Minimum Wages, Cash Wages, and Poverty: New Evidence from the Great Recession Years[*]

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Abstract

This study is the first to examine whether the poverty effects of minimum wage increases differ across the business cycle and to explore the effect of increases in minimum cash wages paid to tipped workers on poverty rates. Using data drawn from the March 2004 to March 2012 Current Population Survey, we find no evidence that minimum wage increases reduce poverty rates among all individuals, workers, or individuals without a high school diploma either during times of economic expansion or recession. Across the business cycle, we find little evidence that the minimum wage is well-targeted to those in need. When we examine the effect of increases in minimum cash wages, we find that such increase may actually *increase* poverty rates of those without a high school diploma. This finding is consistent with adverse employment effects of cash wage hikes for restaurant employees.

Keywords: minimum wages, cash wages, poverty, target efficiency

> "Tonight, let's declare that in the wealthiest nation on earth, no one who works full-time should have to live in poverty and raise the federal minimum wage…" (Barack Obama, *State of the Union Address*, February 12, 2013)

I. Introduction

Recent research has suggested that minimum wage increases may be ineffective at alleviating poverty in the United States because of poor target efficiency (Sabia and Nielsen 2013; Sabia and Burkhauser 2010) and adverse employment effects among those near the poverty threshold (Neumark and Wascher 2002). Despite these findings, policymakers arguing for minimum wage increases at the state and federal levels continue to point to their potential to lift the working poor out of poverty (Obama 2013). President Barack Obama has called on Congress to raise the minimum wage from its current level of $7.25 per hour to at least $9.00 per hour, and the Fair Minimum Wage Act (FMWA) of 2013, introduced by Senator Tom Harkin (D-IA), proposes a new federal minimum wage of $10.10 per hour. Proponents have claimed that such increases are necessary even during times of economic recession (Center for American Progress, 2011).

At the same time, the minimum "cash wage" has also taken on a new saliency among policymakers. Tipped employees, often restaurant workers such as waiters and waitresses, are currently mandated to receive a cash wage of at least $2.13 per hour which, when combined with tips received, must total at least the federal minimum wage of $7.25 per hour. The Fair Minimum Wage Act of 2013 would mandate an increase in the cash wage paid to tipped employees of $7.07 per hour. There is recent evidence that increases in state cash wages may reduce employment among restaurant employees (Macpherson and Even 2011), but no study of which we are aware has explored the effect of cash wage increases on poverty.

The current study will contribute to the existing literature on minimum wages and poverty in three ways. First, the current study will be the first to explore whether minimum wage increases are any more effective in alleviating poverty during troughs as opposed to peaks in the national and state business cycles. We will also examine whether the target efficiency of minimum wages appears better during recessions as opposed to expansions. Second, our paper is the first to explore whether increases in cash wages are an effective means to combat poverty. And finally, we will examine whether cash wage increases will be a target efficient policy tool in lifting tipped workers out of poverty.

II. Background

Employment Effects of Minimum Wages. Much of the economics literature examining the economic consequences of minimum wage increases has focused on the low-skilled employment effects of such increases. Adverse employment effects are an important mechanism through which minimum wage increases may affect poverty. While wage increases may increase the incomes of some workers in poverty, adverse employment or hours effects may reduce incomes of others, plunging them into poverty. While Neumark and Wascher (2008) appeared to restore the early consensus to the literature (Brown 1999) that minimum wages have small, but significant negative effects on low-skilled employment (elasticities of -0.1 to -0.2), a recent wave of studies have challenged this consensus. Using contiguous counties across state borders that did not experience minimum wage increases as a counterfactual for counties that did, Dube et al. (2010) find no evidence that minimum wage increases reduced restaurant employment. Furthermore, controlling for spatial heterogeneity via census division-specific time shocks or

state-specific linear time trends, Allegretto et al. (2011) find no evidence that state minimum wage increases reduced teen employment.

While this set of studies could suggest that concerns about negative employment effects are overstated, Neumark, Salas, and Wascher (2013) challenge the results of Dube et al. (2010) and Allegretto et al. (2011). In the case of Dube et al. (2010), Neumark, Salas, and Wascher (2013) provide compelling evidence that, while superficially appealing, using contiguous counties across state borders as comparison counties for counties "treated" with the minimum wage may produce biased estimates because these "control" counties are often more dissimilar to treated counties on economic conditions than other donor counties in non-border state areas. When Neumark, Salas, and Wascher (2013) select more economically similar control counties from a wider set of donor states, they produce estimates consistent with adverse employment effects for low-skilled workers.

With respect to Allegretto et al. (2011), Neumark, Salas, and Wascher (2013) show that while controlling for spatial heterogeneity is important, the inclusion of controls for state-specific linear time trends or census division-specific time shocks often eliminates important sources of identifying variation. When they estimate minimum wage-induced employment effects separately by census division and allow more flexible state-specific time trends, they again find evidence of negative low-skilled employment effects, a finding confirmed by Sabia (2013). Therefore, the findings by Neumark, Salas, and Wascher (2013) suggest that it is far too soon to conclude that adverse employment effects are not a potentially important pathway through which the poverty-alleviating effects of minimum wage increases may be undermined (Neumark et al. 2002; Sabia 2008).

Target Efficiency of Minimum Wages. However, even in the absence of adverse employment effects for poor workers, there is a second important reason that increases in the minimum wage may not be effective in alleviating poverty: poor target efficiency. Burkhauser, Couch, and Wittenberg (1996) were the first to use Census data to show that while workers affected by minimum wages were disproportionately drawn from households living in poverty during the 1930s, the relationship between earning a low wage and living in poverty became increasingly more "fuzzy" throughout the 20th century, echoing a point made by Stigler (1946). By the late 1990s, the vast majority of minimum wage workers did not live in poor families, and by 2008, Sabia and Burkhauser (2010) showed that just 11.3 percent of workers who would be affected by a proposed federal minimum wage increase from $5.70 to $9.50 lived in poverty. Nearly half (49 percent) workers living in poverty earned wages higher than the proposed new minimum wage.

Heterogeneity in Effects of Minimum Wages Across the Business Cycle. While most studies have estimated the average employment effects of state and federal minimum wage increases across peaks and troughs of the business cycle, new research has begun to explore whether the effects may differ during recessions as compared to economic expansions. It has been argued that during slack labor markets, minimum wage increases could have larger employment effects than in tight labor markets because employers are less profitably able to pass the increased costs of low-skilled labor on to consumers (Allegretto et al. 2011; Sabia 2013; Addison et al. 2013).

Research on this topic has produced mixed results. Using their approach of controlling for state-specific linear time trends and census division-specific time shocks, Allegretto et al. (2011) find no evidence that minimum wage increases are associated with reductions in teen

employment either during periods of recessions or expansioons. However, in the spirit of Neumark, Salas, and Wascher (2013), Sabia (2013) shows that using more flexible controls for spatial heterogeneity produces evidence that the low-skilled employment effects of minimum wage increases may be larger (in absolute magnitude) during periods of recessions than expansions. He finds employment elasticities with respect to the minimum wage of -0.4 to -0.5 during troughs in the state business cycle (with the prime-age male unemployment rate is greater 8.0 percent or state GDP growth is less than 2 percent).[1] No study of which we are aware has explored whether the poverty effects of minimum wages differ across the business cycle.

Minimum Cash Wages. While economists studying government-mandated wage floors have most frequently examined the effects of state or federal minimum wages or city-specific living wages (Neumark and Wascher 2008), policymakers advocating wage increases have begun to focus on raising minimum cash wages paid to tipped workers. Only one study in the economics literature has explored the employment effects of cash wages or tipped workers (Macpherson and Even 2011). These authors find that increases in state or federal cash wages reduces employment of restaurant employees. They obtain estimated employment elasticities with respect to cash wages for restaurant workers of -0.01 to -0.1 and for tipped restaurant workers of up to -0.3.

The current study is the first in the literature to examine the poverty effects of minimum and cash wages across the business cycle and to explore the target efficiency of proposed increases in cash wages to alleviate poverty among workers in the restaurant industry who are most likely to work as tipped employees.

[1] On the other hand, Addison et al. (2013) find no evidence that disemployment effects for restaurant workers differ across the business cycle. However, they do find some evidence that teenage employment effects might be larger during state recessions, consistent with Sabia (2013).

III. Data and Methods

This study uses data drawn from the March 2004 to March 2012 Current Population Surveys (CPS). These data are useful for our purposes because they contain information on household and family income, family size, and state poverty thresholds, which allow us to construct both income to needs (household income divided by household size-specific poverty thresholds set by the US Department of Agriculture) ratios for households, as well as indicators for whether households or families fall below the poverty line (income to needs ratio less than 1). Because information on poverty is measured with respect to the previous calendar year, the years covered by our data are 2003-2011, which include the period prior to, during, and just after the Great Recession. In addition, the March CPS also contains information on current hourly wages for workers paid hourly as well as usual hours worked per week and usual weekly earnings for those not paid hourly, which permit the calculation of hourly wages for these individuals. Taken together, the above information will be useful in examining the relationship between earning and low wage and living in poverty.

We begin, as in Sabia and Burkhauser (2010) by estimating a difference-in-difference model of the following form:

$$Poverty_{st} = \beta_0 + \beta_1 MinWage_{st} + \beta_2 \mathbf{X}_{st} + \theta_s + \tau_t + \varepsilon_{st} \quad (1)$$

where $Poverty_{st}$ is the natural log of the poverty rate in state *s* in year *t* for all individuals ages 16 to 64, workers ages 16 to 64, or less-educated individuals ages 16 to 64, $MinWage_{st}$ is the natural log of the higher of the state or federal minimum wage in state *s* in year *t*, $\mathbf{X}_{st}$ is a vector of state-specific time-varying economic and demographic controls commonly employed in this literature

(Neumark and Wascher 2008; Sabia and Burkhauser 2010; Sabia and Nielsen 2013) including the prime-age (ages 25 to 54) wage rate, the prime-age male unemployment rate, the high school graduation rate, and the share of the 16 to 64 year-old population that are teenagers and older (ages 55 to 64). While these controls are designed to capture state economic and demographic trends correlated with legislative decisions and poverty, we also experiment with various methods of controlling for unobserved spatial heterogeneity, including state-specific linear time trends and census division-specific time shocks preferred by Allegretto et al. (2011) as well as higher-order more flexible time trends preferred by Neumark, Salas, and Wascher (2013). Also included as controls in equation (1) are time-invariant state effects (θs) and state-invariant year effects (τ_t).

In the above model, identification of β_1 (the estimated minimum wage elasticity) comes mainly from state-specific changes in minimum wages, but also from differential state-specific increases due to federal increases over different initial state levels. During the period under study (2003-2011), 24 states increased their minimum wages (see Appendix Table 1), allowing for a substantial source of identifying variation. In 2011, the federal minimum wage was $725 per hour. The state with the highest minimum wage was Washington state with a minimum wage of $8.67.

To explore heterogeneity in the poverty effects of minimum wage increases across the business cycle, we take two tacks. First, we estimate equation (1) for the period prior to the Great Recession (2003 to 2007), during the Great Recession (2008 to 2009), and during the beginning of the relatively slow economic recovery (2010-2011). This will allow an exploration of whether β_1 differs across the national business cycle.

Second, we take an approach similar to Sabia (2013) and Allegretto et al. (2011) and interact the state prime-age male unemployment rate with $MinWage_{st}$:

$$Poverty_{st} = \beta_0 + \beta_1 MinWage_{st} + \beta_2 \boldsymbol{UR_{st}} + \beta_3 MinWage_{st} * \mathbf{UR_{st}} + \beta_4 \mathbf{X}_{st} + \theta_s + \tau_t + \varepsilon_{st}, \quad (2)$$

where $\boldsymbol{UR_{st}}$ is a set of dummy variables for whether the prime age state unemployment rate is under 5 percent, 5.0 to 7.9 percent, or 8.0 percent or higher (Sabia 2013). The prime-age male unemployment rate is arguably largely unaffected by minimum wage increases; therefore, variation in this measure should capture exogenous shocks to the state business cycle. Thus, the estimate of β_3 from equation (2) reflects whether the poverty effects of the minimum wage differ across the state business cycle.[2]

Finally, we examine the effect of increases in cash wages for tipped workers on overall poverty rates as well as the poverty rates for workers in the restaurant industry. Specifically, we estimate a difference-in-difference model analogous to equation (1)

$$Poverty_{st} = \gamma_0 + \beta_1 CashWage_{st} + \beta_2 \mathbf{X}_{st} + \theta_s + \tau_t + \varepsilon_{st} \quad (3)$$

where $CashWage_{st}$ is the minimum state-specific time-varying cash wage that must be paid to tipped employees. Over the period under examination, the minimum federal cash wage was $2.13 per hour and the state with the highest cash wage was, again, Washington state with a cash wage of $8.67 (see Appendix Table 2). A total of 24 states increases their cash wages during this period. As above, we also experiment with adding controls for census division-specific year

[2] We also experiment with a fully interacted model, analogous to the national business cycle model and the findings are similar to what we present here.

effects and state-specific time trends. We estimate equation (3) using the poverty rates of individuals ages 16 to 64, individuals ages 16 to 64 without high school diplomas, and restaurant workers.

In addition, we also estimate a model that includes both the non-tipped state minimum wage ($MinWage_{st}$) and $CashWage_{st}$ on the right hand side of equation (3). However, it should be noted that there is some degree of collinearity between these measures. We identify 8 states that raised their tipped cash wage at a time that they did not also raise their non-tipped minimum wage. Thus, we also explore tests of the joint significance of both the minimum wage and the cash wage.

Table 1 shows the weighted means of the poverty measures, the minimum wage, the minimum cash wage for tipped workers, and the control variables for the 2003 to 2011 period. In our sample, the poverty rate for individuals ages 16 to 64 was 0.121; for workers ages 16 to 64, the poverty rate was much lower, at 0.064. The poverty rate for less educated individuals (those ages 16 to 64 without a high school diploma) was 0.247 and the poverty rate for workers in the restaurant industry was 0.150. The mean poverty rates when we use definitions up to 125 and 150 percent of the poverty line, respectively, are also shown in Table 1.

IV. Poverty Regression Results

Tables 2-6 show the main poverty regression results. All regressions are weighted by the state population ages 16 to 64. Standard errors corrected for clustering on the state are in parentheses (Bertrand et al. 2004).

Minimum Wage Effects. Baseline difference-in-difference estimates (column 1) show that minimum wage increases are associated with a small, statistically insignificant decline in

state poverty rates (estimated elasticity of -0.050). When state-specific, time-varying economic and demographic controls are added to the right-hand side of the estimating equation (column 2), the estimated elasticity falls by 50 percent in absolute magnitude and remains statistically indistinguishable from zero. In this specification, we find that the prime-age male unemployment rate and the percent of the state population who are teenagers are each positively related to state poverty rates.

In column (3), we add state-specific linear time trends as controls, an approach preferred by Allegretto et al (2011), and obtain an estimated poverty elasticity of -0.037. The estimated standard error on this elasticity suggests that we can rule out, with 95 percent confidence, poverty elasticities with respect to the minimum wage of larger (in absolute value) than -0.351 and 0.277. Appendix Table 3 examines the sensitivity of these estimates to the inclusion of controls for census division-specific year effects (Allegretto et al. 2011) and higher-order state-specific time trends (Neumark, Salas, and Wascher 2013). The results of these exercises continue to show little evidence that minimum wage increases are an effective anti-poverty strategy, a finding consistent with Sabia and Nielsen (2013) and Sabia and Burkhauser (2010).

The remaining columns of Table 2 show the robustness of these findings to alternate definitions of poverty: 125 percent of the poverty line (columns 4 and 5) and 150 percent of the poverty line (columns 6 and 7). The estimated elasticities in these specifications were uniformly small and statistically indistinguishable from zero (ranging from -0.041 to 0.022), suggesting that minimum wage increases have little effect on state poverty rates.[3]

In Panel A of Table 3, we examine the effect of minimum wage increases on the poverty rates of workers. This approach gives the minimum wage a better chance to alleviate poverty by

[3] As above, Appendix Table 1 shows robustness of poverty estimates to the inclusion of census division-specific year effects and state-specific quadratic time trends.

diminishing the possibility of adverse employment effects. However, minimum wage increases could still increase poverty among workers if employers respond to such hikes by cutting workers' hours. In addition, minimum wage increases could impact the composition of workers. For example, if employers respond to minimum wage increases by substituting toward (away from) non-poor low-skilled workers and away from (toward) poor low-skilled workers, then poverty estimates may understate (overstate) the adverse poverty effects of minimum wage increases. The findings in Panel A of Table 3 show no evidence that minimum wage increases reduce poverty rates of workers.

Panel B of Table 3 presents estimates of the relationship between minimum wage increases and state poverty rates of individuals without a high school diploma. This less educated group is likely to be low-skilled and low wage workers are more likely to be affected by minimum wages. We find that after controlling for state-specific linear time trends (column 3), a 10 percent increase in the minimum wage is associated with a statistically insignificant 1.63 percent increase in the poverty rate of less-educated individuals. In 6 of the 7 specifications, the estimated poverty elasticity with respect to the minimum wage is actually positive, though never statistically distinguishable from zero.

Taken together, the findings in Tables 2 and 3 suggest that minimum wage increases continue to be an ineffective anti-poverty tool during a period that includes the Great Recession of late 2008 and 2009. In Tables 4 and 5, we examine whether the effects of minimum wages differ across the national and state business cycles, respectively. Table 4 shows difference-in-difference estimates of the poverty effects of minimum wage increases for the pre-Great Recession period 2003-2007 (columns 1-3), the Great Recession years 2008-2009 (columns 4-6), and the post-Great Recession period 2010-2011 (columns 7-9). Note from Appendix Table 1

that there is some state minimum wage variation during the 2008-2009 and 2010-2011 periods. During the Great Recession years, 9 states increased their minimum wages and from 2010 to 2011, 12 states changed their minimum wages.

The results in Table 4 provide no evidence that minimum wage increases were more helpful at alleviating poverty during times of economic recession than during expansions. Using the official poverty definition (< 100% of poverty line), we find that while minimum wages are (insignificantly) negatively related to poverty in during non-recessionary periods (columns 1 and 7), they are positively related to poverty during the Great Recession (column 4). The largest estimated elasticity is, in fact, for less-educated individuals (Panel C), suggesting that a 10 percent increase in the minimum wage is associated with a marginally significant 11.9 percent increase in poverty rates. This result is consistent with the hypothesis that adverse minimum wage-induced employment or hours effects—or, perhaps, changes in the poverty distribution of workers given the findings in Panel B—may be larger during periods of economic recession than expansion (Sabia 2013; Addison et al. 2013). However, this result appears to be concentrated around 100 percent of the poverty line rather than 125 or 150 percent of the poverty line.

Table 5 presents estimates of the effect of minimum wage increases across the state business cycle, following equation (2). Again, the evidence points to little evidence that increases in the minimum wage reduce state poverty rates in either economic recessions or expansions. And while never statistically significantly different from zero at conventional levels, minimum wage increases are associated with higher state poverty rates for less educated individuals during periods where the prime-age state unemployment rate is above 5 percent as compared to under 5 percent. For instance, using the 100 percent poverty threshold and including controls for state-specific linear time trends, we find that a 10 percent increase in the minimum wage is associated

with a statistically insignificant 0.53 percent increase in the less-educated state poverty rate when the prime age unemployment rate is under 5 percent, but a 2.38 percent increase when the unemployment rate is between 5.0 and 7.9 percent, and a 2.78 percent increase when the unemployment rate is 8.0 percent or higher.

In Appendix Table 4, we repeat the exercise using census division-specific year effects and higher-order state-specific time trends. Only for workers is there some evidence that minimum wage increases may have greater poverty reducing effects during times of state recession, though this gain does not accrue to all individuals or to low-skilled individuals, suggesting that adverse employment effects may undermine the poverty alleviating effects of minimum wages, particularly during times of economic recession.

Cash Wages. While our findings in Tables 2-5 point to little evidence that minimum wages serve as an effective anti-poverty tool, we next examine whether hikes in the minimum cash wage paid to tipped workers affects state poverty rates. Table 6A shows these results. Among all individuals (Panel A) and using the 100% poverty threshold (columns 1-4), we find no evidence that cash minimum wages affect poverty rates, whether the non-tipped minimum wage is included (column 1 versus column 2; column 3 versus column 4) or state-specific linear time trends are included as controls (columns 1-2 versus columns 3 and 4). In fact, the point estimates suggest an insignificant *positive* relationship between the cash wage and poverty rates. A similar pattern of results emerges when the poverty definition used is 125 percent of the poverty line (columns 5 to 8), and the estimated elasticities on the cash wage remain uniformly positive. We also find no evidence in columns (1)-(8) that increases in the cash wage and the non-tipped minimum wage jointly affect state poverty rates.

However, when the poverty threshold used is 150 percent of the poverty line (columns 9 to 12), there is more consistent evidence that increases in the cash wage is significantly *positively* related to state poverty rates, with an estimated poverty elasticity ranging from 0.067 to 0.136. These results are consistent with the hypothesis that income losses among disemployed workers near the poverty line may undermine any income gains to similarly situated workers (Macpherson and Even 2011).

In Panels B and C, we restrict the sample to all workers ages 16-to-64 and restaurant workers ages 16 to-64 to (i) give the cash wage its best chance to alleviate poverty because these individuals remain employed, and (ii) better target the population most likely to be affected by changes in the cash wage, restaurant workers. However, across poverty definition and specification, we find no evidence that increases in the cash wage alleviate poverty.

In Panel D, we examine the sample of less-educated individuals and find more consistent evidence that hikes in the minimum cash wage may actually increase poverty rates. The estimated poverty elasticites with respect to the cash wage we obtain are in the range of 0.1 to 0.2 and 9 of the 12 models produce estimates that are statistically distinguishable from zero, holding even with the inclusion of state-specific linear time trends. If minimum cash wage increases induce employment losses in the low-skilled restaurant sector, as some recent research suggests (Macpherson and Even 2011), it could be that (i) the income losses from disemployment dominate the income gains to those who remain employed, or that (ii) the income losses are more concentrated among those living near the poverty threshold, while those who keep their jobs and see income gains are more likely to be non-poor.

In Table 6B, we explore whether the poverty effects of cash wage increases differ across the state business cycle. These results point to little evidence that cash wages are a more

effective anti-poverty tool during peaks or troughs of the state business cycle. The results continue to point to adverse poverty effects of cash wage hikes, particularly for less-educated individuals. And, as Appendix Table 5 shows, this finding holds even with the inclusion of controls for census division-specific year effects and state-specific non-linear time trends (Neumark, Wascher, and Salas 2013; Allegretto et al. 2011).[4]

Finally, when we examine the national business cycle (Appendix Table 6), we find some evidence that the adverse poverty effects to less educated individuals may, in fact, be larger during the Great Recession, as compared to during times of economic recovery. However, the estimates are insufficiently precise to conclude that they are statistically different from one another.

V. Target Efficiency of Minimum and Cash Wages

While adverse labor demand effects of minimum wage increases may be one explanation for the poor performance of minimum wages in diminishing poverty rates, the lack of poverty-alleviating effects of minimum or cash wage increases among workers (in most models) suggests another possible explanation: poor target efficiency. Recent work by Burkuauser and Sabia (2007) and Sabia and Burkhauser (2010) explored the target efficiency of proposed federal minimum wage hikes. Below, we take a similar tack with two innovations: (i) we utilize minimum wage elasticities for *affected* rather than *all* low-skilled workers to assess the net income effects of minimum wage hikes, and (ii) we explore the target efficiency of cash minimum wages paid to tipped employees.

Currently, there are two major proposals to raise the Federal minimum wage and one to raise the Federal minimum cash wage paid to tipped workers. President Obama has called on the

[4] We find that 20 states changed minimum cash wages between 2008 and 2009.

Congress to raise the Federal minimum wage from $7.25 per hour to at least $9.00. And the Fair Minimum Wage Act (FMWA) of 2013, introduced by Senator Tom Harkin (D-IA), would mandate a $10.10 minimum wage. In addition, the FMWA would mandate a hike in the minimum cash wage from $2.13 to $7.07. The analysis below explores the target efficiency of these three proposed increases.

To that end, Table 7 presents cross-tabulations of the wage distribution of workers ages 16 to 64 by the income-to-needs ratios of their households using the March 2011 Current Population Survey, following the strategy first employed by Burkhauser, Couch, and Wittenburg (1996). The income-to-needs ratio is defined as the ratio of total household income to the official U.S. Census determined poverty line, adjusted for household size. In 2011, the poverty line for a household of four was $22,350. Thus, a worker living in a household comprised of four individuals whose total household income was $33,525 would be assigned an income-to-needs ratio of 1.5. As in Burkhauser, Couch, and Wiitenburg (1996), we use household income because a worker is not an independent entity with respect to his or her economic well-being. Information on household income comes from the previous calendar year, so mapping individual wages to the poverty status of the household requires the assumption that the income-to-needs ratio of the household was the same in 2012 as it was in March 2011 (see Burkhauser, Couch, and Glenn, 1996 and Burkhauser and Sabia, 2007 for a discussion).

Examining the final row of Table 7, we first see that only 10.2 percent of the workforce would be affected by a minimum wage increase from $7.25 to $8.99 per hour. A greater percentage (19.2 percent) would be affected by a hike to $10.10 per hour. With regard to the cash wage hike, only 2.9 percent of all workers would be affected.

An examination of the first three rows of Table 7 suggests one reason why raising the minimum wage to $9.00 as proposed by President Obama or to $10.10 as proposed by Senator Harkin may be ineffective at reducing poverty: many poor and near poor workers earn wages greater than these proposed minimum wages. We find that only 37.3 percent of workers living in poor households (row 1), 22.4 percent of workers living in households with incomes of 100 to 124 percent of the poverty line, and 23.5 percent of workers living in households with incomes 125 to 149 percent of the poverty line earn wages between $7.25 and $8.99 per hour and stand to gain from the Obama proposal. The vast majority—53.7 to 71.7 percent—earn wages higher than $9.00 per hour and do not stand to directly gain from a $9.00 per hour Federal minimum wage. If the federal minimum wage were raised to $10.10, a greater share of poor and near poor (100 to 150 percent of poverty threshold) workers would stand to gain, from 55.8 percent of workers in poor households to 41.3 to 46.0 percent of near poor workers. But even with a $10.10 minimum wage, substantial shares of poor and near poor workers would not be directly affected.[5] With regard to cash wages, only 9.0 percent of poor workers and 5.3 to 7.1 percent of near poor workers earn wages between $2.13 and $7.24 per hour. The majority of poor and near poor workers earn wages greater than the newly proposed $7.07 cash wage. Thus, one reason why minimum wages may be ineffective at reducing poverty is that many poor and near workers already earn wages greater than the newly proposed minimum and cash wages.

Second, we examine the distribution of workers who stand to benefit from minimum wage increases, focusing on the populations of workers who would be directly impacted by the minimum and cash wage increases: those earning between $7.25 and $8.99 per hour (Obama

[5] A few recent studies have suggested that minimum wage increases may have wage effects slightly above minimum wages (Autor, Manning, and Smith 2010; Dittrich, Knabe, and Leipold 2011; Stewart 2012), though the evidence far from conclusive. If we allow for wage spillovers up to those earning $11 per hour, we find that 62.3 percent of poor workers, and 49.6 to 52.7 percent of near poor workers, will be affected.

proposal), those earning between $7.25 and $10.09 per hour (FMWA proposal), and those earning between $2.13 and $7.07 per hour (FMWA cash wage proposal). The findings in the final three columns of Table 7 suggest another important reason why these minimum wage increases are unlikely to diminish poverty. Only 15.9 percent of workers earning between $7.25 and $8.99 per hour live in poor households, just 12.6 percent of those earning between $7.25 and $10.09 per hour live in poor households, and only 12.8 percent of workers earning between $2.13 and $7.07 per hour. The vast majority of workers that stand to gain from these proposals (60.1 to 65.1 percent) live in households with incomes over twice the poverty line and a sizable minority (39.7 to 47.8 percent) live in households with incomes over three times the poverty line. In fact, the two larger minimum wage increases—the proposed cash wage increase and the FMWA $10.10 proposal—are even less well-targeted to poor workers than the $9.00 Obama proposal.

Table 7 explores the target efficiency of the above proposed hikes during 2011 when the US began a slow economic recovery. But how might this have differed during a time of recession? In Table 8, we examines the target efficiency of these proposals had they been enacted in 2009, during a time of the Great Recession. The findings in Table 8 suggest only modestly better targeting of the $10.10 minimum wage and $7.07 cash wage proposals during the Great Recession, which slightly greater shares of affected workers living in poor households (13.1 percent versus 12.6 percent for the $10.10 proposal and 13.6 percent versus 12.8 percent for the cash wage proposal). The $9.00 proposal would have affected similar shares of poor workers (15.8 percent versus 15.9 percent). Tables 7 and 8 suggest that minimum wage increases appear to be poorly targeted to those in need during both national recessions and expansions.

VI. Simulation of Distribution of Net Benefits

In Table 9, we simulate the expected net benefits from the above proposed minimum and cash wage increases. Following Sabia and Burkhauser (2010), we estimate monthly net benefits to each worker with the following equation:

$$ENB_i = \left(1 - \frac{(MW - w_i)}{w_i}|e_i|\right)(MW - w_i)H_i - \left(\frac{(MW - w_i)}{w_i}|e_i|\right)(w_i H_i - EUI_i) \quad (4)$$

where MW is the newly proposed Federal minimum wage, w_i is the wage rate of minimum wage worker i, e_i is the estimated employment elasticity for affected workers, H_i notes the usual monthly hours worked by worker I, and EUI_i is the expected unemployment insurance (UI) benefits received by worker i. The first term on the right hand side of equation (4) represents the monthly income gains to minimum wage workers who keep their jobs, do not have their hours reduced, and receive a wage boost; the second term describes net monthly income losses from those who lose their jobs as a result of a minimum wage hike. Monthly unemployment insurance payments, EUIis are calculated, again following Sabia and Burkhauser (2010), as:

$$EUI_{is} = 0.23 r_s w_i H_i \quad (5)$$

where 0.23 represents the joint the probability of UI uptake (0.35)[6] and the share of the month that unemployed workers generally receive benefits in their first month (0.67)[7], each reported in

[6] See Vroman (1991) for a discussion of why unemployment insurance take-up rates are less than 1.

Wenger (2001), r_s is a state-specific measure of earnings replacement rates for workers[8], and w_i and H_i are defined as above.[9]

We impose several simplifying assumptions for the above simulation. We assume no wage spillover effects (Burkhauser and Sabia, 2007; Sabia, 2008a, Sabia and Burkhauser, 2008), nor any adverse hours effects for retained workers from minimum wage increases (Zavodny, 2000; Sabia, 2008c; Sabia and Burkhauser, 2008). In addition, we assume accurate estimates of UI take-up and replacement rates, and that these rates do not vary by poverty status (Wenger 2001). Moreover, we assume that consumer welfare is unaffected by minimum wage-induced increases in the prices of goods and services produced with low-skilled labor (Aaronson and French 2006, 2007).

In addition, because we are exploring the net income effects to *affected* workers we must make assumptions about the employment elasticities of minimum wage increases for *affected* workers. This is an important distinction between our simulations and the previous simulation by Sabia and Burkhauser (2010), who used employment elasticities estimated for *all* low-skilled workers, which, we will argue, overstated the magnitude of the employment elasticity needed to produce net income losses for a minimum wage hike.

Like Sabia and Burkhauser (2010), we take the tack of employing a range of estimates, given recent controversy in the literature. Dube et al. (2010) find no evidence of adverse employment effects for restaurant workers and Allegretto et al. (2011) and Addison et al. (2010)

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[7] Unemployed workers generally face, at minimum, a one to two week waiting period prior to receiving initial benefits (Wenger, 2001).

[8] We exploit information from Wenger (2001) on state-specific earnings replacement rates, along with state minimum wage levels, to calculate the implicit earnings replacement rate for each state. The most generous state in terms of replacing minimum wage earnings in our sample is Kentucky (0.68) and the least was North Dakota (0.41).

[9] If we extended our period of analysis beyond one month, laid off minimum wage workers who applied for and received UI benefits would be eligible for such benefits in each week of subsequent months.

also find null effects for teenagers and retail workers, respectively. Thus, our most conservative estimates assume no adverse labor demand effects. Neumark, Salas, and Wascher (2013), Neumark and Wascher (2008), Sabia (2013), and Macpherson and Even (2011) suggest that the consensus estimates for teenagers and other low-skilled workers remains approximately -0.1 to -0.3. We use elasticities of -0.1 to -0.2 to represent our conservative upper-bound range.[10]

However, it is important to note the -0.1 to -0.2 elasticities that make up the "consensus estimates" were estimated *all* low-skilled individuals, rather than *affected* low-skilled workers. For example, not all teenagers are affected by the minimum wage. Brown (1999; pp. 2114-2116) and Neumark and Wascher (2007; pp. 61-62) provide a method for obtaining employment elasticities for affected individuals: dividing the overall elasticity by the share of affected individuals. In 2011, for instance, 17.4 percent of individuals ages 16 to 19 earned wages between $7.25 and $8.99 per hour and 18.7 percent earned wages between $7.25 and $10.09 per hour. Thus, for an overall teen employment elasticity of approximately -0.2, the elasticity for *affected* teens was –1.15 for a $9.00 minimum wage and –1.07 for a $10.09 minimum wage. Along the same lines, with regard to the cash wage, Macpherson and Even (2011) estimate employment elasticities for all restaurant workers of -0.1 to -0.3. Because 34.8 percent of workers earning between $2.13 and $7.07 were in the restaurant sector, this suggests elasticities for affected workers in the range of -0.287 to -0.862.

In Table 9A, we simulate monthly net benefits from an increase in the hourly federal minimum wage from $7.25 to $9.00 per hour in 2011. In column (1), we assume no adverse labor demand effects and find that a $9.00 minimum wage will generate $1.21 billion in net benefits to workers (or costs to employers of low-skilled minimum wage labor). However, just

[10] Sabia, Burkhauser, and Hansen (2012) find an employment elasticity of approximately -0.6 for 16-to-29 year-olds without a high school diploma, well outside the consensus estimates, suggesting that minimum wage hikes can, under certain conditions, produce large adverse employment effects for low-skilled workers.

$182 million of these benefits, or 15.1 percent (column 2, row 1), will be received by workers in poor families. Note than 15.1 percent of the benefits is less than the share of affected workers who were poor (15.9 percent, Table 7, third-to-last column). This reflects that poor workers work fewer monthly hours on average than non-poor workers and thus receive a smaller share of monthly benefits. Furthermore, even under the assumption of no adverse labor demand effects, 59.0 percent of the benefits of a $9.00 minimum wage would be received by workers living in households with income-to-needs ratios greater than 2.0

In columns (3) and (4), we use an employment elasticity for affected workers of -0.575 (-0.1/0.174). The assumption we employ here is that the adverse employment effects for affected teenagers are appropriately applied to non-teenage affected workers. When this elasticity is employed, total net benefits of the minimum wage hike falls by 58.3 percent to $504 million. The share of these benefits received by poor workers is 15.4 percent (row 1, column 6), higher than the share of benefits that accrue under no adverse employment effects (15.1 percent), suggesting that poor affected workers are more likely to earn wages closer to $9.00 than non-poor workers. However, again, the vast majority (58.9 percent) of benefits are received by those living in households with incomes over 200 percent of the poverty line and 37.7 percent of the benefits are received by those living in households with income to needs ratios of 3.0 or greater.

When we use an estimated elasticity for affected workers of -1.15, which corresponds to an employment elasticity for all low-skilled teenage workers of -0.2, the minimum wage hike to $9.00 actually causes net income losses to workers of $195 million (column 4), including $26.1 million in losses to workers in poor families. Therefore, with adverse labor demand effects within the plausible consensus range, it is possible that the minimum wage could cause net income losses to workers. In column (7), we estimate a "breakeven" elasticity for affected

workers at which the net benefits are zero: -0.990, which corresponds to an elasticity for all skilled workers of about -0.172 under the assumption that the share of all low-skilled workers who are affected is 0.174.

In Table 9B, we simulate the expected monthly benefits from a minimum wage increase to $10.10 per hour. The results suggest that even a smaller share of the benefits will accrue to poor workers than under a $9.00 minimum wage proposal, either under the assumption of no employment effects (13.3 percent versus 15.1 percent) or negative employment effects (13.2 percent versus 15.4 percent). Again, we find that he vast majority (60 percent) of the benefits of a minimum wage hike to $10.10 per hour will accrue to those in households with income-to-needs ratios greater than 2.0. We estimate a breakeven elasticity for affected workers of approximately -0.910, smaller in absolute magnitude than the breakeven elasticity for a $9.00 minimum wage. This corresponds to an estimated elasticity for all low-skilled teenage workers of approximately -0.17, again in the range of consensus estimates.

Finally, in Table 9C, we examine simulate the distribution of benefits from an increase in the minimum cash wage paid to tipped workers from $2.13 to $7.07 per hour, as mandated by the FMWA of 2013. Under the assumption of no adverse employment effects, we find that increases in the minimum cash wage generate $793.8 million, with only 6.5 percent of the benefits received by workers in poor families. This is less than the 13.6 percent of affected workers who were poor, suggesting that poor tipped workers work fewer monthly hours than their non-poor counterparts. Whether we assume zero or negative employment effects, nearly two-thirds of the benefits of a minimum cash wage increase would be received by workers in households with incomes over 200 percent of the poverty line. We estimate a breakeven elasticity of -0.493 for affected workers, substantially less (in absolute magnitude) than the employment elasticity

required to generate zero net benefits to workers from the $9.00 and $10.10 non-tipped minimum wage proposals.

VII. Conclusions

A number of recent studies have explored the effects of minimum wages on poverty, but this paper is the first to examine whether the poverty effects of minimum wage increases differ across the business cycle, and to explore the effect of minimum cash wages paid to tipped employees on poverty rates. Our findings reflect little evidence that minimum wage increases were effective in alleviating poverty in either recessions or expansions. This result is robust to poverty threshold definitions as well as a variety of controls for state-specific trends.

We also find no evidence that increases in cash wages alleviate state poverty rates, either among all individuals or among workers. To the contrary, our results suggest that increases in cash wages are associated with an *increase* in the poverty rates of individuals without a high school diploma. We obtain poverty elasticities of 0.1 to 0.2, consistent with adverse employment effects of cash wage hikes in the restaurant sector.

Finally, we examine the distribution of benefits (or losses) to workers from new proposals to raise the Federal minimum wage and the Federal minimum cash wage. Under the assumption of no adverse employment effects, we find that only 15 percent of the monthly benefits of a Federal minimum wage increase from $7.25 to $9.00 per hour will accrue to workers in poor families while 59 percent will be received by workers from households with incomes over times the poverty line. The FMWA proposal to raise the minimum wage to $10.10 per hour is even less target efficient, with only 13 percent of the benefits being received by poor workers. Along the same lines, a minimum cash wage increase from $2.13 to $7.07 would only

yield 7 percent of the benefits to poor workers, while two-third of the benefits would be received by workers earning incomes over 200 percent of the poverty threshold. We estimate that the net monthly benefits of minimum wage increases will become negative at employment elasticities within the consensus range of -0.1 to -0.2.

Taken together, the findings of this study provide new evidence that minimum wage increases have served as an ineffective anti-poverty tool across the business cycle. In addition, we find that new proposals for minimum and cash wage increases are likely to be similarly ineffective because they remain poorly targeted to those in need. Furthermore, raising minimum cash wages paid to tipped workers may actually have the unintended consequence of imposing net income losses on those near the poverty line. We conclude that raising wage floors is a poor way to improve the economic well-being of poor Americans.

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Table 1. Weighted Means of Analysis Variables, 2003-2011

	Mean (StDev)
Dependent Variables	
≤ 100% Poverty Line – All	0.121 (0.026)
≤ 125% Poverty Line – All	0.159 (0.033)
≤ 150% Poverty Line – All	0.199 (0.039)
≤ 100% Poverty Line – Workers	0.064 (0.015)
≤ 125% Poverty Line – Workers	0.070 (0.014)
≤ 150% Poverty Line – Workers	0.096 (0.019)
≤ 100% Poverty Line – Restaurant Workers	0.150 (0.051)
≤ 125% Poverty Line – Restaurant Workers	0.213 (0.062)
≤ 150% Poverty Line – Restaurant Workers	0.280 (0.069)
≤ 100% Poverty Line – Less Educated	0.247 (0.051)
≤ 125% Poverty Line – Less Educated	0.318 (0.058)
≤ 150% Poverty Line – Less Educated	0.389 (0.066)
Independent Variables	
Minimum Wage ($)	6.45 (0.997)
Cash Wage ($)	3.66 (1.98)
Prime-Age Unemployment Rate	0.070 (0.030)
Prime-Age Male Wage Rate	23.10 (23.96)
High School Graduation Rate	0.885 (0.040)
Share of Population Ages 15 to 19	0.192 (0.013)
Share of Population Ages 55 to 64	0.169 (0.019)
N	459

Notes: Weighted means are estimated using data drawn from the March 2004 to March 2012 Current Population Survey. Standard deviations are in parentheses.

Table 2. Estimates of the Relationship between Minimum Wages and State Poverty Rates, 2003-2011

	< 100% Poverty Line			< 125% Poverty Line		< 150% Poverty Line	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Ln (Minimum Wage)	-0.050 (0.142)	-0.025 (0.136)	-0.037 (0.160)	-0.015 (0.112)	-0.041 (0.139)	0.022 (0.097)	-0.013 (0.132)
Ln (Average Adult Wage)		0.009 (0.022)	-0.004 (0.022)	0.003 (0.017)	-0.006 (0.015)	0.009 (0.014)	0.001 (0.012)
Ln (Prime Age Male UR)		0.115*** (0.029)	0.097*** (0.030)	0.101*** (0.029)	0.082*** (0.029)	0.070*** (0.023)	0.057** (0.024)
Ln (Proportion Ages 15-19)		0.310** (0.130)	0.304** (0.118)	0.273** (0.116)	0.258** (0.103)	0.195* (0.100)	0.151* (0.084)
Ln (Proportion Ages 54-64)		0.015 (0.123)	0.075 (0.138)	-0.051 (0.099)	0.007 (0.105)	-0.001 (0.088)	0.048 (0.102)
Ln (HS Grad Rate)		-0.655 (0.594)	-0.294 (0.647)	-0.895* (0.453)	-0.608 (0.507)	-1.10*** (0.370)	-0.825** (0.413)
State Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State Linear Trends?	No	No	Yes	No	Yes	No	Yes
N	459	459	459	459	459	459	459

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

Notes: Weighted regressions are estimated using data drawn from the March 2004 to March 2012 Current Population Survey. Standard errors corrected for clustering on the state are in parentheses.

Table 3. Estimates of the Relationship between Minimum Wages and State Poverty Rates for Workers and Less Educated Individuals, 2003-2011

	< 100% Poverty Line			< 125% Poverty Line		< 150% Poverty Line	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Panel A: Workers						
Ln (Minimum Wage)	-0.072 (0.180)	-0.041 (0.171)	0.035 (0.194)	-0.065 (0.139)	-0.012 (0.182)	0.009 (0.124)	0.051 (0.185)
	Panel B: Individuals without HS Degree						
Ln (Minimum Wage)	0.011 (0.188)	0.041 (0.188)	0.163 (0.239)	-0.020 (0.147)	0.064 (0.196)	0.121 (0.123)	0.181 (0.163)
State Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State Linear Trends?	No	No	Yes	No	Yes	No	Yes
N	459	459	459	459	459	459	459

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

Notes: Weighted regressions are estimated using data drawn from the March 2004 to March 2012 Current Population Survey. Standard errors corrected for clustering on the state are in parentheses.

Table 4. Estimates of the Relationship between Minimum Wages and State Poverty Rates, by Pre- and Post-Great Recession Period

	2003-2007			2008-2009			2010-2011		
	< 100% Poverty	< 125% Poverty	< 150% Poverty	< 100% Poverty	< 125% Poverty	< 150% Poverty	< 100% Poverty	< 125% Poverty	< 150% Poverty
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Panel A: All								
Ln (Minimum Wage)	-0.036 (0.158)	0.021 (0.145)	0.087 (0.134)	0.445 (0.324)	0.067 (0.297)	-0.315 (0.309)	-1.35 (1.25)	-0.070 (0.861)	0.474 (0.813)
	Panel B: Workers								
Ln (Minimum Wage)	0.021 (0.180)	0.055 (0.164)	0.154 (0.173)	0.840* (0.429)	0.197 (0.483)	-0.256 (0.456)	-0.041 (1.95)	1.21 (1.63)	2.04 (1.39)
	Panel C: Individuals without HS Degree								
Ln (Minimum Wage)	0.204 (0.228)	0.121 (0.193)	0.245 (0.156)	1.19* (0.703)	0.613 (0.510)	0.594 (0.618)	-1.90 (1.53)	-0.448 (1.77)	0.589 (1.64)
State Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State-Specific Time-Varying Controls?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	255	255	255	102	102	102	102	102	102

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

Notes: Weighted regressions are estimated using data drawn from the March 2004 to March 2012 Current Population Survey. Standard errors corrected for clustering on the state are in parentheses. State-specific time-varying controls are listed in Table 2 above.

Table 5. Examining Heterogeneity in the Poverty Effects of Minimum Wage Increases, by State Business Cycle

	< 100% Poverty		**< 125% Poverty**		**< 150% Poverty**	
	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A: All					
Ln (Minimum Wage)	-0.007 (0.139)	-0.076 (0.173)	-0.031 (0.121)	-0.093 (0.151)	0.007 (0.102)	-0.063 (0.132)
UR of 5% to 7.9%*Log (MinWage)	-0.017 (0.113)	0.045 (0.130)	0.057 (0.091)	0.089 (0.093)	0.065 (0.079)	0.075 (0.083)
UR ≥ 8 %*Log (Min Wage)	-0.022 (0.153)	-0.026 (0.160)	0.063 (0.143)	-0.019 (0.131)	0.059 (0.112)	-0.016 (0.108)
	Panel B: Workers					
Ln (Minimum Wage)	0.043 (0.165)	0.065 (0.205)	-0.051 (0.159)	-0.023 (0.195)	0.037 (0.172)	0.030 (0.129)
UR of 5% to 7.9%*Log (MinWage)	-0.110 (0.124)	-0.101 (0.162)	0.019 (0.107)	0.004 (0.137)	-0.014 (0.115)	0.014 (0.086)
UR ≥ 8 %*Log (Min Wage)	-0.003 (0.220)	0.006 (0.236)	0.117 (0.189)	0.031 (0.180)	0.061 (0.150)	0.094 (0.134)
	Panel C: Individuals without HS Degree					
Ln (Minimum Wage)	0.046 (0.191)	0.053 (0.255)	-0.029 (0.153)	-0.039 (0.206)	0.133 (0.115)	0.110 (0.151)
UR of 5% to 7.9%*Log (MinWage)	0.074 (0.118)	0.185 (0.145)	0.102 (0.130)	0.170 (0.145)	0.056 (0.100)	0.092 (0.121)
UR ≥ 8 %*Log (Min Wage)	0.161 (0.196)	0.225 (0.225)	0.243 (0.199)	0.265 (0.229)	0.200 (0.152)	0.161 (0.174)
State Effects?	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects?	Yes	Yes	Yes	Yes	Yes	Yes
State-Specific Time-Varying Controls?	No	Yes	No	Yes	No	Yes
State Linear Trends?	No	No	Yes	No	Yes	No
N	459	459	459	459	459	459

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

Notes: Weighted regressions are estimated using data drawn from the March 2004 to March 2012 Current Population Survey. Standard errors corrected for clustering on the state are in parentheses.

Table 6A. Estimates of the Relationship Between Cash Wages and State Poverty Rates

	< 100% Poverty				**< 125% Poverty**				**< 150% Poverty**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Panel A: All											
Ln (Cash Wage)	0.073 (0.054)	0.087 (0.069)	0.039 (0.057)	0.105 (0.083)	0.071 (0.046)	0.083 (0.059)	0.006 (0.064)	0.050 (0.080)	0.067* (0.035)	0.074 (0.041)	0.071 (0.054)	0.136** (0.063)
Ln (Minimum Wage)		-0.116 (0.170)		-0.180 (0.193)		-0.100 (0.145)		-0.120 (0.159)		-0.050 (0.114)		-0.178 (0.119)
	Panel B: Workers											
Ln (Cash Wage)	0.049 (0.051)	0.065) (0.067)	0.083 (0.089)	0.133 (0.121)	0.027 (0.043)	0.041 (0.047)	0.032 (0.111)	0.076 (0.121)	0.047 (0.041)	0.052 (0.041)	0.123 (0.094)	0.182 (0.096)
Ln (Minimum Wage)		-0.111 (0.194)		-0.137 (0.230)		-0.113 (0.150)		-0.118 (0.167)		-0.042 (0.114)		-0.161 (0.130)
	Panel C: Restaurant Workers											
Ln (Cash Wage)	-0.032 (0.106)	0.035 (0.120)	-0.173 (0.186)	-0.073 (0.255)	-0.042 (0.084)	-0.025 (0.097)	-0.113 (0.139)	-0.105 (0.189)	0.006 (0.064)	0.020 (0.077)	0.167 (0.137)	0.297 (0.179)
Ln (Minimum Wage)		-0.538 (0.340)		-0.272 (0.534)		-0.129 (0.257)		-0.024 (0.393)		-0.109 (0.229)		-0.351 (0.384)
	Panel D: Individuals without HS Degree											
Ln (Cash Wage)	0.128 (0.013)	0.141** (0.068)	0.159* (0.085)	0.192 (0.115)	0.101** (0.039)	0.118** (0.051)	0.089 0.078	0.129 (0.092)	0.108*** (0.039)	0.105** (0.049)	0.187*** (0.052)	0.217*** (0.073)
Ln (Minimum Wage)		-0.097 (0.202)		-0.088 (.257)		-0.134 (0.156)		-0.108 (0.197)		0.022 (0.127)		-0.081 (.153)
State Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State Linear Trends?	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
N	459	459	459	459	459	459	459	459	459	459	459	459

***Significant at 1% level **Significant at 5% level *Significant at 10% level Notes: Weighted regressions are estimated using data drawn from the March 2004 to March 2012 Current Population Survey. Standard errors corrected for clustering on the state are in parentheses.

Table 6B. Heterogeneity in the Poverty Effects of Cash Wage Increases, by State Business Cycle

	< 100% Poverty		< 125% Poverty		< 150% Poverty	
	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A: All					
Ln (Cash Wage)	0.078**	0.050	0.064**	0.011	0.057**	0.059
	(0.034)	(0.066)	(0.030)	(0.070)	(0.026)	(0.053)
UR of 5% to 7.9%*Ln (Cash Wage)	-0.042	-0.017	-0.009	0.009	0.009	0.023
	(0.034)	(0.035)	(0.028)	(0.024)	(0.026)	(0.021)
UR ≥ 8 %*Ln (Cash Wage)	-0.022	0.026	0.003	0.004	-0.002	0.007
	(0.037)	(0.045)	(0.034)	(0.034)	(0.028)	(0.027)
	Panel B: Workers					
Ln (Cash Wage)	0.046	0.101	0.003	0.039	0.024	0.105
	(0.044)	(0.103)	(0.054)	(0.120)	(0.050)	(0.093)
UR of 5% to 7.9%*Ln (Cash Wage)	-0.056	-0.026	-0.011	0.011	0.008	0.026
	(0.034)	(0.040)	(0.036)	(0.037)	(0.029)	(0.028)
UR ≥ 8 %*Ln (Cash Wage)	0.021	0.049	0.041	0.040	0.025	0.043
	(0.046)	(0.061)	(0.046)	(0.052)	(0.035)	(0.040)
	Panel C: Restaurant Workers					
Ln (Cash Wage)	-0.114	-0.207	-0.057	-0.143	0.004	0.137
	(0.118)	(0.185)	(0.094)	(0.150)	(0.070)	(0.148)
UR of 5% to 7.9%*Ln (Cash Wage)	-0.024	0.006	-0.001	0.020	-0.008	0.022
	(0.077)	(0.081)	(0.055)	(0.061)	(0.056)	(0.070)
UR ≥ 8 %*Ln (Cash Wage)	-0.140	0.253**	0.031	0.115	0.000	0.125
	(0.087)	(0.120)	(0.063)	(0.093)	(0.050)	(0.085)
	Panel D: Individuals without HS Degree					
Ln (Cash Wage)	0.146***	0.195*	0.098	0.102	0.119***	0.189***
	(0.052)	(0.108)	(0.044)	(0.094)	(0.042)	(0.057)
UR of 5% to 7.9%*Ln (Cash Wage)	-0.050	-0.029	-0.006	0.014	-0.015	0.007
	(0.040)	(0.041)	(0.041)	(0.043)	(0.035)	(0.029)
UR ≥ 8 %*Ln (Cash Wage)	-0.029	-0.015	-0.010	-0.018	-0.029	-0.011
	(0.048)	(0.062)	(0.045)	(0.047)	(0.033)	(0.037)
State Effects?	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects?	Yes	Yes	Yes	Yes	Yes	Yes
State-Specific Time-Varying Controls?	No	Yes	No	Yes	No	Yes
State Linear Trends?	No	Yes	No	Yes	No	Yes
N	459	459	459	459	459	459

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

Notes: Weighted regressions are estimated using data drawn from the March 2004 to March 2012 Current Population Survey. Standard errors corrected for clustering on the state are in parentheses.

Table 7. Wage Distribution of All Workers by Income-to-Needs Ratio of Their Households in 2011

Income-to-Needs Ratio	Hourly Wage Categories [a]								Percent of All Workers	Percent of Workers Earning More than $7.24 and Less Than $9.00	Percent of Workers Earning More than $7.24 and Less Than $10.10	Percent of Workers Earning More than $2.12 and Less Than $7.07
	$0.01 to $2.12	$2.13 to $7.24	$7.25 to $8.99	$9.00 to $10.09	$10.10 to $11.00	$11.01 to $16.99	$17.00 and over	Total				
Less than 1.00	0.1	9.0	37.3	18.5	6.5	20.5	8.2	100.0	4.4	15.9	12.6	12.8
1.00 to 1.24	0.5	5.3	22.4	23.6	6.7	29.7	11.7	100.0	2.5	5.5	5.9	4.6
1.25 to 1.49	0.0	7.1	23.5	17.8	8.3	30.1	13.4	100.0	2.8	6.3	5.9	6.3
1.50 to 1.99	0.4	5.0	19.1	20.0	9.1	30.7	15.7	100.0	6.6	112.2	13.3	11.3
2.00 to 2.99	0.4	3.2	13.0	12.8	6.6	35.6	28.7	100.0	16.0	20.4	21.4	17.3
3.00 or above	0.4	2.0	6.0	5.6	3.0	21.2	62.1	100.0	67.9	39.7	40.9	47.8
Whole Category Share [b]	0.2	2.9	10.2	9.0	4.4	24.5	48.8	100.0	100.0	100.0	100.0	100.0

Notes:

[a]For hourly workers, wage rates are based on a direct question concerning earnings per hour on their current primary job; for non-hourly workers, wages are calculated as the ratio of reported weekly earnings to weekly hours worked. All household income data used to calculate income-to-needs ratios come from retrospective information from the previous year because that is the period for which it is reported. Wages are in 2012 dollars.

[b]Share of all workers with wage earnings in each category

Source: Estimated from the outgoing rotation group of the Current Population Survey, March 2012.

Table 8. Wage Distribution of All Workers by Income-to-Needs Ratio of Their Households in 2009

Income-to-Needs Ratio	Hourly Wage Categories [a]								Percent of All Workers	Percent of Workers Earning More than $7.24 and Less Than $9.00	Percent of Workers Earning More than $7.24 and Less Than $10.10	Percent of Workers Earning More than $2.12 and Less Than $7.07
	$0.01 to $2.12	$2.13 to $7.24	$7.25 to $8.99	$9.00 to $10.09	$10.10 to $11.00	$11.01 to $16.99	$17.00 and over	Total				
Less than 1.00	0.3	12.2	35.3	20.1	5.4	17.8	8.9	100.0	4.8	15.8	13.1	13.6
1.00 to 1.24	0.5	7.0	30.5	23.2	9.3	19.7	9.8	100.0	2.5	7.2	6.7	4.6
1.25 to 1.49	0.3	8.0	25.2	20.7	7.5	27.1	11.3	100.0	2.9	6.9	6.7	6.8
1.50 to 1.99	0.5	5.2	20.0	17.1	6.4	32.7	18.1	100.0	6.8	12.8	12.5	11.5
2.00 to 2.99	0.1	3.8	12.8	13.3	5.9	34.8	29.2	100.0	16.6	20.1	21.7	17.4
3.00 or above	0.2	2.0	5.9	5.9	2.8	21.7	61.4	100.0	66.4	37.2	39.2	46.4
Whole Category Share [b]	0.2	3.3	10.6	9.4	4.0	24.7	47.9	100.0	100.0	100.0	100.0	100.0

Notes:

[a]For hourly workers, wage rates are based on a direct question concerning earnings per hour on their current primary job; for non-hourly workers, wages are calculated as the ratio of reported weekly earnings to weekly hours worked. All household income data used to calculate income-to-needs ratios come from retrospective information from the previous year because that is the period for which it is reported. Wages are in 2012 dollars.

[b]Share of all workers with wage earnings in each category

Source: Estimated from the outgoing rotation group of the Current Population Survey, March 2012.

Table 9A. Simulated Monthly Net Benefits from Proposed Federal Minimum Wage Increase to $9.00, by Household Income-to-Needs Ratio[a,b]

	Net Benefits in Millions $ ($e^A = 0$)	% Net Benefits ($e^A = 0$)	Net Benefits in Millions $ ($e^A = -0.575$)	Net Benefits in Millions $ ($e^A = -1.15$)	Net Benefits in Billions $ ($e^A = -0.990$)	% Net Benefits ($|e^A| > 0$)
	(1)	(2)	(3)	(4)	(5)	(6)
Income-to-Needs Ratio						
Less than 1.00	182	15.1	77.8	-26.1	2.92	15.4
1.00 to 1.24	74.5	6.2	31.1	-12.3	-0.225	6.2
1.25 to 1.49	76.1	6.3	32.4	-11.2	-0.938	6.4
1.50 to 1.99	156	12.9	65.7	-24.9	-0.338	13.0
2.00 to 2.99	259	21.4	107	-44.9	-2.48	21.2
3.00 or above	455	37.6	190	-75.5	-1.54	37.7
Total	1,209	99.5	504	-195	0.000	100

Notes:
[a]Expected benefits are calculated as the weighted sum of (1-p)($9.00-w)H - pwH + pUI for each minimum wage worker, where p is the probability of job loss from the minimum wage hike, [($9.00-w)/w]e, w is the worker's hourly wage rate, H is monthly hours worked, UI is the expected unemployment insurance (UI) benefit, and e is the employment elasticity.
[b]The analysis uses data from the outgoing rotation groups of the March 2012 CPS. A minimum wage worker is defined as earning between $7.25 and $8.99 per hour in March 2012. Sample restricted to 16-64 year-olds who report positive weeks and weekly hours worked in previous year.

Table 9B. Simulated Monthly Net Benefits from Proposed Federal Minimum Wage Increase to $10.10, by Household Income-to-Needs Ratio[a,b]

	Net Benefits in Millions $ ($e^A = 0$)	% Net Benefits ($e^A = 0$)	Net Benefits in Millions $ ($e^A = -0.504$)	Net Benefits in Millions $ ($e^A = -1.07$)	Net Benefits in Billions $ ($e^A = -0.910$)	% Net Benefits ($\|e^A\| > 0$)
	(1)	(2)	(3)	(4)	(5)	(6)
Income-to-Needs Ratio						
Less than 1.00	424	13.3	155	-114	-1.21	13.2
1.00 to 1.24	201	6.3	74.0	-53.0	0.818	6.3
1.25 to 1.49	212	6.6	78.9	-53.9	1.67	6.7
1.50 to 1.99	449	14.1	167	-115	2.94	14.2
2.00 to 2.99	691	21.7	252	-186	-2.62	21.5
3.00 or above	1,210	38.0	445	-321	-0.995	38.0
Total	3,187	100.0	1,172	-843	0.00	100

Notes:
[a]Expected benefits are calculated as the weighted sum of (1-p)($10.10-w)H - pwH + pUI for each minimum wage worker, where p is the probability of job loss from the minimum wage hike, [($10.10-w)/w]e, w is the worker's hourly wage rate, H is monthly hours worked, UI is the expected unemployment insurance (UI) benefit, and e is the employment elasticity.
[b]The analysis uses data from the outgoing rotation groups of the March 2012 CPS. A minimum wage worker is defined as earning between $7.25 and $10.09 per hour in March 2012. Sample restricted to 16-64 year-olds who report positive weeks and weekly hours worked in previous year.

Table 9C. Simulated Monthly Net Benefits from Proposed Federal Cash Wage Increase to $7.07, by Household Income-to-Needs Ratio[a,b]

	Net Benefits in Millions $ ($e^A = 0$)	% Net Benefits ($e^A = 0$)	Net Benefits in Millions $ ($e^A = -0.287$)	Net Benefits in Millions $ ($e^A = -0.862$)	Net Benefits in Billions $ ($e^A = -0.493$)	% Net Benefits ($\|e^A\| > 0$)
	(1)	(2)	(3)	(4)	(5)	(6)
Income-to-Needs Ratio						
Less than 1.00	51.6	6.5	22.5	-35.9	1.62	6.8
1.00 to 1.24	45.4	5.7	20.6	-28.9	2.92	6.2
1.25 to 1.49	45.8	5.8	12.1	-55.2	-12.0	3.7
1.50 to 1.99	117	14.7	54.2	-71.6	9.2	16.4
2.00 to 2.99	151	19.0	69.6	-94.5	10.9	21.0
3.00 or above	383	48.2	152	-310	-12.9	45.9
Total	793.8	100.0	331.0	-596.1	0.00	100

Notes:
[a]Expected benefits are calculated as the weighted sum of (1-p)($7.07-w)H - pwH + pUI for each minimum wage worker, where p is the probability of job loss from the minimum wage hike, [($7.07-w)/w]e, w is the worker's hourly wage rate, H is monthly hours worked, UI is the expected unemployment insurance (UI) benefit, and e is the employment elasticity.
[b]The analysis uses data from the outgoing rotation groups of the March 2012 CPS. A minimum wage worker is defined as earning between $2.13 and $7.06 per hour in March 2012. Sample restricted to 16-64 year-olds who report positive weeks and weekly hours worked in previous year.

Appendix Table 1. Average Annual State Minimum Wage, 2003-2011^

	2003	2004	2005	2006	2007	2008	2009	2010	2011
Alabama	5.15	5.15	5.15	5.15	5.56	6.14	6.84	7.25	7.25
Alaska	7.15	7.15	7.15	7.15	7.15	7.15	7.15	7.75	7.75
Arizona	5.15	5.15	5.15	5.15	5.56	6.14	6.84	7.25	7.68
Arkansas	5.15	5.15	5.15	5.73	6.25	6.25	6.84	7.25	7.25
California	6.75	6.75	6.75	6.75	7.50	7.75	8.00	8.00	8.00
Colorado	5.15	5.15	5.15	5.15	6.85	7.02	7.28	7.25	7.36
Connecticut	6.90	7.10	7.10	7.40	7.65	7.65	8.00	8.25	8.25
Delaware	6.15	6.15	6.15	6.15	6.65	6.90	7.15	7.20	7.25
District of Colombia	6.15	6.15	6.60	7.00	7.00	7.00	7.28	7.90	8.25
Florida	5.15	5.15	5.82	6.40	6.67	6.79	7.21	7.23	7.25
Georgia	5.15	5.15	5.15	5.15	5.56	6.14	6.84	7.25	7.25
Hawaii	6.25	6.25	6.25	6.75	7.25	7.25	7.25	7.25	7.25
Idaho	5.15	5.15	5.15	5.15	5.56	6.14	6.84	7.25	7.25
Illinois	5.15	5.50	6.50	6.50	6.50	7.00	7.67	8.00	8.00
Indiana	5.15	5.15	5.15	5.15	5.56	6.14	6.84	7.25	7.25
Iowa	5.15	5.15	5.15	5.15	5.94	7.25	7.25	7.25	7.25
Kansas	5.15	5.15	5.15	5.15	5.56	6.14	6.84	7.25	7.25
Kentucky	5.15	5.15	5.15	5.15	5.56	6.14	6.84	7.25	7.25
Louisiana	5.15	5.15	5.15	5.15	5.56	6.14	6.84	7.25	7.25
Maine	6.25	6.28	6.34	6.43	6.57	6.87	7.12	7.37	7.50
Maryland	5.15	5.15	5.15	5.15	6.15	6.15	6.84	7.25	7.25
Massachusetts	6.75	6.75	6.75	6.75	7.50	7.75	8.00	8.00	8.00
Michigan	5.15	5.15	5.15	5.60	6.38	6.75	7.07	7.27	7.40
Minnesota	5.15	5.15	6.15	6.15	6.15	6.15	6.84	7.25	7.25
Mississippi	5.15	5.15	5.15	5.15	5.56	6.14	6.84	7.25	7.25
Missouri	5.15	5.15	5.15	5.15	6.50	6.57	6.85	7.15	7.25
Montana	5.15	5.15	5.15	5.15	5.56	6.14	6.84	7.07	7.30
Nebraska	5.15	5.15	5.15	5.15	5.56	6.14	6.84	7.25	7.25
Nevada	5.15	5.15	5.15	5.23	5.78	6.14	6.84	7.20	7.75
New Hampshire	5.15	5.15	5.15	5.15	5.60	6.53	6.88	7.25	7.25
New Jersey	5.15	5.15	5.40	5.84	7.15	7.15	7.15	7.20	7.25
New Mexico	5.15	5.15	5.15	5.15	5.56	6.50	7.50	7.50	7.50
New York	5.15	5.15	6.00	6.75	7.15	7.15	7.15	7.20	7.25
North Carolina	5.15	5.15	5.15	5.15	6.15	6.15	6.84	6.90	7.25
North Dakota	5.15	5.15	5.15	5.15	5.56	6.14	6.84	7.25	7.25
Ohio	5.15	5.15	5.15	5.15	6.85	7.00	7.15	7.30	7.35
Oklahoma	5.15	5.15	5.15	5.15	5.56	6.14	6.84	7.25	7.25
Oregon	6.90	7.05	7.25	7.50	7.80	7.95	8.40	8.40	8.45

	2003	2004	2005	2006	2007	2008	2009	2010	2011
Pennsylvania	5.15	5.15	5.15	5.15	6.70	7.00	7.15	7.20	7.25
Rhode Island	6.15	6.75	6.75	7.04	7.40	7.40	7.40	7.40	7.40
South Carolina	5.15	5.15	5.15	5.15	5.56	6.14	6.84	7.25	7.25
South Dakota	5.15	5.15	5.15	5.15	5.56	6.14	6.84	7.25	7.25
Tennessee	5.15	5.15	5.15	5.15	5.56	6.14	6.84	7.25	7.25
Texas	5.15	5.15	5.15	5.15	5.56	6.14	6.84	7.25	7.25
Utah	5.15	5.15	5.15	5.15	5.56	6.14	6.84	6.90	7.25
Vermont	6.25	6.75	7.00	7.25	7.53	7.68	8.06	8.06	8.06
Virginia	5.15	5.15	5.15	5.15	5.56	6.14	6.84	7.25	7.25
Washington	7.01	7.16	7.35	7.63	7.93	8.07	8.55	8.55	8.67
West Virginia	5.15	5.15	5.15	5.50	6.20	6.55	6.90	7.25	7.25
Wisconsin	5.15	5.15	5.43	6.10	6.50	6.50	6.88	7.25	7.25
Wyoming	5.15	5.15	5.15	5.15	5.56	6.14	6.84	7.25	7.25

^The average annual state minimum wage is calculated as the weighted average of the higher of the state or federal minimum wage during the calendar year. For example, the Federal minimum wage was raised on July 24, 2007 from $5.15 to $5.85. Thus, the average Federal minimum wage over the 2009 calendar year was $5.56.

Appendix Table 2. Average Annual Minimum Cash Wage, 2003-2011

	2003	2004	2005	2006	2007	2008	2009	2010	2011
Alabama	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13
Alaska	7.15	7.15	7.15	7.15	7.15	7.15	7.25	7.50	7.75
Arizona	2.13	2.13	2.13	2.13	2.13	3.90	4.25	4.25	4.35
Arkansas	2.58	2.58	2.58	2.58	2.58	3.63	3.63	4.25	4.25
California	6.75	6.75	6.75	6.75	7.50	7.75	8.00	8.00	8.00
Colorado	2.13	2.13	2.13	2.13	3.83	4.00	4.26	4.22	4.34
Connecticut	4.88	5.02	5.02	5.23	5.41	5.41	5.52	5.69	5.69
Delaware	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23
District of Colombia	2.77	2.77	2.77	2.77	2.77	2.77	2.77	2.77	2.77
Florida	2.13	2.13	3.13	3.38	3.65	3.77	4.23	4.23	4.29
Georgia	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13
Hawaii	6.00	6.00	6.00	6.50	6.75	7.00	7.00	7.00	7.00
Idaho	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35
Illinois	3.09	3.90	3.90	3.90	3.90	3.90	4.65	4.88	4.95
Indiana	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13
Iowa	3.09	3.09	3.09	3.09	3.09	4.35	4.35	4.35	4.35
Kansas	1.59	1.59	1.59	1.59	1.59	1.59	1.59	2.13	2.13
Kentucky	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13
Louisiana	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13
Maine	3.13	3.13	3.18	3.25	3.38	3.50	3.63	3.75	3.75
Maryland	2.38	2.38	2.38	2.38	3.08	3.28	3.63	3.63	3.63
Massachusetts	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63
Michigan	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65
Minnesota	5.15	5.15	6.15	6.15	6.15	6.15	6.84	7.25	7.25
Mississippi	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13
Missouri	2.13	2.13	2.13	2.13	3.25	3.33	3.63	3.63	3.63
Montana	5.15	5.15	5.15	5.15	5.77	6.14	6.84	7.25	7.30
Nebraska	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13
Nevada	5.15	5.15	5.15	5.15	5.65	6.50	7.05	7.93	8.25
New Hampshire	2.58	2.58	2.38	2.38	2.38	3.27	3.27	3.27	3.27
New Jersey	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13
New Mexico	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13
New York	2.13	2.13	3.85	4.35	4.60	4.60	4.65	4.65	5.00
North Carolina	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13
North Dakota	3.45	3.45	3.45	3.45	3.45	4.39	4.86	4.86	4.86
Ohio	2.13	2.13	2.13	2.13	3.43	3.50	3.65	3.65	3.70
Oklahoma	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13

	2003	2004	2005	2006	2007	2008	2009	2010	2011
Oregon	6.90	7.05	7.25	7.50	7.80	7.95	8.40	8.40	8.45
Pennsylvania	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83
Rhode Island	2.89	2.89	2.89	2.89	2.89	2.89	2.89	2.89	2.89
South Carolina	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13
South Dakota	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13
Tennessee	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13
Texas	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13
Utah	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13
Vermont	3.44	3.58	3.65	3.65	3.65	3.72	3.91	3.91	3.95
Virginia	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13
Washington	7.01	7.16	7.35	7.63	7.93	8.07	8.55	8.55	8.67
West Virginia	4.12	4.12	4.12	4.12	4.68	5.24	5.80	5.80	5.80
Wisconsin	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33
Wyoming	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13

Appendix Table 3. Sensitivity of Estimated Poverty Effects of Minimum Wage Increases to Inclusion of Controls for Census Division Specific Year Effects and State-Specific Quadratic Time Trends

	< 100% Poverty		**< 125% Poverty**		**< 150% Poverty**	
	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A: All					
Ln (Minimum Wage)	0.001 (0.131)	-0.006 (0.155)	0.007 (0.118)	-0.066 (0.140)	0.076 (0.120)	0.014 (0.149)
	Panel B: Workers					
Ln (Minimum Wage)	-0.039 (0.156)	-0.077 (0.226)	-0.082 (0.136)	-0.193 (0.209)	0.040 (0.135)	-0.030 (0.167)
	Panel C: Individuals without HS Degree					
Ln (Minimum Wage)	0.041 (0.194)	0.189 (0.237)	0.074 (0.158)	0.142 (0.166)	0.245 (0.151)	0.281* (0.170)
State Effects?	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects?	Yes	Yes	Yes	Yes	Yes	Yes
State-Specific Time-Varying Controls?	Yes	Yes	Yes	Yes	Yes	Yes
Census Division-Specific Year Effects?	Yes	Yes	Yes	Yes	Yes	Yes
State-Specific Quadratic Trends?	No	Yes	No	Yes	No	Yes
N	459	459	459	459	459	459

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

Notes: Weighted regressions are estimated using data drawn from the March 2004 to March 2012 Current Population Survey. Standard errors corrected for clustering on the state are in parentheses.

Appendix Table 4. Sensitivity of Estimated Poverty Effects of Minimum Wage Increases Across State Business Cycle to Inclusion of Controls for Census Division Specific Year Effects and State-Specific Quadratic Time Trends

	< 100% Poverty		**< 125% Poverty**		**< 150% Poverty**	
	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A: All					
Ln (Minimum Wage)	0.015 (0.137)	-0.034 (0.160)	-0.011 (0.123)	-0.108 (0.134)	0.069 (0.122)	-0.018 (0.138)
UR of 5% to 7.9%*Log (MinWage)	-0.004 (0.103)	0.030 (0.130)	0.052 (0.090)	0.049 (0.117)	0.018 (0.075)	0.010 (0.100)
UR ≥ 8 %*Log (Min Wage)	-0.235 (0.148)	-0.139 (0.162)	-0.017 (0.138)	-0.016 (0.164)	-0.001 (0.110)	-0.039 (0.127)
	Panel B: Workers					
Ln (Minimum Wage)	0.045 (0.157)	0.022 (0.261)	-0.062 (0.131)	-0.137 (0.233)	0.090 (0.172)	0.030 (0.167)
UR of 5% to 7.9%*Log (MinWage)	-0.139 (0.135)	-0.177 (0.202)	-0.031 (0.110)	-0.104 (0.174)	-0.109 (0.086)	-0.150 (0.130)
UR ≥ 8 %*Log (Min Wage)	-0.544*** (0.177)	0.521** (0.230)	-0.243* (0.130)	-0.346* (0.194)	-0.173* (0.101)	-0.223 (0.150)
	Panel C: Individuals without HS Degree					
Ln (Minimum Wage)	0.031 (0.213)	0.089 (0.271)	0.049 (0.169)	0.061 (0.165)	0.219 (0.161)	0.202 (0.184)
UR of 5% to 7.9%*Log (MinWage)	0.044 (0.135)	0.162 (0.188)	0.060 (0.119)	0.099 (0.158)	0.045 (0.118)	0.48 (0.156)
UR ≥ 8 %*Log (Min Wage)	0.021 (0.234)	0.048 (0.260)	0.240 (0.203)	0.193 (0.253)	0.168 (0.177)	0.121 (0.215)
State Effects?	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects?	Yes	Yes	Yes	Yes	Yes	Yes
State-Specific Time-Varying Controls?	Yes	Yes	Yes	Yes	Yes	Yes
Census Division-Specific Year Effects?	Yes	Yes	Yes	Yes	Yes	Yes
State-Specific Quadratic Trends?	No	Yes	No	Yes	No	Yes
N	459	459	459	459	459	459

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

Notes: Weighted regressions are estimated using data drawn from the March 2004 to March 2012 Current Population Survey. Standard errors corrected for clustering on the state are in parentheses.

Appendix Table 5. Sensitivity of Estimated Poverty Effects of Cash Wage Increases to Inclusion of Controls for Census Division Specific Year Effects and State-Specific Quadratic Time Trends

	< 100% Poverty		< 125% Poverty		< 150% Poverty	
	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A: All					
Ln (Cash Wage)	0.076*	0.059	0.069**	0.028	0.074**	0.079
	(0.044)	(0.089)	(0.033)	(0.083)	(0.029)	(0.081)
UR of 5% to 7.9%*Ln (Cash Wage)	-0.020	-0.026	-0.002	-0.017	0.009	-0.008
	(0.030)	(0.038)	(0.028)	(0.038)	(0.023)	(0.033)
UR ≥ 8 %*Ln (Cash Wage)	-0.059	-0.073	-0.040	-0.055	-0.04	-0.063
	(0.045)	(0.055)	(0.042)	(0.058)	(0.038)	(0.050)
	Panel B: Workers					
Ln (Cash Wage)	0.054	0.151	0.015	0.054	0.048	0.112
	(0.065)	(0.139)	(0.053)	(0.130)	(0.046)	(0.110)
UR of 5% to 7.9%*Ln (Cash Wage)	-0.056	-0.051	-0.030	-0.031	-0.015	-0.017
	(0.042)	(0.052)	(0.037)	(0.055)	(0.028)	(0.044)
UR ≥ 8 %*Ln (Cash Wage)	-0.038	-0.058	-0.001	-0.045	-0.020	-0.045
	(0.048)	(0.084)	(0.043)	(0.076)	(0.040)	(0.064)
	Panel C: Restaurant Workers					
Ln (Cash Wage)	-0.137	-0.024	-0.083	-0.035	0.050	0.304
	(0.167)	(0.268)	(0.135)	(0.252)	(0.143)	(0.236)
UR of 5% to 7.9%*Ln (Cash Wage)	-0.091	-0.029	-0.048	0.023	-0.088	-0.027
	(0.153)	(0.181)	(0.112)	(0.155)	(0.111)	(0.167)
UR ≥ 8 %*Ln (Cash Wage)	0.111	0.198	0.059	0.195	-0.051	0.171
	(0.124)	(0.212)	(0.106)	(0.190)	(0.097)	(0.183)
	Panel D: Individuals without High School Degree					
Ln (Cash Wage)	0.176***	0.221*	0.157***	0.155	0.162***	0.266**
	(0.065)	(0.128)	(0.044)	(0.095)	(0.041)	(0.102)
UR of 5% to 7.9%*Ln (Cash Wage)	-0.018	0.007	-0.004	0.007	-0.021	-0.003
	(0.050)	(0.057)	(0.041)	(0.054)	(0.040)	(0.043)
UR ≥ 8 %*Ln (Cash Wage)	-0.086	-0.119	-0.065	-0.075	-0.071	-0.057
	(0.068)	(0.074)	(0.056)	(0.082)	(0.049)	(0.067)
State Effects?	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects?	Yes	Yes	Yes	Yes	Yes	Yes
State-Specific Time-Varying Controls?	Yes	Yes	Yes	Yes	Yes	Yes
Census Division-Specific Year Effects?	Yes	Yes	Yes	Yes	Yes	Yes
State-Specific Quadratic Trends?	No	Yes	No	Yes	No	Yes
N	459	459	459	459	459	459

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

Notes: Weighted regressions are estimated using data drawn from the March 2004 to March 2012 Current Population Survey. Standard errors corrected for clustering on the state are in parentheses.

Appendix Table 6. Estimates of the Relationship between Cash Wages and State Poverty Rates, by Pre- and Post-Great Recession Period

	2003-2007			2008-2009			2010-2011		
	< 100% Poverty	< 125% Poverty	< 150% Poverty	< 100% Poverty	< 125% Poverty	< 150% Poverty	< 100% Poverty	< 125% Poverty	< 150% Poverty
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Panel A: All								
Ln (Cash Wage)	0.022 (0.047)	0.024 (0.046)	0.063 (0.043)	0.457** (0.221)	0.334* (0.183)	0.249 (0.198)	0.143 (0.764)	-0.022 (0.465)	0.435 (0.455)
	Panel B: Workers								
Ln (Cash Wage)	0.031 (0.050)	0.041 (0.071)	0.088 (0.075)	0.526 (0.317)	0.391 (0.303)	0.331 (0.294)	1.38 (1.10)	1.00 (0.823)	1.56** (0.635)
	Panel C: Restaurant Workers								
Ln (Cash Wage)	-0.250* (0.126)	-0.189 (0.121)	-0.092 (0.116)	2.09 (1.74)	1.26 (0.979)	0.840 (0.844)	-2.18 (3.33)	-3.11 (2.73)	-0.147 (1.69)
	Panel D: Individuals without High School Degree								
Ln (Cash Wage)	0.166** (0.074)	0.102 (0.075)	0.145*** (0.046)	1.62** (0.680)	1.08** (0.452)	1.16*** (0.375)	-1.42 (1.29)	-0.656 (1.04)	0.143 (0.862)
State Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State-Specific Time-Varying Controls?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	255	255	255	102	102	102	102	102	102

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

Notes: Weighted regressions are estimated using data drawn from the March 2004 to March 2012 Current Population Survey. Standard errors corrected for clustering on the state are in parentheses. State-specific time-varying controls are listed in Table 2 above.