


# More than Money? Job Quality and Food Insecurity among Employed Lone Mother Households in the United States

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*This article examines the relationship between food insecurity and the uncertainty and inadequate financial resources associated with low quality work among lone mother households in the United States. Food insecurity has increased since the start of the Great Recession and is particularly high among lone mother households. Using data from the Survey of Income and Program Participation, I find that mothers who have been employed part-time involuntarily and experienced job loss have an increased likelihood of experiencing food insecurity. This relationship holds even after controlling for multiple measures of household income, suggesting the relationship between low quality work and food insecurity is not solely determined by low financial resources. Results suggest that, to reduce food insecurity among lone mother families, policymakers must address both the low wages and uncertainty associated with low quality employment.*

**Keywords:** Food insecurity, precarious employment, lone mothers, working poor.

## Introduction

Food insecurity is one of the most pressing public health issues in high-income countries (Loopstra and Tarasuk, 2013), including the U.S. (Gundersen *et al.*, 2011). Food insecurity exists when members 'are, at times, uncertain of having, or unable to acquire, enough food for all household members because they had insufficient money and other resources for food' (Nord *et al.*, 2008: 4). In 2019, roughly 11 per cent of US households, or 13.7 million households, experienced food insecurity in the prior year (Coleman-Jensen *et al.*, 2020). The most recent data from Europe shows that food insecurity is not just a problem in the U.S.; between 2017 and 2019, 8 per cent of households experienced moderate or severe food insecurity (FAO, IFAD, UNICEF, WFP and WHO, 2020: 174). Overall, households with children are more at risk of food insecurity than households without children; however, lone mother households are particularly vulnerable. Indeed, in the U.S. in 2019, over one in four lone mother households experienced food insecurity (Coleman-Jensen *et al.*, 2020).

This article adds to the literature on policy and food insecurity by assessing one largely unexplored but potentially important factor driving food insecurity among lone mother households: low quality jobs. Two key characteristics of low quality jobs might lead to food insecurity: low pay and uncertainty. First, the inadequate income generated by these jobs could mean that mothers lack the financial resources needed to purchase

food. Research has found that the majority of lone-parent households in OECD countries are working, but 21 per cent of these employed households are also poor (OECD, 2011). However, existing studies reveal income is a central, but only partial, determinant of food insecurity (Sullivan *et al.*, 2007). This leads to the second characteristic of low quality jobs that might lead to food insecurity: uncertainty. Low quality jobs are associated with uncertainty in tenure, wages, and schedules (Kalleberg, 2011). This uncertainty has been linked with high levels of parental stress (Facey and Eakin, 2010), time scarcity (Albelda, 2011; Caswell and Yaktine, 2013), as well as the disruption of family routines (Wolf and Morrissey, 2017).

To date, government assistance programmes have largely ignored the links between food insecurity, low pay, and uncertainty. These programmes often require a significant investment of time to prove and maintain eligibility (Albelda and Carr, 2014), especially when work hours, income, and schedules change often. Additionally, work activation programmes may actually increase income volatility among these families by reducing the amount of financial assistance given to them for not complying with programme requirements (called a sanction).

I make three specific contributions to the literature on policy and food insecurity. First, although lone mother households are at high-risk of experiencing food insecurity (Coleman-Jensen *et al.*, 2018), most studies look at families or households more generally. This study focuses on lone mother families to better understand the ways that low quality work may lead to food insecurity for this vulnerable group. I focus on lone mother households, rather than lone parent households, because lone parenthood is strongly gendered in the U.S. (Grall, 2020). Second, studies that have focused on lone mother families, low quality work and food insecurity (Coleman-Jensen, 2011) have not paid adequate attention to the role of financial resources. In contrast, this study considers multiple measures of income, including earned income and total income that includes government benefits. This means I can assess the extent to which income provided by government programmes can help moderate the relationship between uncertainty and food insecurity. Last, I update knowledge obtained from studies conducted in the early 2000s by using data spanning from 1998 until 2010. Importantly, this period covers the Great Recession, during which the nature of employment changed (Hipple, 2010; Borowczyk-Martins and Lalé, 2016) and food insecurity became more pronounced (Davis and Geiger, 2017).

## Background

### *Lone mothers and low quality employment*

Kalleberg (2011) asserts that, since the 1970s, employment in the U.S. has become increasingly polarised with more highly-educated workers being rewarded with 'good jobs,' while workers with less education and skills are allocated to 'bad jobs.' These low quality jobs pay low wages, do not provide fringe benefits, are inflexible in work activities, and do not allow workers time to deal with non-work issues. In short, these jobs are 'uncertain, unpredictable, and risky from the point of view of the worker' (Kalleberg, 2009: 2).

One reason that lone mothers are likely to engage in low quality work is that women generally face more disadvantage in the labour market than men (Albelda and Carr, 2014).

For example, women are more likely to be employed in part-time and casual jobs, particularly in low-paying sectors like retail trade and services (Zeytinoglu *et al.*, 2005). Additionally, women are more likely than men to work multiple jobs simultaneously, especially women who have been widowed, divorced or separated (Hipple, 2010). Importantly, these women are more likely than men to state that they are doing so due to economic reasons. Almost one-third of women working multiple jobs usually worked part-time at both, rather than using income from a secondary part-time job to supplement wages from a usual full-time job (Hipple, 2010). In addition to working multiple jobs, women are also more likely than men to work part-time involuntarily, especially in service-related sectors (Borowczyk-Martins and Lalé, 2016). There is mounting evidence, especially in a European context that, even compared to part-time work generally, involuntary part-time work is associated with problematic living standards (Horemans *et al.*, 2016).

Even among women, lone mothers are particularly likely to work in low quality jobs, especially those with low educational attainment. Indeed, evidence from multiple countries show that working does not lift many lone mother families out of poverty (Nieuwenhuis, 2020). Research in the U.S. on lone mothers and paid employment has primarily focused on tracking employment outcomes of women leaving the Temporary Assistance for Needy Families programme (TANF). One of the primary goals of TANF was to encourage mothers to work, through the imposition of work requirements and limiting the time that lone mothers could qualify for cash assistance (London *et al.*, 2004; Edin and Kissane, 2010). Evidence reveals that the women who transitioned into work from this programme mostly entered into low quality and unstable employment (Lein *et al.*, 2005; Moffitt and Garlow, 2018).

#### *Low quality employment and food insecurity*

At least three routes could explain the relationship between these low quality jobs and the high prevalence of food insecurity. First, as described above, low quality jobs may not provide lone mothers with the financial resources needed to purchase adequate food. Second, the uncertainty inherent in these jobs can increase food insecurity through changing levels of economic and time resources, interrupting family routines, and increasing stress and uncertainty in the home (Wolf and Morrissey, 2017: 538). Third, government programmes providing income support to poor families may be ill-suited to meet the needs of families facing employment uncertainty.

#### *Inadequate financial resources and food insecurity*

Existing studies have demonstrated a consistent negative relationship between overall income and food insecurity (Coleman-Jensen, 2011); not having enough money can lead directly to food insecurity as people have to skip or cut back on meals. Yet, the populations that experience material deprivation, such as food insecurity, and those that experience poverty are not always the same (Mitra and Brucker, 2016). Based on their review of literature on food insecurity, Gundersen *et al.* (2011: 287) state that 'what is surprising, perhaps, is the large number of poor households that are food secure and the large number of non-poor households that are food insecure.' Similarly, Rodems and Shafer (2020) document that the majority of families experiencing material hardship are

not poor. For this reason, researchers have considered factors other than income that might influence material hardship, including employment characteristics associated with uncertainty.

### *Uncertainty and food insecurity*

Researchers have examined several aspects of low quality jobs and food insecurity, including uncertainty resulting from income volatility, short job tenures, fluctuating hours, and changing work schedules.

Income volatility is one of the most researched determinants of food insecurity and there is evidence that, compared to high-income families, income volatility is both more common, as well as consequential for child development in low-income families (Hill *et al.*, 2013). There are several aspects of food insecurity that make it particularly sensitive to income changes, instead of simply income levels. First, mothers face continuous pressure to provide food for their families (Heflin and Butler, 2013); unlike the timing of utility bills, which are due at the same time each month, food expenditures must be paid throughout the month. Thus, a sudden drop in work hours might lead to an inability to purchase adequate food (Schneider and Harknett, 2021). Second, even small income fluctuations may improve or worsen food insecurity (Heflin *et al.*, 2007a). Multiple studies establish that households that experience volatility in their incomes have a heightened risk of food insecurity (Gundersen and Gruber, 2001; Leete and Bania, 2010) and that income volatility is most detrimental for families with little assets to draw upon (Guo, 2010; Leete and Bania, 2010).

Along with income volatility, research also suggests that uncertainty related to job tenure, hours worked, and work schedules may also lead to food insecurity – as employment instability is linked to increased stress and disrupted family routines. Routines are important in food provision as it involves not only purchasing food, but also ‘food acquisition, storage, preparation, service, and cleanup, and organisation and coordination of time, tasks, and household eating schedules’ (Jabs *et al.*, 2007: 18). Mothers need both the time and energy to carry out all of these tasks, and fitting family responsibilities into changing schedules, juggling the schedules of multiple jobs, or combining work with searching for other job opportunities may lead to both decreased time and increased stress among these mothers.

Qualitative researchers have closely examined the ways that families describe the relationship between their work and food choices ( Devine *et al.*, 2003; Devine *et al.*, 2006; Blake *et al.*, 2009; Bowen *et al.*, 2019), including coping mechanisms that involve managing with limited financial resources, as well as time constraints. Overall, mothers coping with limited financial resources rely on a variety of strategies to avoid food hardship, including going to food banks, receiving help from their social networks, as well as making changes to their diets like buying less expensive food and cutting back meals (Heflin *et al.*, 2007b). Looking specifically at work characteristics, Blake *et al.* (2009) find that mothers with ‘stressful’ work, with nonstandard or irregular shifts, make food that is not as nutritious to save time. These mothers also report sometimes skipping meals because they do not have the time or energy to cook. In another study, low-wage employed parents report the fatigue and stress caused by balancing work and the nutritional demands of their families (Devine *et al.*, 2009). They also recount skipping or simplifying meals.

Some quantitative studies explore the relationship between low quality jobs and families' ability to provide food for their families. Using a sample of households from Los Angeles, Sheely (2010) finds that families involved in low-wage employment were able to consistently maintain breakfast and dinner routines, regardless of whether their jobs provided low wages, had too few work hours, were unstable, or if respondents had to work multiple jobs. Similarly, Heflin *et al.* (2007a) demonstrate that hours worked and number of job losses are not significant predictors of food insecurity. Although these studies suggest that work characteristics do not influence food insecurity, a study using nationally representative data from the US documents that female-headed households were more likely to experience food insecurity when mothers worked jobs with hours that varied week-to-week, worked part-time and had multiple jobs (Coleman-Jensen, 2011). Highlighting the importance of temporal precarity, a study of service sector workers finds that those who experience last minute shift cancellation and timing changes, as well as workers with fluctuating work hours are more likely to experience hunger (Schneider and Harknett, 2021).

#### *Government programmes, uncertainty, and food insecurity*

The third way that uncertainty caused by low quality work could be linked to food insecurity is through mothers' interactions with government programmes. To date, these programmes have largely ignored the links between food insecurity, low pay, and uncertainty. Regarding lone mother households, the primary focus of work activation policies, such as TANF, has been to encourage mothers to work (Immervoll and Scarpetta, 2012). This focus ignores the fact that most lone mothers may only be able to obtain low quality jobs that will not provide them with an income high enough to avoid food insecurity (Lein *et al.*, 2005; Nieuwenhuis and Maldonado, 2018). Additionally, many work activation programmes have provisions that decrease the amount of financial support recipients can access for failure to comply with work and other requirements (i.e. sanctions). There is evidence that sanctions are directly associated with material hardship among families (Reichman *et al.*, 2005), including food insecurity (Kalil *et al.*, 2002; Lee *et al.*, 2004).

Additionally, programmes often require a significant investment of time to prove and maintain eligibility (Albelda and Carr, 2014). For example, in the U.S., the Supplemental Nutrition Assistance Programme (SNAP) provides additional income support for people with which they can purchase food. To receive SNAP, recipients must provide documentation to prove eligibility, as well as submit further documentation and meet with case managers to stay in the programme. As stated by Albelda (2011), meeting these demands is complicated for mothers seeking to balance work and care responsibilities, which leads to both income and time poverty.

## **Methods**

The primary purpose of this article is to test whether food insecurity among lone mother households is related to the uncertainty associated with low quality work. A secondary purpose is to evaluate whether the relationship between uncertainty and food insecurity remains after controlling for income from paid employment and from government assistance programmes. In this section, I describe the approach and data.

### *Analytical strategy*

Using a series of logistic regression models, I assess the relationships between low quality work, income and food insecurity in two ways. First, I assess the relationship between food insecurity and several work characteristics associated with uncertainty: earnings volatility, working multiple jobs simultaneously, involuntary part-time work, and job loss. Second, I evaluate whether, after controlling for maternal and household characteristics including various forms of income, there are significant associations between each work characteristic and food insecurity. Estimates are generated using cluster-robust standard errors, whose goal is to correct for potential bias from within-state correlation and heteroscedasticity (Bryan and Jenkins, 2013).<sup>1</sup> Clustered standard errors do not directly capture the effects of state-specific differences in labour market policies like minimum wages and right-to-work laws, or the generosity of state programmes. However, much of the effects of these differences will be incorporated into individual-level predictors. For instance, state-level differences in welfare benefit levels will be reflected in individual incomes. Year fixed effects are also included to control for any changes across time. Results are presented as expected probabilities, or average marginal effects, given the fact that it is not possible to compare odds ratios across models (Mood, 2010), as well as to ease the interpretation of results.

### *Data*

This study uses data from the 1996, 2001, 2004 and 2008 panels of the Survey of Income and Program Participation (SIPP) (United States Bureau of the Census, 2003, 2006, 2009). Although more recent SIPP data are available, I restrict the analysis to earlier panels due to substantial changes in data collection that started with the 2014 SIPP (United States Bureau of the Census, 2013). Each panel of SIPP is composed of a nationally representative stratified sample of the civilian noninstitutionalised population of the US. Respondents in each panel were interviewed every four months for approximately three to four years, which is called a Wave. In each Wave, information is gathered on respondent demographics, household composition, income, labour force participation, work history and their participation in various government programmes. Along with information about these core variables, additional questionnaires called 'topical modules' are included in some Waves to gather information on specific topics, such as measures of work schedules, disability, assets, and food insecurity. In this study, I use data from the Wave that included the topical module on food insecurity in each panel. Thus, measures of food insecurity are from 1998, 2003, 2005, and 2010.

At each interview Wave, respondents are asked a set of questions about the current reference month, as well as the prior three months. Since respondents have been shown to more accurately recall recent information (Moore, 2007), data were only used from the most recent reporting month (known as the 'reference month').

SIPP is the ideal data set to use for this analysis for several reasons. First, given the panel structure of SIPP, it is possible to assess variables that change across time, including income volatility and job loss. Second, compared to eight other nationally representative surveys in the U.S., research has found that SIPP does a superior job of measuring the income of low-income households (Czajka and Denmead, 2008). Third, the timing of SIPP data collection meant that it was possible to assess the relationship between low quality jobs and food insecurity over a long time period.

However, using SIPP has limited the variables used in the analysis due to the timing of different topical modules. Importantly, questions on assets and work schedules were not asked at the same time as food insecurity. This means I cannot examine the relationship between food insecurity, assets, whether mothers worked nonstandard shifts, or had changing work schedules.

The sample for this analysis is composed of lone mothers between the ages of eighteen and sixty-four who have worked in the past month. Analysis was restricted to lone mothers who are currently working, as information on employment characteristics were only collected for this group. Additionally, to ensure that changes in income were due to employment changes rather than other changes in the family, only mothers who were single during the year prior to the measurement of food insecurity were included. Last, following the advice of Dahl and colleagues (2014), the sample is restricted to mothers without imputed earnings and income data. Indeed, studies have found that imputing income data leads to biased estimates of income volatility, especially among respondents with low incomes (Leete and Bania, 2010; Dahl *et al.*, 2014).<sup>2</sup>

These restrictions lead to a total sample size of 5,881 lone mothers.

## Measures

### Food Insecurity

Food insecurity is assessed through a series of questions asking how often in the past four months the respondent: 1) bought food that did not last and did not have enough money to buy more (often true, sometimes true, never true); 2) could not afford to eat balanced meals (often true, sometimes true, never true); 3) cut the size of or skipped their meals because there was not enough money for food (yes, no); 4) ate less than thought they should because there was not enough money for food; and 5) did not eat for a whole day because there was not enough money for food (yes, no). I classify households as food insecure if they answered 'yes' or 'often true' or 'sometimes true' to at least two of the five questions. This measure is a shortened version of the United States Department of Agriculture's food insecurity module, which has been widely used in research on food insecurity using SIPP (for example, Leete and Bania, 2010; Rodems and Shaefer, 2020). While the dichotomous measure of food insecurity created using this shortened measure has been shown to be a reasonable substitute for the more detailed eighteen-item official US food insecurity measure, it cannot be used to measure child food insecurity within households (Bickel *et al.*, 2000). Sample size also limited my ability to look at the severity of food insecurity. As highlighted by Balistreri (2016), capturing only the prevalence of food insecurity instead of its depth can mask important differences in populations that are food insecure.

Work characteristics associated with uncertainty. Four variables are used to capture the uncertainty associated with low quality jobs. First, to assess *earnings volatility*, I calculate the coefficient of variation in earnings by dividing the standard deviation of annual earnings by average annual earnings. The coefficient of variation is commonly used in research on this topic (Rodems and Shaefer, 2020). Second, given qualitative research showing the difficulty mothers face seeking to approximate full-time work by piecing together multiple jobs (Lein *et al.*, 2005), I include a variable assessing whether the mother *worked multiple jobs simultaneously* during the reference month. Third,

*involuntary part-time work* measures whether or not a respondent worked part-time due to either not being able to find a full-time job or due to slack work or material shortage at sometime during the Wave. Qualitative studies suggested that mothers with inadequate hours or wages will be engaged in constant job search at the same time they are working (Lein *et al.*, 2005), which will again limit the time and energy needed to provide food for their families. Last, I also construct a variable measuring whether or not a mother experienced at least one period of *job loss* in the past year.

### Income

To account for different sources of income, I measure the income of lone mother households in three different ways. First, I create a *logged total earnings* that includes income gained from employment. This allows me to assess whether higher earnings can moderate the uncertainty of employment. Second, I use a *logged total monthly income* variable included in SIPP that incorporates income received by mothers before taxes from sixty different sources, including earned income, cash transfer payments, lump-sum and one-time payments, as well as regular salary or other income from self-employment, property incomes, and interest received on assets. Importantly, this measure includes income from SNAP, whose specific goal is to reduce food insecurity in low-income and poor households. It is important to note that this measure does not include income from support networks or non-interest earning assets, such as savings accounts. Comparison between the *total income* and *total earnings* variables gives some insight into the extent that government programmes moderate the relationship between uncertainty and food insecurity. Last, in order to allow a non-linear relationship between income and food insecurity, I use a *categorical total income* variable that includes three categories based on the US Poverty Guidelines: less than the Federal Poverty Level (FPL); 101-200 per cent FPL; and > 200 per cent FPL. All income variables are adjusted for inflation to 2010 values.

### Maternal characteristics

I include controls for a set of demographic variables that have been linked to a higher risk of food insecurity and job quality: age, race/ethnicity (African American) and whether the mother has a University degree (Coleman-Jensen, 2011; Potochnick, 2016).

### Household characteristics

The *number of children* and the *age of the youngest child* in the household are also included in the analysis. *Assets* are measured based on whether the home in which the household resides is being bought or currently owned by someone in the household (*homeowner*). Although a more detailed measure of assets would be preferable, as mentioned above, questions about assets were included in a topical module that did not align with the measurement of food insecurity. Last, I also include a variable assessing whether or not household members live in a *metropolitan area*, given the documented differences between urban and rural areas in living costs and access to food resources (Dean and Sharkey, 2011).



Table 1 Characteristics of employed lone mother households Mean (SD) or %, by work characteristic

	Multiple jobs	Involuntary part-time	Job loss	Employed lone mothers
Food insecure	21.97	31.84	28.15	18.44
Coefficient of variation:	47.38 (1.87)	63.67 (2.29)	94.90 (2.53)	39.10 (0.55)
Earnings				
Income				
Earnings	3368.19 (126.44)	2119.53 (118.10)	2133.56 (134.56)	3365.39 (43.38)
Income	3859.15 (139.28)	2534.04 (131.09)	2648.38 (138.66)	3831.65 (43.44)
Income levels				
In poverty	20.54	49.66	45.97	21.08
100-200% FPL	28.91	28.41	28.87	30.13
>200% FPL	50.55	21.93	25.16	48.79
Maternal characteristics				
Age	34.81 (0.44)	32.94 (0.42)	31.37 (0.40)	34.76 (0.13)
Black	24.83	31.80	36.73	30.45
Degree	17.78	6.01	7.63	13.40
Household characteristics				
Number of children	1.59 (0.04)	1.65 (0.04)	1.63 (0.04)	1.62 (0.01)
Age youngest child	8.36 (0.27)	6.91 (0.23)	6.19 (0.24)	7.75 (0.07)
Homeowner	41.64	28.10	25.72	42.45
Metropolitan area	81.74	81.45	83.24	82.91
% Employed lone mothers	9.12	9.41	9.37	100
Unweighted sample size	557	549	562	5,881

Source. Authors' analyses of 1996, 2001, 2004, and 2008 panels of the SIPP. Note. Estimates are weighted. Observations belong to the fourth reference month. The household reference person must be aged 18 to 64 years old, not have imputed data, and been a single parent for the past year. Data from the following waves: 1996 W8, 2001 W8, 2004 W5, 2009 W6. These are the waves in which information on food insecurity were collected. Income variables are adjusted for inflation to 2010 values.

## Results

### Descriptive results

The characteristics of the sample of employed lone mothers included in the analysis is displayed in Table 1. Looking at levels of food insecurity in Table 1, around 18 per cent of these households experienced food insecurity. Lone mothers engaged in any type of uncertain work have higher levels of food insecurity than employed lone mothers more generally. However, there are important differences based on the specific work

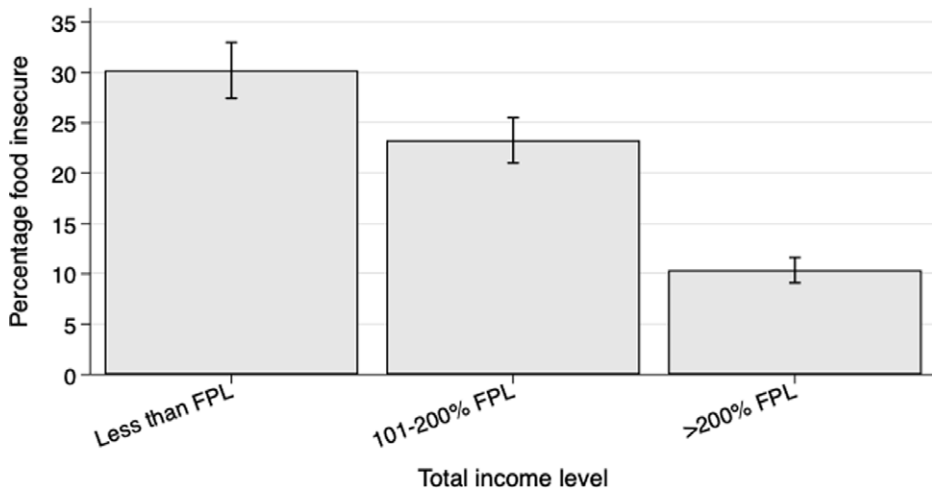


Figure 1. Percentage of employed lone mothers experiencing food insecurity, by income level.  
 Source. Author's analysis of 1996, 2001, 2004, and 2008 panels of SIPP.  
 Note. N=5,881. Estimates are weighted. FPL refers to US Federal Poverty Guidelines.

characteristic. Mothers engaged in involuntary part-time work seem particularly susceptible to food insecurity; nearly one-third of these mothers lived in food insecure households. Over one-quarter of employed lone mothers who experienced a job loss in the past year were food insecure.

Overall, the incomes of employed lone mothers are low; the average monthly income of employed lone mothers was \$3,365, while the average earnings of all employed people during the same period was \$5,984 (results available upon request). There are important income differences between employed lone mothers with different work characteristics; mothers who work at multiple jobs have lower levels of earnings volatility and higher earnings and incomes than mothers who work part-time involuntarily or who have experienced a job loss. Mothers who engage in involuntary part-time work have the lowest incomes of employed mothers in the sample; nearly half of these mothers live in poverty. Earnings volatility is, expectedly, highest among mothers who have experienced a job loss.

Comparing earnings to income from all sources demonstrates the importance of other income sources for these mothers. Although most of employed lone mothers' income came from earnings, mothers added \$466 per month from other sources, including government benefits. However, there are important differences between groups of mothers, based on the type of uncertain employment they hold. While the total income of mothers who experienced a job loss is \$515 more than their earnings, the difference for mothers who work part-time involuntarily was only \$414.

Figure 1 presents estimates of the percentage of lone mother households who are food insecure by their level of total income. There is a negative relationship between income and food insecurity; while around 30 per cent of lone mothers living in poverty experience food insecurity, the same is true for only 11 per cent of lone mothers whose incomes are greater than 200 per cent FPL. Importantly, results also show that food insecurity is not

Table 2 Average marginal effects for experiencing food insecurity among employed lone mothers, by measure of job uncertainty and income measure

	Coefficient of variation: Earnings	Multiple jobs	Involuntary part-time	Job loss
No income control	0.0006 *** (0.0001)	0.0419* (0.0212)	0.1142*** (0.0223)	0.0802** (0.0209)
Logged current earnings	0.0003 (0.0001)	0.0396 (0.0216)	0.0825** (0.0233)	0.0638* (0.0236)
Logged current income	0.0003 (0.0001)	0.0415 (0.0216)	0.0812** (0.0227)	0.0514* (0.0210)
Current income level	0.0003 (0.0001)	0.0413 (0.0217)	0.0743** (0.0215)	0.0487* (0.0199)

Source. Author’s analyses of 1996, 2001, 2004, and 2010 panels of the SIPP.

Note. N=5,881 for all models. Estimates are weighted and standard errors are clustered by state. All models include controls for maternal age, ethnicity, and educational attainment. Models also include household controls about the number of children, the age of the youngest child, homeownership, and urban residence. Year dummy variables are also included in models.\*  $p \leq 0.05$ ; \*\*  $p \leq 0.01$ ; \*\*\*  $p \leq 0.001$

solely concentrated among poor families. Further analyses show that nearly two-thirds of employed lone mothers who are food insecure have incomes above the FPL.

*Low quality work, income, and food insecurity*

Table 2 presents results about the overall relationship between work characteristics and food insecurity, as well as how this relationship changes when controlling for different types of income.<sup>3</sup> As seen in row 1, without any income controls, engaging in any type of uncertain employment is associated with an increased probability of experiencing food insecurity. Among lone mothers, working at multiple jobs simultaneously is associated with a 4 percentage point increase in the likelihood of experiencing food insecurity, while involuntary part-time employment is associated with an 11 percentage point increase and job loss is associated with an 8 percentage point increase.

In the second row of Table 2, I assess whether earned income helps to moderate the relationship between low quality work and food insecurity. Results show that earnings volatility and working multiple jobs simultaneously are no longer significantly associated with food insecurity, after controlling for different income measures and other factors. However, involuntary part-time employment, and experiencing a job loss are still associated with an increased likelihood of experiencing food insecurity.

To assess the extent to which income from sources other than earnings, including government financial assistant, moderates the relationship, I control for total income in rows 3 and 4 of the table. In row 3, total income is measured as a continuous variable. In row 4, income is broken down into categories based on the US Federal Poverty Guidelines (FPL). Regardless of how total income is measured, results show that these relationships between involuntary part-time employment and job loss remain even when controlling for

total income. Looking at the last row of the table, involuntary part-time employment is now associated with a 7.4 percentage point increase in food insecurity, while job loss is associated with a 4.9 percentage point increase. Although originally related to food insecurity, earnings volatility, measured as the coefficient of variation, does not remain statistically significant once measures of income are included in the model.

#### *Robustness checks: checking for health control*

As a robustness check, I assessed whether physical and mental health status should be included as control variables. Questions around maternal physical and mental health status were not consistently measured at the same time as food insecurity, which could potentially be important given some research documenting the relationship between maternal mental health and food insecurity (Heflin *et al.*, 2007a). However, it is important to note that multiple studies have documented that low quality employment leads to poor health (see Benach *et al.* (2014) for a review). In this case, health is an important mediator through which low quality employment influences food insecurity. By including health in the model, it would be possible to misleadingly control away the association between low quality work and food insecurity (Rohrer, 2018). To test the potential importance of health as a mediator or a confounding variable, I examined whether the relationship between low quality employment and food insecurity changed when I included variables measuring: whether the mother reported being in fair or poor health; had a physical impairment; and had a mental impairment. It was only possible to include these variables in the 2001, 2004, and 2008 panels of SIPP. Results show that, within this more restricted dataset, findings were consistent regardless of whether overall health, having a physical impairment, or a mental impairment were included. However, some of the results changed from those presented here as the lone mothers from the 1996 panel were dropped from the analysis (results available upon request). I have decided to stay with the analysis presented here to capture the relationship between low quality work and food insecurity over a longer period of time.

## **Discussion**

This study assesses the relationship between food insecurity and work characteristics associated with low quality jobs among employed lone mother households in the U.S. I investigate the assertion that low quality jobs can lead to food insecurity by limiting financial resources, as well as increasing stress and uncertainty in the home. Specifically, I assess how the association between low quality employment and food insecurity is shaped by financial resources.

Results support the idea that uncertainty is associated with increased food insecurity. Before controlling for income, earnings volatility, working multiple jobs, involuntary part-time work and job loss are all associated with higher rates of food insecurity. These results support prior research showing that, regardless of the direction of change, income changes disrupt family functioning by making it harder for families to plan based on their economic circumstances (Wolf and Morrissey, 2017). Additionally, lone mothers who engage in involuntary part-time work and those who have lost jobs may struggle to balance their current familial and employment obligations with the additional burden of searching and applying for better jobs. In short, these types of jobs may lead to additional mental and

time burdens on these mothers, making it difficult for them to maintain family routines (Hill *et al.*, 2013). Importantly, job loss and involuntary part-time employment were associated with food insecurity even after controlling for current income that included income from earnings, as well as from government benefits. Overall, these results bring into question the idea that mothers with more financial resources will be better able to cope with the negative consequences of low quality employment by purchasing their way out of uncertainty with higher incomes (Albelda, 2011).

It is important to note that these results are only suggestive for at least four reasons. First, it is possible that the lone mothers in this study have unmeasured characteristics that are related both to their likelihood of engaging in low quality employment and experiencing food insecurity. Unfortunately, based on the structure of SIPP data collection, it was not possible to use measurements on individuals over time to control for these unmeasured characteristics (Allison, 2009). Information on food insecurity was only collected once in the 1996 and 2001 panels. Although, questions on food insecurity were included twice in the 2004 and 2008 panels, there was only about one year between measurements. Given the limited change in the key variables of interest in this short time period, calculating fixed effects models was not possible. Second, the time frame for the measurement of the variables is not always the same. While food insecurity questions asked respondents about the prior four months, employment and income questions referred to the prior month. Thus, it is possible that the household experienced food insecurity prior to engaging in low quality employment. Third, while the total income variable includes income from many different sources, families may still seek support from other sources to help them avoid food insecurity, including support networks and charitable organisations like food banks (Heflin *et al.*, 2007b; Gundersen and Ziliak, 2018). Last, the decision to only include mothers who are currently employed may influence the generalisability of the findings. Specifically, excluding mothers who have lost their jobs in the current Wave of data collection means the relationship documented does not assess the immediate instability that occurs right after a mother loses her job.

Despite these limitations, study findings lead to clear implications for governmental policies, the income from which is shown to reduce – but not eliminate– the relationship between low quality work and food insecurity. First, programmes providing financial assistance to families should take into account the uncertainty in time and income faced by these mothers due to their working conditions. For example, some states have extended the time before mothers have to recertify for SNAP or have reduced or eliminated the face-to-face interviews needed to establish and maintain programme eligibility (Zedlewski *et al.*, 2012).

Second, government work activation policies that couple increased demands on mothers to search for employment with financial sanctions should be restructured. As with income support policies, policymakers should seek to reduce the administrative burden associated with establishing and maintaining eligibility. However, it is also important to recognise that sanctions increase the uncertainty in income with which these families must cope. Indeed, research has suggested a clear link between financial sanctions and food insecurity (Kalil *et al.*, 2002; Lee *et al.*, 2004; Reichman *et al.*, 2005).

Last, results showing the enduring relationship between income and the likelihood of experiencing food insecurity suggest that US policymakers should follow the example of other OECD countries and adopt a child allowance policy, which provides a guaranteed monthly payment to all families, regardless of their employment status. Since a monthly

income is guaranteed, the administrative burden of these programmes is low. Additionally, research has shown that these policies can both reduce poverty (National Academies of Sciences, Engineering, and Medicine, 2019) and income volatility among all families (Shaefer *et al.*, 2018), but can be especially effective at reducing poverty among lone parent families (Maldonado and Nieuwenhuis, 2020). Recently, the U.S. has moved toward implementing a child allowance, although temporarily. Under the American Rescue Plan Act of 2021, the government extended the existing Child Tax Credit programme to reach more families, provide monthly benefits, and increase the amount of benefits that families receive. The Child Tax Credit expansion has some important differences from child allowance policies as not all families are covered – immigrant children and those from high-income families are excluded – and the extension only lasts for one year. Despite these differences, an early evaluation of the Child Tax Credit expansion suggests that in its first month, the programme kept around 3 million children out of poverty (Parolin *et al.*, 2021).

Overall, study results suggest that it is only through a combination of policy changes that address both the low income, as well as the uncertainty, that accompany the jobs worked by lone mothers that policymakers can hope to reduce food insecurity in this vulnerable group.

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### Supplementary material

To view supplementary material for this article, please visit <https://doi.org/10.1017/S1474746421000877>.

### Notes

1 Another way to account for mothers being clustered, or nested, in states would be to calculate multilevel models. A strength of multilevel models is that it is possible to not only adjust standard errors to account for the clustering of observations, but also to assess how much of the variation in food insecurity can be attributed to differences between mothers (individual-level) and to differences between states (state-level). Since the focus of the analysis is on individual-level work characteristics not on state policies, I decided to cluster standard errors instead of using multi-level models.

2 Table A5 in the Appendix displays the sample characteristics of employed lone mothers with and without imputed data. While characteristics are roughly similar, mothers with imputed data have slightly more volatile incomes. Table A6 in the Appendix compares the main study results for mothers with and without imputed data. The results are largely the same. However, in models without an income control, the estimate of the relationship between income volatility and food insecurity is smaller and working multiple jobs is not statistically significant.

3 Tables 1-4 in the Appendix show full regression results for these models.

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