"The Great Recession and Material Hardship"

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Abstract

The Great Recession that began in December, 2007 has been one of the worst recessions in the US since the Great Depression. The Great Recession is likely to have a large impact on the health and well-being of low income families. In addition to lost income and increased poverty due to unemployment, low-income families are likely to experience other material hardships as a result of the economic downturn. Research that has focused on material hardships has generally looked at the relationship between poverty or income and the occurrence of hardship. Little research has looked at the relationship between macroeconomic indicators, like the aggregate unemployment rate, and material hardship. In this paper we examine the effect of aggregate unemployment on individual hardships including: food insecurity, inability to pay for utilities, unmet medical needs, and housing insecurity using the Fragile Families and Child Well-being Study. We also investigate the role that informal and formal safety nets play in mitigating the effects of unemployment on the experience of material hardship.

Introduction

The Great Recession that began in December, 2007 has been one of the worst recessions in the US since the Great Depression. The Great Recession is likely to have a large impact on the health and well-being of low income families. Among families in the lowest 10% of the income distribution, estimates from the Current Population Survey show that unemployment rates were as high as 31% in October-December 2009. In the second lowest income decile unemployment was almost 20% (Sum and Khatiwada, 2010). In addition to lost income and increased poverty due to unemployment, low-income families are likely to experience other material hardships as a result of the economic downturn. Research that has focused on material hardships has generally looked at the relationship between poverty or income and the occurrence of hardship. Little research has looked at the relationship between macroeconomic indicators, like the aggregate unemployment rate, and material hardship.

This paper focuses on the relationship between material hardship –and aggregate unemployment using preliminary data from the first five waves of the Fragile Families and Child Wellbeing Study (Fragile Families)[1]. To our knowledge, it is the first paper to have examined the effect of aggregate unemployment on material hardship, and it is one of the few studies to be able to exploit longitudinal data in order to control for many potential confounders. We examine the effect of aggregate unemployment on individual hardships including: food insecurity, inability to pay for utilities, unmet medical needs, and housing insecurity. Finally, we investigate the role that informal and formal safety nets play in mitigating the effects of unemployment on the experience of material hardship.

Literature on Economic Wellbeing and Material Hardship

Many economists believe that consumption based indicators of economic well-being are superior to income based measures (Citro and Michael, 1995). Measures of income do not always fully capture all the resources that families have to make ends meet. In addition, other sources of income such as government transfers, wealth, and the ability to draw on credit or free services may also aid families in avoiding hardships. Measures of consumption are likely to better capture other sources of income. Material hardship measures are designed to capture forms of foregone consumption that threaten health and well being—such as going without food, housing, or needed medical care. Besides capturing the effects of economic resources that income measures may miss, hardship measures are also heuristically attractive because they measure concrete adversities. Measures of material hardship can provide some perspective on what it means to be poor by measuring families' living conditions (Federman et al 1996). Some researchers have suggested that the general American public is more interested in understanding whether families can obtain basic necessities rather than whether they have a certain level of income (Mayer and Jencks, 1998; Rector, Johnson and Youssef, 1999; Heflin, Sandberg and Rafail, 2009). Meyer and Sullivan (2003) found that those who are income poor are not necessarily the same as those who are consumption poor and that the experience of material hardship is more closely related to consumption poverty than income poverty. Moreover, short-term fluctuations in income have relatively little impact on material hardship once average income is controlled (Short, 2005; Mayer and Jencks, 1989; Iceland and Baumann, 2007). Few researchers

[1] The data used in this paper includes less than half of the total sample and all the findings should be taken as preliminary evidence. We will update this paper, and any findings, once all the data is available.

advocate for the replacement of income or poverty measures in favor of a material hardship measure, but many argue that material hardship measures are a useful complement to other economic well-being measures.

Measures of material hardship were first used in the United States by Mayer and Jencks (1989) in a study of Chicago residents. Since then a number of surveys have included similar measures of material hardship, most notably the Survey of Income and Program Participation (SIPP) conducted by the U.S. Census Bureau. The Fragile Families study includes measures of hardship that are very similar to those collected by Mayer and Jencks and SIPP. In spite of 20 years of use of material hardship measures, there is little agreement on how to operationalize them (Ouellette, Burstein, Long and Beecroft, 2004; Heflin et al. 2009; Beverly, 2001). Some researchers use an index of all material hardships, others look just at a specific hardship (i.e. phone disconnected) and some look at hardship domains such as housing or food hardships. In addition, the number of measures included in studies of hardships varies greatly (Rose, Parish and Yoo, 2009). Despite these discrepancies, most studies of material hardship cover the domains of health, food insecurity, ability to pay bills and housing hardships. Other studies of material hardship that have used the Fragile Families data have used both individual hardship measures as well as aggregate measures (Teitler et al. 2002; Reichman et al, 2005; Schwartz-Soicher, Geller and Garfinkel, 2009; Nepomnyaschy and Garfinkel, 2008). Heflin et al (2009) find that models that separate the domains of hardship are superior to fully aggregated or disaggregated measures of material hardship. We look at both a summary measure of hardship and hardship domains in this paper.

Unlike previous studies of material hardship, we use a measure of the aggregate unemployment rate to assess the effect of macroeconomic indicators on material hardship. This approach allows us to better isolate the effect of an exogenous shock (a change in the unemployment rate) on individual material hardship. Unlike individual unemployment, aggregate unemployment is not affected by an individual's preferences such as the choice to work. Aggregate (city level) unemployment rates affect both individual and family members' probability of employment. Aggregate unemployment may also serve as a proxy for the informal support networks available to the individual: For example, in areas where unemployment is high, an individual's ability to borrow money to avoid hardship may be reduced. On the other hand, it may also mean that other forms of support, such as child care, become more available as more people in a family's social support system lose jobs. Families that regularly experience bouts of unemployment or low income may adjust their expenditures and habits to better avoid material hardships. By using an exogenous shock to the family system we can hopefully better isolate the effect of a change in economic wellbeing on material hardship.

We expect that as aggregate unemployment increases the incidence of material hardships will increase but that some hardships may be more responsive to aggregate unemployment than others. For example, paying utility bills, having sufficient food and the ability to pay rent on time may be more sensitive to the aggregate unemployment rate than homelessness or unmet medical expenses. The former hardships require individuals to purchase or pay for the goods on a regular basis whereas medical expenses may or may not occur in a given month and becoming homeless is likely to take place only after a sustained period of economic hardship (or many months of missed rent). Both Sullivan et al (2008) and Iceland and Bauman (2004) found that food insecurity was more highly affected by recent fluctuations in income or poverty, while Beverly (2001) and Danziger et al. (2000) find that employed respondents are more likely to experience

unmet medical needs. Given these findings, we investigate the relationship between individual dimensions of material hardship and aggregate unemployment to better understand the processes underlying different dimensions of hardship.

It may also be the case that the experience of material hardship is mediated by informal and formal safety nets. The ability to access government aid or programs such as Temporary Aid to Needy Families (TANF) or the Supplemental Nutrition Assistance Program (SNAP) might help families avoid hardships. For hardship domains where government assistance is regularly available (such as Medicaid) the effect of aggregate unemployment on hardship may be less pronounced. However in domains such as utility payments, where government programs are less available, we might see more hardship. Informal networks may also provide assistance in avoiding material hardships. Personal assets such as home ownership or resources such as a line of credit may also mitigate the incidence of hardship (Sullivan et al, 2008). We shall investigate at a number of different sources of both formal and informal support to see how they relate to material hardship.

There are no studies that look at the effect of the business cycle on material hardship measures directly. However a large literature relates the business cycle to income and income based measures of poverty (Blank and Blinder, 1986; Tobin, 1994, Freeman, 2001, Blank, 2010). Theoretically it would seem that as unemployment rises, families are more likely to experience additional hardships. In Elder's case study *Children of the Great Depression* (1999) and Conger's case study of Iowa Farm Crisis (1994), unemployment of individual household members was associated with increases in material hardship. Lovell and Oh (2006) looked at spells of unemployment at the individual level (unemployed at some point during 32 months), continuous unemployment, and continuous employment and found that both spells and continuous unemployment were highly associated with all types of hardship. However, they cannot distinguish between households that choose to become unemployed and those that become unemployed due to an exogenous shock. Our focus on the aggregate unemployment rate, a measure that serves as a proxy for individual unemployment, is not subject to individual preferences for work. Our data also allow us to look at the effect of the aggregate unemployment rate on material hardships over a longer time span, 9 years.

A few studies have also looked at the relationship between employment and hardship. Some descriptive studies of low income families have found that employed individuals are less likely to experience financial and material hardships than those who are not employed (Moffit and Cherlin, 2002; Danziger, Corcoran, Danziger and Heflin, 2000), while others find that employed and unemployed low income families experience similar levels of hardship (Edin and Lien, 1997; Teitler, Reichman and Nepomnyaschy, 2004). In the only study which goes beyond cross-tabs, Bauman (2002) found that working for some months out of the year was associated with increased hardships but that current work and working year round were not associated with hardship, but still fails to isolate the effect of a change or shock to the household as families may adjust their expenditures to their expected level of income.

Data and Methods

Data

We use data from the Fragile Families and Child Wellbeing Study, a sample of approximately 5,000 births in 20 large U.S. cities (in 15 states). Births were randomly sampled between 1998 and 2000 with an oversample of non-marital births. The study is designed to be representative of births in large cities (populations over 200,000). Mothers and fathers were interviewed at the time of the birth of the child and follow-up interviews were conducted when the child was one, three, five and nine years old. The survey is designed to cover questions of parental relationships, economic wellbeing, parenting and child wellbeing. Eighty-nine percent of the mothers who completed baseline interviews were re-interviewed when their children were approximately one year old. Eighty-six percent of mothers who completed baseline interviews were re-interviewed when their children were about 3-years old and 85% were interviewed when their children was about 5-years old. Data for the nine-year old survey is still being collected. These analyses are based on surveys conducted between May 2007 and June 2009. Data collection should be completed by May 2010.

For this preliminary study we have restricted the sample to the first seven cities where interviewing was completed by June 2009. We restricted our analyses to these 7 cities because the sample sizes in the other interview cities were small and because there is some evidence that the early respondents to the survey in each city are more likely to be affluent than respondents that take the survey later. The seven cities include: Oakland, CA, Austin, TX, Baltimore, MD, Detroit, MI, Newark, NJ, Philadelphia, PA and Richmond, VA. The sample for these preliminary analyses is approximately 1,500 cases. We are exclusively using the mothers' survey for all these preliminary analyses. Once data is available we will revise our results to include data from all 20 cities.

Unemployment

We appended information about the monthly unemployment rate to the data set using data from the Bureau of Labor Statistics. The unemployment rate is attached to the mothers' record based on the date of the interview with the mother for the city in which she lives. We use the average unemployment rate over the last year in order to match our key dependent variable which is a measure of hardship over the previous year. We investigated the relationship between the outcome variables and various lags of unemployment and it did not substantively change our results, however we plan to further investigate the lag structure when we have the full data set.

Material Hardship

We created measures of four hardships as well as a summary variable that included 10 hardships. We required that the hardship questions be asked in each survey wave 2 through 5 to be included in our analyses[2]. Hardships that included multiple measures of the same dimension were summed to create an index measure in each of the four domains. All hardship questions refer to the past 12 months. The food hardship measure includes two questions: "In the past twelve

[2] The year 3 survey is missing the question about whether the respondent was ever hungry. In the future we plan to use multiple imputation to fill in that value, however for this paper we have carried forward the value from the previous year's survey. Fewer respondents replied yes to this question in year 1 than in year 5 so we felt it was a more conservative approach. We conducted analyses restricting the summary measure to the 9 questions that were asked in all waves and the results did not change.

months, did you receive free food or meals" and "Were you ever hungry, but didn't eat because you couldn't afford enough food?" The utility hardship variable included three questions: Whether or not "your gas or electric service was ever turned off, or the heating oil company did not deliver oil because there wasn't enough money to pay the bills", "you did not pay the full amount of a gas, oil or electricity bill", or "was your telephone service ever disconnected by the telephone company because there wasn't enough money to pay the bill?" We created two different measures of housing hardship, one that captured housing insecurity, "did you not pay the full amount of rent or mortgage payments" and another that captured homelessness. The homelessness measure included three questions: "Did you move in with other people even for a little while because of financial problems?", "Did you stay in a shelter, in an abandoned building, an automobile or any other place not meant for regular housing, even for one night?" and "Were you evicted from your home or apartment for not paying the rent or mortgage?" Lastly the measure of medical hardship is based on the question "Was there anyone in your household who needed to see a doctor or go to the hospital but couldn't because of the cost?"

Safety net variables

We investigate the relationship between the aggregate unemployment rate and a number of government safety net programs. Respondents are asked if they receive TANF, SNAP, unemployment insurance (UI), Supplemental Security Income (SSI), in the last year. For the Earned Income Tax Credit (EITC), respondents were asked if they filled out a form to receive the credit with their last Federal income tax return. Respondents were also asked if they were currently covered by Medicaid and if they were currently living in public housing project or receiving government aid to pay for housing. These questions are all coded as yes/no responses. We also consider several informal safety net variables that are also coded as yes/no responses. The informal safety net questions include: Whether the respondent borrowed money from friends to pay bills, whether the respondent owns a credit card, whether someone would loan the respondent $200 or $1000, and whether someone would be willing to co-sign a $1,000 loan with the respondent.

Other variables

The main focus of our analyses are the individual fixed effects models. However, the pooled OLS models include a number of basic demographic controls found to be important in other studies of material hardship. Previous research on material hardship has found that marital status is significantly related to the experience of material hardship (Lerman, 2002). Other important predictors of hardship include race/ethnicity, education levels and age (Mayer and Jenks, 1989; Ouellette et al, 2004; Mirowksy and Ross, 1999). We include a measure of mental health as it has been found to explain a lot of the variation in hardship (Sullivan et al, 2008; Heflin and Iceland, 2009) using a conservative measure of the Composite International Diagnostic Interview-Short Form. We also include a control for immigrant status, income-to-needs ratio, city of residence and quarter of interview. All of our control variables are measured at the baseline survey except mental health which was collected at the 2nd wave of the survey (when the child was one) but asks about depression in the last year.

Methods

First we examine the relationship between material hardship and the aggregate unemployment rate using an Ordinary Least Squares (OLS) model where we have pooled all of the waves of data. We estimate the following equation:

$$MH_i = \beta_0 + \beta_1 UE_{agg} + \beta_2 X_i + \varepsilon_i \qquad (1)$$

where MH_i denotes the i'th respondent's material hardship score, UE_{agg} denotes the aggregate unemployment rate over the past year, X_i is a vector of covariates that includes demographic characteristics of the individual, and ε_i is the disturbance term. The β_1 is the main parameter of interest. In addition to the control variables discussed above, model (1) includes quarter of interview.

Our second model includes person specific fixed effects using the following equation:

$$MH_i = \beta_i + \beta_1 UE_{agg} + \beta_2 X_i + \varepsilon_i \qquad (2)$$

Fixed effects models exploit the longitudinal nature of our data and allow us to control for personal characteristics that might be correlated both with residing in an area with higher aggregate unemployment and with suffering from material hardship. For example, if a person is constrained to stay in a high unemployment area (perhaps because they have few social ties elsewhere) then their social isolation may also increase the probability that they suffer from material hardship. In model (2), the only covariate is a measure of interview quarter.

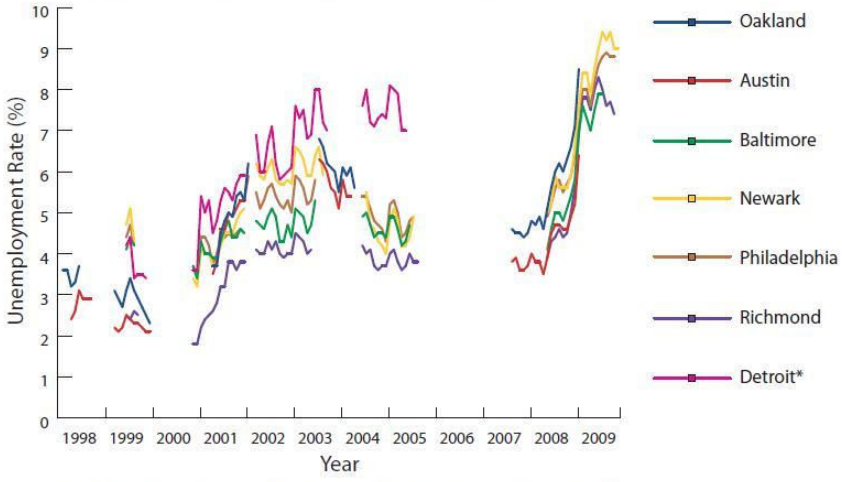
For both models (1) and (2) we tested non-linear functional forms (entering unemployment as a set of dummies and including quadratic terms) and found that the results were very similar. We plan to revisit this issue with the completed data set. We estimate models (1) and (2) for each of the various material hardship measures as well as the summary hardship measure.

Results

Figure 1 shows the unemployment rate over the years in which the survey data was collected in each of the 7 cities in our sample. The gaps in the graph represent the periods when no interviewing took place. Detroit is omitted from the figure for the last wave of data because it was so much higher there than elsewhere it affects the scale of the graph. The unemployment rate in Detroit was approximately 8% in May of 2008 when

interviewing began and increased to nearly 17% when interviewing finished in October 2009[3]. Figure 1 shows a general upward trend in the unemployment rate in all cities in the early 2000's that appears to remain relatively flat through the mid 2000's. But in the latest data collection there is a dramatic upward trend in the unemployment rate over time in all cities, corresponding to the Great Recession.

Figure 1: Aggregate Unemployment During Interviewing



* Detroit's unemployment rate is not shown for the final wave, in which its unemployment ranged from 8.3% in May 2008 to 16.7% in October 2009, with a high point of 17.7% in June 2009.

Table 1 provides descriptive information on material hardships, safety nets, and the demographic characteristics of our sample by different rates of aggregate unemployment. Because the Fragile Family Study focuses on unwed parents, by design three quarters of the sample are unwed parents and consequently the population is highly disadvantaged with the overall average income-to-needs ratio being barely over 200% of poverty. About one third of respondents have less than a high school degree and another third have a high school degree or equivalent. Blacks and Hispanics comprise 2/3rds and 1/5 respectively of the sample.

[Table 1 about here]

Mean levels of material hardship increase with the unemployment rate. For example, the summary hardship measure in areas with less than 4 percent unemployment is 0.95 while in areas with more than 5% unemployment it increases 1.18. TANF receipt appears to be very stable across the unemployment rates whereas the usage of other formal safety net programs increases with the unemployment rate (UI, SSI, EITC, Medicaid). Interestingly, respondents in areas with higher unemployment rates appear to be significantly less likely to receive public housing. Informal safety nets such as borrowing money or potentially borrowing money do not appear to be different across unemployment rates. Owning a credit card is significantly less likely in areas with higher rates of unemployment as is having a potential cosigner for a $1,000 loan.

Results from pooled OLS models (1) and individual fixed effects models (2) of the effect of aggregate unemployment on material hardship are reported in Table 2. This table shows that in general the size of the coefficients on

[3] Note: cases in our sample are only included through June 2009 where the peak unemployment rate was 15% in Detroit.

aggregate unemployment are very similar between the two models. The individual fixed effects model is a more conservative test of the association between aggregate unemployment and hardship because it controls for all fixed characteristics of the respondent, measured and unmeasured. Hence we focus our discussion on those results. However, it is important to note that a few covariates are significantly associated with material hardships in most of the OLS models. Respondents who are single or cohabiting are significantly more likely to report material hardships than those who are married. Depression is also significantly associated with higher levels of hardship. An increase in the income to needs ratio measured at baseline is significantly associated with a decrease in hardship (the exception is medical needs) and in most models, being an immigrant is significantly associated with a decrease in the likelihood of experiencing hardships.

[Table 2 about here]

Turning to the effects of aggregate unemployment, and starting with the summary material hardship measure, we find that a one percentage point increase in aggregate unemployment leads to a 0.084 increase in the summary material hardship measure. As predicted, some hardships appear to be more strongly associated with the aggregate unemployment rate than others. Utility hardships, the inability to pay phone, gas, electric or oil bills or having those utilities cut off, are the most strongly affected. Food insecurity (receiving free food or going hungry) as well as not being able to pay your rent or mortgage are also significantly affected. However, having unmet medical needs or experiencing homelessness is not significantly associated with the aggregate unemployment rate. In the case of medical hardships it may be that safety net programs do a good job of preventing hardship, a hypothesis that is investigated further below. There is no significant effect on homelessness, which may be because it takes the aggregate unemployment rate takes longer to affect homelessness than other outcomes.

[Table 3 about here]

Table 3 shows the results of the individual fixed effects regressions on sources of both formal and informal support (see Appendix Table 1 for pooled OLS results which were very similar). Food stamps (SNAP), UI, SSI, EITC and Medicaid receipt are all significantly associated with the aggregate unemployment rate. The largest effect is on the receipt of EITC: A one percent increase in unemployment is associated with a nearly 4% increase in EITC receipt. The receipt of TANF and public housing are also significantly related to aggregate unemployment rate but both are negative. It is possible that these findings reflect budgetary restraints; funding for these state and local programs may become less available as unemployment increases.

In terms of informal safety net measures, borrowing money is significantly associated with an increase in the unemployment rate while owning a credit card does not appear to be affected. Other informal safety net outcomes measure the potential for assistance. There is a negative relationship between aggregate unemployment and potentially borrowing $200 and having someone cosign a $1,000 loan, but a significant positive relationship with potentially borrowing $1000. The latter is puzzling, but may be explained by some families who would have thought they could not borrow this much having to ask for help and getting it.

As a test to see how formal safety nets may be assisting families in avoiding hardships we created three counterfactual measures. We did this by giving individuals who reported having Medicaid, SNAP, or public housing a point on the relevant hardship measure, if they had not reported a hardship previously. Table 4 shows these results. The coefficient on aggregate unemployment in the regressions for medical hardships increases in magnitude and becomes statistically significant, suggesting that Medicaid may be preventing families from experiencing medical hardship. However, the coefficient on unemployment in the homelessness hardship model continues to be negative and becomes statistically significant. We are not sure why this occurs but it may be because assuming that individuals without public housing would experience homelessness is an unrealistic counter-factual.

Summary and Conclusion

This paper has taken a very preliminary look at the effect of aggregate unemployment on material hardships as well as various safety net measures. Focusing on the aggregate unemployment rate allows us to exploit an exogenous economic shock to the family. To our knowledge, ours is the first analysis to have focused on the relationship between aggregate unemployment and material hardship. A second important contribution is the fact that we can examine the relationship in a panel data context, so that many unobservable characteristics of households that might be correlated with the propensity to experience hardship are controlled.

Our results show that material hardship increases with the aggregate unemployment rate. Moreover, the results are generally very similar in pooled OLS models and individual fixed effects models, which suggests that they are not driven by unobserved characteristics of families. We also find that hardships involving inability to pay utility bills, food insecurity, and housing insecurity are more strongly related to the unemployment rate than homelessness or medical hardship. Our findings are consistent with other research that looks at short term fluctuations in individual unemployment and income and finds a strong effect on material hardship (Iceland & Bauman, 2007, Lovell and Oh, 2006), and suggest that these earlier results are not driven by unobservable characteristics of households that might lead them to become poor or unemployed.

Our results also suggest that safety nets, both informal and formal, may play an important role in mitigating the effects of unemployment on material hardship. While our results are preliminary, they suggest that many governmental safety net programs, with the exception of TANF and public housing, are increasing in usage with the increase in the unemployment rate. This association suggests that families are accessing government services more as the unemployment rate increases and that these services may help reduce the occurrence of material hardships. Our counterfactual estimates suggested that Medicaid may play a particularly important role. Informal safety nets may also be playing a key role in reducing the effect of the aggregate unemployment rate on hardship in that they facilitate the ability of individuals to borrow money to pay bills.

As the rest of the Fragile Families data is collected, we will be able to provide more definitive analyses of the effects of the Great Recession of the material hardships suffered by these low income families. We will expand our analysis by incorporating the role of debt, savings and assets; we will quantify the relationship between individual

unemployment and earnings and our aggregate unemployment measure; we will incorporate data from the fathers' survey, and we will further explore potential non-linearities in the effects of unemployment. We will also continue to try to unpack the relationship between safety nets and hardships.

Table 1: Means on Material hardship, Informal and Formal Safety Net and Control Variables by Aggregate Unemployment

Aggregate Unemployment Rate	Overall (n=5938)	< 4% (n=2,309)	4-4.9% (n=1,787)	5 + % (n=1,842)
Material Hardships				
Aggregate Hardship (0-10)	1.03	0.95	0.97	1.18
Food Hardship (0-2)	0.15	0.13	0.13	0.18
Utility Hardship (0-3)	0.53	0.48	0.52	0.61
Homelessness (0-3)	0.13	0.13	0.12	0.15
Housing Insecurity	0.15	0.14	0.14	0.17
Medical Problems	0.06	0.06	0.05	0.07
Informal & Formal Safety Nets				
TANF	0.23	0.23	0.23	0.24
SNAP	0.41	0.4	0.41	0.43
UI	0.06	0.04	0.06	0.08
SSI	0.06	0.04	0.06	0.07
EITC	0.47	0.41	0.5	0.5
Public Housing	0.17	0.21	0.17	0.15
Medicaid	0.6	0.57	0.61	0.61
Borrow $	0.28	0.29	0.26	0.28
Credit Card	0.39	0.41	0.4	0.37
Potential $200 loan	0.85	0.85	0.84	0.84
Potential $1,000 loan	0.52	0.5	0.53	0.53
Potential cosigner for $1K loan	0.58	0.6	0.58	0.56
Covariates				
Age	25	25	25	25
White	0.13	0.18	0.14	0.12
Black	0.65	0.58	0.71	0.66
Hispanic	0.19	0.21	0.13	0.19
Other	0.03	0.03	0.02	0.03
Less than High School	0.34	0.35	0.33	0.33
HS graduate/GED	0.34	0.32	0.35	0.35
Some college	0.22	0.21	0.22	0.23
College and above	0.1	0.12	0.1	0.09
Immigrant	0.13	0.13	0.11	0.14
Married	0.23	0.24	0.22	0.24
Cohabiting	0.34	0.35	0.35	0.31
Single	0.43	0.41	0.43	0.45
Poverty Ratio (0-12)	2.11	2.13	2.15	2.06
Depression	0.12	0.12	0.11	0.14

Note: Sample is restricted to 7 cities and data is pooled.
All covariates are measured at the baseline survey with the exception of depression which is measured at year 1.

Table 2: Unemployment (12 month average) and Material Hardships. Model 1 (Pooled OLS) and Model 2 (Individual Fixed Effects)

Model	(1) Aggregate Hardship	(2) Aggregate Hardship	(1) Food Hardship	(2) Food Hardship	(1) Utility Hardship	(2) Utility Hardship	(1) Homeless-Ness	(2) Homeless-ness	(1) Housing insecurity	(2) Housing Insecurity	(1) Medical Hardship	(2) Medical Hardship
Unemployment Rate	0.091***	0.084***	0.018***	0.016***	0.058***	0.062***	0.002	-0.002	0.011**	0.008**	0.003	0.003
	(0.018)	(0.015)	(0.005)	(0.005)	(0.009)	(0.008)	(0.005)	(0.005)	(0.004)	(0.004)	(0.003)	(0.003)
Interview Quarter	-0.003	-0.014	-0.005	-0.004	0.001	-0.010	0.002	0.004	0.000	-0.001	0.001	0.000
	(0.020)	(0.018)	(0.006)	(0.006)	(0.011)	(0.010)	(0.006)	(0.006)	(0.005)	(0.005)	(0.003)	(0.003)
Mom's Age	0.000		0.001		0.001		-0.002		0.000		-0.000	
	(0.005)		(0.001)		(0.003)		(0.001)		(0.001)		(0.001)	
Black	-0.003		-0.042		0.057		0.013		0.018		-0.042***	
	(0.097)		(0.025)		(0.052)		(0.019)		(0.020)		(0.015)	
Hispanic	-0.238*		-0.039		-0.064		-0.048		-0.026		-0.055***	
	(0.125)		(0.031)		(0.065)		(0.029)		(0.024)		(0.020)	
Other	0.084		0.026		0.043		0.025		0.030		-0.038	
	(0.204)		(0.056)		(0.091)		(0.045)		(0.041)		(0.027)	
Less than HS	0.100		0.023		0.021		0.051**		0.009		-0.013	
	(0.071)		(0.018)		(0.037)		(0.020)		(0.014)		(0.010)	
Some College	0.071		0.003		0.049		-0.033*		0.056***		-0.007	
	(0.080)		(0.020)		(0.040)		(0.017)		(0.018)		(0.011)	
College +	-0.153		-0.012		-0.074		-0.026		-0.010		-0.031**	
	(0.100)		(0.027)		(0.057)		(0.021)		(0.024)		(0.014)	
Immigrant	-0.225**		-0.058**		-0.110**		-0.074***		0.001		0.021	
	(0.106)		(0.027)		(0.055)		(0.022)		(0.020)		(0.017)	
Cohabit	0.295***		0.068***		0.129***		0.043**		0.020		0.023*	
	(0.084)		(0.021)		(0.045)		(0.018)		(0.019)		(0.012)	
Single	0.204**		0.055**		0.080*		0.035*		0.012		0.013	
	(0.085)		(0.022)		(0.045)		(0.018)		(0.019)		(0.013)	
Poverty Ratio	-0.068***		-0.013***		-0.034***		-0.008***		-0.009***		-0.003	
	(0.012)		(0.003)		(0.007)		(0.003)		(0.003)		(0.002)	
Depression	0.673***		0.132***		0.305***		0.069***		0.082***		0.072***	
	(0.103)		(0.028)		(0.052)		(0.024)		(0.020)		(0.016)	
Constant	0.480**	0.669***	0.119**	0.080***	0.051	0.274***	0.156***	0.131***	0.063	0.108***	0.068**	0.046***
	(0.224)	(0.078)	(0.059)	(0.024)	(0.115)	(0.045)	(0.057)	(0.027)	(0.047)	(0.021)	(0.033)	(0.014)
Observations	5635	5635	5612	5612	5612	5612	5612	5612	5632	5632	5639	5639
R-squared	0.086	0.009	0.041	0.003	0.073	0.014	0.033	0.000	0.025	0.001	0.023	0.000

Standard errors in parentheses – Robust SE's clustered at the individual

*** p<0.01, ** p<0.05, * p<0.1

Note: The Pooled OLS models include city fixed effects not shown here. All controls were measured at the baseline survey with the exception of depression which was measured at the 2nd wave, one year later.

Table 3: Unemployment (12 month average) and Safety Nets.

	TANF	Food Stamps	UI	SSI	EITC	Public Housing	Medicaid	Borrowed $ from friends	Have a credit card	Someone loan you $200?	Someone loan you $1000?	Someone cosign a $1K loan?
Unemployment Rate	-0.011**	0.011*	0.011***	0.010***	0.038***	-0.018***	0.016***	0.009*	-0.008	-0.003	0.010**	-0.008*
	(0.005)	(0.006)	(0.003)	(0.002)	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)	(0.003)	(0.005)	(0.004)
Interview Quarter	-0.007	0.003	0.001	-0.000	0.014**	-0.006	-0.006	0.001	-0.001	0.001	-0.005	-0.002
	(0.006)	(0.006)	(0.003)	(0.003)	(0.007)	(0.005)	(0.007)	(0.006)	(0.006)	(0.005)	(0.006)	(0.006)
Constant	0.299***	0.349***	0.002	0.009	0.253***	0.276***	0.537***	0.237***	0.436***	0.863***	0.491***	0.627***
	(0.024)	(0.028)	(0.017)	(0.011)	(0.030)	(0.028)	(0.026)	(0.027)	(0.025)	(0.018)	(0.026)	(0.024)
Observations	5631	5628	5622	5626	5272	5561	4180	5632	5454	5562	5319	5438
R-squared	0.003	0.002	0.004	0.006	0.019	0.006	0.004	0.001	0.001	0.000	0.001	0.001

Standard errors in parentheses – Robust SE's clustered at the individual
*** p<0.01, ** p<0.05, * p<0.1

Table 4: Unemployment and Hardship - Safety Net Counterfactual

	Food	Homelessness	Medical Needs
Unemployment	0.018***	-0.018***	0.013***
Rate	(0.007)	(0.007)	(0.004)
Interview Quarter	0.001	-0.003	-0.001
	(0.007)	(0.007)	(0.006)
Constant	0.387***	0.377***	0.558***
	(0.031)	(0.034)	(0.023)
Observations	5612	5612	5639
R-squared	0.003	0.003	0.002

Standard errors in parentheses – Robust SE's clustered at the individual
*** p<0.01, ** p<0.05, * p<0.1

Appendix Table 1: Unemployment (12 month average) Rate and Safety Nets. Model 1 (Pooled OLS)

	TANF	Food Stamps	UI	SSI	EITC	Public Housing	Medicaid	Borrowed $ from friends	Have a credit card	Someone loan you $200?	Someone loan you $1000?	Someone cosign a $1K loan?
Unemploy-	-0.008	0.012***	0.013***	0.010***	0.036***	-0.018***	0.017***	0.009*	-0.012***	-0.003	0.010**	-0.004
ment Rate	(0.006)	(0.005)	(0.003)	(0.003)	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)	(0.003)	(0.005)	(0.005)
Interview	-0.004	-0.001	-0.000	0.001	0.005	-0.005	-0.014**	0.006	-0.003	0.000	-0.004	0.000
Quarter	(0.006)	(0.006)	(0.003)	(0.003)	(0.007)	(0.005)	(0.007)	(0.006)	(0.006)	(0.005)	(0.006)	(0.006)
Mom's Age	-0.001	0.000	-0.001*	0.003***	-0.005***	-0.001	0.000	-0.003**	-0.001	-0.002*	-0.001	-0.003*
	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)
Black	0.028	0.089***	0.012	0.005	0.108***	0.093***	0.081***	-0.021	-0.113***	-0.050***	-0.107***	-0.135***
	(0.020)	(0.027)	(0.010)	(0.014)	(0.035)	(0.016)	(0.031)	(0.025)	(0.028)	(0.019)	(0.030)	(0.030)
Hispanic	-0.061**	-0.044	0.009	0.020	0.050	-0.019	0.036	-0.068**	-0.052	-0.015	-0.056	-0.045
	(0.028)	(0.035)	(0.013)	(0.018)	(0.043)	(0.022)	(0.037)	(0.031)	(0.034)	(0.026)	(0.038)	(0.037)
Other	0.034	0.067	0.025	0.039	0.169***	0.036	0.047	-0.016	-0.125**	-0.148***	-0.180***	-0.134**
	(0.041)	(0.049)	(0.024)	(0.025)	(0.061)	(0.036)	(0.055)	(0.053)	(0.058)	(0.050)	(0.061)	(0.063)
Less than HS	0.110***	0.123***	-0.022***	0.019	-0.175***	0.052***	0.080***	-0.021	-0.103***	-0.055***	-0.087***	-0.099***
	(0.020)	(0.022)	(0.008)	(0.013)	(0.024)	(0.017)	(0.021)	(0.019)	(0.019)	(0.018)	(0.023)	(0.024)
Some College	-0.076***	-0.091***	0.004	-0.015	0.011	-0.051***	-0.097***	0.043*	0.103***	0.043**	0.091***	0.019
	(0.018)	(0.024)	(0.010)	(0.012)	(0.026)	(0.016)	(0.026)	(0.022)	(0.024)	(0.018)	(0.028)	(0.027)
College +	-0.040*	-0.140***	0.021	-0.023*	-0.107**	-0.023	-0.216***	-0.013	0.195***	0.061**	0.184***	0.128***
	(0.021)	(0.029)	(0.016)	(0.013)	(0.044)	(0.021)	(0.037)	(0.031)	(0.035)	(0.024)	(0.039)	(0.038)
Immigrant	-0.131***	-0.142***	-0.033***	-0.055***	-0.203***	-0.074***	0.005	-0.037	0.051*	0.002	0.104***	0.057*
	(0.025)	(0.031)	(0.011)	(0.013)	(0.037)	(0.020)	(0.034)	(0.028)	(0.030)	(0.026)	(0.035)	(0.034)
Cohabit	0.076***	0.118***	-0.006	0.024**	0.077**	0.050***	0.151***	0.065***	-0.139***	-0.044**	-0.141***	-0.094***
	(0.018)	(0.025)	(0.010)	(0.012)	(0.030)	(0.014)	(0.029)	(0.022)	(0.026)	(0.021)	(0.031)	(0.031)
Single	0.150***	0.180***	0.003	0.026**	0.007	0.092***	0.235***	0.090***	-0.189***	-0.028	-0.113***	-0.053*
	(0.019)	(0.027)	(0.011)	(0.013)	(0.031)	(0.016)	(0.029)	(0.023)	(0.026)	(0.019)	(0.032)	(0.031)
Poverty Ratio	-0.020***	-0.034***	-0.002	-0.006***	-0.013***	-0.014***	-0.037***	-0.017***	0.038***	0.010***	0.026***	0.022***
	(0.003)	(0.004)	(0.002)	(0.002)	(0.005)	(0.003)	(0.005)	(0.004)	(0.005)	(0.003)	(0.005)	(0.005)
Depression	0.055**	0.062**	0.015	0.025	-0.013	-0.006	0.061**	0.098***	0.017	-0.105***	-0.061**	-0.100***
	(0.023)	(0.027)	(0.011)	(0.016)	(0.028)	(0.019)	(0.026)	(0.025)	(0.023)	(0.024)	(0.028)	(0.028)
Constant	0.357***	0.269***	0.066**	-0.111***	0.383***	0.303***	0.495***	0.302***	0.592***	0.955***	0.610***	0.798***
	(0.057)	(0.066)	(0.028)	(0.034)	(0.073)	(0.049)	(0.069)	(0.060)	(0.065)	(0.055)	(0.074)	(0.072)
Observations	5631	5628	5622	5626	5272	5561	4180	5632	5454	5562	5319	5438
R-squared	0.153	0.198	0.018	0.033	0.103	0.094	0.246	0.045	0.221	0.050	0.140	0.092

Standard errors in parentheses – Robust SE's clustered at the individual

*** p<0.01, ** p<0.05, * p<0.1

Note: The Pooled OLS models include city fixed effects not shown here. All controls were measured at the baseline survey with the exception of depression which was measured at the 2nd wave, one year later.

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