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PROGRAM PARTICIPATION

WELFARE DEPENDENCY AND ITS CAUSES: DETERMINANTS OF THE DURATION OF WELFARE SPELLS

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P. Ruggles
The Urban Institute

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Survey of Income and Program Participation

Welfare Dependency and Its Causes:
Determinants of the Duration of Welfare Spells

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Patricia Ruggles
The Urban Institute

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Welfare programs serve an important role in providing both short and long term assistance to low-income families and individuals. The Aid to Families with Dependent Children (AFDC) program, for example, the basic cash assistance program for low-income families with children, aids about 11 million people each month. The impacts of AFDC recipiency on work incentives and family composition have been studied in depth by a broad range of policy analysts.[1]

More recently, however, concern has also focused on the dynamics of welfare recipiency. Much of this concern has arisen in the wake of an influential study by Mary Jo Bane and David Ellwood (Bane and Ellwood (1983)), which found that although most new AFDC cases received welfare for only a relatively short period of time (two years or less) a minority remained on welfare over a much longer period. These long-spell cases were found to account for a sizable proportion of the total caseload at any given point in time, and to occasion the bulk of welfare costs. These findings have led to an increased interest on the part of analysts in modeling the determinants of welfare spell durations.

Studies of the dynamics of welfare recipiency are a fairly recent phenomenon, however, at least partly because detailed data on spell lengths and personal characteristics of recipients have been hard to find. Studies of AFDC participation by Hutchens (1981) and Plotnick (1983) examined transitions into and out of AFDC, but did not consider issues relating to spell length directly. The first analyses to investigate spell durations explicitly were the Bane and Ellwood study mentioned above, which used 12 years of data on AFDC participation from the Panel Study of Income Dynamics (PSID), and a study by June O'Neill, Douglas Wolf, Laurie Bassi, and Michael Hannan (1984), which used not only the PSID but also data from the National Longitudinal Survey (NLS) and from administrative records on AFDC case openings and closings. Both of these studies focused primarily on the determinants of spell durations, investigating the specific impacts of demographic, economic, and program-related variables. More recently, Ellwood (1986) has updated the PSID results, while O'Neill, Bassi and Wolf (1985) have further examined AFDC spells observed in the NLS, using

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1. See for example Garfinkel and McLanahan (1986) or Ellwood and Bane (1984) for discussion of this literature.

several variations on discrete duration dependence models to test for increased probability of continued participation as spells lengthen. Finally, a recent paper by Rebecca Blank has introduced a more rigorous definition of welfare dependency—essentially, a decrease in the conditional probability of leaving welfare as spell duration increases—and has examined dependency using monthly data on participation from the control group for the Seattle/Denver Income Maintanance Experiments (SIME/DIME). Using this definition, she finds little evidence of welfare dependence across a variety of model specifications.[2]

This paper examines the dynamics of welfare receipt and the determinants of welfare spell durations using newly available panel data from the Survey of Income and Program Participation (SIPP). The paper considers the dynamics of welfare recipiency in general, and, unlike for example Blank's study, does not examine a formal model of dependence defined as a change in the conditional probability of a welfare exit. We hope to extend the work in this direction at some future point, but the focus of this more preliminary examination is on the characteristics of recipients as they influence spell durations.

The SIPP data used in this analysis provide detailed monthly information on the demographic and economic characteristics of families and households on a month by month basis. With the exception of Blank's SIME/DIME data, which are both rather old and limited to a very non-representative set of sites, all of the other dynamic participation models seen in the literature are based on annual data. In a monthly program like AFDC use of annual data can bias estimated spell durations significantly. In addition, it is more difficult to observe the specific characteristics of the AFDC unit and household at the time of spell entry or exit using annual data, particularly where changes in these variables occur during the year. The SIPP thus represents an opportunity for substantial improvements in our estimates of AFDC spell durations.

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2. Two other recent papers consider issues relating to welfare dynamics without modeling dependency explicitly: John Fitzgerald (1988) has used data from the Survey of Income and Program Participation (SIPP) to examine the impacts of marriage opportunities on AFDC exit rates, and Roberton Williams and Patricia Ruggles have also used SIPP data to examine welfare transitions more generally.

Modeling the Duration of Welfare Spells

As discussed above, a fairly large number of authors have modeled aspects of welfare program participation over the past several years. Such models typically see the decision to participate (or to continue participating) in a welfare program as an issue of choice: a woman (or couple) chooses to participate if the utility of doing so exceeds the utility derived from not doing so—i.e.,

$$U_w > U_n.$$

The participation function, then, may be written simply as

$$\Phi = U_w - U_n > 0.$$

A dynamic component may be added to this model simply by assuming that the participation decision and its components, U_w and U_n, are reassessed in each period, so that

$$\Phi_t = U_{wt} - U_{nt} > 0.$$

If utility is a function of income and leisure, as is generally assumed, plus some specific household characteristics that determine the shape of the underlying function, then a generalized utility function may be written

$$U = U(H,Y,X)$$

where H = hours worked (negative leisure), Y = income, and X is a vector of specific household characteristics. For both U_w and U_n, however, the determinants of Y may shift considerably with changes in the X vector. For example, consider Y_n, which is a function of

$$Y_n = f_n(E_n,E_s,C,O,I),$$

where E_n = the household head's earnings, E_s = the spouse's earnings (if any), C = the child care costs necessary for the head (or if present, spouse) to work, O = other income (for example, alimony or child support), and I = the information and search costs involved in obtaining a job in the first place if either the head or the spouse does not currently have one. Similarly, Y_w will also be a function of both E_w and some other important factors:

$$Y_w = f_w(E_w,C,O,B,E), \text{ where}$$

E_w = earnings during welfare recipiency periods, for any earners in the household, C and O are as above, and B and E relate to the available welfare

programs: B = the benefit for the family's size in its state of residence, and E is a vector of family characteristics related to the state's welfare program eligibility rules.

As may be seen, both Y_n and Y_w are dependent on specific variables related to the X vector of family characteristics. These include for example the number and ages of children in the household (the primary determinants of child care costs); the presence of a spouse; the head's marital history (which is likely to affect other income such as alimony or child support); and the head's education and /or job skills (which will affect not only potential earnings but also the information costs of finding a job.)

The X vector of family characteristics may also influence the shape and/or location of the utility function more directly, if perceptions about the social acceptability of welfare program participation also affect the relative utility of welfare receipt. For some individuals, welfare recipiency may be perceived as a source of social stigma, decreasing the likelihood that, all else held constant, they will choose to participate in wefare programs. Others may be less affected--for example, some may belong to a subculture that does not regard welfare recipiency as particularly deviant, while others may simply care less about deviation from social norms in general. While it is difficult to test directly for these factors, the presence of other behaviors that deviate from social norms--for example, a birth while unmarried--may indicate a higher tolerance for stigma effects.

In essence, then, this model predicts that factors that reduce potential income from non-welfare sources such as earnings will increase spell durations, all else held constant. Additionally, to the extent that certain individuals experience less stigma as a result of welfare recipiency, they would also be expected to have longer spells.

Data and Methodology

The data used in this study are drawn from the 1984 panel of the SIPP, which follows an initial sample of about 53,000 people over a period of 32 months starting in the fall of 1983. The single biggest advantage of the SIPP is that

it collects monthly data on income, household composition, and program participation for a fairly large, representative sample of households. Because these data are longitudinal, however, month to month inconsistencies in reporting that could not be observed in a cross-sectional file become very apparent. Also, as a new file, the SIPP has not undergone the careful editing procedures that are applied to other Census Bureau data products, and particularly for longitudinal analysis, some further editing is typically necessary. The AFDC file used in this analysis, which contains 491 cases with observed AFDC spell entries, was constructed from a version of the 1984 panel file that had been substantially edited for consistency. The edits applied are described in detail in Coder and Ruggles (1988), and will not be further discussed here.

The methods used to examine the determinants of welfare spell durations in this paper apply to a dynamic version of the basic choice model discussed above. First, a survival function for welfare participation is estimated by defining $F^*(t, X_t)$ as the cumulative distribution of time on welfare, with X_t defined as a vector of relevant household characteristics and program parameters, as above, and with F^* representing the results of a series of participation decisions, Φ_1 through Φ_t. At any time t, then, $F^*(t,X_t)$ may be seen as representing the probability that the duration of welfare for someone with the given X vector of characteristics is < t. The density function associated with this distribution of survival times may be denoted $f(t, X_t)$. The survival function for participation is then simply the proportion still on welfare at time t—that is, $S(t,X_t) = 1 - F^*(t,X_t)$. The instantaneous rate of exit from welfare, or the hazard rate for exits, conditional on participation up to time T=t, is then given by

$$\lambda(t,X_t) = \lim_{\delta t \to 0} \frac{\text{prob}(t<T<t+\delta t \mid T>t, X_t)}{\delta t}$$

$$= f(t, X_t)/S(t,X_t)$$

$$= \delta(-\ln(S(t,X_t)))/\delta t.$$

If this is integrated, the survival function becomes

$$S(t,X_t) = \exp(-\int_0^t \lambda(u,X_u)du).$$

The specific functional forms of the hazard model that are estimated here include both a Weibull and a loglogistic distribution for the hazard function. The Weibull distribution is relatively easy to estimate and is therefore often chosen for survival analyses of this type, and is shown here to offer a benchmark for comparison with other studies. The loglogistic distribution was chosen because Blank, who investigated a number of possible functional forms, found that the loglogistic provided the best fit for her AFDC spell data, which appear to be distributed quite similarly to the SIPP data. In fact, in preliminary goodness-of-fit tests across the Weibull, loglogistic, exponential, and log normal distributions for our spell data the loglogistic function also appeared to provide the best fit for the SIPP results.[3]

Estimates of the Duration of Welfare Spells

Before turning to the results of the model of the determinants of duration described above, it may be instructive to examine some simpler estimates of spell durations by recipient characteristics.[4] These data, shown in Table 1, make it clear that the use of monthly data on participation does result in substantially shorter estimated spell durations than those found by Bane and Ellwood using the PSID. As the first column of Table 1 shows, more than half of all AFDC recipients have left the program by the end of the first year—the median spell length is about 11 months, in contrast to the median of about 2

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3. See Allison (1982) and Tuma and Hannan (1984) for more discussion of modeling a time-related dependent variable in a survival function context. Blank (1986) also discusses the implications of using alternative hazard distributions.

4. The estimates presented here (and throughout the paper) are for first observed welfare spells only (although in a small number of cases very short intervals between spells were edited out, using the procedures described in Coder and Ruggles (1988)). Further examination of multiple spells will be undertaken, but the SIPP observation period is so short relative to the median spell length that in practice only a few returns to welfare can actually be observed.

Table 1

Life Table Survival Estimates for AFDC Spells, by Various Characteristics of Recipients

	All Recipients	Marital Status		Employment Status		Race		Age of Youngest Child	
		Never Married	Ever Married	Previous Employment	No Employment	Non-White	White	5 or less	6 or more
Total Number of Cases	491	160	331	143	348	183	308	327	164
Percentage of Cases Remaining (Survival Rate) After:									
4 months	76.1 (2.0)	84.7 (2.8)	71.9 (2.6)	65.2 (4.1)	80.5 (1.9)	81.6 (3.0)	72.9 (2.6)	77.3 (2.4)	73.8 (3.5)
8 months	56.4 (2.4)	67.9 (3.9)	50.7 (3.0)	41.7 (4.4)	62.3 (2.8)	67.6 (3.7)	50.0 (3.0)	57.9 (2.9)	53.3 (4.2)
12 months	46.5 (2.5)	61.2 (4.3)	39.5 (3.0)	33.6 (4.4)	51.7 (3.0)	57.0 (4.2)	40.1 (3.1)	47.1 (3.1)	45.2 (4.3)
16 months	38.1 (2.6)	54.2 (4.7)	30.4 (3.1)	26.5 (4.5)	42.7 (3.2)	49.5 (4.5)	31.8 (3.2)	38.1 (3.3)	38.0 (4.5)
20 months	32.8 (2.7)	45.7 (5.1)	26.6 (3.1)	22.1 (4.7)	37.0 (3.3)	41.2 (4.9)	28.0 (3.2)	31.9 (3.3)	34.7 (4.7)
24 months	28.5 (2.9)	40.7 (5.3)	22.6 (3.3)	14.8 (4.7)	33.7 (3.4)	36.0 (5.1)	24.4 (3.3)	28.6 (3.4)	28.6 (5.0)
28 months	26.3 (3.0)	40.7 (5.3)	19.3 (3.5)	11.5 (4.7)	32.0 (3.6)	33.3 (5.4)	22.3 (3.6)	26.7 (3.6)	25.6 (5.3)

Source: Calculated from a 32 month panel of the 1984 Survey of Income and Program Participation. Survival standard errors are shown in parentheses under each estimate.

years found by Bane and Ellwood. As discussed earlier, the major reason for this difference is probably the fact that spells are measured in months rather than years in the SIPP data.[5]

Table 1 also demonstrates that there are indeed substantial differences in predicted spell durations for different subgroups within the population. Mothers who have never been married are likely to have considerably longer spells than the ever-married group (who are predominantly divorced or separated). The median spell duration for never-married welfare recipients is between 17 and 18 months, compared to just over 8 months for the ever-married group. Additionally, 40 percent of the never-married mothers are still receiving welfare after two years.

A second variable that appears to have a considerable impact on spell durations is employment status. Recipients who were employed in either the month before or the month of the start of the welfare spell are likely to experience much shorter spells than are those who were not recently employed.[6] The median spell length for those employed immediately before the start of the welfare spell is less than 5 months, compared to over 12 months for those who were not employed. This employment variable, which is a very basic indicator of labor-force attachment, may be picking up both a measure of commitment to work and some indication of employment-related skills.[7] Those with recent labor

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5. This estimate is consistent with the median of about 10 months estimated by O'Neill et al. on the basis of administrative data on AFDC case openings and closings. It is lower than the median of about 18 months estimated by Blank using SIME/DIME data, but these data were not nationally representative.

6. This employment variable was constructed to parallel the "job loss" variable used in our previous work on transitions onto and off of welfare programs (see Williams and Ruggles (1987)). In that paper, we found that loss of a job was a fairly strong predictor of welfare entries in the same or the succeeding month, but we hypothesized that such entries were likely to lead to relatively short spells. Our research here confirms that hypothesis. In fact, subsidiary analyses for this project found that duration estimates were not terribly sensitive to the exact specification of the employment variable—anyone reporting employment either immediately before or during the welfare spell was likey to have a much shorter than average spell duration.

7. Ideally, a broader measure of job skills, such as education, should also be examined, but data on educational attainment are not available on the specific SIPP extract used for this study. They are available on the larger

(Footnote 7 Continued on Next Page

force experience must have at least some ability to find and hold a job, and are likely, on average, to have more such skills than those with no recent job.

Other variables examined in Table 1 include race and the age of the family's youngest child. Race does appear to make a difference, with non-whites experiencing a median spell of just under 16 months, compared to about 8 months for whites. As with the other two variables, differences in spell durations for the two subpopulations were significant at the one percent level using either a log rank or Wilcoxon rank test. Presence of a young child in the household, however, does not produce significant differences in spell durations, even though it might be expected to increase child care costs, holding down the probability of spell exits through employment.[8]

Although the results presented in Table 1 make a strong case for differences in expected durations for those in different subpopulations, they do not give any indication of the relative importance of specific variables in predicting spell durations. Table 2, which shows the outcome of the two forms of the duration model outlined above, allows us to consider the impacts of these variables on spell durations while also taking the effects of other factors into account. In addition to the four variables shown in Table 1, the duration model includes information on family type, the number of children in the AFDC unit, the age of the mother in the unit, the maximum AFDC benefit (normalized for a family of three) available in the unit's state, the unemployment rate in the unit's state, and the unit's other income. Family type is included on the theory that units that are embedded in larger households (i.e. subfamilies) may be able to draw some support, both financial and in terms of child care, from that household, increasing their liklihood of exit from AFDC. Additional children, on the other hand, directly increase ADFC benefits (which rise with family size) while indirectly decreasing the returns to work, through their

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(Footnote 7 Continued from Previous Page)
SIPP file, and will be added to this analysis as soon as we can add them to our dataset.

8. Age cutoffs below 6 years were also examined, and were also found to produce only insignificant differences between those with and without young children.

Table 2

Duration Models for Welfare Spells

	Mean Value of Variable	Weibull Hazard	Loglogistic Hazard
Constant		2.287** (0.410)	1.766** (0.416)
Race0.63 1=White	-0.215	-0.317* (0.145)	(0.147)
Marital Status 1=Ever married	0.67	-0.650** (0.179)	-0.527** (0.181)
Employment Status 1=no recent job	0.71	0.601** (0.135)	0.670** (0.145)
Presence of Child Under 6 1=yes	0.67	-0.002 (0.146)	-0.003 (0.152)
Family Type 1=no subfamily	0.72	0.242 (0.160)	0.217 (0.167)
Teen-aged Mother 1=no	0.75	-0.189 (0.183)	-0.331* (0.194)
Number of Children	1.86	0.149** (0.058)	0.155** (0.58)
Maximum AFDC Benefit	365.64	0.00002 (0.00005)	0.00001 (0.00005)
Other Income	45.10	-0.0005 (0.0005)	-0.0007 (0.0005)
Unemployment Rate	7.96	0.039 (0.039)	0.047 (0.039)

Source: Calculated from a 32 month panel of the 1984 SIPP.

Standard errors in parentheses.

** Significant at the 1 percent level.
* Significant at the 10 percent level.

potential impacts on child care costs. Both of these effects would be expected to increase spell lengths. Teenaged mothers may have fewer job skills than older mothers, decreasing the probability that they will exit through employment and increasing the expected duration of their welfare spells. Higher AFDC benefits would be expected to increase the probability of remaining on AFDC, while the presence of other income (in this case, child support and alimony, earnings of family members other than the head, and property income) might reduce spell lengths, both by reducing the relative returns to AFDC and by increasing the family's options for support. Finally, high local unemployment rates imply a relatively difficult market for job seekers, which would also result in longer expected AFDC spells.

As Table 2 shows, both marital status and recent employment experience have a major impact on estimated spell durations even when these other factors are accounted for. Both variables are significant at the 1 percent level in both versions of the duration model, and both have large associated estimates.[9] As seen earlier, ever-married status has a negative impact on the duration of AFDC spells, while having no employment experience immediately before the spell entry increases durations. The number of children in the AFDC unit is also highly significant in both models, with larger numbers of children increasing expected spell durations, as expected.

The presence of young children has no apparent impact on durations in either model. Race is significant at the 10 percent level in the loglogistic version of the model, but not if a Weibull distribution is used. In both cases the sign is in the expected direction. The correlation matrices for these models indicate that race has less impact here than in the life tables because it is fairly highly correlated with the marital status variable (and to a lesser extent, with presence of a young child and presence of a teenaged mother). The presence of a subfamily is also not statistically significant, but has a sign as predicted above. Presence of a teen mother does appear to increase expected

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9. It should be noted that the estimates shown in Table 2 refer to the likelihood of remaining on AFDC, rather than the likelihood of exiting (which is more commonly shown) and as a result all of the signs of the coefficients are the reverse of those seen in exit models.

spell lengths, but is significant only at the 10 percent level, and only in the loglogistic version of the model. Finally, maximum benefit levels, other income, and unemployment rates are all insignificant, although all have signs in the expected directions.

The results seen in Tables 1 and 2 have some important implications for an understanding of welfare dynamics. Specifically, they imply that never-married mothers and those with no job before the spell entry are likely to experience much longer welfare spells than those who have been married or who have been recently employed. As discussed above, the marital status impact may well arise, at least in part, out of different perceptions about welfare use among unmarried mothers and those in the larger society as a whole. Unmarried mothers may be more likely to belong to a subculture where welfare use is considered relatively normal—or alternatively, women who become mothers while unmarried may simply have a higher tolerance for deviations from social norms. The impacts of the employment status variable may be partly economic in nature--presumably, women who are more employable and who have higher potential wages are more likely to have recent employment experience, all else held constant. Attachment to the labor force may also indicate either a relative taste for work or a greater acceptance of social norms calling for self-support, however.

In sum, although these findings are preliminary and substantial work remains to be done, they emphasize the importance of the mother's basic socio-economic characteristics in predicting welfare spell durations. These characteristics are undoubtedly related to real differences in womens' job opportunities and potential non-welfare incomes, but they may be at least as important for their influence on perceptions of the acceptability of welfare use and the availability of other options. The fact that variables such as the age of youngest child, which are clearly related to potential net earnings, have no impact on spell lengths may indicate that potential earnings relative to benefits are not the only factor women use in deciding whether to continue participating in AFDC.

These findings also demonstrate, however, that for many mothers, particularly divorced and separated women with some recent work experience, AFDC

spells are likely to be quite short. For these women the program clearly does serve primarily as a source of very short term emergency support. Welfare recipiency is likely to last much longer for the minority of women who enter as never-married mothers, but even for this group the median spell duration is between 17 and 18 months (although about 80 percent of such mothers whose spells exceed the median are still recipients a year later). At a minimum, then, these findings suggest that attempts to decrease dependency will have the highest returns if focused on unmarried mothers and those without recent work experience, and that other recipients are likely to leave the program fairly quickly even without intervention.