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Government Transfers and Poverty Transition in Metro and Nonmetro Areas

A Survival Analysis

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Introduction

Understanding the dynamics of poverty is the foundation for successful poverty alleviation strategy. In the literature, only dynamic approaches to poverty provide insights on movement of individuals or households around a poverty threshold; this contrasts with static approaches that ignore the effect of time on assets and individual decisions. Static analysis does not account for the depletion and accumulation of assets over time, which is crucial in understanding movements into and out of poverty. However, even within dynamic framework, efforts to capture poverty dynamics often focus on explaining changes in family income or the family income-to-needs ratio. This implicitly assumes that an increase in family income alone would move poor individuals above poverty line.

The question crucial to our understanding of the concentration of poverty and of the degree of mobility in the lower portion of the income distribution is this: how long will an individual falling into poverty spend below the poverty line (Stevens, 1999)? Introducing the survival framework into the analysis of poverty dynamics, Blane and Ellwood (1986) conclude that most of those who ever become poor will spend only a short time below the poverty line. This suggests that most of the people helped by transfers to economically disadvantaged families use them only briefly. However, most of welfare resources is absorbed by a much smaller group of poor (persistently poor) who happen to have very long stays in poverty.

Individuals in two-parent households experience more transient poverty, with education and race playing important roles in predicting stays in poverty (Stevens, 1999).

The average stay in poverty for persons in households headed by Black, less-educated males is longer than that of persons in households headed by whites with at least a high school education. Stevens's results suggest also that the conventional view that most individuals falling into poverty experience short stays below the poverty line should be modified to account for the frequency and importance of multiple spells of poverty.

McKernan and Ratcliffe (2000) conclude that poverty entries and exits have changed over the past two decades, with the mid 1990s seeing an increase in both entries into poverty and exits from poverty. Controlling for demographic and economic factors, they found the likelihood of entering or exiting poverty to be highest for persons living in households with employment changes, followed by persons living in households with a shift in headship. For McKernan and Ratcliffe, change in household composition, employment, and disability status are the most important explanatory factors, whereas changes in economic conditions (state unemployment rates, GDP) have only a slight influence on poverty transitions.

The studies cited above fail to explicitly assess the role of government transfers on movements into and out of poverty and to formally accounting for differences between metro and nonmetro areas. Moreover, they often treat welfare as a homogeneous program whereas it is a mosaic of diverse programs whose impact might differ across households and locations. The devolution of more responsibility to states under the 1996 legislation increases even further the diversity of these programs.

In this paper movement in and out of poverty is estimated using a discrete duration model where the exit from poverty refers to a temporal sequence in which the passage of time is combined with events marking transitions between different poverty

states. I seek to evaluate the impact of different government transfers under the welfare program on the probability of exit from poverty in metro and nonmetro areas. Controlling for both individual and geographical attributes, the present study aims to evaluate the change in the likelihood of exiting from poverty due to change in welfare policy.

Apart from the above introduction, there are six other sections. In the next section, I review the literature on welfare and poverty alleviation. The third section sketches out the empirical model to be used. Data and some relevant trends are presented in the fourth section. In the fifth section, I discuss estimation results. Concluding remarks are presented in the last section.

Welfare impact on poverty: literature review.

The research on the impact of welfare programs on poverty can be sorted into two categories (Fording and Berry, 2000). In one category are studies contending that welfare decreases poverty by raising the income of the poor above the poverty threshold. On the second categories are papers claiming that welfare's impact has been to increase poverty by discouraging work.

Schoeni and Blank (2000) found evidence that welfare policy changes reduced public assistance participation while increasing family earnings; as a result, poverty declined. They found that gains from the 1996 reforms were not as broadly distributed across the distribution of less-skilled women as were the effects of waivers. Moffitt and Rangarajan (1991) provide evidence suggesting that increases in Aid to Families with Dependent Children (AFDC) program tax rate might not be an effective tool for increasing labor supply and work incentives of female heads of households. Using a model for family labor supply, Hoynes (1996) found that work disincentive effects of Aid

to Families with Dependent Children-Unemployed Parent (AFDC-UP) range from 42 to 50 hours per month for husbands and 29 to 33 hours per month for wives. However, if pushed out of AFDC-UP, most families would fail to increase earnings sufficiently to replace the resulting loss in income. In his review of the theoretical and empirical literature on the effect of welfare on labor supply, Moffit (2002) concludes that many issues relating to the optimal levels of welfare programs and the social desirability of labor supply effects in different parts of the income distribution remain to be studied.

Under the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA), many recipients of Temporary Assistance for Needy Families (TANF) are likely to reach time limits without finding stable jobs even in the presence of favorable economic conditions (Danziger, 2002). Focusing on rural areas, Lichter and Jensen (2002) found a reason for being optimistic about PRWORA. Their analysis shows that since the introduction of the 1996 welfare reform act, rural poverty rates have declined among female-headed families along with the rates of welfare receipts. Moreover, labor participation has increased as well as average earnings. Iceland (2003) points out that although the majority of welfare leavers are working, they usually have low-wage jobs so that their earnings remain low; as a result, many remain in poverty for a period of time after leaving welfare. According to Meyer and Sullivan (2001), tax and welfare changes have sharply increased the employment of single mothers and cut welfare rolls. Their study suggests that the material conditions of single mothers have improved slightly, even for highly disadvantaged single mothers.

As a component of human capital, access to health care plays a significant role in the dynamics of poverty. Analyzing the impact of welfare on health, Kaestner and

Kaushal (2003) suggest that the decrease in the welfare caseload between 1996 and 1999 was associated with significant changes in insurance coverage among low-educated, single mothers, a seven to nine percent decrease in Medicaid coverage, an increase in employer-sponsored, private insurance coverage of six percent; and a two to nine percent increase in the proportion of persons who are uninsured. Bitler, Gelbach and Hoynes (2004) found that welfare reform is associated with reductions in health insurance coverage and health care utilization. In addition, welfare reform increased the likelihood of needing health care.

Most of these studies focus on program caseloads, labor market participation and increase in participants' earnings. However, if the final goal of the welfare program is to "pull" disadvantaged families out of poverty, then one should not focused only on the decline in the welfare caseload, the increase in labor participation among recipients, or increases in earnings. These are the necessary, but not sufficient, conditions for decline in poverty. Instead, welfare program should be evaluated on whether it induces exit from poverty.

Modeling exit from poverty

Early research on the study of poverty dynamics used longitudinal data to observe and count the number of years individuals spend in poverty over a fixed sample period. These early attempts failed to account for the fact that people who end (or begin) a period in poverty may be ending (or starting) a long stay in poverty, despite the fact that they appear to be poor in only one or two of the observed years (Stevens, 1999). By implicitly ignoring the censoring of spells, these methods consistently understate persistent poverty. Lillard and Willis (1978) used a components-of-variance model with panel data on male

earnings to estimate permanent and serially correlated transitory components. Ulimwengu and Kraybill (2004) applied the components-of-variance methods to the family income-to-needs ratio in the United States while adjusting for cost of living and controlling for number of years individuals or households spent in poverty, household demographics and area characteristics. Although it is possible to examine the frequency and duration of periods of poverty after estimating such models, most of the studies using the components-of-variance method do not provide the estimation of distribution of time spent below the poverty line.

As in Ulimwengu and Kraybill (2004), I assume each household maximizes utility subject to various constraints ranging from individual characteristics to regional and community attributes, including governmental policy. Household *i* is endowed with a vector of assets, A_{it}, at time *t*. Each period, household *i* chooses a level of consumption (C_{it}) and investment (I_{it}) to maximize the discounted stream of expected well-being. Formally,

$$\underset{\{C_{it},I_{it}\}}{Max}\, E\sum_{t=0}^{\infty}\delta^{t}U(C_{it}), \tag{1}$$

where U(·) is a utility function and δ is the discount rate. Using Bellman's equation, the dynamic optimization problem takes the following form:

$$V_t(A_{it}) = \max_{\{C_{it},I_{it}\}} U(C_{it}) + \delta V_{t+1}(A_{it+1}) \tag{2}$$

subject to

$$\begin{aligned} &C_{it} + P_t' I_{it} = f(A_{it}) \\ &A_{it+1} = A_{it} + I_{it} - \Theta_{it}\ , \\ &A_{it+1} \geq 0 \end{aligned} \tag{3}$$

where **f**(·) is a generalized earnings function, $\mathbf{P_t}$ is a vector of market prices at which entitlements are sold and purchased, and $\boldsymbol{\Theta}$ is a vector of stochastic asset shocks that can be positive or negative. Earnings depend upon individual characteristics and also upon community assets.

Optimal consumption (C_i^*), the solution to the preceding dynamic optimization problem, is assumed to be determined by variables drawn from both individualist and structuralist theories of poverty. If $\overline{C}_i$ is the level of consumption that guarantees a minimum living standards, then household *i* is considered poor if and only if $C_i^* < \overline{C}_i$. To capture the dynamics of C_i^* around $\overline{C}_i$, the empirical model describes the rates of exit from poverty.

At the aggregate level, the number of households entering (E_t) poverty in period t is defined as the number of households that were not in poverty in period $t-1$ but become poor in period t. Similarly, the number of households leaving (L_t) poverty in period t is defined as the number of households in poverty in period $t-1$ but out of poverty in period t. Let $N_{p,t-1}$ and $N_{n,t-1}$ denote, respectively, the number of households in poverty and the number of households not in poverty in period $t-1$. Thus the probabilities of entering and exiting poverty in period t are given by

$$\text{Prob (entering poverty in t)} = \frac{E_t}{N_{n,t-1}} \qquad (4)$$

$$\text{Prob (exiting poverty in t)} = \frac{L_t}{N_{p,t-1}} \qquad (5)$$

I model the length of time before first exit from poverty. Formally, the survivor function is defined as

$$S(t) = \Pr(T > t) = 1 - F(t) \quad (6)$$

where *t* is the time spent in poverty, *T* is the event time (number of years prior first exit from poverty) for particular individual (household representative), and *F(t)* is the associated cumulative distribution function.

Assuming a Weibull distribution for *T*, conditional on the covariates x_{it}, the survivor function is given by

$$S_i(t) = \exp\left\{-\left[t_i e^{-\beta x_{it}}\right]^{\frac{1}{\sigma}}\right\} \quad (7)$$

where σ is a parameter of the Weibull distribution that determines the shape of the hazard function: $\sigma > 1$ denotes increasing hazards over time, $\sigma < 1$ denotes decreasing hazards, and $\sigma = 1$ indicates the Weibull distribution collapses to a logistic distribution exhibiting a constant hazard rate over time; ε is a random variable with *type-1 extreme value* distribution. In log-linear form with a Weibull distribution, the model can be written as

$$\log T = \beta_0 + \beta_1 x_{1t} + ... + \beta_n x_{nt} + \sigma\varepsilon \quad (8)$$

In the literature, equation (8) is referred to as an *accelerated failure time* (AFT) model. Explanatory variables (x_{it}) include demographic characteristics of individuals (gender, race/ethnicity, age, marital status); education level and employment status of individuals; household welfare participation; household structure (household size); and geographical variables (place of residence, local welfare benefits).

For simplicity, most studies on poverty dynamics using survival analysis assume a logistic distribution, which is inconsistent with the time-dependency of poverty dynamics. The longer the poverty spell, the lower the probability of exit; inversely, the shorter the stay in poverty, the higher the probability of exit. This means that poverty

dynamics produce monotonic (increasing or decreasing) hazards as does Weibull distribution. In contrast, the logistic distribution implies that the probability of poverty exit is invariant to the length of the poverty spell. As pointed out by Collett (1994), if the characterization of time-dependency is accurate, parameter estimates will be more precise than estimates from models where the time dependency is unspecified. Larsen and Vaupel (1993) put it differently, "in the analysis of duration data . . . if the functional form of the hazard has the wrong shape, even the best-fitting model may not fit the data well enough to be useful."

Right censored observations are accounted for in this study. However, I do not address the issue of unobserved heterogeneity (Allison, 1995). Indeed, Heckman and Singer (1985) point out that accounting for unobserved heterogeneity tends to produce estimated hazard functions that decline with time, even if the true hazard is not declining for any individual in the sample.

Data

The principal source of data for is a geocoded version of the National Longitudinal Survey of Youth (NLSY79). The dataset is a nationally representative sample of 12,686 individuals who were ages 14-21 in 1978. This cohort was interviewed annually from 1979 to 1994 and biennially since 1994. Additional community level data were obtained from the U.S. Department of Commerce. Figure 1 displays a time-trend of the probability of exiting from (Pexit) and entering into (Pentry) poverty along with indexes of real Gross Domestic Product (GDP). In this study, the official poverty threshold is adjusted to account for geographical differences in housing costs (Citro and Michael, 1995).

The probability of exiting poverty increased until 1986 before stabilizing around 60% during the 1990s. This means that six out of 10 persons entering poverty in a given year manage to exit from poverty the next year. In contrast, the probability of entering poverty declined from 62% in 1980 to 17% in 2000. This favorable trend in poverty reduction may be the result of a favorable macroeconomic environment as depicted by indexes of real GDP. This suggests that, *ceteris paribus*, improved macroeconomic conditions may turn out to be the best welfare instrument.

As shown in figures 2 and 3, metro areas have an advantage in both probability of exiting from and probability of entering into poverty. Indeed, over the entire period under review, the probability of exiting from poverty has been higher in metro than in nonmetro areas; inversely, the probability of entering into poverty has been lower in metro areas compared to nonmetro areas. Data in table 1 suggest that both poverty and non poverty spells are frequent; 54.6% individuals in metro and 50.4% in nonmetro enter poverty after experiencing three years or less out of poverty. The exit rate is even faster, 98.0% and 97.4% individuals in metro and nonmetro respectively exit poverty after only one or two years in poverty. This result confirms that the probability of exiting from or entering into poverty is inversely proportional to the duration of the spell; the more time one spends in poverty, the lower is his probability of exiting from poverty. Likewise, the longer the stay out of poverty, the lower the probability of entering poverty.

In this paper, the following government transfers are considered: unemployment insurance compensation, retirement and disability insurance benefits, income maintenance benefits, and medical benefits. At the county level, these government

transfers all exhibit a growing trend in nominal terms throughout the 1979-1996 period (table 2) and start declining thereafter. This is probably a combined result of PRWORA and favorable macroeconomic conditions that led to a decrease in welfare caseload during this period. Except for the retirement benefits, residents in metro areas tend to receive more government transfers than those in nonmetro areas.

Estimation results

The model estimated is a log-linear version of the Weibull model which links the number of years prior first exit from poverty to individual and spatial characteristics drawn from both individualist and structuralist approaches to poverty. The coefficients of the model associated with continuous variables have a semi-elasticity interpretation; they represent the percentage change in survival time before exiting from poverty induced by a unit change in the independent variable. Two versions of the model are presented in table 3; one with aggregate county-level government transfers, the other with individuals or disaggregate transfers. For per capita government transfers, the unit change represents an additional thousand dollars.

Demographics

Results in table 3 suggest that persons aged 40 years or older spend more time in poverty spells before exiting for the first time than younger persons and spend almost 45% more time in poverty than younger individuals[1]. This might be because persons of 40 years or more are more exposed to events such as divorce, lay-off and fertility that may explain their longer stay in poverty. Additional members in the household increase the length of time prior to exit a poverty spell for the first time.

[1] In this sample, the oldest is 44.

Compared to Non-Hispanic Whites, Black people spend 13.2% more time in poverty prior to exit. Hispanics experience shorter (4.6%) stay in poverty than Non-Hispanic Whites. A similar pattern is observed for Asians when compared to Non-Hispanic Whites. Poverty spells tend to be shorter by 27.6% for males than for females, suggesting the existence of gender discrimination.

This study confirms the already established social advantage of married persons over non-married ones. Compared to the non-married, married individuals exit poverty faster on average than never married, separated and divorced individuals by 8.9%, 18.1% and 8.7%, respectively. Encouraging marriage might be effective in fostering exit from poverty.

Education and labor market

Although unexpectedly small, the role of education on poverty transition is significant. Individuals with a college or university degree experience 5.0% shorter stays in poverty than those with a high school degree. Participation in the labor market increases the probability of exiting from poverty. Employed individuals spend 4.5% less time in poverty prior to exit than unemployed individuals. Transition in and out of poverty is not homogeneous across sectors of employment. Compared to those in Public Administration, only individuals in Manufacturing experience shorter (1.6%) stays in poverty. Construction and Wholesale employees spend 8.0% and 8.8% more time in poverty than those in Public Administration.

Welfare participation

Welfare participants are compared to individuals who never been poor (non-poor), those in poverty for nine years or less (transitorily poor), and those poor for ten

years or more (persistently poor) during the 1979-2000 period. I assume that to be effective, welfare programs should make their participants at least as better off as the *persistently poor* who do not participate. The results suggest that individuals involved in job training programs experience the same amount of time in poverty before exiting as the *persistently poor* who did not receive the training.

Compared to non participants, AFDC/Temporally Aid to Needy Families (TANF) or Food Stamp program participants exhibited a significant advantage only before 1996 reform when they spent on average 24.5% less time in poverty before exiting. Those receiving housing subsidies tend to stay longer in poverty. This might be an indication of an adverse selection effect where constraints on welfare participation (time limit, work requirement and welfare stigma) attract only individuals with low skills. As a result, they use welfare as a coping strategy rather than an exit strategy.

Spatial attributes and government transfers

Evidence of spatial heterogeneity is found. Compared to individuals living in the South, those in North Central and West spend on average 8.5% less time in poverty before exiting. As for metro and nonmetro differences, nonmetro residents stay in poverty 15.7% longer than metro residents. At the aggregate level, the results suggest that while government transfers were successful in reducing time in poverty in both metro and nonmetro areas before 1996 reform, they unexpectedly tend to increase spells of poverty after reform. However, as shown below, such aggregation may hide possible heterogeneity in government transfers.

Considered separately, in metro areas a unit increase in *income maintenance benefits* reduces time in poverty by 17.0% before reform but has no significant impact

after reform. A similar unit change increases time in poverty in nonmetro areas by 12.6% before and 26.0% after reform. It appears that the 1996 reform has not reduced given the impact on the duration of poverty spells in both metro and nonmetro areas.

Before as well as after the reform, *unemployment insurance compensation* has significantly reduced poverty spells both in metro and nonmetro areas but more so in nonmetro than metro areas. One unit change in *unemployment insurance compensation* in nonmetro areas has reduced the length of time in poverty by 28.2% before and 90.6% after reform. In metro areas, time in poverty was reduced by only 2.9% before and 19.9% after reform.

Medical benefits are a success story of the reform. Through medical transfers, poverty spells have been reduced by 5.2% and 9.4% respectively in metro and nonmetro areas after the reform. *Retirement and disability insurance benefits* have mixed results. They decreased time in poverty by 6.1% in metro areas and 25.1% nonmetro areas before reform while increasing it by 19.2% in metro areas and 14.4% in nonmetro after reform.

Concluding remarks

The aim of this study was to evaluate the impact of government transfers to socially disadvantaged families on their transitions in and out of poverty. Controlling for both individual and geographical characteristics, the results suggest that government transfer programs yield different results depending on the location where the transfers are made. With respect to the 1996 reform, the study shows that outcomes differ from one program to another. Here, too, the distribution of impact varies across geographical locations, especially between metro and nonmetro areas.

In terms of fostering exit from poverty, some significant and positive results of government transfers were found at county level. *Income maintenance benefits* may be more effective in metro areas, while *unemployment insurance compensation* and *medical benefits* yield desirable outcomes in both metro and nonmetro areas. As for *retirement and disability insurance benefits*, they are effective neither in metro areas nor in nonmetro areas. The question that remains is how to advise policymakers to design a strategy that targets specific areas while sorting out the desired effects of each government transfer.

Reference

Allison, P.D. 1995. Survival Analysis Using SAS®: A Practical Guide. Cary, NC: SAS Institute Inc.

Bitler, M., J. Gelbach and H. Hoynes. 2004. "Welfare Reform and Health," NBER Working Paper No. 10549.

Blane, M.J. and Ellwood, D.1986. "Slipping Into and Out of Poverty: The Dynamics of Spells", *Journal of Human Resources* Vol. 21, No. 1, 1-23.

Citro, C. F., and R.T. Michael. 1995. *Measuring Poverty: A New Approach*. Washington DC: National Academy Press.

Collett, D. 1994. Modeling survival data in medical research. New York: Chapman and Hall.

Danziger, S. 2002. "Approaching the Limit: Early National Lessons from Welfare Reform," in *Rural Dimensions of Welfare Reform*, Weber, B.A., G.J. Duncan and L.A. Whitener, editors, Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.

Fording, R.C. and W.D. Berry. 2000. "The Impact of Welfare Programs on Poverty Rates: Evidence from the American States," paper presented at the 2000 Meeting of the Midwest Political Science Association.

Heckman, J.J. and B. Singer. 1985. "Social Science Duration Analysis" in *Longitudinal Studies of Labor Market Data*, ed. J.J. Heckman and B. Singer, New York: Cambridge University Press.

Hoynes, H. 1996. "Welfare Transfers in Two-Parent Families: Labor Supply and Welfare Participation under AFDC-UP." *Econometrica* 64: 295-332.

Iceland, J. 2003. Poverty in America: A Handbook. Berkley, Ca: University of California Press.

Kaestner, R. and N. Kaushal. 2003. "Welfare Reform and Health Insurance Coverage of Low-Income Families," NBER Working Paper No. 10033.

Larsen, U. and J.W. Vaupel. 1993. "Hutterite Fecundability by Age and Parity: Strategies for Frailty Modeling of Event Histories." *Demography* 30:81–102.

Lichter, D.T. and L. Jensen. 2002. "Rural America in Transition: Poverty and Welfare at the Turn of the Twenty-First Century," in *Rural Dimensions of Welfare Reform*, Weber, B.A., G.J. Duncan and L.A. Whitener, editors, Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.

Lillard, L., and R. Willis. 1978. "Dynamic Aspects of Earnings Mobility." *Econometrica* 46: 985-1012.

McKernan, S.-M. and Ratcliffe, C. 2002. Transition Events in the Dynamics of Poverty. The Urban Institute. Washington, D.C.

Meyer, B.D. and J.X. Sullivan. 2001. "The Effects of Welfare and Tax Reform: The Material Well-Being of Single Mothers in the 1980s and 1990s," NBER Working Paper No. 8298.

Moffit, R. 2002. "Welfare Programs and Labor Supply," NBER Working Paper 9168.

Moffitt, R. and A. Rangarajan. 1991. "The Work Incentives of AFDC Tax Rates: Reconciling Different Estimates," *The Journal of Human Resources*, Vol. 26, No. 1. pp. 165-179.

Schoeni, R.F. and R. Blank. 2000. "What has Welfare Reform Accomplished? Impacts on Welfare Participation, Employment, Income, Poverty, and Family

Structure," Working paper 7627, National Bureau of Economic Research (NBER).

Stevens, A. H. 1999. "Climbing out of Poverty, Falling Back in: Measuring the Persistence of Poverty Over Multiple Spells," *The Journal of Human Resources*, 34 (3): 557-588.

Ulimwengu, J. M. and D.S. Kraybill. 2004**. "**Poverty over Time and Location: An Examination of Metro–Nonmetro Differences," *American Journal of Agricultural Economics*, 86 (5): 1282-1288.

Figures

Figure 1: Probability of Exiting from (Pexit) and Entering into (Pentry) Poverty and Real GDP.

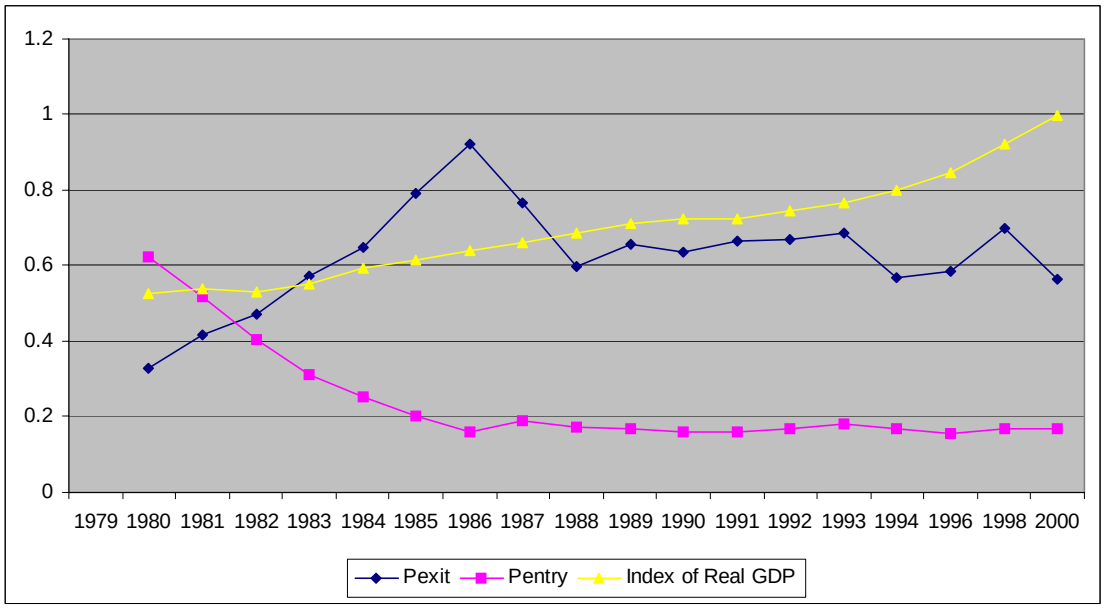

Figure 2: Probability of Exiting from Poverty: Metro and Nonmetro Difference.

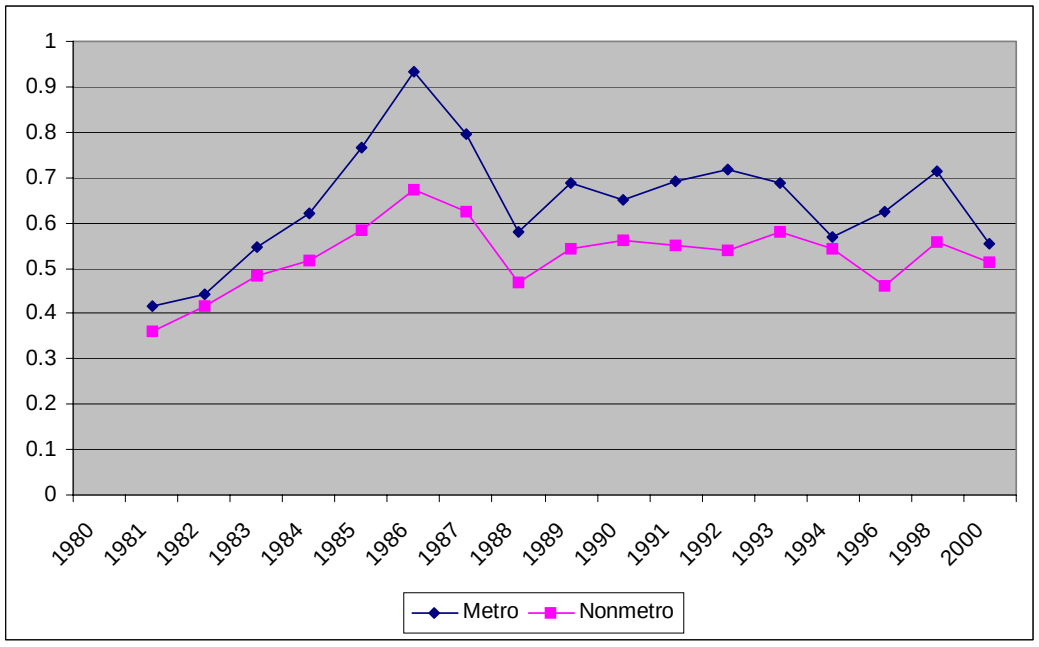

Figure 3: Probability of Entering into Poverty: Metro and Nonmetro Difference.

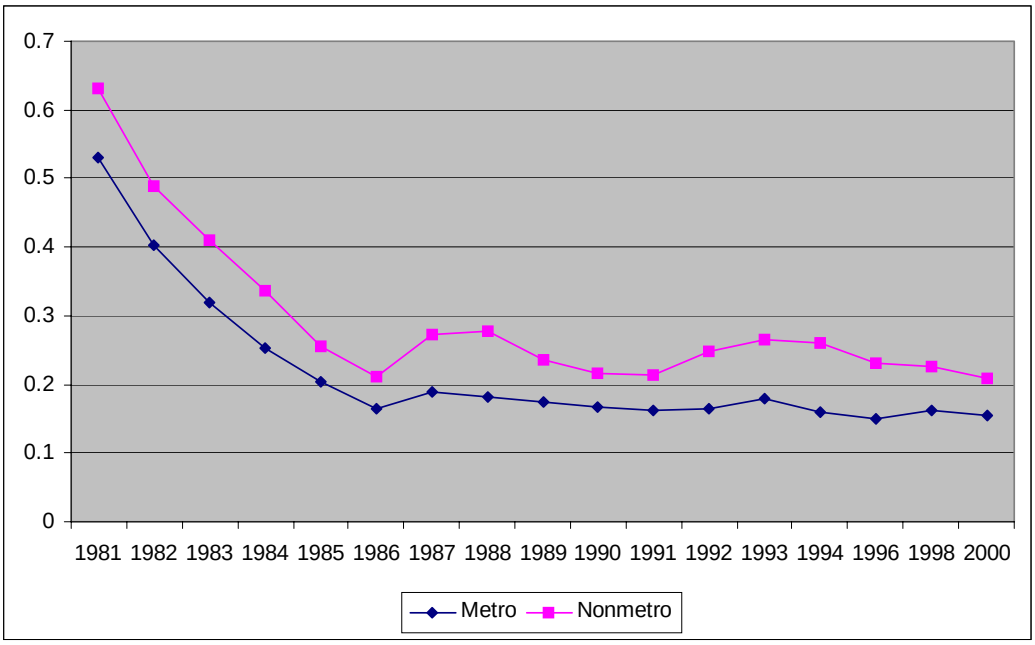

Table 1: Poverty Dynamics in Metro and Nonmetro Areas.

Years before entering into or exiting from poverty	Percentage of those entering poverty for the first time after *n* years out of poverty		Percentage of those exiting poverty for the first time after *n* years in poverty	
n	Metro	Nonmetro	Metro	Nonmetro
1	30.5	28.1	16.9	17.6
2	2.6	1.8	81.1	79.8
3	21.5	20.5	0.3	0.6
4	8.7	11.9	0.2	0.1
5	6.7	6.2	0.3	0.3
6	4.6	4.9	0.3	0.4
7	2.9	5.0	0.2	0.1
8	3.0	1.7	0.2	0.3
9	3.4	2.5	0.1	0.2
10	2.3	1.5	0.1	0.1
11	2.6	0.5	0.0	0.0
12	1.1	0.7	0.1	0.0
13	0.9	4.4	0.1	0.1
14	1.8	2.4	0.0	0.0
15	1.1	1.0	0.0	0.0
16	1.6	2.5	0.1	0.1
17	2.5	1.8	0.0	0.1
18	2.2	2.7	0.0	0.0

Table 2: Per capita Government Transfers ($).

	Income maintenance benefits			Medical benefits			Retirement and disability insurance benefits			Unemployment insurance compensation		
Years	Metro	Nonmetro	Difference	Metro	Nonmetro	Difference	Metro	Nonmetro	Difference	Metro	Nonmetro	Difference
1979	$ 180.43	$ 164.08	$ 16.35	$ 416.78	$ 370.88	$ 45.90	$ 656.21	$ 729.82	$ (73.60)	$ 62.29	$ 59.06	$ 3.22
1980	$ 195.03	$ 181.05	$ 13.99	$ 425.25	$ 391.40	$ 33.85	$ 680.71	$ 775.95	$ (95.24)	$ 83.01	$ 75.78	$ 7.24
1981	$ 202.81	$ 190.32	$ 12.48	$ 451.74	$ 422.30	$ 29.44	$ 725.03	$ 833.03	$ (108.00)	$ 80.11	$ 74.73	$ 5.38
1982	$ 203.75	$ 190.38	$ 13.36	$ 474.98	$ 439.94	$ 35.04	$ 758.17	$ 867.13	$ (108.95)	$ 98.43	$ 103.55	$ (5.11)
1983	$ 210.51	$ 200.41	$ 10.10	$ 502.54	$ 468.86	$ 33.69	$ 781.71	$ 898.90	$ (117.19)	$ 99.51	$ 103.45	$ (3.93)
1984	$ 215.10	$ 208.02	$ 7.08	$ 531.27	$ 499.81	$ 31.46	$ 802.34	$ 923.66	$ (121.32)	$ 76.09	$ 74.11	$ 1.98
1985	$ 221.93	$ 217.86	$ 4.07	$ 562.07	$ 533.96	$ 28.11	$ 834.25	$ 955.96	$ (121.71)	$ 74.33	$ 72.04	$ 2.29
1986	$ 228.25	$ 224.93	$ 3.33	$ 587.19	$ 567.14	$ 20.06	$ 859.90	$ 988.36	$ (128.46)	$ 74.77	$ 73.12	$ 1.65
1987	$ 230.33	$ 221.68	$ 8.65	$ 605.86	$ 574.55	$ 31.31	$ 873.32	$ 1,017.20	$ (143.88)	$ 70.55	$ 70.47	$ 0.08
1988	$ 242.43	$ 233.06	$ 9.37	$ 638.79	$ 615.47	$ 23.32	$ 908.60	$ 1,048.62	$ (140.03)	$ 68.70	$ 66.57	$ 2.13
1989	$ 255.98	$ 244.22	$ 11.76	$ 694.87	$ 659.85	$ 35.02	$ 943.19	$ 1,088.96	$ (145.77)	$ 71.51	$ 69.10	$ 2.41
1990	$ 274.12	$ 257.91	$ 16.21	$ 752.91	$ 718.77	$ 34.14	$ 981.50	$ 1,124.96	$ (143.46)	$ 80.66	$ 78.74	$ 1.92
1991	$ 302.97	$ 284.14	$ 18.83	$ 845.29	$ 809.72	$ 35.58	$ 1,028.06	$ 1,180.13	$ (152.07)	$ 100.08	$ 94.91	$ 5.17
1992	$ 331.53	$ 305.56	$ 25.96	$ 931.53	$ 870.55	$ 60.98	$ 1,063.42	$ 1,212.58	$ (149.16)	$ 128.24	$ 108.63	$ 19.61
1993	$ 346.34	$ 308.47	$ 37.87	$ 998.03	$ 920.62	$ 77.41	$ 1,097.24	$ 1,238.78	$ (141.54)	$ 118.51	$ 100.12	$ 18.39
1994	$ 360.49	$ 316.55	$ 43.94	$ 1,058.93	$ 973.12	$ 85.81	$ 1,119.11	$ 1,270.30	$ (151.19)	$ 93.95	$ 82.36	$ 11.59
1996	$ 371.57	$ 327.54	$ 44.03	$ 1,159.92	$ 1,036.84	$ 123.07	$ 1,165.43	$ 1,291.82	$ (126.40)	$ 86.73	$ 84.07	$ 2.66
1998	$ 360.22	$ 319.97	$ 40.25	$ 1,178.02	$ 1,046.32	$ 131.71	$ 1,196.03	$ 1,323.31	$ (127.29)	$ 79.21	$ 78.96	$ 0.25
2000	$ 301.56	$ 281.50	$ 20.07	$ 992.57	$ 895.02	$ 97.55	$ 1,120.97	$ 1,172.09	$ (51.12)	$ 76.21	$ 73.88	$ 2.33

Table 3: Estimation Results (Dependent variable is the number of years prior first exit from poverty).

	with disaggregate transfers			with aggregate transfers		
Independent variables	Coefficients		Standard error	Coefficients		Standard error
Intercept	1.252	***	0.030	1.262	***	0.029
Individual/household characteristics						
Age						
Over 40 years (default)						
17 years or less (1 if in this age interval, 0 otherwise)	-0.447	***	0.027	-0.458	***	0.027
Between 17 and 40 years (1 if in this age interval, 0 otherwise)	-0.433	***	0.026	-0.441	***	0.026
Size						
4 or less	0.021	***	0.002	0.021	***	0.002
4 - 10	0.025	***	0.001	0.024	***	0.001
Over 10	0.029	***	0.002	0.029	***	0.002
Race						
Non-Hispanic White (default)						
Black	0.132	***	0.011	0.145	***	0.011
Hispanic	-0.046	***	0.012	-0.051	***	0.012
Asian	-0.202	***	0.062	-0.201	***	0.062
Indian	0.081	***	0.014	0.074	***	0.014
Other	0.022	**	0.011	0.012		0.011
Gender						
Female (default)						
Male	-0.276	***	0.005	-0.275	***	0.005
Marital status						
Married (default)						
Never married (1=yes, 0=no)	0.089	***	0.005	0.085	***	0.005

Separated (1=yes, 0=no)	0.181	***	0.011	0.182	***	0.011
Divorced (1=yes, 0=no)	0.087	***	0.009	0.088	***	0.009
Other	0.176	***	0.032	0.185	***	0.032
Education						
High school (default)						
College/University	-0.050	***	0.008	-0.046	***	0.008
Other	0.110	***	0.007	0.116	***	0.007
Labor market participation						
Employed (1=yes, 0=no)	-0.045	***	0.005	-0.036	***	0.005
Sector of employment						
Public Administration (default)						
Agriculture	-0.001		0.023	0.003		0.023
Manufacturing	-0.016	*	0.009	-0.012		0.009
Construction	0.080	*	0.046	0.075		0.046
Wholesale	0.088	***	0.011	0.086	***	0.011
Other	0.081	***	0.005	0.081	***	0.005
Welfare participation						
Job training						
Received training (default)						
Did not receive, never poor	0.362	***	0.011	0.362	***	0.011
Did not receive, poor for 9 years or less	0.261	***	0.018	0.258	***	0.018
Did not receive, poor for 10 years or more	-0.068		0.111	-0.049		0.111
AFDC/TANF or Food Stamp						
Before 1996 act						
Participated (default)						
Did not participate, never poor	0.467	***	0.009	0.473	***	0.009
Did not participate, poor for 9 years or less	0.261	***	0.012	0.256	***	0.012
Did not participate, poor for 10 years or more	-0.245	***	0.083	-0.270	***	0.084
After 1996 act						
Participated (default)						

Did not participate, never poor	0.191	***	0.015	0.191	***	0.015
Did not participate, poor for 9 years or less	0.027		0.029	0.041		0.029
Did not participate, poor for 10 years or more	0.571	**	0.256	0.598	**	0.256
Subsidy						
Received (default)						
Did not receive, never poor	0.104	***	0.010	0.103	***	0.010
Did not receive, poor for 9 years or less	0.069	***	0.015	0.068	***	0.015
Did not receive, poor for 10 years or more	0.010		0.112	0.008		0.112
Spatial attributes						
Region of residence						
South (default)						
Northeast	0.011		0.007	-0.004		0.006
North Central	-0.085	***	0.006	-0.096	***	0.006
West	-0.085	***	0.007	-0.102	***	0.006
Metro/Nonmetro						
Metro						
Nonmetro	0.157	***	0.015	0.098	***	0.012
Government per capita transfers						
Total transfers ($ 1,000)						
Metro						
Before 1996 act	-		-	-0.040	***	0.003
After 1996 act	-		-	0.045	***	0.003
Nonmetro						
Before 1996 act	-		-	-0.078	***	0.005
After 1996 act	-		-	0.050	***	0.005
Income maintenance ($ 1,000)						
Metro						
Before 1996 act	-0.170	***	0.028	-		-
After 1996 act	-0.018		0.039	-		-
Nonmetro						
Before 1996 act	0.126	***	0.041	-		-

After 1996 act	0.260	***	0.069	-	-
Unemployment insurance ($ 1,000)					
Metro					
Before 1996 act	-0.029		0.049	-	-
After 1996 act	-0.199	**	0.094	-	-
Nonmetro					
Before 1996 act	-0.282	***	0.088	-	-
After 1996 act	-0.906	***	0.196	-	-
Medical benefit ($ 1,000)					
Metro					
Before 1996 act	0.024	*	0.012	-	-
After 1996 act	-0.052	***	0.015	-	-
Nonmetro					
Before 1996 act	0.050	**	0.021	-	-
After 1996 act	-0.094	***	0.034	-	-
Retirement and disability ($ 1,000)					
Metro					
Before 1996 act	-0.061	***	0.011	-	-
After 1996 act	0.192	***	0.012	-	-
Nonmetro					
Before 1996 act	-0.251	***	0.017	-	-
After 1996 act	0.144	***	0.026	-	-
Distribution parameters					
Scale	0.510		0.001	0.512	0.001
Weibull shape	1.959		0.005	1.954	0.005
Log likelihood		-53,876		-54,112	
Number of observations		72,956		72,956	
*,**,*** significant at 0.10, 0.05, and 0.01 levels					