D. Lee Bawden, University of Wisconsin

Increasing concern about the exclusivity, inequity, and inadequacy of the present welfare structure has stimulated a search for alternative income maintenance schemes to augment or replace current public assistance programs. One of these alternatives is the negative income tax. An unique social experiment financed by the Office of Economic Opportunity is now under way in New Jersey to test the workability and consequences of this program for families residing in urban areas. This paper reports the plans for a second experiment, the purpose of which is to measure the effects of alternative negative income tax (NIT) programs upon rural people.

The paper will be organized as follows: (1) rationale for experimentation, (2) rationale for an additional experiment in the rural sector, (3) a discussion of the objectives and design of the planned rural experiment, and (4) some comments on social experimentation.

Rationale for Experimentation

The desirability of adopting a nationwide negative income tax depends, among other things, upon: (1) the cost of the program and (2) its effect upon the behavior and attitudes of the poor. While some answers can be provided from our existing state of knowledge about these issues, others cannot.

Taking the current income distribution, the cost of any specific negative income tax plan can be quickly calculated, assuming no change in earned income of the recipients. Unfortunately there is little evidence to support or refute the assumption that individuals would not alter their work habits and, consequently, their earnings if a negative income tax were introduced. In fact, this issue is basic to the arguments advanced by opponents of the negative tax -- that the poor are by nature shiftless and if guaranteed a minimum income, regardless of the negative tax imposed, a good many of them would prefer to accept that guarantee in lieu of working. Obviously some evidence exists to allay the fears of the most pessimistic.¹ But there is little evidence concerning just how much work disincentive, if any, various NIT alternatives would induce. Obviously, the more work disincentive, the greater the program cost since about half the money income presently received by the poor is earned from labor. Experimentation seems desirable in order to gather more information with respect to this issue.

The cost of any negative income tax program must be balanced against the benefits, and these benefits will be mostly in terms of changes in the attitudes and behavior of the poor upon receiving transfer payments. Judgments can be made about some behavioral changes by studying the (unassisted) near-poor. An example might be expenditure patterns. However, the poor are considered by many, and perhaps rightly so, to be different from the near-poor they are poor because they are different or they are different because they are poor. In either case one would expect their behavior after being elevated above the poverty line to be different from those who, unaided, have been able to avoid poverty. A good example of this is work behavior. Some believe that the poor are that way because they are lazy; others believe that the poor have less inclination to work because of past failures to find or hold jobs. On the other hand, many would consider the near-poor to be reasonably industrious, for to have evaded poverty they must be holding part-time or full-time jobs. Another example is the behavior of children of the poor -- they may well react differently after receiving transfer payments than those who come from near-poor families.

Evidence is also lacking on the effect of the negative income tax on other behavioral and attitudinal characteristics of the poor. An experiment simulating one or more negative tax programs would provide substantial information about many of these issues. For this reason, the Office of Economic Opportunity is now conducting a negative income tax experiment among urban families in New Jersey.²

Reasons for a Rural NIT Experiment

The New Jersey experiment is expected to yield a great deal of information about the effect of various negative tax plans on attitudinal and behavioral characteristics of urban wage earners. There is reason to believe, however, that these results may not be directly applicable to the rural sector, in which onethird of the nation's poor resides. One expected difference between rural and urban residents is in their work response to such a program -- because of differences in alternative employment opportunities and in the proportion of self-employed people. An accurate estimate of the magnitude of disincentive, both rural and urban, is crucial to estimating the cost of a nationwide program.

A negative income tax is also expected to have a substantial effect on the rate and composition of migration, both intra- and intercommunity. Net migration out of rural areas is expected to exceed 10 million people during the 1960's and gross migration may be double that amount. Since there is considerable interest by policy-makers in ways to reduce and/or direct this flow, it seems important to learn the effects of NIT payments upon rural-urban migration -- both for evaluating the likely effects of a comprehensive NIT program and for gathering information useful in designing specific programs to induce or retard migration.

Also, it is not readily apparent that the specific program most effective for addressing urban poverty problems is best suited for rural poverty. For example, a large number of rural residents with low incomes are operators of farms or businesses in small towns. Determination of annual income as well as the appropriate timing of payments for the self-employed are likely to be different than for wage earners. This would be especially true for those farmers who receive their entire annual income at harvest time. The provisions for self-employed individuals in the New Jersey experiment are admittedly simple and probably inadequate for a nationwide, comprehensive NIT program.

The New Jersey experiment restricts eligibility to families of two or more members, with a male head between the ages of 18 and 58. Since a large number of poor households are headed by a female of working age, a study of their work behavior is also necessary for an accurate estimate of the cost of a nationwide NIT program. There seems to be no obvious way to infer from male work behavior the effect of this program upon female heads.

The second major category excluded from the New Jersey experiment is the aged. Men and women over 65 years of age make up onesixth of the poor people and head about onethird of the poor households in the United States. While the work incentive issue is of less significance for this age group, it is nevertheless important. Also, of interest is the effect of a negative income tax on migration, spending patterns, and attitudinal changes of older people.

This need for experimentation in addition to that being conducted in New Jersey was recognized by the Ford Foundation, and a grant was made to the Institute for Research on Poverty at the University of Wisconsin to plan for a rural experiment. Such an experiment has been designed, and the first stage has been funded by the Office of Economic Opportunity. This experiment will be discussed in some detail below.

The Dispersed Rural NIT Experiment

Under the Ford grant ten staff members at the University of Wisconsin, all affiliated with the Institute for Research on Poverty and representing the disciplines of economics, agricultural economics, sociology, political science, law, and social work, combined in an interdisciplinary effort to design the rural experiment. It involves the selection of a dispersed sample of about 800 rural (farm and rural nonfarm) families; 600 of these will be headed by a male aged 18 to 58, 100 by a female in the same age range and 100 headed by a male or female over 58 years of age. The sample is being drawn now, and the first payments will be made this fall and will continue for a three-year period. The estimated total cost is \$3.3 million.

The experiment is patterned after the one in New Jersey: it has the same basic objectives, a comparable experimental design, similar accounting periods for determining income and making payments, and it will be of identical duration. It differs from the urban experiment in that eligibility will be extended to single households as well as those headed by females and the aged, and a third accounting plan will be experimented with. Minor variations also exist in the definition of earned income.

Each of the major facets of this experiment will be briefly discussed below.

Objectives of the Experiment

The primary objective is to measure the effect of alternative tax rates and minimum guarantees upon the work incentive of rural residents and to compare and contrast these findings with those of New Jersey. This issue remains of paramount importance because a major hurdle to adoption of a nationwide NIT program is the commonly-held belief that payments, even with the negative tax, will significantly reduce the work effort of able-bodied males.

The second principal objective is measuring the effect of alternative NIT plans on the rate and composition of migration, with particular attention given to differences in response among age groups.

Of secondary importance are a host of other objectives, one of which is to learn the effect of payments upon the children of the poor -- their health, school performance, peer and reference group involvements, attitudes towards authority, delinquency rates, vocational aspirations, and numerous other characteristics. Changes in expenditure patterns are also of interest -- the distribution among savings, investment, and consumption; relative expenditures on necessities and luxuries; marginal expenditures on medical and dental care; and the effect upon credit vs. cash buying. Other objectives include the effect of NIT payments upon adult education (including job training), family structure (separation and divorce rates), involvement in social, business, and political organizations. family health, and attitudes towards one's self and others.

Location

The sample is being drawn from two separate locations, one in the South (North Carolina), the other in the Midwest (Iowa). The alternative of taking a nationwide rural sample was rejected in deference to administrative ease and a smaller operating budget. The choice of two areas rather than one is made because policymakers may distinguish between northern and southern rural residents. By selecting two locations, regional and ethnic differences in work incentive, migration, and other behavioral characteristics can be tested. The South is chosen because it contains a higher incidence of rural poverty than any other area in the United States. The Midwest is selected because it is (as classified by the USDA) "a relatively affluent area with a poor white minority." Since the Midwest itself is not particularly depressed, there is not a high degree of unemployment (desirable condition for an experiment designed to measure work disincentive.)

Criteria for selection of the specific counties in each region include the size and number of rural towns, their proximity to large cities, density of the farm population, diversity of agriculture, and representativeness of the entire region with respect to incidence of poverty, unemployment, racial mix, age distribution and educational level.

Experimental Design

The experimental design is similar to that in New Jersey. Families are being selected randomly from predesignated areas and, upon acceptance into the program, will be randomly assigned to a control group or to one of the program alternatives. Individuals will remain on that assignment for the duration of the experiment, and will be eligible for payments for the 36-month period regardless of their subsequent geographic location, as long as it is within the United States.

Family income at the time of screening must not exceed one and one-half times the established poverty line. These poverty levels are shown below for various family sizes. The poverty level will be adjusted annually to account for increases in the national cost of living.

Size of Household	Full Povert	Full Poverty Levels	
	Marginal	Total	
	dollars per year		
Household Head	1688	1688	
Spouse	791	2479	
First dependent	528	3007	
Second dependent	475	3482	
Third dependent	422	3904	
Fourth dependent	369	4273	
Fifth dependent	316	4589	
Sixth dependent	264	4853	
Seventh dependent	211	5064	
Eighth dependent	158	5222	
Additional dependents	0	5222	
Other adults	950		

Any household which can establish eligibility for public assistance (including aid to the permanently and totally disabled, old-age assistance, aid to the blind, aid to families with dependent children, and general assistance) must choose either welfare or NIT payments, but not both. NIT payments will cease as soon as the household receives welfare benefits and resume according to the regular schedule as soon as such payments stop.

To insure a wider variation in environment the sample density will be fairly sparse, but not so much as to make selected individuals oddities in their communities. The sample will be stratified according to income level.

Program Alternatives

Five program alternatives involving three tax rates and three guaranteed minimums, will be tested. These are shown below for a family of four.

Poverty	Tax Rates			
Levels	30%	50%	70%	
	Guarantee Level/Cut-off			
1/2		1741/3482		
3/4	2611/8703	2611/5222	2611/3730	
Full		3482/6964		

About 50 percent of the families will be assigned to a control group and 50 percent assigned to the various plans, probably with less proportionate sampling in the more expensive plans.

Definition of Income

Income will be defined as the total gross income in cash or kind received by the household from all sources (including social security payments, unemployment compensation, strike benefits, and veterans' benefits). In some cases an imputed income will be added to reported income, with payments based on the total. Farmers' reported income will be increased five percent to reflect the value of livestock and livestock products (milk and eggs) produced and consumed on the farm. (Garden produce consumed at home will be ignored for the farmer and nonfarmer alike). Homeowners will have an imputed rental value added to their income. Finally, a percentage of net capital wealth will be added to income to reflect both earnings and potential capital consumption, the latter reflecting the thesis that the poor should, in part, "live off their assets rather than the Government."³ The first \$20,000 of business assets and the first \$10,000 equity in owner-occupied homes will be excluded from net capital wealth for purposes

of this imputation.

Payment Interval and Income Accounting

Payments will be based on income and the number of dependents as reported on returns filed by the participants. These returns will be filed every four weeks, showing gross receipts (wages for salaried employees, cash sales for businessmen) and (for the latter) <u>cash</u> expenses. Businessmen will report depreciation and other non-cash costs once a year, after filing their positive tax returns. All households will be paid biweekly, but the accounting period for computing income, upon which those payments are based, will be treated as an experimental variable.

One extreme is an income accounting plan that attempts to respond to a current lack of income -- to "fill the gap" so that a household's income does not fall below some predetermined level (this is the intent of most existing welfare programs). Coviously this is an impossible goal to achieve unless a family can accurately forecast its future income; payments based on a reported income for some past period cannot, by definition, be responsive to current income needs unless that income never varies. This objective can be approximated, however, by basing payments only on income for the preceding four-week period, the assumption being that if a wage earner loses his job, his family can live for four weeks on the wages paid for the preceding four weeks work. At the end of the four weeks of unemployment, the NIT payments would respond to this situation, providing money for living expenses for the subsequent period.

This is the rationale for one of the income accounting plans to be used in the rural experiment -- the one-period (four-week) accounting plan.⁴

A second income accounting plan to be experimented with is the 13-(four-week) period moving average, i.e. an average of the preceding 52 weeks' income. In contrast to the oneperiod plan, the 13-period moving average is quite unresponsive to current needs resulting from fluctuating income levels. It is more appropriately viewed as a stabilized income supplement, most relevant to those with a fairly steady, but chronically deficient, income. As in the first plan, income is reported every fourth week and NIT payments are made biweekly.

The third accounting plan to be used lies between these two extremes -- it is a threeperiod moving average, with each period representing four weeks as below. The majority of households in both the rural and urban experiments will be under this plan.

The experimental significance of testing three accounting plans is not in their varying responses to income needs, but rather in the related issue of varying response of household behavior to the different plans. A primary objective of the experiment is to measure the work response of households to alternative negative tax rates. But the tax rates are not independent of the accounting period. Under the one-period accounting plan, the tax bite of an increase in work effort (and hence earned income) is felt immediately and fully in the next two biweekly NIT checks. Under the more retrospective 13-period plan, only onethirteenth of the tax bite is felt in the following two biweekly NIT payments, i.e. the immediate effect of a change in work effort on NIT payments is diluted. But, by the same token, that effect is felt over a longer period-a full year under this particular plan.

This phenomenon can perhaps be more vividly illustrated by an example in the reverse direction. A person under a one-period accounting plan might be more tempted to remain idle for a month, knowing that his next two NIT checks will guarantee him a minimum income for that period, than if he were under a 13-period plan in which only one-thirteenth of that minimum guarantee would be reflected in the next two checks.

At issue, then, is a person's perception of the consequences (in terms of NIT payments) of a change in his work behavior, which in turn is partially dependent on the length of his planning horizon and on his assumed discount rate of future earnings.

Measurement and Analysis

The experimental households will be interviewed quarterly to gather information on the previously mentioned attitudinal and behavioral characteristics. Information will also be gathered from sources other than the families, such as schools, employers, hospitals, public organizations offering services to the poor, and other relevant institutions and organizations.

Some Comments on Social Experimentation

Experiments designed to measure physical responses of both human and nonhuman agents are common, especially in the area of medical science. Psychologists have performed social experiments involving animals. There have also been social experiments involving human beings, but these fall principally in the areas of business games, consumer panels, and observed group interaction. Social experimentation of the nature and magnitude of the negative income tax experiments is unique. Some possible problems can be foreseen; others cannot. The Hawthorne Effect is obviously a matter of concern. Since families involved in these negative income tax experiments are generally unaware of what we are trying to measure, let alone what responses we expect, we are hopeful that this will not lead to a serious bias.

The greater problem is contamination of the experiment by the communication media. There has already been considerable pressure by representatives of television, radio, magazines, and newspapers to learn the details of the New Jersey experiment and to interview the families involved. Obviously, this type of publicity could easily lead to serious experimental bias. To date, the communications people have acted quite responsibly when explained the implications of their actions, but it is not clear that these arguments can successfully stave off their efforts for the entire duration of the experiment.

Local changes in the employment situation or the wage structure will have an influence upon the measured responses of individual participants. This is one of the reasons that both the urban and rural samples are not only dispersed within a specific area, but are drawn from more than one area. This, however, does not control for external national changes such as in the general level of unemployment, fiscal spending, or inflation.

Another potential problem in this type of social experimentation is a change in the laws governing the actions of the participants, or their benefits or liabilities to society. For example, if the Family Assistance Program is enacted as proposed with a guarantee of onehalf the poverty level, it will be roughly comparable to the lowest plan in the urban and rural experiment and thus will have little or no effect on the experimental households receiving NIT payments. However, it will change the status of many of the control families, causing some difficulty in the comparative analysis.

Finally, there is just the problem of keeping track of the original sample. In the first four months of the New Jersey experiment an attrition rate of five to six percent was experienced. Some of this was due to families moving and leaving no forwarding address. Obviously, this could potentially bias the experiment since these families may well differ in their response to the program from those who remain in the experiment.

There are other serious problems in this type of social experimentation, as well. A period of three years cannot hope to simulate a nationwide, comprehensive, long-term negative income tax program. Furthermore, the information available to participants in a nationwide program will be different than that available to those in the experiment. In a nationwide program there would also be considerable interaction among participants, among non-participants with respect to the program, and between participants and non-participants, all of which would likely influence the attitudes and behavior of those receiving transfer payments.⁵

In summary, those involved in these experiments recognize a good many limitations to an experimental approach of evaluating alternative policies. It remains to be seen whether the information gathered from these and similar efforts will justify the sizeable cost of obtaining it.

Footnotes

*Helpful comments were received from Harold Watts on an earlier draft of this paper. Others contributing to the project, and hence to this paper, include Bert Adams, Joel Handler, Joseph Heffernan, Robinson Hollister, William Klein, Robert Lampman, Charles Metcalf, Charles Meyer, and William Saupe.

¹For example, it is estimated that of all the male heads of poor families in 1967 who were less than 65 years of age, 60 percent held a full-time job the entire year, 35 percent worked part of the year or had a part-time job all year, and only five percent did not work at all [1, p. 11].

²For a detailed discussion of the urban experiment, see Watts [3].

³For a discussion of the various forms that this may take, see Weisbrod and Hansen, [4].

⁴This plan, as well as the three-period accounting plan to be described, embodies a "carryover" provision. Earned income in excess of the breakeven, or cut-off, level is carried forward for a maximum of one year and is added to income in any period in which such income falls below the breakeven level. NIT payments are based on earned income plus any amount assigned to that period from the carryover.

⁵For an in-depth consideration of the problems of social experimentation, especially regarding income maintenance, see Orcutt and Orcutt [2].

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