PROGRAM COST, ADEQUACY OF SUPPORT, AND INDUCED LABOR SUPPLY REDUCTION OF A NEGATIVE INCOME TAX

by

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CHAPTER I

INTRODUCTION AND SUMMARY

Among the several goals of an income transfer program are (1) the modification of the distribution of personal income, or utility, such that the absolute and/or relative position of the poorest families is improved and (2) the encouragement of productive employment among transfer recipients. The latter goal is motivated by the desire on the part of many transfer recipients and of many of the taxpayers who finance transfer programs to encourage economic self-sufficiency among recipients. A secondary motivation is the desire for the goods and services provided by employed recipients. An example of a program designed primarily to achieve the first goal is a lump sum income transfer from rich to poor families; and an example of a program which achieves the second goal is a wage or earnings subsidy program. One of the limitations to the achievement of these goals is the number of dollars, or dollars worth of goods and services, transfered, or in other words the budgetary cost of the program.

This study presents estimates of the trade-offs between the goal of raising the incomes of the poorest families, the goal of promoting the private employment of poor people, and the budgetary cost of replacing two of the existing transfer programs, Aid to Families with Dependent Children (AFDC) and Food Stamps, with a universal negative income tax (NIT) in the fifty states and the District of Columbia. The estimates are made with a microsimulation model of existing tax and transfer programs, of an NIT, and of the labor supply response of transfer recipients to the new program. The trade-offs are shown by simulating the transfer payments, the employment impacts, and budgetary cost of each of six different NIT programs. The design differences among the NIT plans are limited to variations in the income guaranteed to a family with no other income, or the support level, and to variations in the rate by which the transfer payment is reduced per additional dollar of nontransfer income, or the benefit reduction rate.

Whereas a trade-off between adequacy of support and program cost is to be expected, the trade-off between support and encouragement of employment is not clear. An NIT may be made more generous by increasing the support level, by decreasing the benefit reduction rate, or by a combination of both. The higher payment of a more generous NIT plan may induce a lower desired level of work effort. The lower benefit reduction rate of a more generous NIT plan my however induce a higher desired level of work effort. The size of the labor supply response induced by a more generous plan is thus theoretically ambiguous.

The effects of the NIT on several subpopulations of recipient families are of particular interest. Two such groups are families that are eligible for a transfer payment under existing programs and families that are eligible for a payment for the first time under the NIT. The large majority of families receiving payments from the largest existing welfare program, AFDC, are headed by a woman and contain children. The second group of particular interest consists of husband-wife families. In many states, the current AFDC program is not designed to maintain the income of such families, making husband-wife families the principal component of the low-income population that is newly eligible for a transfer payment under the simulated welfare reform. Since a major purpose of transfer programs is the modification of the distribution of personal income, families are divided into ten groups based on annual nontransfer income.

The budgetary cost, caseload, and labor supply response estimates represent the expenditure side of an NIT program. Each of the various potential methods of raising the revenue required to finance an NIT has its own implications for the distribution of income and for labor supply. The effects of the raising revenue and the net shift of the personal distribution of income of the combined expenditure and revenue sides of the NIT program are not estimated.

The study finds that large increases in the income of poor families, small reductions of the work effort of recipients, and low budgetary cost cannot be achieved simultaneously. Large income increases and low budgetary costs may be achieved at the expense of inducing many poor people to reduce their work effort substantially. Large income increases and small reductions in work effort may be achieved at the expense of large budgetary costs. Small labor supply reductions and low budgetary cost may be achieved only by providing inadequate income floors to poor families. The next section presents the microsimulation model, section III describes the data base, section IV presents the results, and the final section offers conclusions.

CHAPTER II

THE SIMULATION MODEL

The model consists of simulations of (1) existing tax and transfer programs,[1] (2) a hypothetical negative income tax, and (3) the labor supply response to the NIT. The model is referred to as a microsimulation because it uses a microdata base and forms aggregate results by summing over the sample of micro-observations. In this section an overview of the entire model is presented, and then each of these three simulations is discussed separately.

OVERVIEW

Information about current tax and transfer programs is necessary because a family's induced labor supply adjustments are determined by its economic circumstances under the NIT relative to its circumstances under the current programs. The simulation of such information about current programs is required because the data base used in this study, the Current Population Survey, discussed in the next section, does not contain reliable data on such variables.

Both the simulation model of existing tax and transfer programs and of the hypothetical NIT begin with reproduction of the program rules and regulations. These rules are applied to each person or family in the data base to determine the tax liability of and the transfer payment due to each family. The second step in the simulation of transfer programs is the reproduction of the behavioral rules governing each family's decision to participate in the several existing welfare programs. The third

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[1]For a discussion of this part of the model, see Harold Beebout (1977).

simulation, that of the labor supply response to the NIT, consists of behavioral rules governing the employment decisions of each family head and spouse. The replacement of current transfer programs with an NIT has an income and tax effect on the desired employments of the head and spouse of families participating in the NIT. The new level of employment implies new levels of earnings, NIT payment, and tax liability.

THE SIMULATION OF CURRENT TAX AND TRANSFER PROGRAMS

The existing tax and transfer programs included in this simulation are federal and state income taxes, social security payroll taxes, Aid to Families with Dependent Children (AFDC), Food Stamps, General Assistance, and Supplemental Security Income (SSI). The simulation of these programs is done with the Micro-Analysis of Transfer to Households (MATH) model that is maintained by Mathematica Policy Research, Inc. The first set of operations in the model is the computation of federal, state, and social security tax liability. The social security tax is computed in a straightforward way for each person with earned income in a covered occupation. The simulation of federal and state income taxes is performed with the statistical imputation of capital gains to the data file, the simulation of federal and state tax filing units,[1] decision rules about the type of return (joint, head of household, or single), stochastic decision rules about taking the standard deduction or itemizing, and, if itemizing, the size of the deduction. These routines produce a tax liability and a marginal tax rate for each program. The federal and state tax rates are those applicable to the tax bracket that the filing unit is in.

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[1]A filing unit is the set of family members whose income and characteristics are considered and for whom the tax liability or transfer payment is computed. This set of people may not include everyone in the family.

The second group of computations simulates existing transfer programs. First, each household is examined to see if it contains one or more categorically eligible filing units for any of the transfer programs. Categorical eligibility means that the filing unit meets all the eligibility criteria for a transfer program, except the income and/or wealth criteria. Examples of categorical eligibility criteria are single-headedness for AFDC and age or disability for SSI. The next step is to determine whether the categorically eligible filing unit passes the income and/or asset requirements of the programs and if so, to compute the transfer payment that the unit is eligible to recieve. The final phase is the selection of filing units from the set of categorically and income eligible filing units to participate in the transfer programs. Since the data base does not contain sufficient information to reliably deduce participation, participants are chosen stochastically from the set of eligibles. A probability is assigned to each eligible unit, and a uniform random decimal is generated in order to make the decision. The probability of being picked varies by program, categorical reason for eligibility, region, and simulated payment level.

The model of current transfer programs produces the payment and benefit reduction rates of the three programs. The statutory AFDC benefit reduction rate on earned income, 67 percent since 1967, is that proportion of countable income to be subtracted from the support level in order to compute the payment. The effective benefit reduction rate is the change of the payment brought about by a change of earnings, or the partial derivative of the payment formula with respect to earnings. This rate is different from 67 percent because states frequently have arbitrary maximum allowed payment levels, because states occasionally arbitrarily reduce the computed payment by a percentage in order to reduce welfare costs, and because the payment formula allows a credit for work related expenses. Work related expenses are positively related to earnings, thus causing the effective rate to diverage from the statutory rate percent.

The labor supply simulation uses the effective AFDC program characteristics estimated empirically by Bendt (1975) from the 1973 AFDC survey of case records. The simulation uses the rates estimated for female-headed AFDC units for all AFDC units. In the absence of either empirical evidence or theoretical expectation about the value of the rate for male-headed units, it is difficult to guess at the size or direction of the potential bias caused by this assumption.

The Food Stamps payment, unlike the AFDC payment, is a step function of countable income. The caseworker deducts a number of expenditures from gross income, which includes any AFDC payments, to produce countable income. The caseworker then uses the level of countable income to find the stamp value and the purchase requirement in a table. The true marginal benefit reduction rate alternates between zero and infinity. The model computes the value of food stamps corresponding to the recipient's observed income and again for a slightly greater income. The ratio of the change of payments to the change of income is used as the benefit reduction rate.

THE NEGATIVE INCOME TAX

The hypothetical NIT plan is simulated in a manner similar to that of the existing programs. With the categorical and income eligibility rules, a payment formula, and a filing unit definition, the model examines each household to see if it contains any filing units eligible to receive an NIT payment and, if so, computes the size of the payment. This simulation of the NIT is different from that of current transfer programs in that every filing unit eligible to receive a payment is assumed to participate in the NIT.

The categorical eligibility rules used in this study are:

1 A filing unit is made up of the primary nuclear family in each household and all other nuclear families in the household whose head is related to the primary family. Other nuclear families in the household whose head is not related to the primary family form separate filing units.

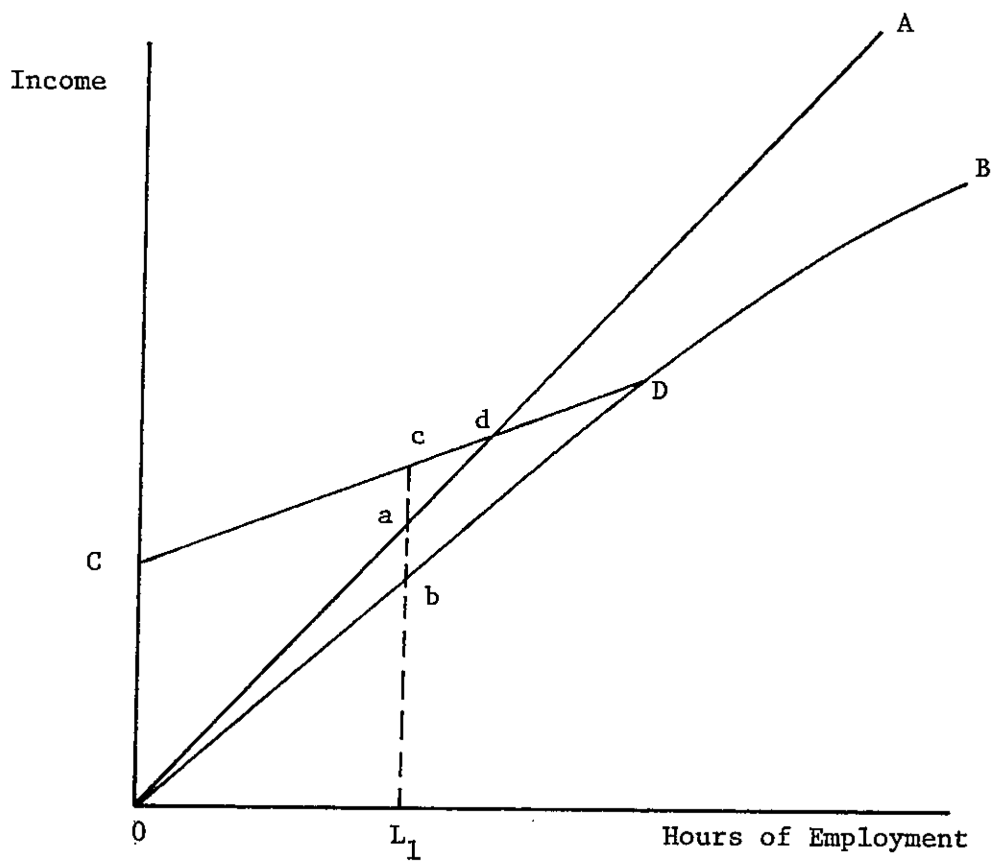
2 Filing units whose heads are older than sixty-four, younger than fifteen, in the military, or in an institution, and filing units with no adult head, are not eligible for an NIT payment.

3 Persons receiving an SSI payment are not eligible to receive an NIT payment.

The NIT payment schedule is illustrated in figure 1. The axes are hours of employment as dollars of income. The line $\overline{CA}$ is the locus of gross earned income as the amount of time employed at a constant wage rate, W, varies. For simplicity the intercept is put at the origin, meaning that there is no unearned income. The line $\overline{OA}$ is transformed into $\overline{OB}$ by the vertical subtraction of tax payments from $\overline{OA}$. The NIT is represented by $\overline{CD}$. This line shows that a labor supply of $\overline{OL_1}$ results in a pretax, pretransfer income $\overline{L_1a}$; a tax liability of $\overline{ab}$; a transfer payment of $\overline{cb}$, consisting of a tax reimbursement of $\overline{ab}$ and a pure transfer of $\overline{ca}$; and a final posttax, posttransfer income of $\overline{L_1c}$. The maximum payment, at

FIGURE 1

THE NEGATIVE INCOME TAX PAYMENT FORMULA



zero labor supply and earnings, is $\overline{OC}$, which is the support level. The pure transfer, $\overline{ca}$, eventually falls to zero at the point d called the grant breakeven point. As more labor is supplied beyond the grant breakeven point, the payment consists only of a partial tax reimbursement. The tax reimbursement falls to zero at point D, called the tax breakeven point.

Equation (II.I) expresses the payment formula algebraically. Letting the NIT payment be denoted P, the support level by S, the amount of earnings by E, the amount of taxes by T, the amount of unearned income by U, the payment is computed as:

$$P = S - U + T - R\ (E). \qquad \text{(II.1)}$$

The parameter R is the benefit reduction rate. The formula shows that all of the unearned income is subtracted from the payment and all of the taxes are added to it. Another feature, not shown in figure 1, is that the NIT plan is simulated to replace both AFDC and Food Stamps.

The support level of the simulated NIT for each family is a proportion of its federally defined poverty level of income. The poverty line is a function of family size, farm-nonfarm residence, and sex and age of the family head. Poverty lines do not vary by state or regions, so that the impact of a national NIT which uses the poverty line as a basis for its support level varies substantially across states or regions.

LABOR SUPPLY RESPONSE

Labor supply is considered to be determined voluntarily by each noninstitutionalized, healthy filing unit head and spouse. The change of family income is the NIT payment less any AFDC or Food Stamps benefits replaced by the

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An annual accounting period is assumed in both the model of the NIT and the model of labor supply response. The annual NIT payment is computed from annual income once in the simulated year. Each potential supplier of labor is assumed to determine annual employment once per year based upon the annual NIT payment and the NIT benefit reduction rate. Such an accounting period is unrealistic in both cases. An NIT that is computed once per year from annual income would not meet the financial needs of any family whose income is low for only a few months out of the year. A potential labor supplier may consider income and tax rates during a period of time other than a year when determining the desired supply of labor.

Income underreporting and nonreporting to the agency administering the NIT is assumed to be the same as that which exists in the data base. Halsey, et al. estimates substantial income reporting to the AFDC program.[1] While income is probably not perfectly recorded in the simulation data base, the amount and distribution of misreporting on the data base is unlikely to be the same as that to the agency administering the NIT.

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[1]Harlan Halsey, et al. (1977).

NIT. The change of the net wage rate is the difference between R and the cumulative pre-NIT tax and benefit reduction rate, t times the gross wage rate, (R-t) W. The simulated labor supply response is sum of the income and wage effects measured by Keeley, et al.[1] from the Seattle and Denver Income Maintenance Experiments.

The income maintenance experiments subjected a sample of low-income families in each of the two cities to an NIT, some families for three years and some families for five years. The experiments were conducted in the early 1970's and each contained a control sample. The sample of treatment families was divided into subsamples, each of which was assigned to an NIT program with a unique combination of benefit reduction rate and support level. The labor supply of the treatment families was observed two years after the beginning of each experiment and compared to both the contemporary labor supply of the control families and the pre-experimental labor supply of the treatment families.

The change of the labor supply of treatment families over the first two years of the experiments is decomposed into the NIT income effect, the NIT wage effect, and a secular trend measured from the control sample. The labor supply two years into the experiment of a member of the treatment sample, H_e, is determined by

$$H_e = \beta_1 \Delta t W + \beta_2 \Delta Y + \beta_3 H_p + \beta_4 + e_1, \qquad (II.2)$$

where ΔY is the change in disposable income due to the NIT measured at the preresponse labor supply, Δt is the change in the cumulative tax rate on earnings due to the NIT, H_p is the labor supplied at the beginning of the experiment, β_4 is an intercept, and e_1 is a residual. Crosssubstitution of work effort among different family memebers is assumed to be

[1] The functional form of the response equation is adopted from Keeley et al. (1977).

insert 1

The labor supply decision is reached by maximizing utility, as a function of money income and nonmarket time, subject to a time constraint, that market time must sum to constant total available time, and an income constraint, that one must give up hours of nonmarket time to get money income, where the exchange rate between hours and income is the wage rate. Several income constraints are implied by figure 1, in which the indifference map would be convex toward the sout-east corner. In the case of a family initially not receiving any transfer payments becoming eligible and participating in the NIT upon its implementation, the family's income constraint shifts from $\overline{ODB}$ to $\overline{CDB}$. The labor supply response is the difference between the hours of employment under the former income constraint and that of the latter income constraint.

The nonconvexity of the feasable set after the NIT is implemented implies the existence of two local utility maxima, one along the $\overline{CD}$ segment and one along the $\overline{DB}$ segment. One of the two local maxima is also the global utility maximum. The simulation model reproduces the behavior of jpersons shifting from an equilibrium on the segment $\overline{OD}$ to an equilibrium on the segment $\overline{CD}$. It does not reproduced the behavior of individuals who find their initial equilbrium on segment $\overline{DB}$ is inferior to a global maximum on segment $\overline{CD}$ after the NIT is implemented.

The shift of the income constraint by the NIT is parameterized by the change in the family disposable at the initial hours of employment and the change in the net wage rate. The net wage rate is the gross wate discounted by the NIT benefit reduction rate and by federal and state income tax rates and the social security tax rate.

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The income and wage effects in the simulation model are these estimated by Keeley, et al. using data from the Seattle and Denver Income Maintenance Experiments.[1] The income maintenance experiments subjected a sample of low-income families in each of the two cities to an NIT, some families for these years and some families for five years. The experiment were conducted in the early 1970's and each contained a control sample. The sample of treatment families was divided into subsamples, each of which was assigned to an NIT program with a unique combination of benefit reduction rate and support level. The labor supply of the treatment families was observed two years after the beginning of each experiment and compared to both the contemporary labor supply of the control families and the pre-experimental labor supply of the treatment families.

zero. From (II.2), the labor supplied by a member of the control sample two years into the experiment, H_c, may be expressed as

$$H_c = \beta_3 H_p + \beta_4 + e_2, \qquad \text{(II.3)}$$

since ΔY and Δt are zero for controls. The labor supply response due to the NIT is the difference between (II.2) and (II.3):

$$H_e - H_c = \Delta H = \beta_1 \Delta Y + \beta_2 \Delta t W + e_3 \qquad \text{(II.4)}$$

Equation (II.2) was estimated using samples on both treatment and control heads and spouses.

The resulting income elasticities were -.13 for husbands, -.96 for wives, and -.32 for female heads. The substitution elasticities were .10 for husbands, .22 for wives, and .12 for female heads.[1] Equation (II.4) was implemented in the simulation model. Note that a positive labor supply response to the NIT may be predicted for families whose disposable income is reduced by the NIT, which occurs for many families previously receiving AFDC benefits. This application of experimental results contains the assumption that the labor supply behavior of a national sample is the same as the Seattle and Denver samples. This assumption awaits validation by comparing existing data from the several experimental sites and from other longitudinal data.

An annual accounting period is assumed in both the model of the NIT and the model of labor supply response. The annual NIT payment is computed from annual income once in the simulated year. Each potential supplier of labor is assumed to determine annual employment once per year based upon the annual NIT payment and the NIT benefit reduction rate. Such an accounting period is unrealistic in both cases. An NIT that is computed once per year from annual income would not meet the

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[1] Michael Keeley, et al (1977), Part I, p. 24.

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This is a partial equilibrium model in several senses. As indicated by (II.4), the model simulated the change in labor supply induced by the NIT during the first two years of its implementation. The subjects of the Seattle and Denver Income Maintenance Experiments may not have reached a new labor market equilibrium two years after the initiation of the NIT, both because of the slow rate at which labor supply adjusts to an exogenous stimulus and because people may behave differently under an experiment of limited duration than under a national program of indefinite duration. The model does not include a response of employers to the NIT and the resulting shift of the labor supply curve. Nether changes in wage rates nor changes in the quantity of labor demanded are simulated because. Such changes were not observable in the experiments because the experimental samples did not saturate either local labor market. Finally, the model does not include the income multiplier effects on labor demand and supply of a national NIT.

CHAPTER III

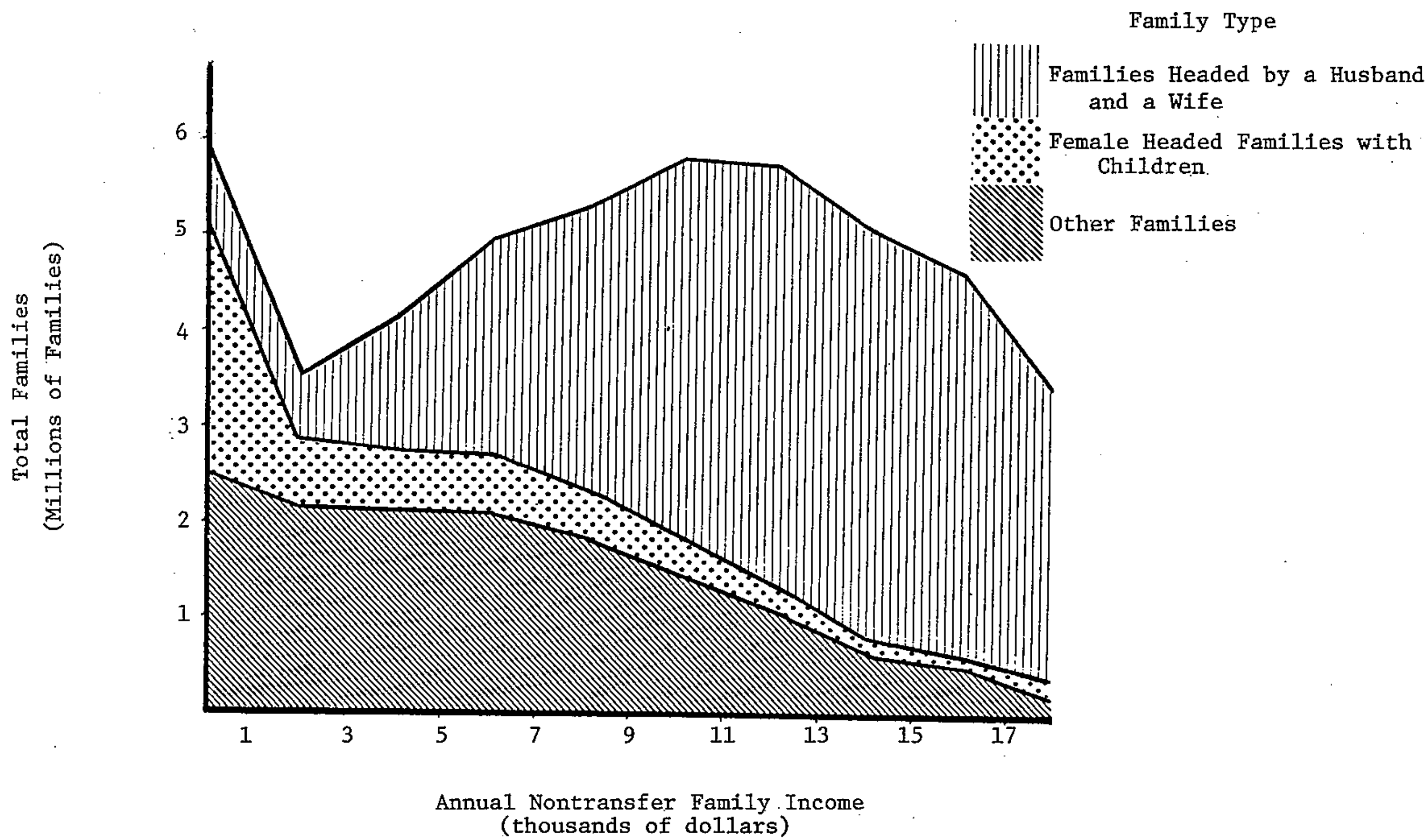
THE DATA

The data base used by the simulation model is the March 1975 Current Population Survey (CPS) and Income Supplement. The CPS contains labor market, income, and demogrpahic information about a cross section of persons, families, and households in the fifty states and the District of Columbia. Roughly fifty thousand households are surveyed. Questions are asked regarding current labor market status, current demogrpahic characteristics, labor market experience, and income recieved during the prior calendar year. The NIT is simulated for the year 1974 using the recorded annual income of each person and family. The demographic information used by the model - age, sex, and family structure - represents conditions existing during the week before the survey was administered, in March 1975. The use of income and demographic information representing different periods of time requires the assumption (1) that the demographic family characteristics used by the model to determine categorical eligibility for a transfer program existed throughout 1974 and (2) that the 1974 annual income used to determine the size of the transfer payment was received by those persons in the family in March 1975.

The second figure shows the distribution of private family income, by type of family, in the CPS sample. This graph is offered as a reference for several subsequent graphs. The composition of families is shown to change significantly with income. The proportion of families that are female-headed and contain children steadily increases as income is reduced, the proportion of families headed by a single man or a single woman increases similarly, and the proportion of families headed by a husband-wife couple decreases

FIGURE 2

TOTAL NUMBER OF FAMILIES IN THE POPULATION BY FAMILY TYPE



CHAPTER IV

RESULTS

The six NIT plans tested include the following pairs of support levels and benefit reduction rates, where the support level is expressed as a percentage of the poverty line:

Plan 1. 100 percent support, 50 percent benefit reduction rate
Plan 2. 75 percent support, 50 percent benefit reduction rate
Plan 3. 100 percent support, 70 percent benefit reduction rate
Plan 4. 75 percent support, 70 percent benefit reduction rate
Plan 5. 50 percent support, 50 percent benefit reduction rate
Plan 6. 50 percent support, 70 percent benefit reduction rate

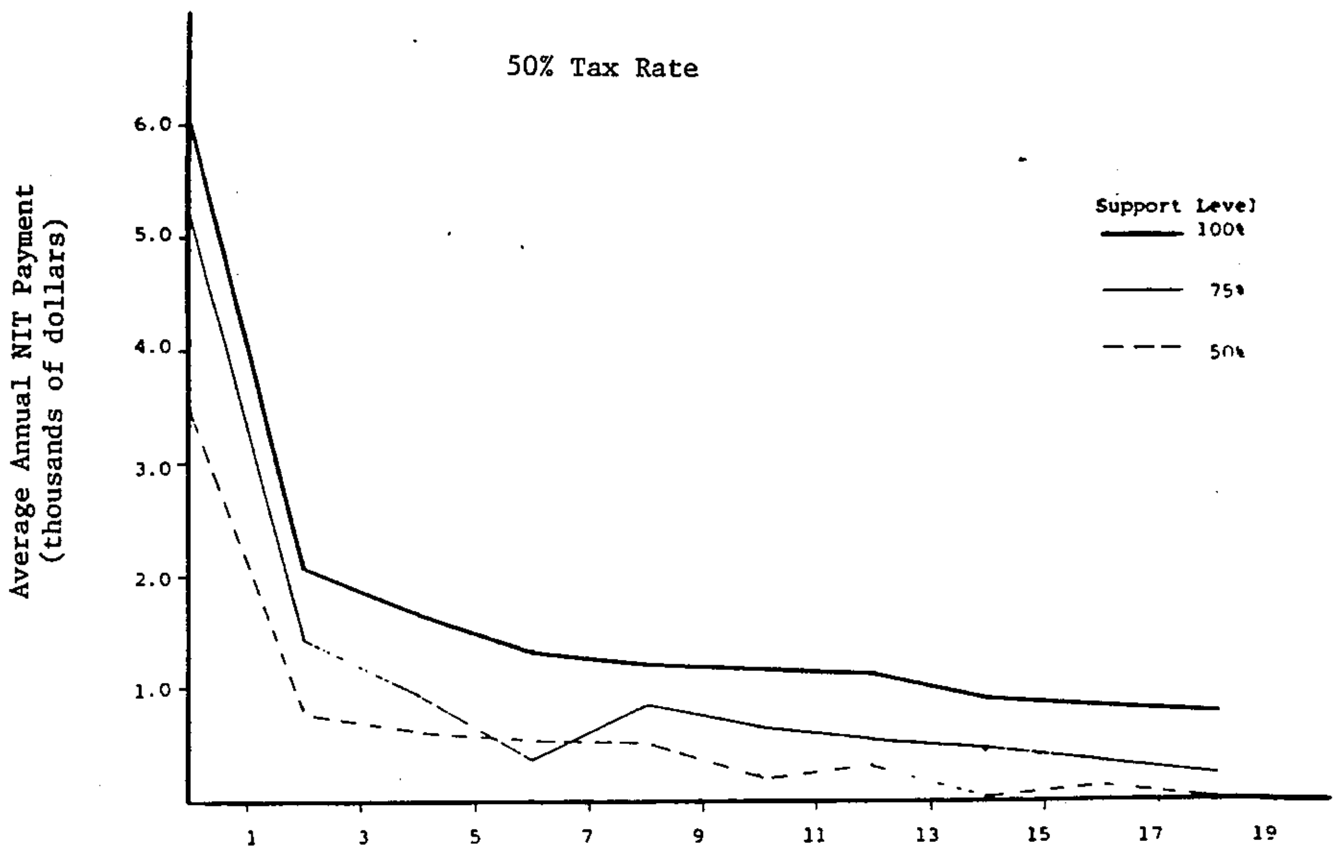
All of the participation, labor supply, and program cost results are reported for those families that were simulated to be below the NIT tax breakeven point based on preresponse income.

ADEQUACY OF SUPPORT

Average family NIT payments serve as the measure of relative generosity of the six NIT plans. The next two figures show the average annual NIT payment received by participants in each plan. The plans are separated for clarity by benefit reduction rate, and the average payments are distributed across the same income categories as in figure 2. The nonlinearity of average payments with respect to income is due to the reimbursement of taxes, the distribution of family size over family income categories, and the proportion of earned to unearned income in each total income category. These figures show that the payments at zero income vary by support level and that, as income rises, lower benefit reduction rates cause payments to fall more slowly than do higher rates.

FIGURE 3

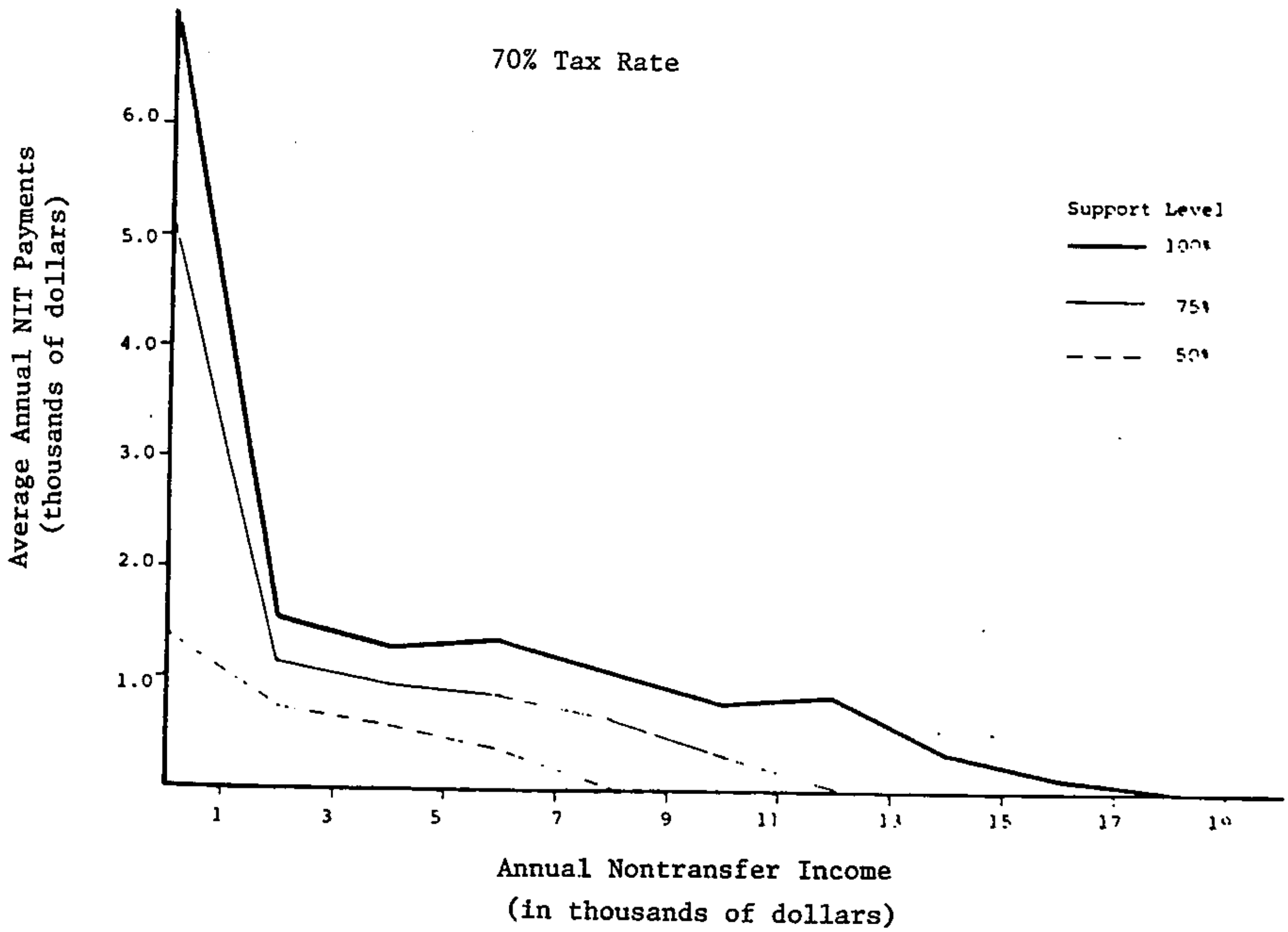
AVERAGE NIT PAYMENT PER ELIGIBLE FAMILY



Annual Nontransfer Income
(in thousands of dollars)

FIGURE 4

AVERAGE NIT PAYMENT PER ELIGIBLE FAMILY



The least generous plan has a benefit reduction rate of 70 percent and a support level of 50 percent of the poverty line, the 70/50 plan. The most generous is the 50/100 plan. The 70/75 and 50/75 plans are of an intermediate generosity at low income levels, although are not clearly more generous than the 50/50 plan at higher income levels.

NIT PROGRAM COSTS

The total budgetary cost of each NIT plan is the sum of the payments received by all participants.[1] Figure 5 portrays the total budgetary cost of the six NIT plans before any labor supply adjustments take place. Increasing the support level increases the program costs more than proportionately. The least expensive plan costs about seven billion dollars. At a high benefit reduction rate, increasing the support level to seventy-75 percent adds $5 billion dollars to the cost, and increasing it to 100 percent adds $17 billion dollars. At the lower benefit reduction rate, increasing the support level from 50 to 75 percent increases costs by $12 billion, and increasing it from 50 to 100 percent adds $32 billion dollars. In order to place these costs against the background of current welfare programs, the dotted line marked Current Transfer Programs indicates the total cost of the AFDC and Food Stamp programs in 1974.

The budgetary cost of an NIT is determined both by the size of payments to a given family and by the number of families that participate in the program. The latter determinant is portrayed in Figure 6 which shows the number of families simulated to receive an NIT payment. Such families are called participants for convenience, although the use of the term assumes that every eligible family participates. Approximately

[1] Note that this measure of budgetary cost does not include the loss of tax revenues caused by the labor supply response.

FIGURE 5

TOTAL NIT COSTS

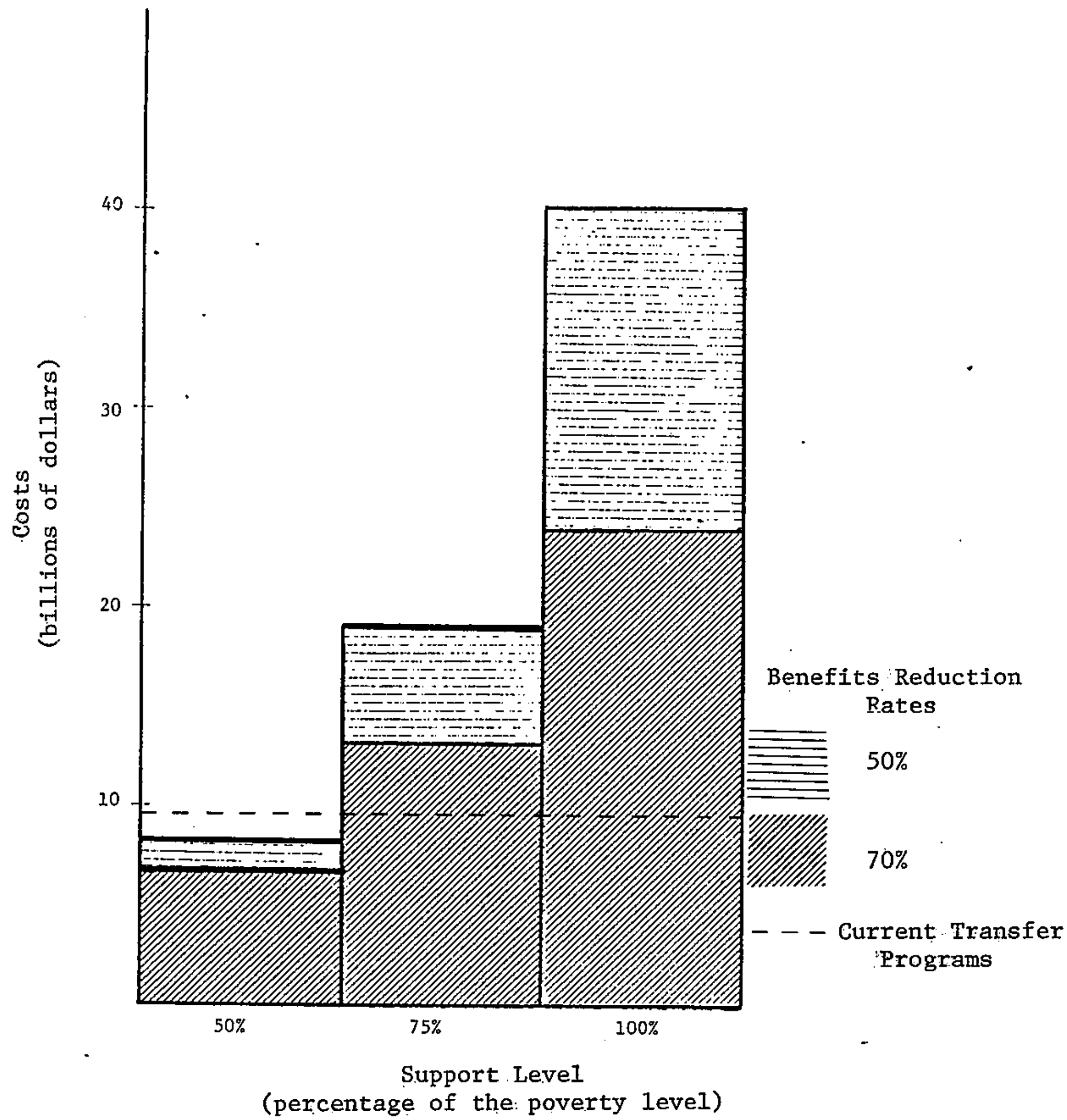
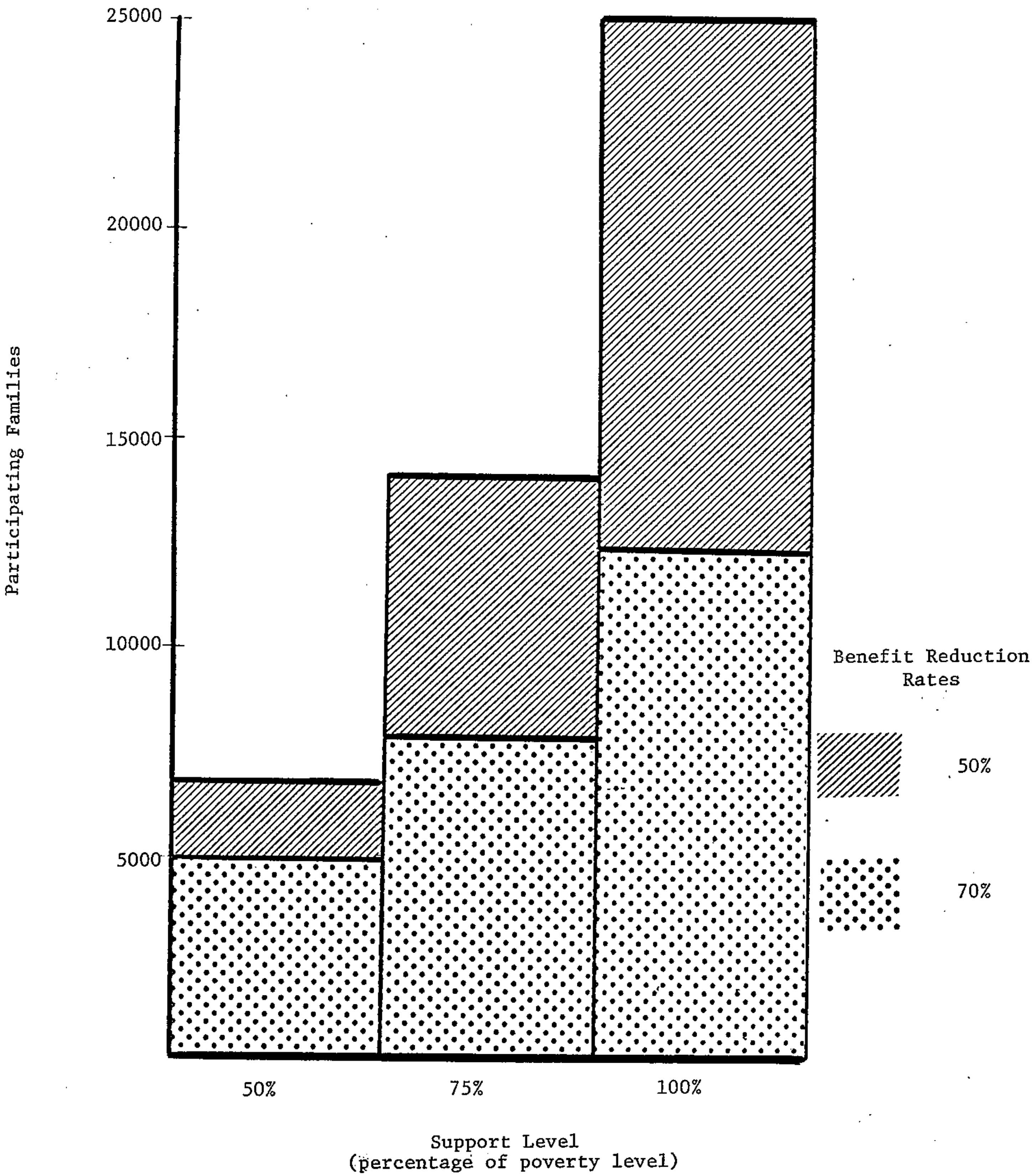


FIGURE 6

TOTAL NIT CASELOAD



five million families participate in the least generous plan, the 70 percent benefit reduction rate and 50 percent support. At that benefit reduction rate, increasing the support level to 75 percentage adds two and one half million families, and increasing the support to 100 percent adds another five million families. At the 50 percent support level, decreasing the benefit reduction rate to 50 percent adds two million families. Reducing the benefit reduction rate with a 70 percent support adds about seven million families, and with a 100 percent support adds almost thirteen million families. Thus the number of families eligible for an NIT payment increases more than linearly with the percentage support level at both benefit reduction rates. This occurs because raising the support level raises the breakeven point into a dense portion of the income distribution as shown in figure 2.

The differential effects of replacing current welfare programs with an NIT among types of families is shown in the following two figures which display the distribution of budgetary costs by the income class and family type of recipients. Two kinds of budgetary costs are presented: the sum of the NIT payments, called gross cost, and the gross cost less the current costs of AFDC and Food Stamps for the NIT participants, called net costs. Budgetary costs net of current welfare expenditures represents the net chan-e of income transfer caused by replacing AFDC and Food Stamps with the NIT.

Figures 7 and 8 show the gross and net budget costs of the 50/75 NIT plan for each family type. In figure 7, the largest proportion of gross payments at low income levels goes to families with children headed by a woman. This reflects the composition of the low-income population

FIGURE 7

TOTAL GROSS COSTS BY FAMILY TYPE FOR THE
50/75 NIT PLAN

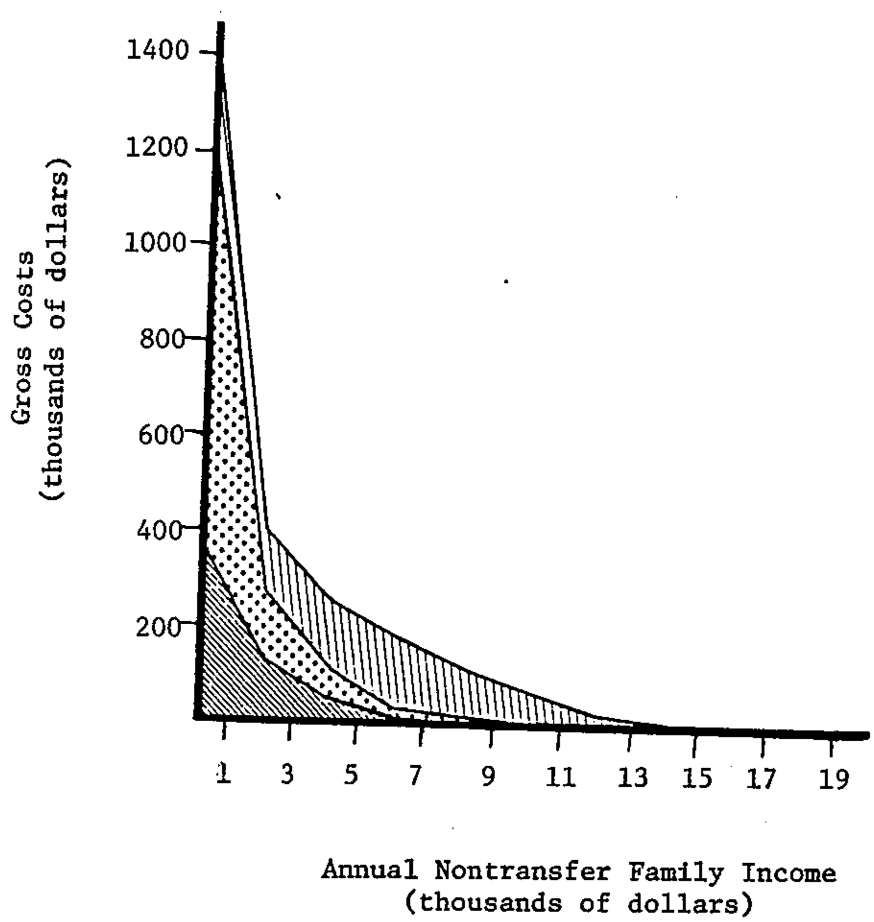
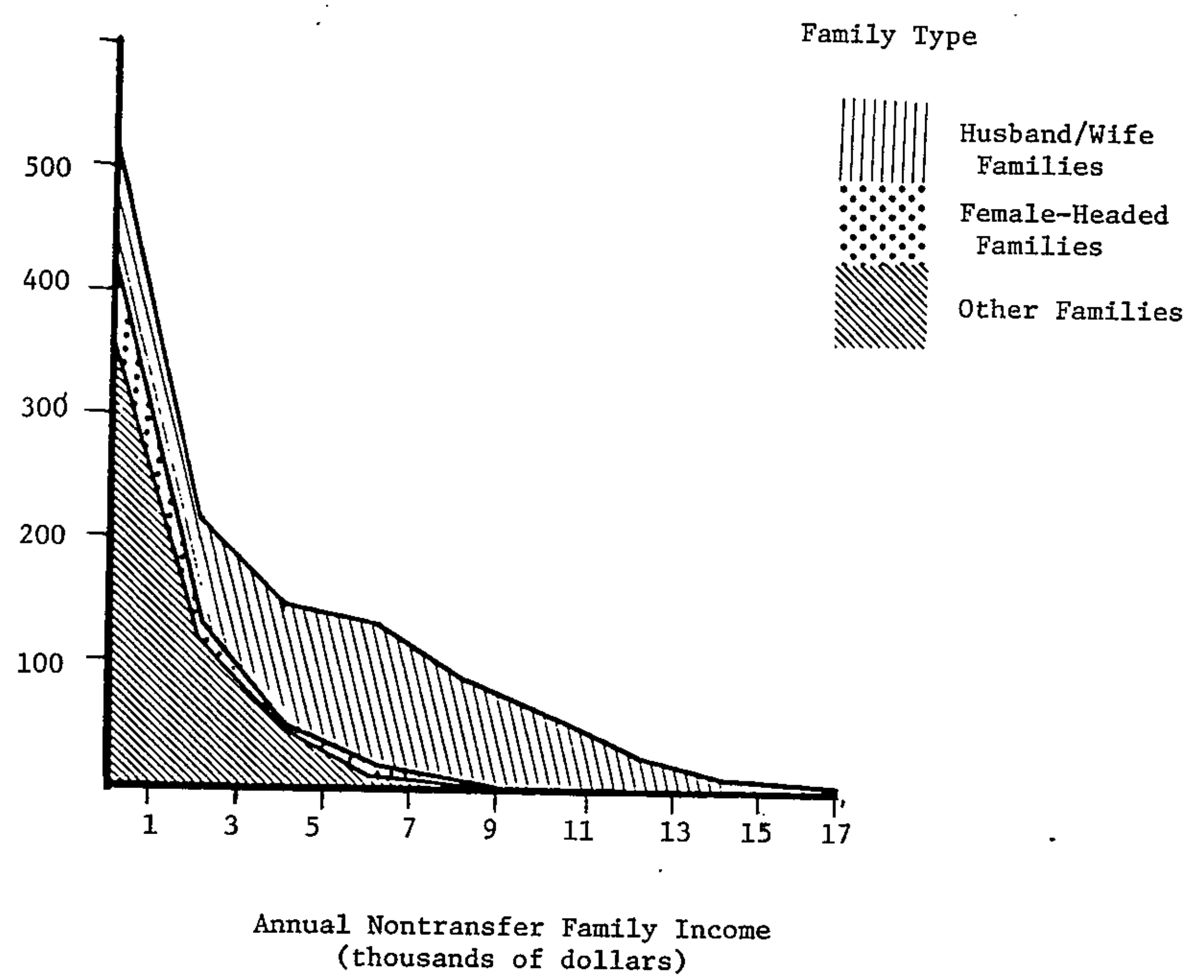


FIGURE 8

TOTAL NET COSTS BY FAMILY TYPE FOR THE 50/75 NIT PLAN



shown in figure 2, there being a preponderance of female-headed families in the lowest income categories. As income rises the payment total, the highest curve in figure 7 declines smoothly but the composition shifts from female-headed families with children and other families headed by persons without a spouse present to families headed by a husband-wife couple.

Net costs, figure 8, present a different picture. The proportion of total payments net of AFDC and Food Stamps payments that are received by female-headed families with children is small throughout the whole income range. The difference between the family-type composition of gross and net cost is caused by the fact that in many states AFDC may be received only by female-headed families with children. The current transfer payments received by husband-wife families come from Food Stamps and from AFDC in those states that allow such families to be eligible if one of the parents is unemployed. Almost no welfare benefits are currently received by families headed by a single man or single woman without children.

The net costs of the base NIT plan are seen to be positive for every income category, indicating that taken as a whole, the NIT recipients are made better off by replacing existing welfare programs with the base NIT. Individual families within the income categories, however may be made worse off by the tested welfare reform.

The gross costs and the number of participating families of the six NIT plans are presented in figures 9 and 10. The plans are ordered by cost as they are by the number of participants, the most costly having the largest number of participants. The tested changes to the benefit reduction rate are more effective in changing the cost of the program

FIGURE 9

TOTAL GROSS NIT COSTS BY NIT PLAN

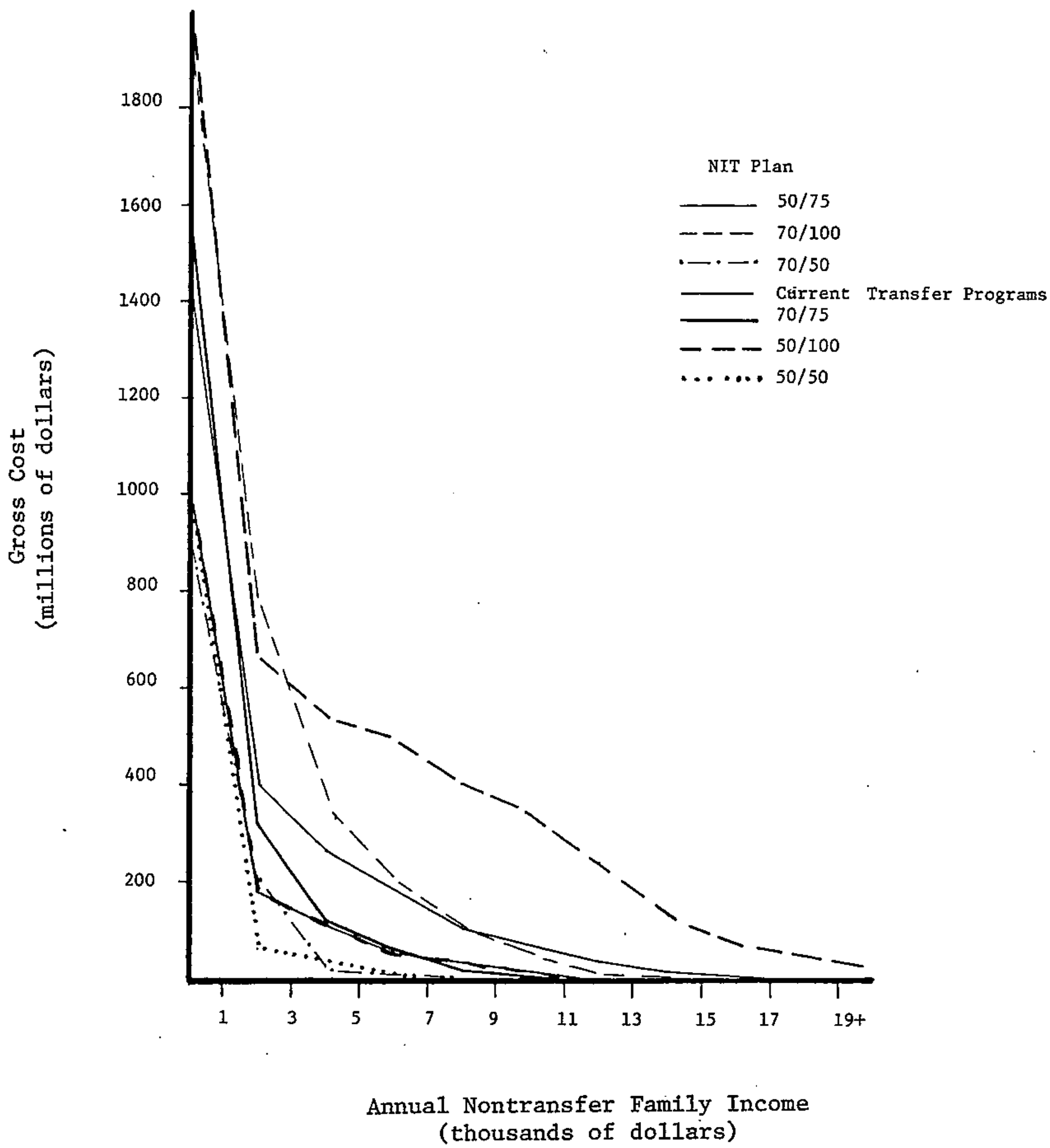
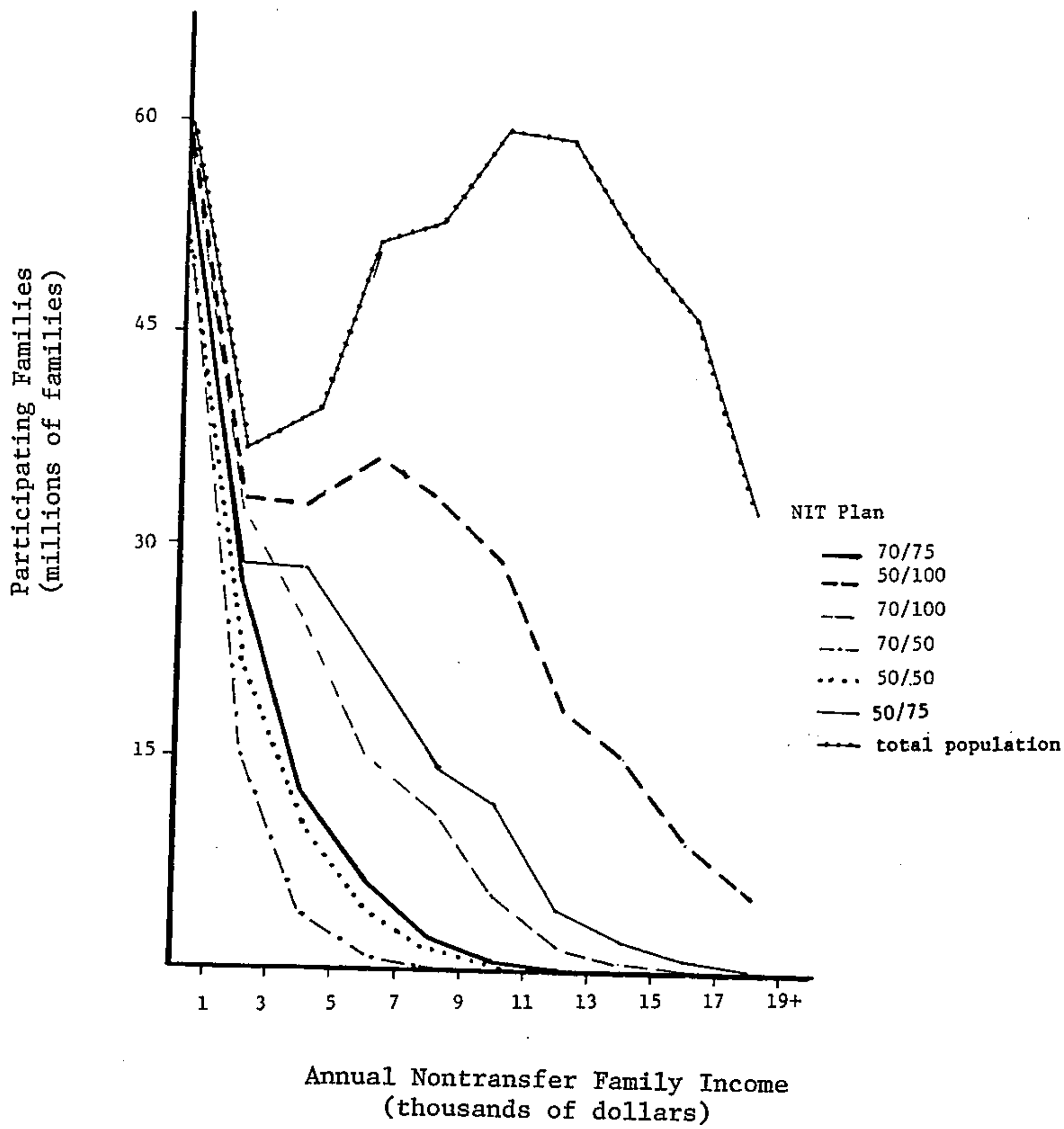


FIGURE 10

TOTAL NUMBER OF PARTICIPATING FAMILIES BY NIT PLAN



than are the tested support level changes, especially among the more generous plans.

The uppermost curve of figure 10 reproduces the income distribution of the total population, both participating and not participating, from figure 2. All the plans include virtually all families with no income. As income increases the more generous plans include a greater proportion of the population. Many low-income families are shown to be ineligible for NIT payment because of their small family size or high proportion of unearned income in total income.

Figure 10 also indicates the relative target efficiency, or the ratio of the number of high-income families eligible for a payment to the total number of families eligible for a payment, of the several NIT plans. In general, the less generous plans are seen to be more target efficient. The changes of the benefit reduction rate that are tested affect target efficiency more than the tested changes of the support level. This difference is stronger among the more generous plans, whereas both the benefit reduction rate and the support level are equally influential on the target efficiency of the less generous plans.

LABOR SUPPLY RESPONSE

The program costs and adequacy of support results presented above have been computed on the basis of the supply of labor and receipt of earnings observed in the data. The next series of figures shows the effects of the several NIT plans on the work effort of recipients. The labor supply effects are displayed in terms of the total number of annual hours of employment and the average number of annual hours per recipient. The response of average hours per recipient measures the effect of the NIT on individual work effort, while the response of total hours is an indication of the amount of goods and services lost to society due to the tested welfare reforms.

Figure 11 portrays the sum of the hours of employment per year of husbands, wives, and female heads of families with children in filing units that receive a NIT payment from the base plan. These distributions rise initially because, in general, the more a person works the more income his or her family receives. The distribution falls off in the upper income categories because the number of NIT participants declines.

The next six figures present the change induced by the 50/75 NIT of annual hours of employment of husbands, wives, and female heads of families with children. The labor supply responses are presented as an absolute change and as a percentage of the preresponse labor supply. Husbands exhibit a fairly uniform percentage reduction of hours of employment, ranging between 12 and 4 percent average 7 percent. Wives are simulated to have a large percentage reduction of labor supply, ranging from 30 to 10 percent and averaging approximately 20 percent. The labor supply of female heads ranges from 17 percent response to no response and averaging roughly 2 percent. All of the percentage response decline as pretransfer income increases because the change of income caused by the NIT for low-income families is greater than it is for high-income families. The response of female family heads declines faster as income increases than do the responses of the other groups. The average percentage response is smallest for female family heads and largest for wives.

Comparisons among the labor supply responses to the six NIT plans are presented in the next two figures. These comparisons show the reduction of employment induced by plans with more generous support

FIGURE 11

ANNUAL HOURS OF EMPLOYMENT OF HUSBANDS, WIVES, AND FEMALE HEADS

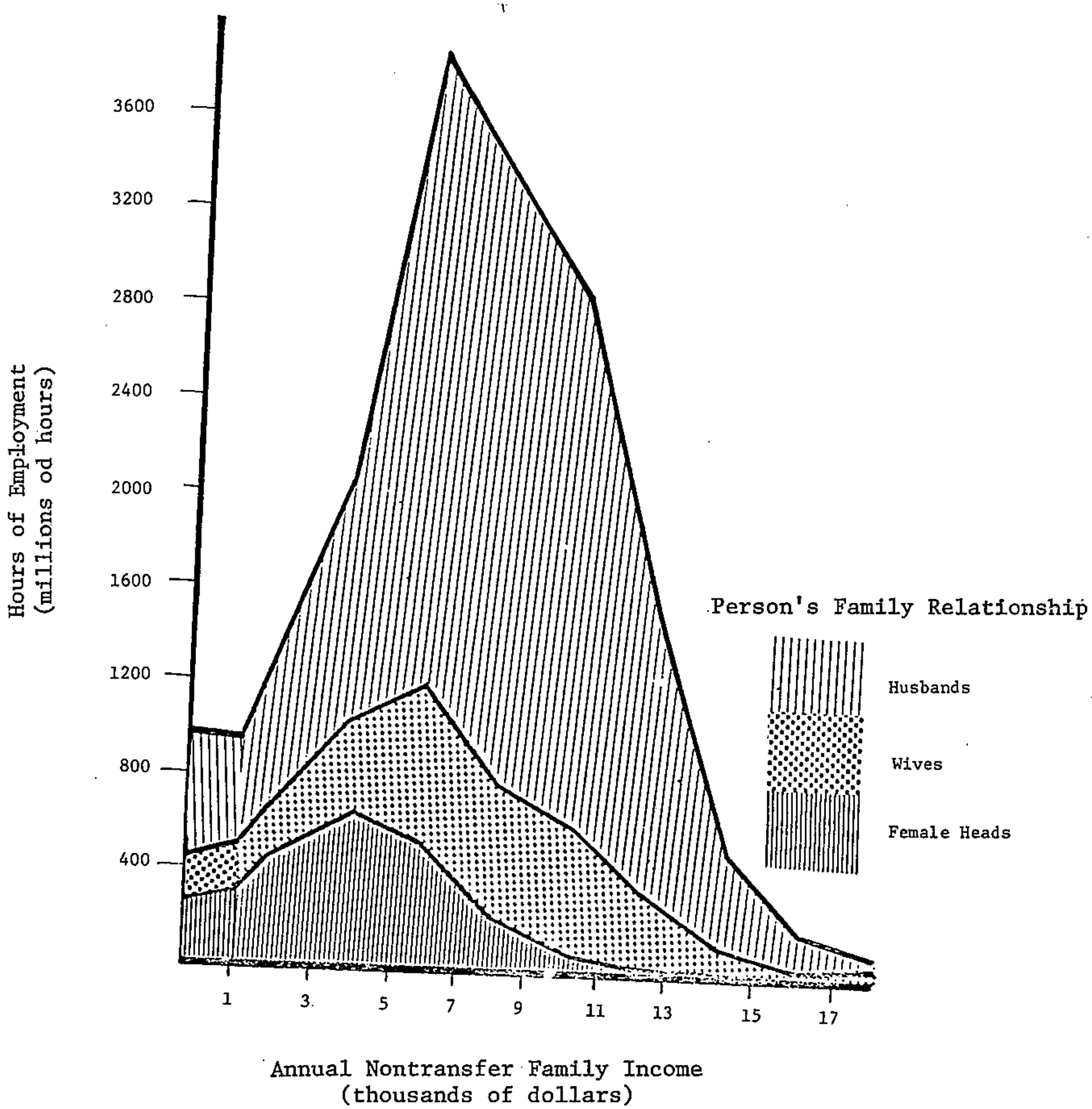


FIGURE 12

TOTAL LABOR SUPPLY RESPONSE OF HUSBANDS

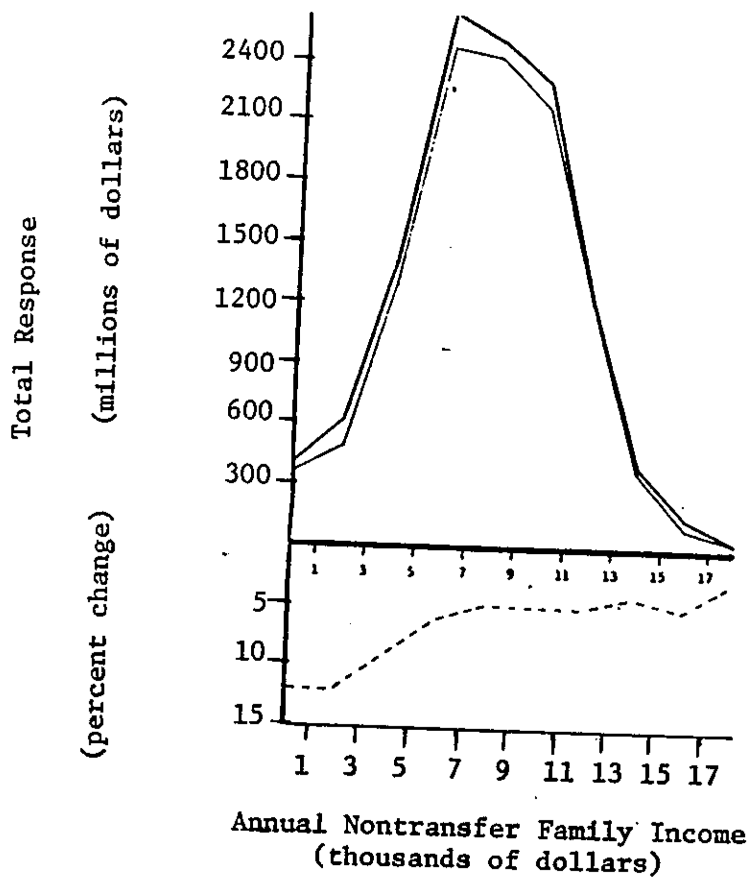


FIGURE 13

TOTAL LABOR SUPPLY RESPONSE OF WIVES

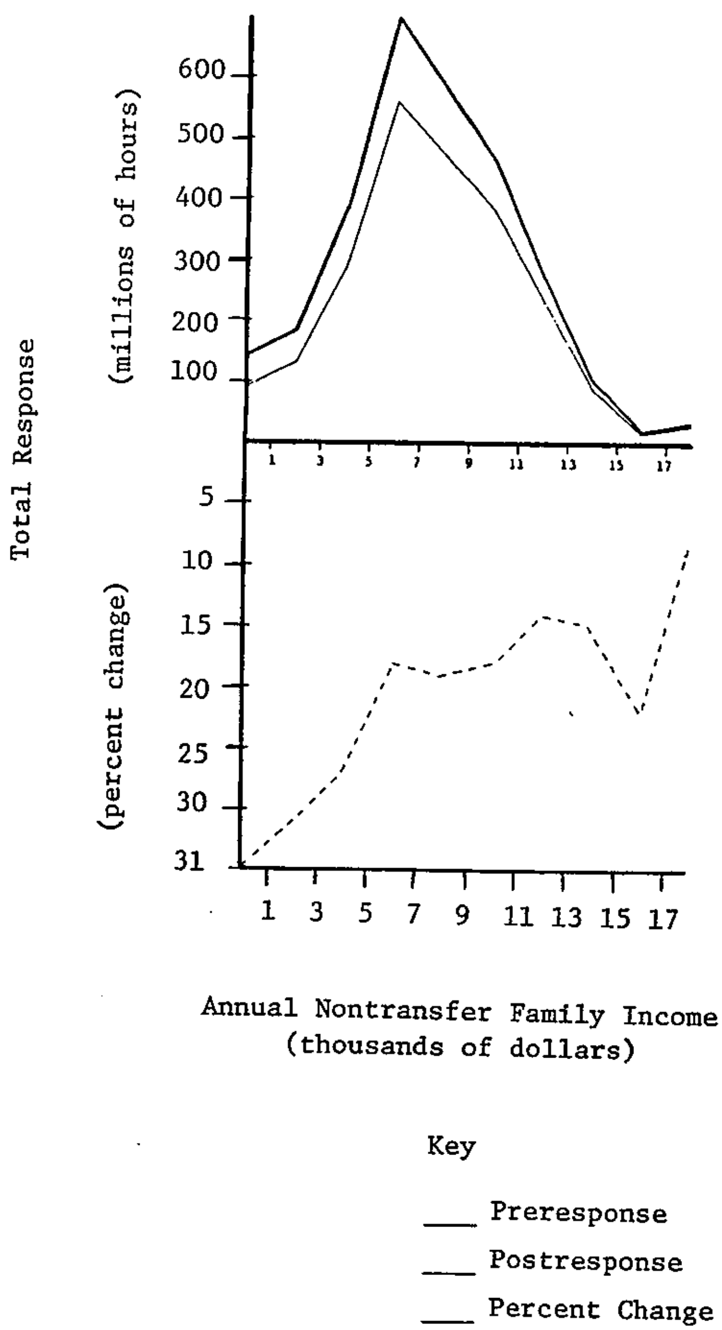


FIGURE 14

TOTAL LABOR RESPONSES FOR FEMALE HEADS

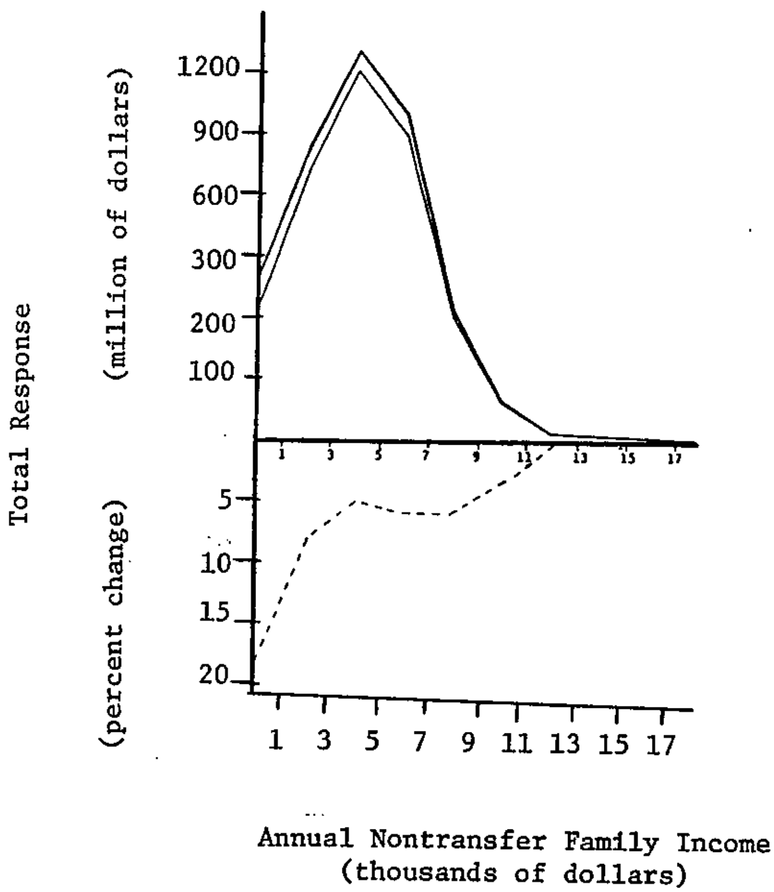
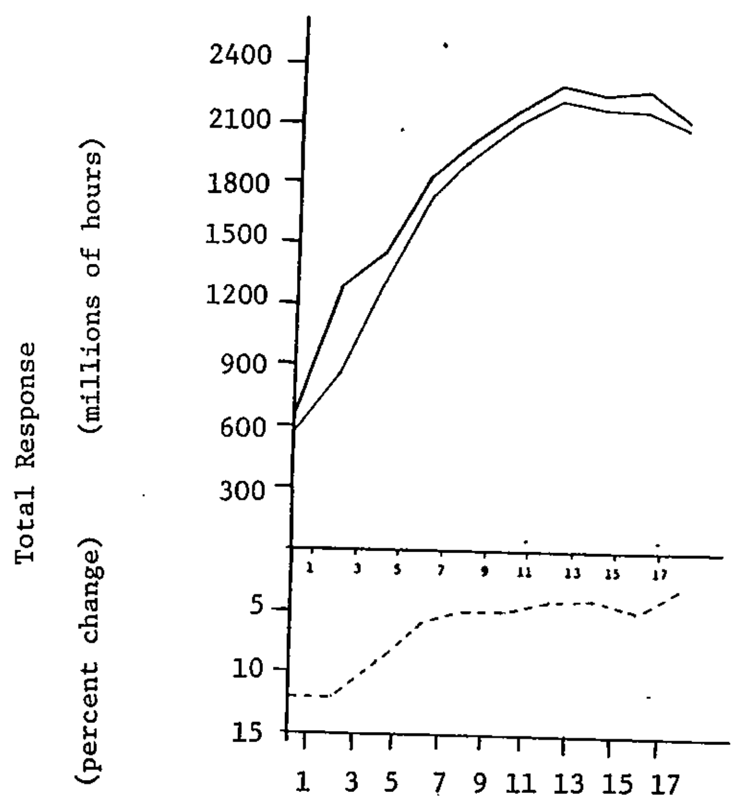


FIGURE 15

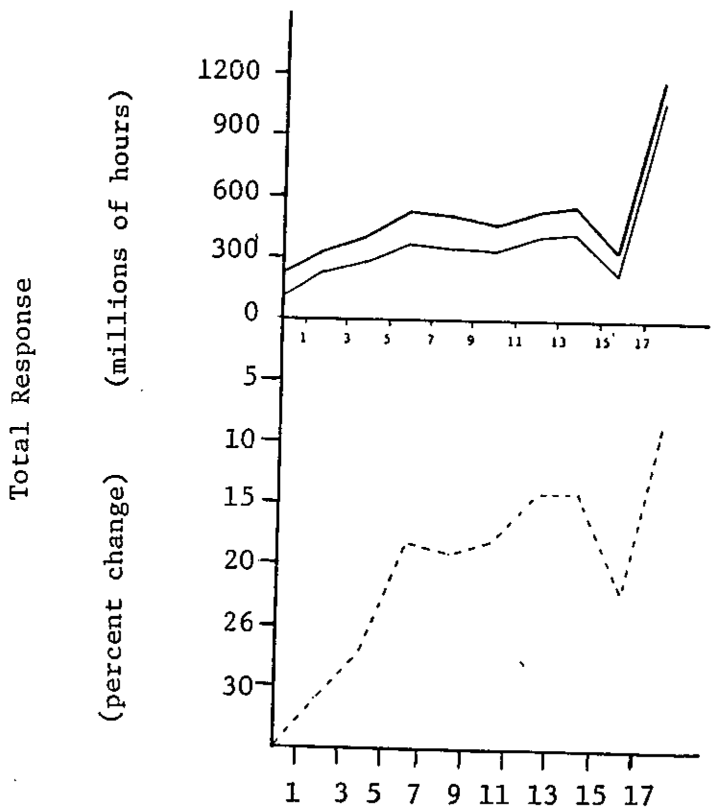
AVERAGE LABOR SUPPLY RESPONSE OF HUSBANDS



Annual Nontransfer FAMILY INCOME
(thousands of dollars)

FIGURE 16

AVERAGE LABOR SUPPLY RESPONSE WIVES



Annual Nontransfer Family Income
(thousands of dollars)

Key

___ Preresponse

___ Postresponse

___ Percent Change

FIGURE 17

AVERAGE LABOR SUPPLY RESPONSE FOR FEMALE HEADS

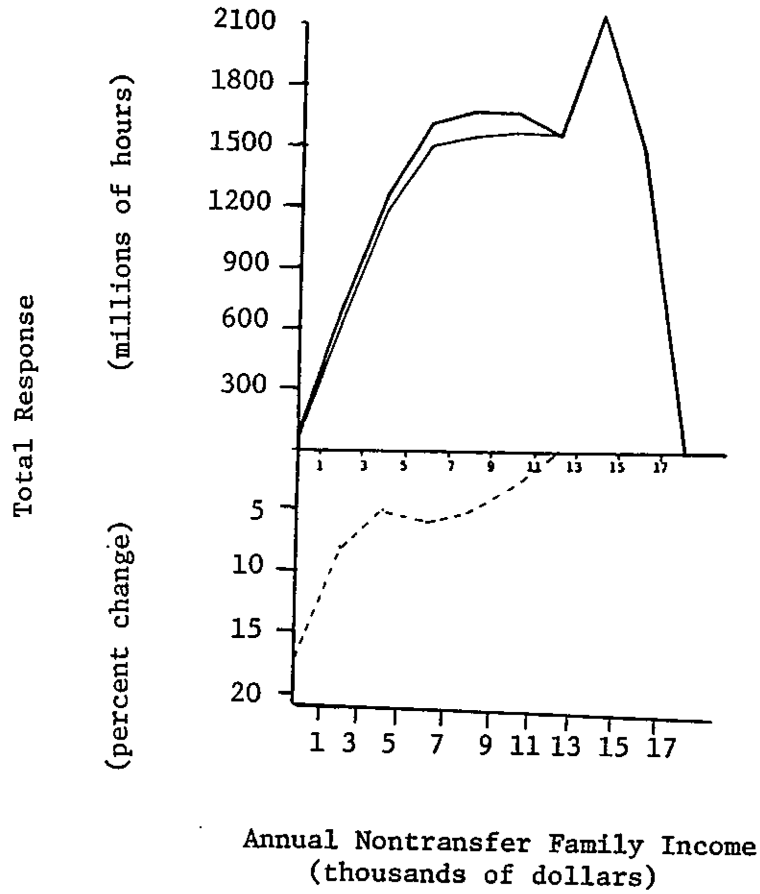


FIGURE 18

PERCENTAGE LABOR SUPPLY RESPONSE BY NIT PLAN

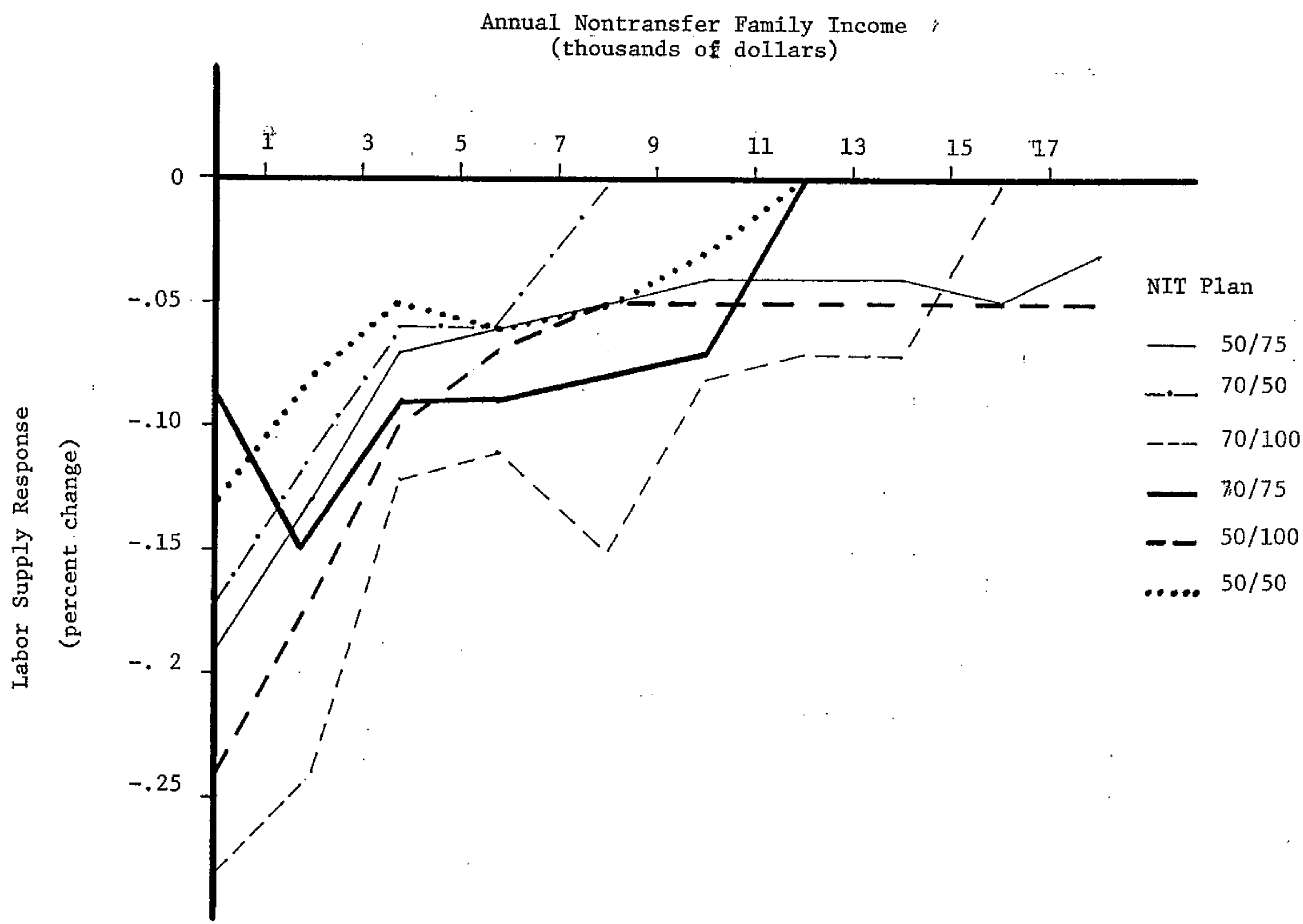
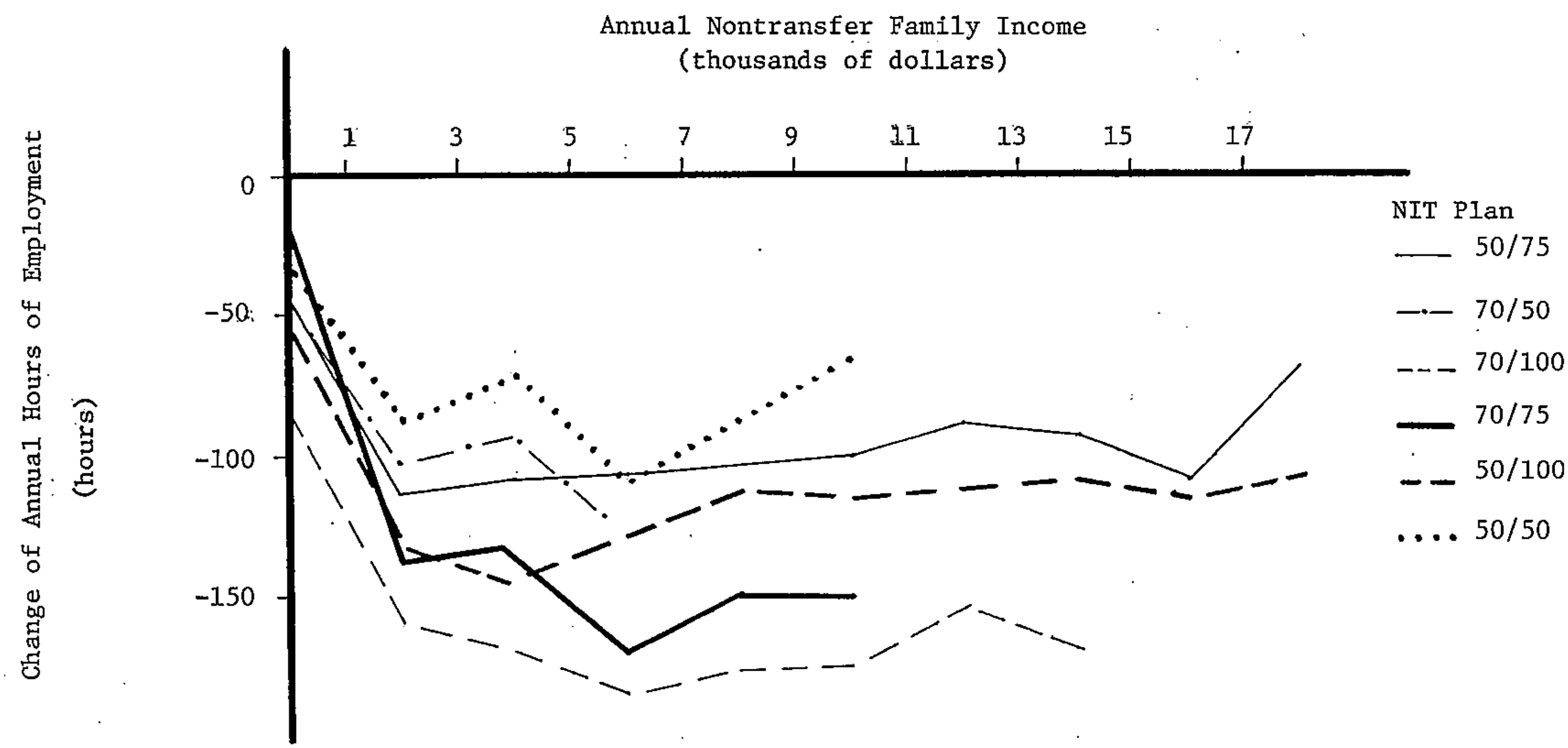


FIGURE 19

AVERAGE LABOR SUPPLY RESPONSE BY NIT PLAN

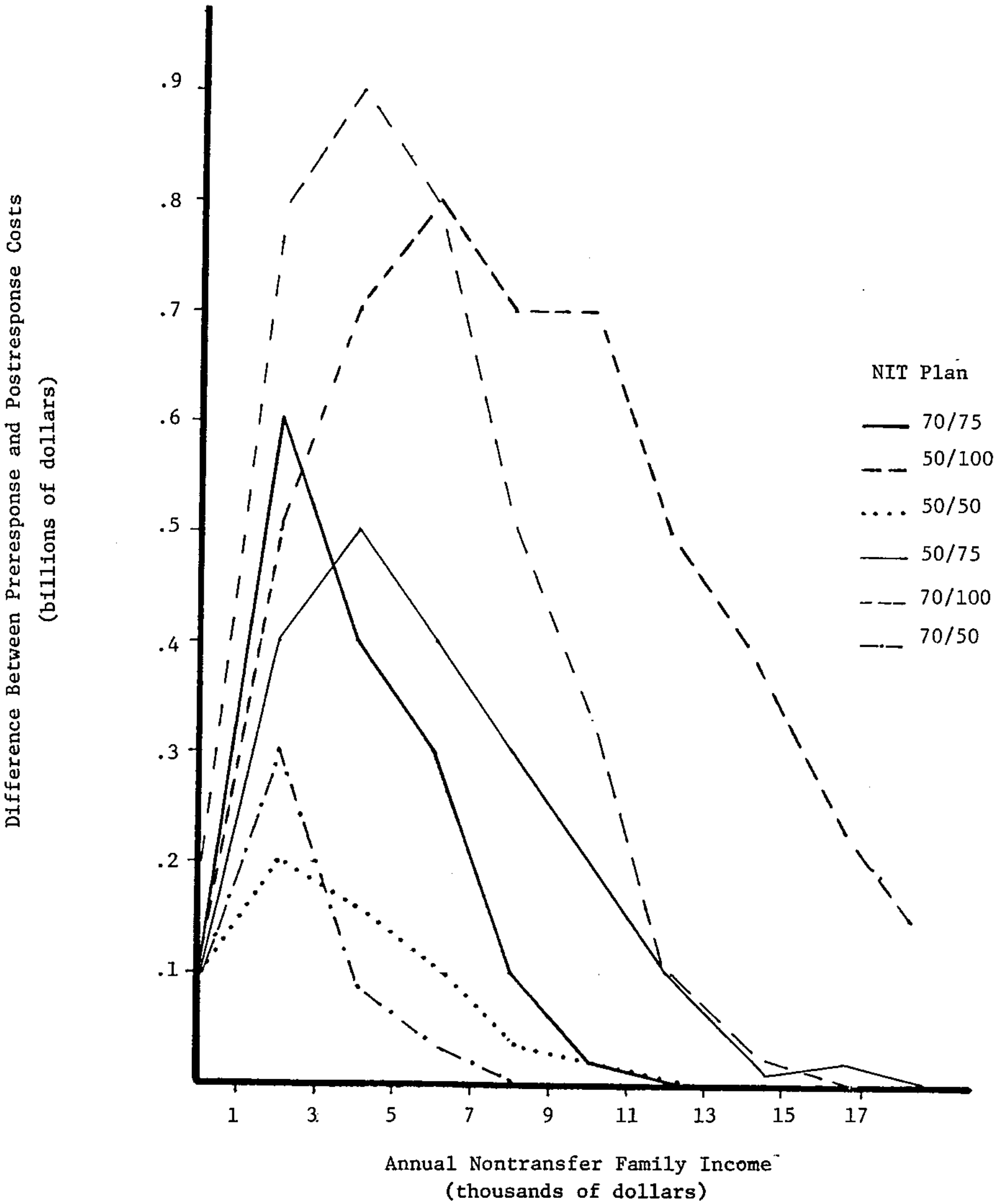


levels to be greater than that of plans with less generous support levels. Lower, more generous benefit reduction rates induce less response than do higher, less generous rates. The effect of the support level is seen to dominate the effect of the benefit reduction rate so that in general, the more generous NIT plans cause more labor supply reduction than do less generous plans.

The final figure illustrates the increase of the total NIT gross budgetary costs caused by the induced labor supply reduction. The increase of budgetary cost is greatest for those NIT plans which induce the greatest labor supply reduction. The reduction by one hour of the labor supply of a high-wage person increases the NIT cost more than does an hour's reduction by a low-wage person. The cost increases among high-income filing units is thus a greater proportion of the total cost increase than the proportion of the labor supply reduction of those families to the total labor supply reduction.

FIGURE 20

DIFFERENCE BETWEEN PRERESPONSE AND POSTRESPONSE
COST BY NIT PLAN



CHAPTER IV

CONCLUSION

Increasing the NIT support level has been shown to produce a more than proportional increase in the budgetary cost of the program. The increased cost is due both to higher payments and to larger numbers of eligible families. The tested changes of the benefit reduction rate resulted in larger cost differences than did the tested changes of support level. This difference occurs because a reduction of the benefit reduction rate increases the number of NIT participants more than the same percentage increase of the support level. Reducing the benefit reduction rate raises the NIT breakeven to a higher level of income than does an equivalent support level increment. The higher breakeven point falls into a relatively dense area of the income distribution of families.

The results have also shown that more generous NIT plans induce larger reductions of the work effort of recipients, both the total amount of employment and the per-person average labor supply. The support level is shown to be the more potent parameter for affecting labor supply reductions. Combining this result with the potency of the benefit reduction rate for affecting program cost, one may choose a low-support-level, high-benefit-reduction-rate plan to miminize both costs and labor supply reduction. A low support level and a high benefit reduction rate is, however, the least generous combination. The goals of low cost and small reduction of work effort may be achieved only be sacrificing adequate income support.

The effects of replacing current transfer programs with an NIT is shown to differ by family type. Since the AFDC program focuses on families that are headed by a woman and contain children, the NIT increases transfer payments going to this group less than it increases transfer funds going to husband-wife families or other families. This difference results in the reduction of labor supply by female heads of families being smaller than that of either spouse of husband-wife families.

Several effects of the NIT vary by family income. The use of a support level which varies by family size and the deduction of 100 percent of unearned income from the NIT payment result in a number of low-income families remaining uncovered by the NIT. The NIT reimbursement of taxes results in relatively high-income families being eligible for payments under the more generous NIT plans. The number of these eligible high-income families is shown to be sensitive to the benefit reduction rate. The percentage of labor supply reduction is greatest among low-income families, although the impact of the reduction on NIT program costs is greatest among middle-income participants.

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