Unemployment Insurance Effects on Child Academic Outcomes: Results from the National Longitudinal Survey of Youth

Sharon Kukla Acevedo
Central Michigan University

Colleen M. Heflin
University of Missouri

Address correspondence to: Sharon Kukla-Acevedo, 235 Anspach Hall, Mount Pleasant, MI 48859-0001; email: kukla1sa@cmich.edu

Unemployment Insurance Effects on Child Academic Outcomes: Results from the National Longitudinal Survey of Youth

Despite evidence linking parental unemployment spells and negative child outcomes, there is very little research that explores how participation in the Unemployment Insurance Program (UI) could buffer these effects. Using the National Longitudinal Survey of Youth 79 (NLSY79) and Children of the NLSY79 data, we estimate a series of fixed effects and instrumental variables models to estimate the relationship between UI participation and the Peabody Individual Achievement Test (math and reading comprehension). Once we control for the non-random selection process into UI participation, our results suggest a positive, albeit, tenuous relationship between UI participation and PIAT math scores. None of the models suggests a negative influence of UI participation on child outcomes.

Keywords: unemployment insurance, academic outcomes, social spending

INTRODUCTION

The American economy is undergoing a fundamental restructuring. The unemployment rate, while substantially below the high of 10.1 percent in October 2009, remains at 6.7 percent 52 months later in February 2014 (Bureau of Labor Statistics, 2014). While the national unemployment rate has continued to improve, the number of long-term unemployed, defined as those out of the labor market 27 or more weeks, remains at historic highs of 3.8 million or 37.0 percent of all unemployed. Both the high levels and durations of unemployment mark these economic times as substantially different from prior economic cycles. It is with this policy context in mind that this paper examines the ability of participation in the Unemployment Insurance Program to buffer recipients' children from the effects of unemployment and the accompanying income shock.

Prior research demonstrates a negative causal effect of unemployment on individuals' future earnings (Jacobsen, Lalonde, & Sullivan, 1993; Stevens, 1997) Unemployment spells are also correlated with negative mental health outcomes, especially in fathers (Artzcoz, Benach, Borrell, & Cortez, 2004). The damaging effects of unemployment extend to future generations, as well. Parental job displacement, especially of fathers, leads to children's lower annual earnings (Oreopoulos, Page, & Stevens, 2008) and a host of negative educational outcomes, including higher grade point average (Rege, Telle, & Votruba, 2011), increased probability of grade retention (Stevens & Schaller, 2011), and an increased probability of dropping out of high school (Kalil & Ziol-Guest, 2005; Rege, Telle, & Votruba, 2011).

This paper is the first of which we are aware to model the relationship between participation in unemployment insurance and children's outcomes. We use data from the National Longitudinal Survey of Youth 1979 cohort to examine adult participation in UI and the association with children's achievement outcomes. These panel data allow us to control for the non-random selection process into UI participation. In the section that follows, we lay out program details of UI and provide a conceptual model linking UI to child outcomes. Then we provide details regarding our data, measures and models employed. Our results suggest that UI program participation may be related to child outcomes, although the nature of this relationship is nuanced. While the models controlling for within-child variance suggest some positive relationships, the models controlling for measurement error and non-random selection into UI suggest that UI participation is unrelated to child academic outcomes. None of the models suggests a negative influence of UI participation on child outcomes. This is noteworthy because other income-support programs, such as Temporary Assistance to Needy Families, have been linked to reduced cognitive and behavioral outcomes in children and adolescents (Ku & Plotnick, 2003; Lohman, Pittman, Levine Coley, & Chase-Landsdale, 2004). In the final section, we outline the limitations of our study and discuss implications for both research and policy.

UI Receipt and Child Outcomes: Theory and Hypotheses

The Unemployment Insurance Program is a joint federal-state program that operates as social insurance for short-term periods of unemployment. In order to qualify, unemployed workers must meet both monetary eligibility guidelines, based on

employment and earnings over the prior 20 months, and non-monetary requirements, which are determined by age and reason for work separation. Historically, regular state UI benefits for most recipients last for 26 weeks (6 months). States fund regular unemployment insurance benefits from taxes received from state employers. After exhausting regular benefits, during periods of high unemployment, recipients may be eligible for "extended benefits" as a result of federal and state legislation. Significant state variation exists in the operation of UI with regard to eligibility requirements, benefit amounts, and duration of eligibility.

UI was designed as a counter-cyclical program: When the economy is strong and unemployment levels are low, participation levels in UI should be low and of a short duration. However, during times of economic hardship, such as during the Great Recession of 2008, UI caseloads are expected to grow substantially and the duration may be expanded. As a result of seven federal legislative actions from June 2008 through April 2010, the UI program was altered to extend the duration of receipt allowable from 26 weeks up to 99 weeks, as well as to provide for a $25 week supplement.

Because UI participation is not means-tested and is a part of the safety net that is considered social insurance (along with other popular programs such as Social Security, Medicare and Disability Insurance), there has historically been little social stigma attached to participation. Nonetheless, participation among eligible populations is far from complete. According to estimates from Currie (2006), participation among those eligible is the range of 72 to 83 percent. While Currie suggests that the transaction costs of applying for benefits might explain the moderately high non-participation rates, Ebenstein and Stange (2010) test this hypothesis using state-level differences in

application procedures for UI and find that this is not the case. However, Shaefer and Wu (2011) report that participation among eligible low-educated single women is lower among women with children than among childless women suggesting that barriers to participation may exist for certain disadvantaged groups of eligible unemployed.

States provide UI to displaced workers to minimize the negative effects of unemployment spells that might be associated with reduced income levels. While much is known about the harmful effects of parental unemployment spells on children (Kalil & Ziol-Guest, 2008; Oreopoulos, Page, & Stevens, 2008; Rege, Telle, & Votruba, 2011; Stevens & Schaller, 2009) and the positive relationship between permanent income and child wellbeing (Dahl and Lochner, 2012; Duncan, Morris, & Rodrigues, 2011), very little evidence exists regarding the direct effects of transitory income on children's achievement outcomes. If transitory income is associated with children's outcomes, then all else equal, UI participation should be positively associated with child outcomes, assuming the source of income is unimportant. Theoretically, UI receipt could alleviate harmful effects of unemployment by buffering the household from the income shock associated with the job loss.

In reality, UI benefits are not designed to be perfect substitutes for lost wages: the size of the maximum UI benefit varies by state and provides a partial wage replacement only. Some states provide an extra amount if the UI participant has dependent children. On average, UI replaces about 50 percent of lost wages, up to state maximum benefits amounts. However, because of the state ceilings on benefits, UI tends to replace a higher share of low-wage earnings than high-wage earnings (US Department of Labor, 2009). Because of the positive income effect and the lack of evidence regarding hassles or

stigma of participation, there should be an unambiguously positive effect of participation. *We hypothesize that child outcomes will be higher in unemployed households that participate in UI relative to unemployed households in which the unemployed mother does not receive UI.*

METHODOLOGY

Methods

This paper estimates UI participation effects on child academic outcomes. Observed UI benefit receipt is the result of both an eligibility determination and a participation decision. Not all who experience a job separation are eligible for the UI program – there are both monetary and non-monetary requirements related to earnings history and the circumstance around the job separation. Quitting a job, losing a job for cause, working part-time, or seeking part-time work may all be correlated with child outcomes. If this is the case, then these unobserved factors will distort the causal impact of UI benefit receipt on child development.

As a consequence, in order to examine the impact of the UI program on child outcomes, we must account for at least three sources of bias – selection bias related to eligibility, selection bias related to take-up, and measurement bias related to the possibility that UI participation is measured with error. To address the first source of selection bias, that related to UI monetary and non-monetary eligibility, the sample includes only those mothers who were estimated to be eligible for unemployment benefits at the time of their unemployment spell. As a result, we compare the UI effects on children of unemployed, eligible mothers who do participate to the UI effects on children of unemployed, eligible mothers who do not participate.

Fortunately, the NLSY collects information supporting the estimation of whether the respondent met the monetary and non-monetary eligibility requirements of UI. Mothers were determined to have met the monetary requirements if they earned the annual wage requirement in their state of residence and were working at least three out of the previous four quarters.[1,2] Mothers were included in the sample if they lost their job through no fault of their own (laid off) in the previous twelve months and they were in the labor force/looking for work during their unemployment spell.

In terms of take-up, the main concern is that, due to endogeneity bias, women who participate in UI are different from women who do not participate in UI in ways that might affect their children's outcomes. This is most problematic when unobserved differences, such as mothers' interpersonal dynamics or ability to consistently follow routines, might be correlated both with their ability to pursue UI benefits and their children's academic outcomes. Currie and Cole (1993) note that welfare receipt is correlated with unobserved family characteristics, which bias estimates of welfare receipt. It is reasonable to assume that UI receipt is also correlated with unobserved family characteristics, thus biasing estimates of UI receipt on children's outcomes.

We use two types of models to limit the selection bias related to take-up. Fixed effect models relate changes in the mother's UI participation to changes in the child's academic outcome, holding constant changes in all other time-variant variables in the model. This method effectively controls for all individual factors that are constant over

[1] Our monetary requirements for sample inclusion differ slightly from those that are typically defined by the states. Most states require that UI recipients work four out of the previous five calendar quarters, and in each quarter they earn a minimum income[1]. The timing of NLSY data collection from 1986-2010 led to our use of an approximation (every two years). We believe this specification is adequate because previous research indicates that few individuals, even those with low levels of education, are ineligible for the UI program due to monetary requirements, which are relatively easy to meet (O'Leary & Kline, 2010; Shaefer, 2010; Shaefer & Wu, 2011).

[2] We are grateful to Alix Gould-Werth and Luke Shaefer for sharing the state UI program parameters data.

time, so it is not necessary to directly observe time-invariant factors, such as maternal motivation or personality characteristics that might be correlated with the child's academic outcome and the propensity to seek out UI benefits.

Equation (1) provides the fixed effects model relating maternal UI receipt to child academic outcome. For every variable in the equation, the child's average value over all assessed time points is subtracted from the child's value at a specific time point. As a consequence, all measured and unmeasured time-invariant characteristics, such as race and gender, drop out of the model.

$$(1)\ O_{it} - O_{i.} = \beta(U_{it} - U_{i.}) + \gamma(M_{it} - M_{i.}) + \delta(C_{it} - C_{i.}) + \eta(E_{it} - E_{i.}) + \mu_{it} - \mu_{i.}$$

Where O is the child's academic outcome; U captures the connection to UI; C is a vector of child-specific characteristics, M includes mother-specific characteristics, and E is a vector of environmental factors that capture the home environment.

The extant literature does not provide direct guidance on the quality of UI self-report measures, however, there is evidence that households underreport food stamps and SNAP benefits in surveys (Gundersen & Kreider, 2008; Bollinger & David, 2001).

Instrumental variables (IV) models can address both the non-random UI take-up among eligible mothers and the measurement error bias (Angrist and Pischke, 2009). IVs must satisfy two conditions. First, they must predict, or be correlated with, the endogenous variable (in this case, UI participation). Second, there must not be a correlation between the instrument and the explanatory equation's error term (in this case, the instrument cannot be correlated with the child's academic outcome.) Our IV models use instruments that predict UI participation but do not affect child outcomes, except through its influence on UI participation.

We use two-stage least squares (2SLS) to calculate the IV estimates. In the first stage, we regress UI participation on all exogenous variables in the model and the instruments. In the second stage, we estimate child outcomes using the predicted UI participation from the first stage, along with the exogenous control variables (excluding the instruments).

(2) $U_i = \gamma M_i + \delta C_i + \eta E_i + \lambda Z_i + \theta_i$

(3) $P_i = \hat{U}_i + \gamma M_i + \delta C_i + \eta E_i + \mu_i$

Where $\hat{U}_i$ is the predicted UI participation estimated in the first stage and θ_i is an individual specific error term. U_i, C_i, M_i, and E_i are defined as in equation (1). μ_i is a family-specific (clustered) error term that accounts for the family-specific, unmeasured factors that are experienced by siblings living in the same home.

Z_i represents the instruments, which are state- and year-specific earnings requirements and alternative base periods (ABP). These instruments indicate state generosity in UI policy. When states institute ABPs, workers can "count" earnings from their most recent completed quarter to determine their eligibility, thus giving them more opportunity to qualify for UI benefits (Coven and Stone, 2009; Boushey and Wenger, 2006; Wenger, 2006; Holzer, 2000). UI generosity will act as a determinant of UI participation, but does not necessarily influence PIAT scores, except through its influence on UI participation.

We test the instruments' exogeneity with F tests for joint significance of the coefficients on the additional instruments. There is no corresponding test to determine that our instrument only affects child outcomes through its influence on UI participation.

However, research suggests appropriate instruments are those factors that are institutional in nature and external to the household (Angrist & Pischke, 2009; Wooldridge, 2012).

Data

We analyze data from the National Longitudinal Survey of Youth (NLSY79) and Children of the NLSY. The NLSY79 is a panel survey of 12,686 men and women who were 14-21 years old in 1978 and follows them throughout their lives, with the most current data collected in 2010. The survey was conducted every year from 1979-1994, and every other year thereafter. They survey is designed to gather detailed information about employment, education/training, income, fertility, and family characteristics. The data are nationally representative of people living in the United States in 1978. The Children of the NLSY79 is a supplemental survey of all children born to the 6,283 women in the original sample. The supplemental survey provides data on the achievement of the children born to these mothers.

Variables

Child Academic Outcomes: Peabody Individual Achievement Test (PIAT)

Age-standardized PIAT math and reading comprehension scores are used to measure academic achievement of children over five years old. PIAT provides a broad measure of achievement in mathematics and reading, which are highly correlated with scholastic achievement (Spreen, 1998). The math section of the PIAT contains 84 questions ranging from recognizing numbers to geometry and trigonometry. The reading comprehension section of the PIAT consists of 84 multiple choice questions ranging from preschool to high school level difficulties that measure a child's ability to draw meaning from sentences (Bureau of Labor, 2011). Beginning in 1986, the PIAT math and reading

were administered biannually to all respondents' children ages five to 15. Depending on their availability and willingness to participate in the NLSY, children in the sample can have up to six PIAT scores. The availability of the dependent variables limits the analysis to even years, from 1986 through 2010.

Table 1 lists summary statistics for the variables. The average PIAT scores for both math and reading comprehension are about 98, which is slightly lower than the national norm.

Unemployment Compensation

Respondents are asked annually about their UI participation (during the previous calendar year) from 1986 through 1994. Beginning in 1996, the NLSY was administered every two years, but respondents were still only questioned about their UI participation over the previous 12 months. As such, beginning in 1994, we have an incomplete history of UI usage. We construct the UI participation variable as a dichotomous indicator of whether the mother received UI in the preceding 12 months[3]. Table 1 indicates that roughly 13.6 percent of eligible mothers received UI benefits from 1986 through 2010.

Child Characteristics

Childhood learning outcomes vary by child characteristics, (Phillips, Brooks-Gunn, Duncan, Klebanov, & Crane, 1998) so the models control for children's sex and health status using indicator variables. Half of the sample children are female and 3.4 percent of the children have a condition that limits her or his usual childhood activities (as reported by the mother). The child's age is also included in the model to control for

[3] The NLSY also asks respondents about household UI receipt. However, the survey does not collect information about the conditions surrounding a job loss that would enable us to establish whether other unemployed household members were eligible to participate in the program. As a consequence, we choose to include only maternal UI participation, rather than introduce another potential source of endogeneity bias.

the imperfect age-adjustment of the exams. The average age of the children in the sample is roughly ten and a half years old.

Home Observation Measurement of the Environment – Short Form (HOME-SF)

The HOME-SF measures the quality of cognitive stimulation and emotional support in a child's family and home environment. The HOME-SF is administered up to eight times. If a child was three years old in 1986, and the mother completed the HOME-SF every two years, the child would have eight valid HOME data points by the time she or he reached 15 years of age in 2002.

NLSY administers a modified version of the original HOME survey, so there is no national norm to be compared. However, internal norms were created by assigning each year of age a standard score mean of 100 and standard deviation of 15 (Bureau of Labor, 2011). The sample children live in homes that have lower values on the HOME than the universe of children surveyed. The cognitive stimulation scores have a mean of 94.1 and a standard deviation of 15.4, while the emotional support mean is 94.7 with a standard deviation of 16.2.

Maternal Characteristics

The models also include controls for mothers' characteristics. The sample mothers are racially and ethnically diverse – 46 percent are African American, 19 percent are Latina, and 35 percent are European American. Mothers are roughly 33 years old and 57 percent are married or cohabitating with a partner. The mean Air Force Qualification Test score, a measure of mothers' aptitude and trainability, is at the 28th percentile, with an overall standard deviation of 24 percentage points. Finally, maternal education is related to child development in the NLSY even when AFQT score is controlled

(Korenman & Winship, 2000). Twenty three percent of mothers have less than a high school degree, 51.6 percent hold a high school diploma, and nearly 26 percent have some education beyond high school. The category capturing education beyond a high school diploma serves as a referent in all of the regression models.

RESULTS

Table 2 presents regression estimates of the effects of UI participation on the academic outcomes. Full regression results are reported in Appendix Tables 1 and 2. Three models are estimated for each case. Model (1) lists the fixed effects estimates, which control for observed mother- and child-specific variables that vary over time, plus controls for all time-invariant unobserved factors and Model (2) presents the instrumental variables estimates, which instrument for UI participation using state program parameters. The results of the table indicate a possible, albeit inconsistent relationship, between UI receipt and childrens' academic outcomes.

Panel A presents the model estimates for the PIAT reading comprehension and Panel B lists the PIAT math results. The fixed effects model in Panel B indicates a positive, statistically significant relationship between UI participation and PIAT math score. The fixed effects model relates a change in the mother's UI participation to a change in the individual child's PIAT score. as a result, the fixed effects coefficient should be interepreted such that a child's math score is 2.3 points higher when her eligible mother participates in UI, than when her eligible mother does not participate.

About 16 percent of the eligible mothers who ever participated in UI did so on a single occasion. Another 49 percent accessed the program two or more times, with an average take-up of two. The fixed effect of UI on PIAT math is about 17 percent of a

standard deviation (or 2.3 points). Dahl and Lochner (2012) estimate that $1,000 of Earned Income Tax Credits raises test scores by about 6 percent of a standard deviation. The sample women in this study who participated in UI received an average annual benefit of $3,809. If the average EITC refund were as large as the average UI benefit, then, according to the Dahl and Lochner estimates, we could expect EITC to raise test scores by about 24 percent of a stadard deviation. We find a more moderate, but still substantive effect size, which is to be expected for a benefit that is more transitory in nature.

Caution should be taken when interpreting these findings. The fixed effects models and the IV models both address the non-random selection into UI, albeit in different ways. We observe a statistical relationship between UI and child academic outcome in only one out of four regression equations that account for this selection bias (the fixed effects estimator in the PIAT Math equation.) With this caution in mind, however, the results warrant further attention to the influence of transient income, such as that attained through UI, on child academic outcomes.

CONCLUSION

Using data from the National Longitudinal Survey of Youth and econometric techniques that control for the non-random selection process into UI participation, we examine if maternal UI receipt during periods of eligible unemployment affects children's reading and math achievement. We begin by including in the sample only those mothers that would have been eligible to receive unemployment, based on the state monetary and non-monetary requirements. The sample of interest then, includes those

eligible mothers that participated in UI, and the comparison group includes those eligible mothers that did not participate in UI.

The statistical analysis incorporated fixed effects and IV models that controlled for different sources of selection and measurement bias. While the results are a whole were fairly inconsistent across estimation strategy, the few statistically significant results indicate that UI participation has positive effects on children's math scores (but not reading comprehension).

In addition to the caution we encourage in interpreting the UI participation effects, we also note other limitations of this work. First, we only consider maternal periods of unemployment and maternal receipt of UI. As a consequence, it is quite likely that these findings provide a lower bound on the effects of paternal participation in UI since historically husband's earnings have comprised a greater share of total household income than wife's earnings.

Finally, there were several important legislative actions from June 2008 through April 2010, that altered the UI program. These legislative actions considerably extended the duration of allowable receipt and increased the program's generosity. However, the time frame of this study does not incorporate the full extent of these important changes that occurred during the Great Recession. The time period (1986-2010) does cover at least the period of extended unemployment benefits that occurred during the early 1990s recession (Woodbury & Rubin, 1997), which eases this concern.

This study informs public policy in important ways. UI is a cash transfer program that is relatively simple to access, unlike TANF, which forces participants to complete extensive requirements for participation. The stringent TANF requirements lead to

unanticipated negative effects on children (Heflin & Kukla-Acevedo, 2011). In contrast, these results suggest that transitory cash assistance programs designed to buffer households from the unanticipated income shock of a job loss may lead to positive achievement outcomes for children.

REFERENCES

Angrist, J. D., & Pischke, J. S. (2008). *Mostly harmless econometrics: An empiricist's companion*. Princeton university press.

Artazcoz, L., Benach, J., Borrell, C., & Cortes, I. (2004). Unemployment and Mental Health: Understanding the Interactions Among Gender, Family Roles, and Social Class. *American Journal of Public Health, 94*, 1, 82-88.

Bollinger, C. & David, M. (2001). Estimation with Response Error and Non-response: Food Stamp Participation in the SIPP. Journal of Business and Economic Statistics, 19(2): 129-141.

Boushey, H. & Wenger, J. B. (2006), Unemployment insurance eligibility before and after welfare reform, *Journal of Poverty*, 10: 3, 1–23.

Coven, M. & Stone, C. (2009), 'Unemployment insurance reforms should be part of economic recovery package: McConnell criticism of part-time worker proposal is misplaced', Center for Budget and Policy Priorities Brief, Washington, DC, available at: http://www.cbpp.org/1-6-09ui.htm.

Currie, J. (2006). The take-up of social benefits. In A. Auerbach, D. Card, & J. Quigley (Eds.), Poverty, the distribution of income, and public policy (pp. 80–148). New York: Russell Sage.

Currie, J. & Cole, N. (1993). "Welfare and Child Health: The Link Between AFDC Participation and Birth Weight." *American Economic Review*, *83*, 971-85.

Dahl, G. B. & Lochner, L. (2012). The Impact of Family Income on Child Achievement. *American Economic Review*, 102, 5, 1927-1956.

Duncan, G. J., Morris, P. A., & Rodrigues, C. (2011). Does Money Really Matter? Estimating Impacts of Family Income on Young Children's Achievement with Data from Random-Assignment Experiments. *Developmental Psychology, 47*(5), 1263-1279.

Ebenstein, A. & Stange, K. (2010). Does Inconvenience Explain Low Take-Up? Evidence from Unemployment Insurance. *Journal of Policy Analysis and Management, 29*, 111–136.

Gundersen, C., & Kreider, B. (2008). Food stamps and food insecurity: what can be learned in the presence of nonclassical measurement error? *Journal of Human Resources*, 43, 352–82.

Holzer, H. J. (2000), 'Unemployment insurance and welfare recipients: what happens when the recession comes?', *Assessing the New Federalism*, Series A, No.A-46,Washington, DC: The Urban Institute.

Jacobsen, L.S., LaLonde, R.J., & Sullivan, D. G. (1993). Earnings losses of displaced workers. *The American Economic Review*, 83, 4, 685-709.

Kalil, A., & Ziol-Guest, K. (2005). Mothers' Employment Dynamics and Adolescent Wellbeing. *Child Development*, 76, 1, 196-211.

Korenman, S. & Winship, C. (2000). A Reanalysis of the bell curve. In Arrow, K., Bowles, S. & Durlauf, S. (eds.) Meritocracy and economic inequality. Princeton, NJ: Princeton University Press.

Ku, I., & Plotnick, R. (2003). Do Children from Welfare Families Obtain Less Education? *Demography*, 40, 151-170.

Lohman, B., Pittman, L., Levine Coley, R., & Chase-Landsdale, P.L. (2004). And developmental outcomes among low-income children and youth. *Social Service Review*, 78, 1, 41-73.

O'Leary, C., & Kline, K. (2010). Use of Unemployment Insurance and employment service by newly unemployed leavers from Temporary Assistance to Needy Families: Final Report (ETA occasional paper 2010-07). Kalamazoo, MI: Upjohn Institute for Unemployment Research.

Oreopoulos, P., Page, M. & Huff Stevens, A. (2008), The intergenerational effects of worker displacement, *Journal of Labor Economics*, 26, 3, 455–483.

Phillips, M., J. Brooks-Gunn, G.J. Duncan, P. Klebanov, & Crane, J. (1998). Family Background, Parenting Practices, and the Black–White Test Score Gap. Pp. 103-145 in *The Black–White Test Score Gap* edited by C. Jencks, and M. Phillips. Washington, DC: Brookings Institution Press.

Rege, M., Telle, K. & Votruba, M. (2011). Parental Job Loss and Children's School Performance. *The Review of Economic Studies*, 78, 4, 1462-1489.

Shaefer, H.L. (2010). Identifying key barriers to Unemployment Insurance for disadvantaged workers in the Unites States. *Journal of Social Policy*, 39, 3, 439-460.

Shaefer, H.L. & Wu, L. (2011). Unemployment Insurance and Low-Educated, Single, Working Mothers before and after Welfare Reform., *Social Service Review*, 85, 2, 205-228.

Spreen, O. (1998). *A compendium of neuropsychological tests: Administration, norms, and commentary*. Oxford University Press.

Stevens, A.H. (1997). Persistent effects of job displacement: The importance of multiple

job losses. *Journal of Labor Economics*, 15, 1, 165-188.

Stevens, A., & Schaller, J. (2011). Short-run Effects of Parental Job Loss on Children's Academic Achievement, *Economics of Education Review*, 30, 2, 289-299.

Wenger, J. B. (2006), 'Public policy and contingent workers', in S. E. Gleason (ed.), *The ShadowWorkforce: Perspectives on ContingentWork in theUnited States, Japan, and Europe*, Kalamazoo, MI: TheW. E. Upjohn Institute for Employment Research.

Woodbury, S., & Rubin, M. (1997). "The Duration of Benefits." In Unemployment Insurance in the United States: Analysis of Policy Issues, Christopher J. O'Leary, and Stephen A. Wandner, eds. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, pp. 211–283.

Wooldridge, J. (2012). Introductory Econometrics: A Modern Approach. (6^{th} Ed.) South-western, New York.

Table 1.
Summary Statistics for the Overall Sample of Eligible Unemployed Mothers
(Standard Deviations in Parenthesis.)

Outcomes of Interest	
PIAT Math Score	98.189
	(13.110)
PIAT Reading Comprehension Score	98.005
	(13.758)
UI (=1 if received in previous 12 months)	13.592%
	(34.277)
Mother's Characteristics	
Less than High School Degree	22.690%
	(41.890)
High School Degree	51.600%
	(49.983)
More than High School Degree	25.566%
	(43.631)
African American[a]	45.775
	(49.830)
Latina[a]	18.986
	(39.226)
European American[a]	35.239
	(47.870)
Age	33.067
	(4.853)
Spouse or Partner	57.174%
	(49.492)
AFQT	27.666
	(24.177)
Child Characteristics	
Health Limitations	3.416%
	(18.167)
Female[a]	49.802%
	(50.009)
Male[a]	50.198%
	(50.009)
Age	10.459
	(2.492)
Environmental Characteristics	
HOME: Cognitive Stimulation	94.152
	(15.437)
HOME: Emotional Support	94.770
	(16.168)
N[b]	2,781

[a] Variables not included in fixed effects regressions because they are time-invariant.
[b] Mother-Child-Year specific observations

Table 2
Fixed Effect and Instrumental Variables Estimates of Participation in Unemployment Insurance on PIAT Reading and Math Scores. (Selected Regression Results.)

	(1) Fixed Effects	(2) Instrumental Variables
A. Dependent Variable: PIAT Reading Comprehension		
UI Participation	0.332	12.289
	(0.958)	(8.037)
Test for Statistical Significance[b]	17.69	933.63
B. Dependent Variable: PIAT Math		
UI Participation	2.328**	-2.883
	(0.903)	(7.626)
Test for Statistical Significance	3.86	761.68
N[a]	2,781	2,781

Notes: Full regression models control for child's gender and health; mother's race, age, income; the home environment, including cognitive stimulating materials and emotional support. Time invariant controls, such as race and gender drop out of the estimation. See Appendices 1-2 for complete coefficient estimates.
Significance levels indicated at ***p<0.01; **p<0.05; *p<0.10
[a] Mother-Child-Year specific observation
[b] Statistics representing statistical significance for the model – F test for Fixed Effects models; Wald test for IV models.

Appendix 1
Fixed Effect and Instrumental Variables Estimates of Participation in Unemployment Insurance on PIAT Reading Comprehension Scores. (Full Regression Results)

	(1) Fixed Effects	(2) Instrumental Variables
UI Participation	0.332	12.289
	(0.958)	(8.037)
Mother's Char.		
Less than High School	-0.191	-3.770***
Degree	(4.247)	(0.883)
High School Degree	-1.852	-1.641**
	(2.902)	(0.626)
African American	---	-1.047
		(0.867)
Latina	---	0.535
		(0.761)
Age	4.531**	-0.126**
	(2.024)	(0.065)
AFQT	---	0.015***
		(0.001)
Spouse/Partner	0.317	0.073
	(1.164)	(0.592)
Child Characteristics		
Health Limitations	-0.915	-0.454
	(1.786)	(1.300)
Female		1.294**
		(0.486)
Age	-6.313**	-1.600***
	(2.057)	(0.098)
Environmental Char.		
Cognitive Stimulation	-0.175	0.011***
	(0.302)	(0.002)
Emotional Support	-0.164	0.002
	(0.256)	(0.002)
N	2,781	2,781

Appendix 2
Fixed Effect and Instrumental Variables Estimates of Participation in Unemployment Insurance on PIAT Math Scores. (Full Regression Results)

	(1) Fixed Effects	(2) Instrumental Variables
UI Participation	2.328**	-2.883
	(0.903)	(7.626)
Mother's Char.		
Less than High School	-6.226*	-2.789***
Degree	(3.819)	(0.846)
High School Degree	-1.796	-2.424***
	(2.631)	(0.578)
African American	---	-3.198***
		(0.819)
Latina	---	-2.306***
		(0.673)
Age	7.163***	0.221***
	(1.990)	(0.059)
AFQT	---	0.015***
		(0.001)
Spouse/Partner	-1.332	0.180
	(1.079)	(0.526)
Child Characteristics		
Health Limitations	-2.098	-2.882**
	(1.664)	(1.171)
Female	---	-0.288
		(0.437)
Age	-7.122***	-0.198**
	(2.018)	(0.082)
Environmental Char.		
Cognitive Stimulation	0.118	0.008***
	(0.271)	(0.002)
Emotional Support	-0.007	0.003**
	(0.229)	(0.002)
N	2,781	2,781