Institute for Research on Poverty
Discussion Paper no. 1100-96

The Intergenerational Correlation in AFDC Participation: Welfare Trap or Poverty Trap?

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July 1996

We are very grateful for the helpful comments and discussions contributed by Orley Ashenfelter, David Card, and Thomas Lemieux. This research was completed while Zimmerman was in residence at the Institute for Research on Poverty. Financial support was provided by Wellesley College, Williams College, and the Institute for Research on Poverty.

Abstract

Several recent studies have shown that daughters whose mothers have participated in the welfare program Aid to Families with Dependent Children (AFDC), are themselves more likely to participate in AFDC when they head their own household. Other studies have shown that the earnings of parents and their children are highly correlated across generations. This suggests that any variable correlated with income—such as AFDC participation—will also be correlated across generations.

This paper uses data from the original and youth cohorts of the National Longitudinal Surveys to investigate the question of whether the link in mother-daughter welfare participation is a causal relationship, or whether it can be explained by the expected intergenerational correlation in earnings. Several reduced-form probit equations are estimated, and attention is directed to the potential endogeneity of key explanatory variables. The empirical findings suggest that much of the observed correlation in AFDC participation across generations can be explained by the intergenerational correlation of income and other family characteristics.

The Intergenerational Correlation in AFDC Participation:
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I. INTRODUCTION

Daughters whose mothers have participated in the welfare program Aid to Families with Dependent Children (AFDC) are themselves more likely to participate in AFDC when they head their own household (cf. Rein and Rainwater, 1978; Duncan, Hill, and Hoffman, 1988; Solon, Corcoran, and Gordon, 1988; McLanahan, 1988; Antel, 1992; Gottschalk, 1990 and 1995). This observation has much in common with the observation that an individual who receives welfare in one period is more likely to receive welfare in subsequent periods (cf. Plant, 1984). The *intragenerational* correlation in welfare participation has given rise to the notion of a "welfare trap," holding that welfare receipt in one period causes the probability of future participation to rise. This view holds that welfare produces a kind of narcotic effect on the recipient, and thus breeds its own dependence.[1] The correlation of mother's and daughter's welfare participation suggests an analogous *intergenerational* welfare trap, wherein welfare participation by the parent causes an increase in the probability of welfare participation by the child. Mother's participation alters the child's taste for welfare, inducing a higher propensity to participate.

An associated observation concerns the correlation in earnings across generations. A number of recent studies have shown that the earnings of fully employed fathers and sons are correlated on the order of 0.4 across generations.[2] If incomes of mothers and daughters are also correlated across generations, then any variable determined by income will also be correlated across generations. Since eligibility for AFDC is conditional upon a woman's income being below the program cutoff value, it

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[1]Commentaries discussing this viewpoint include Ken Auletta's *The Underclass* and George Gilder's *Wealth and Poverty*.

[2]See Solon 1992 or Zimmerman 1992 for a discussion of intergenerational correlations in earnings and some of the issues involved in measurement.

would be expected that some correlation in welfare participation would exist. This association is purely mechanical, arising solely from the correlation in incomes between parents and children, rather than any welfare trap.[3] If mother's and daughter's incomes are positively correlated, correlated welfare outcomes are a natural implication of the intergenerational transmission of poverty.[4]

This paper uses data from the National Longitudinal Survey (NLS) and the National Longitudinal Survey of Youth (NLSY) to investigate the question of whether the link in mother-daughter welfare participation is a causal relationship, or whether it can be explained by the expected intergenerational correlation in earnings. We conclude that at least three-quarters, and perhaps all, of the correlation in welfare participation across generations can be attributed to the expected intergenerational correlation in income and other family characteristics. That is, the correlation in AFDC receipt across generations represents not a welfare trap, but rather a poverty trap.

II. EMPIRICAL FRAMEWORK

The assertion that welfare dependency is transmitted across generations stems from the observation that children exposed to parental welfare participation are more likely to receive welfare when they head their own household. It is important to note, however, that the data used for such observations are not generated in an experimental setting. In particular, a family that receives AFDC differs from a family that does not receive AFDC in an important way: their income and assets are low enough to qualify for the welfare program. This correlation between poverty status and welfare status makes it difficult to separate the intergenerational transmission of welfare participation from the intergenerational transmission of poverty. To the extent that income (or the determinants of income) is

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[3]Ashenfelter (1983) and Plant (1984) make this observation in the intragenerational context.

[4]Plant (1984) finds evidence for this hypothesis in the intragenerational context.

correlated across generations, independent of the welfare system, the raw differences in participation rates for exposed versus not exposed children will provide an upward-biased estimate of the welfare trap. The poverty trap will confound the estimation of the welfare trap.

A. Expected Participation: Prediction from Bivariate Normal Distribution

A simple example will illustrate the difficulty in separating the welfare trap from the poverty trap. Suppose the family (log) incomes of mothers (Y^m) and daughters (Y^d), in the absence of the welfare system, have common mean and variance and can be characterized jointly by a bivariate normal probability density function. Also assume that, in the absence of the welfare system, the intergenerational correlation in family income is ρ. Then, the conditional probability that the daughter participates in AFDC, given that her mother participated in AFDC, is given by:

$$prob(AFDC^{d} = 1/AFDC^{m} = 1) = \frac{F_{md}(Y^{*}, Y^{*}, \rho)}{F_{m}(Y^{*})} \qquad \textbf{(1)}$$

where Y^{*} is the maximum allowable income for AFDC eligibility (assumed common to mother and daughter), $F_{md}(\cdot)$ is the bivariate normal distribution function for mother's and daughter's income, F_m is the normal distribution function for mother's income, and ρ is the correlation between mother's and daughter's income. The evaluation of this function would yield the fraction of daughters *expected* to participate in AFDC by virtue of the intergenerational transmission of income.[5] The conditional probability would be an increasing function of the program cutoff, Y^{*}, and the intergenerational correlation in income, ρ.

The expected fraction participating, as suggested by equation (1), is given in the Π^e column of Table 1. The cell entries in the matrix indicate the probability that the child is below the program

[5]This illustration assumes other eligibility requirements are met and that all eligible families participate.

income cutoff (i.e., participates) conditional upon the parent having been below the cutoff (i.e., having participated). This probability is evaluated for income correlations ranging from 0.1 to 0.5 and for program cutoff percentiles ranging from the 2.5th to 10th percentile of the income distribution. Thus, if the intergenerational correlation in income is 0.4 (a point estimate of the correlation found for fathers and sons), and the program income cutoff is the 7.5th percentile (close to the sample participation fraction, as shown below), then 22.9 percent of the daughters of participating mothers would be expected to participate.[6] This estimate would provide a baseline probability of daughters' welfare participation given that their mothers participated. Thus, a comparison of the actual fraction of daughters participating (Π), whose mother participated, with the fraction expected to participate (Π^e), might be termed the "excess sensitivity" of daughters' participation to mothers' participation. That is:

$$\textit{Excess Sensitivity} = \Pi^e - \Pi \qquad \textbf{(2)}$$

The excess sensitivity in participation provides a more meaningful measure of the welfare trap in that it explicitly recognizes the intergenerational correlation of income. Thus, for example, if $\Pi^e = 0.229$ as above, and the observed fraction $\Pi = 0.28$, then the excess sensitivity $\Pi^e - \Pi = 0.051$. This would suggest that, at most, 0.051/0.28 = 0.18—that is, no more than 18 percent of the observed association between parent and child welfare participation could be attributed to the welfare trap. The

[6]Using the original cohort NLS data, a regression of (log) child family earnings on (log) parental family earnings when the child lived at home, for those parent-children pairs never reporting AFDC yields a slope coefficient of .39—similar to correlations for daughters and their parents reported in Altonji and Dunn 1991. This may be interpreted as an estimate of ρ. Furthermore, since the data used is for non recipients, the estimate of ρ is not tainted by the AFDC program. In addition, the fraction of children participating in the sample is 7 percent, which suggests the example is reasonable.

TABLE 1

Daughters' Participation Probability Conditional upon Parents' Participation (based on bivariate normality in log income)

Program Cutoff	*Intergenerational Correlation in Log Income: ρ* 0.1 Π^e	RR	0.2 Π^e	RR	0.3 Π^e	RR	0.4 Π^e	RR	0.5 Π^e	RR
2.5 percent	0.041	1.67	0.064	2.67	0.094	4.05	0.133	5.98	0.183	8.74
5 percent	0.074	1.52	0.105	2.23	0.142	3.14	0.188	4.40	0.243	6.26
7.5 percent	0.104	1.43	0.139	1.99	0.181	2.73	0.229	3.66	0.286	4.94
10 percent	0.133	1.38	0.172	1.87	0.216	2.48	0.266	3.26	0.323	4.29

Notes: Π^e= the expected fraction of daughters participating given that their mother participated. RR = the odds of the daughter participating, given the mother participated, relative to the odds of the daughter participating given the mother did not participate.

remaining 82 percent would be attributed to the correlation in income. An alternative way to express this magnitude would be to calculate the increased odds of a child from a welfare family being on welfare, relative to a child from a nonwelfare family. This could be termed the "relative risk" of adult welfare participation:

$$Relative\ Risk = \frac{Prob(AFDC^d = 1 / AFDC^m = 1)}{Prob(AFDC^d = 1 / AFDC^m = 0)} \qquad \textbf{(3)}$$

Estimates of the relative risk are also tabulated in Table 1. For the example just given, the relative risk would be 3.66. That is, parental welfare recipiency raises the odds of child recipiency by 3.66 times. Just as the baseline Π^e is nonzero, the baseline relative risk is not unity, but rather depends on ρ.

There are two principal difficulties in implementing the excess sensitivity or relative risk approaches. Conceptually we need an estimate of ρ in the absence of the welfare system.[7] That is, the correlation between parent/child incomes should not be a product of the welfare system. This problem is mitigated if we are willing to apply the correlation in earnings that has been measured for fathers and sons. Second, we need the correlation in family income. In particular, since AFDC primarily targets single parents, the probability that a spouse is present in the household constitutes an important source of variation in family income. If we knew the mother's and daughter's family income in the absence of the welfare system, these difficulties could be overcome. Empirically, these difficulties are hard to surmount, suggesting a different approach.

[7]In the Ashenfelter (1983) and Plant (1984) studies this difficulty was surmounted by having a control group. This allowed them to estimate income in the absence of the Negative Income Tax program.

B. Reduced-Form Probit Specification

It is instructive to imagine what an appropriate test of the welfare trap hypothesis would entail if it were possible to employ experimental methods. At least two thought experiments could be imagined. The first experiment would involve randomly placing children in households differentiated *only* by their welfare status and observing their future AFDC receipt. If a higher proportion of the children placed in AFDC households received AFDC as adults, this would provide evidence of a welfare trap. This experiment would isolate the effects of maternal welfare receipt holding constant all characteristics of the mother. For instance, this experiment would not detect the effect of a mother's decision to acquire less education because of her welfare participation even though this decision could impact her child's future welfare participation. Any change in the behavior of mothers in the treatment group (AFDC households) would be matched in the selection of the control group (non-AFDC households).

A second experiment could test for a broader form of welfare trap. In this experiment, a group of women who have just had a child would be randomly selected either to receive AFDC or not. The children of these mothers could then be followed and a welfare trap would be supported if a higher proportion of the children of the AFDC mothers subsequently received AFDC. In this case, the characteristics of mothers might be altered in response to welfare receipt, which could indirectly change the daughter's probability of receiving welfare. For example, if AFDC receipt lowers the level of human capital accumulation by the mother, then the environment for the daughter would change and could increase her probability of receiving welfare. Again, this effect would not be observed in the first experiment. Therefore, the size of the treatment effect would potentially be larger in the second experiment.

To summarize, the first experiment treats the characteristics of the child's family as being exogenous to the child and asks whether the mother's welfare receipt per se has any effect on the

child's propensity to receive welfare. Thus it captures any "direct effects" the mother's participation has on the child. The second experiment investigates the total impact of the welfare system on the child's likelihood of receiving welfare. It treats changes in the mother's characteristics caused by the existence of the welfare system as being a component of the welfare trap. Both "direct" and "indirect" effects of the welfare system on the child's welfare participation are captured.

In this paper we use nonexperimental techniques that are more closely associated with the first experiment. Estimation techniques that incorporate the effects of AFDC on mother's characteristics would require a full structural model incorporating the behavior of both mother and daughter. Given the scarcity of rigorous empirical evidence on the welfare trap, we believe it is important to use more parsimonious models to estimate first-order effects before expanding the scope of the exercise. We leave the structural analysis to future research.

Formally, we estimate the following reduced form probit model of the daughter's welfare participation using two cohorts of data from the NLS:[8]

$$Prob(AFDC^{d} = 1) = F(\alpha + \beta AFDC^{m} + \gamma Y^{p} + \delta X^{p} + \pi X^{d} + \phi S^{d}) \qquad \textbf{(4)}$$

where $AFDC^{m}$ is an indicator variable for mother's welfare participation, X^{p} represents a vector of family background characteristics, X^{d} is a vector of daughter's characteristics and S^{d} is a vector of characteristics of an individual's state of residence.[9] If we define the poverty trap as the transmission of poverty from parent to daughter through the transmission of income, human capital, or other characteristics of the family, then the coefficients γ and δ represent the poverty trap. If we define the

[8]The two cohorts are the original cohort National Longitudinal Survey (NLS) of younger and older women and the second cohort is the National Longitudinal Survey of Youth (NLSY). For complete details, see below, Section III.

[9]The vector of state characteristics is included in our analysis of the NLSY data only, since state of residence cannot be determined in the original cohort NLS data.

welfare trap as an increase in the likelihood of daughter's welfare receipt as a result of mother's welfare receipt, *controlling* for the intergenerational transmission of poverty (as in the first experiment), then β represents the welfare trap. This parameter would provide an alternative way of capturing the notion of an excess sensitivity of daughter's participation to mother's participation. Our approach more closely resembles the first experiment described above because parental characteristics are included as explanatory variables. The potential effects of AFDC on mother's characteristics are ignored.

There are several problems inherent in determining the size of the welfare trap by estimating this model. The first problem involves the potential endogeneity of mother's welfare receipt, which may exist if both the mother and the daughter are predisposed toward receiving welfare for some unobservable reason. In other words, there may be some omitted variables that are positively correlated with the AFDC receipt of both the mother and the daughter. This problem would impose an upward bias on the coefficient for mother's welfare receipt.

A solution to this problem is to apply an instrumental variable in place of the potentially endogenous $AFDC^m$ variable. An appropriate instrument must be correlated with the mother's welfare participation, but uncorrelated with unobservable family background characteristics. Using the NLSY, we use variables that vary by state (the state AFDC benefit level, the poverty rate, per capita income, and per capita education expenditures) and by locality of residence (the unemployment rate).[10] These variables are arguably exogenous to the mother yet correlated with her earnings potential or welfare opportunities.[11] Higher per capita educational expenditures in a state, for instance, may provide young

[10]A shortcoming of the NLS data is that it does not indicate the mother's state of residence. For this reason, estimates generated using the instrumental variables procedure are restricted to the NLSY data. See below for a description of the data.

[11]This is the approach suggested by Moffitt (1992). Across-state variation in benefit levels has been employed to examine a variety of potential incentive effects associated with the welfare system. To the extent that state of residence is correlated with the unobserved family background

women with more human capital, increasing their earnings and lowering the likelihood of welfare receipt.[12] Similarly, welfare benefit levels vary across states, creating a (potentially) exogenous source of variation in welfare opportunities. This instrumental variable approach is similar to a natural experiment, where we compare the welfare receipt of daughters whose families are (statistically) identical, except that some are more likely to receive welfare solely because of their geographic location.[13] Since state of residence could also potentially be endogenous, we also apply this instrument set measuring the state level variables in the mother's state of *birth* rather than her state of residence. These variables are even more likely to be strictly exogenous, and yet, since many people remain in the state in which they are born, they would still be correlated with the mother's AFDC decision.[14]

A second problem is created by another potentially endogenous explanatory variable, family income. To the extent that this variable is correlated with unobservable characteristics that may be related between mothers and daughters, parameter estimates in models that include this variable on the right-hand side will be biased. One approach to counteract this problem is to omit family income from the probit specification, treating this model as a further reduced form. Controlling for family income, however, is a key feature of this research because it allows us to separately identify a welfare trap from

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characteristics, this would not be true. This would be the case if people migrated to generous ("welfare magnet") states. Empirical evidence regarding this sort of behavior is mixed (cf. Levine and Zimmerman, 1995; Walker, 1994; Blank, 1988; and Peterson and Rom, 1989).

[12]See Card and Krueger (1992) for some empirical evidence that characteristics of state educational systems, which are correlated with expenditures, affect future earnings.

[13]Since state of residence is potentially endogenous, we also applied this instrument set measuring the state-level variables in the mother's state of birth rather than her state of residence. These variables would be strictly exogenous, and yet, since many people remain in the state in which they are born, they would still be correlated with the mother's AFDC decision. Results obtained from this approach are quite similar to those found using state of residence.

[14]It could be argued that the predisposition to receive welfare would span several generations, so that mothers' state of birth would still be correlated with relevant unobserved family background characteristics. This would appear unlikely, given that the mothers' date of birth is typically in the 1940s, long before the significant expansion of the welfare system.

a poverty trap. To circumvent this problem, we also estimate a reduced-form model of daughter's welfare participation, omitting family income and instrumenting whether or not the mother received benefits as described above. Using state characteristics to predict the likelihood of maternal welfare receipt in a first-stage regression purges this variable of any individual components, such as low family income.

A third problem is created by certain limitations imposed by the data used in this exercise. While the ideal data set would provide us with information on the mother's and daughter's AFDC histories and family income over the daughter's life span, we only have access to a small window of information. In the original cohort NLS we observe the mother's welfare status and family income for three years. For the NLSY we are restricted to one year of data. The implication of this is that the child's exposure to lifetime AFDC participation is measured with error. Furthermore, family income data may also be an error-ridden measure of family permanent income, which would be preferred for this exercise. In both cases, the available data will induce a downward bias on both the estimates of β and γ.

We used two approaches to address the issue of measurement error. For the original NLS cohort, a three-year average of family income is used. Averaging income should reduce the degree of transitory fluctuations in the income data, providing a better estimate of permanent income. The second approach, employed for the NLSY data, is to employ an instrumental variables procedure where we instrument (log) family income with the Duncan index for the parent(s). The Duncan index is a measure of an occupation's socioeconomic status, and is a linear combination of the median earnings and education associated with the individual's occupation. As has been demonstrated in earlier research (Zimmerman, 1992) this occupational measure provides a better measure of permanent income than do single-year measures of income. Instrumenting mother's AFDC receipt with state and local

characteristics, as discussed above, should alleviate the bias created by measurement error in this variable.

The final problem inherent in estimating these models relates to the variables included in the vector of daughter's characteristics, X^d. If these variables are themselves affected by $AFDC^m$, then the welfare trap would not be confined to the coefficient β. That is, part of the welfare trap would be captured by the child's covariates. For example, mother's AFDC receipt could lead the daughter to acquire less human capital, have more children, or refrain from marriage. Thus, we would not want to include the daughter's education as one of the covariates in the regression model. To help alleviate this problem, we include in our probit specification only those characteristics of the daughter that are likely to be exogenous to the welfare system. With this approach, the welfare trap coefficient, β, will incorporate both the direct effect of maternal AFDC receipt on the daughter, as well as any indirect effects of maternal welfare receipt on the potentially endogenous characteristics of the daughter. Again, this underscores our reduced-form approach, rather than a structural approach that would formally identify these "indirect" effects.

III. THE DATA

The data used in this study represent two cohorts of young women obtained from the NLS. The first sample is from the original cohort of the NLS, which began collecting data for women age 30–44 in 1968. In addition, data were also collected for young women between the ages of 14 and 24 in 1968. A number of households in the survey yielded more than one respondent. Given household and relationship identifiers, it is possible to match related women and young women into mother-daughter "pairs." Only daughters living with their parent(s) in 1968 were retained in the sample.

Mothers' AFDC status is measured for 1968, 1970, and 1971, the earliest years of the survey containing this information. Daughters' AFDC status is measured in 1983.[15] This is the latest observational date for AFDC status in the daughters' panel. These data allow a comparison of the mother's and daughter's welfare histories. Data are also provided for individual characteristics for both the mother and daughter, including measures of age, education, race, family structure, and region. Importantly, the income for the parents' household is also collected. This allows the correlation in incomes across generations to be separated from the observed intergenerational welfare correlation to form a better estimate of possible state dependence in welfare participation. As mentioned above, one shortcoming of this data source is that it does not identify the state in which the individual resides. This restricts the NLS in that state characteristics cannot be included as explanatory variables and state-specific instrumental variables estimators cannot be applied to the NLS data.

The NLSY data set was initiated in 1979 and contains a wealth of information on the characteristics of the respondents and each respondent's family characteristics in 1979 (including family income). Unlike the NLS, the state of residence for the respondent is available in the NLSY. This allows us to merge characteristics of an individual's state of residence onto the data set. Daughter's characteristics from 1989 are employed and her family background characteristics are taken from the 1979 survey. The sample is restricted such that only families with the mother present are included.[16]

Summary statistics for the NLS and NLSY are contained in Table 2. From Table 2 it can be seen that for the original cohort data, the unconditional probability of a mother participating in AFDC

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[15]Daughters' AFDC status is also available for 1978. The results are virtually identical if either 1978, 1983, or the union of the two is used in the analysis. The results are also the same if we use mother's AFDC status in any of the three years, or a union of the three.

[16]This restriction was unnecessary in the original cohort since the number of father-only families was negligible.

in either 1968, 1970, or 1971 is 11.4 percent, while 7 percent of the observed daughters received AFDC in 1983. These figures are higher than those commonly reported. For example, data from the *Statistical Abstract of the United States* report approximately 3 percent of families receiving AFDC in 1968. This fact can be explained by the oversampling of minorities in the NLS. The fraction of nonwhite women in the sample is 36 percent, well above the population proportion. This oversampling does prove useful in that it provides the observations on low-income families required for this analysis. In the NLSY sample, 9.2 percent of the daughters received welfare in 1989, while 14.2 percent of the mothers received AFDC in 1979. Like the NLS, the NLSY oversampled minorities, as reflected in the 31 percent of the sample which is nonwhite.

IV. EMPIRICAL RESULTS

Table 3 presents the sample means for the matched mother-daughter samples conditional upon the AFDC history of the parent. The first and third columns present means conditional upon the parent having received AFDC for the original-cohort NLS and NLSY samples, respectively. The second and fourth columns similarly present means conditional upon the parents not reporting AFDC receipt. Two facts stand out in this table. First, the daughters of participating families are considerably more likely to receive AFDC themselves. The fraction of daughters of AFDC recipients participating is 23 percent, as compared to 5 percent to 7 percent for daughters of nonrecipients. This implies a relative risk of 3.3 to 4.6.[17] This observation provides the basic foundation upon which allegations for the existence of an intergenerational welfare trap are built. The second fact that

[17]The lower relative risk for the NLSY cohort is likely due to the fact that the mother's participation is only recorded for one year.

TABLE 2

Characteristics of Matched Sample

Variable	*Original Cohort NLS (1968)* Mean	St. Dev.	*NLSY (1979)* Mean	St. Dev.
Daughter received AFDC	0.070	0.256	0.092	0.289
Mother received AFDC	0.114	0.318	0.142	0.349
Log family income*	10.11	0.674	9.485	0.808
Daughter's Characteristics				
Lived in South	0.393	0.488	0.385	0.487
Lived in urban area	0.494	0.500	0.804	0.397
Age of daughter	31.66	2.078	26.79	2.009
Regional Characteristics of Daughter				
Unemployment rate in region of residence (1983 NLS, 1989 NLSY)	9.92	3.81	5.48	1.99
Per capita expenditures on education in state of residence (1989)			758.98	124.18
AFDC benefits for a family of two in state of residence (1989)			305.44	131.00
Income per capita in state of residence (1989)			17734.35	2714.45
Poverty rate in state of residence (1989)			13.65	3.15
Family Characteristics				
Family size	6.181	2.502	5.137	1.901
Mother's education	10.564	2.866	10.77	3.11
Mother's age	38.99	3.476	43.53	7.09
Nonwhite	0.359	0.479	0.310	0.462

(table continues)

TABLE 2, continued

Variable	*Original Cohort NLS (1968)* Mean	St. Dev.	*NLSY (1979)* Mean	St. Dev.
Instrumental Variables (NLSY)				
Unemployment rate in region of residence (1979)			6.28	1.92
Per capita expenditures on education in state of residence (1979, in millions of dollars)			344.03	68.32
AFDC benefits for a family of two in state of residence (1979)			205.05	84.33
Income per capita in state of residence (1979)			8694.77	936.35
Poverty rate in state of residence (1979)			12.53	2.94
Per capita expenditures on education in state of birth (1979)			402.61	814.18
AFDC benefits for a family of two in state of birth (1979)			183.74	85.35
Income per capita in state of birth (1979)			8306.09	994.44
Poverty rate in state of birth (1979)			13.52	3.57
Mother's Duncan index			33.17	21.60
Father's Duncan index			36.14	23.18

*Family income is measured in 1987 dollars for the original cohort and in 1979 dollars for the NLSY.

TABLE 3

Means of Matched Sample by AFDC Family History

Variable	*Original Cohort NLS (1968)* Parent Received AFDC	*Original Cohort NLS (1968)* Parent Did Not Receive AFDC	*NLSY (1979)* Parent Received AFDC	*NLSY (1979)* Parent Did Not Receive AFDC
Daughter received AFDC	0.228	0.050	0.230	0.069
Mother received AFDC	1.00	0.00	1.00	0.00
Log family income*	9.431	10.201	8.657	9.640
Daughter's Characteristics				
Lived in south	0.533	0.376	0.341	0.394
Lived in urban area	0.502	0.493	0.795	0.905
Age of daughter	31.45	31.68	26.20	26.89
Regional Characteristics of Daughter				
Unemployment rate in region of residence (1983 NLS, 1989 NLSY)	10.09	9.90	5.61	5.46
Per capita expenditures on education in state of residence (1989)			761.39	758.36
AFDC benefits for a family of two in state of residence (1989)			313.24	303.62
Income per capita in state of residence (1989)			18020.15	17672.9
Poverty rate in state of residence (1989)			13.57	13.66
State benefit level, 1989			313.24	303.62
Family Characteristics				
Family size	7.921	5.956	5.685	5.040
Mother's education	8.656	10.797	9.182	11.010
Mother's age	38.36	39.079	42.57	43.67
Nonwhite	0.815	0.300	0.529	0.273

(table continues)

TABLE 3, continued

Variable	*Original Cohort NLS (1968)* Parent Received AFDC	*Original Cohort NLS (1968)* Parent Did Not Receive AFDC	*NLSY (1979)* Parent Received AFDC	*NLSY (1979)* Parent Did Not Receive AFDC
Instrumental Variables				
Unemployment rate in region of residence (1979)			6.64	6.22
Per capita expenditures on education in state of residence (1979)			340.99	344.63
AFDC benefits for a family of two in state of residence (1979)			214.78	202.95
Income per capita in state of residence (1979)			8731.04	8683.00
Poverty rate in state of residence (1979)			12.49	12.54
Per capita expenditures on education in state of birth (1979)			376.44	407.34
AFDC benefit for a family of two in state of birth (1979)			169.76	185.60
Income per capita in state of birth (1979)			8046.41	8345.11
Poverty rate in state of residence (1979)			14.39	13.38
Mother's Duncan index			23.13	34.09
Father's Duncan index			21.56	36.58

*Family income is measured in 1987 dollars for the original cohort and in 1979 dollars for the NLSY.

stands out from this table is that the welfare recipient families and their daughters differ greatly from the nonrecipient families in many important ways. Recipient families were disproportionately nonwhite, had larger family sizes, were more likely to live in the city and the South, faced higher unemployment rates, and had a mother with significantly less education. Perhaps most importantly, they had significantly lower family income than nonrecipient families. Children exposed to welfare receipt faced mean log annual family income of 9.4 ($12,088 in 1987 dollars) and 8.7 ($5,750 in 1979 dollars) in the NLS and NLSY, respectively. Nonrecipient families have mean log income of 10.2 ($26,903 in 1987 dollars) and 9.6 ($15,367 in 1979 dollars) in these two data sets. Combining the fact that incomes are correlated across generations with the fact that recipient daughters were born into significantly poorer families, it is not surprising to observe a higher fraction of daughters of recipients reporting AFDC themselves when they head their own household. Table 3 could be reformulated with the two columns relabeled to indicate the poor and the nonpoor. The participation rates would be similar and the table could be used to demonstrate the effective targeting of the program. Thus, a prima facie case can be made that much of the intergenerational correlation in program participation could be the result of the intergenerational transmission of poverty. Indeed, as seen in Table 1, the relative risk of 4.6 could be largely explained by a program cutoff at the 5th percentile and an intergenerational correlation in income of 0.4.

Table 4 presents several reduced form probit specifications for the daughter's AFDC participation probabilities in the NLS and NLSY. Estimates for models 1 and 1′ are generated using a simple probit model where the dependent variable is a dummy variable equaling one if the daughter reports AFDC and zero otherwise. This model simply reproduces the differences in the conditional means found in Table 3. The final row of Table 4 shows the effect of the mother's participation in

TABLE 4
Probit Estimates of Effect of Mother's AFDC Receipt on the Probability of Daughter's Welfare Receipt
(standard errors in parentheses)

	NLS			*NLSY*					
Variable	(1)	(2)	(3)	(1′)	(2′)	(3′)	(4′)	(5′)	(6′)
Mother received AFDC	0.894	0.361	0.322	0.742	0.443	0.240			
	(0.145)	(0.075)	(0.189)	(0.075)	(0.088)	(0.101)			
Predicted mother's AFDC receipt[a]							-0.160	-0.149	-0.218
							(0.201)	(0.289)	(0.225)
Log family income			-0.066			-0.300			
			(0.148)			(0.057)			
Predicted log family income[b]								-0.807	-0.841
								(0.152)	(0.137)
Daughter's Characteristics									
Resides in South		-0.283	-0.311		-0.320	-0.354	-0.388	-0.619	-0.498
		(0.159)	(0.164)		(0.115)	(0.122)	(0.127)	(0.182)	(0.139)
Resides in urban area		-0.407	-0.406		-0.207	-0.191	-0.201	-0.079	-0.143
		(0.171)	(0.178)		(0.091)	(0.097)	(0.095)	(0.105)	(0.101)
Age		-0.041	-0.041		-0.021	-0.020	-0.048	-0.015	-0.018
		(0.035)	(0.035)		(0.019)	(0.022)	(0.029)	(0.041)	(0.030)
Family Characteristics									
Family size		0.046	0.043		-0.003	0.012	0.005	0.056	0.053
		(0.027)	(0.027)		(0.019)	(0.020)	(0.023)	(0.029)	(0.023)
Years of education, mother		-0.047	-0.043		-0.057	-0.041	-0.085	-0.063	-0.026
		(0.026)	(0.028)		(0.012)	(0.013)	(0.024)	(0.047)	(0.029)

(table continues)

TABLE 4, continued

	NLS			*NLSY*					
Variable	(1)	(2)	(3)	(1′)	(2′)	(3′)	(4′)	(5′)	(6′)
Mother's age		-0.0013	0.001		-0.014	-0.012	-0.016	-0.018	-0.017
		(0.021)	(0.021)		(0.005)	(0.006)	(0.006)	(0.007)	(0.007)
Nonwhite		0.482	0.463		0.592	0.471	0.760	0.445	0.450
		(0.162)	(0.180)		(0.079)	(0.088)	(0.151)	(0.213)	(0.166)
Regional Characteristics of Daughter									
Unemployment rate in local labor market		0.009	0.010		0.008	0.008	0.007	0.007	0.007
		(0.018)	(0.018)		(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Per capita income in state (in $1,000s)					-0.017	-0.019	-0.018	-0.022	-0.021
					(0.023)	(0.026)	(0.027)	(0.029)	(0.027)
Per capita expenditures on education in state (in $100s)					-0.079	-0.100	-0.092	-0.023	-0.056
					(0.037)	(0.002)	(0.052)	(0.049)	(0.042)
Poverty rate in state					-0.036	-0.056	-0.042	-0.018	-0.043
					(0.016)	(0.018)	(0.017)	(0.019)	(0.020)
State AFDC benefit level 1989					0.0005	0.0003	0.0005	0.6E-3	0.57E-3
					(0.0004)	(0.0004)	(0.0005)	(0.5E-3)	(.45E-3)
Constant	-1.637	-0.552	0.056	-1.480	1.189	4.226	2.348	7.997	8.429
	(0.068)	(0.991)	(1.712)	(0.036)	(0.737)	(0.941)	(.989)	(1.817)	(1.574)
Effect of mother's AFDC receipt on daughter's receipt	0.178	0.048	0.046	0.161	0.075	0.039	-0.022	-0.017	-0.021
	(0.029)	(0.010)	(0.027)	(0.016)	(0.015)	(0.016)	(0.028)	(0.033)	(0.022)

[a]In columns 4 and 5, mother's AFDC receipt is instrumented with the unemployment rate for the mother's local labor market, state educational expenditures, state AFDC benefit level, per capita income, and the poverty rate in the mother's state of*residence*. In column 6 these same variables measured in the mother's state of birth are used as instruments. Standard errors are calculated using a bootstrap procedure.
[b]Log family income is instrumented using the mother's and father's Duncan indices.

AFDC on the probability that the daughter participates. In the absence of any other covariates, the derivative is 0.178 for the NLS, and 0.161 for the NLSY.[18]

Models 2 and 2′ control for a set of individual and family level factors that may be correlated with mother's AFDC receipt, omitting family income. In these models the derivative is reduced to 0.048 for the NLS and 0.075 for the NLSY. Comparing models 2 and 2′ with models 1 and 1′ respectively, shows that, once these additional covariates are included in the model, between 27 percent (0.048/0.178) and 47 percent (0.075/0.161) of the correlation in AFDC across generations remains and might be attributed to a welfare trap. Adding the log of family income directly (columns 3 and 3′) has little effect on the estimates for the NLS but further reduces the measured welfare trap in the NLSY.[19] As expected, higher incomes are associated with lower participation probabilities.

The instrumental variables estimates for the NLSY data are presented in models 4′, 5′, and 6′. In estimating model 4′ with the NLSY, the mother's AFDC is instrumented using characteristics of the mother's state and local labor market of residence. Family income is omitted in the vector of covariates because it may be correlated with unobservables, as discussed above. In this case instrumenting has a dramatic effect, yielding an estimated welfare trap that is not statistically different from zero. The coefficient on mother's AFDC is, however, estimated somewhat imprecisely (the standard error on this

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[18]The effect of the mother's AFDC receipt on the probability that the daughter receives AFDC is calculated as:

$$\frac{1}{n}\sum\left[\Phi(\alpha + \beta + \gamma Y_i^p + \delta X_i^d) - \Phi(\alpha + \gamma Y_i^p + \delta X_i^d)\right]$$

where Φ is the normal distribution function and the control variables are evaluated at the means for the sample of recipients. Standard errors for the derivatives are calculated using a bootstrap procedure.

[19]Similar results are obtained here and throughout when income is entered nonlinearly, such as including a dummy variable indicating whether family income is below the poverty line.

coefficient rises from 0.015 to 0.028 between Models 2′ and 4′). To generate a conservative estimate of the welfare trap, we can combine the point estimate of the derivative with its standard error, to generate the upper bound of a 95 percent confidence interval. Creating this interval suggests that we are 95 percent confident that *at most* (-0.022+1.645*0.028)/.161= 15 percent of the observed correlation can be attributed to a welfare trap. Estimates provided in columns 5′ and 6′ incorporate income directly into the model but instrument for it using the father's and mother's Duncan indices. Instrumenting in this fashion would provide a better measure of permanent income, although it would not eliminate any potential endogeneity. As can be seen, incorporating predicted income has little impact on the estimates. Again, these estimates are very similar to those found in the more conservative model 4′.

Model 6′ applies the same instrument set as applied in model 5′ to the NLSY data, but measures the state variables in the mother's state of *birth* (to address the possible endogeneity of state of residence). Again, the ceteris paribus effect of mother's participation on her daughter's participation is insignificantly different from zero, but somewhat imprecisely estimated. Results are again very similar to those in model 4′.

These estimates suggest that it is likely that more than three-quarters, and perhaps almost all, of the raw correlation in the welfare histories of mothers and daughters can be accounted for by the correlation in their economic status independent of the welfare system. This suggests that an important component of the correlation in AFDC participation across generations is the intergenerational transmission of poverty and other family characteristics.

It is important to emphasize that these results do not demonstrate that the welfare system has no perverse effects on children born into recipient families. The results simply demonstrate that mother's participation does not offer substantial explanatory power once other factors are controlled for. It is possible that the welfare system has other effects on the mother's behavior, such as the extent of human

capital accumulation, that could affect the life chances of their children. This possibility should be pursued in future research.

V. CONCLUSIONS

This paper uses data from the National Longitudinal Surveys to measure the extent to which observed intergenerational correlations in AFDC participation can be accounted for by intergenerational correlations in income and other measures of family background. Estimates provided indicate that for women with children, maternal participation is associated with a 3 to 4.5 times increase in the probability that a daughter receives AFDC when she heads her own household. This estimate, however, overstates the true effect of the mother's participation on daughter's participation in that it neglects to control for family income and other aspects of the daughter's family background. If income is correlated across generations, then any variable correlated with income will also be correlated across generations. Since AFDC is an income-tested social welfare program, the correlation in AFDC participation status across generations could simply be a spurious result of the intergenerational transmission of poverty.

The estimates provided in this paper suggest that less than one-quarter, and perhaps none, of the observed correlation in AFDC participation can be attributed to the "welfare trap." It seems likely that much of the intergenerational correlation in AFDC participation is not a result of a welfare trap, but rather is a manifestation of the intergenerational correlation of income and other family characteristics.

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