



CAN RAISING THE MINIMUM WAGE REDUCE POVERTY AND **HARDSHIP?**

Joseph J. Sabia
San Diego State University

Robert B. Nielsen
University of Georgia

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**Employment
Policies**

INSTITUTE

New Evidence from the Survey of
Income and Program Participation

The Employment Policies Institute (EPI) is a nonprofit research organization dedicated to studying public policy issues surrounding employment growth. Among other issues, EPI research has quantified the impact of new labor costs on job creation, explored the connection between entry-level employment and welfare reform, and analyzed the demographic distribution of mandated benefits. EPI sponsors nonpartisan research that is conducted by independent economists at major universities around the country.

Dr. Joseph J. Sabia is an Assistant Professor of Economics at San Diego State University. His fields of concentration include health economics, labor economics, economic demography, and applied microeconomics. Dr. Sabia's research focuses on the human capital effects of adolescent risky health behaviors, the poverty effects of minimum wage policy, and the impact of welfare reform on non-marital childbearing. His work has appeared or is forthcoming in such journals as the *Journal of Health Economics*, *Economic Inquiry*, *Industrial and Labor Relations Review*, *Southern Economic Journal*, and the *Journal of Policy Analysis and Management*. His article with Richard Burkhauser on a proposed \$9.50 minimum wage won the prize for best article of the year in the *Southern Economic Journal*. Dr. Sabia's research on minimum wage policy has been cited in such media outlets as *The New York Times*, *The Wall Street Journal*, and *USA Today*. He has also testified before the U.S. Senate Finance Committee on this topic. Dr. Sabia is a member of the American Society of Health Economists, the American Economic Association, and the Association for Public Policy Analysis and Management.

Dr. Robert B. Nielsen is an Assistant Professor of Consumer Economics at the University of Georgia. His fields of concentration include individual and family economic well-being and the quantitative methods used to estimate these constructs. In particular, his research focuses on the prevalence and use of insurance, accessing medical care, the effects family financial strategies have on the well-being of family members, and the methods by which researchers and policy makers gather and evaluate this information. Dr. Nielsen's research appears in numerous research journals, including *Journal of Family Issues*, *Journal of Consumer Affairs*, *Journal of Personal Finance*, *Journal of Financial Counseling and Planning*, *Journal of Poverty*, *Journal of Consumer Policy*, *Journal of Family and Economic Issues*, and *Family & Consumer Sciences Research Journal*. In addition, Dr. Nielsen serves as an associate editor of *Family & Consumer Sciences Research Journal* and as an editorial board member of the *Journal of Consumer Affairs*.

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I N S T I T U T E

1090 Vermont Avenue, NW
Suite 800
Washington, DC 20005



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New Evidence from the Survey of Income and Program Participation

Executive Summary

In 2011, the Census Bureau reported that the country's poverty rate was 15.1 percent—the highest rate in nearly 20 years. One policy prescription for this problem is an increase in the federal minimum wage. It's an intuitive thought: Raise the wages of the lowest paid workers, and poverty rates are sure to fall.

Unfortunately, the empirical evidence hasn't borne this out. Instead, multiple studies have demonstrated little to no relationship between a higher minimum wage and reductions in poverty.

Economists have identified three confounding factors: First, many people living in poverty don't work and thus cannot benefit from a higher wage; second, a large number of minimum wage earners are not living in poor families; finally, raising the minimum wage can have the unintended consequence of reducing demand for the least-skilled employees.

But in the debate over the minimum wage, this evidence on poverty is often discarded in favor of powerful claims

about families in hardship. For instance, when then-Senator Obama was campaigning for President, he called for a minimum wage increase so that minimum wage earners can “pay for basic needs such as food, transportation, and housing—things so many people take for granted.”

In this unique study, economists Joseph Sabia of San Diego State University and Robert Nielsen of the University of Georgia endeavor to go beyond poverty rates and measure the impact of a higher minimum wage on various forms of hardship. Using data from the Census Bureau's Survey of Income and Program Participation, they construct a number of measures of hardship, including the following:

- **Financial insecurity:** Does the wage earner have difficulty in paying medical or utility bills, or making a mortgage payment?
- **Housing insecurity:** Has the wage earner missed rent payments in the last year, or do they have unaddressed housing problem like broken windows?

- **Health insecurity:** Did the wage earner go without health insurance, or miss a doctor's visit?
- **Food insecurity:** Has the wage earner lacked sufficient resources to purchase food or eat a balanced meal?

Across all measures, the authors find no statistically significant evidence that a higher minimum wage has helped reduce financial, housing, health, or food insecurity. This is true across all employees in general, and for smaller sub-sets of the less-educated and less-experienced.

As one explanation of their findings, the authors show that over half (54.7 percent) of poor, less-educated individuals between ages 16 and 64 do not work. A similar percentage (53.6 percent) of individuals who report missing a rent or a mortgage payment do not work. Thus, many of the people policymakers are trying to help won't benefit because they're not working.

Even among those who do work, the minimum wage appears to be poorly targeted. Nearly 87 percent of the wage earners who benefitted from the 40 percent increase in the federal minimum wage between 2007 and 2009 were not poor—56 percent lived in households with an income more than two times the poverty threshold, and one-third lived in households with an income more than three times the poverty level.

As an alternative to a higher minimum wage, the authors find compelling evidence in favor of the Earned Income Tax Credit (EITC). Each one percent increase in a state supplement to the federal EITC reduces poverty rates by one percent. (It also provides an incentive to seek employment, since the credit can only be claimed on earned income.)

Though the debate over the minimum wage is likely to continue, the evidence is clear that increasing the minimum wage is a poor way to reduce hardship for the targeted employees. Policymakers would be wise to consider other alternatives like an expansion of the EITC.

—*Employment Policies Institute*

Introduction

A large number of studies have found that minimum wage increases are ineffective at reducing poverty because of poor target efficiency (Sabia and Burkhauser, 2010; Burkhauser and Sabia, 2007; Leigh, 2007; Burkhauser and Harrison, 1999; Burkhauser, Couch, and Glenn, 1996; Burkhauser and Finnegan, 1989; Stigler, 1946) and adverse labor demand effects (Neumark et al., 2004, 2005; Neumark and Wascher, 2002; Sabia, 2008; Burkhauser et al., 2000a, 2000b). However, little is known about the effectiveness of minimum wage increases at reducing material hardship, despite policymakers' frequent claims that raising the minimum wage will help low-skilled individuals make ends meet (Kennedy, 2005; Obama, 2008).¹

Poverty researchers have long recognized important distinctions between income- and consumption-based measures of deprivation (Iceland and Bauman, 2007; Mayer and Jencks, 1989). While the official U.S. poverty threshold is commonly used to measure income deprivation, this measure has been found to be ineffective at predicting consumption deprivation, such as food insecurity, housing hardship, durable goods deprivation, or health insecurity (Iceland and Bauman, 2007). Thus, while the minimum wage has been found to be an ineffective anti-poverty tool, its effectiveness at relieving consumption-based deprivation remains largely unexplored.

Using data drawn from the Survey of Income and Program Participation (SIPP), we estimate the effect of minimum wage increases between 1996 and 2007 on several

measures of hardship, including poverty, financial insecurity, housing insecurity, durable good deprivation, food insecurity, and health insecurity. Consistent with earlier work using the Current Population Survey (CPS) (Sabia and Burkhauser, 2010), we find little evidence that raising the minimum wage is an effective anti-poverty tool among individuals of working-age (16-to-64) or among workers. Moreover, we find little evidence that minimum wage increases alleviate poverty rates among those who are less-educated (without a high school degree) or less-experienced (ages 16 to 29).

Turning our attention to material hardship, we find little evidence that increases in the minimum wage are associated with a reduction in financial hardship, housing stress, health insurance status, durable good deprivation, food insecurity, or participation in hardship-related government programs such as food stamps, housing or rental assistance, energy assistance, or public health insurance. In dynamic models that explore flows into and out of poverty and onto or off of hardship-related public programs, we continue to find little consistent evidence that minimum wage increases are effective in preventing individuals from falling into poverty or participating in hardship-related public programs.

Background

A number of recent studies have explored the effects of minimum wage increases on poverty (see, for example, Card and Krueger, 1995; Addison and Blackburn, 1999; Neumark and Wascher, 2002; Neumark et al., 2004, 2005; Burkhauser and Sabia, 2007; Leigh, 2007; Sabia,

¹Sen. Kennedy (1999) argued in support of minimum wage increases by saying that “no one who works for a living should live in poverty.” In later years, Senators Kennedy and Obama made similar claims, referring to full time workers. Senator Kennedy (2005) argued that: “It is shameful that in America today...that nearly a fifth of all children go to bed hungry at night because their parents, many of whom are working full time at the minimum wage, still can’t make ends meet.” Then Sen. Obama (2008) supported a minimum wage increase so “full-time workers can earn a living wage that allows them to raise their families out of poverty and pay for basic needs such as food, transportation, and housing—things so many people take for granted.”

2008; Sabia and Burkhauser, 2010; Gundersen and Ziliak, 2004), and most have found little evidence that the minimum wage is an effective anti-poverty tool.² One set of studies (Card and Krueger, 1995; Burkhauser and Sabia, 2007; Sabia and Burkhauser, 2010) has used repeated cross-sectional data to generate a panel of states and years to look at aggregate poverty effects, while another has used matched Current Population Survey data to explore family-specific flows of income and poverty following minimum wage increases (Neumark and Wascher, 2002; Neumark et al., 2004; 2005). Each has reached a similar conclusion about the ineffectiveness of the minimum wage in alleviating poverty.

Three key reasons explain the minimum wage's poor performance. First, many poor individuals do not work and thus cannot benefit from hikes in the minimum wage (Card and Krueger, 1995). Second, even among workers, minimum wages are poorly targeted to the working poor (Burkhauser and Finegan, 1989; Burkhauser, Couch, and Glenn, 1996; Burkhauser and Harrison, 1999; Burkhauser and Sabia, 2007; Sabia and Burkhauser, 2010). Finally, minimum wage increases may be accompanied by adverse labor demand effects that diminish net income gains (Neumark and Wascher, 2007, 2008). Neumark and Wascher (2008) reviewed over 90 studies published since Card and Krueger (1994; 1995) and concluded that there is overwhelming evidence that the

least-skilled workers experience the strongest unemployment effects from minimum wage increases with median employment elasticities ranging from -0.1 to -0.3.³ These adverse labor demand effects may have the effect of undermining income gains for low-skilled workers.

Neumark et al. (2004, 2005) and Neumark and Wascher (2002) find that some low-skilled workers living in poor families who remain employed after a minimum wage hike see their incomes rise and move out of poverty while other low-skilled workers lose their jobs or have their hours substantially reduced, causing income losses and increased poverty. Neumark and Wascher (2002) conclude that minimum wage increases simply result in income redistribution among low-skilled workers around the poverty line. Their results suggest that on net low-skilled workers may be made worse off.

A few studies have explored the effect of minimum wage increases on public program participation, though most of the focus has been on Aid to Families with Dependent Children (AFDC)/Temporary Assistance to Needy Families (TANF). Brandon (1995) and Turner (1999) use data from the Survey of Income and Program Participation (SIPP) to estimate the effect of minimum wage increases on the probability of exit from AFDC and reach opposite conclusions. However, these studies focus on only a few years of data and minimum wage ef-

²Card and Krueger (1995) found that among workers, minimum wage increases “may have led to a modest reduction in the rate of poverty among workers.” Addison and Blackburn (1999) found that minimum wage increases reduce poverty among junior high school dropouts. However, as Neumark and Wascher (2008) note, junior high school dropouts are older and unlikely to have small children, whereas most anti-poverty efforts focus on families with younger children.

³However, a recent study by Dube, Lester, and Reich (2010) finds that minimum wages were associated with no changes in low-skilled industry employment when using variation in minimum wages in contiguous counties across state borders for identification. Addison, Blackburn, and Cotti (2010) also find no evidence that minimum wage increases are associated with reductions in retail employment. While each of these studies raises the important concern that unmeasured state-specific time trends may lead to biased estimates of minimum wage effects, these authors are not the first to raise this criticism (see Deere et al., 1995). One limitation of studies that explore industry-wide employment is that estimates may mask important labor-labor substitution. Moreover, the conclusions are less policy-relevant given that they do not focus on populations of low-skilled workers that policymakers wish to help. Other studies that have examined more policy-relevant low-skilled workers across sectors have found evidence of adverse employment and welfare take-up effects even after controlling for unmeasured state trends (Page et al., 2005; Sabia, 2008) and a new study by Sabia, Burkhauser, and Hansen (2010) uses a synthetic cohort control group approach to address concerns about unmeasured time trends and find evidence that New York State's 2005-2006 minimum wage increase had large adverse labor demand effects for 16-to-29 year-olds without a high school diploma.

fects are likely to be imprecisely estimated in short panels. The Council of Economic Advisors (CEA, 1999) examined a longer panel and found that minimum wage hikes are associated with a decrease in welfare caseloads. However, controlling more carefully for state-specific time trends, Page et al. (2005) find that a 10 percent increase in the minimum wage is associated with a one to two percent increase in welfare caseloads.

Sabia and Burkhauser (2010) recently updated the literature on minimum wages and poverty in the mid-2000s using Current Population Survey (CPS) data. These authors found no evidence that minimum wage increases between 2003 and 2007 affected poverty rates and focused on the poor target efficiency of the minimum wage as one explanation for their finding.

Only one study of which we are aware has explored the effects of minimum wage increases on consumer spending or material hardship. Heflin (2009) uses data from 1993, 1995, 1998, 2003, and 2005 in the Survey of Income and Program Participation to explore the relationship between a number of state policies and food insufficiency, bill hardship, and home hardship among families with children. In specifications that exclude state fixed effects, she finds that higher minimum wages are associated with reduced financial or home hardship, but the estimated effect of the minimum wage became smaller with the inclusion of state fixed effects.⁴ More recently, McCarrier et al. (2011) draw data from the Behavioral Risk Factor Surveillance System from 1996 to 1997 and find that state minimum wage increases are associated

with a lower probability of unmet medical needs, but no change in insurance status.⁵

The current study builds on the work of Sabia and Burkhauser (2010), Heflin (2009), and McCarrier et al. (2011) by examining the effects of minimum wage increases on a broader set of hardship measures across a number of different populations, including less-skilled and less-experienced individuals. Exploiting substantial policy variation during the period from 1996 to 2007—when 29 states raised their minimum wages above the federal level—we examine effects of minimum wages on poverty, financial hardship, housing stress, durable good deprivation, food insecurity, health insurance status, and hardship-related government program participation. Finally, we build on the work of Neumark and Wascher (2002) by exploiting longitudinal data in the SIPP to examine the effect of minimum wage increases on flows into and out of poverty and onto or off of hardship-related program participation.

Data

Our analysis uses data drawn from the 1996, 2001, and 2004 panels of the SIPP, which cover the calendar years 1996-2007.⁶ The SIPP is a nationally representative survey of the non-institutionalized, civilian population conducted by the U.S. Census Bureau. Within each three- to four-year panel, households are interviewed every four months, a period the Census Bureau refers to as a wave. The SIPP also tracks individuals as they move (Neumark and Kawaguchi, 2004). Because the recall period of four

⁴Heflin's (2009) measure of financial hardship was, in fact, "bill hardship," difficulty paying household bills.

⁵One study has looked at the effect of minimum wage increases on consumer spending and debt. Using data from the Consumer Expenditure Survey, Aaronson et al. (2011) find that among households with minimum wage workers, minimum wage increases are associated with increases in automobile purchases in the short-run, financed with consumer debt.

⁶The Census Bureau collects SIPP data in four staggered rotation groups, with one rotation group beginning each month. Therefore, estimating calendar-year values requires that the data be aligned by calendar month. Unfortunately, the four-year 1996 panel and the three-year 2001 panel rotation groups do not provide adequate overlap in the 2000 calendar year to make 2000 calendar year estimates. Therefore, the calendar years used in here include 1996-1999 and 2001-2007.

months is relatively short, data from the SIPP are thought to be less prone to respondent recall errors than other federal surveys that collect retrospective income, household composition, program participation, and health insurance data from as long as a full year prior to the interview. Each SIPP panel consists of core and topical survey modules. The core modules include basic demographic, employment, income, and receipt of common government transfers at the monthly level. Questions that are not asked at each interview are grouped into topical modules that address a variety of topics, including food sufficiency and security and a rich set of financial assessment questions relevant for research investigating low-income populations. The timing and frequency of the topical modules varies, as does the duration of the reference period to which the question refers. As a result, some data found in topical modules are available on an annual basis whereas some topical module data are available as infrequently as one time per panel. Across each of the three panels we exploit the monthly core data whenever it exists, and use the less frequent topical module data only when dictated by the design of the SIPP.

Measures

Poverty. We begin by generating a number of measures of poverty to benchmark our estimates in the existing minimum wage-poverty literature. First, a standard annual family income-to-poverty ratio is calculated using annual family income and SIPP-provided poverty thresholds. Then, from this annual income-to-poverty ratio, thresholds for binary poverty indicator variables are set at 100 percent, 125 percent, and 150 percent of poverty. For each income-to-poverty indicator variable, 1 indicates an annual family income below the given poverty threshold and 0 indicates otherwise. In addition, the SIPP offers a constructed variable that includes means-tested cash transfer income received each month when

reporting each month's family income. We use this constructed variable to calculate an alternative annual family income-to-poverty ratio that accounts for means-tested cash transfer income.

We next turn to consumption-deprivation measures that capture material hardship, or what Beverly (2001; p. 24) described as "the inadequate consumption of very basic goods and services such as food, housing, clothing, and medical care." Numerous researchers have attempted to define material hardship, with the common theme being the material deprivation of goods and/or services that some or all members of a society would deem necessary for adequate living (Oullette, 2004). Our hardship outcomes measure financial insecurity, housing insecurity, durable good deprivation, health insecurity, and food insecurity.

Financial insecurity. First, we generate two indicators of financial hardship. The following questionnaire item is used to assess each respondent's ability to meet essential financial obligations:

"Next are questions about difficulties people sometimes have in meeting their essential household expenses for such things as mortgage or rent payments, utility bills, or important medical care:

During the past 12 months, has there been a time when you/your household did not meet all of your essential expenses?

During the past 12 months, has there been a time when you/your household had difficulty paying the full amount of the gas, oil, or electricity bill?"

Each of these financial insecurity indicators is coded 1 in the presence of the hardship and 0 otherwise.

Housing insecurity. Several indicators of a respondent's housing security status are included in the analyses. First, we calculate a housing cost burden indicator to identify respondents whose housing-related expenditures exceed 50 percent of total household income.⁷ Second, we generate an indicator to identify respondents living in households that reported not paying their rent or mortgage in the preceding 12 months.⁸ Third, we create a summary indicator of housing hardship that includes the above indicators or any of the following: any "exposed electrical wires in the finished areas of your home"; "a toilet, hot water heater, or other plumbing that doesn't work"; "broken window glass, or windows that can't shut"; "pests such as rats, mice, roaches, or other insects" present in the home at the time of the interview; whether there was "a leaking roof or ceiling"; or having been "evicted from your home or apartment for not paying the rent or mortgage" in the preceding 12 months. Each of the housing hardship indicators is coded 1 in the presence of the housing hardship and 0 otherwise.

Durable good deprivation. Two indicators of respondents' access to durable consumer goods that are particularly relevant for workers are included in the analysis. In separate questions for each of the durables, respondents were

asked whether they had a clothes washer/dryer in their home or building. If respondents indicated that they had a clothes washer/dryer in their home or that they had access to a clothes washer/dryer in the building in which they lived, they are coded as 1. When no access in the home or building was available, respondents were coded as 0.

Health insecurity. We generate three indicators of respondents' housing security status. First, respondents were asked whether there was a time in the preceding 12 months when anyone in the household "needed to see a doctor or go to the hospital but did not go".⁹ Respondents are coded 1 in the presence of this hardship and 0 otherwise. Second, respondents were assigned a 1 if they were without private health insurance in any month of a given calendar year and 0 if they reported private health insurance in each month of that year.

Food insecurity. Food security status is determined through a set of five questions available in the SIPP that were derived from the standard United States Department of Agriculture (USDA) 18-question assessment that estimates the extent to which nutritionally adequate foods are not available to a household due to economic

⁷The Census Bureau began including the variables used to calculate housing cost burden in wave 8 of the 1996 panel, which corresponds to the 1998 calendar year. Annual housing cost burden estimates are made from 1998-2007.

⁸These housing hardship indicators are included in wave 8 of the 1996 and 2001 panels, and wave 5 of the 2004 panel. This corresponds to calendar years 1998, 2003, and 2005, respectively. Note that these data do not cover the period covering the financial and housing crisis. Thus, none of our estimates of minimum wage effects are confounded by the timing of state-specific financial or housing shocks that might have been incidentally correlated with minimum wage increases.

⁹The question about forgoing a doctor's visit is included in wave 8 of the 1996 and 2001 panels, and wave 5 of the 2004 panel. This corresponds to calendar years 1998, 2003, and 2005, respectively.

¹⁰There are differences between *food sufficiency* and *food insecurity* that were considered when deciding which measure we used. Reports of food insufficiency track somewhat closely with reports of food insecurity with hunger. Using the 1996 panel of the SIPP, Gundersen et al. (2003) found that approximately 2.5% of the population are food insufficient, whereas Nord et al. (2003), using the 2000 Current Population Survey, estimated that 3.7% of households were food-insecure with hunger. Of particular importance to our investigation is the category of the food insecurity measure labeled *food insecure without hunger*. Nord and colleagues found that approximately 12% of households are food insecure without hunger, suggesting that many households face threats to their economic well-being that do not result in actual hunger. We use food insecurity here because the language in the food insecurity questions more explicitly capture economic hardship than the language in the food insufficiency questions and there is evidence that reduced consumption, as measured by food expenditures, is associated with declining economic well-being (Jensen, 2002).

¹¹The food insecurity measure is included in wave 8 of the 1996 and 2001 panels, and wave 5 of the 2004 panel. This corresponds to calendar years 1998, 2003, and 2005, respectively.

constraints (Nord, Andrews, & Carlson, 2003).¹⁰ The abbreviated food insecurity measure included once each SIPP panel asks each respondent at least two questions.¹¹ Respondents are first asked whether it was “often true, sometimes true, or never true” that in the last four months:

“The food that (I/we) bought just didn’t last and (I/we) didn’t have money to get more.

(I/we) couldn’t afford to eat balanced meals.”

Based on responses to these two questions and the composition of the household, respondents may be asked one or more of the following questions that assess both adult and child food insecurity.¹² Following the Economic Research Service (Nord, 2002), we use “often” or “sometimes” responses to these questions to calculate food security status such that the presence of food insecurity equals 1; the absence of food insecurity equal 0.

Hardship-related program participation. We draw on four measures of hardship-related public program participation: food stamp program participation, rental/housing assistance program participation, energy assistance program participation, and public health insurance receipt. Each program participation indicator is available in every wave of the three panels. The receipt of food stamps and public health insurance are available monthly, whereas the receipt of energy assistance or rental/housing assis-

tance is available quarterly with the question referring to any time since the first reference month of the wave.¹³ Each of these indicators is coded 1 when the respondent received program benefits in the given month or quarter and 0 otherwise.

Dynamic hardship. To exploit the monthly and quarterly reporting available in the SIPP we created several dynamic indicators of poverty and hardship-related program participation.¹⁴ Specifically, respondents’ food stamp program, energy assistance program, and public health insurance program participation status is noted in January of each calendar year. If any changes to that status occur over the course of that status occur in any month the remainder of that calendar year, the person is identified as transitioning onto or off the given public assistance program. Similarly, although poverty thresholds are typically reported at the annual level, a practice that acknowledges that families can often shift income from month to month to meet expenses, the SIPP offers monthly poverty threshold values from which we calculated monthly income-to-poverty thresholds. Using these, we coded each month equal to 1 when the monthly income-to-poverty threshold was below 1.0 and 0 otherwise. Similar to the program participation transition measures, the January poverty status was marked and deviations from that status in any later month that year were noted. This allows us to identify those who transitioned into or out of poverty.

¹²These questions include: My child was/our child was/the children were not eating enough because (I/WE) couldn’t afford enough food,” “In the past four months did you or the other adults in the household ever cut the size of your meals or skip meals because there wasn’t enough money for food?” and “In the past four months did you or the other adults in the household ever eat less than you felt you should because there wasn’t enough money to buy food?”

¹³There is no universally-accepted definition of public and private health insurance coverage, and federal surveys vary with respect to public health insurance definitions. Here, public health insurance includes Medicaid, SCHIP or similar state insurance programs, and Medicare. This excludes CHAMPUS/TRICARE.

¹⁴Because SIPP respondents are interviewed every four months, reports of change between interviews (i.e. between months 4 and 5) tend to be higher than within interviews (months 1-4). This “seam effect” is present in most panel data (see Nielsen & Gottschalck, 2009 for SIPP employment transition examples). We reduce the potential for seam bias by aligning the four staggered rotation groups by calendar months, thus distributing any bias more evenly across all months while simultaneously allowing us to make calendar-year estimates.

Methods

Drawing individual SIPP data from calendar years 1996 to 2007 to generate a state-by-year panel, we employ a difference-in-difference approach to estimate the effect of minimum wage increases on poverty or hardship:

$$Y_{st} = \beta MW_{st} + X_{st} \delta + P_{st} \kappa + \theta_s + \tau_t + \varepsilon_{ist}, \quad (1)$$

where Y_{st} is the measure of the natural log of the poverty or hardship rate (for those ages 16-to-64) in state s at year t , MW_{st} is the natural log of the higher of the state or federal minimum wage in state s at year t collected from the Bureau of Labor Statistics (BLS), X_{st} is a vector of state and year-specific economic and demographic controls, P_{st} is vector of state policy variables, θ_s is a time-invariant state effect, and τ_t is a state-invariant time effect.¹⁵ If the state (or federal) minimum wage changed mid-year, MW_{st} is calculated using the weighted average of the annual minimum wage that prevailed during the period that poverty or hardship was measured. Following Sabia (2008), we took care to assure that our state-year estimates were based on a sufficient number of individuals contributing to the generation each state-year mean by restricting our analysis to those states and years in which a state contributed at least 125 person-state-year observations. This restriction resulted in the dropping of the District of Columbia from the analysis. Robustness checks using person-state-year sample size cutoffs ranging between 50 and 500 produced qualitatively similar results.

The variables in the vector X_{st} include the natural log of the prime-age (ages 25-to-54) unemployment rate, the average wage rate of prime-age males, the share of respondents living in a metropolitan area, the share that are married, race (percent black and Hispanic), age (percent ages 16-to-24 and percent ages 55-to-64), and education (percent with some college and a college degree). The variables in the vector P_{st} include the state and year-specific refundable percentage of the federal Earned Income Tax Credit (EITC) that is paid to state taxpayers via the state tax system obtained from the Center on Budget and Policy Priorities (CBPP), an indicator of whether the state strictly and immediately enforces a work requirement for public assistance recipients, and a continuous measure of the state lifetime welfare time limit in months. State effects are included to capture unmeasured characteristics of states that do not vary over time and year effects are included to capture any unobserved time trends common to states. In addition to estimating equation (1) for all individuals ages 16-to-64, we also estimate the model for those who are employed, giving the minimum wage its best chance to alleviate hardship as in Burkhauser and Sabia (2007).

The identification of β in equation (1) comes from within-state variation in the minimum wage, which comes mostly from state changes in minimum wage policy.¹⁶ During the 1996-2007 period, there was substantial variation in state minimum wages. In our sample of available and uniquely identified states, 29 states increased their minimum wages to an amount higher than the prevailing fed-

¹⁵The states of Maine, North Dakota, South Dakota, Vermont, and Wyoming are excluded from our analysis because data from these states are not available for each of the three panels. In the 1996 and 2001 panels, Maine is grouped with Vermont; North Dakota, South Dakota, and Wyoming grouped. This prevents state-specific context variables from being used.

¹⁶There were two federal minimum wage increases during the 1996-2007 period—in 1996-97 from \$4.25 to \$5.15 and in 2006-07 from \$5.15 to \$5.85. However, much of the federal variation in the minimum wage will be captured by the year effects in equation (1). However, to the extent that hikes in the federal minimum wage change state minimum wages at different rates due to differences in each state's minimum wage at the time of the federal increase, this variation will also be used to identify β .

¹⁷Two of the states, Maine and Vermont, are not used in the analyses because data are not available for those individual states in each of the three panels.

¹⁸By 2009, the Federal minimum wage had risen to \$7.25 per hour.

eral minimum wage, with much of the state policy variation came during the 2005-2007 period.¹⁷ During this period, there were two federal minimum wage increases: From \$4.25 on January 1, 1996 to \$5.15 on September 1, 1997 and from \$5.15 to \$5.85 on July 24, 2007.¹⁸

Our estimate of β will be unbiased in the absence of unmeasured state-specific time trends correlated with the implementation of the minimum wage and with changes in material hardship. We take a number of tacks to address concerns with unmeasured heterogeneity. First, we add controls for state-specific linear time trends. An advantage of this approach is that it may eliminate sources of bias due to state-specific trends; however, it may also reduce potentially important identifying variation, leading to imprecise estimates.

Our second approach is to explore parameter heterogeneity in β and identify groups for whom the minimum wage is more or less likely to affect. We expect that minimum wage increases are more likely to affect those who are low-skilled and less-experienced. Thus, we estimate our models for sub-populations that are more likely to be affected by changes in the minimum wage: less-educated individuals (those ages 16-to-64 without a high school degree) and less-experienced younger individuals (those ages 16-to-29).¹⁹ We also examine populations that should not be (directly) affected by minimum wages: more highly-educated individuals (those ages 30 to 54 with at least a high school degree).²⁰

The means and standard deviations of each of our dependent and independent variables for all individuals,

workers, less-educated, and less-experienced individuals are shown in Table 1. As expected, rates of poverty and material hardship are higher in the less-educated and less-experienced control groups relative to the more highly-skilled and experienced control group. We also find empirical evidence that poverty and material hardship are overlapping (but distinct) measures of deprivation. That is, not all of those in poverty suffer from material hardship, and not all of those in material hardship are also in poverty. For instance, 60.8 percent of those in poverty do not report difficulty meeting expenses, 61.0 percent do not report any housing hardship, 41.2 percent do not report being without health insurance at any time during the year, and 73.2 percent do not report food insecurity. Moreover, only 12.5 percent of those who had difficulty meeting expenses, 8.9 percent of those who reported housing hardship, 10.9 percent without health insurance, and 15.6 percent of those who were food insecure lived in families with incomes below the poverty threshold. And, in fact, the correlation between poverty and hardship is quite low. For instance, the Pearson correlation coefficient between poverty and respondents' report of difficulty paying bills is 0.16, with missing a rent or mortgage payment is 0.14, with durables deprivation is 0.10 to 0.12, and with food insecurity is 0.16. The largest correlation coefficient we observe is between poverty and food stamp program participation (0.38).

Results on Poverty and Material Hardship

Tables 2-6 present our key difference-in-difference estimates. All regressions are weighted and standard errors

¹⁹Because these sub-groups are relatively smaller shares of the population, we use a person-state-year cell limit of 75, as opposed to 125, to enter the sample to increase sample size. However, the results are qualitatively unchanged when using alternate restrictions of 50 to 200 person-state-years.

²⁰One concern with examining more highly-educated and experienced individuals is the possibility that these workers are indirectly affected by the minimum wage. If the minimum wage increases, the demand for higher-skilled workers may be affected if low- and high-skilled workers are gross substitutes or complements. If the substitution effect dominates the scale effect, then the demand for high-skilled workers may increase, leading to reduced material hardship among this population. If the scale effect dominates, the opposite will be true.

are corrected for clustering on the state (Bertrand et al., 2004).

Poverty Estimates. Table 2 shows our baseline estimates of equation (1) using various measures of poverty. In column (1), we use the official Census definition of poverty. We find that trends in most of the demographic and economic controls are correlated with trends in our predicted state poverty rates in the manner we would expect. For instance, higher prime-age male unemployment rates and a greater percentage of blacks are positively related to state poverty rates, while greater educational attainment and marriage are negatively related to state poverty rates.

Turning to the minimum wage, we find little evidence that increases in state minimum wages reduced poverty. In column (1), we find that a 10 percent increase in minimum wages is associated with a statistically insignificant 0.39 percent increase in state poverty rates. The confidence interval around this point estimate suggests that we can rule out minimum wage elasticities outside the range (-0.664, 0.739). If we further restrict the sample to those states that contributed at least 500 observations per state-year cell, we continue to find a statistically insignificant effect of the minimum wage, with a somewhat tighter 95 percent confidence interval of (-0.707, 0.457).

In contrast to our null findings with respect to the minimum wage, we find some evidence of a negative relationship between the state refundable EITC and poverty. A one percentage point increase in the refundable credit is associated with a (marginally significant) one percent de-

cline in state poverty rates. This finding is consistent with evidence that higher EITC refundable credits increase labor force participation among eligible individuals (Eissa and Liebman, 1996; Eissa and Hoynes, 2005; Hotz et al., 2002, 2003; Ellwood, 2000; Meyer et al. 2000; 2001), which may provide a path out of poverty.

In the remaining columns of Table 2, we experiment with alternate definitions of poverty: measuring poverty (i) as falling below 125 percent of the poverty threshold, (ii) as falling below 150 percent of the poverty threshold, (iii) using the continuous income-to-poverty ratio, and (iv) falling below the official poverty income when government cash transfers are included in family income. Across each of these poverty definitions, we find no evidence that minimum wage increases are associated with a reduction state poverty rates. We consistently find that minimum wage increases are positively (and insignificantly) related to poverty. While estimates are somewhat imprecise²¹, the evidence across all five columns in Table 2 is consistent with evidence in the Current Population Survey (Burkhauser and Sabia, 2007; Sabia and Burkhauser 2010).

In Table 3, we examine whether poverty rates of particular sub-groups were affected by increases in the minimum wage. Column (1) reproduces the estimates from Table 2. In the second column, we restrict the sample to workers, allowing the minimum wage its best chance to alleviate poverty by eliminating any adverse poverty effects that could result because of negative employment effects of the minimum wage.²² For instance, Card and Krueger

²¹To take an example, using the measure of poverty that includes income transfers (column 5), we find that with 95 percent confidence, we can rule out poverty elasticities smaller than -0.497 and greater than 0.941.

²²Using a SIPP-provided monthly employment status recode variable we define workers as those who satisfied any of the following three requirements each month of the calendar year: the respondent was with a job the entire month and worked all weeks; was with a job all month and was absent from work without pay 1+ weeks, where the absence was not due to a layoff; was with a job at least one but not all weeks, no time on layoff and no time looking for work. Finally, in tables available upon request and online at www.epionline.org, we experiment with alternate poverty threshold cutoffs of 75% and 200%. The results are consistent with those in Table 3. We also experiment with other policy relevant groups, including single female-headed households with children and older junior high school dropouts (Addison and Blackburn, 1999) and find little evidence of poverty- or hardship-alleviating effects of the minimum wage.

(1995) find some evidence of modest negative poverty effects in such a specification. Among workers, we continue to find no evidence of poverty effects, and the magnitude of the effect is not statistically different from the effect for all individuals (including non-workers). The 95 percent confidence interval around the point estimate in column (2) suggests that we can rule out poverty elasticities outside the range (-0.887, 0.979). Again, if we limit the sample to those states and years contributing at least 500 observations, we continue to find no evidence of poverty-alleviating effects of the minimum wage and can tighten the 95 percent confidence interval around the elasticity to (-0.672, 0.869).

In columns (3) and (4), we examine whether poverty rates of lower-skilled individuals—those who are less-educated and less-experienced—are affected by minimum wage increases. For those who are less-educated, there is more consistent evidence of a negative relationship between minimum wages and poverty (elasticity = -0.298 using the official poverty definition in Panel A), though the relationship is never significant at conventional levels. In column (4), we find that the minimum wage is generally positively related to poverty rates of younger individuals. A 10 percent increase in the minimum wage is associated with a marginally significant 1.5 percent decline in average state income-to-poverty ratio of 16-to-29 year-olds.

As Addison et al. (2009) and Allegretto et al. (2011) note, state-specific economic shocks may be correlated with both state minimum wages and low-skilled individuals' labor market outcomes. Thus, in the final four columns of Table 3, we examine the sensitivity of our results to added controls for a state-specific linear time trend. The inclusion of a state linear time trend does not alter our conclusion that minimum wages appear to be a poor anti-poverty tool. In fact, for the full sample of 16-to-64 year-olds, the inclusion of a state linear time trend increases the magnitude of the positive correlation. For

workers (column 6), less-educated individuals (column 7), and less-experienced individuals (column 8), we continue to find no evidence of any poverty alleviating effects of the minimum wage.

In Table 4, we examine the effect of a minimum wage increase on poverty rates of more highly-experienced and educated individuals who we do not expect the minimum wage to affect—those ages 30-to-54 with at least a high school degree—to test for any unmeasured state time trends associated with the implementation of the minimum wage. The results of this exercise appear in columns (1) and (2). As expected, we find no evidence that minimum wage increases are related to poverty of more experienced and educated individuals (column 1), a result that persists after controlling for state-specific linear time trends (column 2).

Treating more highly-skilled individuals as a “comparison group,” we now examine the difference in poverty trends of less-educated and less-experienced individuals after a minimum wage increase relative to this control group. In the final two columns of Table 4A, we estimate a difference-in-difference-in-difference model of the following form:

$$Y_{stj} = \alpha_j + \beta_j MW_{st} + X_{st} \delta_j + P_{st} \kappa_j + \theta_{sj} + \tau_{tj} + \omega_{st} + \varepsilon_{stj}, \quad (2)$$

where j indexes group (for instance, less-educated individuals versus more highly educated and experienced individuals), and ω_{st} represents a full interaction of the state and year fixed effects. In this regression framework, the source of the identifying variation is differences in the poverty rate between less-educated (or less-experienced) individuals and the comparison group. The results of the difference-in-difference-in-difference exercise in columns (3) and (4) suggest little evidence that increases in the minimum wage reduced poverty among less-educated or less-experienced individuals relative to the comparison

group. This result suggests that the difference-in-difference estimates presented in Table 3 do not appear to be biased due to state-specific time-varying heterogeneity.²³

Material Hardship Estimates. Table 5 shows estimates of equation (1) using several measures of material hardship. The sample sizes are smaller for this set of estimates because material hardship information is only available in 1998, 2003, and 2005, when 11 states changed their minimum wages. The outcomes in the first two columns measure financial hardship, columns (3)-(5) measure housing hardship, columns (6) and (7) measure consumer durables hardship, columns (8)-(9) health-related hardship, and column (10) measures food insecurity. For the full sample of 16-to-64 year olds (Panel A), we find no evidence that minimum wage increases reduced material hardship. Across our 10 measures, there are more positive coefficients than negative. And, in fact, we find a significant *positive* relationship between the minimum wage and housing hardship. For instance, a 10 percent increase in the minimum wage is associated with a 6.6 percent increase in rates of reporting any housing hardship (column 1, Panel A), which could include not paying rent, being evicted, the presence of pests, exposed wiring, broken plumbing fixtures, or leaks in the roof or ceiling. However, most of our point estimates are sufficiently imprecise that we are cautious in interpreting this estimate as indicative of a broader pattern.

What we can conclude from Table 5 is that across all individuals (Panel A), workers (Panel B), less-educated individuals (Panel C), and less-experienced individuals

(Panel D), we do not observe a pattern of results consistent with the hypothesis that minimum wage increases are an effective means of ameliorating hardship. While the absence of effects for a more highly-skilled population (Panel E) does not prove that the absence of effects for lower-skilled populations is causal, the results are consistent with this hypothesis.²⁴

Hardship-Related Program Participation. In Table 6, we examine whether hardship-related program participation is affected by minimum wage increases, focusing on the food stamp program, rent/housing assistance, energy assistance programs, and public health insurance. Our results provide little evidence that all 16-to-64 year-olds (Panel A), workers (Panel B), or less-experienced (Panel D) individuals' program participation is affected by the minimum wage. For less-educated individuals (Panel C) there is more consistent evidence of a negative relationship between minimum wage increases and program participation, though only the effect on one program (food stamp participation) is significant at the 10 percent level. However, the negative minimum wage coefficient observed for less-educated individuals (Panel C, column 1) is not statistically different from the minimum wage coefficient on the comparison group of more highly experienced and educated individuals (Panel E, column 1).²⁵

Taken together, the estimates in Tables 2 through 6, generally fail to support the claim by policymakers that raising the minimum wage is an effective way to ameliorate hardship.²⁶

²³In Table 4B (available upon request or online at www.epionline.org), we explore whether there may be important lagged effects of the minimum wage on poverty. A number of studies (Neumark and Wascher, 2008; Baker et al, 1999; Burkhauser et al., 2000a,b; Neumark, 2001; Campolieti et al., 2006; Sabia, 2009) have emphasized the importance of allowing lagged minimum wages to affect economic outcomes, because firms' employment and hours responses may not be contemporaneous. Thus, in Table 4B, we re-estimate the models in Table 3 using one- and two-year lagged minimum wages. Our results suggest that using lagged minimum wages on the right-hand side of equation (1) does not alter our conclusion that minimum wages appear to be a poor anti-poverty tool.

²⁴In Appendix tables available upon request or at www.epionline.org, we examine the sensitivity of our material hardship findings to controlling for state-specific linear time trends and using a lagged minimum wage measure. The results continue to show little evidence of hardship-alleviating effects of the minimum wage.

Target Efficiency

As Neumark and Wascher (2002) have documented, minimum wage increases redistribute income among affected workers. Some workers who keep their jobs (and do not have their hours substantially reduced) see their incomes rise, while others who lose their jobs see incomes fall. An examination of the distributional effects often suggests that the poverty-alleviating effects of minimum wage increases for some workers are countered by the poverty-inducing effects for others (Neumark and Wascher, 2002).

While minimum wages can help some low-skilled poor workers, prior work has shown that minimum wages are a blunt, poorly targeted anti-poverty tool (Burkhauser and Sabia, 2010). Why is the minimum wage such a blunt instrument for poverty alleviation and why might it be similarly poorly targeted to those facing hardship?

First, as Table 7 shows, many individuals in poverty or hardship do not work. While labor-labor substitution could suggest that minimum wage increases might result in some previously non-working individuals being hired, it is unlikely that many non-workers will be helped (Card and Krueger, 1995). Examining data from the 2005 SIPP, we find that 54.7 percent of poor individuals ages 16-to-64, 54.6 percent of poor less-educated individuals ages 16-to-64, and 62.9 percent of poor individuals ages 16-to-29 do not work. Moreover, large minorities of those in hardship do not work. For instance, 34.1 of 16-to-64 year-olds who report difficulty meeting expenses do not

work. And in many cases, the majority of those in hardship who are less-educated or less-experienced do not work. To take an example, 53.6 percent of less-educated individuals who report missing a rent or mortgage payment do not work. Thus, many in hardship will not gain from minimum wage increases.

But even among those in hardship who do work, the minimum wage may be an ineffective anti-hardship measure. In the remaining tables, we explore the target efficiency of the federal minimum wage increase from \$5.15 to \$7.25 prior to the first stage of its implementation in July 2007. We draw data from the March 2005 SIPP for the analysis because this panel contains information on wages of working individuals, the income-to-poverty ratios of their families, and information on whether the respondent can be classified as being in material hardship.

In Table 8, we use 2005 SIPP data on all workers ages 16-to-64 and present cross-tabulations of the wage distribution of workers by the income-to-poverty ratios of their families in 2006, following Burkhauser and Sabia (2007). The weighted average poverty threshold for a family of four in 2005 was \$19,971; thus a worker living in a family with income of \$39,942 would have an income-to-poverty ratio of 2.0. The table presents results for workers who report hourly wages to avoid measurement error (Bollinger and Chandra, 2005).²⁷

Our results show a pattern very similar to that shown by

²⁵The inclusion of state-specific linear time trend renders the estimated food stamp participation effect positive and statistically indistinguishable from zero, as appendix tables available upon request or at www.epionline.org show. They also show the robustness of our findings to adding a lagged minimum wage variable to the right hand-side of equation (1). The findings are consistent with those shown in Table 6.

²⁶In the spirit of Neumark and Wascher (2002), we exploit the individual panel data in the SIPP to examine individual-specific flows into or out of poverty and hardship-related program participation following the passage of minimum wage increases. While we find that minimum wages are generally negatively related to transitions into poverty and positively related to transitions out of poverty, the estimates effects are not statistically different from zero at conventional levels. Full results are available upon request or online at www.epionline.org.

²⁷Because of incomplete data on weeks per month and months per year worked, the imputation of hourly wage rates in the SIPP for those paid hourly is prone to substantial measurement error. However, in Appendix Table 1, we repeat the analysis presented in Table 8 using the full sample of workers, with wages imputed from information on hours per week and part-time work status in the previous month. The results using the full sample of workers are consistent with our findings using those who report hourly pay.

Burkhauser and Sabia (2007) in the CPS: the majority (56.6 percent) of workers from poor families earn wages greater than \$7.25 and thus would not directly benefit from the federal minimum wage increase (row 1). Moreover, the vast majority (86.9 percent) of workers we define as minimum wage workers (those earning between \$5.00 and \$7.24 per hour) are non-poor.²⁸ Fifty-six (56.0) percent of minimum wage workers live in families with incomes more than two times the poverty threshold and one-third live in families with incomes more than three times the poverty threshold (final column). These findings suggest that minimum wage increases are likely to be poorly targeted to the working poor and thus are not likely to help alleviate poverty.²⁹

Conclusions

Increasing state and federal minimum wages is often justified on the grounds that such hikes will alleviate material hardship among the working poor (Democratic Policy Committee, 2007). In this study we use data drawn from the Survey of Income and Program Participation to explore the effect of minimum wage increases on poverty and several measures of material hardship. Our results

provide little evidence that raising the minimum wage has been effective in reducing poverty or material hardship among all individuals, workers, less-educated individuals, or less-experienced individuals.

We conclude that the policy objective of alleviating material hardship is unlikely to be substantially advanced by increases in state or federal minimum wages because of poor target efficiency and possible adverse labor demand effects. This finding is consistent with that of Wu, Perloff, and Golan (2005), who find that higher minimum wages do little to improve income inequality and, using particular measures of inequality, actually harm poor families. We find some evidence that expansions in state supplements to the federal Earned Income Tax Credit—which are well-targeted to poor individuals (CBO, 2007) and are not accompanied by adverse labor demand effects (Eissa and Liebman, 1996; Eissa and Hoynes, 2005; Hotz et al., 2002, 2003; Ellwood, 2000; Meyer et al. 2000; 2001; Neumark and Wascher, 2001)—may be more successful at reducing poverty. Future work expanding the work of Wu *et al.* (2005) to explore the relative welfare effects of public policies designed to alleviate material hardship will be particularly useful in evaluating the relative merits of these government policies.

²⁸Burkhauser and Sabia (2007) include those earning between \$5.00 and \$5.14 as affected workers because these individuals' hourly wages may be reported with modest error. But we assume that those earning less than \$5.00 are tipped employees who would not stand to gain from the federal minimum wage increase to \$7.25 per hour.

²⁹In tables available upon request and online (www.epionline.org), we repeat these exercises for different age and education ranges. The results are consistent with our earlier findings that a minimum wage increase is not well-targeted to its intended beneficiaries.

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TABLE 1: Means of Dependent and Independent Variables, 1996-2007

	All (1)	Workers (2)	Less-Educated (3)	Less-Experienced (4)	More Educated and Experienced (5)
Dependent Variables					
<i>Poverty Measures</i>					
Below Poverty Threshold	0.096 (0.039)	0.032 (0.018)	0.215 (0.069)	0.124 (0.052)	0.064 (0.028)
Below 125% of Poverty Threshold	0.134 (0.051)	0.054 (0.028)	0.291 (0.087)	0.174 (0.067)	0.092 (0.039)
Below 150% of Poverty Threshold	0.175 (0.064)	0.082 (0.037)	0.362 (0.099)	0.225 (0.079)	0.124 (0.050)
Income-to-Poverty Ratio	3.96 (0.659)	4.56 (0.699)	2.58 (0.507)	3.38 (0.618)	4.33 (0.659)
Below Poverty (w/ Transfers)	0.086 (0.035)	0.029 (0.016)	0.188 (0.063)	0.110 (0.049)	0.058 (0.026)
<i>Material Hardship¹</i>					
Trouble Meeting Expenses	0.146 (0.040)	0.108 (0.033)	0.226 (0.052)	0.171 (0.050)	0.136 (0.037)
Miss Paying Utility Bill	0.100 (0.029)	0.071 (0.025)	0.159 (0.046)	0.124 (0.037)	0.090 (0.030)
Any Housing Hardship	0.204 (0.056)	0.171 (0.050)	0.276 (0.074)	0.214 (0.060)	0.187 (0.049)
Failed to Pay Mortgage or Rent	0.058 (0.021)	0.040 (0.015)	0.092 (0.034)	0.073 (0.030)	0.054 (0.020)
Housing Cost Burdened (>50% Income)	0.069 (0.025)	0.036 (0.017)	0.106 (0.041)	0.077 (0.031)	0.059 (0.024)
No Washing Machine	0.059 (0.032)	0.047 (0.027)	0.109 (0.060)	0.079 (0.043)	0.045 (0.026)
No Dryer	0.089 (0.046)	0.066 (0.036)	0.180 (0.091)	0.111 (0.061)	0.064 (0.035)
Miss Doctor's Visit	0.070 (0.024)	0.050 (0.018)	0.114 (0.048)	0.079 (0.031)	0.065 (0.025)
No Private Health Insurance	0.325 (0.106)	0.176 (0.032)	0.562 (0.316)	0.441 (0.194)	0.241 (0.058)
Food Insecure	0.084 (0.029)	0.056 (0.020)	0.156 (0.048)	0.102 (0.037)	0.072 (0.028)
<i>Hardship-Related Program Participation</i>					
Food Stamp Participation	0.087 (0.042)	0.034 (0.023)	0.203 (0.074)	0.117 (0.057)	0.061 (0.033)
Housing Assistance	0.016 (0.011)	0.007 (0.007)	0.035 (0.027)	0.024 (0.017)	0.012 (0.009)

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TABLE 1 (continued): Means of Dependent and Independent Variables, 1996-2007

	All (1)	Workers (2)	Less-Educated (3)	Less-Experienced (4)	More Educated and Experienced (5)
<i>Hardship-Related Program Participation (continued)</i>					
Energy Assistance	0.038	0.012	0.075	0.042	0.027
	(0.034)	(0.010)	(0.043)	(0.027)	(0.029)
Public Health Insurance	0.124	0.035	0.291	0.156	0.074
	(0.053)	(0.021)	(0.085)	(0.058)	(0.040)
<i>Transition Measures</i>					
Into Poverty	0.119	0.071	0.193	0.152	0.100
	(0.036)	(0.025)	(0.067)	(0.052)	(0.034)
Out of Poverty	0.686	0.794	0.591	0.715	0.660
	(0.119)	(0.127)	(0.117)	(0.125)	(0.214)
On to Food Stamps	0.031	0.015	0.070	0.045	0.023
	(0.019)	(0.012)	(0.036)	(0.030)	(0.018)
Off of Food Stamps	0.417	0.532	0.387	0.473	0.430
	(0.158)	(0.265)	(0.142)	(0.176)	(0.206)
On to Energy Assistance	0.016	0.006	0.033	0.020	0.011
	(0.014)	(0.006)	(0.023)	(0.015)	(0.010)
Off of Energy Assistance	0.895	0.943	0.888	0.915	0.898
	(0.162)	(0.158)	(0.195)	(0.175)	(0.185)
On to Public Health Insurance	0.034	0.013	0.094	0.060	0.020
	(0.031)	(0.010)	(0.051)	(0.030)	(0.023)
Off of Public Health Insurance	0.293	0.439	0.238	0.338	0.288
	(0.119)	(0.231)	(0.119)	(0.159)	(0.174)
<i>Independent Variables</i>					
Minimum Wage	5.25	5.23	5.18	5.22	5.23
	(0.615)	(0.622)	(0.574)	(0.630)	(0.611)
Prime-Age Unemployment Rate	0.047	0.046	0.046	0.045	0.047
	(0.018)	(0.017)	(0.016)	(0.017)	(0.017)
Prime-Age Male Wage Rate	17.1	17.1	17.0	17.1	17.2
	(3.80)	(3.58)	(3.34)	(3.58)	(3.87)
% Some College	0.319	0.339	—	0.320	0.364
	(0.049)	(0.052)	—	(0.052)	(0.056)
% College Grad	0.232	0.293	—	0.123	0.308
	(0.054)	(0.055)	—	(0.038)	(0.064)
% Black	0.115	0.101	0.188	0.152	0.108
	(0.103)	(0.089)	(0.149)	(0.124)	(0.093)
% Hispanic	0.085	0.070	0.188	0.106	0.056
	(0.104)	(0.088)	(0.199)	(0.115)	(0.070)
% Married	0.574	0.645	0.354	0.236	0.701
	(0.042)	(0.046)	(0.081)	(0.068)	(0.046)

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TABLE 1 (continued): Means of Dependent and Independent Variables, 1996-2007

	All (1)	Workers (2)	Less-Educated (3)	Less-Experienced (4)	More Educated and Experienced (5)
<i>Independent Variables (continued)</i>					
% Metro Area	0.672	0.693	0.694	0.730	0.683
	(0.287)	(0.275)	(0.250)	(0.248)	(0.282)
% Ages 16-24	0.182	0.102	0.436	0.689	—
	(0.026)	(0.024)	(0.085)	(0.046)	—
% Ages 55-64	0.138	0.117	0.139	—	—
	(0.027)	(0.025)	(0.042)	—	—
EITC	0.035	0.038	0.042	0.042	0.036
	(0.077)	(0.080)	(0.085)	(0.083)	(0.078)
Strict Work Requirement	0.598	0.604	0.547	0.587	0.609
	(0.491)	(0.490)	(0.499)	(0.493)	(0.489)
Time Limit Months	50.4	49.7	51.5	50.1	50.1
	(18.7)	(19.3)	(18.7)	(19.4)	(19.0)
Person-Year N	431,525	244,534	67,431	104,559	216,871
State-Year N	464	409	282	368	440

Note: Weighted means are obtained using data from the 1996 to 2007 Survey of Income and Program Participation. Standard deviations are in parentheses.

¹Data on material hardship (with the exception of housing stress and health insurance) are only available in the 1998, 2003, and 2005 SIPP surveys. Person-Year (State-Year) sample sizes are 123,977 (128) for all individuals ages 16-64, 71,754 (116) for workers, 18,771 (86) for 16-to-64 year-olds without a high school degree, 29,2386 (103) for younger individuals ages 16-to-29, and 63,768 (122) for more highly educated and experienced individuals.

TABLE 2: Estimates of the Effect of Minimum Wage Increases on Log (Poverty), 1996-2007

	Below Poverty Threshold (1)	Below 125% Poverty (2)	Below 150% Poverty (3)	Income-to-Poverty Ratio (4)	Below Poverty (w/ Transfers) (5)
Log (Minimum Wage)	0.039 (0.357)	0.101 (0.319)	0.071 (0.243)	0.032 (0.118)	0.222 (0.367)
Log (Prime-Age Unemployment Rate)	0.062** (0.030)	0.059** (0.024)	0.041* (0.023)	-0.003 (0.013)	0.063* (0.033)
Log (Prime-Age Male Wage)	0.058 (0.141)	0.143* (0.071)	0.068 (0.057)	-0.002 (0.013)	0.063 (0.131)
Log (% Some College)	-0.466** (0.175)	-0.535*** (0.169)	-0.536*** (0.127)	0.184*** (0.065)	-0.488** (0.198)
Log (% College Grad)	-0.440*** (0.182)	-0.460*** (0.162)	-0.545*** (0.115)	0.233*** (0.047)	-0.297 (0.193)
Log (% Black)	0.060** (0.023)	0.068*** (0.017)	0.058*** (0.015)	-0.018*** (0.006)	0.063* (0.034)
Log (% Hispanic)	-0.006 (0.019)	0.010 (0.010)	0.015 (0.010)	-0.008 (0.007)	-0.018 (0.024)
Log (% Married)	-0.880*** (0.183)	-0.461* (0.268)	-0.220 (0.246)	0.018 (0.129)	-0.957*** (0.250)
Log (% Metro Area)	-0.002 (0.011)	-0.001 (0.009)	0.001 (0.007)	0.005 (0.004)	-0.002 (0.011)
Log (% Ages 16-24)	-0.082 (0.170)	-0.109 (0.148)	-0.072 (0.109)	0.022 (0.045)	-0.109 (0.194)
Log (% Ages 55-64)	0.057 (0.112)	0.108 (0.105)	0.103 (0.095)	0.006 (0.044)	0.073 (0.116)
EITC	-0.011* (0.006)	-0.005 (0.006)	-0.005 (0.005)	0.269 (0.283)	-0.011 (0.007)
Work Requirement	0.019 (0.083)	0.031 (0.075)	0.009 (0.063)	0.012 (0.020)	0.020 (0.086)
Time Limit	-0.0003 (0.0017)	-0.0002 (0.0013)	-0.0002 (0.0010)	-0.0003 (0.0006)	-0.0001 (0.002)
State Effects?	Y	Y	Y	Y	Y
Year Effects?	Y	Y	Y	Y	Y
Person-Year N	431,525	431,525	431,525	431,525	431,525
State-Year N	464	464	464	464	464

***Significant at 1% level **Significant at 5% level *Significant at 10% level Note: Weighted estimates are obtained using data from the 1996 to 2007 Survey of Income and Program Participation. Standard errors corrected for clustering on the state are in parentheses.

TABLE 3: Estimates of the Effect of Minimum Wage Increases on Poverty of Workers, Less-Educated, and Less-Experienced

	All (1)	Workers (2)	Less- Educated (3)	Less- Experienced (4)	All (5)	Workers (6)	Less- Educated (7)	Less- Experienced (8)
Panel A: Below Poverty Threshold								
Log (Minimum Wage)	0.039 (0.357)	0.046 (0.462)	-0.298 (0.398)	0.109 (0.501)	0.078 (0.301)	-0.319 (0.537)	-0.055 (0.417)	0.070 (0.589)
Panel B: Below 125% of Poverty Threshold								
Log (Minimum Wage)	0.101 (0.319)	0.838 (0.540)	-0.345 (0.358)	0.363 (0.399)	0.385* (0.197)	0.565 (0.465)	0.362 (0.442)	0.387 (0.305)
Panel C: Below 150% of Poverty Threshold								
Log (Minimum Wage)	0.071 (0.243)	0.567 (0.449)	-0.328 (0.272)	0.231 (0.315)	0.206 (0.157)	0.307 (0.298)	0.345 (0.338)	0.176 (0.241)
Panel D: Income-to-Poverty Ratio								
Log (Minimum Wage)	0.032 (0.118)	-0.083 (0.092)	0.056 (0.140)	-0.147 (0.109)	-0.088 (0.085)	-0.057 (0.110)	-0.034 (0.144)	-0.100 (0.121)
Panel E: Below Poverty Threshold (with Transfers)								
Log (Minimum Wage)	0.222 (0.367)	0.002 (0.483)	-0.063 (0.425)	0.497 (0.589)	0.122 (0.348)	-0.498 (0.537)	0.011 (0.559)	0.213 (0.750)
State Effects?	Y	Y	Y	Y	Y	Y	Y	Y
Year Effects?	Y	Y	Y	Y	Y	Y	Y	Y
State-Specific Linear Trends?	N	N	N	N	Y	Y	Y	Y
Person-Year N	431,525	244,534	67,431	104,559	431,525	244,534	67,431	104,559
State-Year N	464	409	282	368	464	405	282	464

*** Significant at 1% level **Significant at 5% level *Significant at 10% level

Note: Each estimate above comes from a separate regression from a weighted OLS model using data from the 1996 to 2007 Survey of Income and Program Participation. All models include the full set of controls listed in Table 2. Standard errors corrected for clustering on the state are in parentheses.

TABLE 4: Difference-in-Difference-in-Difference Estimates of the Effect of Minimum Wage Increases on Lower-Skilled Individuals

	More Highly Educated and Experienced [DD] (1)	More Highly Educated and Experienced [DD] (2)	Less-Educated vs. More Highly Educated [DDD] (3)	Less-Experienced vs. More Highly Educated [DDD] (4)
Panel A: Below Poverty Threshold				
Log (Minimum Wage)	-0.146 (0.360)	-0.219 (0.461)	0.139 (0.605)	0.443 (0.445)
Panel B: Below 125% of Poverty Threshold				
Log (Minimum Wage)	0.006 (0.296)	0.204 (0.273)	-0.241 (0.469)	0.208 (0.411)
Panel C: Below 150% of Poverty Threshold				
Log (Minimum Wage)	0.054 (0.272)	0.220 (0.231)	-0.297 (0.439)	0.0003 (0.348)
Panel D: Income-to-Poverty Ratio				
Log (Minimum Wage)	-0.023 (0.069)	-0.109 (0.079)	0.025 (0.210)	-0.113 (0.131)
Panel E: Below Poverty Threshold (with Transfers)				
Log (Minimum Wage)	-0.006 (0.319)	-0.155 (0.428)	0.032 (0.654)	0.552 (0.617)
State Effects?	Y	Y	Y	Y
Year Effects?	Y	Y	Y	Y
State-Specific Linear Trends?	N	Y	N	N
State*Year Dummies?	N	N	Y	Y
Person-Year N	216,871	216,871	284,302	321,430
State-Year N	440	440	722	808

***Significant at 1% level **Significant at 5% level *Significant at 10% level

Note: Each estimate above comes from a separate regression from a weighted OLS model using data from the 1996 to 2007 Survey of Income and Program Participation. All models include the full set of controls listed in Table 2. Standard errors corrected for clustering on the state are in parentheses.

TABLE 5: Estimates of the Effect of Minimum Wage Increases on Material Hardship

	Not Meet Expenses (1)	Miss Utility Bill (2)	Any Housing Hardship (3)	Not Pay Rent (4)	Housing Stress (5)	No Washer (6)	No Dryer (7)	Miss Doctor Visit (8)	No Private Health Ins. (9)	Food Insecure (10)
Panel A: All										
Log (Minimum Wage)	-0.041 (0.446)	0.382 (0.583)	0.661** (0.326)	0.033 (0.655)	0.164 (0.414)	0.922 (0.683)	0.882 (0.708)	0.184 (0.663)	-0.111 (0.126)	0.113 (0.647)
Person-Year N	123,977	123,977	123,977	123,977	390,770	123,977	123,977	123,977	431,525	123,977
State-Year N	128	128	128	128	387	128	128	128	464	128
Panel B: Workers										
Log (Minimum Wage)	0.457 (0.735)	0.109 (0.915)	0.788 (0.500)	0.384 (1.06)	0.529 (0.710)	1.54* (0.866)	1.24* (0.678)	-0.138 (0.816)	0.238 (0.176)	-0.020 (0.758)
Person-Year N	71,754	71,754	71,754	71,581	222,780	71,754	71,754	71,754	244,534	71,754
State-Year N	116	116	116	115	348	116	116	116	409	116
Panel C: Less-Educated										
Log (Minimum Wage)	0.711 (0.583)	1.01 (0.825)	0.339 (0.435)	-0.130 (0.930)	-0.294 (0.536)	-0.053 (0.910)	0.233 (1.04)	0.991 (1.06)	-0.161 (0.165)	0.422 (0.980)
Person-Year N	18,771	18,771	18,771	18,771	64,118	18,771	18,771	18,771	67,431	18,771
State-Year N	86	86	86	86	261	86	86	86	282	86
Panel D: Less-Experienced										
Log (Minimum Wage)	-0.345 (0.645)	-0.296 (0.787)	1.40 (2.00)	-1.76 (1.25)	-0.032 (0.456)	1.16 (1.04)	1.25 (0.894)	-0.320 (0.876)	0.002 (0.170)	0.792 (1.37)
Person-Year N	29,386	29,386	29,386	29,386	96,034	29,386	29,386	29,386	104,559	29,386
State-Year N	103	103	103	103	319	103	103	103	368	103
Panel E: More Highly Educated and Experienced										
Log (Minimum Wage)	0.575 (0.655)	0.290 (0.683)	0.647 (0.439)	0.575 (0.655)	0.036 (0.455)	2.12* (1.08)	1.45 (0.939)	0.402 (0.28)	-0.125 (0.135)	0.228 (0.72)
Person-Year N	63,268	63,268	63,268	63,268	196,505	63,124	63,268	63,268	213,281	63,268
State-Year N	122	122	122	122	370	121	122	122	401	122
State Effects?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year Effects?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

***Significant at 1% level **Significant at 5% level *Significant at 10% level

Note: Each estimate above comes from a separate regression from a weighted OLS model using data drawn from the Survey of Income and Program Participation. All models include the full set of controls in Table 2. Standard errors corrected for clustering on the state are in parentheses.

TABLE 6: Estimates of the Effect of Minimum Wage Increases on Material Hardship-Related Public Program Participation

	Food Stamp Participation (1)	Rental/Housing Assistance (2)	Energy Assistance (3)	Receive Public Health Insurance (4)
Panel A: All				
Log (Minimum Wage)	-0.246 (0.319)	-0.244 (0.615)	-0.036 (0.406)	-0.098 (0.213)
Person-Year N	431,525	428,574	430,641	431,525
State-Year N	464	452	459	464
Panel B: Workers				
Log (Minimum Wage)	0.172 (0.555)	0.569 (0.914)	0.050 (0.594)	-0.357 (0.313)
Person-Year N	245,309	228,774	235,852	245,476
State-Year N	408	351	378	409
Panel C: Less-Educated				
Log (Minimum Wage)	-0.746* (0.406)	-0.113 (0.983)	-0.054 (0.930)	-0.299 (0.295)
Person-Year N	67,431	66,745	67,058	67,431
State-Year N	282	275	279	282
Panel D: Less-Experienced				
Log (Minimum Wage)	-0.126 (0.367)	0.570 (0.780)	0.154 (0.468)	-0.155 (0.324)
Person-Year N	104,559	100,928	103,306	104,559
State-Year N	368	337	358	368
Panel E: More Highly Educated and Experienced				
Log (Minimum Wage)	-0.370 (0.421)	-0.438 (0.696)	-0.490 (0.516)	-0.579* (0.293)
Person-Year N	216,723	216,871	216,871	216,871
State-Year N	439	440	440	440
State Effects?	Y	Y	Y	Y
Year Effects?	Y	Y	Y	Y

***Significant at 1% level **Significant at 5% level *Significant at 10% level

Note: Each estimate above comes from a separate regression from an unweighted OLS model using data from the 1996 to 2007 Survey of Income and Program Participation. Standard errors corrected for clustering on the state are in parentheses.

TABLE 7: Percent of Individuals in Hardship Who Are Not Working			
Hardship	Percent Age 16-64	Percent Less-Educated Age 16-64	Percent Less-Experienced Age 16-29
Poor	54.7	54.6	62.9
Did Not Meet Expenses	34.1	52.9	46.2
Missed Utility Bill	34.6	52.8	47.1
Any Housing Hardship	28.9	45.9	42.1
Did Not Pay Rent	39.0	53.6	50.5
Washer	28.5	37.3	37.6
Clothes Dryer	27.5	34.6	36.4
Housing Cost Burdened	30.3	43.5	42.4
Missed Doctor Visit	35.2	47.5	42.5
No Health Insurance	52.0	48.1	54.0
Food Insecure	36.3	48.0	44.6
Received Food Stamps	51.2	54.5	58.5
Received Housing Assistance	43.4	52.8	54.1
Received Energy Assistance	47.5	56.7	57.5
Public Health Insurance	49.4	56.6	57.1

Source: Estimates from topical module 5 (calendar year 2005) of the Survey of Income and Program Participation.

TABLE 8: Wage Distribution of All Workers by Income-to-Poverty Ratio of Their Families in 2005 Hourly Wage Categories^a									
Income-to-Poverty Ratio	\$0.01 to \$4.99	\$5.00 to \$5.14	\$5.15 to \$7.24	\$7.25 to \$8.99	\$9.00 to \$14.99	\$15.00 and over	Total	Percent of All Workers	Percent of Workers Earning More than \$4.99 and Less Than \$7.25
Less than 1.00	6.4	1.0	36.0	26.3	25.5	4.8	100.0	3.9	13.1
1.00 to 1.24	2.0	0.6	24.8	25.6	41.0	6.0	100.0	3.5	8.1
1.25 to 1.49	2.4	0.3	24.9	25.3	40.0	7.2	100.0	4.0	9.1
1.50 to 1.99	1.8	0.4	13.2	24.0	51.3	9.4	100.0	11.1	13.7
2.00 to 2.99	0.8	0.2	10.3	14.1	55.5	19.1	100.0	23.8	22.7
3.00 or Above	0.8	0.1	6.7	8.2	35.7	48.5	100.0	53.7	33.3
Whole Category Share ^b	1.2	0.2	10.8	13.4	42.1	32.3	100.0	100.0	100.0

Notes:

^aHourly wage rates are based on a direct question concerning earnings per hour on their current primary job. All income data used to calculate income-to-poverty ratios come from monthly data provided in that calendar year. Wages are in 2005 dollars.

^bShare of all workers with wage earnings in each category.

Source: Estimated from the 2004 panel of the Survey of Income and Program Participation using 2005 calendar year income-to-poverty ratio and March 2005 wage.

APPENDIX TABLE 1: Wage Distribution of All Workers by Income-to-Poverty Ratio of Their Families in 2005 Hourly Wage Categories^a

Income-to-Poverty Ratio	\$0.01 to \$4.99	\$5.00 to \$5.14	\$5.15 to \$7.24	\$7.25 to \$8.99	\$9.00 to \$14.99	\$15.00 and over	Total	Percent of All Workers	Percent of Workers Earning More than \$4.99 and Less Than \$7.25
Less than 1.00	11.3	1.5	34.3	23.5	23.1	6.4	100.0	2.5	12.7
1.00 to 1.24	5.3	0.6	24.4	23.0	39.1	7.8	100.0	2.3	8.4
1.25 to 1.49	3.4	1.2	23.5	23.9	38.7	9.3	100.0	2.5	9.1
1.50 to 1.99	3.2	0.6	12.3	22.1	48.7	13.1	100.0	7.4	13.9
2.00 to 2.99	1.7	0.1	8.5	11.8	53.2	24.7	100.0	18.0	22.5
3.00 or Above	0.8	0.1	3.4	4.1	23.6	68.1	100.0	67.3	33.5
Whole Category Share ^b	1.6	0.2	6.7	8.2	31.5	51.8	100.0	100.0	100.0

Notes:

^aHourly wage rates are based on a direct question concerning earnings per hour (when available) on their current primary job. When direct hourly wage responses were not available, an estimate was constructed with existing salary and work history information. All income data used to calculate income-to-poverty ratios come from monthly data provided in that calendar year. Wages are in 2005 dollars.

^bShare of all workers with wage earnings in each category

Source: Estimated from the 2004 panel of the Survey of Income and Program Participation using 2005 calendar year income-to-poverty ratio and March 2005 wage.

APPENDIX TABLE 2: Wage Distribution of All Workers by Income-to-Poverty Ratio of Their Families in 2005 Hourly Wage Categories^a

Income-to-Poverty Ratio	\$0.01 to \$4.99	\$5.00 to \$5.14	\$5.15 to \$7.24	\$7.25 to \$8.99	\$9.00 to \$14.99	\$15.00 and over	Total	Percent of All Workers	Percent of Workers Earning More than \$4.99 and Less Than \$7.25
Poor?									
Yes	11.3	1.5	34.3	23.5	23.1	6.4	100.0	2.5	12.7
No	1.3	0.2	6.0	7.9	31.7	52.9	100.0	97.5	87.3
Did Not Meet Expenses?									
Yes	2.0	0.3	11.3	13.9	42.0	30.5	100.0	10.9	18.2
No	1.5	0.2	6.2	7.6	30.2	54.4	100.0	89.1	81.8
Miss Utility Bill?									
Yes	2.2	0.2	10.6	13.9	42.5	30.6	100.0	7.7	11.9
No	1.5	0.2	6.4	7.8	30.6	53.5	100.0	92.4	88.1
Any Housing Hardship?									
Yes	2.2	0.4	9.8	11.9	36.1	39.8	100.0	16.8	24.6
No	1.5	0.2	6.1	7.5	30.6	54.2	100.0	83.2	75.4
Did Not Pay Rent?									
Yes	2.3	0.6	11.6	15.9	42.5	27.1	100.0	4.4	7.7
No	1.5	0.2	6.5	7.9	31.0	52.9	100.0	95.6	92.3
Lack Clothes Washer?									
Yes	3.0	0.6	19.1	17.7	36.2	23.5	100.0	5.9	11.3
No	1.8	0.2	9.4	9.7	31.1	47.9	100.0	94.2	88.7
Lack Clothes Dryer?									
Yes	2.8	0.6	19.1	17.7	36.0	23.8	100.0	8.2	15.8
No	1.8	0.2	9.1	9.5	31.0	48.5	100.0	91.8	84.2
Housing Cost Burdened?									
Yes	3.2	0.4	10.0	13.7	39.2	33.4	100.0	18.5	27.8
No	1.2	0.1	6.0	7.0	29.7	55.9	100.0	81.5	72.2
Miss Doctor Visit?									
Yes	1.7	0.5	12.3	15.6	42.2	27.7	100.0	5.1	9.4
No	1.6	0.2	6.4	7.8	30.9	53.1	100.0	94.9	90.6
No Health Insurance?									
Yes	3.7	0.7	20.0	20.9	39.1	15.7	100.0	14.0	41.8
No	1.2	0.1	4.6	6.2	30.3	57.7	100.0	86.0	58.2
Food Insecure?									
Yes	2.0	0.9	12.3	18.6	42.8	23.4	100.0	5.9	11.3
No	1.5	0.2	6.4	7.6	30.8	53.6	100.0	94.1	88.7
Received Food Stamps									
Yes	5.7	0.9	24.7	23.7	32.6	12.5	100.0	3.6	13.2
No	1.4	0.2	6.1	7.7	31.5	53.2	100.0	96.4	86.8

(chart continued on next page)

APPENDIX TABLE 2: Wage Distribution of All Workers by Income-to-Poverty Ratio of Their Families in 2005 Hourly Wage Categories^a

Income-to-Poverty Ratio	\$0.01 to \$4.99	\$5.00 to \$5.14	\$5.15 to \$7.24	\$7.25 to \$8.99	\$9.00 to \$14.99	\$15.00 and over	Total	Percent of All Workers	Percent of Workers Earning More than \$4.99 and Less Than \$7.25
Received Housing Assistance									
Yes	5.9	0.6	17.7	21.7	43.8	10.3	100.0	0.7	1.8
No	1.5	0.2	6.7	8.1	31.4	52.1	100.0	99.3	98.2
Received Energy Assistance									
Yes	3.3	0.1	20.1	24.3	36.3	15.9	100.0	1.5	4.4
No	1.5	0.2	6.5	8.0	31.4	52.3	100.0	98.5	95.6
Received Public Health Insurance									
Yes	5.6	0.7	24.9	22.8	32.1	13.9	100.0	4.8	17.7
No	1.4	0.2	5.8	7.5	31.5	53.7	100.0	95.2	82.3
Whole Category Share	1.6	0.2	6.7	8.2	31.5	51.8	100.0		



Employment Policies

INSTITUTE

1090 Vermont Avenue, NW
Suite 800
Washington, DC 20005
www.EPOnline.org
Tel: 202.463.7650
Fax: 202.463.7107