

The Role of Non-Financial Factors in Exit and Entry in the TANF Program

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Abstract

The dramatic decline in the AFDC-TANF caseload in the 1990s has refocused attention on the process of exit from and entry into welfare, a long-standing topic of interest in the research literature on the U.S. welfare system. This paper focuses on the role of non-financial factors in exit and entry in the post-1996 TANF program. The non-financial factors are work and other requirements, sanctions, and diversion. Using data from a study of welfare and non-welfare families in Boston, Chicago, and San Antonio in the period 1999–2001, both descriptive evidence and evidence from an econometric model suggest that these factors played a large role in exit and entry over the period.

The Role of Non-Financial Factors in Exit and Entry in the TANF Program

The dramatic decline in the AFDC-TANF caseload in the 1990s has refocused attention on the process of exit from and entry onto welfare, a topic upon which a considerable research literature has been built, starting from Boskin and Nold (1975) and continuing through the present (Bane and Ellwood, 1994; Blank and Ruggles, 1994, 1996; Moffitt, 2001; see Moffitt, 1992, 2003, for reviews). Most recent attention has been focused on the determinants and consequences of the decline in the AFDC-TANF in the last decade, with one strand of literature focusing on consequences of leaving welfare for employment and income (see Acs and Loprest, 2001; Brauner and Loprest, 1999; Moffitt, 2002 for reviews) and another strand focusing on the estimation of aggregate caseload models attempting to parcel out the relative contributions of the economy and welfare reform (see Blank, 2002, for a review). The first strand of literature shows that welfare “leavers” have substantial increases in employment upon exit but only modest increases in total income, while the second strand shows similarly large increases in employment but also large increases in income in the welfare-eligible low-income population as a whole. The larger income increases in the latter literature suggest that income may have risen among women who did not enter welfare or among those who remained on welfare.

This paper focuses on the contribution of non-financial factors to exit and entry in the TANF program. The non-financial factors examined are work and other requirements, sanctions, and diversion. While each of the non-financial factors has some financial implications--earnings should rise as a result of work requirements, benefits should be reduced from sanctions, and so on--they also impose a non-financial utility cost on welfare participation, in the case of work requirements and sanctions, and on welfare entry, in the case of diversion. These utility

costs should be expected to increase exit and decrease entry, and are conceptually separate from the traditional financial factors such as benefits, wages, and the EITC which have been shown to play a strong role in welfare participation decisions.¹ Another important financial reform occurring since 1996 has been a lowering of earnings disregards, but they are unlikely to be an explanation for declining caseloads because they decrease exit, increase entry, and increase static welfare participation rates.

There has been a considerable amount of analysis attempting to estimate the effects of cross-state variation in work requirements, sanctions, diversion, and other rules on the aggregate caseload, usually in the pre-1996, waiver period when not all states had implemented reforms. However, that literature has produced generally insignificant and/or uninterpretable results (Bell, 2001; Blank, 2002), possibly because the formal rules are not easily measured, because they may be only weakly correlated with actual implementation, or because there are unobserved state-specific factors that are correlated with, and hence confound, the estimated effects of the rules. This paper uses instead a data set from three cities (Boston, Chicago, and San Antonio) containing information from a survey which gathered respondent-supplied information on the actual experiences of a set of low-income single mothers with these rules. For TANF recipients, questions were asked about experiences with work and other requirements and with sanctions, and, for TANF applicants, questions were asked about experiences with diversion. The data consequently allow a more detailed picture of the way in which formal rules are translated into

¹ In the traditional leisure-income model, the four determinants of welfare participation are the wage rate, nonwelfare nonwage income, the welfare guarantee, and the welfare tax rate. Studies of the AFDC program have shown all four to be significantly related to static welfare participation rates as well as welfare entry and exit. See Moffitt (1992, 2003) for reviews of this literature.

actual individual experiences of than the typical state-level rules analysis.

The data set is a two-wave panel and hence allows the estimation of the determinants of both exit and entry, the latter possible because the sampling frame included non-recipients as well as recipients (many data sets only have recipients in their sampling frames and hence can only analyze exit). The chief advantage of the data set is its information on individual experiences with work requirements, sanctions, and diversion, data not available in any national data set. Their chief disadvantages are that they are only available for three cities, and hence little cross-sectional program variation is available, and the data only cover a post-1996 period (1999-2001) and hence there is no before-and-after program variation available as well. Consequently, the analysis will necessarily use, for estimation, variables for welfare rules experiences which are based on variation across individuals within cities in a constant-policy-regime environment.

The first section of the paper provides institutional background on the nature of work and other requirements, sanctions, and diversion in welfare reform since 1996. The second section describes the data and presents a fairly extensive descriptive analysis of the turnover rates, the employment and financial correlates of that turnover, and the experiences with non-financial rules. The third section presents a simple theoretical model of exit and entry in the presence of non-financial costs, and the subsequent two sections present an econometric model of exit and entry, respectively, and estimates of those models showing the role of non-financial factors. A summary concludes the paper.

I. Work and Other Requirements, Sanctions, and Diversion in Welfare Reform

The 1996 federal welfare legislation made major structural changes in the cash assistance program for low income single mothers by converting the matching-grant system for AFDC to a block grant system with attendant increases in state authority over program design. However, the law also imposed several new federal mandates prescribing minimum percentages of the caseload required to be engaged in a work or related activity, prescribing the types of activities that would satisfy those requirements, and allowing states to impose sanctions (i.e., benefit penalties) for noncompliance with work and other requirements. Nevertheless, within the new federal mandates, states now have much greater freedom than under the AFDC system to set eligibility requirements, benefit formulas, the nature of work, sanction, and diversion activities, and even the form of assistance itself (cash vs in-kind). Most importantly, the entitlement nature of the program was ended and there is no obligation by the states to serve all those who satisfy any particular set of eligibility criteria. States have exercised this freedom extensively and have redesigned their programs in major ways, in almost all cases refocusing them on the aim of getting recipients into work or other activities, and off welfare.

The focus of the analysis in this paper is on three key aspects of reform: work and other requirements, sanctions, and diversion. At least the first two of these have been thought to have had the most important initial impact on the caseload, as both work requirements and sanctions were effectively introduced quickly after 1996 and, in some states, prior to 1996 through waiver programs.²

² Time limits, on the other hand, are generally considered to have had less impact, at least up through 2000 and 2001. This is partly because very few families had hit their limits by that time, but also because several random assignment studies have concluded that the

As for work requirements, the 1996 federal law imposed the requirement that at least 50 percent of single-parent recipients eventually be working or in work-related activities, a high rate considering that less than 10 percent of AFDC recipients generally worked. In 2000, about one-third of TANF recipients were indeed in work or a work-related activity (U.S. DHHS, 2002), an historic high.³ Further, the federal law ruled out general education and training as activities that would satisfy these requirements. Most states have embraced this idea by developing “Work First” programs that get recipients into work or a work-related activity (e.g., job search) as quickly as possible, avoiding longer-term human capital investment programs (Strawn et al., 2001). Virtually all states allow some exemptions from work requirements, however, most often if the welfare recipient has a very young child or is disabled or in poor health, and sometimes if the recipients is caring for an older family member or lacks transportation to get to work.

The federal law also imposed a number of other requirements, such as the requirement that minor mothers live at home to receive assistance. States have added other requirements related to school attendance, cooperation with child support enforcement, obtaining immunization for children, and other activities.

The federal law gave the states the option to impose benefit sanctions for failure to comply with work requirements, sanctions that could be partial or full (partial sanctions result in

“anticipatory” effects of time limits (e.g., from an incentive for recipients to leave welfare prior to the end of their eligibility in order to “bank” their benefits) have been small. See Pavetti and Bloom (2001).

³ The 50 percent figure has been considerably reduced by a provision in the law which allowed states to meet a lower figure their caseloads fall. Because caseloads have fallen so dramatically, the required work percent has also been greatly reduced.

a reduction of part of the benefit while full sanctions reduce the benefit to zero and terminate the individual from the rolls) .⁴ States have gone far beyond what is in the federal law and have created elaborate sanction systems which begin with initial sanctions for first-time noncompliance and which escalate as repeated offenses are made. Sanctions are generally imposed for some specified length of calendar time or until the recipient comes into compliance, although there are some instances of lifetime bans on further receipt. Sanctions are also imposed for noncompliance with the other, non-work-related requirements (school attendance, cooperation with child support enforcement, etc.). Sanctions can also be imposed for failure to respond to requests for information or failure to appear at the welfare office when summoned.⁵

Nationwide, about 5 percent of welfare recipients are sanctioned in a given month (Bloom and Winstead, 2002). No doubt the fraction sanctioned at least once over longer periods of time is larger, possibly significantly so. Those who are sanctioned have the opportunity to come into compliance and have the sanction removed, but only 30 percent do so (Pavetti and Bloom, 2001). Sanctioned recipients are drawn disproportionately from the more disadvantaged portions of the caseload, and there is evidence that caseworkers use considerable discretion in deciding whom to sanction (Bloom and Winstead, 2002 and Pavetti and Bloom, 2001).

The 1996 federal law made no provision for diversion, but the majority of states have nevertheless enacted such programs. A common type of diversion program is one that provides

⁴ Sanctions are used in other programs and there is some evidence on their effects. For European programs, see Abbring et al. (2000), Lalive et al. (2002), and Van den Berg et al. (2002).

⁵ These sanctions were present prior to 1996, and are often classified instead as administrative case closings. However, it is quite likely that their use has increased after 1996.

the recipient with a one-time cash payment, together with the stipulation that the individual not reapply for some length of time like 3 or 6 months. Another common requirement is that recipients work or demonstrate job search activity prior to application. States sometimes also counsel applicants and discuss their financial situation, in an effort to devise ways to stay off welfare, and applicants are sometimes directed to other welfare programs. There is no national data on the extent of diversion and very little state or local data giving the incidence of diversion by type. This paper presents some of the first data on these issues.

II. Data and Descriptive Analyses

The data used in this paper are drawn from the Three-City Study, a two-wave longitudinal survey of approximately 2,400 families with children in the age ranges 0-4 and 10-14 living in low- and moderate-income neighborhoods in Boston, Chicago, and San Antonio and whose household income at the first wave was less than 200 percent of the poverty line (Winston et al., 1999). The restriction to families with income below this income cutoff is inconsequential for TANF recipients, for TANF income breakevens are far below this level, but this relatively high cutoff does provide a set of non-welfare families with somewhat higher incomes. The sample therefore includes both welfare and nonwelfare families, unlike many other studies, thus permitting an analysis of the flow into welfare as well as the flow off.⁶ Certain groups were oversampled (e.g., those on welfare, single mothers, and families below the

⁶ Unless otherwise specified, all generic references to “welfare” should be taken to refer to the TANF program.

poverty line) but, using survey weights, the data constitute a representative sample of families in the low income areas of these three cities with children in these age ranges and with income below 200 percent of the poverty line.⁷

The first wave of data collection took place between March and December 1999 and the second wave took place between September 2000 and May 2001. The response rates on the two surveys were 74 percent and 88 percent, respectively. A full set of standard socioeconomic variables were collected at each wave. The analysis sample used here includes all women who were present at both waves, a sample of 2,136 observations, 806 of whom were on welfare in the first wave and hence at risk of exit by the second wave, and 1,330 of whom were off welfare the first wave and hence at risk of entry.

The AFDC-TANF rolls have fallen dramatically in the three cities, with percentage drops from 1994 to 1999 of 46 percent, 53 percent, and 50 percent in Boston, Chicago, and San Antonio, respectively. These figures are similar to those for the nation as a whole. Unemployment rate declines and growth of employment-population ratios in the three states in which the cities are located also show strong similarity both with each other and with national averages, although Massachusetts had the strongest employment growth and greatest unemployment decline of the three. The three cities can, therefore, be regarded as not very different from the rest of the country in these broad patterns of caseload trends and economic

⁷ All descriptive tables and econometric models use the survey weights. The sample is restricted to those who had not attrited by the second wave and the wave 2 survey weights are adjusted for that loss and for differential nonresponse by a few demographic characteristics. The attrition rate from wave 1 to wave 2 was 12 percent. The sample characteristics compare favorably to those of a similarly-defined sample from the Current Population Survey of single mothers with income below 200 percent of the poverty line; details are available from the author.

growth (see Moffitt and Winder, 2003 for exact figures).

Information on experiences with sanctions and with work and other requirements were obtained in the interviews for those on welfare, and information on experiences with diversion were collected for those who had applied for welfare. These variables constitute the main variables of interest in the analysis and will be discussed further below. The TANF policies regarding these requirements differ in the three cities. Massachusetts is a Work First state that requires work activity within 60 days, and has a moderate number of exemptions from the requirement. Sanctions are imposed not only for noncompliance with work but also for non cooperation with child support enforcement, failure to have children immunized, failure to cooperate with child support enforcement, and a number of other reasons. Sanctions are initially imposed only on the adult, but then escalate to full sanctions. Massachusetts has no official diversion policy. Illinois is not a Work First state, requiring work only within the first two years of benefit receipt, and has both a large number of allowable activities and a large number of exemptions. Sanctions can, as in Massachusetts, be imposed for a number of reasons, and start at 50 percent of the benefit and escalate to full sanctions. It also has no official diversion policy. Texas is a Work First state that requires immediate work--although only if the recipient has been processed by the state workforce agency, which is sometimes delayed--and makes possible a modest number of activities and exemptions. Sanctions are imposed for noncompliance with a large number of requirements, and accumulate at \$78 per month until a cap is reached, but are always partial in nature. It has an official diversion policy requiring job search prior to entry, and for one-time payments for staying off welfare for 12 months.

Descriptive Analysis of Exit and Entry. Given the importance of the uniqueness of the data set to this study, we present a fairly extensive descriptive analysis. The initial focus of this analysis is on the magnitude of exit and entry and its employment and income correlates. We then describe the answers to the questions about welfare experiences with work and other requirements, sanctions, and diversion.

Table 1 shows the transition rates for the two samples.⁸ Of those on TANF in wave 1, almost half were off TANF by wave 2, 18 months later. Of those off TANF at wave 1, about 90 percent were also off the rolls at wave 2. The latter percent is largely a function of the income composition of the sample, for, as mentioned previously, the sample is representative of the population in our three inner cities with incomes below 200 percent of the poverty line; such an income level necessarily includes a large number of nonrecipients with low probabilities of entry. As a result of the transitions shown in Table 1, the percent of the sample on TANF dropped from 32 percent at wave 1 to 25 percent at wave 2. Thus the trends in this sample are the same as those in the three states as a whole referred to previously and consistent with national trends.

Table 2 reports the employment transitions that accompany the welfare transitions separately for stayers, leavers, entrants, and those never on (the four columns). As expected, almost one-fifth (18 percent) of those on TANF went to work between the periods, no doubt reflecting both low earnings disregards and work requirements. Another 11 percent were working and on welfare both periods. Also, over a third (34 percent) of those who left welfare

⁸ The tables and discussion in this section are partly drawn from Moffitt and Winder (2003).

experienced a movement from nonwork to work, and one-fifth of those who entered the rolls went from working to not working, presumably from losing a job. Those off welfare both periods had the highest rates of work and the lowest rates of nonwork.

However, there are many women who did not exhibit these conventional patterns. Among welfare leavers, there is a sizable group (31 percent) who were not working after leaving. While there may have been forms of income off welfare from sources other than earnings available to these women (to be discussed next), clearly earnings was not the reason for exit for a significant fraction of leavers. Also, over a quarter (30 percent) were working prior to leaving the rolls. While they may have left welfare to obtain higher-earnings jobs than they had on welfare, this also raises the question of why exit occurred if work was possible while still receiving benefits. In addition, about a quarter (25 percent) of entrants were working prior to coming onto welfare, suggesting the need to establish work prior to entry. Another interesting finding in Table 2 is that 60 percent of women on welfare were not working either period, which suggests either that exemptions from work requirements are extensive in these data or that those requirements are not fully enforced for those who are eligible (evidence on this issue will be given momentarily). These various patterns in the table raise the question of whether the simple employment-based model of exit and entry does not need to be amended.

A more direct way to addressing this issue is to examine patterns of income change when exiting and entering welfare. Table 3 shows total monthly income and its components for the different welfare transition groups. Those who were on welfare both periods experienced an average increase in monthly income of \$136, an 11 percent gain. This gain was almost entirely the result of increases in earnings, both of the mother and others in the household, consistent

with the increases in employment for stayers noted earlier. The rise in total income that results from increased earnings is also partly a result of the relatively small reduction in TANF benefits, a sign of low benefit-reduction rates. When an estimate of the potential EITC is added in--that is, estimating the amount for which each family is eligible and assuming 100 percent takeup--income rose by only 12 percent, a sign that the earnings of women working while on welfare are still quite low and do not generate large EITC payments.

The columns of Table 3 pertaining to leavers show an increase in income of \$166 per month, or a 13 percent increase. This is a modest jump in income, and is only slightly greater than the increase for those who remained on TANF. The small marginal gain obtained by exiting welfare rather than staying on is explained by two factors. First, while the earnings of leavers rose by a very large amount, tripling in magnitude, this increase was largely offset by the loss of TANF benefits as well as reductions in Food Stamp benefits (receipt of Food Stamps by leavers falls from 84 percent prior to leaving to 57 percent after leaving). Second, the low benefit reduction rate in these data implied by the stayers' results implies that earnings have a much bigger impact on total monthly income if staying on welfare than if leaving. This is a familiar result from the literature on earnings disregards, welfare tax rates, and the negative income tax, a literature which has demonstrated that work incentives on welfare tend to decrease exit rates.⁹ Table 3 therefore raises questions about the role of financial factors in leaving

⁹ Adding in an estimate of potential EITC income increases the percentage gain from leaving TANF to about 18 percent, a much larger increase, but this gain must be tempered by a decline in Medicaid participation of about 10 percentage points and increases in unreimbursed child care and transportation expenses (not shown in Table 3).

TANF, given the small marginal gain in income obtained by leaving rather than staying.¹⁰

The rest of Table 3 shows income changes associated with entering the TANF rolls and never being on welfare. Those entering welfare experience about a 9 percent reduction in income, suggesting that entry is not a result of earnings being lower than benefits--one traditional perspective--as much as reductions in earnings exceeding the gain in benefits from coming onto welfare. The changes in earnings, TANF benefits, and Food Stamp benefits are all essentially symmetric with those of leavers (Food Stamp benefit receipt from 67 percent to 88 percent upon entering). The table also shows that those who were off welfare both periods experienced the largest gains in income, almost \$700 per month, and the largest declines in poverty. This suggests that much of the income gains for the low income female-headed population as a whole found in other studies may have been a result of other, possibly business-cycle-related, causes.

With these results--which raise questions about the importance of financial factors in exit and entry--as background, we turn to the answers to the questions on welfare experiences in the data.¹¹ Tables 4-8 show evidence from these data which bear on the importance of non-financial factors. Table 4 shows the answers to questions about work requirements.¹² About 54 percent of recipients said that they had been told that they would face a work requirement, implying that

¹⁰ Of course, these figures are just means for those actually having made the transitions in question and should not be interpreted as the income consequences for a fixed individual or set of individuals; an econometric model is necessary to estimate those concepts.

¹¹ The wording of the questions is shown in Appendix A.

¹² All questions about work and other requirements were asked of respondents who were on TANF as of the wave 2 interview date or who were off TANF then but had been on TANF between waves 1 and 2. In the latter case, the questions were asked as of the most recent TANF spell.

46 percent are ineligible or exempt. Of those who said that they faced a work requirement, 85 percent had actually been required to work. Thus the bulk of the nonwork in the sample turns out to be because of ineligibility, rather than eligibility without being required to work, although the percent in the latter category is nontrivial. Respondents stated that ineligibility was most often because of poor health, although having a young child or caring for a disabled person were also reasons.

Table 5 shows answers to questions about other types of requirements. About 66 percent of recipients were told they were required to have their children immunized, 66 percent were told they would have to cooperate with child support enforcement, 86 percent of those under 18 were told they would have to stay in school, and 86 percent of those under 18 were also told that they would have to live with their parents. Thus large numbers of recipients faced requirements in addition to those pertaining to work. All of these requirements are sanctionable.

Table 6 shows the incidence of sanctions in the sample.¹³ About one-fifth of the sample had experienced a sanction in the last 18 months, with the vast majority being partial rather than full. Interestingly, however, 66 percent of those who had been sanctioned stated that they had tried to get their benefits back, and a substantial 83 percent of those were successful. Thus about 55 percent of sanctions were apparently either in error or the result of some temporary issue of noncompliance that went away quickly. This raises a question of how accurate the sanctioning process is, whether there is not a large random element in their application, or whether caseworkers might be testing recipients to determine who feels strongly enough to

¹³ For a prior and more detailed analysis of the wave 1 answers to these questions, see Cherlin et al. (2002).

appeal.

The most common reason given for the sanctions was having missed an appointment, with a smaller number reporting reasons specifically related to one of the sanctionable requirements--work, child immunization, school attendance, or failure to cooperate with child support enforcement. This is consistent with anecdotal studies in other studies indicating that a large number of those sanctioned simply do not show up at the welfare office (Pavetti and Bloom, 2001, p.252). However, appointment reasons could easily have been related to one of the other underlying requirements, so the answers to these questions are not necessarily as informative as they might appear in telling which rule had been violated.

Tables 7 and 8 turn to the issue of diversion. Table 7 shows the experiences of applicants, and demonstrates that applicants experienced diversion events rather commonly. About 69 percent said that they had been told they would have to comply with a work requirement prior to acceptance onto TANF, 38 percent had been asked by their caseworker to discuss a plan to get by off welfare, 24 percent had been told to apply for a different program, and 29 percent were given a temporary cash payment. These experiences occurred in all three cities, even though only one (Texas) has an official diversion policy. Table 8 shows the reasons that non-applicants gave for not applying. The most common reason was “too much hassle,” consistent with the notion that the cost of application was too great. This is probably a lower bound on the importance of cost factors, for the 14 percent who did not apply because of work requirements and the 17 percent who found a job or other support may have done so because of the high cost of application. The table also shows that many women visited the welfare office but chose not to apply, with “too much hassle” again an important reason cited but with “found

a job” slightly more important. However, about 34 percent said that they didn’t apply partly because the caseworker “discouraged” the woman from applying or because they were treated “badly” by the welfare office. These figures constitute informal evidence on the importance of cost factors in the application process and in the decision to apply.

III. A Model of Exit and Entry with Costs

We imagine that, in the absence of non-financial requirements, individuals on welfare receive utility $V_0 = U(Y_0) - F_0$ where Y_0 is income on welfare and F_0 is the net time and stigma cost of being on welfare (the time cost includes the value of leisure and hence can be positive or negative). Individuals off welfare receive utility $V_1 = U(Y_1) - F_1$, where Y_1 is income off welfare and F_1 is the utility of leisure off welfare. Individuals on welfare exit if V_1 becomes greater than V_0 and individuals off welfare enter if the opposite occurs. This is the traditional voluntary model of welfare turnover in the economics literature.

In the presence of a requirement imposed on those on welfare, V_0 is altered. Let C be an indicator variable for whether the individual chooses to comply with the requirement, F_C be the time and utility costs of compliance, p and q be the probabilities of being sanctioned if $C=0$ and $C=1$, respectively (we assume q may be nonzero though less than p), and M the monetary penalty for being sanctioned. We suppose that p and q are the result of random monitoring by caseworkers and, given that we assume q may be nonzero, to contain random error. Then the ex ante, expected utility of being on welfare is

$$\begin{aligned}
V_0 &= p(1-C)[U(Y_0-M)] + (1-p)(1-C)[U(Y_0)] + qC[U(Y_0-M)-F_C] \\
&\quad + (1-q)C[U(Y_0)-F_C] - F_0 \\
&= U(Y_0) - CF_C - [p+(q-p)C][U(Y_0) - U(Y_0-M)] - F_0
\end{aligned} \tag{1}$$

The only choice variable is C , which determines V_0 . C equals 1 if

$$(p-q)[U(Y_0) - U(Y_0-M)] - F_C > 0 \tag{2}$$

and equals 0 otherwise (recall that we assume that $p > q$). The probability of being sanctioned is $[p+(q-p)C]$ and hence follows directly from the choice of C .

Eqns (1) and (2) thus constitute the model for the determination of V_0 , and the exit rate is a positive function of $V_1 - V_0$. The comparative statics are mostly obvious, with greater values of M , F_C , p , and q all reducing V_0 and hence increasing the probability of exit. Y_1 and Y_0 have positive and negative effects on exit probabilities, respectively. Note that realized values of compliance (C) will also depend on Y_1 , despite its absence from eqn (2), because higher values of Y_1 will mean that an individual will be more likely to leave welfare and hence C will be unobserved; it is only the latent, partially unobserved value of C that would have been chosen had the individual stayed on welfare that is independent of Y_1 . Likewise, the probability of observing a realization of a sanction will be correlated with Y_1 .¹⁴

¹⁴ The timing convention in this model, in other words, is that the individual on welfare at the initial point forms an ex ante expectation of V_1 , and then goes off welfare immediately if that value is less than V_0 , so neither C nor S is ever observed.

In the presence of multiple requirements, there are monetary and non-monetary costs, and probabilities of sanction, for each. In addition, it must be allowed that not everyone is subject to the same requirements, and thus “eligibility” for a requirement must be introduced. Let E_r be an indicator variable for eligibility for the r th requirement, $r=1,\dots,R$, and let $V_0(C_1,\dots,C_R|E_1,\dots,E_R)$ be the value of being on welfare, where the C_r are indicator variables for compliance with the r th requirement for those r for which $E_r=1$. Then expression (1) can be generalized by writing the expected value of being on welfare as a sum over all possible combinations of the C_r (i.e., combinations of compliance and noncompliance for each) of terms, each equal to a sum of the probability of each combination of sanction events multiplied by the utility under that compliance and sanction combination. This expression is cumbersome and is not shown for brevity. Individuals optimize over the C_r and this results in an expected value of V_0 as a function of the exogenous variables and parameters in the problem. Individuals exit welfare if this value of V_0 falls below V_1 .

This model is essentially static but can be made dynamic by a simple conversion to a search model where the individual receives a random draw of Y_1 each period and compares the value of V_1 implied by the draw to a reservation value V_1^* which is in turn a function of all the variables and parameters in V_0 . The individual exits if V_1 exceeds V_1^* . This approach ignores the longer-run dynamic considerations arising because exit decisions may be made with the knowledge that reentry is a possibility in the future, the possibility of time limits, etc. Because the data do not allow any headway to be made on these longer-run patterns, they are left for future work.

The data contain information only on Y_1 , Y_0 , E_r , and S , where S is an indicator for being

sanctioned for at least one of the requirements. No data on p , q , M , F_C , or C_r are available. Therefore we shall consider reduced form expressions for exit and for S (the two endogenous variables) containing only Y_1 , Y_0 and E_r as determinants. The effects of E_r on exit and on S will be interpreted with this model, that is, as working through the choice of the C_r with the sanction probabilities and monetary and non-monetary costs of sanction and compliance as fixed parameters.

The entry model can be dealt with briefly, for entry occurs when the expected value of being on welfare, which is the same expected value of V_0 just described for welfare participants, exceeds V_1 .¹⁵ In a search framework, random draws of Y_1 result in entry if the draw is low enough. There is also a specific one-time cost of entry which includes diversion costs. Unfortunately, there is no information on expected diversion costs in the data for those who did not apply for TANF, nor information on expected E_r even for applicants, so a pure entry equation can only contain Y_1 and Y_0 . However, a model estimated on applicants alone, while on a self-selected sample, can contain variables for experiences with diversion as well as Y_1 and Y_0 . These will be estimated below.

The model described in this section also does not address the important question of the nature of the value function of the welfare caseworker, the caseworker's supervisor, the welfare department, and the legislature that defines the rules for work and other requirements, sanctions, and diversion. One can suppose that a type of Mirrlees optimal tax model may be the

¹⁵ This assumes that individuals off welfare know the rules exactly and that they know their eligibility for each requirement exactly. If those are not known, they must also be replaced by expected utility values taken over some probability distribution of eligibility perceived by families not on welfare.

appropriate framework to consider these functions, in which the principal (i.e., the administrative apparatus) presumes its clients (i.e., welfare recipients) to possess different levels of unobserved ability (e.g., for work) and sets the official rules for who is required to work and who is to be sanctioned under different circumstances in order to induce desired-for behavior in as many individuals as possible without harming too many who cannot comply. Discretion could be delegated to individual welfare departments, supervisors, and caseworkers who are allowed to make individualized judgements for specific clients because they can presumably obtain more information than can be written into regulations. The model outlined previously in this section is the one that the administrators would use to predict the outcomes that would result from alternative fractions of eligibility for each rule and for the stringency of sanctions in each, given their perceptions of the distributions of the unobservables in the client population.

IV. Econometric Model and Results: Exit Analysis

As noted previously, the data consist of information on low-income single mothers at two points in time, with total family income and TANF participation status observed at each. We estimate exit and entry equations defining exit as having been on TANF at the first time point and off TANF at the second, and vice-versa for entry.¹⁶ The exit equation, estimated on those on TANF at wave 1, can be written as

¹⁶ All duration models of this type have an initial conditions problem, which is ignored here.

$$I_i^* = \alpha + \beta(y_{1i} - y_{0i}) + E_i\delta + X_i\gamma - \epsilon_i \quad (3)$$

$$I_i = 1(I_i^* > 0) \quad (4)$$

where I_i equals 1 if individual i exits TANF between waves 1 and 2 and equals 0 if not, y_{1i} is the potential income gain from leaving TANF, y_{0i} is the potential income gain from staying on TANF, E_i is a vector of dummies signifying eligibility for various TANF requirements, and X_i is a vector of exogenous variables affecting exit (all measured as of wave 1). The variables y_{1i} and y_{0i} represent changes in income from wave 1 to wave 2, not levels (hence lower-case notation) but this is equivalent to wave 2 levels since wave 1 income is the same for y_{1i} and y_{0i} for the same individual. The change formulation is formulated to align with the discussion of Table 3, where the mean values of y_{1i} and y_{0i} for those who exited and did not exit are, respectively, \$166 (=1405-1239) and \$136 (=1315-1179).¹⁷

The parameter δ captures the effects of work and other requirements holding constant their effects on income. Because those requirements and their compliance and sanction consequences affect earnings and benefits on and off welfare as well, the variables y_{1i} and y_{0i} are affected by E_i . The parameter δ thus captures only the direct, non-financial, utility costs of the requirements and their effects on exit. These are the costs of compliance, for those who comply (and are not sanctioned) experience no financial consequences but do incur time costs

¹⁷ The coefficients on y_{1i} and y_{0i} need not be the same because the equation is just a linearization of the difference between V_1 and V_1^* , but it is convenient to initially formulate it in those terms to emphasize the comparison of incomes that is central to the exit choice.

which may come out of leisure and other costs related to compliance (e.g., in relationship with the father in the case of child support enforcement cooperation requirements).

The main inferential issue for the purpose of this paper is the identification of the effect of E_i . For the most part we shall include in X_i all variables that are available in the data that are likely to affect E_i (human capital variables, health, presence of young children, etc.) and then assume that E_i is independent of ϵ_i conditional on X_i . This assumption will be violated if caseworkers set eligibility requirements differentially on those who have greater or less unobserved probabilities of exit, or differentially on the basis of some variable which is correlated with those unobserved probabilities. The conditional independence assumption must mean either that there is some discretion in the application of the requirements that is applied randomly or at least on variables independent of the unobserved factors determining exit; that there is random queuing (in the case of work requirements); or that there are variables determining eligibility which are independent of the unobserved exit factors. There are no plausible instruments in the data set to test the conditional independence assumption, although some indirect evidence on the question will be brought to bear below.¹⁸

A second issue in the estimation of equation (3) is that both y_{1i} and y_{0i} are never observed for any individual, for only y_{1i} is observed for those who make a transition and only y_{0i} is observed for anyone not making a transition. This is a traditional missing data problem

¹⁸ The traditional instrument used in other contexts--though variables for E_i are not available in national data sets, which is why the current data set is being used--is cross-area variation in formal rules. We can use this variation in a limited fashion by instrumenting E_i with city dummies, but this requires the strong assumption that those dummies have no direct effect through X_i , which is implausible given the large number of other differences in economic and policy environment in the three cities. In addition, the availability of only three cities only permits the estimation of the effects of two E_i variables, whereas the data provide more than two.

and appears frequently in selection models. The conventional method of identifying and estimating such models is by means of exclusion restrictions, making use of variables that affect y_{1i} and y_{0i} which do not directly affect exit and which are independent of the unobservables affecting exit. As will be discussed further below, there are no strong exclusion restrictions available in the data set for this purpose, so the emphasis here will instead be on the estimation of a reduced form of (3) which omits y_{1i} and y_{0i} and includes all variables that are likely to affect exit directly or which will affect income gains and therefore exit indirectly. The resulting coefficients on E_i will capture the total financial and non-financial effect on exit and entry, not just the non-financial component. But a structural model will then also be estimated, albeit using instruments that are weak on a priori grounds, to determine how sensitive the estimates of the effects of E_i are to one such set of instruments.

Let $V_i\pi$ denote the latent index in reduced form, that is, where V_i contains X_i , E_i , and the determinants of income growth, and where π denotes the reduced-form coefficients on those variables. The vector E_i affects income growth so the reduced-form effect of those variables on exit include both financial and non-financial effects. Let G denote the c.d.f. of the composite error term in the reduced form. Then since $E(I_i|V_i) = G(V_i\pi)$, we can write the model as

$$I_i = G(V_i\pi) + v_i \tag{5}$$

where v_i is an error term that is mean-independent of $G(V_i\pi)$ by construction. Consistent estimates of π in eqn (5) can be obtained by nonlinear least squares (we assume G to be the normal c.d.f.), and robust standard errors allowing for arbitrary heteroskedasticity can be

computed in the usual way.¹⁹

Reduced Form Results. The exit rate is measured by determining which of those women on welfare at wave 1 were off welfare by wave 2, and all regressors are measured as of wave 1. The definitions of the variables available for the analysis are shown in Appendix B. Variables for three of the E_i in Tables 4 and 5 are represented--whether the individual was subject to a work requirement, had to have their children immunized, or had to cooperate with child support enforcement (the last two requirements in Table 5 are only applied to minors, and there are insufficient observations on that subsample so they are ignored). The equation also includes variables for age, race, education, family size and number of young children, poor health, marital status, and city of residence. Two variables for welfare participation history during childhood are also included, on the presumption that they are correlated with tastes for welfare. Many of these variables should also be determinants of income growth, but four variables for parental education and two variables for work experience are additionally included because they are correlated with skill levels and hence with the growth of earnings, one component of income. Means of all variables are shown in Appendix B.

Table 9 shows the reduced form results for eqn (5) in the first column. The work requirement eligibility variable has a positive and significant effect on exit, consistent with its having a positive effect on the costs of participation in the welfare system and/or on earnings

¹⁹ This method of estimating binary choice models is slightly less restrictive than maximum likelihood because it does not impose homoskedastic and normal errors on the full error distribution (if viewed as an approximation to the true function in that case) but is less efficient if those errors are homoskedastic and normal. It is nevertheless different from the linear probability model by allowing I_i to be nonlinear in V_i , as is implied by latent index models with additive and continuous errors.

which would lead to exit (the coefficients are those on the probit index and must be multiplied by approximately .28 to obtain effects on the probability itself). The child immunization eligibility variable has an insignificant effect, while the child support enforcement eligibility variable has a positive effect on exit that is on the borderline of conventional significance levels. Thus there is some evidence of an effect of the three requirement variables. The other variables in the equation show that exit rates are higher for younger women, for those with smaller households, those who are married, and in Boston and Chicago relative to San Antonio. Those who have spent most of their childhood on welfare are less likely to exit, as are, surprisingly, those with greater father education and who have worked more recently. However, the effect of human capital per se is ambiguous in this model because higher earnings increases income on welfare as well as off, and if the marginal tax rate on welfare is low but there is a notch at the end of eligibility, the return to work may be higher on welfare than off. On the other hand, having ever worked increases exit rates.

As emphasized previously, the interpretation of the effects of the requirement variables as causal for the effects of eligibility requires that the other variables in the equation pick up all differences between those who were told they faced a requirement and those who were not which are related to exit, and that the remaining variation in eligibility is a result of differences in formal eligibility definitions, informal eligibility definitions following on caseworker discretion, waiting lists for assignment of eligibility, and other random factors, each of which must be independent of unobservables related to exit. Alternative interpretations of the results can be made if this assumption fails. For example, the positive coefficient on work requirement could reflect an assignment process that reflects optimizing administrative behavior referred to earlier,

using variables that are not in this data set to assess work ability (and therefore ability to exit). Those who are told they must comply with child support enforcement could be a select group whom administrators know could leave welfare more easily.

Although no instruments are available to test exogeneity, the issue of who is assigned the requirements and who is not can at least be explored by examining how the observables in the data set affect that assignment.²⁰ The last three columns of Table 9 report estimates of the determinants of the three eligibility variables as a function of the other regressors in the equation. Having been informed of eligibility for a work requirement is significantly affected by very few variables in the data set. Those who are married are less likely to be eligible, for example; this could possibly be because their husbands face a work requirement; Boston has lower work requirements than either of the other two cities, consistent with the views of some experts that Massachusetts grants a large number of exemptions; and three of the human capital variables for parental education and work experience have an effect, though not always of the expected sign (e.g., those who worked more in the recent past are less likely to have a work requirement). Variables such as health and the presence of young children, which are formal determinants of work requirement exemptions, are insignificant in these data (nor do they significantly affect exit), suggesting that their influence is weak relative to other factors. Thus, while there are some suggestive hints in these results of a systematic classification of recipients

²⁰ However, an exercise was conducted which instrumented the eligibility rules with city of residence. This requires omitting those variables from the exit equation, where they are significant, but they were at least significant in the requirement equations and hence have some strength as instruments. However, when this was tested, the exit equation became unstable because of high collinearity; the instruments do not have sufficient independent variation from the other regressors in the exit equation.

into those who can and cannot work, or who should be expected to, the fact that most of the variables are insignificant suggests the lack of a very rigid formula. In addition, the pseudo R-squared for the work requirement equation is only .188, indicating that very little of the variance in who is eligible for a work requirement and who is not is explained by these variables. These findings should be considered evidence against the hypothesis that recipients facing work requirements are preselected on job-skill-related factors.

These results raise additional questions about what these eligibility variables are measuring, however. One interpretation of the general insignificance of the coefficients on variables in the work requirement equation is that the variable itself contains significant measurement error from inaccurate responses. However, this is inconsistent with the significance of the work requirement coefficient in the exit equation. An alternative interpretation is that there is some type of biased response error that leads to the positive coefficient in the exit equation (e.g., if those who are most likely to exit or who have the highest level of work skills are more likely to report being eligible for a work requirement among all those who indeed face one) but that simultaneously is orthogonal to observed characteristics, although this again seems unlikely. Unfortunately, there are no administrative data available to validate the individual responses to the questions. A third possibility is that caseworkers only inform a select group of individuals that they are eligible for work requirements, perhaps in a way that offsets positive selection--for example, they may only tell recipients who are not working of such a requirement. However, while this could explain the general insignificance of the work requirement equation (if it completely offset positive selection), it would bias the coefficient in the exit equation downward. Thus there is no simple story of errors in the data to

explain the results of both equations.

Being told of a requirement for immunization is more highly affected by the variables, and the pseudo R-squared is almost one-third. Immunizations are mostly relevant for young children although, rather surprisingly, the variable for having children under 3 is itself insignificant. Nevertheless, younger women, who are more likely to have young children, are more likely to be told of this requirement, for example, and a number of the other coefficients are significant as well. It is possible that the immunization requirement variable is sufficiently well explained by these variables that it has no strong residual variation, and this could be the reason for its insignificance in the exit equation.²¹

The child support equation again has a low pseudo R-squared (.176) and shows only a few significant coefficients. The scattering of significant coefficients does not lend itself to easy explanation for a simple child support enforcement formula. However, some coefficients are consistent with the hypothesis that women whose absent father are already paying child support are not told of the requirement--for example, the lower requirements for older and more educated women and the higher requirements for women with a substantial welfare history, all of which are likely to be correlated with the probability of receiving child support. On the other hand, the coefficients on paternal education and having ever worked are not consistent with this story.

Table 10 shows an estimate of an equation for the determinants of sanctions as a function of the requirement and other reduced form variables. As the theoretical model and intuition

²¹ Once again, however, another possibility is that some mothers have already had their children immunized and hence they were not told of such a requirement, even though they implicitly faced it. In this case, the variable for immunization measures not having had one's children immunized to date, which could be correlated with demographic characteristics.

should make clear, being eligible for a requirement should increase the probability of sanctioning unless compliance is very high. The table indicates that work requirement eligibility has the strongest effect in the expected direction, but does not quite achieve significance at conventional levels, while neither the immunization nor child support enforcement variables were close to significance. This could imply either that compliance with the requirements was extremely high or that those requirement variables were measured with error, but it could also result from high rates of sanctions for other reasons. Indeed, taken at face value, the respondent reports in Table 6 imply that many of the reasons for sanctions--missed appointments and failure to file paperwork, for example--could be unrelated to these requirements, and the likelihood of being sanctioned for those offenses could be equal to that resulting from the requirements.²² Yet another possibility is that, again based on Table 6, there is a large random element to sanction impositions, given that a substantial fraction of them are shortly reversed.

The rest of the results from the sanctions equation again provides little evidence of systematic rules or correlates of who gets sanctioned and who does not. Women with children under 3 are actually more likely to get sanctioned than those who are not--perhaps they have more difficulty making appointments.²³ Women with fathers of higher education are more likely to be sanctioned, possibly because they have higher human capital and caseworkers make them subject to more other requirements as a result.

²² These latter reasons are generally termed 'administrative case closings' rather than 'sanctions,' for the latter are often specifically restricted to violations of the requirements. The question in the survey includes both, and they are together termed 'sanctions' here.

²³ Because of the small sample size of those who obtained sanctions and the general insignificance of the equation, several variables had to be omitted to obtain stable estimates. The omitted variables were all insignificant in the initial runs.

Structural Model. Separating the effect of the non-financial costs of requirement eligibility on exit from the financial factors requires estimates of a structural model and the imposition of additional identification restrictions, in particular a set of variables determining income growth in eqn (3) that is excluded from that equation and independent of its error term. Unfortunately, there are no candidate instruments with strong a priori credibility for this purpose. Several variables were tested nevertheless. The most testing was conducted using four variables representing mother and father's education, on the presumption that income growth whether on or off welfare is partly a result of earnings growth and hence related to human capital determinants as a child; and two other human capital, work experience, variables for the number of months worked and ever having worked in the period prior to wave 1, with weaker justification because they are more recent in time and closer to the events being studied. The argument against these variables is that they are likely to be correlated with unobserved measures of job skill, unobserved tastes for welfare, or other unobserved correlates of general disadvantage, which should all be in the error term in the exit equation. Education was tested as an instrument as well, as were city dummies, even though the exclusion from the exit equation of these variables is even more problematic.

Some illustrative results are shown in Table 11 for the main coefficients of interest.²⁴ Using all six of the instruments mentioned above gives a coefficient on the income gain which is positive but statistically insignificant, while the effects of work requirements and child support enforcement requirements are both positive and significant, as in the reduced form, and

²⁴ The income growth and exit equations were estimated jointly and in reduced form, with semiparametric adjustments for selection bias. See Appendix C.

approximately the same magnitude. This is consistent with the view that non-financial factors may have been more important in explaining exit than the financial factors, but it is counterintuitive that financial factors are not significant.²⁵ The F-statistic for the instruments is 7.70, which is acceptable at conventional levels but is not high by the stricter standards of the literature on weak instruments. Further, many of the coefficients in the instrumenting equations have unexpected signs which are not easily interpreted. When the modest F-statistic is combined with these counterintuitive results and the a priori weakness of this instrument set, confidence in the estimate of β in the structural model is necessarily reduced.

Alternative specifications using either the four parental background variables, or the two work experience variables, were also tested, with the results shown in Table 11. The work experience variables have very low F-statistics and yield a negative and significant β , while the parental background variables have modest F-statistics and yield a positive but insignificant β . Thus it is the family background variables that are generating the results in the first column. Using the other instruments referred to previously--education and city dummies--the estimate of β remained insignificant and the coefficients on the requirement variables were unchanged. The safest conclusion to be reached from these results is that, while it has been shown that one set of instruments suggests that the reduced-form results on the importance of requirement variables on exit is coming from their compliance costs rather than their financial implications, this finding is tentative at best and requires further work with stronger identifying variables.

²⁵ The coefficients on the three eligibility variables in the income gain equations were insignificant, which is necessarily a reflection of the same result. See Appendix C.

V. Entry Analysis

The analysis of entry will be much briefer because the general framework is the same as that for exit. The analysis will be conducted on those who applied for welfare between waves 1 and 2, for those are the observations who were asked whether they had been told of any of the four diversion activities described in Table 7. Applicants are necessarily a selected sample, but it is possible that at this early stage of welfare reform the knowledge of diversion activities had not percolated through the eligible population to have significantly affected the decision to apply. If it did, then the estimates here do not capture the effect of diversion on application *per se* and hence cannot be extrapolated to larger populations of potential applicants.

An applicant who is told that she would have to face a work requirement before eligibility, who would have to discuss a plan for getting by off welfare, would have to apply for a different program, or was given temporary cash assistance, could still enter welfare and indeed many did (see Table 7). Applicants in some cases could fulfill the requirement and then enter the welfare rolls, or they could apply for a different program and be rejected by that program, or they could exhaust their temporary cash payment and then reapply. The data here allow us to measure whether the woman had entered welfare by wave 2 of the data, which could have been several months after the application event, allowing yet more room for entry to occur. Nevertheless, the *prima facie* presumption is that the diversion requirements increase the cost of application and of going onto welfare, and therefore should be expected to decrease entry.

As with the exit model, a reduced-form entry equation can be estimated on applicants with the diversion variables as regressors, and a structural form can be estimated which attempts to separate the monetary from non-monetary effects of those variables. Clearly most of them

have monetary implications. The models to be estimated here are the same in structure as those estimated for the exit decision.

Table 12 shows reduced form estimates of entry in the first column. Work requirements reduce entry but not significantly, while having to discuss a plan for getting by off welfare decreases entry rates significantly (the coefficients are those on the probit index and must be multiplied by approximately .39 to obtain effects on the probability itself). Surprisingly, however, having to apply for a different program and having been told of a temporary cash payment both increase the rate of entry. The first presumption is that these positive signs must reflect some unobserved selectivity in who is told of the requirements. In particular, it is quite likely that those who are told to apply for a different program have above-average difficulties or disadvantages of some kind that would make them possibly eligible for additional services or benefits from a different program, and it is possible that those who are offered a temporary cash payment are not the better-off women in the applicant pool--who would be rejected by other criteria--but rather the worse-off who would be eligible in all other respects save for what a caseworker might discretionarily judge to be a temporary downturn in circumstances.

These speculations receive only modest support in the last four columns of the table which, in analogy to the eligibility requirements in the exit analysis, show equations for the determinants of who is told of the four diversion requirements and who is not as a function of the same characteristics. Those who are told of a work requirement are distinguished from those who are not by virtually none of the characteristics measurable in the data, and likewise for the differential between those who are told of a temporary cash payment and those who are not (marital status is about the only significant correlate). Those who are told of the need to discuss

a plan to get by without welfare do seem to be drawn from the more disadvantaged population, both those with less education and with greater welfare histories. Those told to apply for a different program are, however, not those in the worst health.²⁶ On the whole, the large number of insignificant coefficients in these regressions indicates again that there seems to be no systematic rule for assigning the diversion requirements, at least one based on or correlated with the usual sociodemographic variables.

The estimates of a structural model for entry which attempts to separate the financial from the non-financial effects of the diversion variables is shown in Appendix Table B-2, with the same identifying variables used for the exit analysis. While the income gain coefficient is again positive but insignificant, the coefficient on the work requirement variable is now negative and significant on entry. The other three diversion variables retain the same sign and significance as in the reduced form. The diversion variables have impacts on ultimate income gains in some circumstances (y_1 is the income gain to entering welfare while y_0 is the income gain to staying off); for example, those who were directed to a different program had a greater income gain if staying off welfare. However, those who were required to discuss a plan on how to get by off welfare actually had lower income gains if staying off, a possible indication of the negative selection referred to previously, and those who were told of a temporary cash payment had larger income gains if they were to enter welfare, a possible indication of the same selection.

None of the diversion variables except the temporary cash payment significantly affected the relative income gains to going on versus staying off, however.

²⁶ The sample size of those told of a different program application is too small to include all regressors. Consequently, some are omitted.

VI. Conclusions

This paper has examined the importance and role of non-financial variables in the welfare exit and entry decisions of women in three U.S. cities in the post-1996 period. For the exit decision, the analysis examined work requirements, child immunization requirements, and child support enforcement requirements, while for the entry decision the analysis examined four diversion practices. The descriptive evidence shows that large numbers of women on TANF were told of one or more of the three requirement variables, and that large numbers of applicants were told of diversion activities. Moreover, the descriptive evidence shows that mean income gains to leaving welfare are quite modest, especially given the increasing prevalence of work while on the rolls, suggesting that other factors may have been important in the recent decline in the TANF caseload. The reduced-form estimates of exit show that the requirement variables have a significant impact on exit, and that this impact holds up when monetary gains are separately controlled for in a structural model, albeit one that is based on rather weak identifying restrictions. An investigation of the reasons that different recipients were assigned different requirements, conditional on the observables in the data, turned up rather little in the way of predicting variables, suggesting that there may be no systematic rules for assigning these requirements. The entry analysis yielded more mixed results, with some diversion practices discouraging entry and others seeming to encourage it. The latter findings may be the result of selectivity on unobservables which have not been controlled for.

Further progress on this topic is critically dependent on data availability. While it would be preferable to conduct nationwide studies using cross-state variation, the type of detail

on what recipients have been faced with and what applicants have been told that is available here is not available in nationwide data. More likely to be available are more detailed studies in more cities or other areas, possibly using administrative data, which could yield more precise information on how requirements and diversion practices are assigned to different individuals.

References

- Abbring, J.; G. van den Berg; and J. C. van Ours. 2000. "The Effect of Unemployment Insurance Sanctions on the Transition Rate from Unemployment to Employment." Mimeo, Free University and Tilburg University.
- Acs, G. and P. Loprest. 2001. "Final Synthesis Report of the Findings from ASPE's 'Leavers' Grants." Washington: Urban Institute.
- Bane, M.J. and D. Ellwood. 1994. Welfare Realities: From Rhetoric to Reform. Cambridge: Harvard University Press.
- Bell, S. 2001. "Why Are Caseloads Falling?" Assessing the New Federalism Discussion Paper. 01-02. Washington: Urban Institute.
- Blank, R. 2002. "Evaluating Welfare Reform in the United States." Journal of Economic Literature 90 (December): 1105-1166.
- Blank, R. and P. Ruggles. 1994. "Short-Term Recidivism Among Public Assistance Recipients." American Economic Review 84 (May): 49-53.
- _____. 1996. "When Do Women Use Aid to Families with Dependent Children and Food Stamps?" Journal of Human Resources 31 (Winter): 57-89.
- Bloom, Dan and Don Winstead. 2002. "Sanctions and Welfare Reform." In Welfare Reform and Beyond: The Future of the Safety Net, eds. I. Sawhill, R. Weaver, R. Haskins, and A. Kane. Washington: Brookings Institution.
- Boskin, M. and F. Nold. 1975. "A Markov Model of Turnover in the Aid to Families with Dependent Children Program." Journal of Human Resources 19 (Fall): 467-481.
- Brauner, S. and P. Loprest. 1999. "Where Are They Now? What States' Studies of People Who Left Welfare Tell Us." ANF Paper Series A, No. A-32. Washington: The Urban Institute.
- Cherlin, A.; K. Bogen; J. Quane; and L. Burton. 2002. "Operating within the Rules: Welfare Recipients' Experiences with Sanctions and Case Closings for Noncompliance." Social Service Review 76: 387-405.
- Lalive, R.; J. C. van Ours; and J. Zweimuller. 2002. "The Effect of Benefit Sanctions on the Duration of Unemployment." Mimeographed.
- Moffitt, R. 1992. "Incentive Effects of the U.S. Welfare System: A Review." Journal of Economic Literature 30 (March): 1-61.

Moffitt, R. 2001. "Experience-Based Measures of Heterogeneity in the Welfare Caseload. In Studies of Welfare Populations: Data Collection and Research Issues, ed. R. Moffitt and M. Ver Ploeg. Washington: National Academy Press.

Moffitt, R. 2002. "From Welfare to Work: What The Evidence Shows." Policy Brief 13. Washington: Brookings Institution.

Moffitt, R. 2003. "The Temporary Assistance for Needy Families Program." In Means-Tested Transfers, ed. R. Moffitt. Chicago: University of Chicago Press.

Moffitt, R. and K. Winder. 2003. "The Correlates and Consequences of Welfare Exit and Entry: Evidence from the Three-City Study." Three-City Working Paper 03-01.. Baltimore: Johns Hopkins University. Available at <http://www.jhu.edu/~welfare>.

Newey, W. 1999. "Two-Step Series Estimation of Sample Selection Models." MIT WP: 99-04. Camb: MIT.

Pavetti, L. and D. Bloom. 2001. "Sanctions and Time Limits." In The New World of Welfare, eds. R. Blank and R. Haskins. Washington: Brookings Institution.

Strawn, J.; M. Greenberg; and S. Savner. 2001. "From Welfare-to-Work to Workforce Development." In The New World of Welfare, eds. R. Blank and R. Haskins. Washington: Brookings Institution.

U.S. Department of Health and Human Services. 2002. TANF: Fourth Annual Report to Congress. Washington: Administration for Children and Families.

Van den Berg, G.; B. van der Klaauw; and J. C. van Ours. 2002. "Punitive Sanctions and the Transition Rate from Welfare to Work." Mimeo, Free University and Tilburg University.

Winston, P.; R. Angel; L. Burton; P. L. Chase-Lansdale; A. Cherlin; R. Moffitt; and W.J. Wilson. 1999. Welfare, Children, and Families: A Three City Study. Overview and Design. Baltimore: Johns Hopkins University.

Appendix A
Welfare Experience Questions in the Survey²⁷

Requirements (asked of those on welfare between the first and second interviews)

1. Since the last interview date, did the welfare office require you to work, look for a job, or go to some type of job training class?
2. Did they require you to show proof that your child has been immunized?
3. Did the welfare office require you to try to get child support from the father of your child?
4. Did the welfare office require you to stay in school or go back to school?
5. Did the welfare office require you to live at home with your parents?

Sanctions

6. I'd like to ask a few questions about the time you and your child went off welfare after your most recent spell. Did you go off welfare at that time because the welfare office said you weren't following the rules or was there some other reason?
7. Did the welfare office reduce your benefits at some point because they said you were not following the rules?

Diversion (asked only of those who had applied between wave 1 and wave 2)

8. Did the welfare office tell you that in order to receive welfare, you would first have to look for work?
9. Did the welfare office tell you that in order to receive welfare, you would first have to find a job or do community service work?
10. Did a welfare caseworker talk to you about a plan for how you could get by without welfare?
11. Did the welfare office tell you to apply for benefits from another program?
12. Did the welfare office give you immediate assistance or temporary assistance to pay for something?

²⁷ Options in question wording have been eliminated and wording has been altered for readability.

Appendix C

Specification of the Structural Model and Full Results

The structural model is an adaptation of the conventional switching regression formulation:

$$I_i^* = \alpha + \beta(y_{1i} - y_{0i}) + E_i\delta + X_i\gamma + W_i\kappa - \epsilon_i \quad (C1)$$

$$I_i = 1(I_i^* > 0) \quad (C2)$$

$$y_{1i} = \psi_1 + E_i\zeta_1 + X_i\phi_1 + Z_i\theta_1 + \eta_{1i} \quad \text{observed if } I_i=1 \quad (C3)$$

$$y_{0i} = \psi_0 + E_i\zeta_0 + X_i\phi_0 + Z_i\theta_0 + \eta_{0i} \quad \text{observed if } I_i=0 \quad (C4)$$

where I_i , y_{1i} , and y_{0i} are as defined before, and where X_i is now defined as a vector of exogenous variables common to all equations, W_i is a vector of exogenous variables present only in the exit equation, and Z_i is a vector of exogenous variables present only in the income growth equations. The exclusion restrictions embodied in W_i and Z_i are needed to identify the model without distributional assumptions on the unobservables. To minimize the importance of those assumptions, we make no distributional assumptions on the additive errors in the three equations, and we represent the conditional means of η_{0i} and η_{1i} by a polynomial series in the index function in (C1), an approach suggested by Newey (1999). We estimate the model in reduced form, which is the following:

$$I_i = G(V_i\pi) + v_i \quad (C5)$$

$$y_{1i} = \psi_1 + E_i\zeta_1 + X_i\phi_1 + Z_i\theta_1 + \sum_{k=2}^K \tau_{1k}(V_i\pi)^{k-1} + \omega_{1i} \text{ in the } I_i=1 \text{ sample} \quad (C6)$$

$$y_{0i} = \psi_0 + E_i\zeta_0 + X_i\phi_0 + Z_i\theta_0 + \sum_{k=2}^K \tau_{0k}(V_i\pi)^{k-1} + \omega_{0i} \text{ in the } I_i=0 \text{ sample} \quad (C7)$$

where

$$V_i = [1 \ E_i \ X_i \ Z_i \ W_i]$$

$$\pi = [\pi_1 \ \pi_2 \ \pi_3 \ \pi_4 \ \pi_5]'$$

$$\pi_1 = \alpha + \beta(\psi_1 - \psi_0)$$

$$\pi_2 = \delta + \beta(\zeta_1 - \zeta_0)$$

$$\pi_3 = \gamma + \beta(\phi_1 - \phi_0)$$

$$\pi_4 = \beta(\theta_1 - \theta_0)$$

$$\pi_5 = \kappa$$

$$G(*) = \text{c.d.f. of } [\epsilon_i + \beta(\eta_{1i} - \eta_{0i})]$$

and where it is assumed that

$$E(\eta_{1i} | V_i, I_i=1) = \sum_{k=1}^K \tau_{1k} (V_i\pi)^{k-1} \quad (C8)$$

$$E(\eta_{0i} | V_i, I_i=0) = \sum_{k=1}^K \tau_{0k} (V_i\pi)^{k-1} \quad (C9)$$

We take $G(*)$ to be the normal cdf, and we take the series in (C8) and (C9) to be parametric and

exact for purposes of computing standard errors.²⁸ The three errors in eqns (C5), (C6), and (C7) are mean zero and mean-independent of the regressors by construction, and hence the underlying structural parameters appearing in eqns (C1)-(C4) can be consistently estimated by joint nonlinear least squares of (C5)-(C7), imposing the common parameter restrictions. Robust standard errors are calculated.²⁹

Full results of the exit equations are shown in Table C-1 and those for the entry equation are shown in Table C-2.

²⁸ The first term in each series is incorporated into the intercepts of (C6) and (C7), which should now be understood to equal the original intercepts plus these terms.

²⁹ Two-step rather than joint estimation is also possible but calculation of standard errors is easier in joint estimation.

Table 1
TANF Transition Rates Between Waves 1 and 2
(percent distribution)

Wave 1	Wave 2		
	On TANF	Off TANF	All
On TANF	55.6 71.0	44.4 18.9	32.0
Off TANF	10.7 29.0	89.3 81.1	68.0
All	25.0	75.0	100.0

Notes:

Table entries show row percents on the top and column percents on the bottom.
Last column and last row show marginal percents.
Welfare participation status is as of the date of interview

Table 2
 Employment Transitions by Welfare Transition Group
 (percent distribution)

Employment Transitions	Welfare Transition Groups			
	On TANF Both Waves	On Wave 1, Off Wave 2	Off Wave 1, On Wave 2	Off TANF Both Waves
Working both waves	11.4	29.9	25.8	49.1
Working then not working	10.5	5.8	20.3	8.4
Not working then working	18.1	33.8	4.1	15.9
Not working both waves	60.0	30.5	49.8	26.6
Total	100.0	100.0	100.0	100.0
Working at Wave 1	21.9	35.7	46.1	57.5
Working at Wave 2	29.4	63.7	29.9	65.0

Notes:

Employment is measured as of the week of interview.

Table 3

Income at Waves 1 and 2, by Welfare Transition Group

	On TANF Both Waves		On Wave 1, Off Wave 2		Off Wave 1, On Wave 2		Off TANF Both Waves	
	Wave1	Wave2	Wave1	Wave2	Wave1	Wave2	Wave1	Wave2
Total HH Income Not including EITC income	\$1179	\$1315	\$1239	\$1405	\$1419	\$1300	\$1377	\$2035
Including EITC income	\$1236	\$1389	\$1317	\$1552	\$1554	\$1365	\$1515	\$2161
Poverty rate (including EITC income)	0.76	0.70	0.69	0.56	0.55	0.70	0.51	0.33
Earnings								
Individual	138	207	224	682	410	209	585	795
Others in HH	124	171	136	297	543	223	461	813
TANF								
Individual	323	309	357	0	0	306	0	0
Others in HH	18	14	16	1	5	7	2	0
Food Stamps								
Individual	272	264	270	153	204	275	60	62
Others in HH	29	28	14	3	4	7	5	3
SSI								
Individual	146	185	77	89	85	43	90	76
Others in HH	25	14	15	19	67	7	8	23
SSDI								
Individual	20	35	17	17	10	21	14	9
Others in HH	30	27	19	15	26	61	21	16

Table 3, continued

	On TANF Both Waves		On Wave 1, Off Wave 2		Off Wave 1, On Wave 2		Off TANF Both Waves	
	Wave1	Wave2	Wave1	Wave2	Wave1	Wave2	Wave1	Wave2
Child Support	15	21	45	47	17	60	58	55
Help from friends and relatives	8	6	14	30	5	8	14	25
Social Security	15	19	18	12	14	7	20	55
Other	17	15	16	45	29	26	39	101

Notes:

All amounts pertain to month prior to interview

TANF, Food Stamp, and SSI “individual” amounts include the child benefit for child-only cases

Table 4
Experiences with Work Requirements
(percents)

	Full Sample	Boston	Chicago	San Antonio
Were told of a work requirement	54.3	41.8	64.0	52.4
Fulfilled the requirement	85.1	78.9	86.8	87.1
Reason not required to work				
Children too young	6.2	6.8	1.1	14.1
Poor health	78.8	76.7	91.2	61.7
Caring for disabled person	4.9	6.2	1.6	7.0

Notes: Questions were asked of all women on TANF as of the interview date, or who had been on TANF since the wave 1 interview, which was generally about 18 months earlier, and referred to experiences while on TANF. Unweighted sample sizes in the full sample are 777.

Table 5
Other Requirements of which Recipients Were Told
(percents)

	Full Sample	Boston	Chicago	San Antonio
Immunization of children	65.6	73.6	47.0	85.2
Cooperation with child support enforcement ^a	66.2	65.9	69.2	61.8
School attendance ^b	85.7	--	100.0	--
Living at home with parents ^b	85.7	--	100.0	--

Notes: Questions were asked of all women on TANF as of the interview date, or who had been on TANF since the wave 1 interview, which was approximately 18 months earlier, and referred to experiences while on TANF. Maximum unweighted sample size in the full sample is 772. Cells with no entries have less than 50 observations.

^a Asked of women not living with the fathers of their children.

^b Asked of mothers age 17 and younger.

Table 6

Experience with Sanctions (percents)

	Full Sample	Boston	Chicago	San Antonio
Percent Sanctioned				
Full ^a	4.2	1.5	8.7	0.4
Partial ^b	16.9	10.1	22.6	15.2
Total	21.1	11.6	31.2	15.6
Of those sanctioned				
Welfare office called or met with first	37.7	25.5	31.5	64.1
Tried to get benefits back	65.8	56.5	68.7	29.8
Successful	82.5	86.6	76.3	97.8
Reason for sanction				
Missed appointment	35.4	4.9	50.5	14.5
Failed to file paperwork	5.1	6.3	6.0	1.4
Refused to take a job	5.1	1.8	1.0	19.4
Didn't show up for work	10.2	4.3	14.2	3.1
Didn't attend school	2.6	4.1	0	0.1
Didn't cooperate with child support	6.3	5.4	7.0	5.0
Didn't get immunization	3.2	8.8	0	8.2

Notes: Questions asked of all women who were on TANF or who went off TANF since the wave 1 interview, and refer to experiences while on TANF. Unweighted full-sample sample sizes for the “percent sanctioned”, “of those sanctioned,” and “reason for sanction” questions are 774, 150, and 150, respectively.

^a A “full” sanction is defined as a woman having said she went off TANF because of a rule violation, and therefore includes administrative case closings.

^b Only women who had not experienced a departure from the rolls for rules violation reasons were asked about partial sanctions.

Table 7
Experiences of TANF Applicants
(percents)

	Full Sample	Boston	Chicago	San Antonio
What applicant was informed of upon application:				
Were told would face work req prior to acceptance	68.9	49.7	69.7	79.7
Caseworker discussed a plan to get by without welfare	37.9	23.9	27.5	51.9
Told to apply for a different program	24.2	14.4	21.6	30.6
Were given temporary cash assistance	29.2	24.7	27.7	30.5
Application accepted and benefits were received	65.7	69.9	34.4	86.9

Notes:

Questions asked of all those who applied for TANF since wave 1. Unweighted full-sample sample sizes for the two questions in the tables are 381 and 303.

Table 8
Reasons for Not Applying for TANF
(percents)

	Full Sample	Boston	Chicago	San Antonio
Of those who did not apply but considered applying, reasons for not applying:				
Too much hassle	30.9	31.6	21.0	49.6
Stigma and embarrassment	23.7	20.1	24.3	28.5
Time limits	4.7	0.8	0.4	20.0
Work requirements	13.9	2.2	20.3	21.3
Found a job	17.0	6.2	24.3	21.0
Found other support	12.9	26.3	2.6	10.1
Not eligible	12.7	9.8	15.5	12.4
Of those who visited the welfare office to apply but didn't, reasons for not applying:				
Too much hassle	32.4	5.6	34.9	48.5
Stigma and embarrassment	14.5	0	0	41.7
Found a job	36.6	10.8	43.2	47.0
Found other support	1.9	6.5	0	1.0
Not eligible	16.2	32.1	3.9	19.3
Caseworker discouraged applying	17.3	0	0.6	49.0
Welfare office treated applicant badly	16.7	0	0.5	47.5

Notes: Questions asked of those not on TANF since wave 1, and refer to periods not on TANF. The sample size for the full sample is 95 for the first question and 198 for the second. The unweighted sample sizes for each city for the first (second) question 75 (26) for Boston, 71 (30) for Chicago, and 52 (39) for San Antonio. Percents add to more than 100 percent because respondents could answer yes to multiple categories

Table 9

Estimates of Reduced Form Exit and Requirement Equations

	Exit Eqn	Requirement Equations		
		Work	Immunization	Child Support
Work Req	.579* (.293)	--	--	--
Immunization Req	.226 (.310)	--	--	--
Child Support Req	.478 (.317)	--	--	--
Age 25-35	-.012 (.307)	-.202 (.266)	-1.803* (.385)	-.255 (.289)
Age 35+	-.847* (.397)	-.382 (.300)	-1.502* (.438)	-.548* (.319)
Education Post High School	-.231 (.281)	.144 (.257)	1.054* (.407)	-.519* (.293)
Black	.298 (.309)	-.294 (.262)	.081 (.263)	.312 (.273)
Poor Health	-.463 (.339)	-.281 (.221)	.217 (.275)	-.044 (.225)
Household Size	-.124* (.076)	.050 (.057)	.105 (.074)	.082 (.067)
Child Under 3	.009 (.297)	-.294 (.248)	-.409 (.285)	-.180 (.232)
Married	-2.661* (.630)	-1.095* (.411)	-1.215* (.465)	-1.037* (.426)
Boston	.750* (.348)	-.649* (.288)	-.550 (.421)	-.010 (.291)

Table 9, continued

	Exit Eqn	Requirement Equations		
		Work	Immunization	Child Support
Chicago	.952* (.423)	-.056 (.274)	-2.120* (.492)	-.557* (.304)
Welfare Ever	.210 (.289)	.055 (.231)	--	-.228 (.255)
Welfare Most	-1.047* (.377)	.309 (.262)	--	.538* (.286)
Mother High School	-.047 (.434)	-.222 (.333)	-.074 (.387)	-.315 (.322)
Mother Post High School	-.535 (.516)	.142 (.380)	-.937* (.474)	-.118 (.408)
Father High School	-1.541* (.501)	-.413 (.321)	-.976* (.460)	.121 (.350)
Father Post High School	.020 (.402)	.833* (.481)	-.747 (.484)	1.579* (.538)
Months Worked	-.044* (.024)	-.033* (.020)	-.032 (.027)	-.017 (.023)
Ever Worked	1.312* (.421)	.750* (.313)	.141 (.421)	.558* (.348)
Intercept	-1.545* (.694)	.642 (.402)	3.112* (.668)	.303 (.451)
Pseudo R-squared ^a	--	.188	.332	.176

Notes:

Standard errors in parentheses; *: significant at 10 percent level

^a [(TSS-RSS)/TSS], where TSS=total sum of squared residuals with only an intercept, RSS=sum of squared residuals in fitted model

N=473

Table 10
Sanction Equation

Work Req	.437 (.314)
Immunization Req	-.060 (.372)
Child Support Req	-.002 (.289)
Age 25-35	.069 (.320)
Education Post High School	-.421 (.471)
Black	.359 (.262)
Poor Health	.107 (.340)
Household Size	-.031 (.088)
Child Under 3	1.409* (.611)
Married	-.852 (.753)
Boston	-.313 (.315)
Chicago	-.103 (.377)

Table 10 (continued)

Father High School	.835* (.425)
Father Post High School	.972* (.529)
Intercept	-1.635* (.709)
Pseudo R-squared	.097

Notes:

Standard errors in parentheses; *: significant at 10 percent level

Dependent Variable: Dummy =1 if sanctioned, =0 if not

Table 11

Selected Coefficient Estimates of the Structural Model for Exit
with Alternative Instrument Sets

	(1)	(2)	(3)
Income Gain (β)	.162 (1.215)	-.075* (.035)	.010 (.015)
Work Req	.445* (.115)	.387* (.181)	.435* (.124)
Immunization Req	.001 (.123)	-.050 (.144)	-.045 (.135)
Child Support Req	.525* (.129)	.147 (.257)	.561* (.142)
Instrument Set	Months Worked Ever Worked Mother Education Father Education	Months Worked Ever Worked	Mother Education Father Education
F Statistic for Instrument vector	7.70	1.373	6.390

Notes:

Standard errors in parentheses

*: significant at the 10% level

 β multiplied by 100

See Appendix Table B-1 for full coefficient results.

Table 12

Estimates of Reduced Form Entry and Diversion Equations

	Entry Eqn	Diversion Equations			
		Work	Plan	Diff Pgm	Temp Cash
Work Required	-.179 (.245)	--	--	--	--
Plan Discussed	-.444* (.277)	--	--	--	--
Different Program	.395* (.323)	--	--	--	--
Temporary Cash	.883* (.270)	--	--	--	--
Age 25-35	-.590* (.327)	.734* (.332)	.697* (.432)	--	-.486 (.411)
Age 35+	-.271 (.393)	.118 (.394)	.303 (.519)	--	-.656 (.553)
Education Post High School	-.396 (.269)	-.282 (.276)	-.680* (.331)	-.269 (.512)	-.273 (.358)
Black	-.098 (.225)	-.096 (.238)	.128 (.243)	--	.282 (.249)
Poor Health	.019 (.284)	-.201 (.290)	.131 (.308)	-1.286* (.565)	.153 (.293)
Household Size	-.071 (.066)	-.055 (.073)	-.142 (.098)	-.019 (.109)	.003 (.099)
Child under 3	-.504* (.297)	-.331 (.307)	-.296 (.342)	-.403 (.420)	-.652 (.423)
Married	.472 (.347)	-.158* (.390)	.745* (.408)	1.347* (.470)	.900* (.436)

Table 12 (continued)

	Entry Eqn	Diversion Equations			
		Work	Plan	Diff Pgm	Temp Cash
Boston	-.189 (.277)	-.351 (.281)	-.965* (.330)	--	-.212 (.285)
Chicago	-.665* (.306)	-.191 (.314)	-.622* (.330)	--	-.286 (.365)
Welfare Ever	.425 (.286)	.068 (.293)	-.361 (.314)	--	.257 (.330)
Welfare Most	.208 (.300)	.328 (.326)	1.038* (.341)	--	.365 (.346)
Pseudo R-squared	.243	.110	.203	.210	.118

Notes:

Standard errors in parentheses

*: significant at 10 percent level

Applicants only

N=328

Table B-1
Definitions of the Variables in the Econometric Model

Short Name	Definition
I	Dummy = 1 if made a transition between waves 1 and 2
Sanction	Dummy = 1 if individual was sanctioned sometime between waves 1 and 2
Work Req	Dummy = 1 if individual was informed between waves 1 and 2 that she was subject to a work requirement
Immunization Req	Dummy = 1 if individual was informed between waves 1 and 2 that she was required to have children immunized
Child Support Req	Dummy = 1 if individual was informed between waves 1 and 2 that she was required to cooperate with child support enforcement
Work Required	Dummy = 1 if individual was told upon application that there would be a work requirement prior to entry
Plan Discussed	Dummy = 1 if individual was told upon application that the caseworker would discuss with them a plan to get by without welfare
Different Program	Dummy = 1 if individual was told upon application to apply for a different program
Temporary Cash	Dummy = 1 if individual was given upon application a temporary cash payment in lieu of entry
y	Monthly Household Income Change from Wave 1 to Wave 2
Age <25	Dummy = 1 if less than 25
Age 25-35	Dummy = 1 if 25 to 35
Age 35+	Dummy = 1 if over 35
Post High School	Dummy = 1 if any post-high-school education
Household Size	Number of household members
Children Under 3	Dummy = 1 if any children under 3 in the household

Appendix Table B-1, continued

Short Name	Definition
Black	Dummy = 1 if household head was black
Poor Health	Dummy = 1 if health is poor or fair
Married	Dummy = 1 if woman is married
Boston	Dummy = 1 if in Boston
Chicago	Dummy = 1 if in Chicago
Welfare Ever	Dummy = 1 if woman's family was ever on welfare while she was a child
Welfare Most	Dummy = 1 if woman's family was on welfare most or all of the time as a child
Mother High School	Mother of woman had a high school education
Mother Post High School	Mother of women had education beyond high school
Father High School	Father of woman had a high school education
Father Post High School	Father of woman had education beyond high school
Months Worked	Number of months worked in two years prior to wave 1
Ever Worked	Dummy = 1 if ever worked in the two years prior to wave 1

Notes:

Exit Sample includes all women on TANF at wave 1 and Applicant Sample includes all women who applied for TANF between wave 1 and wave 2.

Table B-2

Means and Standard Deviations of the Variables in the
Econometric Models

	Exit Sample		Entry Sample	
	Mean	Standard Deviation	Mean	Standard Deviation
I	.20	.40	.50	.50
Sanction	.20	.40	--	--
Work Req	.56	.50	--	--
Immunization Req	.60	.49	--	--
Child Support Req	.62	.48	--	--
Work Required	--	--	.63	.48
Plan Discussed	--	--	.40	.49
Different Program	--	--	.26	.44
Temporary Cash	--	--	.34	.48
y	811	704	908	909
Age 25-35	.41	.49	.48	.50
Age 35+	.27	.44	.23	.42
Post High School	.20	.40	.22	.41
Household Size	5.1	1.9	5.0	1.8
Children Under 3	.67	.47	.57	.50
Black	.59	.49	.48	.50
Poor Health	.33	.47	.19	.39
Married	.11	.31	.23	.42
Boston	.30	.46	.26	.44

Table B-2
(continued)

	Exit Sample		Entry Sample	
	Mean	Standard Deviation	Mean	Standard Deviation
Chicago	.47	.50	.33	.47
Welfare Ever	.56	.50	.54	.50
Welfare Most	.33	.37	.25	.43
Mother High School	.28	.40	.39	.45
Mother Post High School	.15	.32	.08	.22
Father High School	.33	.37	.29	.38
Father Post High School	.16	.30	.08	.21
Months Worked	4.4	6.9	8.8	8.7
Ever Worked	.41	.48	.63	.47

Notes:

All variables are weighted.

Table C-1

Estimates of the Structural Model for Exit

	With Selection				Without Selection	
	I*	y ₁	y ₀	y ₁ -y ₀	I*	y ₁ -y ₀
Income Gain (β)	.162 (1.215)	--	--	--	-.718 (1.224)	--
X:						
Work Req	.445* (.115)	-2.949 (2.307)	-1.400 (.871)	-1.550 (2.466)	.464* (.123)	1.129 (1.665)
Immunization Req	.001 (.123)	3.014 (2.126)	-.306 (.661)	3.319 (2.227)	.064 (.118)	3.313* (1.924)
Child Support Req	.525* (.129)	-2.804 (2.903)	1.466 (.956)	-4.270 (3.056)	.562* (.128)	-1.633 (2.270)
Age 25-35	-.035 (.150)	-2.372 (2.294)	1.687* (.741)	-4.060* (2.411)	-.069 (.154)	-4.218* (2.060)
Age 35+	-.373* (.211)	7.618* (3.427)	-.015 (1.068)	7.633* (3.589)	-.477* (.193)	4.320 (2.736)
Education Post High School	-.305* (.185)	3.918 (4.145)	.915 (.835)	3.003 (4.228)	-.317* (.164)	-431 (3.784)
Black	.277 (.257)	-7.613* (3.887)	-.630 (1.111)	-6.983* (4.042)	.266 (.234)	-3.235 (2.777)
Poor Health	-.282* (.113)	-2.168 (2.606)	-2.031* (.808)	-1.137 (2.729)	-.385* (.120)	-2.122 (1.659)
Household size	-.157* (.038)	1.737* (.831)	.378 (.284)	1.360 (.878)	-.132* (.031)	.111 (.520)
Child under 3	-.143 (.170)	3.387 (2.748)	-2.219* (.757)	6.607* (2.851)	-.114 (.151)	3.774* (1.982)
Married	-.675* (.400)	13.179* (6.829)	-3.341* (1.401)	16.520* (6.971)	-.696* (.335)	8.958* (4.945)
Boston	-.091 (.304)	8.517* (3.332)	-.842 (1.030)	9.359* (3.487)	-.029 (.282)	8.894* (2.725)

Table C-1, continued

	With Selection				Without Selection	
	I*	y ₁	y ₀	y ₁ -y ₀	I*	y ₁ -y ₀
Chicago	.140 (.320)	-2.187 (4.191)	-.046 (1.361)	-2.141 (4.408)	.159 (.293)	-2.327 (3.408)
W:						
Welfare Ever	.495* (.176)	--	--	--	.277* (.137)	--
Welfare Most	-.404* (.157)	--	--	--	-.663* (.129)	--
Z:						
Mother High School	--	-6.049* (2.244)	-.679 (.774)	-5.370* (2.373)	--	-5.598* (2.406)
Mother Post High School	--	4.330* (2.474)	-1.212 (.987)	5.542* (2.664)	--	3.379 (2.432)
Father High School	--	.293 (3.047)	-3.323* (.860)	3.616 (3.166)	--	4.343 (3.072)
Father Post High School	--	5.553* (3.424)	-1.694* (1.042)	7.247* (3.579)	--	8.826* (3.545)
Months Worked	--	.048 (.163)	-.193* (.058)	.241 (.173)	--	.199 (.170)
Ever Worked	--	-.659 (2.032)	1.464* (.902)	-2.123 (2.223)	--	-1.838 (2.273)
V π	--	9.189* (4.244)	1.188 (1.638)	--	--	--

Notes:

Intercept estimates not shown

Parameters in y equations divided by 100 and β multiplied by 100

Standard errors in parentheses; *: significant at 10 percent level

F-statistics for Z variables: 7.70 (with selection), 7.07 (without selection)

Table C-2

Estimates of the Structural Model for Entry

	I*	y ₁	y ₀	y ₁ -y ₀
Income Gain (β)	.987 (1.90)	--	--	--
X:				
Work Required	-.212* (.109)	1.014 (1.994)	.376 (1.381)	.639 (2.452)
Plan Discussed	-.274* (.124)	-2.611 (2.690)	-4.640* (1.663)	2.029 (3.163)
Different Program	.462* (.166)	-.347 (2.708)	4.272* (1.862)	-4.619 (3.287)
Temporary Cash	.803* (.226)	12.574* (4.271)	2.655 (3.133)	9.920* (1.873)
Education Post High School	-.416* (.151)	-9.514* (3.117)	-3.582* (1.828)	-5.933* (3.513)
Children Under 3	-.163* (.098)	-1.825 (1.888)	-1.285 (1.201)	-.540 (2.229)
Boston	-.204 (.143)	.772 (2.856)	2.390 (1.689)	-1.618 (3.319)
Chicago	-.850* (.115)	-7.650* (4.198)	-7.439* (2.913)	-.210 (5.109)
W:				
Welfare Ever	.486* (.126)	--	--	--
Welfare Most	-.352* (.133)	--	--	--

Table C-2 (continued)

	I*	y ₁	y ₀	y ₁ -y ₀
Z:				
Mother High School	--	4.446* (1.843)	.535 (1.462)	3.911* (2.352)
Mother Post High School	--	14.430* (4.634)	3.193 (3.292)	11.240* (5.684)
Father High School	--	-1.756 (2.456)	.670 (1.744)	-2.426 (3.012)
Father Post High School	--	-4.630 (5.869)	2.213 (2.349)	-6.843 (6.322)
Months Worked	--	-.051 (.155)	-2.877* (.094)	.236 (.181)
Ever Worked	--	2.748 (1.921)	2.421 (1.691)	.327 (2.559)
Vπ	--	-14.931* (4.073)	-6.484* (2.963)	--

Notes:

Standard errors in parentheses

*: significant at the 10 percent level

F-statistics for Z variables: 7.237