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Do income maintenance programs break up marriages? A reevaluation of SIME-DIME

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The authors[1] have reanalyzed the data from the Seattle-Denver Income Maintenance Experiment (SIME-DIME) and their new results, reported here, cast serious doubt on the accepted interpretation of the SIME-DIME data—that a negative income tax (NIT) "dramatically increases" marital breakups.

In the original study there were three experimental treatments: a subsidized training, education, and job counseling program; an NIT; and a combination NIT and training. Cain and Wissoker, in seeking to determine the effects of the NIT, examine the pure NIT program, separate from the effects of the other two programs. They find that an NIT program has no effect on marital stability that is of any practical or statistical significance.

The impact of the Seattle-Denver experiment on welfare policy

A persistent question about welfare programs that provide cash payments and other forms of assistance to poor families is how these programs influence the formation and stability of families. The issue has grown in importance in recent years because of the rising trends in divorce and separation and in the proportion of female-headed families among the poor. Most attention has been given to Aid to Families with Dependent Children (AFDC), the welfare program that has long been accused of increasing the number of female-headed families because it provides income to poor single-parent families with dependent children, but not to poor two-parent families.[2]

In 1978 government officials in President Carter's administration added their voices to this criticism of AFDC when

they proposed a program of cash assistance and employment opportunities to poor two-parent families as a way of reducing the assumed destabilizing effect of AFDC on marriages.[3] Joseph Califano, then Secretary of the Department of Health, Education, and Welfare, testified to a widely shared belief in these words:

> . . . what we consider to be the most serious family-splitting incentive was the fact that, in many States, a family is eligible for cash payments only if it is a single-parent family, and in those States a man who loves his wife and children and is trying to feed them may find that the most effective way he has of feeding them is to leave them.[4]

Opponents to this Carter administration proposal for an income maintenance program that covered intact families and the working poor cited the experimental findings of a study carried out between 1970 and 1977—the Seattle-Denver Income Maintenance Experiment (SIME-DIME). At one point, the chairman of the hearings, Senator Daniel P. Moynihan, said to Secretary Califano: "The Seattle-Denver experiment, as you know, casts for the first time some real doubt on the proposition that the program you are proposing will have the effects [of promoting family stability] you say."[5] Senator Russell B. Long also challenged Califano with the research findings from the Seattle-Denver study and submitted the research findings to the record of the hearings.[6] Gilbert Steiner, reviewing the evidence and the testimony in the hearings four years later, concluded that "The Seattle-Denver evidence has persuaded key politicians that a guaranteed-income plan at levels the leaders of the country think it can afford is incompatible with maximizing family stability in the affected population."[7]

The Seattle-Denver Income Maintenance Experiment, the results of which figured so prominently in the hearings, was the fourth and largest of a series of experimental tests of the "negative income tax." The experiments were funded by the U.S. Department of Health, Education, and Welfare.[8] SIME-DIME was carried out by the states of Colorado and Washington, which subcontracted to SRI International the design, operation, and evaluation of the experiment. The negative income tax (NIT) tested in Seattle and Denver provided cash transfer payments to intact families and to the members of those families who formed separate households. A control group of families had access only to the AFDC program then in effect in each state. The research concluded that the NIT program increased marital instability relative to the AFDC program available to the control families.

Recently, Martin Anderson, George Gilder, and Charles Murray have become prominent critics of the welfare system, particularly AFDC, for contributing to the rising trends in illegitimate births, marital dissolutions, and female-headed households.[9] They advocate drastic reductions in the AFDC system and, in contrast to the Carter-Califano proposal, oppose expanding the welfare system to include poor husband-wife families, claiming that such expansions would increase family instability.

Anderson, Gilder, and Murray also cite the SIME-DIME findings in opposing welfare reforms that extend support to intact families. Anderson remarked that the experiments had "unanticipated social effects," noting in particular "a sharp increase in the number of broken marriages," and he added:

> This unexpected phenomenon is ironic, as one important virtue often claimed for a guaranteed income is the strengthening of the family. Unfortunately, the measured results of the Seattle-Denver guaranteed income experiment revealed that the incidence of marriage breakup for whites, who had been given an income guarantee of $3,800 a year, increased 430 percent during the first six months of the experiment. Over the entire two-year period studied, family breakup—relative to the control group—increased 244 percent for whites, 169 percent for blacks, and 194 percent for Chicanos.[10]

Gilder gave the following testimony at congressional hearings in 1980:

> . . . the guaranteed income plans tested in Denver and Seattle . . . showed some sixty percent increases in family breakdowns . . . . What the HEW experiments showed . . . was that many of the yet unreached [intact] families are vulnerable . . . [and] millions of jobs and marriages would be in jeopardy if placed in the midst of a welfare culture where the dole bears little stigma.[11]

Murray writes:

> Does welfare undermine the family? As far as we know from the NIT experiment, it does, and the effect is large . . . . The results were exhaustively analyzed, as researchers checked out the alternative explanations. None worked. The only salient difference that seemed to explain the substantially higher rates of marital instability in the two groups was the "treatment" itself, the NIT.[12]

As Anderson noted, the initial expectation about the experimental research was that the NIT would alleviate rather than aggravate the destabilizing effects of AFDC on families. Robert Spiegelman, the director of SIME-DIME, stated in the final report that

> the experimental design only considered the labor supply response [but] data were collected and analyzed on many other behavioral responses. . . . It was not until the first findings regarding the NIT impact were observed and the unexpected conclusion reached that SIME-DIME was apparently having a negative impact on family structure (i.e., the dissolution of two-parent families was greater in the experimental group than in the control group) that we turned serious attention to [the issue].[13]

The first published results of the SIME-DIME research on marital breakups appeared in 1977.[14] Although these results referred to just the first two years of the experiment, which was to last three, five, and seven years for declining numbers of experimental participants, the apparent destabilizing effect was extraordinary—a virtual doubling of the number of dissolutions in the experimental group relative to the controls. Subsequently, additional research publications by the authors, Lyle P. Groeneveld, Michael T. Hannan, and Nancy B. Tuma, reaffirmed their initial findings. In the final report of the experiment, published in 1983, the authors stated that "the NIT plans tested in SIME-DIME dramatically increased the rate at which marriages dissolved among white and black couples" and reported increases of "40 to 60 percent."[15] These research results, though unexpected and controversial when first published, have received little challenging criticism, and the conclusion that an NIT would destabilize marriages has become part of conventional wisdom.

Our reanalysis: An overview of our challenge to the conventional interpretation

We have reanalyzed the SIME-DIME data, and our reanalysis leads us to disagree with the accepted conclusions and interpretations. We argue that several features of the design and operation of the experiment bias the results toward overstating the NIT program's effect on destabilizing marriages and understate the NIT's effect on stabilizing marriages. Without making any adjustments for these biases but merely by using all the years of the experiment and separating the NIT program from the confounding effects of an experimental training program, we find that about 14 percent more marital breakups occurred among couples who were assigned to the NIT experimental plan. This percentage difference is not statistically significant. Its practical significance depends on whether the difference is transitory or permanent, and our estimate of a permanent difference attributable to the NIT plan is 5 percent or less. After adjusting for the biases, the percentage difference in marital breakups between the NIT group and the control group is less than 5 percent. Before presenting our results in detail and with the necessary qualifications, however, it is necessary to review the institutional background and theoretical underpinnings of the study.

Comparing AFDC to a negative income tax

To understand why the results from the SIME-DIME research were so influential, we need to clarify the comparisons between AFDC and the NIT programs and to explain how the research from SIME-DIME was used in the comparison. At the outset we should point out that there is no strong evidence that AFDC breaks up marriages, although there is evidence that it increases the number of single mothers in the following three ways: (1) AFDC payments to unwed mothers provide an incentive to female headship because the mother would probably lose the AFDC benefits if she married the father; (2) payments may induce female-headed family units to move out of an extended-family household and into a separate residence; (3) AFDC payments to a household headed by a formerly married mother may discourage her from remarrying, because this would generally cause her to lose AFDC benefits.[16]

Furthermore, marital dissolutions do not necessarily lead to female headship; separations may be followed by reconciliations and divorces by remarriage. Nevertheless, the belief that AFDC breaks up families persists, perhaps because observers find the nonexperimental research on the topic unconvincing. In contrast, the evidence from the controlled experiment in Seattle and Denver that the NIT destabilizes marriages has seemed thoroughly convincing. What makes the finding even more remarkable is the clash with the previously held belief that an NIT, by providing benefits to intact couples, would reduce marital breakups in comparison to AFDC. This argument is explained below, and we will see that it properly applies to some types of NIT plans but not to others.

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Which program provides more cash benefits?

Under simplifying but reasonable assumptions, the stabilizing or destabilizing effect of an NIT relative to AFDC depends only on the generosity of the cash benefits of the two plans. The cash benefits of an income maintenance plan depend on (1) the income guarantee, which is the amount of payments the family receives if it has no other income; (2) the amount of payments the family retains if it has other income; and (3) the amount of payments received if the family size is increased or reduced. The retention amount, item (2), is determined by the benefit-reduction or offset rate, which is effectively a tax on the earnings (or other sources of income) of the family. (We will refer to the benefit-reduction rate as the tax rate, in keeping with conventional usage by economists.) Family size, item (3), will not be discussed, except to consider the change from a two-parent family to a one-parent family. Our example will assume the two-parent family has four persons and that the generosity of different AFDC and NIT plans are fully comparable in terms of their guarantee levels and tax rates.

How the guarantee and tax rate determine the generosity of an income maintenance plan may be illustrated with the AFDC and NIT plans in effect in 1971 when the NIT experiments in Seattle and Denver began. In these cities the AFDC programs provided a guaranteed income of approximately $3,200 for a mother and two children in 1971, which in today's prices would be equivalent to about $9,000. The guarantee payments were subject to a reduction of 67 cents for each dollar of earnings obtained by the mother. (In actual practice the formula was more complicated, but the simplification is suitable for our purposes.) The plan's tax rate of .67 operates to reduce the mother's payments from AFDC to zero when her earnings or income from other sources equal $4,776. This "breakeven" amount of $4,776 is derived in this simplified plan by dividing the guarantee ($3,200) by the tax rate (.67).

Intact families in Seattle and Denver were essentially ineligible to receive cash transfer payments, but SIME-DIME changed that condition for the husband-wife families selected to participate in the experiment. How the experimental NIT plans varied in their guarantees and tax rates will be described below. To explain how an NIT changes the incentives to maintain or dissolve a marriage, however, we need examine only two levels of generosity. In both cases we assume that the NIT plans coexist with AFDC, as was true in SIME-DIME.

Consider first a "less generous" NIT plan that offers cash payments to a husband-wife family at a level such that the husband's departure would entitle the mother and her children to the same cash payments as those provided by the existing AFDC plan—or less. In SIME-DIME there were four low-level plans that met this description. These plans offered a guarantee of $3,800 to a husband-wife family with two children and $3,200 to the wife and two children if she separated from her husband. (We will assume throughout this discussion that the wife maintains custody of the children.) Thus, the mother who separated received no more from the less or equally generous NIT plans than she would have received from the existing AFDC plan.[17]

The "less generous" NIT plan does not offer the wife or her husband an incentive to break up their marriage, but it does provide them with benefits if they remain married, benefits that they did not have before. Based on the cash payments they receive, it follows that an NIT plan that offers the same (or smaller) payments to a separated wife as the existing AFDC plan will promote marital stability. In economic terms the "less generous" NIT plan increases the benefits of marriage and thereby raises the *relative* cost of a breakup.

Now consider a second, "more generous" NIT plan, which provides both larger cash benefits to intact families than the "less generous" NIT and larger cash benefits to the separated wife than the existing AFDC plan. As examples, the most generous NIT plans in SIME-DIME offered an income guarantee of $5,600 to an intact family of four and $4,600 to a family with one parent and two children. Clearly, this plan has distinctive incentives affecting marital status. In the "more generous" NIT, the increased benefits to an intact family promote marital stability, but the higher payments available to the wife if she separates ($4,600 compared to $3,200) are an incentive to dissolve the marriage. The "more generous" plan has, therefore, an ambiguous effect on marital stability relative to an existing AFDC system.

If the wife works after the marital separation, the tax rates of the plans will affect the incentives, but the expected effects on marital stability are not much changed. Tax rates are discussed in more detail in a longer version of this article, and we state here only our main conclusions.[18] For the amount of earnings likely to be earned by the separated wife, the "less generous" NIT plan remains stabilizing relative to AFDC. The "more generous" NIT remains ambiguous, although its destabilizing influence is increased because this NIT plan enables the wife to keep a larger proportion of her earnings than she would under AFDC.

In our longer version we also discuss more plans and more detail about them, but our basic conclusions remain as follows: *Given our simplifying assumptions about behavior and the structure of the income maintenance plans, NIT plans that are less generous than or equally generous as AFDC ought to promote marital stability relative to the current state in which AFDC exists and the NIT does not exist. NIT plans that are more generous than AFDC have both stabilizing and destabilizing influences relative to AFDC, and such plans, therefore, may encourage marital dissolutions.*

Nonmonetary aspects of the plans

The most important assumption about behavior being made here, of course, is that married couples do respond to the subsidies of AFDC and NIT in ways that affect the stability

of their marriages. Recall that we have no clear evidence that intact marriages dissolve in response to the AFDC subsidies to the wife and children who form a separate family. If the subsidies of AFDC have no effect, then there may be skepticism that the subsidies of an NIT will affect marital stability, even when, as in the "more generous" NIT plan, the subsidies are increased.

Finally, an implicit assumption in our discussion is that there are no important administrative differences between AFDC and NIT and no differences in benefits other than those involving cash payments. In discussing the result that the least generous NIT plan destabilized marriages relative to an AFDC plan that provided the same or more benefits, Groeneveld, Hannan, and Tuma suggested three reasons that involved nonmonetary considerations. One is that "knowledge of the financial benefits available to persons who end their marriages is likely to be greater for those with NIT treatments than for those in the control group." A second reason is the time-consuming and possibly vexatious task of applying for AFDC compared to the ease of obtaining payments from an NIT. A third is that "receiving aid is stigmatizing for current welfare programs, but not for the NIT treatments."[19]

The first two reasons seem more likely to affect the timing of a marital separation rather than its incidence. It is hard to believe that a mother in a poor family would remain unaware of or ignorant about AFDC or would refuse to take the time to apply for AFDC if she were intent on ending the marriage and had no source of income other than her husband's earnings. She might delay for several weeks or months her decision to separate, compared to a mother who is part of an NIT program, but this implies that only the early timing of the breakup, not the incidence of the breakup itself, could be attributed to the NIT.

The alleged stigma of AFDC relative to an NIT is in a different category from the other two reasons, because the stigma may not be eroded by time. However, we do not have any concrete evidence for the stigma of receiving payments from the experimental NIT plans compared to AFDC, and if we did, we would then have to determine whether a legislated NIT would be administered in a more or less stigmatizing way than the experimental plans. Apparently, many of the experimental families who were already receiving AFDC in Seattle and Denver were unwilling to shift to the NIT plans even when the latter paid larger cash transfers. These AFDC recipients did not want to jeopardize their Medicaid benefits or, in some cases, housing subsidies.[20] Persons already on AFDC may be inured to stigma, but their reluctance to shift to higher-paying NIT plans casts doubt on the strength of the stigma effect.

The points raised by Groeneveld, Hannan, and Tuma about the nonmonetary differences between AFDC and NIT are interesting, but there does not appear to be a way of obtaining direct evidence about them. Our suggestion that they will generally affect only the timing of marital breakups, if they have any effect at all, is indirectly tested by the attention we give later to the issue of timing.

The Seattle-Denver Income Maintenance Experiment

Design and administration

Although we have spoken of SIME-DIME as if there was just a single experimental treatment, there were actually three. One group of families was offered a training, education, and job counseling program, subsidized at three different levels. We will not deal with the variation in subsidies and will refer to this treatment simply as the training program. A second group was offered an NIT, with varying levels of guarantees and tax rates. A third group, containing the largest number of families, was offered a program that combined the training program and NIT plans. These three groups were compared with each other and with a fourth group of control families that received none of the treatments.

The training program was intended to raise the earnings of the participating husbands and wives, and about the same number of wives took part in the program as husbands.[21] The theoretical framework used to analyze the NIT's expected effects on marriage suggests that the training program should have both stabilizing and destabilizing influences. Just as a generous NIT could raise the income of the intact family or the income of the separated wife, so can a training program. By improving the earnings of the husband, for example, the training program could enhance the stability of the marriage. Alternatively, the marriage might be made less stable if the training program improved the earnings capacity of the wife and made her less economically dependent on her husband. These stabilizing and destabilizing influences of the training program also apply to the combined NIT-and-training program. Therefore, the combined NIT-and-training program should have different effects on marital stability from those (discussed above) of the "pure" NIT program. In fact, the proportion of husbands and wives participating in a training program was somewhat higher in the experimental group eligible to receive NIT payments than in the experimental group eligible to receive only the training program.[22]

The experimental design adopted in SIME-DIME permits tests of all three programs: the training program (TR), the NIT, and the combined NIT and training (sometimes abbreviated as NIT×TR). Strictly speaking, the NIT effect on marital stability is revealed in the "pure" NIT program. It turns out that the distinction between the two treatments, NIT and NIT×TR, is one important source of the difference in the results and conclusions we reach compared to those of the original researchers, Groeneveld, Hannan, and Tuma. Their reported "NIT effect" on marital stability was actually an effect of the combination of the two treatments,

because they used only one NIT variable in their models, although they controlled for a separate (or "additive") effect of training.

The NIT plans tested in SIME-DIME are shown in Table 1. The guarantee amounts are listed in column 2 and apply to a husband-wife family with two children. The three levels, $3,800, $4,800, and $5,600, in today's prices would be equivalent to approximately $10,600, $13,400, and $15,700. The median income of all families in the United States in 1971 was $10,300,[23] which in today's prices amounts to $30,000.

The tax rates for the plans, in column 3, are .5, .7, and .8, but five of the .7 and .8 rates declined as the recipient's earnings increased. Column 4 gives the breakeven level of income for each plan for the husband-wife family. In current prices the lowest breakeven ($5,429) equals $15,300, and the highest breakeven ($12,000) equals $33,700. Because the breakeven level of income is the maximum income that the family may have from its own earnings and still receive cash transfer payments from the NIT, it is apparent that many of the experimental NIT plans were more generous than existing or proposed welfare plans. Columns 5, 6, and 7 show the income available to the wife (and her two children) who separates from her husband. Column 5 is the amount she would receive if she had no other income. The plans are listed in order of their generosity to the separated wife, assuming her earnings were $4,000 or less (in 1971 dollars). Column 6 shows what her income would be from each plan if she earned $2,000. The amount in parentheses is the NIT payment she receives. Column 7 shows the two amounts, total income and the NIT payment, if her earnings were $4,000. The least generous plans, 1 and 2, providing the $3,800 guarantee and tax rates of .7 and .8, were roughly equivalent to the AFDC plans in existence in the two states, Washington and Colorado, during the experiment.

Columns 8 and 9 show the numbers of husband-wife families assigned to each of the NIT plans for each of the two treatments, with and without the training program. We see that one unfortunate consequence of the experimental design with four experimental groups, including the control group, is that the sample size for each group is diminished. The problem of small sample sizes is more serious when the outcome of interest is a relatively rare event, such as a divorce or separation. Clearly, the problem is even more acute in testing for differences among the eleven NIT plans shown in Table 1.

Table 1
Experimental NIT Plans in SIME-DIME for a Husband-Wife Family of Four and a Separated Wife with Two Children

NIT Plan	Husband-Wife Family			Separated Wife: Income (Payments)[a]			Sample Size	
	Guarantee	Tax	Breakeven	$0 Earnings	$2,000 Earnings	$4,000 Earnings	With Training Program (NIT×TR)	No Training Program (NIT)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	$3,800	.8[b]	$5,802	$3,200	$3,700 ($1,700)	$4,400 ($400)	53	39
2	3,800	.7	5,429	3,200	3,800 (1,800)	4,400 (400)	59	40
3	3,800	.7[b]	7,367	3,200	3,900 (1,900)	4,800 (800)	81	39
4	3,800	.5	7,600	3,200	4,200 (2,200)	5,200 (1,200)	102	74
5	4,800	.8[b]	8,000	4,200	4,700 (2,700)	5,400 (1,400)	85	49
6	4,800	.7	6,867	4,200	4,800 (2,800)	5,400 (1,400)	109	54
7	4,800	.7[b]	12,000	4,200	4,900 (2,900)	5,800 (1,800)	102	47
8	4,800	.5	9,600	4,200	5,200 (3,200)	6,200 (2,200)	104	58
9	5,600	.8[b]	10,360	5,000	5,500 (3,500)	6,200 (2,200)	119	59
10	5,600	.7	8,000	5,000	5,600 (3,600)	6,200 (2,200)	97	34
11	5,600	.5	11,200	5,000	6,000 (4,000)	7,000 (3,000)	52	25
TOTAL							963	518

Notes: Sample sizes refer to husband-wife families at the beginning of the experiment. The plans are listed in order of increasing generosity, using the payments to the separated wife as the criterion. The number of control husband-wife families is 606. In addition there were 593 treatment families who were assigned to a training program without NIT payments.

[a]"Income" refers to the wife's annual income from the combined sources of the NIT payments and her earnings (if any). "Payments" refers to the NIT payments she would receive, depending on her earnings. The payment amounts are shown in parentheses.

[b]A declining tax rate, which increases the generosity of the plan by increasing payments if the recipient has earnings and by increasing the breakeven level of income for the recipient. (Compare plans 2 and 3 and plans 6 and 7.)

Other design and administrative features of SIME-DIME, while valuable in their own terms, further aggravate the problem of sample size and introduce other complications. Four of these features are briefly discussed below.

1. *Three durations of the experiment and the problem of attrition.* The sample was divided into at first two and, later, three groups according to duration of assignments: three years, five years, and twenty years. The 20-year group was selected after the experiment was under way from among families already in the experiment. Only 6 percent of the sample was transferred into the 20-year plan, and their records were maintained through seven years of the experiment. Among the original couples enrolled in NIT plans, 69 percent were assigned to the 3-year group and 31 percent to the 5-year group. The 3-year and 5-year assignments of families to the three experimental groups, TR, NIT, and NIT×TR, were random and made before the experiment began.

The control families were not randomly assigned to the 3-year and 5-year groups, however, because assignment to the 5-year group was delayed until after the experiment was several months under way. As a consequence all the 5-year control families had stayed with the experiment, responding to questionnaires and so on, for some months before their assignment. Clearly, these 5-year controls had not dropped out during the beginning stage of the experiment, when attrition was at its peak. Only the 3-year controls were at the risk of dropping out during the early stage. The excess of attrition of the 3-year controls relative to the 5-year controls is so large that the proportion of attriting families in the 3-year control group is larger during their three years of the experiment than is the proportion of attriting families in the 5-year control group during their five years of the experiment. As explained below, attrition is a source of bias in analyzing marital dissolutions in the experiment, and the 3-year and 5-year control groups are systematically different regarding attrition. Our solution to the nonrandom assignment of the 3-year and 5-year control groups is to combine them. Together they constitute a randomly assigned group.

Attrition will cause biases in the estimation of treatment effects on marital dissolution if the following two conditions hold. First, the proportion of dropouts differs between treatment and control groups, which was true in SIME-DIME: among married couples 20 percent of the control group but only 12 percent of the NIT groups dropped out. This was expected because families receiving NIT payments have an obvious incentive to stay with the experiment, and the more generous the NIT plan, the greater is the incentive.[24]

The second condition requires that couples who drop out are different in their subsequent experience of marital stability. We lack direct information about this experience, but there are persuasive reasons to expect that the higher attrition proportion of control families leads to an understatement of the number of marital breakups by control couples relative to treatment couples. One reason is that wives participating in the NIT plans have a financial incentive to stay with the experiment if they separate from their husbands because the NIT provides them with immediate income support. If the husband had been working and the wife had not been working, the usual situation among poor families, the wife would receive a substantial increase in NIT payments if her husband left. Thus, the NIT families who break up stay in the experiment, and those who drop out are likely to have fewer breakups. But this presumed stability of the families who drop out will not be observed.

The attrition bias is further aggravated because we expect the opposite tendency, more marital breakups, among control families who drop out. Attrition among controls has been found to be associated with stressful situations, such as going on welfare, mental or physical health problems, moving from the community, and marital dissolutions.[25] Wives in the control group who separate may receive benefits from AFDC, but participating in AFDC does not give them any incentive to stay in the experiment during this stressful period.

2. *Further stratifications and their implications for sample size.* The sample was stratified into three ethnic groups: non-Hispanic white (47 percent), black (34 percent), and Hispanic (19 percent). The Hispanics were Mexican-Americans who lived in Denver. The sample sizes of the "pure" NIT groups for each ethnicity are relatively small: 237 white, 175 black, and 106 Hispanic families.

Comparisons of the NIT program with AFDC require that the sample be restricted to couples with children, because only these families are eligible to receive AFDC benefits if they separate. This restriction also has the advantage of effectively avoiding the problems raised by temporary unions or nonlegal marriages. The sample size is reduced by about 10 percent when childless couples are excluded.

The sample design involved assigning families to the different NIT plans according to their estimated normal incomes. (The family's reported income in the year prior to the experiment was used in this estimate, but other factors were taken into account as well.) Relatively fewer families with the lowest incomes were assigned to the generous NIT plans, and more of these families were assigned to the least generous plans. This procedure permitted the limited budget for the experiment to cover more families; that is, to increase the total sample size of families assigned to the NIT plans given the fixed budget allowable from the sponsoring agency, the Department of Health, Education, and Welfare.

In summary, all analyses should control for ethnicity, site (Seattle or Denver), and for the couple's estimated income classification. The duration of the experiment is another stratification, and this raises special problems that will be discussed next.

3. *The short and varying durations of the experiment.* The experiment lasted from three to five years for almost all the participants, and they knew of these time limits. The purpose of the experiment is, of course, to infer responses to the sorts of programs being tested if the programs were "permanent," or at least as permanent as enactment into law would imply to those affected. Is the experiment too brief a time period to make valid inferences about a legislated plan? One issue is whether the outcome itself involves short-term or long-term choices and arrangements. Many labor supply decisions are short term, although some, like changing one's occupation, are not. Many demographic decisions, like having children, moving to another city, and changes in marital status, are long term. There are two major potential biases attributable to experiments of a short duration. One bias that understates the effect of an NIT on marital stability is that the total payments from a short-duration program are less than those from a permanent program. Whether the effect of these payments is to stabilize or destabilize the marriage, either effect might be understated. In the one case the wife, for example, might regard the short duration of the payments to the intact family as an insufficient source of support to preserve the marriage. In the other case the wife might regard the short duration of the payments as an insufficient source of support to permit her and her children to live separately from her husband. (We assume here that the NIT payments are larger than the AFDC payments available to her.)

A second bias of the short duration of the experiment serves to overstate the effect, whether the effect is to stabilize or destabilize the marriage. For example, if the wife views the extra payments from the NIT as a subsidy to her divorce, she may make this choice sooner, rather than later, because the subsidy will last only for the duration of the experiment. The timing of the divorce or separation is therefore biased, occurring sooner in a temporary experiment than it would under a permanent program.

4. *Differences between NIT and control families in reporting marital status.* Groeneveld, Hannan, and Tuma relied on the interviews administered every four months to families in the experiment for information on a marital separation. In principle, a marital separation that lasted less than four months could go unreported. However, the NIT couples also reported their marital status every month as part of the information system for determining the amount of NIT payments they were to receive. Changes in marital status that were reported in the monthly reports of the NIT families were brought to the attention of the interviewers, who were instructed to verify the changes.[26] Thus, the NIT couples had more opportunities to report marital breakups, and they had a strong incentive to report even short-term separations because their NIT payments would generally increase if the wife and children were separated from the husband. The wife or husband was required to sign a statement testifying that the separation was permanent, but in practice the separation could be as short as one month.[27] Although we do not know if the differences in reporting between NIT and control families affected the interview data, a slight understatement of marital separations among control couples relative to experimental couples seems likely.

A few NIT families made fraudulent claims about their family composition to obtain more payments.[28] Groeneveld, Hannan, and Tuma discuss this issue and conclude that fraud was not an important source of bias in reports of marital breakups.[29] We make no adjustment for biases from reporting or fraud, but we are able to adjust for the effects of attrition and the short duration of the experiment.

Analysis of marital dissolutions

The statistical analysis of Groeneveld, Hannan, and Tuma focuses on the rate of a first marital breakup as the outcome of interest. For a group of couples the rate is defined as the proportion of the group reporting a marital breakup per unit of time. The time-unit may be a year or as brief as a day, because the calendar date of the breakup is recorded.

One advantage of the rate measure is that it self-adjusts for the period of time the couple is observed. Breakups during the 3-year and 5-year experimental programs, for example, can be measured in the common unit of the rate (of breakups) per year. Similarly, if the only effect of attrition was to produce observational periods of different lengths, the rate measure would self-adjust for the varying lengths. Unfortunately, the attrition biases suggested above remain a problem.

A disadvantage of the rate measure is that it may exaggerate one of the biases associated with short-duration experiments. As discussed earlier, the short-duration experiment encourages earlier divorces among families covered by NIT plans. One bias is toward showing a higher incidence of breakups in a 3-year experimental period than the incidence for the same three years under a permanent plan. In a permanent plan our main interest is in the "long-run" rate (and incidence) of breakups for any given period. An experiment with temporary subsidies encourages the subsidized outcome within the time limits of the experiment. Another bias is that, whatever the number of breakups in the 3-year period, the short duration of the experiment will encourage their occurrence toward the beginning of the experimental period, whereas the control group will be more likely to experience breakups more or less uniformly throughout the duration of the experimental period. This alteration of the timing of breakups among the treatment couples increases their *rate* of breakup in comparison with the control group's rate, even though the *incidence* of breakups is the same for the two groups. In one of our statistical models we estimate trends over time to see if any bunching of breakups during the first six to twelve months of the experiment is compensated for by lower rates during the next 30 to 54 months of the experiment.

Two sets of findings reported by Groeneveld, Hannan, and Tuma in the *Final Report* of SIME-DIME summarize their most influential results. First, they report that the NIT treat-

ments had a destabilizing effect on marriages that was large and statistically significant for white and black couples, although not for Hispanic couples. Table 2 shows the results that they emphasized, which are for the first three years of the experiment. The statistical model producing these results included a number of control variables, listed in the notes to the table, in addition to the treatment variables. The numbers in the table express ratios: the NIT group's rate of marital breakups divided by the control group's rate. For example, if one group consisted of 100 couples and 6 were divorced or separated during a specified time period, the rate would be 6 percent. A 6 percent rate for one group divided by a 5 percent rate for another group yields a ratio of 1.20.

The ratios 1.53 and 1.57 are the basis for the claim by Groeneveld, Hannan, and Tuma that the NIT plans "dramatically increased the rate at which marriages dissolved among white and black couples." From Table 2 it is apparent that this claim refers (a) to the first 36 months of the experiment; (b) to the 5-year plan but not to the 3-year plan, and it should be noted that the 20-year duration group was excluded from their analysis; (c) to the "pure" NIT group and the NIT-and-training (NIT×TR) group combined into a single variable.[30]

Table 2

Results of Groeneveld, Hannan, and Tuma: Estimated NIT Effects on Marital Dissolution Rates during the First Three Years, for Original Marriages, by Ethnic Group

NIT Plan	Ratio of the Rate of Dissolutions among Treatment Couples to the Rate of Dissolutions among Control Couples		
	Whites	Blacks	Hispanics
5-Year NIT Plan	1.53**	1.57**	1.01
3-Year NIT Plan	1.10	1.16	1.01

Source: Tables 5.4 and 5.A.1 in Groeneveld, Hannan, and Tuma, *Final Report*, pp. 291 and 367.

Notes: Original marriages include couples who were married or living together at the beginning of the experiment. The estimated treatment effects are derived from a statistical model that included variables measuring socioeconomic characteristics of the couples and four variables measuring participation in the experimental training programs. The socioeconomic control variables used in the statistical model are the following: a constructed preexperimental family income, site (Denver or Seattle), years married at the beginning of the experiment, age of wife, age of husband, years of schooling completed by wife, years of schooling completed by husband, the number of children present, the presence of a child under six years of age, and whether the wife had received AFDC benefits in the year preceding the experiment. The NIT Plan combines the "pure" NIT and NIT×TR treatment groups. The 20-year duration group was not included.
**Statistically significant at the 5 percent level (two-tail test).

Their model includes training variables, but it does not estimate the treatment effects as they were set out in the experimental design, which specified an interaction between an NIT and training as well as separate (or additive) NIT and training treatments.

The increase in marital breakups of NIT families relative to controls cannot be attributed to a low proportion of breakups by the control group. The proportions of white, black, and Hispanic couples in the control group who divorced or separated during the first three years were 16, 24, and 20 percent. These percentages, which apply to the originally enrolled couples who did not drop out and reflect the full three years of exposure to risk, are considerably higher than those reported by Sawhill et al. for poor couples in the Panel Study of Income Dynamics for a similar time period[31] or for comparable controls in the New Jersey NIT experiment.[32]

The large destabilizing impact of the NIT was astonishing in two respects. First, previous research on the impact of AFDC on marital breakups had not prepared us to see a large effect of an NIT. As mentioned earlier, no firm evidence exists for a destabilizing effect of AFDC on marriages despite the fact that the system essentially provides "permanent" benefits to a wife if her marriage dissolves and no benefits to a married couple. SIME-DIME showed a large destabilizing effect from a program that did provide benefits to a couple who stayed together.

Since the average NIT plan in SIME-DIME was more generous than AFDC in providing cash payments to a separated mother, was the destabilizing effect attributable to the relative generosity of the NIT plans? The answer is no, and this reveals the second astonishing result of these findings: the least generous NIT plans, which offered the same cash payments as AFDC (or less), induced the largest destabilizing effect, while the most generous plan had essentially no destabilizing effect.

These findings are shown in Table 3, which is again taken from the *Final Report* (p. 297). Looking at the 5-year plans, which Groeneveld, Hannan, and Tuma emphasize, we see that the low-guarantee plans, $3,800 for a family of four, were associated with increases in marital dissolution of 30 percent for Hispanics, 60 percent for blacks, and 82 percent for whites. In contrast, the most generous plans ($5,600) *decreased* the rate of marital dissolutions among Hispanics by 34 percent and increased the rates for whites and blacks by 14 and 20 percent. Indeed, the 3-year $5,600 plans were estimated to *decrease* marital dissolutions by 15 to 31 percent, and the 3-year plans contained 69 percent of the families. These results, like those in Table 2, refer to the first three years of the experiment and combine the "pure" NIT and NIT×TR groups.

Table 3

Results of Groeneveld, Hannan, and Tuma: Estimated Effects of the Guarantee Levels of the NIT Plans on Dissolution Rates of Original Marriages, First Three Years of the Experiment

NIT Plan	Ratio of the Rate of Dissolutions among Treatment Couples to the Rate of Dissolutions among Control Couples		
	Whites	Blacks	Hispanics
5-Year NIT Plan			
$3,800 guarantee	1.82**	1.60*	1.30
$4,800 guarantee	1.49	1.91	.95
$5,600 guarantee	1.14	1.20	.66
3-Year NIT Plan[a]			
$3,800 guarantee	1.31	1.14	1.36
$4,800 guarantee	1.07	1.36	1.00
$5,600 guarantee	.82	.85	.69

Source: Table 5.7 in Groeneveld, Hannan, and Tuma, *Final Report*, p. 297.
Notes: Original marriages include couples who were married or living together at the beginning of the experiment. The estimated treatment effects are derived from a statistical model that included variables measuring socioeconomic characteristics of the couples and four variables measuring participation in the experimental training programs. The socioeconomic control variables used in the statistical model are the following: a constructed preexperimental family income, site (Denver or Seattle), years married at the beginning of the experiment, age of wife, age of husband, years of schooling completed by wife, years of schooling completed by husband, the number of children present, the presence of a child under six years of age, and whether the wife had received AFDC benefits in the year preceding the experiment. The NIT Plan combines the "pure" NIT and NIT×TR treatment groups. The 20-year duration group was not included.
[a]Groeneveld, Hannan, and Tuma report the 3-year NIT treatment as a constant adjustment factor to the 5-year plans but do not display separate results for the 3-year NIT plans by guarantee levels.
*Statistically significant at the 10 percent level (two-tail test).
**Statistically significant at the 5 percent level (two-tail test).

Recall that the one unambiguous prediction from our economic analysis is that the least generous NIT plan would promote marital stability relative to AFDC. Groeneveld, Hannan, and Tuma refuted this prediction. It was disappointing for advocates of an NIT to see that marital stability was not promoted by NIT plans that were more generous than AFDC, but this result was theoretically plausible. But it was stunning to see the largest destabilizing impact by an NIT plan that was less generous than or equal in generosity to AFDC, and this result has no straightforward theoretical explanation.

A reanalysis of the impact of an NIT on marital breakups

In the controversy and discussion that followed the publication of the research of Groeneveld, Hannan, and Tuma, much attention was given to the unexpected result that the least generous NIT plan appeared to break up marriages. Little attention was given to the mix of the training treatment with the NIT variable used by Groeneveld, Hannan, and Tuma or to their near-exclusive emphasis on the results for the 5-year plans during the first three years of the experiment.

In our reanalysis, which leads us to reject the conclusion that an NIT breaks up marriages, we

- use data from the full five (or seven) years of the experiment;
- separate the "pure" NIT from the NIT×TR treatment;
- apply an adjustment for attrition bias that we and Groeneveld, Hannan, and Tuma agree is appropriate;
- examine trends in the breakups over time to help correct for the short-duration bias that encourages early dissolutions by NIT couples.

When we adopt these procedures, the case for the NIT breaking up marriages virtually disappears. We summarize in this article only a small part of our statistical results and emphasize, for brevity, the results for the entire sample.

Assuming a constant rate of marital breakups (the model of Groeneveld, Hannan, and Tuma)

In Table 4 we show the results for the estimated constant rate of marital breakups for the control group and each of the three treatment groups in the experiment. The table presents our results for two statistical models: (1) a discrete-time model, which adopts a period of six months to mark the timing of a marital breakup, and (2) a continuous-time model, which measures the number of days after the experiment begins until a breakup occurs. Both models assume that the rate of marital breakups is constant for each period; that is, constant "over time." We relax this assumption later.

Table 4 is based on the records of couples for their full tenure in the experiment: up to three and five years for the 3-year

Table 4

A Reanalysis of SIME-DIME: Estimated Effects on Marital Dissolution Rates for Original Marriages, with Child Present: "Discrete-Time" and "Continuous-Time" Models, with and without an Adjustment for Attrition

Treatment Variable[a]	Ratio of the Estimated Proportion of Dissolutions among Treatment Couples to the Proportion among Control Couples							
	Total		White		Black		Hispanic	
	Discrete[b]	Continuous[c]	Discrete[b]	Continuous[c]	Discrete[b]	Continuous[c]	Discrete[b]	Continuous[c]
NIT	1.14	1.13	1.17	1.17	1.31	1.29	.73	.79
NIT adjusted for attrition	1.05	1.04	1.10	1.10	1.20	1.18	.68	.73
NIT × TR	1.38*	1.46*	1.28	1.31	1.77**	1.88**	.99	1.11
NIT × TR adjusted for attrition	1.27	1.36*	1.19	1.22	1.64**	1.74**	.93	1.05
TR (training)	1.12	1.16	1.03	1.11	1.16	1.26	1.10	1.11
TR adjusted for attrition	1.06	1.13	1.01	1.09	1.12	1.21	1.07	1.08
Number of observations in discrete model	14,822		7,125		4,737		2,960	
Sample size, continuous model		2,369		1,100		784		485

Notes: The duration of the experiment is up to three or five years for the 3-year and 5-year experimental groups and up to seven years for the 20-year group. Original marriages with children present include couples who were married or living together and with one or more dependent children at the beginning of the experiment. The estimated treatment effects are derived from statistical models that included the following variables measuring socioeconomic characteristics of the couples: a constructed preexperimental family income, site (Denver or Seattle), years married at the beginning of the experiment, age of wife, the educational attainment of the wife, the presence of a child under six years of age, and whether the wife had received AFDC benefits in the year preceding the experiment.

[a]The treatment group is measured as a qualitative variable in the statistical model. Each couple is assigned the value 1 if they are in a treatment group at a point in time; 0 if they are not in the group. The adjustment for attrition assumes (1) the rate of marital dissolutions for dropouts in the control group is 25 percent larger than the rate of marital dissolutions among controls who did not drop out; (2) the rate of marital dissolutions among dropouts in the NIT and NIT × TR groups is 50 percent smaller than the rate among those who did not drop out; (3) the rate of marital dissolutions among dropouts in the training group (TR) is the same as the rate among those who did not drop out.

[b]The "discrete-time" model divides the experiment into 14 six-month periods, and the marital dissolution rate is calculated as the number of first-time marital dissolutions divided by the number of periods at risk. The number of observations is equal to the number of periods at risk by all the couples.

[c]The "continuous-time" model uses the day of the marital dissolution (or of attrition) to measure the length of time from the beginning of the experiment. The sample size is equal to the number of couples at the beginning of the experiment.

*Statistically significant at the 10 percent level (two-tail test).

**Statistically significant at the 5 percent level (two-tail test).

and 5-year groups and up to seven years for the 20-year group. (The records for the relatively small number of couples in the 20-year plans end after seven years.) Our sample consists of all couples who were married (or together) at the beginning of the experiment and who had at least one dependent child present. We exclude couples with no children (about 10 percent of the original sample), cases in which a spouse died during the experiment, and a small number of cases in which attrition occurred on the first day. (Tables 2 and 3, which are from Groeneveld, Hannan, and Tuma, include childless couples, cases in which a husband died, and all cases of attrition.)

There are two principal differences between our reporting of results in Table 4 and those reported in Tables 2 and 3. We show separate impacts on marital breakups for each of the three treatment groups, but we do not show separate treatment effects by duration of plan or by different levels of generosity. Although we have calculated separate results for the 3-year, 5-year, and 20-year plans and for the different levels of generosity of the NIT plans, these results are not shown in Table 4 in the interest of brevity and to avoid dealing with small sample sizes. We comment on these subgroups below.

The most succinct summary of our main conclusion in Table 4 is found in the four ratios, ranging from 1.04 to 1.14 for "NIT, Total." These are the ratios of the rates of marital breakups for the "pure" NIT couples to control couples, with and without an adjustment for attrition. Effects of the

NIT plan on marital breakups of these magnitudes are not statistically significant. (The unadjusted ratios for the black subgroup, 1.31 and 1.29, are just shy of being statistically significantly different from unity at a 20 percent level. A ratio of unity indicates an estimated treatment effect of zero, and a statistically insignificant ratio corresponds with an estimated treatment effect that is statistically insignificant.)

A ratio of 1.14 indicates that, on average, the rates of marital breakups for any unit of time are 14 percent higher for the couples in the "pure" NIT plans than for the control group. What is the practical significance of a 14 percent difference in the breakup rate? This difference reflects the following approximate rates of marital breakups per year: .05 for controls and .057 for NIT couples (.057/.05=1.14). If these rates were constant over time, as is assumed in the model used, then for each 1,000 control couples 50 would be expected to divorce or separate in the first year, 47 or 48 (out of 950) in the second year, and so on. For each 1,000 NIT couples, 57 would be expected to divorce or separate in the first year, 54 (out of 943) in the second year, and so on. The additional number of marital dissolutions in the NIT group is rather small each year, but the accumulated differences would eventually become sizable. After ten years, for example, 401 marital breakups from among 1,000 control couples are projected, compared with 444 marital breakups from among 1,000 NIT couples.

When adjustments are made for attrition and for changes in rates of marital breakup over time, however, the estimated difference in the breakups between the "pure" NIT group and control group becomes small enough to be considered of no practical significance.

Adjustments for attrition bias

Our adjustment for attrition bias is similar in several respects to the adjustment used by Groeneveld, Hannan, and Tuma, in that we assume different rates of marital breakup for the couples who drop out of the experiment and then recalculate a full-sample estimate of breakups for the NIT and control groups.[33] Like Groeneveld, Hannan, and Tuma, we assume that the couples in the control group who dropped out are more likely to become divorced or separated than those who remain in the experiment and continue to be interviewed. We assume that the rate of marital breakups among control dropouts is 25 percent higher than among controls who did not drop out. Groeneveld, Hannan, and Tuma tested the sensitivity of their results to attrition by assuming that the rates of marital breakups among dropouts were from two to ten times as large as the rate for those who remained in the sample. Our procedure also differs from Groeneveld, Hannan, and Tuma in that we assume that the breakup rates for the NIT groups who drop out are *lower*—specifically, we assume they are half as large as for those who remain in the sample. To illustrate, an estimated rate of breakup of 6 percent per year among those who remain yields an assumed rate of 3 percent per year among the dropouts. The reason, discussed above, is that the NIT payments to a separated wife would generally increase substantially so she would be unlikely to drop out of the experiment. Finally, we assume that the rates of marital breakups for the "pure" training group are the same for dropouts as for those who stay. Those eligible to receive only training have less incentive to stay in the experiment than those receiving cash benefits.

The results of these adjustments for attrition are shown in Table 4. The adjusted breakup rate for the "pure" NIT treatment is now close to being the same as for the control group. The NIT-to-control ratios of these adjusted rates are 1.05 and 1.04. The treatment (NIT×TR) that combines NIT payments and training continues to show rather large destabilizing effects on marriages: a 27 to 36 percent increase for all ethnic groups combined, which includes the large 64 to 74 percent increases for black couples.

Allowing the rate of marital breakups to vary over time

In Table 5 we show the results of a statistical model in which "time" and "time interacted with treatments" are added variables to the same data and model as that used in Table 4. We no longer impose the assumption that rates of marital breakups are constant over time, and we can test the hypothesis that more frequent "early" breakups by treatment couples are offset by fewer breakups later. Groeneveld, Hannan, and Tuma tested several models that allowed for a time-varying response and concluded that there was "no significant variation over time in the effects [on marital breakups] of NIT treatments."[34] We reach a different conclusion, as our discussion that follows makes clear.

Panel A of Table 5 shows ratios of estimated proportions of breakups among treatment couples to proportions among controls after periods of five and seven years elapse. These ratios imply no practical impact of the experimental treatments on marital stability. An allowance for attrition bias would further reduce the estimated destabilizing effect (or increase the estimated stabilizing effect) of the treatments. The ratios range from .97 to 1.16, and reflect the accumulated numbers of marital breakups after five (or seven) years. Comparing these ratios to those in Table 4, we see a pronounced tendency for the early breakups among treatment groups to be offset by fewer breakups later on. The 5- and 7-year time periods chosen for display in Table 5 are no lengthier than the actual duration of the experiment. However, only 30 percent of the couples in the experiment were in it for five years and only 6 percent were in it for seven years. Extrapolating the outcomes beyond seven years, which would soon produce all ratios that are less than one, does not seem warranted.

Panel B reports the coefficients (or effects) of time and duration-of-plan, along with the estimated standard errors of the coefficients. The coefficients of the time variables are the basis for the calculated proportions of marital breakups shown in Panel A. The largest reduction in the estimated treatment effects on marital breakups in Table 5 compared to

Table 5

A Reanalysis of SIME-DIME: Estimated Effects of Treatment on Marital Dissolutions for *Simulated* Five- and Seven-Year Periods, Allowing for the Effect of Time

Panel A

Treatment Variable	Ratio of the Estimated Proportion of Dissolutions among Treatment Couples to Proportion among Control Couples	
	After 5 Years	After 7 Years
NIT	1.05	.97
NIT×TR	1.16	1.02
TR (training)	1.07	1.04

Panel B

Time Variable	Coefficients (Effects) on Marital Dissolutions of Time (as a Yearly Period), Time×Treatment Group, and the 5-Year and 20-Year Duration Plans (Standard errors in parentheses)	
Time (=effect of time for control group)	−.026[a]	(.072)
Time+time interacted with NIT	−.143[b]	(.157)
Time+time interacted with NIT×TR	−.207[b]	(.115)
Time+time interacted with TR	−.069[b]	(.101)
5-year duration plan for the treatments	−.051[c]	(.100)
20-year duration plan for the NIT treatment	−.076[c]	(.149)

Notes: The predicted values of the rate of marital dissolution are based on the same statistical model as in Table 4 except that (1) time is entered as a variable, and (2) the effect of time on marital dissolutions is permitted to depend on the specific treatment. The effect of a particular treatment on marital dissolutions is determined by two components in the statistical model: (1) the qualitative variable designating the specific treatment, and (2) the time period, varying from day 1 to day 2,556 (=7 years×365+1), allowing the effect of time to vary by treatment.

[a]The effect of time (−.026) is not statistically significant by itself, but the collection of all four time variables is statistically significant.

[b]The collection of the three variables representing the interactions of time and treatments are statistically significant at the 13 percent level, holding constant all other variables in the model (including the additive effects of time and the treatment groups).

[c]Neither duration variable has a statistically significant effect. The interpretation of the 5- and 20-year effects is that of an effect on marital dissolutions relative to being in a 3-year treatment group.

Table 4 is for the NIT×TR group, for which the estimated per-year decline (-.207) in the breakup rate is eight times as rapid as the control group's decline (-.026). The decline over time for the "pure" NIT group (-.143) is also much faster than that of the control group. It should be pointed out that our estimates of the interaction between the time trend and the treatment groups have large standard errors, which means that their true values might be much smaller or much larger than our estimates.

One reason why the NIT groups are expected to have earlier breakups is that the increased NIT payments will last only for the duration of the experiment, so delaying one's separation will generally result in less money received. There are other reasons why the breakup rates might decline over time, which apply to the control group as well as to the treatment groups. One that applies to controls in particular is the likelihood that control families who remain in the experiment are more stable in a variety of ways than families who drop out. Accordingly, the longer the experiment continues the more selective is the remaining control group of "stable" families. As stated above, however, the treatment couples who are experiencing a marital breakup have a financial incentive not to drop out.

The last two rows of Panel B of Table 5 report the effects (coefficients) on marital breakups of being in a 5-year plan for the three treatment groups and of being in a 20-year plan for the NIT group. (No 20-year plans were designed for the training treatments.) There are too few observations in the 20-year plan to estimate reliably its differences with the 3-year and 5-year plans. So we will discuss only the impact on marital dissolutions of being in the 5-year plan.

The coefficient -.051 should be interpreted as the effect on marital breakups of being in a 5-year plan relative to being in a 3-year plan. Although negative, indicating that the 5-year plan is relatively stabilizing, the coefficient is small and is not significantly different from zero. Thus, contrary to the results from Groeneveld, Hannan, and Tuma, the 5-year plans do not show larger destabilizing effects on marriage than the 3-year plans. Note that being in a 5-year plan does not reflect merely being in the experiment during the fourth and fifth years, because such "year effects" are controlled for by the time variables in the model.

Summary and conclusion

The impact of the SIME-DIME research

When the results of the income maintenance experiment in Seattle and Denver were reported during the period from 1977 to 1983, great attention was given to the findings of Groeneveld, Hannan, and Tuma. Their research had a resounding impact on policy, theory, and methodology.

The implications for policy were immediate, because the advocates of welfare reform then being debated in Congress were claiming that NIT-type programs would enhance family stability relative to the existing AFDC program. The contrary conclusion drawn from SIME-DIME undercut the advocates' claims, and that conclusion continues to prevail.

The implications of the research for the theoretical arguments about how an NIT would affect marital stability were

also influential. The conventional economic argument was that NIT plans that were equal to or less generous than AFDC would stabilize marriages among poor families, but that NIT plans that were more generous than AFDC might well destabilize marriages. Groeneveld, Hannan, and Tuma found opposite results. In a sense, the economic model was routed.

The research of Groeneveld, Hannan, and Tuma was important, finally, because it was innovative in its methods and of high quality. The issue of the effect of income maintenance plans on marital stability had challenged social scientists for years, and SIME-DIME, despite being a controlled experiment, presented many difficulties for analysis. How should information from a sample of families on spell lengths of marriages and on the timing of divorces, separations, reconciliations, attrition, and so on be used to estimate the effect of the experimental programs on marital stability? How should information about marriages that were still intact at the end of the experiment (or at the time when the couples dropped out of the experiment) be used to estimate the expected duration of the marriage? The statistical techniques used by Groeneveld, Hannan, and Tuma to deal with these and other questions were pioneering in the social sciences. The thoroughness with which they responded to criticisms and suggestions during the years of their research was also meritorious. Nevertheless, we disagree with their conclusions.

Our dissenting conclusions

In our reanalysis we do not find that the data from SIME-DIME justify the conclusion that an NIT program would lead to an increase in marital breakups among already married couples with children. The "pure" NIT program had only a small and statistically insignificant positive relation to marital breakups, and when allowance is made for the upward bias stemming from differential attrition and from the timing of the marital breakups, the relation between the NIT plans and marital breakups essentially disappears. Even the experimental program that combined the "pure" NIT and the training program (NIT×TR), which does show a destabilizing effect on marriages in the statistical model that assumes a constant rate of marital breakups over time, shows no practical difference in the rates when a model is used that allows for nonconstant rates. (See Table 5.)

Aside from our attention to the timing of the breakups and to attrition, the most important source for the difference between our results and those of Groeneveld, Hannan, and Tuma is our use of the full sample and all the years of the experiment for which data are available. With these data we find no evidence for a difference between the 3-year and 5-year treatment groups. Therefore, we see no justification for the emphasis by Groeneveld, Hannan, and Tuma on the large destabilizing effect of the 5-year program during the first three years of the experiment, nor for their conviction "that a short-term experiment understates the effect of a [permanent] national program."[35] Our findings of "no difference" for the two duration groups and of a decline in marital breakups over time for the treatment groups relative to the control group reopen the issue of whether short-duration experiments over- or understate experimental outcomes.

Income maintenance and single-parent families

Marital breakups by already married couples are not as likely to be affected by income maintenance plans as are other behaviors that increase the number of single parents, namely births to unwed mothers who remain unmarried; previously married women who choose to remain unmarried; and single parents who live separately from an extended family. How reforms in income maintenance programs affect these outcomes and their implications for the presence of two parents in a family with dependent children have not been studied in the NIT experiments. This is not a criticism of the investigators, because the experiments were not designed to study these types of demographic behavior but rather to study labor supply.[36]

In research that we report in IRP Discussion Paper no. 850-87, we pursue the finding by Groeneveld, Hannan, and Tuma that reconciliations occurred more frequently among NIT couples whose marriages dissolved than among control couples. Reconciliations probably lessen the adverse effects of marital breakups on the economic well-being of the family and the general well-being of the children. We have not adjusted the rates of marital breakups to take account of reconciliations in this article, but our findings further diminish the impact of the experimental NIT plans on marital separations.[37]

We conclude that the data from SIME-DIME on marital stability provide no justification for opposing income maintenance to intact couples with children, as has been claimed by some interpreters (but not by the original investigators) of SIME-DIME. Our research clearly rejects the estimates of 40 to 60 percent increases in marital breakups caused by the NIT program. We find the phrase "dramatically increased"[38] far off the mark in describing the effect of the NIT on marital breakups. Our best judgment is that SIME-DIME shows an effect of the "pure" NIT program on marital stability of no practical or statistical significance. The larger questions of the relation between income maintenance plans on the one hand and family stability and the well-being of children on the other hand remain unanswered by social science research. ■

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[2]A qualification to the exemption of two-parent families is AFDC-UP, with UP standing for "unemployed parent." AFDC-UP is an optional program offering AFDC to poor married couples if the husband is unemployed and meets certain stringent requirements of eligibility. Now adopted by half the states, the program nevertheless has a very small number of couples participating.

[3]*Welfare Reform Proposals, Hearings,* Subcommittee on Public Assistance, Committee on Finance, U.S. Senate, 95th Congress, February–May 1978, testimony of Secretary Joseph Califano.

[4]Califano, *Hearings,* p. 17.

[5]Moynihan, *Hearings,* p. 25.

[6]Long, *Hearings,* pp. 59–63.

[7]Gilbert Y. Steiner, *The Futility of Family Policy* (Washington, D.C.: The Brookings Institution, 1981), p. 110.

[8]The other three experiments testing the NIT were the New Jersey Income Maintenance Experiment, the Rural Income Maintenance experiment, and the Gary, Indiana, experiment. The first two were designed and implemented by the Institute. See *The New Jersey Income-Maintenance Experiment,* Vol. I: *Operations, Surveys, and Administration,* ed. David Kershaw and Jerilyn Fair, 1976; Vol. II: *Labor-Supply Responses,* ed. Harold W. Watts and Albert Rees, 1977; Vol. III: *Expenditures, Health, and Social Behavior; and the Quality of the Evidence,* ed. Harold W. Watts and Albert Rees, 1977 (New York: Academic Press); and U.S. Department of Health, Education, and Welfare, *Summary Report: Rural Income Maintenance Experiment* (Washington, D.C.: DHEW, 1976). The Gary experiment is described in the article by Gary Burtless and Jerry A. Hausman, "The Effect of Taxation on Labor Supply: Evaluating the Gary NIT Experiment," *Journal of Political Economy,* 86 (December 1978), 1103–1130.

[9]Martin Anderson, *Welfare: The Political Economy of Welfare Reform in the United States* (Stanford, Calif.: Hoover Institution Press, 1978), pp. 149, 163–164; George Gilder, *Wealth and Poverty* (New York: Basic Books, 1980), pp. 139–154; Charles Murray, *Losing Ground* (New York: Basic Books, 1984), pp. 124–125, 157–166, 231–232, and passim.

[10]Anderson, p. 149.

[11]George Gilder, "The Coming Welfare Crisis," in *How to Think about Welfare Reform for the 1980s, Hearings,* Subcommittee on Public Assistance, Committee on Finance, U.S. Senate, 96th Congress, Feb. 6–7, 1980, pp. 378, 380.

[12]Murray, p. 152. Murray ends the quotation with a footnote reference to the research of the Seattle-Denver experiment (note 20, p. 288).

[13]Robert G. Spiegelman, "History and Design," in *Final Report of the Seattle-Denver Income Maintenance Experiment, Volume 1, Design and Results* (Menlo Park, Calif.: SRI International, May 1983), pp. 17–18. Hereafter, Volume 1 will be cited as *Final Report.*

[14]Michael T. Hannan, Nancy B. Tuma, and Lyle P. Groeneveld, "Income and Marital Events: Evidence from an Income Maintenance Experiment," *American Journal of Sociology,* 82 (1977), 1186–1211.

[15]Groeneveld, Hannan, and Tuma, "Marital Stability," in *Final Report,* pp. 257 and 383.

[16]The empirical evidence is discussed in David Ellwood and Mary Jo Bane, "The Impact of AFDC on Family Structure and Living Arrangements," report to the U.S. Department of Health and Human Services, Harvard University mimeo., March 1984. See also Irwin Garfinkel and Sara S. McLanahan, *Single Mothers and Their Children: A New American Dilemma* (Washington, D.C.: Urban Institute Press, 1986), pp. 55–63; and Daniel H. Weinberg, "The Economic Effects of Welfare," Office of Income Security Policy, U.S. Department of Health and Human Services, Technical Analysis Paper no. 35, December 1986.

[17]The NIT plans in SIME-DIME also provided an NIT plan with a guarantee level of $1,000 per year for the separated husband. No cash payments were available to such a husband under AFDC. However, the breakeven level of the husband's NIT plan was only $2,000 per year. We will assume that his earnings exceeded the breakeven so that he received no payments and that the availability of the NIT plan for him played no role in determining his marital status.

[18]See Glen G. Cain and Douglas A. Wissoker, "Income Maintenance Plans and Marital Stability: A Reanalysis of SIME-DIME," IRP Discussion Paper no. 850–87, 1987.

[19]Groeneveld, Hannan, and Tuma, *Final Report,* pp. 325–326.

[20]See Gary Christophersen, *Final Report of the Seattle-Denver Income Maintenance Experiment, Volume 2, Administration* (Princeton, N.J.: Mathematica Policy Research, May 1983), pp. 10–11.

[21]Dickinson and West report that "Despite the fact that nearly two-thirds of the wives were out of the labor force prior to enrollment [in the experiment], participation rates of wives were similar to those of husbands. For husbands and wives, the proportion attending counseling ranged from 40 percent to 60 percent, and the proportion receiving [training and education] subsidies ranged from 21 percent to 36 percent" (Katherine P. Dickinson and Richard W. West, "Impacts of Counseling and Education Subsidy Programs," *Final Report,* pp. 211–212).

[22]Jacob Benus, Harlan I. Halsey, and Robert G. Spiegelman, "The Seattle and Denver Income Maintenance Experiments' Counseling Program and Its Utilization," Research Memorandum 67, SRI International, Menlo Park, Calif., July 1979, p. 46.

[23]U.S. Bureau of the Census, *Statistical Abstract of the United States: 1984* (Washington, D.C.: U.S. Government Printing Office, 1983), p. 463.

[24]See Spiegelman, *Final Report,* pp. 30–32, for supporting evidence for these points.

[25]See Kershaw and Fair, eds., *The New Jersey Income-Maintenance Experiment,* Vol. I, pp. 119–127.

[26]Christophersen, "Implementation," *Final Report,* p. 80.

[27]Arlene Waksberg, "Overview of Master File System with Particular Attention to the Operational Flow of Family Composition Data," p. 24. This paper is in the documentation for the data tapes for SIME-DIME available from the National Archives. Waksberg noted that obtaining "Affidavits of Separation" was "done in a nonrigorous fashion" (p. 24), and she suggests that the reporting differences between NIT and control groups led to a slight bias toward more reporting of marital breakups by NIT families.

[28]Christophersen, *Final Report, Volume 2,* p. 148.

[29]Groeneveld, Hannan, and Tuma, *Final Report,* p. 313.

[30]Regarding point (a), Groeneveld, Hannan, and Tuma report results with data for five years of the duration of the experiment, but these results, which appear to show smaller treatment effects on marital stability, are not emphasized by the authors. Also, these results are not strictly comparable to the results they report for the first three years of the experiment because a somewhat different dependent variable was used. See *Final Report,* Table 5.5, p. 294. Regarding point (c), the authors report a model with interactions between training and NIT in Appendix B, but they do not refer to these results in the main text. See *Final Report,* pp. 372–373 and footnote 5, p. 291.

[31]Isabel V. Sawhill, George Peabody, Carol A. Jones, and Steven B. Caldwell, "Income Transfers and Family Structure," Report no. 979-03, The Urban Institute, Washington, D.C., September 1975.

[32]Jon Helge Knudsen, Robert A. Scott, and Arnold R. Shore, "Household Composition," in *The New Jersey Income-Maintenance Experiment,* Vol. III, pp. 254–259.

[33]See Groeneveld, Hannan, and Tuma, *Final Report,* pp. 305–310.

[34]Ibid., p. 360. They also mention time effects in footnote 6 on pp. 292–293.

[35]Ibid., p. 358.

[36]In fact, Groeneveld, Hannan, and Tuma analyzed the sample of households headed by a woman to estimate the length of time until a marriage occurred. There are special difficulties in using the SIME-DIME data to analyze new marriages, because the rules for determining eligibility to receive experimental NIT payments are quite different from the rules that would apply in a national plan. (See Christophersen, *Final Report, Volume 2,* pp. 37–51.) Groeneveld, Hannan, and Tuma report that among single women who were household heads at the beginning of the experiment, 16 percent who were in the control or "pure" trainee groups married and 17 percent who were in the "pure" NIT and the NIT×TR groups married. In their separate analysis for each of the three ethnic groups, the authors report a statistically significant effect of the NIT in reducing the marriage rate for Hispanics but not for whites or blacks (Groeneveld, Hannan, and Tuma, *Final Report,* pp. 341–344).

[37]See Cain and Wissoker, IRP Discussion Paper no. 850–87.

[38]See note 15.