

SESSION VI:

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This paper is on events that trigger poverty entries and exits and it is joined with Signe-Mary McKernan who is here today. This research was supported by the U.S. Department of Health and Human Services and also by a Census funded grant through the Joint Center for Poverty Research. In this paper, we study poverty dynamics where one component of the paper examines how disability relates to changes in poverty status.

In terms of introduction and motivation, we are looking at U.S. poverty. The U.S. poverty rate fell from near record highs in 1993 to near record lows in 2000, but we have seen some increases in the last two years. The high of over 15% in 1993 was one of the highest levels in three decades and the low of 11% in 2000 was one of the lowest levels in 2 1/2 decades. The question we ask here is what events triggered entries into poverty and exits from poverty in the U.S. during the last decade. Understanding why individuals enter and exit poverty is necessary for effective policy, yet little is known about events associated with poverty.

We are interested in understanding the extent to which different events play a role in poverty dynamics, and this study sheds light on two research questions that remain largely unanswered in the poverty literature. The first is what events increase individuals' likelihood of entering and exiting poverty. For example, do shifts in household structure, employment status, and disability status play a role? To what extent do they play a role? Second, we examine whether these events changed over time—from the late 1980s prior to welfare reforms that took place in the United States to the late 1990s after these welfare reforms.

Again, I just want to note that we focus on U.S. poverty and on the official US measure of poverty, which compares annual before tax money income with official poverty thresholds. We focused on the official rate for a couple of reasons. First, it is easy to implement and straightforward, and second, as I mentioned, there has been a lot of variation in the US poverty rate over the last decade and our goal is to understand the events that have led to these changes in this official measure of poverty. We have some

current work and some proposed future work where we look at alternative measures of poverty.

In terms of prior research, there is a very large poverty dynamics literature and here I focus on the literature examining events and poverty transitions. Most researchers have used only descriptive methods to examine events associated with entries into and exits from poverty. One shortcoming of these descriptive analyses is that they do not allow us to disentangle the relationship between one event and a poverty transition from that of other events or demographic characteristics. Some descriptive analyses, for example, allow only one primary reason for a change in poverty status when there may be many reasons. In terms of findings, the literature finds that earnings and labor supply are more important than changes in household structure for the general population but that changes in household structure are important for the female-headed household sub-population.

So, what are the contributions of this study? First we look at poverty and the events that cause it in a multivariate framework. Second, we use two data sets, both of which are nationally representative. We use monthly data from the Survey of Income and Program Participation (SIPP) and we use annual data from the Panel Study of Income Dynamics (PSID). Few studies have used the SIPP data to examine poverty dynamics. The monthly SIPP data allow for closely timed measures between events and changes in poverty status. Many of the longitudinal data sets provide only annual measures. Associating an annual change in poverty status with an event that occurred at some point during the year is more difficult. The monthly data allows a more close time measure. Finally, we contribute to the literature by examining whether events have changed over time—from the late 1980s to the late 1990s. Also, the 1996 SIPP panel allows us to look at poverty dynamics in the post welfare reform period—from 1996 through 1999.

For the empirical model, we use a discrete-time multivariate hazard model to analyze events that trigger entries into and exits from poverty. We estimate separate entry and exit equations. Our hazard model assumes that the probability of entering poverty or exiting poverty in a given period is represented by a logit specification. With this assumption, the hazard rate can be written as this equation shown on the slide. The

vector T represents the transition events, which I will talk about soon, and the vector X represents the control variables.

There are a couple of important empirical issues that I want to briefly discuss. The first is lags. In our analysis, we allow events that occurred up to one year ago to affect transitions in the current period. For example, a job loss may not cause a household to instantly fall into poverty if they are eligible for unemployment insurance. A household may fall into poverty only when the unemployment insurance benefits run out. In the annual data we allow a lag for one period, or one year, and in the monthly SIPP data we allow four quarterly lags. Second, there is an issue with left censoring, which occurs when, for example, someone is in poverty in the first month we observe them in the data. The poverty spell could have been going on for many, many months and we don't know how long. These left-censored spells are included in the analysis, along with a dummy variable indicating them. This approach is recommended in a 1997 paper by John Iceland, which examines this exact issue. Iceland concludes that when examining poverty transitions, as we do in this paper, all observations from left-censored spells should be included in the model to avoid selection bias. Finally, we have issues with endogeneity—some of the variables in our model are endogenous—so we are not necessarily identifying causal effects; we need to keep that in mind when interpreting the results.

Our paper presents a conceptual model, which identifies events we hypothesize affect poverty, as well as a list of control variables. Events hypothesized to affect poverty include the birth of a child and changes in household headships. For example, going from a two-adult household to a female-headed household (or from a two-person to a one-person household) might increase the likelihood of entering poverty whereas going from a female-headed household to a two-adult household might increase the probability of exiting poverty. Also, we include changes in disability status, where we expect the onset of a disability to increase the probability of entering poverty and a disability that ceases to increase the probability of exiting poverty. We also have changes in educational attainment, changes in employment status, and changes in the state of the economy, which include the unemployment rate and GDP. The list of control variables includes age, race, ethnicity, gender, education, number of people in the family, geographic characteristics, and the state of the economy.

Our analysis includes changes in employment status, but employment-status changes are related to other events. We think that when people stop working they are much more likely to enter poverty, but these employment-status changes are related to other outcomes, such as disability-status changes. To address this concern, we first estimate the models with all events and then estimate the models without the employment events. I am going to mention where the results differ.

In terms of the data and the sample, we use three panels of the Survey of Income and Program Participation; we use the 1988, 1990 and 1996 SIPP panels. Each panel provides between two and four years of monthly longitudinal data. These three panels together provide data from 1988 through 1992 and from 1996 through 1999. The second data set we use is the Panel Study of Income Dynamics (PSID). Here we use data from the 1975 through 1997 waves, so we have over 20 years of annual longitudinal data. The sample for analysis is all individuals.

In the interest of time I am going to focus on results from the SIPP analysis, although I am going to mention some results from the PSID. First, we are going to look at poverty *entry*. We will look at the 1996 SIPP panel results, then a comparison of the earlier 1988-1992 SIPP period to the later 1996-1999 SIPP period, and then a comparison of the SIPP results to the PSID results. Finally, we will look at the poverty *exit* results across the two time periods.

This first table presents the 1996 SIPP hazard model results where we show the coefficient, the standard error, and the simulated effect. I'm going to start by briefly discussing the trigger events and what we have down the left hand column. We have child under age 6 enters household; two-adult household becomes female-headed household; and then we have loss of employment of the head, the spouse and others in the household; and finally the household head becomes disabled. The other events not shown on this table are changes in the state of the economy. Also not shown are the control variables. I couldn't fit all four quarterly lags on this table, so I am only showing the variables that identify whether the event happened last month and in the previous quarter. The paper shows the other three lag periods. This table shows the coefficient and standard errors, where stars indicate that the coefficients are statistically significant.

The simulated effect tells us how the probability of entering poverty changes when one of these events occurs. So looking at child age 6 enters the household, the simulated effect of 0.027 is telling us that if a child under age 6 enters the household, the probability of entering poverty increases by 2.7 percentage points. Now, that's actually pretty big because in our sample the percent entering poverty in a month is 1.3 percent.

The coefficient at $t-1$ is also statistically significant but the effect is significantly smaller. In general, that's what we find in our results—that the main effect is coming immediately and you get significant results in the lagged periods but the magnitudes are much smaller.

Going from a two-adult to a female-headed household is also important, as are losses of employment and the onset of a disability. If the head became disabled last month, the probability of entering poverty this month increases by 1.8 percentage points. The $t-1$ effect is negative, but if you look at $t-2$ and $t-3$, they are positive and significant.

I'm going to show you a figure where the numbers are simply the simulated effect at time t . In this figure, it is easier to see what events have the biggest impact. As you can see, loss of employment has the biggest impact.

This next figure shows the earlier and the later SIPP periods, so we can compare the 1988 to 1992 period with the 1996 to 1999 period. First, note that loss of employment of the head is the most important event in the earlier period as it is in the later period. We also see that loss of employment of the spouse and others in the household are significant events, but the effects are much smaller in the earlier period as compared to the later period. Moving over to the left hand side, we see that a child under age 6 enters the household has a similar effect in the two periods. The big differences across the two periods occur with the household headship and disability events. Going from a two-adult household to a female-headed household has a much bigger effect on poverty entries in the earlier period as compared to the later period. For the variable identifying that household head became disabled, we find that the effect is zero in the earlier period, but positive and significant in the later period.

One other thing we do in this analysis is eliminate employment from the model

and see how the results differ. When the employment events are eliminated, these two variables that I just mentioned become much more similar across the two periods. For example, the estimated effect for head becomes disabled is between 2.5 and 3 percentage points in the two periods. A possible explanation for this is that the relationship between employment and disability status differs in the two periods. It may be the case that people who become disabled are still working in the later period so we are not picking it up with the loss of employment because they are still working, but what's happening is that in the later period they are working but they have reduced hours or lower wages and this is what's increasing their entries into poverty. In terms of household structure, it appears that changes in household structure operate through employment to a greater extent in the later period as compared to the earlier period. In the United States we saw big increases in employment in the late 1990s and so that's why we might see these differences.

Now we are moving on to a table that shows the PSID results with the SIPP results. When we look across results using annual PSID data from 1975 to 1997, we get results that are more similar to the 1996-1999 SIPP result than the earlier SIPP results. But, in general, the results from our analyses using PSID and SIPP data aren't that different.

Finally, I want to talk about the likelihood of exiting poverty. First I want to point out that employment is important in the likelihood of exiting poverty. In the poverty entry model we had loss of employment, whereas here in the poverty exit model we are looking at gains in employment. In this model of poverty exits, we also include educational attainment; gains in educational attainment—graduating from high school and receiving an advanced degree—are two additional events and they have substantial effects. Again, the model controls for employment but not wages and hours, so we need to interpret these results carefully. It could be that someone is finishing up school and they just have an easy part-time job and then when they complete their degree, they get a higher paying full-time job.

Another event we have is the “head ceases to be disabled”. We see the same pattern as we did with the poverty entry models—a large difference across the two periods. For female-headed household becomes two-adult household, again we see the

same pattern. I should mention that the probability of exiting poverty in a month is about 10% in the two panels. So, these numbers are big compared to this probability.

Again, when we exclude employment from the model we see something very similar to what we saw with the poverty entry model; that the effect across the two periods becomes much more similar. For “head ceases to be disabled”, when we exclude employment from the model, it goes to between 9 and 10% for the two periods. So, again, it is possible that in the later period people who are disabled are working and when their disability ceases they are increasing either their wages or their hours to exit poverty.

To conclude, there appears to be no single path into or out of poverty and many events are related to poverty transitions—employment changes, shifts in household headship, shifts in disability status, and educational gains. In comparing the pre- and post-welfare reform period—the 1988 and 1990 SIPP panel results to the 1996 SIPP panel results—there are both similarities and difference. First, employment is important in both periods. The birth of a child and educational gains are similar across the two periods. The relationship between poverty transitions and shifts in disability status differ across the two periods in models that control for employment, but are similar in models that do not control for employment. We see this same pattern for household headship.

I want to take a minute and talk about our analysis in the context of this conference on health adjusted poverty. In our analysis of the official measure of poverty, we see that disability increases the probability of being in poverty. This can happen through three mechanisms. It can happen via earned income because of lower hours or wages; unearned income can be affected when someone becomes disabled; or family size due to household structure shifts. Putting changes in family size aside for a moment and thinking about income, our analysis suggests that decreases in earnings that coincide with the onset of a disability are not being offset by increases in non-earned income, say via disability benefits. This increase in poverty is happening without taking into account the medical costs that are likely associated with this onset of a disability. So this says that things are a bit worse if we take medical costs into account. But, on the positive side, to leave on a positive note, we are seeing that people are exiting poverty when the disability ceases. Thank you.