enrollment staff (which may in theory be quite distinct from the staff required for on-going operations); carefully defining the eligibility requirements affecting the families; and systematically separating the population of new eligibles from those participating in current programs who will be converted to the new program. Each of these will be discussed in turn.

Hiring and Training

The main question here is the extent to which existing staff of those agencies which will be needing less staff in the future can be used for the enrollment process. If they can, then staffing for the peak enrollment period may be considerably simpler. Our recommendation below that existing caseloads be converted first during the enrollment period implies two phases of staffing: the first involves extracting an enrollment and conversion group from the existing State welfare agencies, and the second requires hiring and training a staff in the new agency to administer the program once conversion is completed. The existing State welfare organizations have increasingly been separating the income maintenance function from the services function. Since the caseworker (service) function will probably remain with the State, the income maintenance workers form the core of the new staff available to the agency. It must be realized however, that in many States this separation is far from complete and some confusion of roles is inevitable. This is especially true in those regions in which Federal salaries will be substantially higher than those offered by the States. If, as seems likely, the new Federal program requires less income maintenance staff than the current system, difficult policy decisions must be made about staffing priorities. For example, current workers' job security versus equal opportunity goals or greatest efficiency, are all commitments which will have to be weighed before staffing for enrollment begins. The process could take place as follows:

(1) The payments analysts, coders, and auditors for the payments center can be hired and trained first to audit and enter application and income report form data.

(2) The State welfare income maintenance workers (or some percentage of them, depending on the size of the projected caseload), would then review each of the existing cases for eligibility with the

assistance of special case aides. These cases would then be forwarded to the payments center for uninterrupted payment under the new system.

(3) In stages, these income maintenance workers would be transferred to the local offices as assistance representatives, responding to problems enrolled families were having and answering inquiries from the payments center.

(4) When this conversion process is completed, all income maintenance workers would have left their old agencies, and the program would be working with regard to the old welfare caseload.

(5) A temporary clerical and outreach staff would be hired to assist in the enrollment of new eligibles not previously covered. These temporary staff members would be working directly for the assistance representatives, now in the new offices, who had become familiar with eligibility and other requirements during their work on the conversion process. The temporaries would remain on the staff until the completion of the new enrollment; in areas where the caseload was larger than expected, some of them could be trained as assistance representatives.

The major strain in this system is the training of the income maintenance workers while they are still responsible for the administration of the old system. It would probably be advisable to hire temporary income maintenance workers (even recipients without work) in the welfare departments to assist these people during this period.

The content of the training session should cover the following broad items:

(1) *Welfare/cash assistance distinctions.*—A discussion of the differences in philosophy, procedures, and benefit levels between the new program and welfare. Included would be the details of eligibility determination and payments calculations. The importance and difficulty of changing the ingrained, inappropriate attitudes of some of the old welfare workers cannot be overemphasized here.

(2) *New client coverage.*—Characteristics of the new population and the impact upon existing administrative procedures (i.e., for former income maintenance workers, the different problems associated with a population with a high percentage of earners).

(3) *Federal administration.*—The relationship between the Federal Government and the State programs, including such on-going programs as general assistance.

(4) *Associated programs.*—The manner by which cash assistance will relate to mandatory and voluntary service agencies.

(5) *Techniques of enrollment.*—For the outreach staff, how to get in doors, how to relate to the client population, et cetera.

(6) *The regulations.*—Detailed coverage of the eligibility and reporting rules.

In the Seattle and Denver income maintenance experiments, this training takes 2 weeks, with 2-hour sessions held each day. Generally it is done in groups of five so that discussion is maximized. Both lectures and discussions are used, as are extensive tests and practice sessions to insure that enrollment staff understand complicated material. The new agency should expect each enrollment staff person to spend approximately 2 weeks in training and preparation for enrollment.

Eligibility Requirements

The time and cost of enrollment will be very much a function of documentation requirements at the time of enrollment. It is proposed here that some level of documentation be required as an initial check, but that this be restricted to such essentials as the birth certificate of the child qualifying the family for assistance and the family's social security numbers. These can be used to avoid serious abuses of the system by a few families (always well-publicized).

With regard to other requirements such as marriage licenses, income tax returns, payroll stubs, and business records, these should not be required except for a random percentage of families undergoing the regular audit (discussed below). If extensive documentation is required for enrollment, many families will have to return to their homes to locate it, inquiries and applications will have to be made to other agencies for missing papers, and the system will be very expensive and potentially oppressive for the new applicants. Efficiency dictates a limit on the amount of documentation and a new stress on a random system of audits rather than complete (and often nonrandom) investigation. If subsequent audits reveal certain kinds of common abuses, the enrollment and eligibility determination process can be modified accordingly.

Who is Enrolled First

There are several options open to a new agency regarding who to enroll first. The major options are:

1. Phased enrollment which involves using a massive publicity campaign to bring a large percentage of the eligibles into the new system as quickly as possible, postponing the recruitment of those not enrolling at first until the regular program is underway;

2. Geographical enrollment, in which areas of a State are concentrated on one after another until the entire State is covered;

3. Programmatic enrollment, whereby certain categories of eligibles are enrolled separately.

Given the very different problems of the existing caseload (who may have been on welfare for some time) and the new eligibles (who may never have received assistance) it seems most appropriate to employ the third strategy outlined above. Of course, increased efficiency may be gained by adding some form of geographic enrollment (for instance, the urban population centers first, then the outlying areas).

The question then arises as to which group comes in first. Some have suggested that new eligibles come into the system first in order to give it a completely new image. Prior conversion of the caseload of welfare recipients will mean that the working poor will then be joining the old welfare recipients in the program. This may taint the program in the eyes of the general public, who will see it as more of the same, which in turn may make it difficult to enroll a large percentage of the working poor in what they will now regard as another welfare program.

However, there are two important reasons for converting the welfare caseload first. Efficient use and transfer of the income mainte-

nance workers from the existing system cannot be effected if they must continue work on their own caseload, making it necessary to assemble a full enrollment, payments, coding, and administrative staff to enroll the working poor. After the working poor enrollment, the income maintenance workers would begin to convert their caseload. At the end of that process they would either have to displace some of the working poor enrollment and operation staff, or be dismissed. While a temporary working poor staff could be assembled, it would be inefficient to have to retrain all of the income maintenance workers to take over. It would be politically infeasible to replace all of them with new staff.

Second, enrollment of the working poor will uncover some new cases of individuals eligible for State welfare benefits (casefinding). If these individuals are not taken into the new system because their turn has not come, legal and ethical problems of ignoring the needs of impoverished families will arise. If they are enrolled by the welfare system, an additional burden will be placed on the State welfare system at a time when it is preparing for conversion. If the applicants are enrolled in the new system, a situation will arise whereby two families in exactly the same economic circumstances and with the same family structure (e.g., female-headed with small children) will be receiving different benefits (it is assumed here that benefits will be different under the two systems). Because of the large publicity campaign associated with enrolling new eligibles in the population, such casefinding is likely to occur.

To insure more equity, with either group coming in first, the program might enroll one group before the new program's effective date, delaying the start of payments until the effective date. The other group would then be enrolled over the next few months, with payment retroactive where applicable to the same date. For the reasons outlined above, however, this method would probably be most feasible operationally if the AFDC families are handled prior to the working poor.

For these reasons, it would seem to make more sense to convert the existing caseload, transfer the staff from existing agencies, and then begin the process of enrolling the new caseload.

III. The Impact of Income Reporting Procedures

No single issue is of greater importance to the operation of a cash assistance program than the procedures for the reporting of income: who is responsible for filing reports, how often, what information should be included on the report, and so forth.

In this section we are going to discuss the three most important aspects of this problem: the content of the income report form, how to treat various kinds of income, and the accounting period (which includes both the frequency and implications of filing and the impact of past accountable income on the cost and caseload of a cash assistance program).

It should be kept in mind that the income reporting system as a whole should attempt to maximize these two objectives:

1. *Self-administration.*—Maximum attention should be paid to the development of techniques which will permit families to exercise their rights and obligations as participants with a minimum amount of interference by the agency.

2. *Low administrative costs.*—These techniques should be developed in the context of minimizing costs, especially since high costs have been a major problem in the current system.

The Income Report Form

The income report form (IRF) is the form on which the family reports information necessary for subsequent eligibility determination and benefit calculation. The items which might appear on the form are listed below, with the options for each item specified.

1. *Family composition and size.*—The options here are to have the family enumerate and describe its composition each time it reports, or simply to have to report changes. Since changes in status are relatively infrequent (births, deaths, marriages, members moving out, members moving in) and, in many cases, can be changed mechanically, it seems unnecessary to have families report anything but changes.

2. *Location.*—Options here are to have families report address and phone number each time they report income, or simply have them report changes. Since address and phone are useful identifying items, it seems helpful to have them recorded on each form.

3. *Income.*—Along with family size and composition, income is the most important determinant of continuing eligibility and benefit level. The options for the reporting of income are listed below:

a. Frequency.—The family could report changes only or it could report actual income each time it reports. Since incomes tend to fluctuate more than the other two items mentioned, actual income should be reported each time the family reports. If incomes do fluctuate often, recall would become a problem on an IRF which reads "Did your income change since (date of last report)?" Families whose incomes vary markedly might tend to discount a few hours of overtime, or the days when they missed work because of weather. Moreover, if incomes tend to fluctuate often among most families, we not only risk inaccuracy, but most of the families would end up specifying changes anyway.

b. Detail.—Should families report total income by category? Should it be separated by name of person who acquired it, or should it be for the whole family together? Should families make out a detailed report of income for each family member? The income maintenance experiments currently in progress range on this issue from a listing of paychecks received by each family member and a family total on income other than earnings (in New Jersey) to a detailed listing of hours per week, hours of overtime pay per week earned by each family member, as well as other income by family (in Gary). Up to a point, the less detailed a form is, the more inaccurate it is. A detailed, well-structured IRF serves basically as a reminder, but it can also become too detailed and may be initially more difficult to learn. It will, on the other hand, result in the reporting of more irregular income, as well as generating more information from which internal consistency checks can be made by an automated audit. The trade-off is between detail which provides the best recall and detail which becomes burdensome and discourages self-administration.

4. *Deductions from income.*—The detail and frequency of change on these items are much the same as those in the income section above. Deductions because of farm and business expenses might easily be made on a quarterly basis (coinciding with quarterly estimated tax returns) rather than each time the family reports. Child care expenses and regular expenses should be reported as frequently as the family normally reports.

5. *Resources and assets.*—These items are infrequently changed and could probably best be handled in either a special supplement appended to the IRF on request, or a yearly form.

Treatment of Various Kinds of Income

Any cash assistance plan must outline a comprehensive concept of what is to be counted as income, including on the most basic level distinguishing between earned income (entitled to an earnings disregard and some marginal tax rate) and unearned income (currently taxed at 100 percent). Earned income may be defined from the OASDI provisions of the Social Security Act (42 U.S.C. 409–411), thus including income from both wages and self-employment.

Several special income cases and unearned income categories deserve mention.

1. THE PROBLEM OF DEFINING FARM INCOME [7]

There are four major problems in the reporting of net farm income to the Internal Revenue Service, three of which will probably be problems for a cash assistance plan. The first is that income reported by farmers is underestimated, or expenses are overestimated, or both. For example, net cash farm income estimated by the U.S. Department of Agriculture differs substantially from that reported on farm tax returns, even though conceptually they should be fairly comparable.

Presumably, some of the discrepancy results from the fact that farmers must recall income and expenses over a 12-month period for IRS. Assuming monthly reporting under a Federal assistance system, one would expect greater accuracy in the reporting of cash receipts and expenses.

The second problem involves increasing livestock inventory. Livestock farmers who are expanding their operation gain a substantial benefit from the Internal Revenue Service and presumably could under the new program as well.

A third problem is increasing land value. Farm land values have increased roughly 75 percent in the last 10 years, yet this increase in valuation is not reported as income until the land is sold.

Finally, farmers, like many other businessmen, are allowed to use accelerated depreciation schedules.

The last three situations can result in a substantial underreporting of income in any given year. This is not a great deal of concern to the Internal Revenue Service because a person must pay taxes for his entire life. Therefore, understatement of income over a 10-year period due to increasing livestock inventory, increasing land value,

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[7] Problems associated with self-employment income are discussed more fully elsewhere in this volume (see "Administrative Guidelines for Income Maintenance Programs Covering the Self-Employed" by Lee Bawden) .

or accelerated depreciation will be reflected in income reported later. At some time, often at death, the scale is balanced. The problem is much more serious under an assistance plan. Overpayments for 5 years to the operator of an expanding farm cannot be recouped later if that farmer is not then eligible for payments.

There is no easy remedy. Even with monthly reporting the last three problems would be magnified in a new program. One alternative is to allow only straight-line depreciation, but this requires business-men and farmers to keep two sets of books, one for IRS and one for the cash assistance program. Another possible solution is to count increases in equity as income.

2. OTHER SELF-EMPLOYMENT INCOME

Much of the foregoing section on farm income is applicable as well to other business income. There is for both groups the problem of the self-employed person who is consistently able to report a low net income from substantial assets because of loopholes in the definition of expenditures. In this case, it is best to handle the loopholes by care-fully defining what expenses can be deducted rather than by imposing some arbitrary limit on gross income or assets.

Yet, it will be difficult to control completely the advantages that the self-employed will enjoy over wage earners, as the self-employed do now in the positive tax system. This fact makes a "carryover sys-tem" (see below) mandatory for the self-employed, since the business-man often has considerable flexibility to defer income. The carryover will at times work to the self-employeds' benefit, as cash expenses in periods in which no cash receipts were received may be carried forward to offset against cash receipts in a later period.

As mentioned below, thought might be given to establishing variable accounting periods and procedures for the self-employed which are designed to accommodate their atypical income flows.

3. OTHER INCOME

a. Rent.—Return on investments and rental income should be treated as unearned income except in the case where that income is from self-employment combined with investment. It is suggested that the cri-terion for determination of self-employment be related to the actual time spent in acquiring this income.

The general problem of allowance for return on investment has further ramifications with regard to rent. The scope of the problem will depend on the rules adopted relating to income-producing re-sources. It is suggested that all the expenses incurred in the operation of a trade or business be allowed as deductions—including deprecia-tion. But where a person rents out rooms, then that activity should constitute a trade or business only if there are usually four or more roomers. Where a person rents out property to a tenant, that activity should constitute a trade or business only if the lessor is actively en-gaged in managing the property, and active engagement should be defined to mean spending at least 5 hours a week at any of the various tasks involved in producing rental income. Otherwise, it is a passive investment (like stocks and bonds), not a trade or business.

Where there is no trade or business, it is obvious that at least some deductions must be allowed.

The problem of distinguishing between a resident and a roomer can be minimized by adopting a standardized procedure. For example a monthly standard deduction of $35 per person for room only, $50 per person for board only and $85 per person for room and board seems reasonable. If income received is less than these amounts, the actual receipt should be deducted. Where the rents are derived from the leasing of separate quarters, but there is no trade or business because of insufficient managerial activity, then a deduction should be allowed for operating expenses only. Where a person received payments in excess of the standard deduction he should be allowed to offer proof that operating expenses exceed the standard deduction or that what was really involved was an honest and reasonable expense-sharing arrangement. But a fairly heavy burden of proof can be placed on such a person.

b. *Gifts, Support Payments, and Alimony.*—If gifts, support payments, and alimony are all treated as unearned income, the perplexing effort to distinguish between gifts and support payments is avoided. Valuation of gifts will remain a problem—but it is one that is familiar to welfare administrators. The problem is also diminished considerably if unearned income that is received irregularly or infrequently is excluded. Where valuation does become an issue it is suggested that the guiding principle shoud be market value.

c. *Retirement, Death, Disability, and Medical Benefits.*—These should be taxed as regular income rather than at 100 percent as at present in order to avoid confiscating benefits which were previously deducted from paychecks.

d. *Federal Tax.*—These flows may be treated equitably by deducting withholding and adding refunds to income when received.

Impact of Frequency of Filing

If payments are to be based on earnings over the previous month, reports must be filed monthly. However, even if payments were based on quarterly earnings there are two strong arguments for monthly reporting.

First, payments could be adjusted each month. With quarterly reporting, payments could be adjusted no less frequently than every 3 months. Obviously, the latter would be acceptable (even preferable) for wage earners with constant earnings.[8] However, a sizable number of low-income people do not have constant earnings. They may have a steady job, but work varying hours; or they may moonlight occasionally; or they may change jobs; or get a raise. Also, virtually all of the self-employed experience fluctuating incomes. Finally, even those who do have constant earnings may not have constant expenses that are deductible. For people in these categories, monthly reporting is necessary if a cash assistance program is to be reasonably responsive to changes in family income.

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[8] Figure 5 shows the substantial fluctuation in income of families in the Scranton segment of the New Jersey Experiment. The movement in incomes is particularly dramatic if one remembers that these numbers are means of over 150 families. Scranton was selected because its population most closely resembles the new families who would be covered in a working poor program.

FIGURE 5. Total income over time in Scranton (New Jersey Experiment).
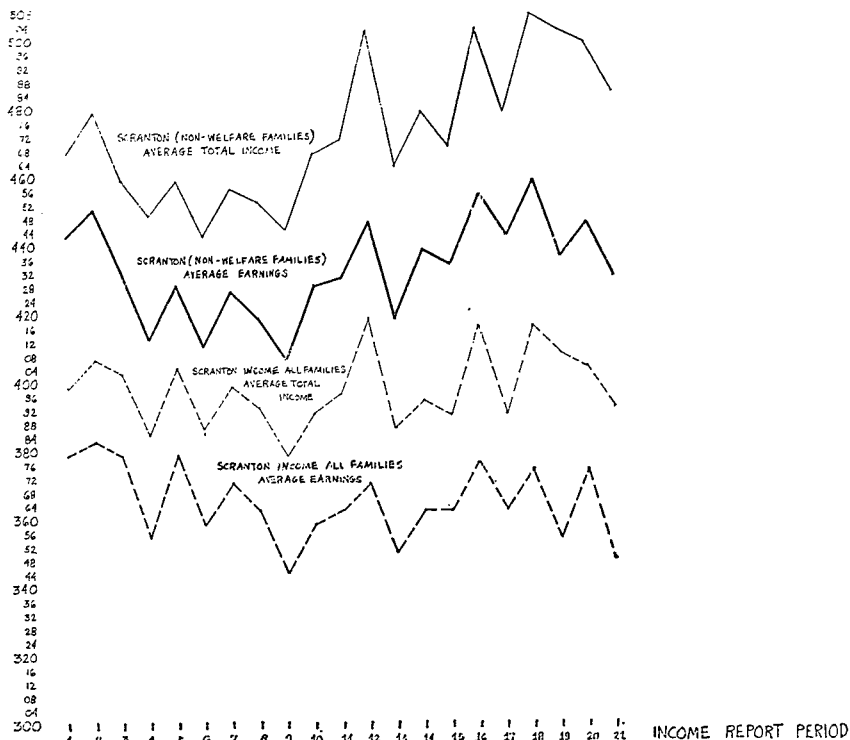
The second issue is accuracy of reporting. Quarterly reporting may seem at first glance to reduce administrative costs to the agency, but it increases the probability of inaccurate reporting of income. Filers must keep income and expense records for 3 months rather than for just 1 month. Irregular income and expenses are difficult to recall; the longer the reporting period, the less accurate reporting will be. And the bias will probably be negative, resulting in lower reported incomes and increased Federal payments. In the rural experiment, a significant deterioration of recall over a 3-month period was found. About one-third of the families in the labor force did not remember correctly details of their employment 3 months before— they either forgot about a job they had, remembered one they did not have, or did not recall their wage rate correctly.

In addition, a shorter reporting period implies a higher frequency of filing reports. With experience comes increased accuracy. Thus a quarterly system may turn out to be more expensive administratively because of the need to audit more thoroughly. In addition, a quarterly system implies more participants, as will be seen below.

An alternative which should be considered is building in some degree of flexibility with respect to the length of the accounting period. A disabled male head with a nonworking spouse might be asked to report income once every 6 months, while families who have fluctuating

incomes could report every month. A flexible accounting period would also be a good solution for the marginal population who float between eligibility and ineligibility. For example, a family might become ineligible for a brief period of time when its income temporarily peaked. When its income fell—and it became eligible once again, they would probably choose to reenroll. In terms of recordkeeping, the individual could fill out one income report form that filled the gap and enter that as one report form with a variable-length accounting period.

One other possible exception to the general monthly rule is the self-employed, who will probably be treated differently under a new program than those with wages or transfer income. They are expected to cause the most administrative problems and will have the most difficulty in recalling and estimating income because of its variety of sources and irregularity of receipt. Since they will also have more opportunity to intentionally misreport, the self-employed are likely to have different report forms, documentation requirements, and filing intervals.

On balance, the monthly system is preferred for its accuracy, equity, and lower cost.

Cost and Caseload Implications of Various Accounting Period Options [9]

Simply, stated, the accounting period is the general name for a series of features of an income reporting system defined by the following variables:

1. The accountable period—the ex-post period over which equity is maintained among families (e.g., all families having the same annual income, regardless of the pattern, get the same annual payment);

2. The frequency of payments to families;

3. The accounting period—the length of time over which ex-post income is averaged for calculating payments; and

4. The frequency of filing income statements.

The size of the caseload in an income maintenance system is extremely sensitive to changes in these variables, primarily because incomes of the working poor fluctuate so greatly. The purpose of this section is to indicate how important the accounting period is for the administration of a national cash assistance program.

To insure equity among families with both stable and fluctuating incomes, total payments must be computed on at least an annual basis. This annual accountable period can be implemented either by a reconciliation at the end of the year or by using a 12-month "carryover" procedure. The yearend reconciliation requires rectification of any underpayments or overpayments. This method is both administratively cumbersome and can pose major problems to those owing large sums. It is unlikely that substantial recovery of overpayments would be feasible.

The carryover avoids this problem by accumulating earned income in any month which is in excess of the breakeven level (the guaranteed

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[9] A longer and more detailed discussion of this issue by Jodie Allen is included elsewhere in this volume (see "Designing Income Maintenance Systems: the Income Accounting Problem").

minimum divided by the tax rate) and applying it to earned income in any month when the family's income falls below the breakeven. If the carryover is not used up, the amount in excess of the breakeven remains in the sum for use in some specified, limited number of future months. Two methods are used to determine how a family uses up its past accountable income. The first is LIFO ("last in, first out"), where the most recent period is used up first. This second is FIFO ("first in, first out"), where the most distant applicable period is used up first. The implications of these carryover options are discussed below.

Another variation involves the base period used for computing payments. In a prospective system, payments are figured on an estimate of income for the current period. A retrospective system bases current benefits on income received in the preceding period. The carryover feature can be used with either.

The effect of both the carryover and retrospective reporting is to increase the annual equity of benefits paid. Any system which ignores one or both of these approaches is bound to have higher caseloads and costs, since families whose annual incomes are over the breakeven may qualify for some portion of the year. The problem is that those who need it most will not be the beneficiaries of this increased budget. In fact, approximately half of the families who would have been recipients under the old H.R. 16311 accounting system would have had annual incomes above the annual breakeven point.[10] Thus, in a national program with universal coverage of the working poor whose incomes are highly variable, the accounting period will have a great impact on cost, equity, and responsiveness to need.

In our view, the objectives of a cash assistance program would be best served by the introduction of a monthly reporting requirement for recipients with a retrospective 12-month carryover system. The arguments and tradeoffs of a quarterly (prospective) system and a monthly (retrospective) system are summarized below.

The following major points must be considered in the selection of an accounting period:[11]

A. WHAT IS THE IMPACT OF THE ACCOUNTING PERIOD OPTIONS ON THE COST OF A NATIONAL PROGRAM?

The (prospective, no carryover) accounting system specified in the H.R. 16311 version of the President's Family Assistance Plan would have raised the costs of the national program by $1.3 billion (24%) over projected costs; the caseload would have risen by 2.1 million

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[10] See D. L. Bawden and D. N. Kershaw, "Problems in Income Reporting and Accounting," in Orr. op. cit. H.R. 16311 is the welfare reform bill reported out by the House Ways and Means Committee in 1970.

[11] This analysis comes from a simulation model developed by Harold Watts for the Vermont Family Assistance Planning Study (see *Family Assistance Program Planning Papers*, vol. III, "Accounting Period Implications and Options," Mathematica, Inc., 1970). The within-year income fluctuations come from approximately 400 families in the New Jersey and Seattle experiments (the only source of month-to-month data necessary for accounting period cost and caseload estimates). Further analysis will refine these estimates (4,000 family income histories will be used from the experiments), but these data show rough orders of magnitude in costs.

24

families (56%) above estimates.[12] The research done on the accounting period indicated that it was far from a mere technicality. From the point of view of the Congress and the public, the program would have been regarded as a financial disaster in the first year. H.R. 1[13] contained new language which recognized the critical impact of the accounting period on costs and introduced a carryover. However, it is estimated that the quarterly prospective system would raise the actual costs of the program by $660 million, or 12%, above estimates. It should be noted that this increase in cost constitutes payments largely to families who are *not poor:* the increase, therefore, represent *mispayments to noneligibles*. This leakage, again, could produce a disastrous public outcry about the new program. A monthly reporting system with a "carryover" would cause the actual program costs to conform to those of the official estimates and restrict payments to the target population.

B. WHAT IS THE IMPACT OF THE ACCOUNTING PERIOD SYSTEM ON EQUITY?

One of the major purposes of the Family Assistance Plan was to introduce increased standardization into the income transfer system by treating families in similar circumstances equally ("horizontal equity"). As indicated above, a quarterly prospective accounting system will cause noneligible families with certain income patterns to gain from the system. Using such a quarterly system will, therefore, retain some of the very features of the old system which welfare reform is intended to eliminate. The monthly reporting system would introduce strict horizontal equity on an annual basis.

C. IS A MONTHLY REPORTING SYSTEM ADMINISTRATIVELY FEASIBLE?

By definition, a monthly accounting system requires that all families report incomes and family composition information monthly: it is clearly impossible to make changes in payments without information. But is such frequent reporting and payment redetermination feasible?

The income maintenance experiments demonstrate beyond question that monthly reporting is feasible from the standpoint of the families. A monthly system would require few, if any, additional employees to operate it, and the data processing workload in the monthly and quarterly systems is remarkably close, creating roughly the same program development and data processing requirements regardless of which system is elected. Given the experience of other Government agencies, a monthly system should be possible to develop.

Accounting simulation specified

Unfortunately, the accounting period is a very complex issue and cannot be specified in a simple manner. There are a number of different assumptions regarding both the behavior of recipients and the ca-

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[12] These estimates were generated from the Current Population survey which has annual data only; thus, they are "annual retrospective" and do not take account of any income fluctuations.

[13] The revision of the Family Assistance Plan (H.R. 1 (92d Cong.)) discussed here was passed by the House of Representatives in June 1971 but did not pass the Senate.

pacity of the agency which have to be taken into consideration in making estimates. Below, we specify these assumptions in detail, define the variables in the model and then indicate the effects of various options. The assumptions are as follows:

1. Recapture of overpayments.—The amount of recapture varies from 0 to 100 percent. It never includes recapturing overpayments for families rising and staying above their breakeven points.

2. Accountable record.—This concept is defined as the sequence of past income for which a family is currently liable. The length of the period for which a family is liable for past income is varied from 0 to 12 months. In addition, two methods are used to determine how a family uses up its past accountable income. The first is LIFO (last in, first out), where the most recent past period is used up first. The second is FIFO (first in, first out), where the most distant applicable period is used up first.

3. Within-period reporting and redetermination.—A period is defined as a quarter, since all families report at least once each quarter. Whether or not a family reports within a quarter varies as follows:

　　a. If the family reports a change in income. This category is separated by whether the family's change would have increased or decreased the amount of the benefit. In all cases, the probability of their reporting a decrease in income is greater than their reporting an increase in the same income. The "optimistic case" assumes that families will have a high probability of reporting both upward and downward changes in income during a quarter. The "pessimistic case" assumes that the probability of their reporting a decrease in income is much greater than the probability of their reporting an increase in income. In order to make the estimates as realistic as possible, the model is structured so that the probability of reporting a change is always greater the larger the change. The optimistic case always assumes a higher probability of reporting any change than the pessimistic case.

　　b. If the agency decides there is a material change. The family must report all changes in income, which takes all discretion out of the hands of the recipient. In the monthly reporting cases, the decision by the agency as to whether to change the benefit paid is varied by the extent to which it is considered a "material change." "Material change" is defined by the absolute size of the benefit change indicated. The following categories were used: (1) Any change over $1; and (2) any change over $25.

4. Quarterly forecast lag.—This is the leadtime required to file a quarterly report, and takes into account the time the agency takes to process the reports. In the first case, the recipient must allow the agency 1 month for processing. In the second case, 2 months must be allowed for processing.

5. Within-quarter report lag.—This is the lag between the time a change in income takes place and the time a change in benefit is instituted. This also involves administrative turnaround time. It differs from the forecast lag in that this is the lag following a report of a mid-quarterly change whereas the forecast lag is the leadtime needed for each required quarterly report. This lag also builds in the lag between the time a change takes place and the time the individual recipient decides to report it. This specification is varied at 1 and 2 months. The

quarterly forecast lag and the within-quarter lag are assumed to be the same. That is, if the first is 1 month, the second is also 1 month.

6. *Forecasting accuracy.*—The way this factor is used in the model is similar to the variations in the "within-period reporting and redetermination" (3 above). An individual's estimate of future income can be either his current income or an independent estimate of the future. The longer the lag between the present time and the period for which he is estimating future income, the more inaccurate his estimate will be. As a way to simulate reality, the model compares the income in the month in which the new report is filed with what we know to be the next month's income (we have the entire year so that we already know what is in the futue). If this month's income is the same as next, the model uses this month's. If the next month's income is different from the current month, then a probability is calculated as to whether this or the next month's income is used in the estimate. The probability that next month's income is used is greater the larger the difference between the amounts in the 2 months. As in the "within-period reporting and redetermination" specification, both optimistic and pessimistic assumptions are made.

Immediately following is a summary of the results of these runs. Both changes in costs and changes in caseloads are expressed in terms of the ranges which are obtained from the accompanying variations in assumptions. All cases are compared to what we define as the "annual case." This case conforms to the way many of the current cost and caseload estimates have been made in the past. That is, families are assumed to be eligible for payments if their annual incomes are less than their annual break-even points. Of our total sample of 391 families, 167 were below their annual break-even points. Assuming that our families are representative of the families potentially eligible for payments nationally, this gives us a base number of families eligible for payments comparable to the FAP caseload estimates used by planners. That is, 167 families are equivalent to the 5.1 million national caseload estimate used. The additional 227 families represent those who are above their annual break-even points, but who could become eligible under various accounting period options. In order to arrive at the estimates below, the results of each run were compared to those for this annual case, showing the percentage change in both cost and caseload accompanying each type of system.

1. H.R. 16311-type program—
   Assuming the following:
      Regular reporting done quarterly,
      Regular redetermination done quarterly,
      Recapturing of overpayments varies between 0 and 100 percent,
      Optimistic and pessimistic assumptions regarding recipient discretion within periods,
      One-month and two-month quarterly forecasting lags,
      One-month and two-month within-period report lags, and
      Optimistic and pessimistic assumptions regarding recipient forecasting accuracy.
   We find the following:
      The increase in cost ranges from 22 to 42 percent,
      The increase in caseload ranges from 46 to 78 percent.

2. H.R. 1-type program, quarterly reporting, nine-month accountable period, and LIFO accounting methods—
  Assuming the following:
    Prospective reporting done quarterly,
    Redetermination done quarterly,
    Overpayments recaptured at a 100 percent rate,
    Accountable period of three quarters,
    LIFO accounting method,
    Optimistic and pessimistic assumptions regarding recipient discretion within periods,
    One-month and two-month quarterly forecasting lags,
    One-month and two-month within-period report lags,
    Optimistic and pessimistic assumptions regarding recipient forecasting accuracy.
  We find the following:
    The increase in cost ranges from 10 to 16 percent,
    The increase in caseloads ranges from 26 to 29 percent.
3. H.R.-1 type program, with quarterly prospective reports, monthly reports on actual income—
  Assuming the following:
    Regular monthly reporting,
    Regular monthly redetermination,
    Accountable period of three quarters,
    LIFO accounting method,
    0 to 100 percent recapture of overpayments,
    Rules require agency to change payments within period if changes $1 or more, or $25 or more,
    One-month and two-month quarterly forecasting lags.
    One-month and two-month within-period report lags,
    Optimistic and pessimistic assumptions regarding recipient forecasting accuracy.
  We find the following:
    The increase in cost ranges from 9 to 22 percent,
    The increase in caseload ranges from 24 to 40 percent.
4. H.R.-1 type program, with monthly reporting, twelve-month accountable period, and LIFO accounting methods—
  Assuming the following:
    Regular monthly redetermination,
    Twelve-months accountable period,
    LIFO accounting method.
  We find the following:
    The increase in cost is 3 percent,
    The increase in caseload is 16 percent.
5. H.R.-1 type program, with monthly reporting, twelve-month accountable period, and FIFO accounting methods—
  Assuming the following:
    Regular monthly reporting,
    Regular monthly redetermination,
    Twelve-month accountable period,
    FIFO accounting methods.
  We find the following:
    The increase in cost is 1 percent,
    The increase in caseload is 11 percent.

6. H.R.-1 type program, with monthly reporting, six-month ac-
countable period and FIFO accounting methods—
   Assuming the following:
      Regular monthly reports,
      Regular monthly redetermination,
      Six-months accountable period,
      FIFO accounting method.
   We find the following:
      The increase in cost is 4 percent,
      The increase in caseload is 26 percent.

IV. AUDIT

Objectives

There are three important reasons for auditing cash assistance re-
cipients. These reasons, which are also the objectives of the audit are:
(1) to minimize unwarranted expenditures by the agency, in order
to control the budget; (2) to act as a deterrent to fraud among re-
cipients who might take advantage of the agency in the absence of
implied checking and sanctions; and (3) to protect the reputation and
legitimacy of the agency (and its clients) in the minds of the general
public.

Each of these requires different procedures. The first is the primary
goal of the IRS and results in an audit sampling technique which aims
at those taxpayers who, if they defrauded the agency, would introduce
the highest costs. High-income individuals, certain kinds of business-
men, and others are audited most heavily for this reason; few low-
income individuals are audited because the cost of the audit is simply
not warranted by the aggregate savings to the agency. While the cash
assistance program would want to employ this technique on a limited
basis (such as among farmers and other self-employed persons with
the most opportunity to defraud), the homogeneity of incomes among
the target population limits the usefulness of a differential sampling
technique.

The second goal is important for the assistance program as well as
any other disbursement or collection operation. Any program in-
volving disbursement of funds invites attempts to defraud, whether
it is by the employee who pockets paper clips for his personal use or by
the embezzler who schemes to make off with large sums of money. The
low-income population is no different from any other in this respect.
Some of the participants will seek out possible ways to cheat and
try them. Others will be basically honest, but not above taking ad-
vantage of obvious opportunities if they are made too easily available.
If the program gains the reputation of being "soft on fraud," epi-
demics of cheating are likely to break out. Achieving the goal of deter-
rence requires publicizing the existence of an extensive and sound audit
procedure and following it up with known sanctions.

The third reason is unique to the assistance program (and other
programs for the poor) and is, unfortunately, the most important
reason for conducting an effective audit. Since the assistance program
will operate in this environment, the agency must make it clear that
effective means are in use for checking income reports and family
membership. This procedure should publicly emphasize the aggregate

approach to the problem of underreporting. Putting the audit on a sound and businesslike basis from the start is probably the most critical thing the agency can do for its image and the image of its clients.

With these goals in mind, there are at least three circumstances in which an audit is required in the program: (1) at time of application; (2) among a random sample of families following enrollment; and (3) among families whose incomes or family composition have been opened to question (that is, "audit for cause").

Audit at Application

The program should probably use a declaration, or "modified declaration" system for initial enrollment. The declaration method can be defined as accepting "reasonable" statements by applicants at face value and enrolling and determining eligibility for them based on their own indications of income and family status. The "modified" declaration method would require some documentation by applicants (for example, income tax returns, birth certificates), but to a very limited extent.

Defining what is "reasonable" is the key to the declaration system, of course, and this definition will have a substantial impact on the tone of the new system as it affects both recipients themselves and attitudes held by the general public. Placing too much discretion in the hands of the local offices' intake workers may result in abuse and arbitrary and unstandardized practices. Too readily accepting any declaration, on the other hand, may lead to public outcry and long-term damage to the agency's reputation (note reports from California that groups have gone from welfare office to welfare office "proving" that anyone can lie and receive immediate payments).

We recommend that the declaration document itself have adequate information on it to indicate past sources of income and employment activities. In addition, intake workers would be supplied with guidelines for determining whether applicants' declarations regarding past and present circumstances were reasonable. Applicants with doubtful declarations would still receive payments but could be required to supply additional documentation accompanying the application. Documentation requirements would therefore be limited to those cases where the agency guidelines indicated a need for them. In exceptional circumstances, either when the documentation warranted it or no documentation was available, applicants could be temporarily denied benefits pending an eligibility investigation. Any applicant about whom reasonable doubt was raised at application (which was not satisfactorily resolved at the time of enrollment) would be placed temporarily in the "audit for cause" category (to be explained in detail below). Such applicants would be told of this action and encouraged to obtain (or retain) the required documentation in the future.

Over time, the agency experience would indicate those cases where the declaration method was insufficient, and detailed guidelines could be developed for use in the local offices. The important point to be made here is that the declaration system will probably work with a vast majority of the recipients, and the agency should have a stated policy of using such a declaration. In cases where the declaration method was found insufficient, on the basis of real experience in the

field, care should be taken to standardize whatever modifications were introduced to maintain the objectivity of the eligibility determination process and to protect applicants and recipients from undue discretion and potential abuse at the local level. A policy of careful checking in doubtful cases will protect the vast majority of applicants and enable the agency to avoid the kind of public criticism which could result in a withdrawal of the declaration system entirely and a return to the old methods.

The Random Audit

The sample for the random audit should be a randomly chosen group of recipients selected without regard to income, circumstances, or payment levels. Such recipients would be told that they had been selected by chance and that their selection had nothing whatsoever to do with suspected fraud. Placing this audit on a random and impersonal basis similar to that used by IRS is extremely important.

Those recipients so selected would then be required to supply documentation on earnings, family size and composition, employment, and assets. For some recipients, this documentation will clearly be sufficient for determining the veracity of income and family size information reported to the agency. For others, additional techniques could be used for the audit. While there is a limited amount of experience available with regard to audits of low-income families, a few such methods are proposed here for consideration: (1) employer contact; (2) net worth approach; (3) consumption approach; (4) use of IRS information; and (5) comparison with the social security record.

In terms of employer contact, the program administrators should be cautious, since it is not in the interest of the agency to interfere with the employee-employer relationship and potentially jeopardize it by requiring too much documentation from employers who might consider this a burden, much like a garnishee. However, copies of the previous year's W-2 forms or "earnings to date" information (kept by many employers) would not be burdensome and the agency could compensate employers for the service.[14] Submission of pay stubs or envelopes by the employee himself could also be used to establish income and employment history.

The net worth approach has been employed by IRS and consists of filing a statement on assets and liabilities over some relevant time period (to measure total assets as well as change). It is not really sensitive enough for use with low-income families who have few assets, but it would constitute a relevant test in conjunction with the program's assets test. A simple form, filled out by the recipient himself or with help from the local assistance representative, could be used for this purpose.

With the consumption approach recipients are asked to keep a record of expenditures over some time period to give the agency a measure of whether expenditures are consistent with reported earnings and payments. This approach can give the agency a gross indication of inconsistencies, but it is also rather insensitive for use with low-income families close to the margin of subsistence. Its use by IRS is

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[14] The legality of this method is questionable if the recipient does not either grant permission to the agency to seek such information or obtain the information himself.

more justifiable with high-income individuals whose expenditures are considerably greater. It has the additional drawback for use among the target population of being rather complex to fill out.

Use of the IRS information and comparison with social security records will be discussed with other administrative cross-checks. The employee contact, net worth approach and consumption approach are ones which will require some field activities.

Audit for Cause

The program will probably produce a group of recipients for audit where fraud is actually suspected. This group would be kept separate from the random group, to maintain the clear distinction between the random audit (with no accompanying suspicion attached to the recipient) and this group where suspicion is the criterion for inclusion.

Developing methods for detecting such fraud is complex and sensitive. The traditional welfare approach to fraud discovery was generally for local agency employees to see a recipient working, visit the home and find no children present, visit and find a "strange" man at home, or any number of other "chance" observations which stimulated an investigation. Possessions (a car, fur coat) which did not seem in line with the recipient's reported earnings and benefits were also grounds for an investigation.

It goes without saying that such stimuli for investigations are non-random, arbitrary, and sometimes abusive and unfair. Indeed, one of the major complaints about the current system is that such investigations and local discretion rob recipients of dignity and due process. The following guidelines are suggested for determining instances in which sufficient reason exists for a fraud investigation.

1. Reports From the Public.—Despite the fact that most of us do not like the idea of operating an agency which fosters "spying" by neighbors and others, the cash assistance agency will have to have a policy of responding to complaints by the public about specific recipients. We would suggest that no investigation be undertaken in these circumstances until the recipient has had ample opportunity to explain. This should be done gently and by mail to avoid the overtones of an inquisition. A simple letter requesting an explanation should suffice.

2. Reports From Agency Staff Members.—Although the system should be impersonal, there will obviously be cases where a local assistance representative runs into a recipient engaged in some activity which is suspicious. These cases should be treated in the same way as a public complaint by asking the recipient to explain the circumstances. In addition, it should be made clear what the penalties are for fraud and reemphasized that random audit of a sample of recipients is conducted. In either of the above cases, if the explanation is insufficient, the recipient would be placed in the "audit for cause" category.

3. Unclear Application at Enrollment.—Applicants whose initial applications were highly unclear or suspicious would be placed, at least temporarily, in the "audit for cause" group. Such recipients would be required to supply documentation and would be investigated in the same manner as the random sample. Inquiries of employers, neighbors, friends, relatives, et cetera, would be strictly limited to cases giving very good reasons to suspect fraud.

4. Previous Finding of Fraud.—Any recipient found guilty of fraud in the past could be placed in the "audit for cause" group, either temporarily or sporadically over some time period. They could thus be treated as if on probation.

All of the means of detecting fraud and the investigation of suspected cases should be carefully monitored to protect recipients from unwarranted and arbitrary intrusions and prosecution. However, in line with the necessity for the cash assistance agency to project an image acceptable to the public (and commensurate with the assurance of continued funding), fairly stringent methods will be required.

The Automatic Audit

The automatic or machine audit is an effective way to detect both intentional and unintentional errors in routinely reported information. On the simplest level, this involves system recognition of illogical or inconsistent data. For instance, recipients could be automatically flagged in the computer system if their incomes suddenly dropped below a recognized subsistence level, dropped to zero without clear reason, varied drastically, and so forth. The concept may also be broadened to include routine flags and clerical checks whenever a new income source is reported, when a previous source is not reported, or when a self-employed person reports the same expenses. This technique would be objective and standardized and could provide the agency with a more businesslike and professional means of detecting fraud.

More broadly, there are three major procedures which the machine audit can accomplish: (1) The elimination of clerical time involved in checking; (2) the identification of families whose income or expenses are such that they would be highly suspect of having cheated; and (3) the detection of on-going mistakes which have occurred in coding, programing, or respondent reporting.

Several checks could be included. The following entities should be defined for each check: (1) the population which will be subjected to the test; (2) the form of the function to be evaluated in each time period; and (3) the cost function.

A test might be applied to the entire population or to a particular segment; for example, wage earners. Each of these segments would be independent of the rest of the population. If a check is applied to the entire population, the program must be sophisticated enough to detect whether it is working consistently for one segment of the population but failing on another. If so, appropriate adjustments can then be made.

The function utilized would probably be linear, with a floor and/or ceiling. It could also be a step function.

The cost function would reflect the cost involved in resolving a problem. This cost would include clerical time, telephone, key punching or correction cards, field travel, et cetera. This function would serve as a lower bound on the number and type of errors that are sent back to the field.

The system would work as follows. Initial values and functions are defined. For each inconsistency or error the machine detects, a form describing the inconsistency or error is issued to the field or to an individual in the office for resolution. The answer is then indicated

on the form and returned to the central office. All such corrections are made to the record in question and are input to the program that re-evaluates the functions. If all errors detected are indicated to be not real errors, the check is either abandoned or reduced considerably. If the majority of errors detected are true errors and result in actual corrections, then the function or check should be more broadly administered.

The automatic audit would not be a harassment to normal family units. It woudld allow the agency to identify the small percentage of possible fraud cases. Especially for farmers and self-employed indi-viduals, an error detection system such as the one described above is necessary.

Table 1 indicates several checks which should be applied. The list is not exhaustive, since there are a large number of checks which could be utilized.

TABLE 1.—*Automated audit*

Population	Check
All	Check to be sure the final payment is less than the ceiling, which is a function of family size and eligibility to receive sup-plement or not. This insures that no grossly inaccurate checks are computed.
Farmers and self-employed persons.	For expenses above $50, check to see if there was an identical expense last re-porting period. (This check is in the rural experiment and has found several ex-penses reported twice, mainly due to the time slice problem created by differing . time periods for benefit payments versus business receipts.)
All wage earners	Is the amount of Federal tax withheld con-sistent with wages earned? This would eliminate or catch coding problems where wages have been underreported or under-coded. This would be rather a broad range because some wage earners typically claim fewer exemptions than they are entitled to. Is past employment or past wages con-sistent with this reporting period? In the original coding instructions there should be some allowance for coding "why?" Does the employment pattern differ be-cause of sickness, vacation, or a strike?
Farmers	Are expenditures for feed consistent with livestock sold over some time period? This cannot be a very tight check but can, nevertheless, be made. The same type of check can be used on the relationship between number of cows and amount of milk sold.
All wage earners (head and spouse) whose income pattern is different from their reporting period.	In certain reporting periods, check to be sure there is a substantial jump or de-cline in income. Such fluctuations would occur as a result of time slice problems, when an individual reports monthly yet is paid weekly. In 4 months he should report five checks instead of six.
All individuals who receive a fixed income such as social security, veterans' benefits, etc.	Check to be sure these incomes are reported and do not deviate in amount by more than 10 percent.

Farmers and self-employed persons.

Most individuals will list purchases of small equipment that has a useful life of more than 1 year. This is acceptable as long as they do not enter these purchases on their depreciation schedule and claim depreciation as well. Expensing and depreciating the same purchases must be avoided. There should be a check once a year to determine the amount of equipment that is reported as expenses and the amount that is entered on the depreciation schedule. If both amounts are greater than $300, it should be signaled.

Action in Cases of Fraud Discovery

Much more difficult than discovering fraud is the problem of what to do about it when it is detected. Recovery of overpayments is often unrealistic with low-income groups, particularly if the fraud occurred in the past and the recipient is currently without means. On the other hand, it does the agency little good to spend money on detection and have no policy of action.

Before discussing the recommended procedures for recovery of payments, it should be noted that such procedures may be determined either administratively or judicially. In cases where the agency makes an administrative determination of guilt and develops a remedy which is agreeable to the recipient, no problems should arise. However, in all cases the recipient may appeal the agency decision to both a hearings board and, ultimately, the courts. Consequently, the agency will be in the position of recommending a remedy to both the hearings board and the court which may or may not be accepted. Experience will have to indicate the extent to which this is workable.

A policy of recovery in cases where the recipient is obviously wrong should be based upon his ability to pay. Both the amount of the repayment required and the duration of the repayment process should be a function of current income. For example, for "first offenders" the guidelines could be set so that repayment never extends beyond a set time period (quarter, 6 months, year) and the payments to the recipient would never be reduced below some percentage of what the benefit would have been in the absence of repayments. Thus, for example, we could set a "repayment limit" (or "repayment statute of limitations") of 6 months, and the severity of the repayment required in any month to 25 percent of the benefit due. A recipient family of four, with no current income, would have a benefit due each month of $133. Say that this family "owed" the agency $500 because of fraud. Their monthly benefits would be reduced 25 percent to $100, thereby repaying the agency $33 per month. At the end of 6 months they would have repaid approximately $200. In their case, the other $300 owed to the agency would be forgiven. The percentage reduction would always be taken out of the benefit after all other deductions and exclusions.[15]

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[15] It might be somewhat sensitive politically to consider income from defrauding the agency as anything but "unearned income!"

The only problem with this approach (aside from its failure to deal with each family on a "need" basis), is that it places a greater repayment burden on the very poor: a 25-percent reduction will mean little to a family with more income and less payments (and the agency will get virtually nothing back) and obviously nothing to a family over the break-even level. The answer here is a "fee schedule" approach, whereby the recovery percentage is set as a function of current income, including going over 100 percent recovery of monthly benefits due (that is, legal requirement to repay the agency).

Even in these cases we are leary of any procedures harsher than repayment (for example, imprisonment), since this does nobody any good. In the extreme, the disqualification of a family from receiving benefits over some time period could be used instead. This proposal is not meant to be overly complex or "hardheaded." It is extremely important that the program create a "solid" public image in order to survive. In addition, even a complex but standardized approach is preferable to an ad hoc and potentially abusive recovery method even if the ad hoc method is more "liberal" in some, or even most, cases.

For second offenders, a policy of recovery of all overpayments, or alternatively, a higher percentage of recovery and/or a longer time period for repayment could be introduced.

It should be emphasized that any proceedings against a recipient should only occur after he has exhausted administrative and legal remedies (with respect to both his guilt and the severity of the sanctions against him). What is most important is that the program have a clear policy in these cases, one which protects innocent participants and one which reassures the public.

Administrative Cross-Checks

A number of administrative cross-checks can be established with other Federal agencies on either a regular basis or for use with the random audit or audit-for-cause. Through the use of Social Security, Internal Revenue Service (IRS), Veterans' Administration (VA), Railroad Retirement Board (RRB), and Employment Security records, rather extensive documentation on earnings and family composition can be obtained.

The two most generally applicable agencies are IRS and Social Security. With a centralized data bank it will probably be feasible to compare income reported by recipients to the Federal program with that reported to IRS. It should be stressed that this will only tell us how well cash assistance does vis-a-vis IRS, which may or may not be sufficient. Other problems with this method are the time period over which incomes are compared (IRS will only have the last year's income) and the fact that many recipients will work at jobs for which there are no deductions. Many, even with earnings, may have had no relationship with IRS in the past.

The comparison with Social Security is similar to the IRS comparison. The same problems regarding the earnings time period and the amount of income actually reported obtain here as well. In addition, there is a rather sizable timelag for information from SSA (6–9 months). Yet, as a simple method of wage and salary verification, these two sources are probably the cheapest and most accessible.

When a family enters the program, claims and earnings finders can be forwarded to these agencies and the Veterans' Administration and the RRB. Each agency could check and, if verified, send both pertinent income and benefit payment data to the cash assistance agency, as well as notices of any subsequent changes. IRS and SSA records could be used for periodic cross-checks against all active cases.

Information from the VA and RRB could be used either in this manner or only in cases of specified audits, since it is not applicable to many of the families and is less comprehensive.

Employment security data will have to be obtained separately from each State. The administrative problems thus involved will limit the ease of its widespread use for routine cross-checking. If reporting arrangements can be set up, checking might be particularly effective after an employed person in the program has lost his job.

Although a sophisticated data bank will make such routine checking simple, problems of confidentiality of information and prompt and efficient agency compliance will have to be overcome. And it must be kept in mind that these checks will not uncover all unreported items, since what is not reported to one program may well be kept hidden from another as well.

Income Checking in the Income Maintenance Experiments

Any discussion of the causes, nature, and amount of fraud in the income maintenance experiments necessarily must be preliminary. Detailed data will be available at a later date after material from the New Jersey experiment is fully sorted out and analyzed. However, tentative findings and the perceptions of those involved in administering the experiments can provide some insight into the kinds of problems a national cash assistance program might face.

In an actual program, the largest source of intentional or unintentional cheating will probably involve the misreporting of income. In a study of the New Jersey experiment which compared the earnings of families as reported on the monthly IRF's and income shown on W-2 forms, partial data for 1968 showed that the IRS figure was only .55 percent higher on a yearly basis. Similar 1969 data representing almost half the active experimental families in New Jersey showed a 3.5 percent yearly adjusted difference, with more reported to IRS. Of those families underreporting to the experiment, 85 percent had underreported their incomes by less than 15 percent.

These figures indicate the high comparability of income reporting on the two forms. Of course, they do not indicate any income which went unreported to both sources, but that is a problem which any program will have a hard time overcoming.

Major reporting problems have included lack of reporting by secondary earners, omitting income on lost pay stubs, nonreporting of insurance and interest income, nonreporting of cash wages, and unreported receipt of welfare payments.

Secondary earners often did not report because their jobs are typically of short duration, occasional, and paid in cash, allowing underreporting to the experiment, IRS and SSA. The same tends to be true of any employment in which payment is all or largely cash (do-

mestic work, tips, and so forth). The failure to report interest may be due to the fact that it is not tangibly received by the family, while insurance money is often overlooked, a tendency strengthened by the fact that it is not required to be reported to IRS. Including an appropriate space on the IRF might generate more insurance money reporting.

Another problem involves mistakes, such as reporting weekly income instead of the 4-week total. For those families found to be misreporting, nearly all eventually learned to report correctly. Yearly improvements in the number and regularity of enclosed pay stubs and W–2 and 1040 forms were observed.

The means by which the experiments can detect and deal with fraud are extremely limited. Since the experiments are not public programs, Government agencies with their own confidentiality requirements are reluctant to release information. Only that information which the families send in can be obtained. It was also decided that neither employers nor friends and neighbors would be contacted, since the need for anonymity within the experiment and the desire to avoid the "snooping" character of the welfare program conflicted with these sources of information. The inability to check with employers when families claimed nonpaid sick or vacation absence hampered auditing efforts, while there was no way to check SSA or IRS records if a family would not cooperate.

Yet misreporting was brought to the attention of the administrators through various unanticipated sources. Nearly all families confronted with evidence have confessed. In addition, a number of families "turned themselves in" by voluntarily submitting W–2 and IRS forms reporting a higher income than indicated on their IRF's.

At first, a policy of recouping such overpayments was tried, but the difficulties of reducing payments drastically and overlapping welfare recoupments made such measures unfeasible. It was decided that no payment action would be taken for past misreported income. Instead, the family would be persuaded to file correctly with the knowledge that their reports would be carefully checked. Only after a proven second offense, a decision by the Audit Review Panel, and an opportunity for a fair hearing, would punitive action be taken.

The experiments have to compromise because they are experiments, not public programs. Families in the experiments are invited to participate, they do not apply. If they drop out, they cannot be replaced and valuable data are lost. Both factors constrain the coercion and sanctions available to the experiments.

As mentioned above, illegal double receipt of welfare and experimental payments by families has proven to be a major problem. Yet this will not be possible under a unified Federal cash assistance plan, thus eliminating a great deal of the potential fraud to which the experiments are vulnerable.

Tentative data from New Jersey indicate that 10 percent of the families have committed probable or definite fraud. The bulk of this estimated figure is accounted for by welfare-related cases. In a national cash assistance program with no overlap and more effective enforcement powers, indications are that this percentage would be much lower.

See figure 6 for a schematic representative of operational audit procedures in the New Jersey graduated work incentive experiment.

38

FIGURE 6.—Audit procedures in the New Jersey experiment.
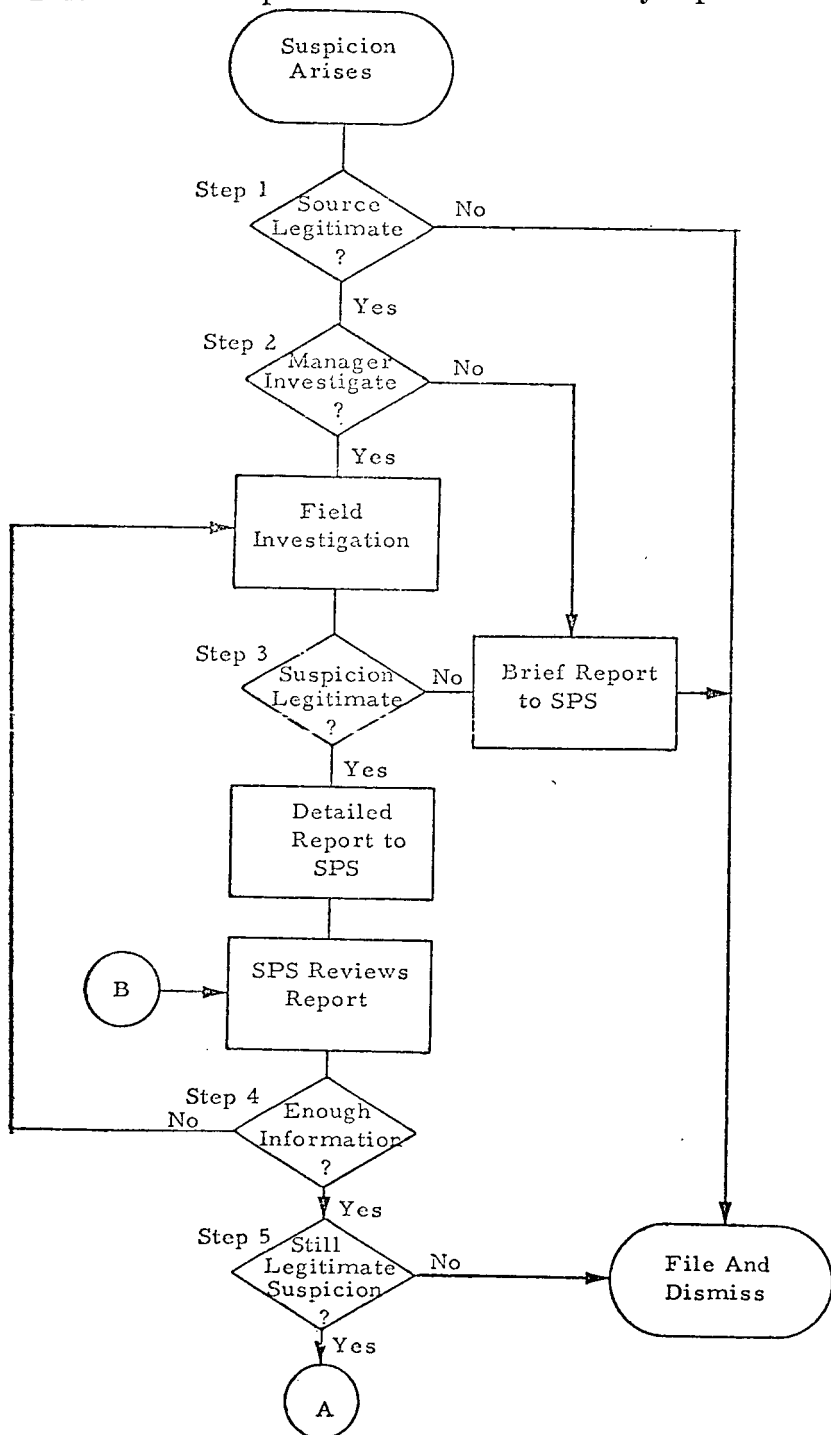
SPS—Special Projects Section.
ARP—Audit Review Panel.

FIGURE 6.—Audit procedures in the New Jersey experiment.—Con.

SPS—Special Projects Section.
ARP—Audit Review Panel.

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FIGURE 6.—Audit procedures in the New Jersey experiment.—Con.

SPS—Special Projects Section.
ARP—Audit Review Panel.

The advantages of the first strategy are that the administering agency would have the option of being as tough or as lenient as it wished and would have the freedom to establish its own priorities, while the employment service (SES) and vocational rehabilitation (VR) agencies would be spared paperwork in questionable cases since the administering agency would have already made the decision. The applicant would benefit as well, for in all initially questionable cases in which the administering agency decided not to refer him, he would be spared the anxiety of awaiting a final decision during the period after he was enrolled.

On the other hand, the first strategy is inconsistent with the lessons learned from experience with the WIN program, which show wide variation among the States in the rates at which recipients were referred from their various welfare departments to the SES's. It is also unacceptable if the program goal of decreasing agency discretion is to be attained.

The second strategy is more likely to fulfill the intent of Congress in altering the referral provisions of the 1967 amendment: Turning the assessment of recipients' employability problems and speeding their entry to the labor market over to the employment service agencies. A second—and perhaps the most important—advantage is that the objective of separating payments from services is greatly enhanced by this approach. A third advantage is that the heavy work-load on the administering agency imposed by the enrollment process would be lessened.

It should be noted that the self-certification element in the second strategy is not without its dangers and weaknesses. The most obvious is that people may falsify information in order to avoid referral and registration. Some of this could probably be controlled by data processing equipment. Another possible weakness is that an excessive number of recipients will classify themselves as incapacitated, and thus have themselves referred to the VR rather than to the SES agency. The point is that a person who does suffer from some physical or mental handicap which impedes his being hired for certain jobs may still be immediately placeable in a satisfactory alternative job by the SES; to route such a person to the VR agency may be wasteful of scarce resources or just time consuming for a recipient who could be immediately placed by the SES.

Strategy three, the immediate channeling of all enrollment data to a team of specialists, does not appear to be a valid alternative. Its high cost limits its feasibility, while the decisions which are made on the basis of initial enrollment data can be made equally well by a well-trained staff employee. All detailed referral decisions should be based upon more complete information than the initial application would contain. Additionally, these decisions should be based upon individual agency priorities with respect to their potential clients. For both reasons, the team of specialists concept should not be utilized at the point of initial automatic referral. However, a similarly constituted body would indeed be valuable for ambiguous or multiservice referral situations after a VR or SES determination that the multiservice approach would be best.

The relative costs and benefits of each strategy lead us to recommend the second as the most practical and most consistent with the principles of a cash assistance program.

After making an initial determination of who should be referred for manpower services, it is important to develop a system which would explicitly rank recipients in terms of their labor market potential. This will provide SES with a standardized method of measuring benefits and costs in the delivery of services. The following ranking is suggested:

1. Employed and likely to need upgrading;
2. Out of work but prepared for competitive employment;
3. Out of work and capable of being prepared at a relatively low cost for competitive employment;
4. Out of work and unlikely to be competitively employed without incurring high preparation costs; and
5. Out of work and unlikely, at any reasonable cost, ever to be acceptable to any efficiency-minded employer.

It is difficult to decide what type of individual fits into any of the five categories, both because the level and composition of demand for labor are continuously changing over time and because no set of personal characteristics, except for the most extreme limitations, can be generally said to disqualify an individual for employment. Given the personal characteristics of people and cultural mores, who is employed and who is "prepared" for competitive employment is a function of the level of aggregate demand and of the composition of the demand for labor. Individuals within these groups ought to be arranged according to the cost of attaining the objective (that is, being upgraded or trained or placed in a sheltered workshop) that has been set for them.

After individuals are evaluated and arranged according to the categories established, the manpower services agencies will be able to develop services within the limits of the financial constraints they face to match the demand for services that has been generated.

It is probable that there will be changes of status for some recipients after the initial referral process. Persons who were eligible for referral may become incapacitated and/or persons who were previously out of the labor market, such as single parents with preschool-age children, may later become eligible for manpower services. There are two basic alternatives for dealing with changes of status:

1. Self-declaration, whereby the recipient reports his change of status to the administering agency via his income report form, an office visit, or some other convenient means; or
2. The administering agency develops a monitoring mechanism whereby such a change can be detected.

The advantages of the first alternative are: the workload of the administering agency will not be increased, other than the necessary processing of status changes; and the distinction between payments and services will be maintained. The main disadvantage is that people may falsify information in order to avoid referral and registration.

The advantage of the second alternative is that some of the falsification of information can be avoided, and this monitoring can be used as another component of the auditing process. The disadvantages include the increased workload necessary to set up an additional function; the difficulty of making it operational; the cost of monitoring labor market behavior, particularly when the people are reluctant registrants; and the possibility some employers might find such measures burdensome.

It is suggested that the first alternative be used as the main method with the monitoring aspects incorporated into the normal auditing process.

It will be necessary to have reports sent from HEW to DOL as well as from DOL to HEW. For example, a low-income, single parent with preschool children may be out of work, but capable of being prepared at a relatively low cost for competitive employment within a period of time; that is, when the children reach school age. This person would be enrolled in the cash assistance program. The recipient could marry, her new spouse could be making a relatively high income, and thus the family would not need further assistance. This information would be most likely picked up by the administering agency (HEW) on the income report form, and the manpower component (DOL) would need to be notified of this change in status. On the other hand, a recipient could be employed but in need of upgrading. If this recipient became permanently disabled, he would no longer be able to use the manpower services, and HEW should be notified, even though they would have some indication of the change in income reported by this recipient. These are just examples of why it is necessary to have a formalized system of information exchange between DOL and HEW.

There is one other area which should be given consideration in the design of a work test. If a suitable work provision is not included in the legislation establishing a cash assistance program, SES should be charged with the responsibility for developing a system which insures that applicants are not assigned to jobs which are know to be in violation of any labor law. Any recipient should be able to petition an SES hearing board if he claims that the job to which he has been assigned is in violation. If a suitable work provision is included in the legislation, it should be administered in accordance with the rules and extensive body of case law developed in the unemployment insurance system of each State.

VI. Issues in Ongoing Evaluation of Administrative Procedures

The difficulties and unknowns inherent in launching a major new program mean that it is likely that a Federal welfare system's initial operations will have to be based on inadequate sources of knowledge and experience. Although relevant materials for planning can be extracted from some aspects of current cash assistance programs and income maintenance experiments, the unique character and scope of a national income maintenance program limit the applicability of much of the available data.

While caseload, workload, personnel, and data systems projections can be estimated on the basis of careful extrapolations and modifications of past experience and census figures, there are a number of behavioral variables whose effects could only be gaged by a pretest of the new program. These include areas such as the rate of participation, the number of ineligibles applying, the demand for hearings and appeals, and the like.

It will also be almost impossible to prejudge the efficacy or feasibility of parts of the administrative structure or the policies promulgated in the areas subject to secretarial discretion.

If time constraints render a pretest embodying structured variations in these factors impossible, the new program must be set up with both the flexibility to adapt to knowledge gained early in the program and the capacity to gather and analyze that experience. Some of the most important issues to examine or vary are listed below.

Key Administration Issues

1. The cost, caseload, and responsiveness effects of the accounting period.

2. The workability of the frequency with which income must be reported.

3. The feasibility and adequacy of the initial enrollment form.

4. The extent to which necessary documentation such as birth certificates of children, marriage licenses, W–2 forms, business records, and so forth, can be provided by the families.

5. The complexity and resulting reporting accuracy of the income report form.

6. The difficulties encountered by recipients in self-reporting, measured by the number of obvious errors and the frequency of requests for aid in filling out the forms, and the change in these over time.

7. Problems which develop with respect to farmers and the self-employed.

8. How soon families apply for benefits, and the extent of other support (unemployment compensation, social security benefits, veterans' pensions, workmen's compensation, strike benefits) available.

9. The information needed (e.g., enrollment data, how many past reports, etc.), where (at the field office), and in what form (copies of past reports, or access to a central computer file, or summary data stored locally), in order to immediately answer questions by recipients regarding payments.

10. The administration of a work test. Is there evidence of abuse and discriminatory use of a work test for harassment?

11. The effectiveness of field office operations. Are outreach functions necessary? Have other services been effectively meshed in at the field office level?

12. The problems which may be caused by a division of functions between DOL and HEW.

13. The effect of the program on other administrative structures such as the employment service.

14. How does the availability of employment and training opportunity match with the needs? What is the distribution of such opportunities by area and among groups?

15. How have State supplemental payments dovetailed with the Federal program?

Any ongoing program evaluation should, of course, assess the efficiency and responsiveness of system components, such as the payments and check distribution system, referral mechanisms, the hearings process, and audit procedures. But longer range externalities and behavioral results induced by the program structure should not be ignored. Some examples of possible subjects for inquiry follow.

Behavioral Response Variables

1. What are the different types of training and employment offered and which are most effective for various populations?

2. To the extent that there are variations in the tax rates due to State supplements, can a differential labor response be measured? Are there labor supply effects related to the income accounting procedures (e.g., increases in seasonality of work)? Any special effects from the definition of income?

3. What is the effect on family stability? Do State supplemental payment differentials still encourage family breakup? (It is important here as elsewhere to differentiate short-run and long-run response. Initial increases in family breakup may not be sustained over the longer run.) How do program specifications affect the age and circumstance of youths becoming independent from their families? What effects are there from any program requirements on child support?

4. What effects can be detected from the choices made on the size of allowance for additional members of a family? How does the definition of family affect additions or subtractions of members?

5. What are the effects on spending or savings from specific inclusions or exclusions of items in income definition? How about effects of rules of eligibility (e.g., a resources test)?

6. What is the interregional distribution of effects? Has it had substantially different effects in rural than urban areas? What about Puerto Rico?

7. In general, how has utilization varied by ethnicity, age, and area, and why has it varied?

8. In the long run, will States increase their participation in income maintenance or have the incentives been fashioned so as to drive them out?

Measurement Techniques

Evaluation of internal efficiency and cost considerations can be accomplished through the use of a comprehensive reporting and control information system. To measure behavioral responses and the effect of any variations in program treatment, some form of pre- and post-test design is needed. Since in the absence of a pretest there can be no nontreatment control group, extensive baseline data must be used. Many questions will require only a single preprogram cross-section measurement. Others, however, may require a preprogram time-series measurement in order that we may confidently isolate post-program changes. This highlights the important question of timing preprogram measurement efforts, which need to be undertaken well before a new program is implemented.

One way of incorporating the necessity for extensive baseline data with a similar need in other government cash assistance and services programs is through the development of a continuing low-income research panel which would provide the longitudinal data necessary to evaluate detailed income information, labor force participation rates, health status, demographic variables, the availability and impact of various public programs, and participation rates. If properly stratified, this panel could be used for health, education, transfer, and manpower programs. Like any baseline data, it should be established before reform goes into effect if its full value is to be realized.

DESIGNING INCOME MAINTENANCE SYSTEMS: THE INCOME ACCOUNTING PROBLEM

By JODIE T. ALLEN*

SUMMARY

Implicit in the design of all income maintenance systems regardless of the form of the benefits—in cash or in kind—or of the method of distribution—direct payments to recipients, tax credits or deductions, or payments to providers—is the notion that benefits are adjusted in relation to the income of beneficiaries measured over some time period. In most of our direct transfer programs such as welfare, food stamps, medical assistance, and public housing, this important feature remains implicit. That is, no clear statutory or administrative guidelines exist for either specifying the time period over which income is measured for the purpose of determining eligibility and benefit levels or for collecting the requisite income information for such determination.

The practical consequences of this seemingly minor defect in social policy are many. Recent analysis has demonstrated that income accounting and reporting procedures are important determinants of the costs and caseloads and administrative burden of income maintenance programs, considerations which suffice to establish the importance of the topic. But accounting procedures also exert more subtle and less readily quantifiable influences on the very character and purposes of an income maintenance program. The choice of an accounting procedure requires a delicate balancing among many important objectives of transfer programs—equity in the treatment of those in equal need; responsiveness to changing needs among those served; maintenance of work incentives among current and potential beneficiaries; administrative costs and efficiency; and integration with other tax and transfer programs. The system ultimately chosen, or made operative by default, may indeed determine in large part the extent to which an income maintenance program is perceived to be fair and rational both to its immediate beneficiaries and to the public at large.

In the first section of this report the potential impacts of income accounting and procedures on each of these major characteristics of income maintenance systems—program administration, equity, costs and caseloads, work incentives and responsiveness—are discussed in turn. The development of the procedures employed by cash and in-kind transfer programs is traced as a function of changing conceptions of the purpose and clientele of such programs, and the anachronistic nature of current procedures is discussed.

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(47)

The second section of the paper examines the various elements involved in the design of an income accounting and reporting system and the choices available among the features. One particular type of system, the income carryover system developed as part of the ongoing HEW- and OEO-sponsored income maintenance experiments, is explored in detail as a promising method of achieving responsiveness to the needs of chronically low-income persons while maintaining equity and work incentives for less needy families with fluctuating incomes. Carryover systems are designed so that past income in excess of a given level is taken into account in determining a family's current eligibility for assistance.

In the concluding section findings are presented on the impact on costs, caseloads and responsiveness of alternative income accounting systems. The findings are based on the outputs of a computerized simulation model employing monthly income data on over 5,500 families from the combined OEO and HEW experiments, weighted to national totals. Costs and caseloads are shown to increase by as much as 70 percent and 140 percent respectively under the less stringent accounting methods chosen, with little or no concommitant increase in system responsiveness to the lowest income families. All of the systems simulated, however, employ more rigorous procedures than the current welfare system so that considerably greater cost and caseload increases might be expected if current procedures were extended, as the result of welfare reform, to the currently uncovered working poor population.

The study concludes that income accounting procedures indeed do exert a strong influence on the equity, costs, caseloads and responsiveness of income maintenance programs. Continuation and extension of the procedures used in our current welfare programs will be costly in all these dimensions. The design of improved accounting systems is conceptually feasible and data and techniques are available to assist in the choice of a preferred alternative for any given income transfer program if its peculiar function and objectives have been defined.

On the basis of data gathered from the income maintenance experiments, it would appear that using the past month's income in conjunction with a 12-month carryover provision achieves the best balance among cost, caseloads, equity and responsiveness for a national income maintenance system. Experience in administering the experiments has demonstrated that such procedures are administratively feasible and efficient for large caseloads, given the availability of relatively simple automatic data processing capability.

Lastly it is observed that the lessons learned with regard to the accounting period problems are not confined in relevance to a nationally administered income maintenance program. Whether or not national income maintenance reform is achieved during the next few years, State welfare administrators should begin analysis of the impact of alternative accounting systems on costs and caseloads for the existing set of welfare cash and inkind programs, with the objective of insuring that such programs serve their intended beneficiary populations equitably, responsively, and efficiently.

I. The Effect of Alternative Income Accounting Systems on the Character and Impact of Income Maintenance Programs

Let us suppose, as seems plausible, that there is a relatively fixed amount of money, give or take a few million, which the Administration, the Congress, and the public at large appear willing to spend in the next few years on reforming the welfare system. Clearly the policymaker has many difficult choices to make with regard to how to distribute that money among different categories of persons with different income levels. The most frequently discussed decisions to be made are, of course, the basic guarantee to be offered to a particular category of persons (e.g., female-headed families with 3 children) and the rate at which that benefit is reduced as a function of income from other sources (the so-called welfare tax rate). There is, however, one hard choice which is frequently overlooked, but which, it turns out, is a major factor not only in determining the overall cost of any particular system with a given set of guarantee levels and tax rates but, equally important, in determining the basic character of the system itself. That choice is the accounting system used to determine eligibility for and amount of benefits actually paid.

That income accounting systems have been given scant consideration in the design of our existing transfer programs is attributable in large part to initial conceptions of the type of clientele those programs were designed to serve. Eligibility for that group of New Deal engendered programs which comprise our federally assisted welfare system then was confined to a relatively small group of persons who, through no apparent fault of their own, had been rendered incapable of self-support through advanced age, blindness, disability, or death of a breadwinner. The worthiness of these persons for receiving financial support, and hence the equity of its provision, were established simply by the characteristics which determined their eligibility and by their consequent need for such assistance. Maintenance of work incentives for recipients was not an issue since presumably such persons could not work or they would not require help. Program administration for what was conceived to be a small and stable, if not diminishing recipient population, was primarily a question of providing counseling and advice tailored to the peculiar problems of each family and assuring that payments were promptly adjusted if their needs should change for better or worse.

This initial conception of how a welfare system should be designed is clearly obsolete. The soaring growth of welfare caseloads during the sixties destroyed the viability of a system which depended on personal contact for the determination of need if, indeed, such a system ever was desirable. More importantly the changing composition of the caseload together with changing conceptions of who should and can work have made questions of equity and work incentives among the most important to be considered by designers of income maintenance systems. The great majority of nonaged welfare families are no longer headed by widows or incapacitated fathers. The primary reasons

for welfare recipients now are desertion, divorce and illegitimacy, and temporary unemployment. The growth in number of the female-headed families produced by such phenomena over the last 2 decades is perhaps the most important recent demographic shift in terms of its long range impact on social policy.

Concurrent with this growth, there has been enormous change in public attitudes toward labor force participation among women and an impressive increase in that participation. Almost 50 percent of all women and over 40 percent of women with children now work full or part time, and this pattern exists at all levels of the income distribution.[1] Despite the fact that official welfare statistics present a picture of a predominantly nonworking caseload (the 1971 AFDC survey shows only 15 percent of welfare mothers worked during the survey month), cross-sectional surveys of annual income and work experience show a very different pattern. Statistics produced from the Bureau of the Census' Current Population Survey show that 55 percent of welfare eligible female heads of families work at some time during the year and 61 percent of these work over half a year.[2]

It is likely that, in the next few years, reforms of our current welfare system will produce even more drastic changes in the composition of beneficiary populations, and that such changes will further intensify the need for more equitable and efficient accounting systems. Despite the recent demise of the Administration's proposed Family Assistance Plan (FAP) it is clear that the popular conception of the legitimate role of income maintenance systems has broadened to include the need for continuing assistance to the millions of needy families currently denied access to such benefits; that is, to the millions of families in which the male parent works consistently but is still unable to provide adequately for his family.

The simple extension of coverage to this far larger clientele would suffice to break the backs of the creaky administrative mechanisms which serve our existing welfare systems. But constructing a more efficient and effective income accounting and payments system raises questions which go well beyond a simple concern for mailing out several million checks on a reasonably prompt, nonrandom basis. These questions involve basic issues of equity, work incentives, responsiveness, and priorities in allocating scarce program dollars among differentially needy families.

A. *Issues Involved in the Choice of an Accounting System for Income Transfer Programs*

In the following discussion of the impact of accounting systems on transfer programs, the examples will be drawn primarily from analysis of cash transfer systems such as the Administration's once proposed Family Assistance Plan. The arguments, however, apply with equal force to all sorts of cash and in kind income transfer systems—the current welfare system, food stamps, public housing, medicaid, social security, and unemployment compensation to name a few—al-

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[1] Robert W. Smuts. *Women and Work in America*, New York : Schocken Books, 1971. Introduction by Eli Ginzberg.

[2] Source : Special tabulation from the March 1971 Current Population Survey, prepared by the Urban Institute.

though the appropriate accounting period choices for these programs may differ with their differing functions and clientele.

1. The character of program administration

Administrative reform, including the elimination of arbitrary and frequently capricious variations in practices among States and localities, was one of the primary motivations for the development of the Family Assistance Plan. Indeed, the method by which the Family Assistance Plan would have been administered might well have had more practical consequences for the welfare population than any other features of the plan.

Family assistance would neither have raised benefits nor improved work incentives for the great majority of current welfare recipients. What it might have done, if properly administered, would have been to introduce an element of rationality and dignity into a system to which an increasing proportion of our population is exposed every day. As a byproduct, it might also have saved many millions of dollars a year in administrative costs, although such savings are, at best, a secondary consideration. Uniformity of practice and standardization of regulation have far more important objectives than minimizing of administrative overhead. Perfect equity in each individual case would require that we write our welfare—and other—laws so vaguely as to allow Solomon-like interpretation to suit the special needs of each client. The lack of available Solomons is not the only shortcoming to this approach. As is amply demonstrated by our current welfare system, discretion which may be used to satisfy the client, is just as easily abused to deny him benefits. Furthermore, and here the positive tax system is the best example, every exception allowed in the name of equity to the unfortunate inadvertently may become a loophole to be exploited by the clever. The principle that a known law, impartially administered, is a great public good in itself has long been an accepted part of Anglo-American jurisprudence. Its extension to our welfare law is long overdue.

Translating a broad principle into day-to-day administration is, of course, a difficult task. The problems of equitable and efficient administration of income maintenance programs are covered by other papers in this series.[3] However, since income accounting is among the most important features of income transfer-administrative systems, a few general principles should be noted:

a. The system should be even-handed in the sense that persons in like circumstances with "equal" resources should be treated equally. (As discussed in subsequent sections, the notion of equity is basic to the choice of an appropriate accounting system. Unfortunately, equity is not easily defined in any detail.)

b. Eligibility for benefits and the amount of such benefits should be based on objective, verifiable information rather than subjective assessments of individual worth.

c. The system should be dignified and depersonalized in the same way as our positive tax system—that is, the primary method of collecting

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[3] For such an analysis see David Kershaw, "Administrative Issues in Establishing and Operating a National Cash Assistance Program," earlier in this volume.

income information should be through self-declaration by recipients; however every effort should be made to maintain the integrity of the system through independent sample auditing and cross-verification of records with other tax and transfer programs.

d. Income information should be collected frequently, and the receipt of benefits should be conditioned upon the receipt of that information, so that payments can be adjusted to the frequently changing income needs of the poor.

In short, what is wanted is a rigorously but fairly administered system in which participation is determined by objectively demonstrated need according to known and uniform standards. And the standards should be such as to accord with popular notions of equity among the general as well as the recipient population. At the same time the system should be reasonably responsive to the needs of its clientele, minimize the potentially disruptive impact of income maintenance on the stability and work effort of the covered population and assure that program dollars are channeled to those in the greatest chronic need.

The implications of these general prescriptions for choice of an income accounting system are discussed in greater detail in each of the following sections.

2. Equity

As noted in the introduction to this paper, the very nature of income maintenance programs, whether presented as direct welfare systems or as special add-ons to the positive tax system, requires that benefits be related in some way to the income of persons receiving them. Implicit in notions of general equity is that benefits be adjusted to income over some relatively long time period, such as a year, so that families with relatively high but fluctuating incomes do not receive higher benefits than families with identical needs and resources whose income is distributed more evenly over time.

The equity problem is best illustrated by a simple example. Family A with 4 members is headed by a man who works full-time all year at a wage of $2 an hour. He thus earns $4,160 a year. In computing his benefit under the Administration's proposed Family Assistance Plan (FAP), the welfare agency would disregard the first $720 of this wage and one-third of the income above that amount and use the rest to offset his family's potential $2,400 a year entitlement. He would thus receive a benefit of $106 and his total family income is $4,266. Now consider family B, again a family of 4. It is headed by a man who, working in the construction trade, earns $4 an hour. Unlike Mr. A, however, this man works only 6 months a year while the weather is pleasant and rests for the remainder of the year. His total yearly earnings are thus the same as Mr. A's, $4,160. However, under a welfare accounting system which determines entitlement solely on the basis of "current need," that is, income over a very short period such as a month or a week, he would also be able to draw full welfare benefits for the remaining 6 months of the year which, under FAP, would have amounted to $1,200. His total yearly income would thus be $5,360, considerably higher than that of poor plodding Mr. A.

Now this state of affairs doesn't seem very fair. Given a limited number of dollars to distribute between Mr. A and Mr. B it would

surely seem that, at the very least, Mr. A, who works diligently year round, should get at least as much assistance as Mr. B instead of a benefit $1,100 lower. It would seem even more unfair if Mr. B had earned $6 or even $8 an hour for his 6 months work and still, as he would under such a system, have received a benefit over 10 times as great as Mr. A.

3. Costs and caseloads

The case for a more equitable way of distributing welfare dollars becomes even more compelling when we realize that, while there are many chronic low-income workers such as Mr. A, there are also many Mr. B's with equal or higher income who, under the simple monthly entitlement system described above, would get equal, or in many cases far superior, annual welfare benefits. And cumulatively, the cost of paying benefits to the Mr. B's of the world are such as to increase the total costs of any given welfare plan with a stated guarantee level and tax rate by as much as 70 percent, and the caseload by as much as 140 percent.

Section III of this paper will deal at length with the impact of alternative accounting systems on income maintenance costs and caseloads using a computerized model and a data base drawn from the various HEW- and OEO-sponsored income maintenance experiments. It is important, however, to view the cost and caseload question not as decisive within itself but as one of several issues involved in determining the most equitable and least disruptive method of distributing a total income maintenance budget among the lower income population. The cost and caseload choice is not simply one of spending more or less money on the poor; essentially it is one of priorities in allocating dollars between those with the greatest chronic need and those with relatively high annual incomes which fluctuate throughout the year. And in making this decision it should be remembered that every extra dollar spent on the latter group is a dollar which could be used instead to provide higher benefits and/or better work incentives for the most needy.

4. Work incentives

Income accounting systems can also have a significant effect on the work incentive features of any income maintenance system. Two effects are important, both arguing in the same direction. It is obvious from the example given above of family A and family B that a system with a short accounting period is not going to do much to strengthen Mr. A's will to work. Quite clearly, he would be far better off to adopt the sporadic work pattern of Mr. B. The choice of a short accounting period can suffice to transform an income maintenance system from one designed to encourage sustained work effort among low-income workers to one which rewards sporadic work effort at all income levels.

An accounting system can also operate to either reinforce or mitigate the work disincentive effect of the income maintenance plan's marginal tax rate (the rate at which benefits are reduced as a function of income from other sources). For example, if transfer benefits are reduced by 67 cents for every dollar earned by recipients, the net return for each additional dollar earned by the worker is only 33 cents. He thus faces an effective marginal tax rate of at least 67 percent, and higher if payroll and income taxes must be paid as well.

Recent history with regard to welfare reform provides little hope for improved financial work incentives for income maintenance recipients. Virtually all of the plans considered by the Congress or the administration over the last few years have imposed very high implicit tax rates on the earnings of the poor—anywhere from 50 percent to over 100 percent when the combined impact of benefit reduction rates and payroll and income taxes are considered.[4]

Under a system with a short accounting period, the maximum disincentive effect of a high marginal tax rate may be realized. If benefits are immediately adjusted to changes in income, then a recipient who has recently increased work effort will immediately feel the bite of the marginal tax rate, as his payment will be promptly reduced. The discentive effect is maximized on the downside as well. If work effort is reduced, a short accounting period will reward the recipient with a prompt increase in his welfare payment, the magnitude of the reward, like the penalty for increasing work effort, again being determined by the level of the marginal tax rate. (Thus a 67 percent tax rate both reduces benefits by 67 cents for every additional dollar earned and increases benefits by 67 cents for every dollar of earnings lost.)

By contrast, a slow-moving accounting system which, by determining current benefits on the basis of past income over a relatively long period such as a quarter or a year, softens the effect of the marginal tax rate. Under such a system benefits increase only gradually as earnings decrease and, conversely, fall less precipitously as work effort increases. Thus, returning to the example of Mr. B, under a monthly accounting system Mr. B's payment jumped immediately to the maximum benefit of $200 a month when he stopped working. Under a quarterly accounting system, which based each month's payments on the last 3 months income, he would have received no payment until 3 months had elapsed and, in the interim, might conceivably have found himself another job.[5]

Work incentive considerations thus reinforce those of equity and cost-effectiveness in arguing for a relatively long accounting period. But there is another, very important, side of the coin.

5. Responsiveness

Equity, cost-effectiveness and work incentives afford strong a priori arguments for the choice of an accounting system in which entitlements or benefits are determined on the basis of income over a comparatively long time period. One such alternative, of course, would be that employed by the positive income tax system—straight annual accounting under which families report their income sometime after the end of each calendar year and calculate their tax liabilities, or in

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[4] See Henry Aaron "Why Is It so Hard to Reform Welfare?" Unpublished paper, the Brookings Institution, 1972; James R. Storey, "Public Income Transfer Programs, The Incidence of Multiple Benefits and the Issues Raised by their Receipt". Studies in Public Welfare Paper No. 1. Subcommittee on Fiscal Policy of the Joint Economic Committee, April 10, 1972; and Jodie Allen, "A Funny Thing Happened on the Way to the Welfare Reform." Urban Institute Paper 301-14, January 1972.

[5] It should be noted that the relatively optimistic findings of the New Jersey income maintenance experiment with regard to the work disincentive effects of income maintenance in part may be explained by the fact that the experiment (and the four other experiments currently operating), use accounting procedures which "remember" past income over several months in computing current benefits.

the case of a "negative tax", i.e., income maintenance system, their transfer benefits. Such a system is exceedingly attractive not only in theoretical terms but because of its relative administrative efficiency, and it has been proposed, explicitly or implicitly, by welfare critics ranging from Milton Friedman to George McGovern.

The problem, of course, is that it is simply impractical to require millions of families to wait as much as a year and a half to receive a transfer payment which may be their sole or major source of income. Such families need assistance adjusted promptly and regularly to their changing circumstances.

A more responsive variation of the annual accounting period would be to base payments on a forecast of future income rather than a report of past income. The problem is that the incomes of the poor fluctuate widely during a year so that relying on long-term forecasts will inevitably result in either overpayments or underpayments being made; the recoupment of the former as well as the immediate occurrence of the latter may work considerable hardship on low-income families and thus defeat the original intent of the system.[6]

Responsiveness considerations thus require that some compromise system be found which will serve the current income requirements of the most dependent families in a prompt and regular fashion without doing serious damage to the equity, financial integrity, and administrative efficiency of the entire income maintenance system with its far broader constituency.

B. Income Accounting Under the Current Transfer System

Measured against any of the criteria described in the preceding sections, the income accounting procedures used in the current welfare system score poorly. By all reports, the current system is inequitable, unresponsive, and badly administered. Indeed it is hard to describe the procedures employed in either cash or in kind welfare programs in terms of a formal accounting system at all. Most cash and in-kind (food and medical) benefits are currently dispensed through local welfare offices. The information available on the actual procedures employed in this process is largely anecdotal and, since practices vary greatly from locality to locality and, indeed, from caseworker to caseworker, generalization is difficult.

To a great extent the income accounting procedures employed in our current welfare system are a product of historical necessity. Until welfare caseloads began to soar during the sixties, relatively informal procedures were employed for checking monthly on the current needs of recipients through personal contacts by social workers. The system thus left a great deal of discretion to the individual caseworker in determining eligibility and benefit levels and introduced an element of personal prying which many recipients found distasteful. In any case nothing approaching a regularized, objective system of income accounting or reporting existed.

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[6] The question of income forecasting is an important one and will be dealt with at considerable length in section III in which a probabilistic model will be employed to assess the likely impact of such features on system responsiveness, costs, and caseloads.

Deluged by new accession to the caserolls in the middle and late sixties, most States abandoned regular monthly income checking. As welfare rights groups gained in strength and broadened their constituency and support, caseworker intervention was denounced as demeaning and stigmatizing and "declaration" methods of eligibility determination became fashionable. Unfortunately, the conversion to a system of income reporting by recipients (as opposed to income extraction by caseworkers) was not accompanied by any attempt to regularize or verify the reports thus obtained.

The procedures currently employed by many welfare offices strain the credulity of both recipient and the public at large by placing a most unrealistic burden on the fairmindedness, energy, and initiative of program recipients. In many States and localities, once initial eligibility is determined (typically at a time when the income and resources of the applicant family are at their lowest ebb) welfare payments may continue until literally forceful action is taken by recipients to terminate them. (One State agency recounts the story of a welfare recipient who obtained a job, called the welfare office persistently over a period of several months requesting termination of benefits, and finally marched into the office with 11 uncashed checks in hand and demanded that the case be closed. Such valor should hardly be demanded or expected.)

Every 6 months or so, agencies are supposed to redetermine eligibility but the process is, by most reports, unsystematic and unreliable. One State devoted a considerable amount of postage and effort to mailing a form to all cases currently on the rolls asking that recipients check a box on an attached card and return the card if, and only if, they were no longer eligible for benefits. Suffice to say the agency was not overwhelmed by responses.

It is hard to imagine a multibillion-dollar system operating in such chaotic and quixotic fashion. The best analogy may be to imagine what would happen to Federal income tax revenues if the Internal Revenue Service contacted each person at the start of his working career, assessed his current tax liability, and then requested that the taxpayer inform the Service if at any time in the future his liability changed substantially.

Such sloppiness is potentially very costly. Harold Watts, formerly Director of the Institute for Research on Poverty, has estimated the cost of a family assistance-type program which relied on voluntary income reporting at two or three times that of a system with regular monthly income reporting and an annual accounting period.[7] A study prepared by the Urban Institute for the Department of Health, Education, and Welfare using cross-sectional data from the Current Population Survey estimates that, even for the predominantly female-headed current welfare caseload, AFDC caseloads are at least 22% higher and costs 6% higher than would be the case under more strin-

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[7] Harold Watts, "Accounting Period Implications and Options" vol. III, State of Vermont Family Assistance Program Planning Papers. Prepared Jointly by the State of Vermont Family Assistance Planning Unit and Mathematica, Inc., November 1970, pp. 20–37.

gent accounting procedures, assuming perfect honesty on the part of recipients in reporting income.[8]

Yet, without major systematic attempts to overhaul benefit calculation and income reporting procedures on a national or at least state-wide basis, little improvement seems possible. The single act of determining initial eligibility and payments under current Federal, State, and local regulations is a time-consuming task requiring complicated calculation of family need as determined not only by income but also by size, age structure, special circumstances, and reimbursable expenses. Once a benefit level is determined, it is understandable that overburdened caseworkers are loath to change it. This natural inertia is reinforced by recent State court interpretations of existing HEW regulations which require that recipients be given adequate notice and an opportunity for hearings before any change is made in the level of their benefit payments.[9]

The only generally used methods of rationing scarce welfare moneys among the poorest and the less poor are three equally unattractive exigencies: long waiting lines for initial applicants; the imposition of rigid assets tests which require potential recipients to dispose of any reasonably liquid assets before eligibility may be established; and the application of a special means test which requires that applicant income fall not only below the break-even point for coverage, that is, the income level at which payments for families already on the rolls would be reduced to zero, but below the State benefit standard (roughly two-thirds of the break-even amount in most cases).

The first method is both unjust and inefficient since patience and available leisure have no necessary correlation with need; the second is not only harsh, since many assets are not readily disposed of at a fair price, but shortsighted as well, since the net effect may be to impose permanent dependency on a family which might otherwise have regained its financial footing with a little short-term assistance; the last method is obviously inequitable since some families with equally low resources may be denied benefits available to other families with equal or superior income.

A last resort, to which many large States have come in the last year or two, is a crash one-time attempt to "clean up" the rolls. Despite the unsystematic nature and probably transitory effect of these efforts, they have nonetheless proved rather lucrative and, indeed, have suggested to some State officials at least that further efforts toward better welfare administration might improve not only the solvency of State welfare programs but the equity as well. As one official in Pennsylvania observed, "we've discovered that we can save money without cutting benefits", a remark which neatly sums up the moral of the story.

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[8] Barbara Boland, "A Micro-simulation of Eligibles for Aid to Families with Dependent Children Program," Urban Institute Working Paper 958–10, (December 1972.)

[9] It should be noted that such interpretations would not prevent HEW from issuing new regulations which defined explicitly the frequency with which benefits are to be redetermined and objective conditions upon which such redeterminations would be based (for example, on the basis of income as reported monthly).

States and localities do not have unlimited funds to spend on welfare. When welfare costs and caseloads have risen sharply, the reaction has not been to attempt to insure through improved administrative and accounting procedures that benefits are channeled to those in the greatest chronic need. Instead, the recourse has been to cut benefits across the board, with the result that, in a very real way, the poorest families pay for the chaotic administration of a system which allows, or even encourages, overparticipation by the less needy.

Instituting improved accounting procedures in the welfare cash benefit programs would not solve the whole problem, however. As observed earlier in this paper and discussed at length in other papers in this series,[10] most welfare recipients receive benefits under more than one program, such as food stamps, medicaid, public housing, social security, or unemployment compensation. Since these programs in turn take account of income from all sources including welfare in determining their own benefits, whatever income accounting procedures they employ will interact with that used in the cash, assistance program. Without thoroughgoing reform and integration of all these transfer programs, the effect of the existing multiplicity of eligibility determination and income accounting procedures may be to neutralize properties affecting equity, work incentives or cost control incorporated into the cash benefit program. For example, if the cash assistance program reduces benefits gradually as earnings increase, but the medicaid and food stamp programs do not, a recipient increasing his work effort may still experience sharp drops or even net losses in disposable income. Conversely, if welfare cash benefits are increased only gradually as work effort is reduced or terminated, the effect may be vitiated if benefits from other programs are immediately available to fill the gap.

This is not to say that all transfer systems should employ identical accounting procedures. A sensible integration of assistance programs might well call for a phasing in of different benefits, some of which, such as cash or in-kind emergency assistance, manpower training, or job placement might be usefully employed to minimize the movement of normally independent families on to the welfare rolls in periods of temporary difficulty. In fact, the problems of converting the current welfare system into a comprehensive program of income maintenance are greatly aggravated by attempts to make the cash assistance programs serve too many masters. A sensible program of long-term reform of the entire set of public income transfer programs would need to begin with the consideration of the specialized objectives which justify the separate existence of each of these programs—if, indeed, such exist—and, on the basis of such review, determine the administrative and income accounting procedures which best meet these objectives both separately and in conjunction with each other.

The remainder of this paper will, however, focus on the design of improved accounting systems for the long-term cash assistance programs which, in either current or expanded form, it is assumed will remain the cornerstone of the public income transfer system.

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[10] See especially James R. Storey, op. cit.

II. Designing Improved Accounting Systems for Income Maintenance Programs

A. Elements Involved in an Accounting System

Before considering the design of an accounting system which can best serve the diverse objectives described in the preceding section, it is necessary to understand what choices are available. There are several elements in any income accounting system which, while interrelated in their impact on costs, caseloads, equity, responsiveness, and incentives, must be decided upon separately.

1. The accounting period.—The time period over which income is counted for determining entitlements (or in the case of tax systems, liabilities). For example, the Federal income tax system has a yearly accounting period with the exception of income averaging procedures which in special circumstances extend the accounting period over several years. The social security system employs a quarterly accounting period for the determination of benefit entitlements. It is important to note that the income received during the accounting period defined determines the amount of benefit entitlement. Actual payments received by beneficiaries may vary from that entitlement as the result of the income reporting procedures discussed below. Any difference between entitlements and benefits paid gives rise to either an overpayment or underpayment.

2. The reporting period.—The frequency with which income is reported for the purpose of determining entitlements. The reporting period may be shorter than the accounting period but, since reports must be available if entitlements are to be computed, it cannot be longer.

3. The payment adjustment period.—The frequency with which payments are adjusted on the basis of income reports filed. Since income reports must be available for payments to be adjusted, the payment adjustment period cannot be shorter than the reporting period; and, since there is little purpose in obtaining income reports if they are not to be used in adjusting payments, the two periods are usually equal in length. Hence, the income reporting and payment adjustment periods will be treated as equivalent in the subsequent discussion.

4. The payment period.—The frequency with which benefit payments are made. The payment period has no necessary relationship to the accounting period. Most income maintenance systems have adopted a monthly payment period as representing the best compromise between undue administrative overhead and the desirability of providing low-income families with relatively frequent small payments rather than more widely spaced lump sums.

5. Prospective or retrospective income reporting.—The method used to determine income on the basis of which payments are computed. Two choices are available, forecasts of future income (prospective reporting) or records of past income (retrospective reporting).

The argument for a prospective system is that if forecasts of income are completely accurate, benefit payments will be perfectly adjusted to current need. However, since perfect forecasting is unlikely, another problem arises.

With prospective accounting, benefit payments represent only estimates of entitlements, and an additional reconciliation is necessary at the end of the forecast period to determine actual income over that period and hence actual entitlement. The entitlements must then be compared with the payments made on the basis of the earlier forecast, overpayments or underpayments computed, and adjustment made.

In retrospective systems, current payments are made on the basis of past entitlement as determined by past income. For example, in a monthly retrospective system, the payment in February is made on the basis of income in January.

6. Other features.—The method, if any, used to recapture overpayments or reimburse underpayments; provisions for adjusting payments and/or entitlements on the basis of changed circumstances occurring within the regular reporting procedure; and a variety of administrative decisions having to do with report forms, data processing, and record maintenance. The problem is then to select from among each of the possible variations in these features a set which will strike the best balance between responsiveness to changing income needs among the poor, on the one hand, and the preservation of equity, work incentives, and control over costs and caseloads, on the other.

B. The Development of Improved Income Accounting Systems

The first formal consideration given to the design of accounting systems for income maintenance programs occurred as the result of problems encountered in the design of the New Jersey and the rural income maintenance experiments initiated under the sponsorship of the Office of Economic Opportunity in 1968 and 1969. These experiments were designed to measure the impact of alternative income guarantee levels and marginal tax rates (that is, benefit reduction rates) on the work effort of recipients. Given this objective, it was extremely important that the payments actually made be adjusted to annual family incomes in a manner consistent with the parameters of the treatment program. For example, under an income maintenance program with a basic annual income guarantee of $2,400 for a family of four and a 50-percent marginal tax rate, the payments received by a family of four are determined by the following formulas:

$$Y^{NX} = rY *$$
$$B = G^s - Y^{NX}$$

where:

Y^{NX} = nonexcluded, i.e. "countable" annual income
Y = total annual income
r = tax rate on income, i.e. the benefit reduction rate
G^s = annual guarantee for family size s
B = annual benefit received

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* For simplicity throughout the remainder of this discussion, it will be assumed that all income is "taxed" at the same rate. In fact, most income maintenance plans, such as the administration's proposed Family Assistance Plan, tax earned income (and some forms of unearned income) at lower rates than other income on the assumption that receipt of the latter is not conditioned on work effort. The more general formula for computing nonexcluded income is thus: $Y^{NX} = r_1Y_1 + r_2Y_2 \ldots + r_nY_n$ where r_n is the marginal tax rate on income of the nth type.

For the plan in question the benefit is thus: $B = 2{,}400 - 0.5Y$

The "break-even" point for the plan is $Y = \$4{,}800$ since at that level of annual income the benefit (B) is reduced to zero.

Unfortunately, as the experimenters discovered, this exact adjustment of annual benefits to annual income is not easily accomplished by an administrative procedure which attempts to adjust benefits fairly rapidly to account for short-term fluctuations in the income of the poor and near-poor. In attempting to solve this problem, several important guidelines, essentially elaborations of the broad issues discussed in preceding sections, were established.[11] Administrative experience gained in the subsequent administration of the several income maintenance experiments has supported and amplified these judgments.

1. The problem of deviation from annual equity and annual cost estimates arises not with regard to those families with incomes chronically below the break-even point of the plan but for the many working families whose income varies sporadically throughout the year from considerably above the eligibility cutoff for coverage to considerably below it.[12] Data available from the current population survey and, in more detail, from the New Jersey, Seattle, Denver, and rural income maintenance experiments, indicate that there are many more such families than is commonly supposed.

2. Any accounting procedure which has an accounting period of less than a year will end up making many or all of these families eligible for at least some payment within the year. Furthermore, to the extent that the income of these families tends to come in clusters, as frequently appears to be the case from the data, families with fluctuating income will usually receive benefits superior in absolute amount to those received by full-year workers with chronically low income. This occurs simply because when the income of these sporadically working families drops, it tends to drop to zero whereupon they become eligible for maximum benefits.

Table 1 illustrates this phenomenon very simply by showing how a pure quarterly accounting system would make payments to a family of four with the fluctuating income stream shown, as compared to payments made to a family with the same annual income spread evenly over the year. All income received is assumed, for simplicity, to be earned income. The guarantee level and tax rate used are $2,400 ($200 per month) and 50 percent respectively. The annual breakeven is thus $4,800 and the monthly breakeven is $400.

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[11] For a complete discussion of the origin and design of the carryover accounting system, see William A. Klein and Michael R. Asimow, "Accounting Alternatives for a Negative Income Tax." University of Wisconsin, Institute for Research on Poverty, January 1970.

[12] The root source of the problem is not the fluctuating incomes themselves but the existence of sharp discontinuities in the tax rates implied by the transfer and positive tax systems taken together. Thus, income below the break-even point of an income maintenance plan is taxed at a much higher rate than income above that level which is subject only to the much lower income and payroll taxes.

As the table shows, the difference in benefits paid to the two families, despite their equal annual need, is very striking. Family A receives $1,200 and Family B receives $150 in benefits. It should be noted that the difference in benefits, $1,050, is exactly equal to the amount by which family A's nonexcluded income exceeded the monthly breakeven. If either the guarantee level or the offset tax rate were higher, the differential would be increased. Furthermore, it should be noted that family A would still receive $1,200 in benefits whether its annual earnings were $3,000, $5,000, or $10,000, as long as those earnings were confined to 2 quarters of the year.

TABLE 1.—*Comparison of benefits paid to 2 families with same annual income under quarterly accounting system*

Month	Family A			Family B		
	Total income (all earnings)	Nonex-cluded income in excess of entitle-ments [1]	Entitle-ments under quarterly system	Total income (all earnings)	Nonex-cluded income in excess of entitle-ments [1]	Entitle-ments under quarterly system
1_____	$600	$100	0	$375	0	$12. 50
2_____	750	175	0	375	0	12. 50
3_____	750	175	0	375	0	12. 50
4_____	0	0	$200	375	0	12. 50
5_____	0	0	200	375	0	12. 50
6_____	0	0	200	375	0	12. 50
7_____	900	250	0	375	0	12. 50
8_____	750	175	0	375	0	12. 50
9_____	750	175	0	375	0	12. 50
10_____	0	0	200	375	0	12. 50
11_____	0	0	200	375	0	12. 50
12_____	0	0	200	375	0	12. 50
Total____	4, 500	1, 050	1, 200	4, 500	0	150. 00

[1] That is, 50 percent of monthly income in excess of the monthly break-even of $400.

3. The excess payments created by a quarterly or monthly accounting system are not true "overpayments" in the sense that they are not recoupable. Without specific provision for annual accounting, family A would be fully entitled to its $1,200 and no amount of prosecuting, however costly or time consuming, would ever get this money back, since the family's income in the quarter in which it received payments was in fact zero.

4. With an annual accounting period, recoupable overpayments will occur only if "prospective" accounting systems are used, that is, if benefits paid in a given period (as distinct from entitlements) are based on estimates of future income rather than known and verifiable past income. If prospective accounting is used, forecasts are highly unlikely to be accurate. Given the natural inclination of all families, rich and poor alike, to hedge their bets against future misfortunes, forecasts are likely to understate actual income, thus giving rise to a true "overpayment." Given the administrative complexity and inevitable hardship worked by attempts to recoup such overpayments it is likely that many of these overpayments will not be recovered. This is especially true if, as appears likely, families drop out of the system periodically so that overpayments cannot be offset against subsequent entitlements. In any case offsetting overpayments against

entitlements in subsequent periods of low income destroys the alleged responsiveness of the system which prospective accounting is supposed to assure.

5. Responsiveness to the needs of chronically poor people who experience reverses of fortune is best achieved through a monthly income reporting and payments adjustment system which achieves annual equity for less poor persons with fluctuating income through use of a "carryover" system, as described below, rather than by imposing a lengthy slow-moving accounting system on the very poor. Experience gained in operating the experiments has demonstrated that there are advantages to monthly reporting of income and monthly adjustment of benefits:

a. Income is best remembered (or estimated) over short periods of time. This is especially true of the poor who typically experience very irregular patterns of income and employment.

b. Given the institution of relatively simple automated procedures for processing and storing family income histories, regular monthly income reports are far easier to plan for and process than a volume of sporadic notifications of changing circumstances which would be called for under systems with longer or unspecified reporting periods. Even if income changes are reported promptly and reliably, requirements for notification of changes as they occur might well lead to an absolutely greater, and far less predictable, volume of reporting than under a regular monthly reporting system.

c. Monthly reporting systems can be operated at relatively low unit cost compared to current welfare administrative costs.

d. Low-income families are able to report their income reliably on a self-administered form and will do so promptly and regularly if receipt of benefits is contingent upon such action. This is true of both the newly covered "working poor" families, included in all the experimental samples, and former welfare families, which constitute a major portion of the samples covered by the more recent HEW experiments in Seattle, Denver, and Gary.

The system thus implemented in each of the several experiments—the New Jersey, Rural, Gary, Seattle and Denver experiments—requires that families file monthly income reports at the start of each month detailing their income in the preceding month. If their income is chronically below the "breakeven" point of the income maintenance plan under which they are covered, their current month's payment is determined solely by the preceding months' income.[13] However for families with fluctuating incomes a "carryover" procedure, described in the following section, insures that the benefits received by such families over a year are equitably adjusted to their annual incomes.

C. The Operation of a Carryover System

A carryover system is a very simple system designed to strike a balance between responsiveness to changing needs among the very poorest recipients on the one hand, and demands of equity and cost constraint on the other.

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[13] In Seattle, Denver and Gary the accounting period is 1 month, subject to the carry-over provision which, in effect, extends the accounting period over 12 months for families with incomes which fluctuate around the monthly breakeven. In New Jersey the accounting period is 3 months subject again to the carryover extension.

Essentially, all that a carryover system does is to "remember" past income in excess of entitlements over some period and use it to offset current entitlements.

There are three features of a carryover system which can be varied:

1. The length of time over which past income in excess of entitlements is "remembered."

2. The order in which past overages are applied against entitlements (most recent first (LIFO), or oldest first (FIFO)).

3. The amount of income in excess of entitlements which is remembered.

In addition, the carryover system can be used with various payment adjustment periods (monthly or quarterly) and with either prospective or retrospective systems. However, since with a carryover, monthly adjustments are made possible without serious violation of annual equity, this alternative is to be preferred. Further, since with monthly accounting payments can be adjusted quite rapidly to changing needs, there is no need to reply on prospective accounting so that the problems of overpayments can be avoided as well. However, these choices are not required by the system.

To demonstrate how the system works, we will choose a system which remembers all past income in excess of entitlement over 12 months and uses the oldest excess first in offsetting current entitlements (12 month First In First Out or FIFO).

Essentially, all a carryover system does is to take income in excess of the breakeven point in any month and use it to fill up the gap between income and the breakeven point in other months in which income has fallen. Returning to our example of family A in table 1 and the $2,400—50 percent plan, the following graph shows how family income varies around the breakeven point over time. What a carryover system does is to take the income over the breakeven point (areas with diagonal lines) and use it to "fill up" the income deficits below the lines (cross-hatched areas).
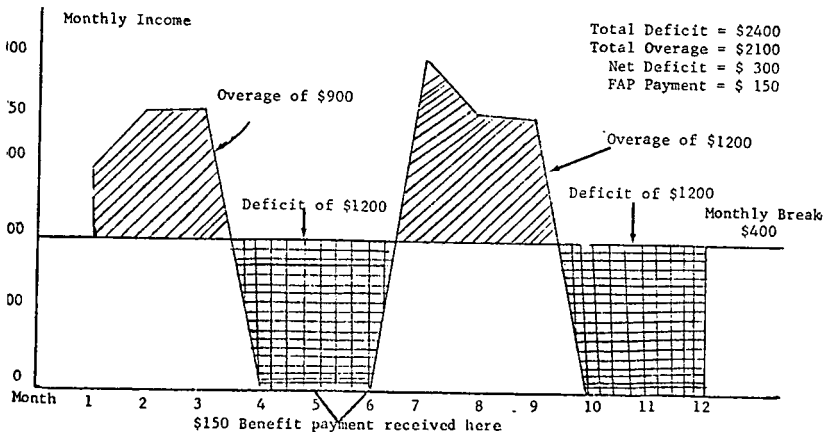
Since the area below the line is somewhat larger than that above, there will still be a $300 deficit, 50 percent of which the income maintenance plan would "fill up" with a $150 payment. Family A would

thus receive the same payment as the steady working family B shown in table 1 with the same annual income.

The procedure for computing entitlements under a carryover system is extremely simple. In each month the same calculation is performed as under a non-carry-over system. The computation is as described earlier, only now monthly guarantees and incomes are used:

$$Y^{NX} = rY^m \qquad \text{where:} \qquad Y^{NX} = \text{nonexcluded income}$$
$$B^m = G^m - Y^{NX} \qquad\qquad\quad Y^m = \text{monthly income}$$
$$r = \text{marginal tax rate}$$
$$G^m = \text{maximum monthly benefit } (\$2400/12)$$
$$B^m = \text{monthly benefit}$$

If the nonexcluded income (Y^{NX}) is less than the maximum monthly benefit (G^m), then a positive entitlement (B^m) will be calculated.

If on the other hand the nonexcluded income is greater than the maximum monthly benefit, the family is over the "breakeven point" for that month and a negative entitlement is computed. In a non-carry-over system this negative amount is simply ignored and no benefit is paid. In a carryover system, no benefit is paid but the "negative entitlement" is recorded in a carryover account to be subtracted from future positive entitlements until it is used up or alternatively becomes too old to be considered.

This procedure can be illustrated by working through the example of family A given in table 1. Table 2 below shows the order of computations. In the first month the family had earned income of $600. Three hundred dollars of this is "excluded" income (50 percent of

TABLE 2

Month	Family A Total income (all from earnings)	Family A nonexcluded income in excess of entitlement	Monthly entitlements with no carryover	Entitlements under 12 months FIFO System Carryover account at end of month	Monthly entitlement
	(1)	(2)	(3)	(4)	(5)
1_____	$600	$100	0	$100	0
2_____	750	$175	0	275	0
3_____	750	$175	0	450	0
4_____	0	0	$200	250	0
5_____	0	0	200	50	0
6_____	0	0	200	0	$150
7_____	900	250	0	250	0
8_____	750	175	0	425	0
9_____	750	175	0	600	0
10_____	0	0	200	400	0
11_____	0	0	200	200	0
12_____	0	0	200	0	0
Total/ 12 mos___	4, 500	1, 050	1, 200	0	150
13_____	0	0	200	0	200
14_____	0	0	200	0	200
15_____	0	0	200	0	200

$600).[14] Its nonexcluded income is thus $300 and this exceeds the maximum monthly benefit of $200 by $100. Thus the family receives no benefit and the amount of $100 is entered in the carryover account.

In the next month nonexcluded income is $375 and the "carryover" is $175 ($375 − $200). In the next month another carryover of $175 is created so that, as shown in column 4 the total carryover is now $450.

In the fourth month, family income falls to zero. Now nonexcluded income is zero so that subtracting it from the maximum monthly benefit leaves a net entitlement of $200. This would be the family's payment under a pure monthly or quarterly system, as shown in column 3. However, under this carryover system, this putative entitlement must first be offset by any accumulated carryover. In this case, since the carryover account is larger than the monthly benefit, no payment is made and the carryover is simply reduced by the amount of the benefit which would have been paid, in this case $200.

Thus at the end of month 4, the carryover has been reduced to $250.

In month 5, the monthly entitlement of $200 is again subtracted from the remaining carryover of $250 leaving a $50 carryover.

In month 6, the pure monthly entitlement for the family is again $200. This time, the carryover balance is less than the monthly entitlement and subtracting it from $200 leaves a net entitlement of $150 which is then paid to the family.

Continuing this procedure we see that by the end of the 12th month, no further payments have been made but the carryover which accumulated in months 7 through 9 has been worked off by the end of month 12. The family has thus received a payment of $150 for a year in which it has an annual earned income of $4,500 *which is exactly what Family B with the same annual income spread evenly over the year would have received and exactly what program cost estimates based on annual survey data would have shown.*

Note that if Family A's income now remained at zero in months 13, 14, and 15, it would now receive maximum monthly benefits of $200 since it had no unexpended carryover.

This procedure is extremely easy to implement since the computations it calls for are simply those required for computation of benefits under a non-carryover system except that overages as well as deficits are recorded.

D. Variations in the Carryover Method

In the example described above it was assumed that a 12-month FIFO system was employed—that is, a system that remembered an unexpended carryover amount for 12 months and used the oldest available carryover first. As it turned out in that example the life of the carryover did not matter since it was all used up within 3 months.

However, it is possible in many cases to make the carryover more responsive to changing income by shortening the period over which a carryover is remembered. For example, in a 6-month FIFO system, a carryover which has still not been used up in offsetting entitlements after 6 months have passed, will simply be dropped from the carryover account.

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[14] If it had had unearned income, and the tax on such income were 100 percent this income would all have been nonexcluded income. If a flat earnings disregard were allowed, this amount would have been subtracted from total earnings before applying the earnings tax rate to determine non-excluded income. The computation is, in all respects, identical to that used for computing benefits except that a surplus rather than a deficit occurs.

Table 3 shows how a given income stream would be handled under a 6-month FIFO as compared with a 12-month FIFO system. The example assumes again only earned income, a $2,400 guarantee and a 50-percent tax rate and no accumulated carryover prior to month 1. The family in the example has a total annual income for the year of $6,000, but it is concentrated in the first 4 months of the year. A monthly accounting system without a carryover would have paid this family $1,600 (column 3). A straight annual accounting system would have paid the family nothing since its annual income was above the break-even point of the plan, and the 12-month FIFO would achieve the same result.

TABLE 3.—*Comparison of 12-month FIFO and 6-month FIFO systems*

Month	Total Income (all earnings) (1)	Non-excluded income in excess of entitlements (2)	Pure monthly entitlement (3)	12-month FIFO		6-month FIFO	
				Carryover account at end of month	Payment	Carryover account at end of month [1]	Payment
1	$1,500	$550	0	$550	0	$550	0
2	1,500	550	0	1,100	0	1,100	0
3	1,500	550	0	1,650	0	1,650	0
4	1,500	550	0	2,200	0	2,200	0
5	0	0	$200	2,000	0	2,000	0
6	0	0	200	1,800	0	1,800	0
7	0	0	200	1,600	0	1,450	0
8	0	0	200	1,400	0	900	0
9	0	0	200	1,200	0	350	0
10	0	0	200	1,000	0	0	$200
11	0	0	200	800	0	0	200
12	0	0	200	600	0	0	200
Total	6,000		1,600		0		600

[1] For derivation of these carryover amounts, see table 4.

The 6-month FIFO is a compromise between the two extremes. It "overpays" the family $600 as compared with the annual system and the 12-month FIFO because it "forgets" unused carryovers after they are 6 months old. Thus, in the example, after month 6 the carryover account declines very rapidly as the unexpended carryover amounts from the early months drop off. Table 4 shows how this dropping off occurs.

An even more generous variation would be a 6-month Last In–First Out (LIFO) system which uses the newest carryover entry first and thus increases the probability that an old carryover will "drop off the end" before it is ever used to offset current entitlements. This system is again more responsive but more costly.

Several other important liberalizing features may be incorporated in a carryover accounting system. Perhaps the most important is the inclusion of a provision that *the past income, including carryover, used in computing earned entitlements shall include only the income of persons currently members of the family. Thus, if a family bread-winner dies or deserts, the family will immediately become eligible for maximum benefits.*

TABLE 4.—*Use of 6-month FIFO carryover*

Month in which carryover is accumulated	Carryover balance at end of month (in dollars)											
	1	2	3	4	5	6	7	8	9	10	11	12
1	550	550	550	550	350	150	(1)					
2		550	550	550	550	550	350	(1)				
3			550	550	550	550	550	350	(1)			
4				550	550	550	550	550	350	(1)		
5												
6												
7												
8												
9												
10												
11												
12												
Total, balance at end of month	550	1,100	1,650	2,200	2,000	1,800	1,450	900	350	0	0	0

[1] Drop off at end of 6 months.

Under a carryover system it would also be desirable to assure that any famliy head with past high earnings who becomes unemployed, who is not eligible for other income replacement programs such as unemployment insurance, and who is denied welfare benefits temporarily by virtue of the accounting period, will be given priority in job training and placement programs. For such persons with proven records of productivity this should, in any case, be the most desirable strategy, both from their point of view and that of the Government.

A last consideration relates to the mechanism established for responding to financial crises other than those associated with death or desertion or of a primary earner.

Under any income maintenance system emergencies will arise such as fire, illness of an earner insufficient to qualify the family for disability assistance, or other calamities. And, as under the current system, it will be necessary to maintain a separately administered program (preferably with improved Federal support) which can provide both the social services and cash and in-kind assistance needed to deal with the particular problems of each individual case. But a federally administered income maintenance system never can and never should be diverted from its proper function of long-term income support to serve this different purpose. A separate emergency assistance program thus will still be needed. However, the demands placed on it should decrease significantly if a federally supported income maintenance program is adopted which provides coverage to the millions of chronically poor families who, until now, have had no recourse save to State and locally financed general assistance and emergency assistance programs.

In choosing among the numerous combinations of features available for an improved accounting system, it is obviously useful to have some idea of the relative cost and efficiency of different combinations as applied to the population at risk for national income maintenance programs.

The concluding section of this paper will employ a computerized model using data from the income maintenance experiments to explore the likely variations in costs, caseloads, and responsiveness associated with alternative accounting period specifications for a national income maintenance system.

III. SIMULATION OF THE IMPACT OF ALTERNATIVE ACCOUNTING SYSTEMS ON INCOME MAINTENANCE COSTS, CASELOADS, AND RESPONSIVENESS

In order to simulate the impact of alternative accounting periods on the costs, caseloads, and responsiveness of national income maintenance programs, a computerized model, the accounting period simulation (APS) model, has been developed to employ data on monthly income flows among the poor and near-poor in calculating the individual and cumulative benefits which such families would receive under different procedures. The original version of the model was developed by Harold Watts, then director of the University of Wisconsin's Institute for Research on Poverty, and programed by Michael Watts. That model, using hypothetical case histories and a small sample of actual income histories from the New Jersey experimental data, simulated the effect of alternative monthly carryover systems and com-

pared these results with those obtained under a system of monthly entitlement in which actual payments were based on annual forecasts of income adjusted on the basis of voluntary reporting.[15]

In 1971 the Urban Institute, under the sponsorship of the Department of Health, Education, and Welfare, redesigned the original model to permit simulation of prospective accounting systems with quarterly accounting periods, a type of plan then under consideration for inclusion in the administration's Family Assistance Plan. Additional measures of program costs, responsiveness, and administrative burden were also introduced.[16]

During the last year considerable additional work has been performed by the Urban Institute to expand the model's data base to include observations from the Seattle, Denver, and rural experiments as well as New Jersey experiments and to assign weights to these data so that they are representative, in terms of annual income and family size, of the aggregate low-income U.S. population.

A. The Data Base Used in the Model

The data base employed in the model included income histories on some 5,522 families drawn from the HEW-sponsored income maintenance experiments in Seattle and Denver and the OEO-sponsored experiments in New Jersey, Pennsylvania, North Carolina, and Iowa. Since the simulations were performed as part of an analysis of accounting procedures under the proposed Family Assistance Plan, only families with children were included in the sample. The sample of urban families is distributed among sites as follows: Seattle, 1,482 families; Denver, 3,150 families; New Jersey/Pennsylvania, 599 families. Of these families 1,962 are white (not including families of Spanish origin), 2,103 are black, and 1,166 are either Puerto Rican or Chicano. The distribution of unweighted observations for the urban sites by race, sex of family head, income (other than public assistance) and family size is shown in tables 5a–5d.

TABLE 5a.—*Distribution of Seattle, Denver, New Jersey, sample by income, family size, and sex of head—Total number of families inside SMSA,*

Yearly income class	Grand total	Male head						Female head					
		Total	2-person family	3-person family	4-person family	5-person family	6-plus-person family	Total	2-person family	3-person family	4-person family	5-person family	6-plus-person family
Total	5,231	3,392	23	746	888	729	1,006	1,839	467	543	400	239	190
—0	5	5	0	2	2	0	1	0	0	0	0	0	0
0	477	132	5	26	35	24	42	345	80	96	71	53	45
$1 to $499	160	45	1	15	6	7	16	115	33	33	20	13	16
$500 to $999	168	59	0	18	14	11	16	109	34	30	20	10	15
$1,000 to $1,499	133	46	2	9	12	8	15	87	23	27	21	10	6
$1,500 to $1,999	122	53	0	22	14	5	12	69	21	19	14	7	8
$2,000 to $2,499	178	73	2	25	21	14	11	105	31	24	25	15	10
$2,500 to $2,999	151	74	1	16	19	18	20	77	22	27	8	12	8
$3,000 to $3,499	173	89	1	29	14	22	23	84	26	24	16	11	7
$3,500 to $3,999	190	88	1	23	26	14	24	102	30	27	25	12	8
$4,000 to $4,499	233	129	3	38	27	22	39	104	28	35	27	10	4
$4,500 to $4,999	250	148	0	42	29	37	40	102	29	28	21	12	12
$5,000 to $5,999	532	333	2	76	80	59	116	199	67	63	37	15	17
$6,000 to $6,999	471	363	2	76	108	65	112	108	20	36	30	13	9
$7,000 to $7,999	494	405	1	96	107	89	112	89	13	34	17	16	9
$8,000 to $8,999	373	319	0	73	79	81	86	54	4	13	19	13	5
$9,000 to $9,999	308	277	0	41	95	59	82	31	3	9	9	6	4
$10,000 to $10,999	229	206	1	28	59	57	61	23	3	8	7	4	1
$11,000 to $11,999	156	144	1	24	35	38	46	12	0	3	5	2	2
$12,000 to $12,999	117	112	0	20	28	30	34	5	0	3	1	0	1
$13,000 to $13,999	91	87	0	9	20	26	32	4	0	1	1	1	1
$14,000 to $14,999	74	73	0	11	22	19	21	1	0	0	0	1	0
$15,000 and over	146	132	0	27	36	24	45	14	0	3	6	3	2

TABLE 5b.—*Total number of families inside SMSA, white*

Yearly income class	White total	Male head						Female head					
		Total	2-person family	3-person family	4-person family	5-person family	6-plus-person family	Total	2-person family	3-person family	4-person family	5-person family	6-plus-person family
Total	1,962	1,322	11	343	328	287	353	640	182	172	142	86	58
−0	5	5	0	2	2	0	1	0	0	0	0	0	0
0	148	36	2	8	9	6	11	112	25	25	28	20	14
$1 to $499	46	11	0	5	1	3	2	35	10	8	7	4	6
$500 to $999	68	24	0	7	5	6	6	44	15	9	9	3	8
$1,000 to $1,499	47	16	1	2	5	3	5	31	9	8	9	3	2
$1,500 to $1,999	43	20	0	11	2	1	6	23	10	2	5	5	1
$2,000 to $2,499	61	28	0	12	5	7	4	33	13	3	11	5	1
$2,500 to $2,999	43	23	1	6	6	5	5	20	7	7	1	4	1
$3,000 to $3,499	62	33	0	13	7	7	6	29	10	10	2	6	1
$3,500 to $3,999	63	36	0	9	11	5	11	27	8	6	6	6	1
$4,000 to $4,499	94	48	3	17	7	8	13	46	15	18	11	2	0
$4,500 to $4,999	93	57	0	23	10	15	9	36	10	16	5	2	3
$5,000 to $5,999	192	124	1	38	30	22	33	68	28	18	12	5	5
$6,000 to $6,999	193	148	1	33	38	30	46	45	12	13	13	4	3
$7,000 to $7,999	201	166	1	51	43	34	37	35	8	14	5	4	4
$8,000 to $8,999	141	119	0	32	23	35	29	22	0	4	10	5	3
$9,000 to $9,999	127	117	0	20	35	24	38	10	1	5	1	1	2
$10,000 to $10,999	92	82	0	7	29	20	26	10	1	4	2	3	0
$11,000 to $11,999	57	53	1	14	10	14	14	4	0	0	1	1	2
$12,000 to $12,999	53	50	0	9	11	16	14	3	0	1	1	0	1
$13,000 to $13,999	42	40	0	7	10	13	10	2	0	0	1	1	0
$14,000 to $14,999	26	26	0	3	11	6	6	0	0	0	0	0	0
$15,000 and over	65	60	0	14	18	7	21	5	0	1	2	2	0

TABLE 5c.—*Total number of families inside SMSA, nonwhite*

Yearly income class	Non-white Total	Male head						Female head					
		Total	2-person family	3-person family	4-person family	5-person family	6-plus-person family	Total	2-person family	3-person family	4-person family	5-person family	6-plus-person family
Total	2,103	1,261	9	249	341	266	396	842	216	265	169	95	97
—0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	187	43	2	13	13	7	8	144	37	50	19	18	20
$1 to $499	92	27	1	7	5	3	11	65	21	19	10	7	8
$500 to $999	69	19	0	6	6	2	5	50	17	14	9	5	5
$1,000 to $1,499	53	14	0	3	1	4	6	39	9	14	7	6	3
$1,500 to $1,999	47	16	0	5	8	1	2	31	9	12	4	1	5
$2,000 to $2,499	74	27	2	9	8	4	4	47	13	13	9	6	6
$2,500 to $2,999	61	22	0	5	4	7	6	39	10	14	5	4	6
$3,000 to $3,499	73	37	1	10	4	8	14	36	12	11	6	3	4
$3,500 to $3,999	75	26	0	8	9	5	4	49	14	12	13	5	5
$4,000 to $4,499	79	41	0	11	10	6	14	38	9	12	10	3	4
$4,500 to $4,999	95	43	0	8	10	11	14	52	16	10	14	5	7
$5,000 to $5,999	210	108	1	21	30	18	38	102	32	32	21	7	10
$6,000 to $6,999	174	126	1	30	39	19	37	48	6	19	13	5	5
$7,000 to $7,999	189	152	0	30	44	26	52	37	4	14	9	7	3
$8,000 to $8,999	159	133	0	25	35	32	41	26	3	9	6	7	1
$9,000 to $9,999	114	100	0	9	37	24	30	14	2	1	6	4	1
$10,000 to $10,999	95	86	1	17	20	26	22	9	2	3	3	0	1
$11,000 to $11,999	76	70	0	7	19	21	23	6	0	2	3	1	0
$12,000 to $12,999	44	42	0	7	10	10	15	2	0	2	0	0	0
$13,000 to $13,999	33	32	0	1	5	9	17	1	0	0	0	0	1
$14,000 to $14,999	41	41	0	5	11	11	14	0	0	0	0	0	0
$15,000 and over	63	56	0	12	13	12	19	7	0	2	2	1	2

TABLE 5d.—*Total number of families inside SMSA, Spanish-speaking*

Yearly income class	Span-ish, total	Total	Male head 2-person family	Male head 3-person family	Male head 4-person family	Male head 5-person family	Male head 6-plus-person family	Total	Female head 2-person family	Female head 3-person family	Female head 4-person family	Female head 5-person family	Female head 6-plus-person family
Total	1,166	809	3	154	219	176	257	357	69	106	89	58	35
−0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	142	53	1	5	13	11	23	89	18	21	24	15	11
$1 to $499	22	7	0	3	0	1	3	15	2	6	3	2	2
$500 to $999	31	16	0	5	3	3	5	15	2	7	2	2	2
$1,000 to $1,499	33	16	1	4	6	1	4	17	5	5	5	1	1
$1,500 to $1,999	32	17	0	6	4	3	4	15	2	5	5	1	2
$2,000 to $2,499	43	18	0	4	8	3	3	25	5	8	5	4	3
$2,500 to $2,999	47	29	0	5	9	6	9	18	5	6	2	4	1
$3,000 to $3,499	38	19	0	6	3	7	3	19	4	3	8	2	2
$3,500 to $3,999	52	26	1	6	6	4	9	26	8	9	6	1	2
$4,000 to $4,499	60	40	0	10	10	8	12	20	4	5	6	5	0
$4,500 to $4,999	62	48	0	11	9	11	17	14	3	2	2	5	2
$5,000 to $5,999	130	101	0	17	20	19	45	29	7	13	4	3	2
$6,000 to $6,999	104	89	0	13	31	16	29	15	2	4	4	4	1
$7,000 to $7,999	104	87	0	15	20	29	23	17	1	6	3	5	2
$8,000 to $8,999	73	67	0	16	21	14	16	6	1	0	3	1	1
$9,000 to $9,999	67	60	0	12	23	11	14	7	0	3	3	1	1
$10,000 to $10,999	42	38	0	4	10	11	13	4	0	1	2	1	0
$11,000 to $11,999	23	21	0	3	6	3	9	2	0	1	1	0	0
$12,000 to $12,999	20	20	0	4	7	4	5	0	0	0	0	0	0
$13,000 to $13,999	16	15	0	1	5	4	5	1	0	1	0	0	0
$14,000 to $14,999	7	6	0	3	0	2	1	1	0	0	0	1	0
$15,000 and over	18	16	0	1	5	5	5	2	0	0	2	0	0

The sample of low-income urban families available is an extraordinarily rich one. In terms of simple size it is superior in its representation of all income classes below $12,000 in urban areas to that available from the Bureau of the Census Current Population Survey (CPS) from which the official estimates of the costs and caseloads of the Family Assistance Plan, and the numerous proposed alternatives, were derived. Indeed the sample provides in total more observations on the urban Spanish-speaking and black populations than does the CPS and a roughly equivalent number of observations on female-headed families, all groups of major importance in the current and potential welfare populations.

Most importantly, the data provide the only available source of information on intrayear income flows among the poor and near poor. For each family in the sample information is given on demographic characteristics (family size, race, location, sex, occupation and industry of head, number of children, etc.) and income by source (wage/salary, transfers by type, other unearned income by type) for each month during the year covered by the data. It is, of course, the presence of the monthly income data which permits simulation of the impact of different accounting procedures on benefit levels and coverage.

The greatest deficiency in the data is the relatively sparse representation of rural families. Only 291 families are included in the samples from the North Carolina-Iowa experiment. The deficiency is serious in two respects:

1. Rural families constitute almost half of the families at risk for programs of the approximate size and scope of the Family Assistance Plan.

2. As a result of the seasonality and/or sporadic nature of much work in rural areas, the intrayear income variability of rural families is considerably greater than that of families in urban areas. Hence the differential impact of more or less rigorous accounting procedures is much greater for these families than for their urban counterparts and, given their importance in the population at risk, their exclusion from the simulation of the resulting national costs and caseloads results in a considerable underestimation of these effects.

B. Weighting the Data to National Totals

Given that the experimental samples were drawn from localized areas according to stratification procedures adapted to the objectives of the experiments, the distribution of the sample by size, race, sex of head, and income will differ from that of the population as a whole. Since the national distribution of benefits and caseloads under an income maintenance plan is a direct function of these dimensions of the population, it is at least necessary to assure conformity of the aggregate experimental population to the aggregate national population in the same dimensions.

The procedure employed for the urban (inside SMSA) data is as follows: The unweighted experimental population is arrayed by race, family size, sex of head, and income class (where income includes all sources except public assistance. Public assistance is excluded from the income base in all calculations since the income maintenance plans to be tested would presumably replace such transfers). A correspond-

ing array is produced from the weighted observations in the 1971 Cur-
rent Population Survey projected to 1974.[17] The year 1974 was chosen
as being the earliest in which any income maintenance reform could
be implemented.

The experimental matrix is then divided into the CPS matrix to de-
termine the weights to be assigned to the experimental observations in
each race/sex/family size/ income cell such that aggregating the ob-
servations will produce a distribution identical to that obtained from
the national survey. The aggregated sample of weights thus obtained
is shown in table 6.

The weights were then incorporated into the data for each experi-
mental family according to its income and demographic character-
istics. Families with annual incomes in excess of $14,000 were excluded
from the tape for two reasons:

1. Such families are unlikely to participate in a separately adminis-
tered income maintenance program even in months in which their in-
comes were low (unless, of course, a short accounting period system
were integrated with the positive tax system, which seems unlikely).

2. The geographic areas in which the experimental samples were
drawn, while not confined exclusively to poverty areas, are unlikely
to yield representative observations of upper-middle-income families.

A similar but less disaggregate procedure was used to produce
weights for the rural experimental families. Because of the sparsity
of the rural sample (see table 7) and the correspondingly large weights
thus attributed to each observation, the rural sample was not included
in most of the subsequent simulations.

The weighting procedure thus employed assures that, except for
chance variations in the patterns of earned and unearned income, the
experimental sample will yield estimates of national costs and case-
loads comparable to those obtained from the CPS on the assumption of
a simple annual accounting period. In this regard, it is important to
note that all official estimates of the Family Assistance Plan and other
suggested alternatives have been produced on that assumption; that is,
that payments are adjusted exactly to income as measured over a full
year.

The purpose of the accounting period simulation is of course to
determine the extent to which actual costs and caseloads will vary from
those estimates as a function of the accounting procedures employed,
and for this purpose observations of monthly incomes are necessary.
A further assumption is thus required and that is that the experi-
mental data as weighted are representative, not only of the annual in-
come and demographic characteristics of the national population, but
also of the income variation patterns of the larger group.

Given that no national data on intrayear income flows exist, the only
method of verifying this hypothesis is to analyze the monthly income
variance of the experimental data across its several dimensions to
determine if significant differences in income flow patterns exist among
the various experimental sites other than those explained by the

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[17] The projection was accomplished using the aging techniques developed as
part of the Urban Institute's Transfer Income Simulation Model (TRIM). See
George Schieber and Eduardo Siguel "A Generalized Population Aging and Dis-
aggregation Technique", Urban Institute Working Paper 505—1, October 6, 1971.

TABLE 6.—*Weights assigned to experiment families, inside SMSA, total*

Yearly income class	Grand total	Male head					Female head					
		Total	2- and 3-person family	4-person family	5-person family	6-person family	Total	2-person family	3-person family	4-person family	5-person family	6-person family
Total	3,419.06	4,479.90	5,263.31	5,395.16	4,435.25	3,107.58	1,465.26	1,629.09	1,446.75	1,268.78	1,258.78	1,788.83
0	1,100.02	445.23	290.94	525.97	412.88	510.33	1,350.55	1,409.70	1,324.11	1,216.27	1,001.79	1,924.42
$1 to $999	924.74	530.57	536.82	831.05	563.33	317.69	1,107.75	1,162.18	876.95	1,209.77	1,330.17	1,162.52
$1,000 to $1,999	1,035.10	751,85	830.76	714.42	938.00	601.81	1,214.86	1,074.00	1,454.96	1,127.57	634.53	1,791.57
$2,000 to $2,999	792.24	657.65	1,052.91	622.57	502.81	301.71	900.95	787.25	927.80	1,265.45	466.70	1,142.78
$3,000 to $3,999	750.92	797.40	1,426.30	825.92	427.81	333.64	706.69	645.98	986.57	358.15	612.30	1,079.13
$4,000 to $4,999	656.02	650.43	853.05	798.27	541.66	413.97	663.54	828.05	733.73	285.67	788.32	763.13
$5,000 to $5,999	938.49	936.20	1,577.72	1,035.86	890.83	459.19	942.32	1,029.70	727.56	802.59	1,631.40	1,089.94
$6,000 to $6,999	1,269.36	1,168.91	1,893.83	1,060.75	1,138.95	785.73	1,606.99	3,579.30	1,716.67	520.53	1,206.31	985.67
$7,000 to $7,999	1,339.84	1,156.69	1,750.65	1,202.16	882.82	816.46	2,002.14	4,581.14	1,841.70	1,358.37	1,398.40	1,981.09
$8,000 to $8,999	1,828.70	1,704.11	2,217.36	1,966.23	1,341.35	1,369.33	2,656.71	15,536.33	3,396.38	1,013.00	979.42	2,199.75
$9,000 to $9,999	2,683.73	2,545.02	5,829.66	2,257.31	2,181.39	1,497.67	4,284.63	11,467.33	4,738.50	2,426.00	1,935.00	4,447.00
$10,000 to $10,999	4,119.43	3,996.19	8,421.20	4,234.18	3,174.65	2,429.97	5,455.58	8,650.33	3,866.29	5,853.60	3,594.00	10,591.00
$11,000 to $11,999	6,154.34	6,034.36	10,630.24	8,250.43	3,933.39	3,586.04	7,882.10	0	9,709.50	4,534.75	3,907.50	3,069.00
$12,000 to $13,999	9,221.84	8,994.45	17,185.14	12,485.96	6,599.63	4,888.20	14,878.38	0	12,173.00	13,011.50	16,459.00	6,307.50
$14,000 and over	40,814.96	42,032.07	50,814.95	48,038.00	46,332.02	28,895.83	20,022.66	0	18,515.66	18,634.50	12,092.66	21,258.00

77

TABLE 7.—*Distribution of North Carolina/Iowa sample by income, family size, and sex of head—Total number of families, rural*

Yearly income class	Rural total	Total	Male head 2-3-person family	4-person family	5-person family	6-plus person family	Yearly income class	Total	Female head 2-3-person family	4-5-person family	6-plus person family
Total	296	250	82	49	48	71	Total	46	23	16	7
—0 and 0	20	17	2	5	5	5	—0 and 0	3	1	1	1
$1 to $999	31	22	11	5	4	2	$1 to $999	9	7	1	1
$1,000 to $1,999	50	35	22	6	2	5	$1,000 to $1,999	15	5	9	1
$2,000 to $2,999	44	38	20	3	4	11	$2,000 to $2,999	6	4	1	1
$3,000 to $3,999	30	24	8	8	6	2	$3,000 to $3,999	6	2	2	2
$4,000 to $4,999	41	35	9	4	13	9	$4,000 to $4,999	6	4	1	1
$5,000 to $5,999	33	33	3	6	7	17	$5,000 to $5,999	0	0	0	0
$6,000 to $6,999	19	19	2	6	4	7	$6,000 to $6,999	0	0	0	0
$7,000 to $7,999	13	12	1	1	2	8	$7,000 and over	1	0	1	0
$8,000 to $8,999	5	5	2	1	1	1					
$9,000 to $9,999	3	3	0	1	0	2					
$10,000 to $10,999	2	2	1	0	0	1					
$11,000 to $11,999	0	0	0	0	0	0					
$12,000 to $13,999	2	2	0	1	0	1					
$14,000 and over	3	3	1	2	0	0					

income/race/family size and status variables adjusted for in the weighting procedure. Two measures of variance were computed: (1) The average absolute change in monthly income for each sex/race/ income/family size cell; (2) the standard deviation of each family's monthly income around its mean annual income. Averages of this measure were then determined for each cell.[18]

Analysis of these measures of variance revealed no significant differences among the urban experimental sites, although as expected, the variance in the rural data is much larger. Within each site a slight positive correlation is observed between income variance and annual income, and income variance and family size. The former correlation is explainable by the simple fact that higher annual incomes allow for more absolute intrayear variation. The latter correlation is probably explained by the presence of multiple earners in larger families. In any case, these dimensions of variation are accounted for in the weighting procedure.

C. Design of the Accounting Period Simulation Model

The APS model is designed to simulate the impact of two basic types of accounting procedures: Retrospective systems in which current payments are based on income over some past time period, and prospective systems under which current payments are based on forecasts of future income.

In the simulations, each family represented in the data base is considered in turn and the following procedures are carried out:

1. Income normalization.—To facilitate computation family income is normalized to a four-person basis by dividing each family income figure by an adjustment index calculated as the ratio of the maximum benefit for that size family to the maximum benefit for a four-person family.

2. Income stratification.—Each family is assigned to an income stratum on the basis of normalized annual family income as follows:

Normalized family income other than AFDC

Stratum	Lower limit	Upper limit
I	0	Guarantee.
II	Guarantee	Breakeven.
III	Breakeven	Over.

[18] The formula employed for computing the average standard deviation (δ) for each cell is as follows:

$$\delta = \sqrt{\frac{\sum_{i=1}^{N}\left[\frac{1}{11}\sum_{j=1}^{12}(Y_{ij}-\overline{Y}_i)^2\right]}{N}}$$

where:
    $\overline{Y}_i$=mean monthly income for family i
    Y_{ij}=income in month j for family i
    N=total number of families in the cell in question

· For the FAP plan, the standard plan tested in the simulations, the guarantee level and corresponding breakeven point are as follows:

Guarantee (family of four), $2,400; breakeven $4,320.

These strata are used in arraying data for output purposes on the assumption that in assessing the distributional implications of alternative accounting periods one is normally most interested in the impact of the plan on benefits and responsiveness to the lowest income groups (Strata I and II) and most concerned about benefit leakage to the Strata III families who, by definition have annual incomes beyond the normal range of eligibility.

3. Computation of nonexcluded income.—Family income is divided into two types: (*a*) Earnings including wages, salaries and farm and nonfarm self-employment income. (*b*) Unearned income including property income and transfers other than public assistance (e.g. social security, unemployment compensation, veterans payments). Monthly nonexcluded income, that is income which offsets benefits dollar for dollar, is then computed as:

$$Y^{NX}=r^E(Y^E-D)+r^u(Y^u)$$

where:

    Y^E=earned income
    D=earnings disregarded in computing benefits, i.e. earnings taxed at 0 percent rate
    r^E=tax on earnings in excess of the disregard
    Y^u=unearned income
    r^u=tax on unearned income

For the family assistance plan the values of the tax parameters are as follows: D=$60 per month; r^E=67 percent; r^u=100 percent.

To permit calculation of the impact of carryover-type plans a startup year of data is constructed for each family in which the income in each month of the preceding year is assumed to be equal to 95 percent of the income in the corresponding month of the data year, the 5 percent reduction thus allowing for a normal upward income trend.

4. Calculation of benefits under benchmark plans.—In order to permit comparison of program costs and responsiveness, two "benchmark" calculations are made for each family. The first is a calculation of simple annual entitlement based solely on annual income according to the formula $B=G-Y^{NX}$, where B is the annual benefit, G is the annual guarantee, and Y^{NX} is annual nonexcluded income. This estimate is that which is produced by the national cost estimating models used in predicting costs and caseloads for FAP and represents the lowest cost estimate (on the assumption of full participation) for such plans. It is also not, as we have observed, a system reproducible in the real world if responsiveness to changing income needs is a consideration.

The other benchmark plan is a pure monthly accounting system in which benefits are adjusted each month in exact proportion to changes in income. Thus in this plan

$$B=\sum_{i=1}^{12}G^m-Y_i^{NX}$$

where G^m is the monthly guarantee and Y_i^{NX} is monthly nonexcluded income in month i. This system may thus be considered the paradigm

of a responsive system. Like the annual accounting system it is also not reproducible since exact adjustment of benefits to current income would require either uncanny forecasting ability among the poor or an astoundingly efficient income maintenance administration. It is also, for reasons observed in earlier sections, a much more expensive system than the annual one although it is not, as we shall see, the most expensive possibility.

5. *Calculation of benefits under retrospective plans.*—The monthly retrospective plans simulated all assume that families report their experienced incomes at the end of each month and receive during the following month a payment equal to the difference between the maximum monthly benefit appropriate to their family size and their non-excluded income in the preceding month plus any unexpended carryover (if such a feature is operative). The calculation, subject to the elaborations on the order and life of carryover accounts described in the preceding section, is thus:

$$B_t^m = G^m - (Y_{t-1}^{NX} + C)$$

where: B_t^m is the benefit paid in month t
   G^m is the monthly guarantee
   Y_{t-1}^{NX} is nonexcluded income in month $t-1$
   C is the unexpended carryover.

After the benefit computation for each month is performed, the carryover account is updated to reflect amounts expended or dropped off and the program proceeds to consideration of the next month.

After benefits have been computed for each month in the year, the results obtained are multiplied by the weight indicating the number of families represented by the family in question and cumulated into the output arrays for the plan being simulated.

Quarterly retrospective plans may also be simulated and the procedure is exactly analogous except that quarterly incomes and benefits are used in the computations.

6. *Calculations of benefits under prospective plans.*—The calculation of benefits under prospective plans follow the same general logic as under the retrospective systems. Benefits are calculated for each sample family in turn, weighted appropriately and cumulated for output. However several complicating features must be introduced.

a. Forecasting income

The calculation of benefits under prospective plans is considerably more complicated than for retrospective plans because of the need to simulate the way in which families with highly irregular observed income patterns will forecast their future income flows.

Although in the prospective plans simulated estimates are formally made on the basis of income for a quarter rather than a month, inasmuch as the income flows observed in the experimental data do not in general bear any particular relationship to calendar quarters, it seems likely that recipients will be most influenced in their estimation procedures by events in the near past and near future. The procedure used thus involves a comparison of actual income received in the month in which the forecast is made against income received in the following month. The presumption is made that recipients will have some ability to foresee (and be willing to report) sizable changes in income, par-

ticularly on the downside, at least for the next month. The procedure operates as follows:

Actual income in the month in which the forecast is made is compared to the income which the data show the recipient will receive in the next month. If there is no change the forecast for the next quarter will be simply a continuation of the current month's income. If a change occurs, then the probability of foreseeing such a change (which in the model is identical to the probability of reporting) is computed. The probability functions employed have two properties:

- The larger the change in income and hence the larger the resulting change in benefits, the greater the probability of an altered forecast being made. The probabilities are also sensitive to the size of the maximum benefit at risk under the simulated income maintenance plan.
- Given the obvious interest of the recipient in maximizing short-term benefits, decreases in income have a greater chance of being reported than do increases.

Three sets of probabilities were employed in the APS simulations described in this paper representing respectively optimistic, intermediate and pessimistic assessments of the ability of low-income persons to foresee and report changes in monthly income flows. A fourth probability set, the "high cost" or "dim view of human nature" set, combines the optimistic probabilities with regard to benefit increases with the pessimistic probabilities for benefit decreases. These probabilities are displayed in figure 1 in which the probability of an income change of a given magnitude being reported is shown as a function of the resulting benefit increase or decrease (the maximum monthly benefit increase of $200 being available under the Family Assistance Plan for which the simulations were run).

FIGURE 1.—Quarterly forecast probabilities.
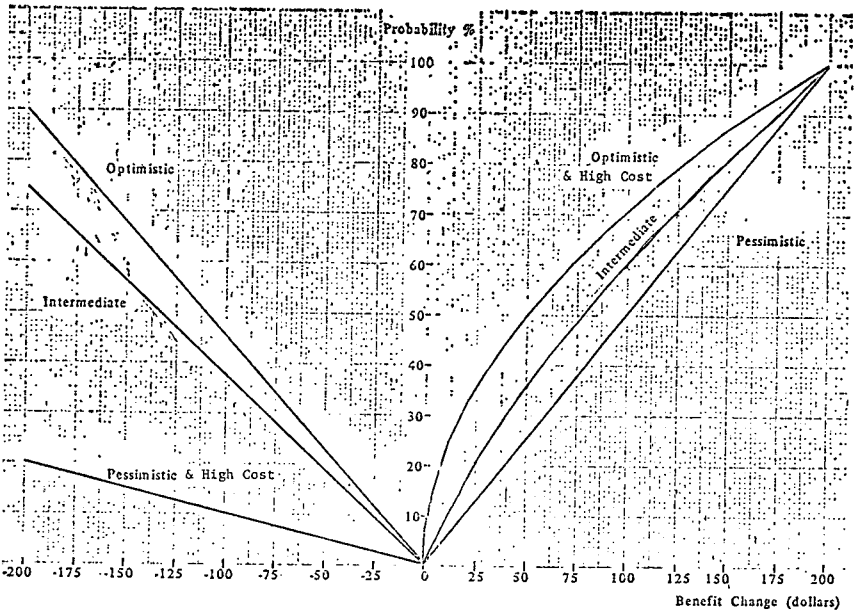
b. Simulating administrative procedures

A more complicated benefit and entitlement calculation procedure is also required as, under these systems, families must file a minimum of two and perhaps more independent income reports in each reporting period which must in turn be used by the administrating agency to adjust both benefits and entitlements. The first report is the forecast of income upon which benefits in the ensuing period will be based. The second is the ex post facto report of actual income during that period which determines actual entitlements. A comparison of the two will then yield measures of over- or underpayments (as well as affecting carryover accounts if such are operative) which, in conjunction with the forecasts for the upcoming periods, must be used to adjust future benefit payments.

Because of the administrative complexity of prospective systems, no reporting period more frequent than a calendar quarter seems feasible and no such systems have been simulated. However a 3-month lag in payments adjustments leaves open the possibility that payments may become seriously at variance with income during the interim. Accordingly proponents of these systems have generally included provisions that recipients be allowed or required to file intraquarterly income change reports if their circumstances change "materially."

A realistic simulation of prospective systems thus requires the introduction of three additional sets of parameters:

(i) The quarterly forecast administrative lag factor (t^1) allows for the time between the filing of quarterly forecasts and the time at which such forecasts can be reconciled with calculations of previous over- and underpayments to produce adjusted benefits for the ensuing quarter.

(ii) Intraquarterly change report probabilities are the probabilities of a family submitting an altered income forecast during a reporting period. This is computed in a manner analogous to that used in predicting the quarterly forecasts, although in this case the comparison is between actual income currently being experienced by the recipient and the operative estimate upon which the benefit is paid for the same month. Again asymmetry is introduced into the probabilities such that a recipient is adjudged more likely to report income changes which increase benefits than those which decrease them; however, in all cases the intraquarterly forecast probabilities are higher than for the quarterly forecast adjustments since in the former case the report is being made on the basis of events which have presumably already occurred.

(iii) The intraquarterly forecast lag factor (t^2) is also introduced to permit simulation of the likely delay between the time a change report is filed and the time that the change is processed to produce an altered benefit level.[19]

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[19] The sensitivity of the estimates to changes in the intraquarerly reporting parameters is minimal. As commonsense would suggest, the likely delays in the processing of change reports are such that the entire quarter will in most cases have elapsed and a new quarterly estimate been filed by the time they become effective. Hence, variations in these features have been eliminated from the simulations presented in this paper.

7. Some caveats.—In interpreting the results presented in the fol-lowing section it is important to remember that the estimates of likely costs and caseloads are conservative in two important ways:

(*a*) No allowance is made for deliberate underreporting of income. Even under the prospective plans where the recipient is accorded a reasonable propensity for hedging against future income losses, it is nonetheless assumed that at the end of each quarter he faithfully and completely reports his actual income experience.

(*b*) All of the systems simulated require regular income reporting and adjust benefits relatively promptly on the basis of such reports. They are thus considerably more rigorous than the current welfare system and the cost and caseload findings presented cannot be taken as approximations of the results of extension of current welfare ad-ministration procedures.

D. *Analysis of Simulation Results*

In analyzing the impact of alternative accounting systems using the APS model, 19 alternative schemes were tested using the income guar-antee and tax-rate parameters included in the administration's pro-posed Family Assistance Plan.

The first of the two plans simulated were the benchmark plans described earlier—the annual entitlement (the least-cost benchmark) and the monthly entitlement (the responsiveness benchmark). In addi-tion, seven retrospective plans, five with monthly reporting and two with quarterly reporting, and eight quarterly prospective plans were tested. The full set of plans and parameters are given in tables 8a and 8b.

1. Costs and caseloads.—Analysis of the differential impacts of the plans proceeds directly from a perusal of the outputs prepared by the computer model. Table 9 shows the size and distribution of costs and caseloads under each of the plans, including the percentage deviation of total costs and caseloads from the annual entitlement estimates. Table 10 shows the distribution of these costs and caseloads among families of different income strata and the average payment received by such families.

TABLE 8a.—*Benchmark plans and retrospective accounting procedures simulated*

Plan number and description	Income base for payment	Period of reporting and payment adjustment	Use of carryover	Life of carryover (months)	Operation of carryover
1—Annual entitlement	Last year's income	Annual	No	(1)	(1).
2—Monthly entitlement	Current month's income	Monthly	No	(1)	(1).
3—Monthly retrospective, no carryover	Last month's income	do	No	(1)	(1).
4—Monthly retrospective, 12-month FIFO	Last month's income plus unexpended carryover	do	Yes	12	FIFO.
5—Monthly retrospective, 6-month FIFO	do	do	Yes	6	FIFO.
6—Monthly retrospective, 12-month LIFO	do	do	Yes	12	LIFO.
7—Monthly retrospective, 6-month LIFO	do	do	Yes	6	LIFO.
8—Quarterly retrospective, no carryover	Last quarter's income	Quarterly	No	(1)	(1).
9—Quarterly retrospective, 12-month LIFO	Last quarter's income plus unexpended carryover	do	Yes	12	LIFO.

1 Not applicable.

Plan number and description	Recapture	Carryover	Intraquarterly changes processed	Quarterly forecast lag	Intraquarterly forecast lag
10—Pure quarterly prospective	No	No	No	$t^1=0$	$t^2=0$
11—Quarterly prospective with likely forecast lag	No	No	No	$t^1=1$	$t^2=0$
12—Quarterly prospective with intraquarterly reporting and likely administrative lag.	No	No	Yes	$t^1=1$	$t^2=2$
13—Plan 12 with pessimistic administrative lags	No	No	Yes	$t^1=2$	$t^2=3$
14—Quarterly prospective with intraquarterly reporting, likely lags and LIFO carryover (plan 12 plus LIFO carryover).	No	Yes, LIFO	Yes	$t^1=1$	$t^2=2$
15—Quarterly prospective with intraquarterly reporting, likely lags and FIFO carryover (plan 12 plus FIFO carryover).	No	Yes, FIFO	Yes	$t^1=1$	$t^2=2$
16—Quarterly prospective with intraquarterly reporting, likely lags and recapture (plan 12 plus recapture).	Yes	No	Yes	$t^1=1$	$t^2=2$
17—Quarterly prospective with intraquarterly reporting, likely lags, LIFO carryover and recapture (plan 12 plus recapture plus LIFO carryover).	Yes	Yes, LIFO	Yes	$t^1=1$	$t^2=2$

TABLE 9.—*Distribution of costs and caseloads under alternative income accounting systems inside SMSA population*

Plan	Income stratum (annual cost in thousands)				Percent increase over plan 1	Income stratum (number of families receiving payments)				Percent increase over plan 1
	I	II	III	Total		I	II	III	Total	
1	$2,374,867	$219,463	0	$2,594,330	0	1,188,271	443,639	0	1,631,910	0
2	2,402,784	333,249	$208,540	2,944,573	13.50	1,189,727	488,229	919,440	2,597,396	59.16
3	2,402,784	333,249	208,540	2,944,573	13.50	1,189,727	488,229	919,440	2,597,396	59.16
4	2,376,726	229,299	513	2,606,537	.47	1,188,271	451,888	17,267	1,657,426	1.56
5	2,376,726	236,938	11,901	2,625,565	1.20	1,188,271	467,696	101,153	1,757,120	7.67
6	2,376,726	229,299	513	2,606,537	.47	1,188,271	451,888	17,267	1,657,426	1.56
7	2,376,769	254,138	23,047	2,653,953	2.30	1,188,271	475,169	165,781	1,829,221	12.09
8	2,393,561	315,060	118,573	2,827,195	8.98	1,189,727	491,840	522,042	2,203,609	35.03
9	2,381,431	231,988	866	2,614,285	.77	1,188,271	440,443	26,845	1,655,559	1.45
10	2,427,581	358,003	235,069	3,020,653	16.43	1,189,005	483,826	620,975	2,293,806	40.56
11	2,425,455	359,375	236,436	3,021,266	16.46	1,189,727	488,518	696,368	2,374,613	45.51
12	2,426,261	357,590	247,032	3,030,883	16.83	1,189,727	492,744	848,434	2,530,905	55.09
13	2,407,942	371,574	314,371	3,093,886	19.26	1,189,727	492,251	850,482	2,532,460	55.18
14	2,420,780	313,023	40,751	2,774,553	6.95	1,188,271	486,251	198,687	1,873,209	14.79
15	2,421,664	312,710	29,528	2,763,902	6.54	1,188,271	480,473	156,907	1,825,651	11.87
16	2,391,966	315,675	172,267	2,879,908	11.01	1,189,727	490,774	677,193	2,357,694	44.47
17	2,380,287	251,735	24,273	2,656,295	2.39	1,188,271	479,139	144,433	1,811,843	11.03

Note: The Income stratum assignment is based on normalized income from all sources. Since the FAP plan parameters used in the simulation tax unearned income at 100 percent rather than the 67 percent used for earned income, a family with unearned income may have total income below the nominal breakeven of $4,320 and still not receive a FAP payment. Consequently, participation by Strata II families will vary among the plans simulated. Participation by Strata I families, who have by definition total income from all sources below the $2,400 guarantee, should not vary among plans although some slight variation is produced by the rounding error involved in the income normalization process.

TABLE 10.—*Distribution of caseload and payments under alternative accounting systems by average annual income of recipients*

Plan	Income stratum (average annual income for families receiving payments)				Income stratum (average payments to families receiving payments)			
	I	II	III	Total	I	II	III	Total
1	$567	$3,434	0	$1,346	$1,999	$495	0	$1,590
2	565	3,473	$7,143	3,440	2,020	683	$227	1,134
3	565	3,473	7,143	3,440	2,020	683	227	1,134
4	567	3,460	4,688	1,399	2,000	507	30	1,573
5	567	3,463	5,444	1,619	2,000	507	118	1,494
6	567	3,460	4,688	1,399	2,000	507	30	1,573
7	567	3,469	5,449	1,763	2,000	535	139	1,451
8	565	3,466	6,596	2,641	2,012	641	227	1,283
9	567	3,449	4,861	1,403	2,004	527	32	1,579
10	564	3,466	7,071	2,938	2,042	740	379	1,317
11	565	3,463	6,891	3,016	2,039	736	340	1,272
12	565	3,467	7,001	3,288	2,039	726	291	1,198
13	565	3,468	7,212	3,362	2,024	755	370	1,222
14	567	3,463	5,209	1,811	2,037	644	205	1,481
15	567	3,464	5,183	1,726	2,038	651	188	1,514
16	565	3,467	7,076	3,039	2,011	643	254	1,221
17	567	3,457	5,763	1,745	2,003	525	168	1,466

The cost and caseloads shown in the table include only that portion (approximately half) of the potential FAP caseload residing in SMSA areas, and the annual entitlement estimate (plan 1) is consistent with FAP cost and caseload estimates for families residing inside SMSA's produced by the Urban Institute's Transfer Income Simulation Model. The rural observations have been excluded from the detailed analysis because of the small size and consequent possible unrepresentativeness of the rural experimental data base. Consequently all cost and caseload deviations shown in table 9 should be interpreted as minimum estimates of national impacts as a result of exclusion of that portion of the low-income population known to experience relatively large fluctuations in intrayear income.

Comparing the two benchmark plans, plan 1 and plan 2, it is seen that a pure monthly entitlement system, were such feasible, would increase FAP annual urban caseloads by about 60% and the associated costs by some 14% or $350 million. Almost all of the 1 million additional families covered under the monthly entitlement system fall in income stratum III; that is, they have annual incomes in excess of the nominal FAP breakeven of $4,320 for a family of four, and hence would be considered ineligible for any payments on an annual entitlement basis. The percentage cost differentials are, of course, much lower than the caseloads since relatively small payments are made to these higher income families in most instances. Plan 3 has, of course, the same costs and caseloads as plan 2 since it is simply a monthly entitlement plan with a realistic 1-month processing lag.

In plan 4, however, a sharp reduction in costs and caseloads is observed as a result of the introduction of the 12-month FIFO carryover system which, as described in section II, will achieve a payments level approximately the same as that produced by a pure annual entitlement system. Under plan 4, caseloads exceed the benchmark by only 1.5%. Reducing the life of the carryover to 6 months, as in plan 5, reverses this trend, and caseloads and costs increase to a still tolerable level of 7.7% and 1.2% over the benchmark.

Shifting to a LIFO system with a 12-month carryover (plan 6) has no impact in the simulations presented here because of the method used to construct the first year of data.[20] Reducing the length of the LIFO carryover to 6 months (plan 7), however, is somewhat more expensive as caseloads increase by 12% and costs by 2.3% over the benchmark.

The quarterly retrospective system without a carryover (plan 8) is, as expected, considerably more expensive than the monthly carryover plans (a 35% increase in caseloads, a 9% increase in costs over the benchmark). Introducing a carryover (plan 9) reduces these differentials to 1.5% and 0.8% but, as we shall see, at the expense of considerable unresponsiveness.

The next set of plans (plans 10 through 17) are also quarterly plans but here, as described above, the payments are based on forecasts of future income rather than reports of past income in an attempt to improve the responsiveness of the systems to changing income needs.

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[20] Earlier runs using 2 years of unweighted data from Seattle and New Jersey showed an increase of 2 percentage points in costs and 4 percentage points in caseloads as the result of shifting from a 12-month FIFO to a 12-month LIFO system.

Leaving aside for the moment the question of whether this responsiveness is achieved, it is clear from table 9 that the pursuit of this objective is expensive, more expensive in fact than the monthly entitlement responsiveness benchmark. A simple quarterly prospective system, operating with the utmost efficiency, would be likely to incur caseloads 41% higher and costs 17% higher than the annual entitlement accounting system. Introducing more realistic administrative lags (plan 11) increases these differentials to 46% and 17%. Again, as shown in table 9, virtually all of these additional families (696,000) fall in income stratum III.

The results obtained from introducing intraquarterly reporting (plan 12), might seem counterintuitive at first glance since the purpose of such a feature is presumably to keep payments more in line with income. In fact, an increase in costs and caseloads is produced since the net effect of such a voluntary feature, given a normal propensity on the part of recipients to maximize incomes, is to provide a shorter, and, hence, more expensive, accounting period for persons with falling incomes while allowing persons with rising incomes to benefit from the slower moving quarterly accounting period. While the payments cost differential is insignificant, the administrative burden associated with intraquarterly reporting is not.

As shown in table 11 it could be expected that, in addition to having to process two regular reports per family per quarter (the forecast and the reconciliation report) for a 55% larger caseload, the administrative unit would be receiving over 3 million sporadically timed intraquarterly reports from the urban population.

A maximum cost and caseload differential of 19% and 55% is reached in plan 13 in which pessimistic administrative lags are introduced. These assume a 2-month lag between the time a quarterly forecast is made and the time it affects the benefit payment and a 3-month processing lag for intraquarterly reports.

TABLE 11.—*Number of intraquarterly reports filed and number and size of unrecaptured overpayments under prospective accounting systems*

Plan	Intraquarterly reports	Unrecaptured overpayments, by size of overpayment, at end of year			
		0	0-$100	$100-$200	$200-plus
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0
10	1, 987, 622	962, 660	446, 400	172, 180	712, 566
11	3, 688, 679	987, 804	460, 884	206, 795	719, 130
12	3, 115, 541	948, 699	511, 818	286, 305	784, 083
13	4, 138, 975	974, 654	439, 923	226, 363	891, 520
14	3, 200, 737	775, 171	402, 271	161, 628	534, 139
15	3, 060, 328	794, 817	366, 182	155, 594	509, 058
16	3, 087, 171	1, 245, 435	414, 367	216, 711	481, 181
17	3, 155, 043	1, 210, 544	251, 595	99, 545	220, 159

Introducing a 12-month LIFO carryover into the quarterly prospective plans (plan 14) again reduces costs and caseloads to more reasonable deviations from the annual benchmark. However, the caseload differential is still 15% (almost 10 times higher than under plan 6, the monthly retrospective LIFO plan) and the cost differential is 7% (14 times higher than the plan 6 figure). A FIFO carryover (plan 15) reduces these differentials somewhat.

Plan 16 replaces the carryover with a provision for recapture of all overpayments made in a given quarter by offsetting such payments against future entitlements. The tradeoff is obviously an unfavorable one from the cost and caseload viewpoint. Costs rise by 5 percentage points and caseloads by a startling 33 percentage points. Reintroducing the LIFO carryover (plan 17) as well as the recapture brings caseloads back to the level of plan 15; and the cost differentials, for the first time in the prospective plans, fall to a level competitive with those of the monthly retrospective plans.

In the preceding analysis of prospective plans, the forecasting and intraquarterly report probability parameters were those described earlier as "intermediate." Three other sets of probability parameters were used: "Optimistic" in which people are assumed to have considerable powers of clairvoyance both with regard to income increases and decreases, "pessimistic" in which a dimmer view of likely foresight is taken again, and "high cost" in which it is assumed that people will forecast and/or report income decreases with great reliability but will be far less prescient with regard to likely income increases which, of course, will lead to benefit reductions. Table 12 shows the impact of varying the probability parameters for three of the plans described above: Plan 10 (the pure quarterly prospective), plan 12 (prospective with intraquarterly reporting), plan 14 (adding a LIFO carryover), and plan 17 (LIFO and recapture). Comparing the differentials across the probability sets it is seen that, with the exception of plan 10 for which a maximum differential of 7 percentage points in costs and caseloads is produced, the results are not affected significantly by the assumptions made with regard to forecasting and reporting probabilities (a not unexpected result since the requirement for mandatory postquarterly reporting prevents payments from deviating from entitlements for any protracted period).

Adding the weighted rural data to the sample produces far more dramatic results.[21]

As one would expect, the cost and caseload differentials shown in table 13 are larger by orders of magnitude largely as the result of seasonal employment patterns among rural families who constitute almost 40 percent of the potential FAP population. Noncarryover plans, even with monthly retrospective income reporting, result in cost increases from 70 to 97 percent ($2.6 to $3.6 billion) with even larger (as much as 140 percent) increase in caseload coverage. By contrast, the 12-month retrospective carryover systems (plans 4 and 6) operate with the same efficiency as they do for the urban population. Shorter accounting periods (plans 5 and 7) are considerably more expensive for this group, with the most generous system, the 6-month LIFO, increasing costs by 8 percent and caseloads by 33 percent.

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[21] The total costs and coverages shown for the annual entitlement system fall short of the $5.1 billion and 3.3 million families predicted for FAP in 1974 in the national estimating model because of the absence in the experimental data base of observations representing the outside SMSA nonrural population and certain cells of the rural distribution.

TABLE 12.—*Distribution of costs and caseloads under prospective accounting systems for alternative forecast probability assumptions*

Plan	Income stratum (annual cost in thousands)				Percent increase over plan 1	Income stratum (number of families receiving payments)				percent increase over Plan 1
	I	II	III	Total		I	II	III	Total	
Annual entitlement: 1	$2,374,867	$219,463	0	$2,594,330	0	1,188,271	443,639	0	1,631,910	0
Optimistic:										
10	2,425,121	355,998	$220,808	3,001,927	15.71	1,189,727	483,756	615,934	2,289,417	40.29
12	2,427,864	360,615	243,950	3,032,429	16.89	1,189,727	494,750	858,102	2,524,579	55.80
14	2,421,002	315,990	39,545	2,776,537	7.02	1,188,271	486,311	195,542	1,870,124	14.60
17	2,379,188	251,692	24,379	2,655,258	2.35	1,188,271	478,319	138,293	1,804,883	10.60
Pessimistic:										
10	2,467,603	395,066	293,627	3,156,297	21.66	1,189,727	488,514	708,370	2,386,611	46.25
12	2,432,589	366,066	260,971	3,059,626	17.94	1,189,727	494,496	892,253	2,576,476	57.88
14	2,425,282	321,904	43,670	2,790,855	7.58	1,188,271	487,313	197,962	1,873,546	14.81
17	2,379,333	249,170	24,666	2,653,169	2.27	1,188,271	478,370	135,499	1,802,140	10.43
High cost:										
10	2,478,284	410,728	298,301	3,187,313	22.86	1,189,727	487,738	721,870	2,399,335	47.03
12	2,434,715	369,685	258,826	3,063,226	18.07	1,189,727	495,184	882,748	2,567,659	57.34
14	2,426,575	324,854	42,151	2,793,580	7.68	1,188,271	484,872	206,030	1,879,173	15.15
17	2,379,447	251,623	25,384	2,656,454	2.39	1,188,271	477,121	148,278	1,813,670	11.14

92

TABLE 13.—*Distribution of costs and caseloads under alternative income accounting systems, inside SMSA and rural population*

Plan	Income stratum (annual cost in thousands)				Percent increase over plan 1	Income stratum (number of families receiving payments)				Percent increase over plan 1
	I	II	III	Total		I	II	III	Total	
1	$3,276,760	$461,101	0	$3,737,861	0	1,693,424	835,706	0	2,529,130	0
2	3,516,397	777,014	$2,057,461	6,350,872	69.91	1,779,277	1,002,656	3,280,801	6,062,734	139.72
3	3,516,397	777,014	2,057,461	6,350,872	69.91	1,779,277	1,002,656	3,280,801	6,062,734	139.72
4	3,284,319	479,608	632	3,764,559	.71	1,706,605	851,227	24,502	2,582,334	2.10
5	3,311,277	505,689	121,343	3,938,308	5.36	1,752,857	898,568	543,743	3,195,168	26.33
6	3,284,319	479,608	632	3,764,559	.71	1,706,605	851,227	24,502	2,582,334	2.10
7	3,325,138	533,826	180,385	4,039,349	8.07	1,752,857	917,084	698,078	3,368,019	33.17
8	3,428,606	661,330	640,380	4,730,314	26.55	1,779,277	966,219	1,636,701	4,382,197	73.27
9	3,294,072	490,231	934	3,785,237	1.27	1,706,605	839,782	34,080	2,580,467	2.03
10	3,578,143	852,383	2,534,775	6,965,297	86.34	1,779,277	997,551	2,719,406	5,496,234	117.32
11	3,571,264	861,202	2,923,510	7,355,973	96.80	1,779,277	991,504	2,985,621	5,756,402	127.60
12	3,583,846	871,786	2,518,033	6,973,661	86.57	1,779,277	1,006,378	3,198,440	5,984,095	136.61
13	3,505,425	847,307	2,444,637	6,797,365	81.85	1,779,277	1,006,678	2,986,403	5,772,358	128.23
14	3,419,908	662,798	158,428	4,241,134	13.46	1,760,646	963,933	615,787	3,340,366	32.08
15	3,418,423	665,364	147,838	4,231,624	13.21	1,757,560	957,730	615,820	3,331,110	31.71
16	3,424,285	656,224	754,106	4,834,615	29.34	1,779,277	956,019	2,008,114	4,743,410	87.55
17	3,315,455	537,054	127,368	3,979,878	6.47	1,760,646	934,176	507,357	3,202,179	26.61

None of the prospective systems, with the exception of the complicated carryover plus recapture plan (plan 17), produce differentials of acceptable magnitude.

2. Responsiveness

From the preceding discussion it may be concluded that attempts to achieve responsiveness in income maintenance systems may be very costly in terms of increased payments costs and administrative caseloads. The next question to be addressed is the extent to which the desired responsiveness has been achieved with the money thus spent.

Table 14 measures the responsiveness of the various plans discussed above in terms of the average negative and positive deviations of monthly payments to families in each income stratum as compared to the payments they would receive under plan 2, the conceptually most responsive system.

In this analysis we are most concerned with negative deviations, since these represent cases where current income needs may not be met unless savings are available, and particularly with the impact of such underpayments on the very poorest, that is, stratum I families. Measured by these criteria the monthly retrospective systems, despite their built-in 1-month lag, do rather well. Even with the least generous carryover option, a 12-month FIFO (plan 4), the average monthly negative payments deviation for stratum I families is only $5.89.

The improved responsiveness of the LIFO over the FIFO plan is not significant for most urban families. Shortening the accountable period to 6 months helps the stratum II families somewhat but again the improvement is not striking. The same, of course, would not be true for rural families among whom seasonal income patterns are more common.

The quarterly retrospective plans are, as expected, highly unresponsive to changing incomes in all income strata, even, as in plan 8, when no carryover feature is incorporated.

Turning to the prospective plans, one immediately observes that despite their higher cost and greater administrative complexity they are notably less responsive than the monthly retrospective plans. With the exception of plan 10, the benchmark quarterly plan with no administrative lags, only plan 12, the prospective plan with neither a carryover nor recapture achieves comparable responsiveness and that, as we have seen, at the expense of a 55 percent increase in caseloads and a 16 percent increase in costs. Plan 17, with its full panoply of carryovers, intraquarterly reports and recaptures wins the simple unresponsiveness award. However, considering both responsiveness and costs together it is clear that plan 16, the recapture, no carryover plan wins the "all around loser" prize. In this plan the cost-responsiveness ratio reaches its highest value as high costs and caseloads are united in a winning combination with unresponsiveness at all income levels.

One last observation on responsiveness is important. The carryover feature itself has very little impact on responsiveness to the lowest income (Strata I) families as seen by comparing negative deviations under Plans 3 and 4. For Strata II families the negative deviations are considerably larger ($22 to $26) but almost half of this is attributable to the 1-month lag. In fact, as shown in table 15, a 12-month LIFO carryover has no effect on benefit payments to families with annual

TABLE 14.—*Responsiveness of alternative income accounting systems to income changes of families by income strata, inside SMSA population*

[In monthly amounts]

Plan	Income stratum (negative deviations)				Income stratum (positive deviations)			
	I	II	III	Total	I	II	III	Total
1	$10. 50	$30. 47	$18. 90	$17. 23	$8. 55	$11. 02	0	$5. 99
2	0	0	0	0	0	0	0	0
3	4. 13	10. 72	8. 29	6. 85	3. 91	10. 25	$7. 82	6. 49
4	5. 89	26. 15	19. 37	14. 47	3. 84	7. 90	. 04	3. 26
5	5. 89	25. 07	18. 77	14. 05	3. 84	8. 13	. 47	3. 45
6	5. 89	26. 15	19. 37	14. 47	3. 84	7. 90	. 04	3. 26
7	5. 88	22. 43	18. 25	13. 37	3. 84	8. 42	. 97	3. 68
8	11. 52	26. 48	16. 37	16. 05	10. 87	23. 37	8. 22	12. 28
9	12. 25	34. 04	18. 89	18. 69	10. 75	16. 73	. 07	8. 09
10	4. 87	11. 55	9. 34	7. 71	6. 61	15. 79	11. 74	10. 15
11	9. 38	21. 97	14. 61	13. 60	10. 97	26. 43	17. 14	16. 06
12	7. 84	18. 49	13. 37	11. 80	9. 48	22. 65	16. 86	14. 57
13	10. 38	21. 06	14. 14	13. 72	10. 74	27. 61	23. 74	18. 52
14	8. 01	25. 03	18. 39	14. 89	9. 28	21. 56	3. 18	9. 43
15	8. 05	24. 95	18. 44	14. 90	9. 37	21. 43	2. 21	9. 10
16	13. 17	26. 60	15. 87	16. 65	12. 40	23. 58	12. 58	14. 57
17	13. 77	33. 67	18. 64	19. 23	12. 19	19. 73	1. 94	9. 98

TABLE 15.—*The impact of a 12-month LIFO carryover on benefits paid to a 4-person family with zero income in the month of application*

Previously monthly earned income	Previous annual earned income	Benefits paid in quarter that recipient applies for assistance				Effect of carryover in reducing benefits in each quarter			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
$200_____	$2,400	$600	$600	$600	$600	None	None	None	None
$250_____	3,000	600	600	600	600	None	None	None	None
$300_____	3,600	600	600	600	600	None	None	None	None
$350_____	4,200	600	600	600	600	None	None	None	None
$360_____	4,320	600	600	600	600	None	None	None	None
$370_____	4,440	540	600	600	600	—$60	None	None	None
$380_____	4,560	480	600	600	600	—120	None	None	None
$390_____	4,680	420	600	600	600	—180	None	None	None
$400_____	4,800	360	600	600	600	—240	None	None	None
$450_____	5,400	60	600	600	600	—540	None	None	None
$500_____	6,000	_____	600	600	600	—600	None	None	None
$550_____	6,600	_____	440	600	600	—600	—160	None	None
$600_____	7,200	_____	240	600	600	—600	—360	None	None
$700_____	8,400	_____		600	600	—600	—600	None	None
$800_____	9,600	_____		600	600	—600	—600	None	None
$900_____	10,800	_____		600	600	—600	—600	None	None
$1,000_____	12,000	_____		520	600	—600	—600	—$80	None
$1,100_____	13,200	_____		320	600	—600	—600	—280	None
$1,200_____	14,400	_____		120	600	—600	—600	—480	None
$1,300_____	16,600	_____			600	—600	—600	—600	None
$1,500_____	18,000	_____			600	—600	—600	—600	None

earned incomes consistently below $4,320 whose earnings are suddenly reduced to zero.[22]

Up to a previous earning level of $6,000 a year a gradually reduced benefit level is produced, although even at that income level maximum benefits were received after three months if unemployment insurance benefits or new employment had not been obtained in the interim. In fact, an efficiently run monthly carryover system could be expected to be far more responsive to the needs of low-resource families suffering sharp drops of income than the current public assistance system with its "means test", waiting periods, complicated eligibility determination procedures and asset disposal requirements.

IV. CONCLUSIONS

The conclusions to be drawn from the preceding discussion are both simple and obvious. Income accounting procedures exert a strong influence on the equity, costs, caseloads and responsiveness of income maintenance programs. Continuation and extension of the procedures used in our current welfare programs will be costly in all these dimensions. The design of improved accounting systems is conceptually feasible, and data and techniques are available to assist in the choice of a preferred alternative for any given income transfer program if its peculiar function and objectives have been defined.

On the basis of data gathered from the income maintenance experiments it would appear that a monthly retrospective accounting system with a 12-month carryover provision achieves the best balance among cost, caseloads, equity and responsiveness for a national income maintenance system. Experience in administering the experiments has demonstrated that such procedures are administratively feasible and efficient for large caseloads given the availability of relatively simple automatic data processing capability.

Lastly, it should be observed that the lessons learned with regard to the accounting period problems are not confined in relevance to a nationally administered income maintenance program. Whether or not national income maintenance reform is achieved during the next few years, State welfare administrators should begin analysis of the impact of alternative accounting systems on costs and caseloads for the existing set of welfare cash and in-kind programs with the objective of insuring that such programs serve their intended beneficiary populations equitably, responsively and efficiently.

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[22] And as noted earlier no impact on families at any previous earnings level whose income reversals are due to loss of a breadwinner.

ADMINISTRATIVE GUIDELINES FOR INCOME MAINTE-NANCE PROGRAMS COVERING THE SELF-EMPLOYED

By D. Lee Bawden*

Summary

The self-employed pose special problems in the administration of any universal income maintenance program. The major issues are the definition of self-employment, the measurement of self-employed income and expenses, the treatment of business assets, and whether limits should be placed on gross income in determining eligibility. Each of these issues is discussed in the paper. The recommendations are summarized below.

1. A self-employed activity is one in which (A) some or all of the business assets are owned or rented and they are complementary to one's labor input (that is, the person's labor input is necessary to derive income), or (B) income is based solely on output rather than on per unit of labor input and the person has complete control over his labor input.

2. The measurement of self-employed income and expenses should follow IRS rules except for the following changes:

   (*a*) Treatment of all realized capital gains as income and all realized capital losses as expenses;

   (*b*) Treatment of unrealized capital gains and losses as realized gains and losses;

   (*c*) Requirement that the accrual method of accounting be used in calculating income and expenses; and

   (*d*) Disallowance of accelerated depreciation or investment tax credits.

3. Business assets of the self-employed should be excluded from the eligibility resource limitation, but a portion of equity in self-employed assets above a minimal level should be imputed to income prior to calculating income maintenance benefits.

4. No limit should be placed on gross income for determining eligibility for an income maintenance program.

Introduction

Virtually all families with income derived primarily from self-employment are excluded from public assistance now, either because the head is an able-bodied male who works more than 100 hours per month, or because of asset limitations for eligibility. This largely limits public assistance for the self-employed to female family heads with very small businesses, such as door-to-door sales (Avon or Fuller products, insurance, encyclopedias) or small, in-home operations (telephone magazine sales, child care, laundry).

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(98)

Any universal income maintenance program which covers the "working poor" will encounter a number of new administrative problems, and the most difficult of these will involve the self-employed. Income from wages and salaries are relatively easy to define and measure; income from self-employment is not. Wage earners do not have depreciation on capital stock; the self-employed do. Wages are received weekly, biweekly, or monthly; self-employment income is received irregularly and sometimes in one lump sum once a year. Wage earners by and large do not have realized and unrealized capital gains; the self-employed do. There are other examples, but these are sufficient to illustrate that there will be differences between wage earners and the self-employed with respect to administering an income maintenance program.

There are four major issues with respect to administrative guidelines for the self-employed: (1) To define self-employment, (2) to determine how income and expenses of the self-employed should be measured, (3) to decide whether business assets should be treated differently from other assets in determining eligibility, and (4) to decide whether there should be a limit on gross income of the self-employed, above which they would be ineligible for income maintenance payments.

This paper addresses these four issues with the objective of arriving at guidelines which will provide equitable treatment among self-employed persons and, more importantly, between the self-employed person and the wage earner.[1]

Definition of Self-Employed Income

It is inaccurate to simply label a person or family as either wage-earning or self-employed; many families are a little of each. Farmers are a good example. Forty-six percent of farm operators have off-farm wages, and another 8 percent more households have someone else in the family with a wage job.[2] These statistics are even more striking for low-income farmers: Nonfarm income makes up 78 percent of total net income for farms with gross sales under $10,000.[3] Therefore, the focus should not be on whether a person or family is self-employed, but on defining self-employed activities, and hence income, of these people.

But this is not an easy task either. Again, take the farm example.[4] Full-time farmers who own their own farms are clearly in a self-

[1] Two other issues are relevant in extending income maintenance payments to the self-employed: The length of the accounting period and the frequency of reporting. Both of these are addressed in the previous paper and, consistent with the recommendations made there, the discussion in this paper assumes: (1) Monthly reporting of income and expenses, and (2) payments based on the previous month's income after adjustment by the carryover accounting procedure based on the past 12 months' income.

[2] U.S. Department of Commerce, Bureau of the Census, *Census of Agriculture, 1964*, vol. 2, "General Report," ch. 5, tables 22 and 25.

[3] U.S. Department of Agriculture, "Farm Income Situation," ERS FIS–216, July 1970.

[4] Farm examples will be used often in the ensuing discussion because they are by far the largest group among the self-employed with low incomes. For example, it was estimated that farmers (just owners; excluding farm operators) would comprise 18.3 percent of all male heads that would be eligible for assistance under the House-passed version of H.R. 1 (92d Congress), despite the fact that they make up less than 5 percent of the total U.S. population. This is more than

employment activity. But what about farmers who rent on a share basis? Farmers who rent on a cash basis? Farmers who are hired hands but are paid according to a percentage of the crop? And farmers who are paid wages plus a percent of the crop? Then there is the revenue side: The owner who rents on a cash basis, on a share basis, or on a cash plus share basis.

Self-employment could be defined as an activity which incurs some risk. However, this definition does not distinguish between income derived from a business (or farm) and income from idle wealth, such as stocks or land bought for speculative purposes, in which a risk is also incurred.

A preferable definition is the following: A self-employment activity is one in which (1) Some or all of the business assets are owned or rented and are complementary to one's labor input; that is, the person's labor input is necessary to derive income, or (2) income is based solely on output rather than on per unit of labor input, and the person has complete control over his labor input (such as an insurance salesman).

In terms of this definition, consider first the owner of resources. If he rents out on a share basis, income derived from that property can be presumed to fall in the self-employment category because it is un-realistic to assume that the owner would rent on a percentage basis without any say about the operation of the business. So while he may make no manual labor input, he is making a managerial input which requires time and which influences the amount of income derived from those resources.

This, of course, raises the issue of how much managerial input is required in order for a person to be considered to be in a self-employed activity. This is arbitrary, but the cutting edge should probably be whether the owner is involved in the operating decisions of the business. An owner who rents out strictly on a fixed-fee basis can give advice, but outside of contractual conditions, he has no say in the operation of those resources.

The same arguments hold from the viewpoint of the rentee. In most share-rental arrangements, income derived from the resources is de-fined as self-employment for both the rentor and rentee. If rented on a fixed-fee basis, only income to the rentee is self-employment income. Farm laborers working solely for a share of the output and having no control over either the resources or their own labor, are not engaged in a self-employed activity. Neither are production-line workers paid on the basis of productivity but having no control over their hours.

MEASUREMENT OF INCOME AND EXPENSES

The second issue involves the appropriate measurement of self-employment income and expenses.

The most convenient method of measuring self-employment income is to follow Internal Revenue Service guidelines. Most of the self-employed are familiar with IRS rules, and using the same rules for income maintenance payments would simplify the filing requirements.

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double the number of all other self-employed male heads, taken together. (Committee on Ways and Means, 92d Congress, 1st sess., "Social Security Amendments of 1971: Report on H.R. 1," H. Rept. No. 92–231, Washington, U.S. Government Printing Office, 1971, p. 230.)

Complex calculations involving such items as depreciation and capital gains would have to be made only once and could be used for both purposes. For income maintenance purposes, however, there are four major problems in following the example of IRS for measuring self-employment income and expenses.

Underreporting of Net Income

The first is that gross income is underreported to IRS, or expenses are overreported, or both. For example, net cash farm income estimated by the U.S. Department of Agriculture differs substantially from that reported to IRS, even though the two measures are conceptually comparable. As shown in table 1, net farm income reported to IRS was roughly one-third of that estimated by the U.S. Department of Agriculture in 1964 and 1965.

TABLE 1.—U.S. Department of Agriculture and Internal Revenue Service comparisons of farm income

[Billions of dollars]

	1964	1965
USDA estimate:		
Realized net farm income	13. 1	13. 9
Less noncash income	3. 2	3. 2
Net cash income	9. 9	10. 7
IRS estimate: Net farm profit	3. 2	4. 2

Presumably some of this discrepancy is because farmers must remember income and expenses over a 12-month period for IRS. Assuming monthly reporting under an income maintenance program, one would expect greater accuracy in the reporting of cash receipts and expenses.

Cash Versus Accrual Method of Accounting

The second problem is related to using the cash versus the accrual method of accounting. The cash method means that income is "counted" only when it is actually received and expenses are "counted" only when actually paid. The accrual method takes into account changes in inventories and it reflects sales and purchases regardless of whether payment has been received or made. Under IRS rules farmers and businessmen may use either the cash or accrual method.

Most farmers and small businessmen select the cash method of accounting, but this is a particularly inappropriate method upon which to base income maintenance (IM) payments. I will cite two examples. The first involves the manipulation of stocks of nonperishable commodities, such as grains. Many farmers choose to sell at least a portion of their crop before or after January 1, depending on the relative tax benefits to them. In terms of an income maintenance program, a farmer could delay sales of his crop merely to continue receiving IM payments.

H.R. 1 [5] would have authorized the Secretary to make appropriate adjustments in reported income and expenses, presumably to insure reasonable consistency from year to year in the receipt of business income and in the payment of current expenses. While this practice may appear desirable at first glance, it is not recommended. Assignment of income to periods other than that in which it was received will, of necessity, be highly discretionary and on an ad hoc basis. To insure reasonable consistency from year to year, several years' history must be acquired for each farmer. Assuming such information can be obtained, it would be expensive to get. Requiring the use of an accrual method of accounting, in which increases in inventories are considered to be increases in income, will deal with this problem equally well and at less administrative cost to the agency, although it could possibly mean a greater bookkeeping burden on the filers.

The cash method of accounting creates a second problem in administering an income maintenance program. This mainly involves livestock and dairy farmers.

A dairy farmer, for example, can begin by buying 20 cows at $300 apiece, an initial expense of $6,000. Over a period 5 years he can add to the herd by keeping his heifer calves—approximately 48. He now has 68 dairy cows valued at $300 each, for a total value of $20,400. This increase in herd value—$14,400—is not reported as income, yet the cost of raising the calves is a deductible expense. Livestock farmers who are expending their operations gain a substantial benefit by selecting the cash method of accounting. This is a serious but perhaps tolerable concern of IRS because a person must pay taxes for his entire life; thus an understatement of income over a 5-year period due to increasing livestock inventory will be reflected in income reported later—though it will be counted as capital gains and therefore taxed at only one-half the regular rate. But the problem is more serious under an income maintenance program. Overpayments for 5 years to an expanding farmer cannot be recouped later if the farmer is not then eligible for payments. Requiring farmers to use the accrual method of accounting under an IM program would close this loophole.

Capital Gains

A third problem in following IRS rules is in the treatment of capital gains. In contrast to IRS rules, recent welfare reforms have proposed counting all realized capital gains as income. This is admirable, but it still ignores unrealized capital gains. The problem here is the same as in the dairy farmer example above—a self-employed person can continue to receive income maintenance payments while at the same time markedly increasing his net worth (unrealized capital gains). But when he disposes of this increase in net worth—that is, he realizes the capital gains—he is unlikely to be eligible for income maintenance payments; hence the scale is never balanced.

This is not a problem in dealing with all self-employed individuals because most capital stock depreciates in value. However some assets rise in value over time. This is a particular problem with the self-employed who own land, such as real estate brokers and farmers. For

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[5] In this paper, H.R. 1 refers to the welfare reform section of that bill as it was passed by the House of Representatives in the 92d Congress. This version was not finally enacted by the Congress.

example, farm land has increased in value roughly 75 percent in the last 10 years. Under IRS rules, none of this increase in value would be reported as income unless the land was sold.

Depreciation

Under the IRS rules, depreciation and capital gains are intricately related. If a machine or building will last 20 years but is depreciated over 10 years and then sold, the difference between the depreciated value—in this case zero—and the market value is treated as capital gains and taxed at half the regular rate. This, of course, would present no problem in an income maintenance program which considered the total of realized capital gains as income.

However, from time to time Congress grants special depreciation favors to businessmen for reporting to IRS. We currently have two such programs: accelerated depreciation (allowing assets to be depreciated faster than under the standard schedules) and the investment tax credit (allowing a certain portion of new capital purchases to be immediately deducted from profits). Both of these practices result in distorted measures of "true" self-employment income during the current period, and are therefore undesirable adjustments to income for the purposes of an income maintenance program.

Summary

To summarize, there are four problems with using the IRS measure of self-employment income as a basis for IM payments. The first of these, underreporting of income or overreporting of expenses, is probably partially correctable by monthly reporting of income and expenses. The other three—the cash method of accounting, treatment of capital gains, and methods of depreciation—seriously distort the measurement of self-employment income for the purpose of IM payments.

Recommendations

It is recommended that any universal income maintenance program follow IRS measures of income and expenses from self-employment except for the following changes:
1. Treatment of all realized capital gains as income and realized capital losses as expenses;
2. Treatment of unrealized capital gains and losses as realized gains and losses;
3. Requirement that the accrual method of accounting be used in calculating income and expenses; and
4. Disallowance of accelerated depreciation or investment tax credits.

TREATMENT OF ASSETS

Current and proposed welfare programs set limits on resources, above which eligibility for payments is denied (the proposed limit was $1,500 in H.R. 1). However, owner-occupied homes, automobiles, household goods, and personal effects are usually excluded. H.R. 1 would have also allowed the exclusion of resources "essential to an individual's means of self-care or self-support, such as . . . the tools of a tradesman, farm machinery, and the inventory of a small business." [6]

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[6] *Ibid.*, p. 153.

Such an exclusion seems especially justified for business assets of the self-employed. A self-employed person's labor is complementary to this investment. Hence, unlike the wage earner, if he divests himself of his assets he not only winds up unemployed, but usually must change occupations in order to become employed again. A good example of this is the typical farmowner. The average age of farmowners in the United States is slightly in excess of 50 years, and this figure is probably higher for the average low-income farmer. To employ a set of rules which would encourage an older farmer to sell his property to become eligible for payments would probably be self-defeating. He can likely earn more in his present situation than if he sold his farm and tried to find employment in the wage market.

If an exclusion for business assets of the self-employed is granted, one can argue for placing some upper limit on the amount of excludable resources in order to (1) prevent horror cases (where an obviously wealthy person qualifies for payments), (2) prevent subsidization, if not outright encouragement, of inefficient management, and (3) force the self-employed to borrow against their assets to cover living expenses during low-income periods. I will examine each of these reasons in turn.

Prevent Horror Cases

With no limit on excludable resources and with only a 12-month income carryover, wealthy businessmen and farmers could be eligible for IM payments during a bad year (e.g., in the case of a crop failure, an employee strike, or a fire). One can argue that they should receive payments in such a situation. After all, a $20,000-per-year wage earner could be eligible for payments after being unemployed for a year.

This is not a fair comparison, however. Most of the self-employed (especially farmers) expect income reversals periodically, and profits in the good years are expected to offset an occasional bad year. If IM payments are made during a poor year, they cannot be recouped later during prosperous times.

It seems advisable, therefore, to exclude those with large amounts of assets from receiving IM payments. The precise form that this exclusion should take will be spelled out later.

Prevent Subsidization of Inefficient Management

The second argument for placing some limit on the exclusion for business assets is that some of the self-employed are receiving a substandard return on these assets because of inefficient management. This might be due to a poor investment initially, lack of operating capital, or too small an operation. Regardless of the reason, penalizing a businessman for making poor use of his assets seems contrary to the basic philosophy of income maintenance. An expressed purpose of IM payments is to subsidize wage earners who are, in a sense, making poor use of their labor. It is assumed that these payments (with less than a 100-percent tax on earnings) will not create a substantial work disincentive in wage employment. This assumption should also extend to the self-employed. Presumably they are attempting to get the highest return from these assets, and payments should reduce their incentive no

more (and perhaps less) than it will reduce the wage earner's incentive.[7]

Even if the above arguments are not persuasive, the difficulties of developing and applying rules to measure the loss of income due to inefficient management seems prohibitive. Consider these difficulties. The most likely approach would be to limit excludable assets at a level which would yield, at some specified interest rate, a return equal to the breakeven level of a particular IM program.

Income from self-employment is a return to both capital and labor. Since we are concerned only with returns to capital in measuring inefficient management, net income must be related to the two factors of production and divided accordingly. Such a division is impossible, short of doing an in-depth research analysis of the operation of each business.

But even if this problem could be solved, placing a limit on excludable assets at a level which would yield a target income at some specified rate of return, assumes one single acceptable return to capital. Or if different limits are established by type of business, then it assumes a common return within each type. However, there is substantial variation of returns (1) among types of industries, (2) depending on the size of business, (3) from year to year, and (4) by location. Farming traditionally has yielded one of the lowest returns on assets. Yet this return varies a great deal among types of farms and by year, as illustrated in the average figures below for 1968 and 1969.

| | Rates of return (percent) | |
Type of farm	1968	1969
Eggs	7. 85	20. 69
Tobacco and dairy	5. 18	3. 66
Tobacco	4. 94	8. 04
Broilers	1. 79	2. 46
Tobacco and beef	1. 77	Negative

Returns for 1968 varied from 1.77 to 7.85 percent, while returns for 1969 varied from a negative amount to 20.69 percent. Notice also the difference between years for any given type of farm. For example, the returns for egg producers was 7.85 percent in 1968 and 20.69 percent in 1969.

There is also substantial variation by area within any given year. For example, in 1968 grade B dairy farms in eastern Wisconsin returned 3.93 percent while grade B dairy farms in western Wisconsin returned 11.09 percent.

Finally, there is large variation among sizes of operations. During the 3-year period 1966–68, a sample of small dairy farms in Wisconsin returned 1.7 percent while medium-size operations showed a return of 4.2 percent. The same pattern is shown in the food industry among

[7] To be comparable, however, if the unemployed or underemployed wage earner is required to register for job training or better employment, one might require farmers receiving payments to sign up with the county agent, and businessmen with the Small Business Administration, in order to receive technical assistance.

grocery chains. Large chains show a return on investment 300 percent greater than small chains.

There exists a final argument against setting some limit on assets which implies a normal rate of return: It penalizes capital-intensive operations vis-a-vis labor-intensive ones. It will therefore provide some encouragement to substitute labor for capital, which may result in an "inefficient" combination of these two factors of production.

Encourage "Consumption" of Assets

The third rationale for not allowing an unlimited exclusion for business assets is that the self-employed with substantial net worth should dissave or, more likely, borrow against their assets to cover living expenses during a poor year. The argument has some appeal. The self-employed should not be permitted to maintain extremely large net worths while receiving IM payments, merely to facilitate the passing on of a handsome estate to their offspring. It seems reasonable to require that they borrow against (or dispose of a portion of) their assets to partially or wholly support themselves and their families during occasional low-income periods.[8]

Summary

Two of the above three reasons—the prevention of horror cases and the encouragement of borrowing against assets to cover short-term income reversals—argue for some restriction on the amount of excludable self-employed assets. The simplest approach is to set some absolute limit on the amount that can be excluded. However, imposing such a limit implies a "unique" assets level, below which it is acceptable to maintain assets intact and receive IM payments but above which a person must dispose of all of his excess assets to be eligible for payments. Therefore going $1 over the asset limit results in losing all of one's IM benefits. This, of course, is the familiar notch problem.

A second approach is to set no absolute limit on excludable resources, but merely to impute to income some percentage of assets above a specified level. This has three advantages over an absolute limit. First, it provides vertical equity by avoiding the notch problem. Secondly, it smoothly reduces IM benefits as assets increase up to a point at which benefits are reduced to zero. Thus the wealthy person is made ineligible for payments and those with relatively large amounts of assets are treated less generously than those with fewer assets. Finally, borrowing or dissaving is not forced. A person with a large imputation and hence a small payment can either reduce consumption or borrow (or dissave) according to his own preference.

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[8] This of course assumes that the person does not have an equity ratio so low that he cannot borrow further against his assets. If he cannot borrow, he may have to sell some assets, which might then reduce his earning potential. This is especially true when one considers that in most cases a portion of a business cannot be sold, rather all or none of it must be disposed of. To sell all of it means that, while IM payments would be reduced in the short run, they will probably be increased in the long run because many owners of small businesses are of a fairly advanced age and cannot compete well in the labor market for a wage job.

The exact level of imputation is somewhat arbitrary and depends ·on the specific makeup of the IM program being considered. How-·ever, for purely illustrative purposes I will suggest a specific imputa-tion plan.

Consideration of equity would argue for an imputation on all self-employed assets, but administrative simplicity argues for an imputa-tion only above some specified level of resources. In order to limit the number of cases for which imputations are necessary, that level ·should be set such that perhaps one-half to three-fourths of the po-tentially eligible self-employed have resources less than that amount.

Based on these arguments, my illustrative imputation plan is to impute to annual net income 20 percent of equity in business assets above $20,000. A table of imputations is shown below:

Net worth:	*Imputation*	Net worth—Cont.	*Imputation*
$20,000	0	$40,000	4000
$30,000	2000	$50,000	6000

For a family of four with a breakeven level as specified in H.R. 1 ($4,320), and with zero net income, IM payments would be zero above a net worth of $41,600. With a net income of $2,000, benefits would be zero if net worth was above $31,600. With an equity ratio of one-half, the above family of four would receive no payments if assets con-trolled exceeded $83,200 in the first case and $63,200 in the second.

Recommendation

Business assets of the self-employed should be excluded from the eligibility resource limitation, but a portion of equity in self-employed assets above a minimal level should be imputed to income prior to calculating IM benefits.[9]

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[9] There is also the problem of measuring equity, which is market value less debt. Consider first the problem of determining market value. Assuming a self-declaration procedure, recipients will have difficulty providing an estimate be-cause they do not have a good feel for the market value of their holdings. This is especially true in the case of small businessmen since there are few transactions in this type of property. Conceivably one could rely on assessed value (or some multiple thereof), but studies have revealed gross differences in assessment pro-cedures between States and among counties within States.

Secondly there is the problem of relating debts to specific assets. Businessmen get operating loans (which should not be deducted from assets) by securing their buildings or land. They also get loans to buy machinery by putting up their land as security. And they incur one debt for both personal and business use. Then there is the problem of determining the amount of a debt. If a farmer buys land on a 30-year mortgage, he may well pay over twice the value of the land in prin-·cipal and interest. With a self-declaration process, respondents are likely to re-port the total amount left to pay on a loan rather than the difference between the initial amount of the loan and the current liquidation value; however, it is the latter that is relevant in determining equity. When this is not known by the re-·cipient, he will have to get that information from the lender.

A final problem is posed by checking accounts. Many farmers, for example, keep ·only one checking account for both personal and business purposes. It is virtu-·ally impossible to distinguish the amount that pertains to each of the two pur-poses, yet this is necessary for making the distinction between personal and ·business assets. The most feasible solution is probably to impose some arbitrary ·maximum on the amount that can be declared as personal and designate the ·residual as business.

ELIGIBILITY LIMITS ON GROSS INCOME

The fourth and final major administrative issue regarding the self-employed is whether there should be limits on the amount of gross income above which eligibility for IM payments is denied. The arguments are the same as those advanced for placing a limit on the amount of excludable resources, and they need not be repeated here.

The original Family Assistance Plan [10] called for a limit on gross income as well as on business assets. Since the purposes are the same, however, the desirability of placing a limit on gross income should be evaluated in terms of (1) whether these objectives can be better served by a limit on gross income rather than on business assets or (2) whether the two limits taken together are preferable to either one alone.

To use gross income as an indicator of eligibility (or of true net income), one must assume that there is a normal relationship between gross and net income that is either common to all businesses or else to groups of businesses. It turns out that this is a poor assumption. Consider variations among types of businesses first.

Net profit as a percent of gross income is 2–3 percent before taxes for local variety department stores (it is 1–2 percent after taxes). Mediumsize food retailers face a net income of 2–3 percent of gross before taxes and 0.5–2 percent after taxes (this would be somewhat higher for the corner grocery). On the other hand, farmers receive a net income of 10–15 percent of gross income. If data were available on the local druggist, the service station operator, the insurance salesman, and so forth, additional variation would be encountered.

There is also substantial variation in the ratio of gross to net income for different operations within a given business category. Take farming for example. Column 1 of table 2 shows average net income for various types of farms for 1968. The third column shows the corresponding gross income, followed by the ranking of these gross in-

TABLE 2.—*Relation of gross to net income for various types of farms, 1968*

Types of farms, ranked by net income as a percent of gross income	Net income as a percent of gross	Net income ranking	Average gross income	Gross income ranking
Cash grain_____	Negative	14	$26, 000	9
Tobacco and beef_____	Negative	13	17, 000	11
Cattle ranch (northern plains)___	2. 8	12	40, 000	5
Sheep_____	3. 7	11	49, 000	2
Hog and beef fattening_____	8. 2	10	49, 000	2
Broilers_____	11. 0	9	4, 000	14
Eggs_____	12. 3	8	34, 000	7
Cattle ranch (northern Rockies)__	14. 7	7	41, 000	4
Tobacco and livestock (inner bluegrass)_____	17. 6	6	21, 000	10
Cotton_____	18. 5	5	86, 000	1
Tobacco_____	21. 5	4	12, 000	13
Dairy, Grade A (Wisconsin)_____	28. 7	3	28, 000	8
Wheat_____	29. 5	2	34, 000	6
Tobacco and livestock (outer bluegrass)_____	31. 7	1	16, 000	12

[10] The welfare reform plan proposed by President Nixon in 1969.

109

comes. Net income as a percent of gross varies from a negative figure to 31.7 percent, depending on the type of farming operation. (A study of two other years of data suggests that 1968 is not atypical). Moreover, there is virtually no correlation between gross and net income (the rank-order correlation is a negative .14).

Establishing a gross-to-net ratio for each type of farm would also encounter difficulties. First there is the problem of identifying the type of farm. For example, in 1968 the relation of net to gross was 21.5 percent for tobacco farms, negative for tobacco-beef, and 19 percent for tobacco-dairy operations. Secondly, typical net/gross ratios for the same type of farm vary substantially among regions of the United States.

Finally, there is the definitional problem of whether the relationship of net to gross income should be computed before or after a return to capital is allowed. The figures below show dramatic differences between the two definitions for some farm types and much lesser differences for others.

	Before interest on investment	After allowing 4 percent return on investment
Cash grain	43. 2	Negative
Cattle (northern plains)	53. 2	3. 8
Broilers	42. 0	11. 0
Dairy (New York)	43. 0	28. 7
Eggs	20. 1	12. 3

It is obvious that, at least for farmers (who are the largest group of low-income self-employed) the relation of gross to net income is even less satisfactory a determinant of eligibility than the relation of assets to net income. Insufficient data exist to determine whether restrictions on gross income and assets taken together would be preferable to either one used alone, but it seems unlikely.

Recommendation

It is recommended that no limit be placed on gross income in determining eligibility for IM payments; the purposes such a limit is intended to serve are better met by the imputation on business assets recommended previously.

CONCLUDING REMARKS

In order to approach horizontal equity in the treatment of self-employed and wage-earning individuals, the administrative guidelines of any income maintenance program must be formulated carefully. Because of the inequities found in the positive tax system, it would be a mistake to simply use IRS rules for measuring self-employment income and expenses. To deviate from these rules will place a greater burden on the self-employed recipient, for in some cases he will be required to calculate income one way for IRS and another way for the IM agency. Hopefully the recommendations made in this paper would keep this burden to a minimum.

It is also important, insofar as possible, to secure equity among the self-employed. The recommended imputation to income based on net worth will serve that end, as will some of the suggested modifications to IRS guidelines for measuring income and expenses.

There are other, lesser issues in administering an income maintenance program to the self-employed, but the problems addressed above are the major ones. If the goals of horizontal and vertical equity can be approached, the program will be a sound one.

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