Minimum Wages and the Health of Hispanic Women[1]

Susan L. Averett
Lafayette College and IZA
Department of Economics
216 Simon Center
Easton, PA 18042
Phone: 610-330-5307
Email: averetts@lafayette.edu

Julie K. Smith*
Lafayette College
Department of Economics
211 Simon Center
Easton, PA 18042
Phone: 610-330-5301
Email: smithjk@lafayette.edu

Yang Wang
La Follette School of Public Affairs
University of Wisconsin - Madison
1225 Observatory Drive
Madison, WI 53706
Phone: 608-263-1802
Email: yang.wang@lafollette.wisc.edu

Abstract: States are increasingly resorting to raising the minimum wage to boost the earnings of those at the bottom of the income distribution. Several policymakers have also claimed such increases may be health improving. In this paper, we examine the effects of minimum wage increases on the health of low-educated Hispanic women, who constitute a growing part of the U.S. labor force, are disproportionately represented in minimum wage jobs and typically have less access to health care. Using a difference-in-differences identification strategy and data drawn from the Behavior Risk Factor Surveillance Survey and the Current Population Survey from the years 1994-2015, we find little evidence that low-educated Hispanic women likely affected by minimum wage increases experience any changes in health status, access to care, or use of preventive care. We conclude that efforts to improve the health of low-educated, Hispanic women are not likely to occur through increases in the minimum wage.

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* Corresponding author.

Introduction

Over the last few decades, the Hispanic population of the United States has been rapidly growing.[2] As of 2014, over 55 million people of Hispanic origin lived in the US (Pew Research Center 2016). Hispanics, and Hispanic women in particular, have been increasingly participating in the U.S. labor force. Since 1994, the labor force participation rate of Hispanic women has increased to 56 percent, and is projected to surpass the participation rate of White non-Hispanic women by 2022 (U.S. Bureau of Labor Statistics 2015). Although their labor force participation rates are rising, Hispanic women earn significantly less than both Hispanic men and White non-Hispanic women[3] and make up 9.9 percent of the minimum wage workforce compared to 6.7 percent for all workers (Vogtman and Robbins 2015). Minimum wage laws may particularly affect Hispanic women because of their relatively low average education levels and high rates of limited English proficiency. In 2016 for women aged 25-64 years, about 15 percent of Hispanic women lived in households with limited English language proficiency compared to less than one percent of white women and 1.1 percent of black women. And, for women who report that they speak a language other than English at home, only 49 percent of Hispanic women say they speak English very well compared to 65 percent of black women and 73 percent of white women. In addition, about 27 percent of Hispanic women reported having less than a high school education compared to 10 percent of black women and 5 percent of white women. [4]

[2] We use the term Hispanic as that is the term used by the BRFSS which is our first data source. They do ask respondents if they are Hispanic or Latino/a, thus we adopt their convention recognizing that some Hispanic individuals are actually Latina in our sample. We recognize that Hispanics and Latinos may not see these terms as interchangeable; e.g. (Duncan and Trejo 2011).

[3] https://www.dol.gov/wb/media/Hispanic_Women_Infographic_Final_508.pdf.

[4] Based on authors' calculations from the 2016 American Community Survey for women aged 25-64 years.

In this paper, we examine the effect of minimum wage increases on the health and access to health care of Hispanic women.[5] Specifically, we use a difference-in-differences identification strategy and data drawn from both the Behavior Risk Factor Surveillance Survey (BRFSS) and the Current Population Survey Annual Social and Economic Supplement (CPS ASEC) from the years 1994-2015 to examine the effects of increases in the minimum wage on low-educated Hispanic women's health, access to health care and use of preventive care.

There are good reasons to believe that the effects of increases in minimum wage on health may differ by race/ethnicity and why we might expect to see health effects among Hispanic women in particular. For example, it has been established that the minimum wage employment effects differ across race/ethnicity (e.g. (Belman , Wolfson and Nawakitphaitoon 2015); (Even and Macpherson 2011); (Neumark and Wascher 2007a); (Neumark and Wascher 2007b)). Additionally, there are substantial racial and ethnic differences in the types of jobs held by low-income workers (e.g. (Even and Macpherson 2011)). Economic theory suggests that the employment effect of a wage increase will differ across job types depending on, for example, how easily capital can be substituted for labor, the elasticity of demand for the products produced, and the labor-intensity of the production process (Clemens and Michael 2014). There are also marked differences in high school graduation rates across race/ethnicity and gender.[6]

There are also documented racial and ethnic differences in access to insurance and preventive care for women (Sommers and McMurtry forthcoming) and much of that literature has been focused specifically on Hispanic women (e.g. (Rodríguez, Bustamante and Ang 2009)

[5] Other scholars have focused on Hispanic women's health-related outcomes when exploring the effects of other policies (e.g. welfare reform, title X funding) see e.g. Slusky (forthcoming), Amuedo-Dorantes, Averett and Bansak (2016).

[6] See http://nces.ed.gov/pubs2014/2014391.pdf for data on high school graduation rates by race/ethnicity and gender.

(Bustamante, et al. 2010)). Given the race and gender differences in the employment effects of the minimum wage, the vulnerability of Hispanic women (in income and health), and their increasing share of the labor force, it is important that we pay attention to this group by looking extensively into the health effects of minimum wage changes.[7] In addition, this is a timely topic given that many states are proposing to increase minimum wages and access to health care remains an important concern in the U.S.

In what follows, we provide some background on the minimum wage, a brief overview of the literature on minimum wages and labor market outcomes, and a review of the growing literature on the minimum wage and health outcomes. We then present our data, the empirical model, and results. We conclude with a discussion of our findings.

Minimum Wage Overview

The U.S. Federal minimum wage has been constant at $7.25 since July 2009, during which time it has lost 11% of its purchasing power. Its real purchasing power is comparable to the early 1980s, and below its late-1960s peak. Over this same period, many states have increased or are discussing increasing their minimum wages. In January 2017, 19 states raised their minimum wages either through a vote or because their minimum wage is indexed to inflation. It is estimated that changes in the minimum wage affect 20 to 30 percent of the work force (Belman and Wolfson 2014), thus, understanding its impacts is important.

Labor activists and many politicians argue that the current federal minimum wage of $7.25 is not enough to support a family.[8] Others have also noted that raising minimum wages

[7] Our focus in this paper on Hispanic women does not mean that it is not important to look at the effects of increases in minimum wages on other racial/ethnic and gender groups, e.g., black women, especially given the documented race/ethnicity and gender differences in the effects of increases in minimum wages. However, we decide to focus on Hispanic women here for reasons above and leave other groups for future research.

[8] See the Living Wage Calculator run by MIT professor Amy Glasmeier at http://livingwage.mit.edu/articles/15-minimum-wage-can-an-individual-or-a-family-live-on-it.

could potentially close the gender wage gap since women are more likely to hold minimum wage jobs.[9] Specifically, Hispanic women working full-time only earn 56 cents compared to white non-Hispanic men (Hegewisch and Ellis 2015). Some states have undertaken studies that have shown that raising the minimum wage could be beneficial for the health of the state's residents (e.g. (Bhatia 2014); (Krisberg 2015)). Thus, although raising the minimum wage increases costs for employers who might respond by eliminating jobs, supporters of increases note that the net effect is likely to be positive since higher minimum wages will pull at least some people out of poverty. On the other side are those who argue that minimum wages are not an effective tool for lifting low income families out of poverty and instead advocate for a more generous Earned Income Tax Credit (e.g. (Sabia and Nielson 2015)).

Minimum Wages and Labor Market Outcomes Overview

There is an extensive literature and debate in labor economics regarding the effects of raising the minimum wage on employment, hours worked, and earnings (e.g. (Allegretto, Dube and Reich 2011); (Addison, Blackburn and Cotti 2013); (Belman , Wolfson and Nawakitphaitoon 2015); (Even and Macpherson 2011); (Hoffman 2014)). A recent summary of the evidence with respect to employment suggests a higher minimum wage results in some job loss for the least-skilled workers as reported by Neumark (2015). Using data on workers in the retail sector, Sabia (2009) reports modest job loss and fewer hours worked. Others note that there is general agreement that higher minimum wages are associated with higher wages and earnings for less educated workers (e.g. (Belman , Wolfson and Nawakitphaitoon 2015)).

Several recent papers examine how minimum wage changes affect the labor market outcomes for low-skilled immigrants. Using data from the Current Population Survey Outgoing

[9] The American Association of University Women are among those who have advocated this: http://www.aauw.org/2014/08/07/raise-the-wage/.

Rotation Groups (CPS-ORG) from 1994 to 2005, Orrenius and Zavodny find that higher minimum wages increase the earnings of 20-to-54 year-old foreign-born workers without a high school degree, but have no impact on their employment. The authors argue that this finding may be explained by low-skilled immigrants' mobility decisions, wherein they choose to locate in low minimum wage states with more job opportunities. This lack of an employment effect is also found by Cadena (2014), Boffy-Ramirez (2013) and Cadena and Kovak (2016). Cadena and Kovak (2016) attribute this finding to mobility from high unemployment to low unemployment areas. However, Sabia and Churchill (2017), in an update to Orrenius and Zavodny, using data from the CPS Monthly file and data through 2015, find much stronger evidence for adverse employment effects.

We might expect the effects of minimum wages to be even stronger for Hispanics as Hispanic immigrants have been shown to earn less than non-Hispanic immigrants and they have a higher likelihood of being undocumented. Taken together, these could impact the effect of minimum wage increases (Sabia and Churchill, 2017). In a related paper, Orrenius and Zavodny (2011) examine the effects of changes in minimum wages on the earnings and employment of Latino teenagers and low-education Latinos using data from 1994-2007. They find that Latino teens have higher hourly earnings but experience negative employment effects. Low-education Latinos also have higher hourly earnings but experience positive employment effects. Overall, it appears that Latinos benefit from higher minimum wages with increased hourly earnings; however, the effects are heterogeneous across nativity status.

Previous Literature on Minimum Wages and Health

Increases in minimum wages might impact the health of low-income workers through an income effect.[10] In particular, changes in income could affect health through several pathways. First, purchasing more material goods and services can have a direct impact on health such as through a better diet. Second, having a low income relative to others can create stress. Third, those with higher incomes are less likely to engage in behaviors that can lead to poor health such as substance abuse (Benzeval, et al. 2014).[11] In addition, higher income can make health insurance more affordable (McCarrier, et al. 2011). On the other hand, those with more income may choose to purchase less healthy food or even to take up smoking, potentially worsening their health.

There are a small but growing number of studies that examine the effect of minimum wage increases on health-related outcomes ((Lenhart 2015), (Kronenberg , Jacobs and Zuccheli 2015), (Reeves, McKee, et al. 2017) and (Reeves, McKee, et al. 2014)). These papers all examine the effects on health of the 1999 national minimum wage increase in the United Kingdom. Kronenberg, Jacobs and Zuccheli (2015), using a difference-in-differences framework, find no significant effects while Reeves, McKee, et al. (2017) and (2014) find that the increases led to improved mental health but not other indicators of general health. In contrast, Lenhart (2015) finds that the increase in minimum wage significantly improved a number of health measures, such as self-reported health status and whether individuals suffer from a number of health conditions.

[10] We also recognize that higher minimum wages could mean lower employment rates (the extensive margin) or fewer hours worked (the intensive margin) for low-income workers. For each hour worked, low-income workers who retain their jobs after a minimum wage increase receive higher wages, which means they could potentially earn higher incomes unless their employer responds by cutting their hours. Here we focus on those who retain their jobs, thus largely leaving those issues for future work.

[11] It has also been established that income influences health among low-educated U.S. workers (e.g. (Averett and Wang 2013) and (Evans and Garthwaite 2014).

There are several papers that examine the link between minimum wages and whether an individual has health insurance in the United States. Standard economic theory predicts that minimum wage increases could reduce access to health care as employers substitute higher minimum wages for less generous plans or dropping coverage for employees. Simon and Kaestner (2004) explore the possibility that employers also respond to minimum wages by adjusting non-wage components of the job, including health insurance. In their analysis of CPS data spanning the years 1979-2000, they find no discernible effects of the minimum wage on the provision of health insurance (or other fringe benefits) for low-skill workers. On the other hand, the direct income-increasing effect of higher minimum wages may be that workers have more income to afford insurance premiums and/or out-of-pocket medical expenses. McCarrier et al. (2011) use the BRFSS data (1996 – 2007) to examine whether increases in the minimum wage affect un-insurance rates and/or the unmet medical needs of low-wage workers aged 18 to 64 years. Their findings suggest that a higher minimum wage implies fewer unmet medical needs but has no effect on un-insurance rates.

Other health-related work on the minimum wage includes work linking minimum wage increases to obesity and alcohol use. Using BRFSS from 1984 to 2006, Meltzer and Chen (2011) examine the effect of a decrease in the real minimum wage on rates of obesity in the US. Their paper examines all workers, not just low-wage workers, and finds an association between declines in the real minimum wage and increased incidence of obesity. Meltzer and Chen discuss what the causal link may be between declines in the minimum wage and increased obesity; they emphasize that declines in the minimum wage lower the price of fast food and increase its consumption, which leads to greater obesity. Sabia, Pitts and Argys (2014), using 1991 – 2011

CPS Outgoing Rotation Groups, YRBS, and BRFSS data, find no significant effects of minimum wage increases on alcohol consumption among teenagers.

Finally, several papers examine health outcomes directly when minimum wages increase. Horn, Strain and Maclean (2017) examine the effects of increases in minimum wage on both physical and mental health for employed and unemployed men and women, using BRFSS data from 1993 to 2014. They limit their sample to those between 21 and 54 years of age, and they exclude those who are self-employed. They find that employed men have poorer physical health but fewer poor mental health days as the minimum wage increases, while unemployed men only experience worsened physical health. They find no effect of increases in the minimum wage on physical or mental health for women. Wehby, Dave and Kaestner (2016) find that higher minimum wages lead to higher birthweights, increased prenatal care use and declines in smoking during pregnancy. Averett, Smith and Wang (2017) find higher minimum wages lead to better health when examining self-assessed health for certain groups of teenagers using CPS data. More generally, Sabia and Nielson (2015) find no significant effects of raising minimum wages on low income populations in terms of health insurance coverage, doctor's visits, or sufficient resources to purchase food or eat a balanced meal.

Data

We combine data on state level minimum wages and other state level variables with the BRFSS and the CPS ASEC. While the BRFSS has a richer array of outcome variables, the CPS ASEC includes information on citizenship status, actual hourly wages and whether the individual is paid by the hour, allowing us to further refine the sample to those who are *most* likely to be affected by the minimum wage. In the following sub-sections, we first discuss the state level

minimum wage data and other state level controls then we turn to our dependent and control variables.

Minimum Wage and Other State Level Controls

To examine associations between changes in the minimum wage and access to health care, health status and preventive care, we gather data on the prevailing minimum wage rate in each state for the years 1994-2015.[12] We calculate the minimum wage as the greater of the state minimum wage (if one exists) and the federal minimum wage. We collect the information on the state minimum wages from the state labor-law changes published annually in the January edition of the Monthly Labor Review. We deflate minimum wages and all the other dollar values used in the analysis using the Consumer Price Index-Urban with the base years of 1982-1984.

Over the period of our sample, the federal minimum wage changed five times due to two legislative changes (1996-1997 and 2007-2009), while the states changed their minimum wages 181 times over this time frame excluding the effects on states whose minimum wage does not differ from the federal minimum wage.[13] Some states have more regular changes in the minimum wage because they index the minimum wage to inflation,[14] but others have had to deliberately introduce legislation or make constitutional changes to increase their minimum wage.[15] In addition, over our sample period, there are 15 states whose minimum wage does not differ from the federal minimum wage.

Changes in minimum wages over time vary across states. The largest one-year change in the minimum wage was in Iowa, where it increased by $2.10[16], and the smallest maximum one-

[12] Meaningful state variation in minimum wages did not start until the end of the 1980s (Simon and Kaestner 2004).
[13] Appendix A1, available from the authors upon request, details these changes in minimum wages.
[14] See Appendix A, available from the authors upon request, for dates of indexation.
[15] See our Appendix on the details of the minimum wage for a full list of states that changed their minimum wage as well as other details regarding minimum wage workers. This is available from the authors upon request.
[16] Technically this change was implemented in two steps which is reflected in our data which is from the BLS.

year changes occurred in Vermont, Hawaii, Delaware and Connecticut which each had a change of $.50.[17] While the nominal minimum wage on average has been rising, the real minimum wage has been fairly constant, hovering under $4 (in 1982-84 dollars).

Many states continue to debate minimum wage increases. Allegretto (2015) emphasizes several characteristics of those states that have raised minimum wage rates higher than the federal minimum. In particular, she finds these states to have relatively liberal voters, relatively volatile business cycles, and fairly high degrees of job polarization. States vary considerably in their average wages and the purchasing power of the minimum wage is partly a function of the state's average wage. Thus, to capture the relative purchasing power of the minimum wage in a state, we also include the ratio of the state minimum wage to the state's average wage (expressed a percentage) to capture this aspect of minimum wage changes. Because workers may respond to the ratio of the minimum wage to the state's average wage (i.e. respond to the relative wage position rather than their absolute wage), we include analyses using both the real minimum wage and this ratio (e.g. Lynch et al. (2004), Wagstaff and Van Doorslaer (2000))

The minimum wage is only binding for a subset of workers. In 2014, the Bureau of Labor Statistics (BLS) reports that 58.7 percent of all wage and salary workers were paid by the hour and of those 3.9 percent earned the federal minimum or less. Workers who are less than 25 years old, women, blacks and Hispanics are more likely to earn minimum wages. Minimum wage workers are also less educated and predominantly in the South and the Midwest.[18] The Fair Labor Standards Act allows for exemptions from the minimum wage for certain groups.[19]

[17] There are many states that do not have any minimum wage changes other than those that occurred due to changes in the federal minimum wage.
[18] Appendix B, available from authors upon request, details characteristics of minimum wage workers.
[19] See https://webapps.dol.gov/elaws/whd/flsa/screen75.asp for a discussion of exemptions to the minimum wage.

We combine our individual-level data with state-level data on labor force characteristics and other policies that vary at the state level that may be correlated with both minimum wages and health. In particular, we control for the percent of the state's workforce that is covered by a collective bargaining agreement, the percent that is a member of a union, the state unemployment rate, the percent of the state's population that is below the poverty line, state cigarette taxes to capture the economic and labor market conditions in each state, and whether the state has a Democratic governor (for DC we use the political party of the Mayor)[20]. Given that low-educated Hispanic women are disproportionately likely to be immigrants, we also control for whether the state passed an employment verification law (commonly referred to as e-verify laws) as this could affect their employment and earnings. We also control for the cutoff for Medicaid eligibility for pregnant women (expressed as a percentage of the poverty level), whether a state adopted a mental health parity law, whether a state expanded dependent health insurance coverage prior to the 2010 implementation of the Affordable Care Act, and whether a state expanded Medicaid after the implementation of the Affordable Care Act to control for access to health insurance for low-income workers. We further control for the maximum AFDC/TANF benefits for a family of three to account for differences in the state-level generosity of public transfer programs.

Dependent Variables in the BRFSS

The BRFSS is a telephone survey of adults aged 18 to 99. When weighted, the BRFSS data are designed to be representative of the U.S. population. From the BRFSS we construct a

[20] This variable takes into consideration the relationship among the predominance of the Democrats in state governments, minimum wages, and the health status of Hispanic women. For example, Democratic governors have typically been more active in passing minimum wage legislation (e.g. (Bjørnskov and Potrafke 2013) (Compton, Giedeman and Hoover 2017)). In addition, labor market outcomes of immigrants are better under Democratic governors (e.g. (Beland and Unel 2018)).

dataset consisting of pooled cross-sectional observations of Hispanic women. To avoid the potential job loss effects of the minimum wage, we focus our attention on those who are working for pay (and not self-employed) at the time of the survey. We also focus on those with a high school education or less as they are more likely to be affected by changes in the minimum wage.[21]

We examine a wide array of dependent variables. The first set measures access to care: a binary variable equal to one if the respondent reports having any type of health insurance in that year (e.g. Medicaid, Private Insurance, Medicare), and a binary variable equal to one if the respondent reported that they needed to see doctor in past year but could not afford to. We then have several variables that capture general physical and mental health. These include a binary variable equal to one if the self-reported health is excellent, zero otherwise, a binary variable equal to one if self-reported health is fair or poor, zero otherwise,[22] the number of days in the past month the respondent reported poor mental health, and a binary indicator equal to one if the respondent did not report any days of bad mental health in the past 30 days.[23] Our last set of variables captures preventive health measures and includes whether the individuals reported having a checkup in the past year, whether they had a flu shot in the past year, whether they have had their blood pressure taken in the past year (only asked in our sample for the years 1995-

[21] Because of these sample criteria, we test whether minimum wages affect the probability of being in our sample by regression sample inclusion on the minimum wage and the covariates described later. We find no evidence of such conditional on positive (COP) bias.

[22] Both of these binary variables are created from the respondent's self-report of their own health measured on a Likert scale where 1=excellent, 2=very good, 3=good, 4= fair, and 5=poor.

[23] Mental health is an important consideration because of the prevalence and high costs of mental health problems. About 25 percent of adults in the US suffer from a mental health disorder in a given year, with about six percent suffering from a serious mental illness. Mental health disorders were also one of the five most costly conditions in the US in 2006, with care expenditures rising from $35.2 billion in 1996 to $57.5 billion in 2006. Despite the prevalence and the high costs of mental health disorders, access to mental health care is still problematic. For example, four percent of young adults, who self-reported mental health needs, did not seek mental health care in the past year (AHRQ 2009). Mental health disorders are also particularly prevalent among low-income households (Sareen, et al. 2011). Our measure of mental health is self-reported and not diagnosed.

2000), whether they had a breast exam in the past year, and whether they had a Pap smear in the past year.

Dependent Variables in the CPS

The BRFSS has the advantage of having a rich array of health measures. However, by focusing on low-educated Hispanic women, we recognize that some of our state/year cells are small which lowers the precision of our estimates. In addition, the BRFSS does not allow us to control for citizenship status or to narrow down our sample to those who are paid hourly and whose earnings are at or near the minimum wage. Thus, we turn to the CPS ASEC. The CPS ASEC provides annual estimates based on a survey of more than 75,000 households. It contains detailed information on selected social and economic characteristics of each household member as of the interview date.[24] Importantly for our purposes, respondents are asked about their self-rated health and their health insurance status. Unfortunately, no questions regarding preventive care are available. As we do with the BRFSS, we focus on Hispanic women who are working, but not self-employed, with high school education or less.

The first dependent variable we use from the CPS ASEC is whether the respondent has any health insurance in the last calendar year. We focus on survey years 1994 to 2013 because the CPS ASEC made a major change in how it asked the health insurance questions in 2014 from health coverage in the previous year to current health coverage (Klerman, et al. 2009). Because there is no clear method to combine the two insurance measures, we limit our sample to the years 1994-2013 for this analysis.[25] Given that the CPS ASEC from 1994-2013 asked individuals whether they were insured in the past calendar year rather than currently insured (as the BRFSS does), we adjust our minimum wage measure to fit the timing of this question so that we are

[24] See https://www.census.gov/programs-surveys/cps.html for a detailed description of the survey.
[25] See Pascale, Boudreaux and King (2016) for a discussion of the new health insurance question.

capturing the contemporaneous effect of minimum wages on health insurance. We also note that we are only capturing the extensive margin of insurance. It is possible that in response to higher labor costs, employers offer less generous insurance. Our data cannot capture this dimension of health insurance. We also examine the effects of minimum wages on two measures of self-reported health (self-reported health is asked starting in 1996): a binary variable equal to one if self-reported health is excellent, zero otherwise, and a binary variable equal to one if self-reported health is fair or poor, zero otherwise, consistent with how we dichotomize the self-reported health variable in the BRFSS.[26]

Individual Covariates

For both the BRFSS and the CPS ASEC, we control for age, marital status, education, and whether the respondent has any children (although the child question is slightly different in each survey). While there are some disparities in how these questions are asked across the two surveys, we strive to make the definitions as close as possible.

Summary Statistics: BRFSS

Table 1 presents weighted sample means from the BRFSS sample. About 66 percent of our sample reported having health insurance, 15 percent said they were in excellent health and 23 percent said their health was fair or poor. Around half of the women in our sample reported having had a Pap smear or breast exam in the past year while 54 percent had had their blood pressure taken and 16 percent had a flu shot in the past year.[27] The mean age of the sample

[26] Both of these binary variables are created from the respondent's self-report of their own health measured on a Likert scale where 1=excellent, 2=very good, 3=good, 4= fair, and 5=poor.

[27] While it is difficult to compare these numbers to those of other studies given our sample restrictions, it is well documented in the literature that Hispanic women are less likely to be insured, to use preventive care and tend to report higher rates of fair/poor health (e.g. (Rodríguez, Bustamante and Ang 2009) (Bustamante, et al. 2010)). When we compare these numbers to non-Hispanic women in the BRFSS we do find that Hispanic women are more likely to report fair/poor health and less likely to report blood pressure checks or having received a flu shot.

respondent is 37 years. Of our low-educated sample of Hispanic women, about 40 percent have less than a high school education.

Summary Statistics: CPS ASEC

Our weighted sample means for the CPS ASEC sample are presented in Table 2. About 62 percent of low-educated Hispanic women reported having health insurance in the past year (years 1994-2013). While only 15 percent said their health was excellent in the BRFSS, that percent jumps to 24 in the CPS ASEC while the reverse pattern is present for fair/poor health. Different sampling methods as well as the change in insurance questions by the CPS ASEC discussed above may account for these differences. For example, the BRFSS samples telephone numbers by using random digit dialing while the CPS ASEC samples households from an address-listing file. These differences lead to differences in who is surveyed. Hence, it is not unexpected that we might find differences in the sample means.[28] The samples also differ on child status which is likely due to how the questions are phrased as detailed on Tables 1 and 2. There are some important similarities: 40 percent of this sample also have less than a high-school diploma and the average minimum wage is $3.18 for this sample compared to $3.08 for the BRFSS. In both data sets, the minimum wage is about 35 percent of the state's average wage.

Finally, we test if the sample means are different across the two surveys and find that they are significantly different for all variables the two surveys have in common. Given the large sample sizes and differences in sample sizes across the CPS and the BRFSS, this is not a surprising finding.

Empirical Model

[28] See Nelson et al. (2003) for further discussion of these differences.

We use the following equation to estimate the effects of increases in minimum wages on health-related outcomes for low-educated Hispanic women:

$$(1) \quad y_{imst} = \alpha + \gamma_1 MW_{st} + \gamma_2 Z_{imt} + \gamma_3 X_{st} + \theta_s + \tau_t + \nu_m + \varepsilon_{imst}$$

where y_{imst} is an indicator for a health outcome for individual *i*, interviewed in month *m*, residing in state *s* at year *t*; MW_{st} is the minimum wage (the greater of either the state or the federal minimum in real terms) or the ratio of the minimum wage to the state's average wage; Z_{imt} and X_{st} are vectors of individual controls and state-specific time-varying economic and policy controls, respectively, as described in the Data section; θ_s is the time-invariant state effect; τ_t is the time effect; ν_m are month fixed effects (only for the BRFSS, the CPS ASEC respondents are all interviewed in March), and ε_{imst} is an error term. For most of our outcomes, the estimates are obtained using OLS except for the days of poor mental health outcome which is estimated using a negative binomial model. We run weighted regressions using weights by the respective surveys.[29]

Equation (1) identifies the effect of minimum wages on health outcomes from within state variation in minimum wages from year to year. Federal variation in minimum wages is largely subsumed by the year fixed effects. We cluster our standard errors by state to allow for any type of correlation structure among the error terms for a given state. Sabia and Nielson (2015) note that although many scholars use state-specific linear time trends to eliminate sources of bias due to state-specific unobservable time trends when examining the effect of minimum wages on labor market outcomes, the inclusion of such trends reduces available identifying variation by over 60 percent. Thus, we do not include these in our models.

Results

[29] Our results are essentially unchanged if we run unweighted regressions.

Before discussing the health outcomes, we briefly examine the effects of increasing minimum wages on the earnings of low-educated working Hispanic women to gain insight into the possible mechanism for improved health.

Minimum Wages and Earnings

Our framework for thinking about the effects of increased minimum wages on health is loosely based on the Grossman model. As described earlier, one primary mechanism through which increases in the minimum wage may positively influence health insurance status, health status, and preventive care would be through an income effect. Therefore, before undertaking our empirical analysis of the health outcomes, we test to see if changes in the minimum wage increase the hourly earnings of low-educated working Hispanic women. As the BRFSS does not have earnings data and collects income only categorically, following the literature (e.g. (Sabia, Pitts and Argys 2014) (Wehby, Dave and Kaestner 2016)), we use the CPS Merged Outgoing Rotation Groups survey from 1994 to 2015 and equation (1) to estimate the effect of minimum wages on the hourly earnings for those who are employed and paid by the hour.[30] For a sample of women who are working before and after the minimum wage increase, as shown in Appendix Table 1, we find positive and significant income effects, indicating that low-educated working Hispanic women are likely to see higher hourly wages as a result of an increase in the contemporaneous and lagged minimum wage (columns 1 and 3) (Hoffman 2014). These increased hourly wages provide a mechanism by which Hispanic women may improve their health after an increase in the minimum wage.

However, we recognize the complexity surrounding the relationship between increased income and health. With higher wages, the price of time-intensive health-promoting activities

[30] We use the log of the nominal hourly wage as our dependent variable.

increases (e.g. exercise, preparation of healthy meals) thus it is possible that a wage increase could lead to worse health. In terms of health insurance, low income individuals who receive higher wages may find that they are no longer eligible for Medicaid and thus may lose coverage.

In Appendix Table 1, we also examine the response of usual hours worked to changes in the contemporaneous and lagged minimum wage. We see as the contemporaneous minimum wage rises in the short run workers are working fewer hours; however, when we use the lagged minimum wage there is no effect on hours worked which we would expect in the long run in a dynamic model.

Minimum Wages and Health Measures: BRFSS

We now turn to our dependent variables of interest, health outcomes. Table 3 presents our baseline regression results using the BRFSS with no covariates. Panel A uses the real minimum wage as the independent variable, Panel B uses the ratio of the state's minimum wage to the average wage in the state, Panel C uses the lagged real minimum wage (we use a one-year lag) considering the possibility that it may take people some time to adjust their behavior/purchases in response to their increased income, and Panel D uses the lagged ratio.

With respect to access to care (columns (1) and (2)), with only two exceptions for the effects of the ratio on affordability of care, we find no statistically significant effects for any measure, which is consistent with the findings of McCarrier et al. (2011) and Simon and Kaestner (2004) who also find no effect of higher minimum wages on health insurance coverage. Turning to overall health status (columns (3)-(6)), we again find no significant results except that those in higher (contemporaneous or lagged) minimum wage states are less likely to report good mental health. The last few columns of the table show results for preventive care and we see that with the lagged minimum wage specification, higher lagged minimum wages are positively

correlated with having a flu shot but are negatively correlated with having a Pap smear or breast exam, and a higher lagged ratio is negatively correlated with having your blood pressure taken in the past year.[31]

The results in Table 3 are unadjusted for the covariates, so we will only provide a brief summary of the findings. First, we do not see any impact on health insurance status; we actually see that certain measures of increases in minimum wages are positively correlated with the non-affordability of care, which is inconsistent with some politicians' claim that they support increases in minimum wages because such increases improve access to care. Second, the overall picture reveals little correlation between the minimum wage and our health measures, as out of the 44 regressions, only eight coefficients on the minimum wage/ratio are significant.

We now present the results with our full set of covariates in the next set of tables (Tables 4 – 8), where only selected coefficients on the control variables are shown. Starting with panel A on Tables 4 and 5 (contemporaneous minimum wage), we find low-educated Hispanic women are less likely to be able to afford care but no other minimum wage coefficients are statistically significant.. Turning to panel B of Tables 4 and 5 (contemporaneous ratio of minimum wage to state's average wage), low-educated Hispanic women are now more likely to have health insurance. In addition, we find that as minimum wages rise, Hispanic women are less likely to be able to afford care and less likely to have had a breast exam in the past year. Higher minimum wages do lead to fewer days of poor mental health and are associated with a greater likelihood of having a flu shot. This inconsistency in panel B of Table 4 may be a result of the fact that although a woman might be insured, her insurance may not cover all the tests she needs and

[31] The sample sizes for the lagged models are smaller since we lose a year of data.

hence she might report having insurance after a minimum wage increase but also report not being able to afford care.

The results from the contemporaneous minimum wage and the contemporaneous ratio are not always consistent, which is possible because the ratio can increase with higher state minimum wages as well as lower state average wages and the ratio is a measure of relative income while the minimum wage is a measure of absolute income. Thus, we do not necessarily expect the same results from these two sets of specifications.[32]

Turning to Tables 6 and 7, where we focus on the lagged minimum wage (panel A) and on the lagged ratio of the minimum wage to the state's average wage (panel B), we see that when the minimum wage is lagged, our respondents are more likely to report having health insurance, being able to afford care, but less likely to have good mental health While the negative effect on mental health may seem surprising, it may stem from stress induced by having to work harder when minimum wages increase, and finding a negative effect of minimum wage increases on health is not unprecedented in the literature (e.g. (Averett, Smith and Wang 2017)). It is interesting that while minimum wages increase the probability of reporting poor mental health, with the lagged ratio, we see fewer days of poor mental health which could be a function of seeing one's relative income improve as the ratio of the minimum wage to the state's average wage rises. We see no effect of the lagged minimum wage on our measures of preventive care. With the lagged ratio, we see, similar to the lagged minimum wage, a positive effect on having health insurance and a negative effect on the ability to afford care but no preventive care results are significant.[33]

[32] For example, in 2014 Massachusetts has one of the highest minimum wages yet it has the lowest ratio and in 2015 Colorado has one of the highest minimum wages yet it has the lowest ratio.

[33] One might wonder if any positive effects of the minimum wage on health could be a function of individuals' migrating to states with higher minimum wages. We address this possibility by regressing the share of Hispanics in a

In all of our results, the coefficients on the other covariates are as expected. For example, those who are older are more likely to be in poor health as are those who are unmarried or have lower education. Living in a state with a Democratic governor often leads to better self-assessed health and more preventive care (though the result is not consistent across specifications).

While we find some statistically significant correlations between increases in minimum wages and our health measures, we caution against drawing the conclusion that changes in minimum wages have any significant impact on low-educated Hispanic women's access to care, health status, or preventive care for the following two reasons. First, we note that out of the 44 regressions whose results are presented in Tables 4 to 7 (11 health outcomes*four specifications (contemporaneous real minimum wage, contemporaneous ratio, lagged real minimum wage, lagged ratio)), only 12 of them show a statistically significant (mostly at the 5% level) impact of changes in some measure of minimum wage. Given the large sample size and the large number of regressions, it is not impossible that these few significant results could be purely by chance (Type I error). We therefore conduct a Bonferroni-style test (Bland 2015) and the result indicates that we cannot reject the null hypothesis that those significant results are indeed by chance. Second, with the BRFSS data we have made important sample limitations in order to reduce our sample to a group for whom the minimum wage is binding, it is possible that some observations in our sample are not earning the minimum wage and hence are less likely to be affected by minimum wage changes. That is, the lack of significant results could be a function of our ability to limit our sample to those who earn minimum wages. We turn to the CPS ASEC in order to focus on a sample of Hispanic women who are more likely to be affected by minimum wage

state and share of healthy Hispanic women in a state on the minimum wage, and we find no evidence that this is the case. These results are in Appendix Table 2.

changes and to conduct analysis with a larger sample but a specification similar to the BRFSS which allow us to examine whether the same effects exist in the CPS ASEC.

Minimum Wage and Health Outcomes: CPS ASEC

We first show the results using the CPS ASEC without covariates in Table 8. Even with a sample more likely to be affected by changes in minimum wages with a sample size that is about three times larger than the BRFSS, we only see that the contemporaneous ratio predicts worse self-assessed health. We do not see any other significant effects of any measure of the minimum wage on the three health measures available in the CPS ASEC, similar to what we presented in Table 3.

We present the rest of our CPS ASEC results in a series of seven tables, the first three on the effects of the contemporaneous minimum wage, the next three on the effects of the contemporaneous ratio of the minimum wage to the state's average wage, and the last one on the effects of the lagged minimum wage and the lagged ratio. In these tables, we show in column (1) the BRFSS result for that specific health measure (copied from the corresponding BRFSS tables to facilitate comparisons across the two datasets) and in column (2) the CPS results for that health measure using the same specification as that shown in column (1). The following columns each add more controls/sample restrictions to the previous one: We add citizenship and naturalization status in column (3), add industry dummies in column (4), focus only on the sample who report being paid by the hour in column (5), further limit to those who are paid by the hour and report earning within 200 percent of their state's minimum wage in column (6), and finally, narrow our sample to those who work in the two largest industries in which our sample respondents reported in table 2 (retail trade and professional services) in column (7).

With respect to the effect of the contemporaneous minimum wage on health insurance (Table 9), we find that the point estimate from the BRFSS is larger compared to the one from the CPS ASEC with the same specification although neither is statistically significant. As we move across columns, additional controls and further sample refinements lower the magnitude of the coefficient on the minimum wage (even turning it negative in two specifications). In none of our specifications is the minimum wage a statistically significant determinant of having health insurance. Understandably, as we further refine our sample, we have smaller sample sizes, raising concerns over both the precision of our estimates and which states might be driving our results. We view these with caution, although a closer look shows that even if the standard errors did not increase due to the notable drop in sample size the coefficients on minimum wage would not be statistically significant for most of the more parsimonious specifications. Remarkably similar patterns are found in Tables 10 and 11 --- namely there is no effect of minimum wages on self-assessed health either whether it is measured as excellent health or fair/poor health. The effects of other covariates are as expected. For example, those who are immigrants and not citizens are less likely to have health insurance as are the unmarried and those with less than a high school education.

Turning to Tables 12-14 that show the results using the ratio of the minimum wage to the state's average wage, with the exception of specification 5 in table 13 where we see that as the ratio rises, Hispanic women are less likely to report excellent self-assessed health, we find no statistically significant effect of this ratio on the three health measures in the CPS ASEC. Finally, Table 15 shows that higher one-year lagged minimum wages or corresponding ratios have no statistically significant impacts on insurance or the probability of reporting excellent health (with the exception of specification 5 for self-assessed health where we once again see a negative

effect), but we do find several positive effects of lagged minimum wages on the probability of reporting fair or poor health. It is possible that this increased probability of reporting fair or poor health when minimum wages increase is a result of having to work harder on the job, perhaps because other workers were laid off due to higher minimum wages, or because workers have less time to invest in their health because the opportunity cost of doing so has risen. As noted above, such a finding is not unprecedented in the literature (e.g. (Averett, Smith and Wang 2017)). This finding does disappear as we refine our sample to those most likely to earn the minimum wage.[34]

In models not shown, we also interacted the contemporaneous minimum wage and the contemporaneous ratio with marital and child status because it is possible that the effects of the minimum wage on health might vary by family status. The interaction terms are occasionally significant and the overall results are unchanged.

Alternative Explanations

Although we have few significant effects of the minimum wage on our health outcomes, we want to briefly address two potential threats to our identification strategy. First, it is important that changes in the minimum wage are not driven by the health status and access to care for low-educated working Hispanic women. Otherwise, our estimates will over- or understate the true effects of minimum wages on health. To test this possibility, we aggregate our data to the state/year level (the unit of observation is now a state in a year) and run a regression of state real minimum wage on lagged health outcomes controlling for our full set of covariates. These results (not shown here but available upon request) indicate that there is no evidence that state minimum wages changes are a function of health observed in that state. This finding holds

[34] Not surprisingly, our results are essentially unchanged when we drop states with below 100 observations for the full-sample. These include Vermont, Maine, West Virginia, North Dakota, Mississippi, Louisiana and Montana. When we limit our sample to the four states (New York, California, Texas and Florida) in our sample with the largest number of Hispanic women, we also find similar results.

for both the CPS ASEC and the BRFSS data. In other words, the results show that none of the lagged health outcome variables we study statistically significantly predict the state minimum wages in the following year. We conclude that minimum wage changes are unlikely to be driven by the health outcomes of working low-educated Hispanic women.

Second, any finding of a positive effect of the minimum wage on health could potentially be driven by healthier individuals (who are presumably more able to work) migrating to states with higher minimum wages (e.g. (Boffy-Ramirez 2013) and (Giulietti 2014)). Whether healthier low-educated Hispanic women migrate to states with higher minimum wages has not been investigated in the literature to the best of our knowledge. In regressions shown in Appendix Table 2 using the CPS ASEC data, we regress the share of low-educated Hispanic women who reported excellent health as a share of the state's total population on the lag of the minimum wage and our full set of covariates. We find no evidence that higher minimum wage states attract healthier low-educated Hispanic women. Thus, this is suggestive evidence that it is not likely that our results are driven by healthier women moving to high minimum wage states. However, we are cautious in our interpretation of this result given that our state-level sample is small, the specification includes linear trends, and lags are likely important when it comes to mobility analysis.

Conclusions

Policymakers are increasingly calling for higher minimum wages, citing the potential positive effects of higher minimum wages on both mental and physical health. While there is a large economics literature linking income to health, we know little about how minimum wage increases might affect health. Our work adds to a growing literature that has examined the effect

of minimum wages on heath by looking at an important yet often ignored population --- Hispanic women.

We find limited evidence that minimum wage increases have improved the health of Hispanic women, their access to care or use of preventive care. Indeed, in some specifications, it appears that they might actually worsen health. Overall, we cannot reject the null hypothesis that increases in minimum wage have no impact on the health of low-educated working Hispanic women at all. Our results also suggest that the measure of the minimum wage is important (e.g. ratio of minimum wage to state average wage or minimum wage) and that changes in the minimum wage likely operate with a lag with respect to health changes.

These results suggest that while increases in minimum wages increase the earnings of at least some Hispanic women, expecting higher minimum wages to spill over into health is not realistic and policymakers who wish to address disparities in access to health care or health status for Hispanic women cannot depend on minimum wages changes to facilitate that goal.

One possible caveat is that the lack of significant results may be a consequence of the outcome measures we use. It is possible that increases in minimum wage are not large enough to cover the cost of a health insurance plan or to push an individual to change his doctor-visiting behavior. For Hispanic women, a group with less education and limited English proficiency on average, health improvements may be manifested in a different way that cannot be measured using our data. In addition, future research may wish to explore the effect of changes in minimum wages on the children of Hispanic women. Hispanic families tend to follow traditional gender roles as noted by Lam, McHale and Updegraff (2012) and thus changes in Hispanic women's labor supply and/or health may have spillover effects on their families.

Conflict of interest statement.

On behalf of all authors the corresponding author states that there is no conflict of interest.

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Table 1: BRFSS Weighted Sample Means 1994-2015

	Mean	Standard deviation
Var =1 if individual has health insurance	0.66	(0.47)
Var=1 if needed to see Dr. but couldn't afford to past 12m	0.23	(0.42)
Var =1 if health is excellent	0.15	(0.36)
Var=1 if health is fair or poor	0.23	(0.42)
Var=1 if has good mental health (no days in past month with bad mental health)	0.60	(0.49)
# days in past month with bad mental health	3.96	(7.78)
Var=1 if had checkup in past year	0.72	(0.45)
Var=1 if had flu shot in past year	0.16	(0.36)
Var=1 if had blood pressure taken in past year	0.54	(0.50)
Var=1 if breast exam in past year	0.43	(0.50)
Var=1 if had pap smear in past year	0.50	(0.50)
State real minimum wage ($)	3.08	(0.28)
Ratio of state min wage state avg. wage (expressed as percentage)	35.31	(3.95)
Age in years	36.57	(11.39)
Var=1 if never married	0.21	(0.40)
Var=1 if separated/divorced/widowed	0.21	(0.41)
Var=1 if has no children under 17 in household	0.78	(0.42)
Var=1 if less than a high school education	0.40	(0.49)
State unemployment rate (expressed as percentage)	5.53	(1.42)
Percent of workforce member of union	13.60	(6.30)
Percent of state workforce represented by unions	15.18	(6.33)
Var=1 if state does not have an e-verify law	0.98	(0.15)
State AFDC/TANF benefits, $, for family of 3	457.61	(191.90)
State Medicaid eligibility cutoff pregnant women (expressed as % of FPL)	196.66	(42.13)
State cigarette tax (measured in cents)	61.85	(48.59)
Var=1 if state mandates dependent coverage health insurance	0.08	(0.26)
Var=1 if state mandates mental health parity, health insurance	0.08	(0.27)
state expanded Medicaid under ACA	0.02	(0.12)
Percent of states with Democratic governor	0.36	(0.48)
Observations	16,670	

Ratio refers to (state min wage/state average wage)*100

Table 2: CPS ASEC Weighted Sample Means-1994-2015

	Mean	Standard deviation
Var=1 if has health insurance in past calendar year[#]	0.62	(0.49)
Var=1 if health is excellent	0.24	(0.43)
Var=1 if health is fair or poor	0.09	(0.29)
State real minimum wage ($)	3.18	(0.35)
ratio of state min wage state to avg. wage (expressed as percentage)	34.84	(3.69)
real minimum wage ($)	3.18	(0.35)
Var=1 if foreign born-not citizen	0.40	(0.49)
Var=1 if foreign born-naturalized citizen	0.15	(0.35)
Age in years	36.82	(11.66)
Var=1 if never married	0.29	(0.46)
Var=1 if separated/divorced/widowed	0.20	(0.40)
Var=1 if has no own children present in household	0.34	(0.47)
Var=1 if less than high school education	0.40	(0.49)
State unemployment rate (%)	6.34	(1.96)
Percent of workforce member of union	12.44	(6.44)
Percent of state workforce represented by unions	13.81	(6.47)
Var=1 if state does not have an e-verify law	0.87	(0.34)
State AFDC/TANF benefits ($), family of 3	467.76	(206.77)
State Medicaid eligibility cutoff pregnant women (% of FPL)	197.40	(35.80)
State cigarette tax (measured in cents)	100.94	(76.98)
State mandates dependent coverage, health insurance	0.46	(0.50)
Var=1 if if state mandates mental health parity, health insurance	0.33	(0.47)
Var=1 if if state expanded Medicaid under ACA	0.14	(0.35)
Var=1 if individual works in agricultural/forestry/fishing industry	0.02	(0.14)
Var=1 if individual works in construction industry	0.01	(0.11)
Var=1 if individual works in food production industry	0.04	(0.19)
Var=1 if individual works in textile production industry	0.05	(0.21)
Var=1 if individual works in chemical production industry	0.02	(0.13)
Var=1 if individual works in other manufacturing industry	0.08	(0.27)
Var=1 if individual works in trans/communications public utilities industry	0.04	(0.19)
Var=1 if individual works in wholesale trade industry	0.03	(0.17)
Var=1 if individual works in retail trade industry	0.29	(0.45)
Var=1 if individual works in finance/real estate industry	0.06	(0.23)
Var=1 if individual works in business/repair services industry	0.09	(0.28)
Var=1 if individual works in personal services industry	0.08	(0.27)
Var=1 if individual works in entertainment services industry	0.01	(0.12)
Var=1 if individual works in professional services industry	0.20	(0.40)
Var=1 if individual works in public administration industry	0.00	(0.00)
Var=1 if individual works in military industry	0.00	(0.00)
Var=1 if individual works in paid by the hour	0.35	(0.74)
Percent of states with Democratic governor	0.38	(0.48)
Observations	50,414	

[#] This variable is available from 1994-2013 in our sample.
Ratio refers to (state min wage/state average wage)*100

Table 3: BRFSS results with no covariates and no state fixed effects and year fixed effects

VARIABLES	(1) Health insurance	(2) Can't Afford care	(3) Exc. hlth	(4) Fair/poor hlth	(5) Good mental hlth.	(6) Days poor mental hlth	(7) Checkup in past year	(8) Flu shot past year	(9) BP taken past year	(10) Breast exam past year	(11) Pap test past year
Panel A: BRFSS: Contemporaneous minimum wage (no covariates and no state and year fixed effects)											
Real min wage	0.067	0.003	0.028	-0.014	-0.054*	0.0776	0.024	0.033	0.491	-0.155	-0.158
	(0.051)	(0.024)	(0.018)	(0.029)	(0.020)	(0.1259)	(0.052)	(0.028)	(0.312)	(0.088)	(0.107)
Constant	0.458*	0.226*	0.068	0.268*	0.767**	1.1370**	0.643**	0.054	-0.968	0.909**	0.987**
	(0.177)	(0.085)	(0.061)	(0.102)	(0.069)	(0.3911)	(0.163)	(0.098)	(0.940)	(0.280)	(0.336)
Observations	16,623	15,760	16,624	16,624	16,051	16,051	12,432	15,749	4,914	16,618	16,608
R-squared	0.002	0.000	0.000	0.000	0.001		0.000	0.001	0.033	0.008	0.008
Panel B: BRFSS: Contemporaneous ratio (no covariates and no state and year fixed effects)											
Ratio	-0.003	0.006**	0.001	-0.002	0.000	-0.0008	-0.006	-0.000	-0.011	0.006	0.010
	(0.004)	(0.002)	(0.002)	(0.004)	(0.002)	(0.0042)	(0.004)	(0.004)	(0.008)	(0.004)	(0.005)
Constant	0.767**	0.008	0.120	0.295*	0.599**	1.4030**	0.928**	0.171	0.952**	0.226	0.155
	(0.126)	(0.063)	(0.080)	(0.125)	(0.057)	(0.1516)	(0.140)	(0.133)	(0.265)	(0.160)	(0.201)
Observations	16,623	15,760	16,624	16,624	16,051	16,051	12,432	15,749	4,914	16,618	16,608
R-squared	0.001	0.004	0.000	0.000	0.000		0.003	0.000	0.008	0.002	0.006
Panel C: BRFSS: Lagged minimum wage (no covariates and no state and year fixed effects)											
VARIABLES	Health insurance	Can't Afford care	Exc. hlth	Fair/poor hlth	Good mental hlth.	Days poor mental hlth	Checkup in past year	Flu shot past year	BP taken past year	Breast exam past year	Pap test past year
Real min wage	0.049	0.005	0.017	-0.017	-0.079**	0.0429	0.053	0.030*	-0.000	-0.216**	-0.245*
	(0.048)	(0.030)	(0.015)	(0.023)	(0.017)	(0.1429)	(0.055)	(0.012)	(0.065)	(0.081)	(0.103)
Constant	0.515**	0.220*	0.100	0.281**	0.843**	1.2524**	0.562**	0.072	0.655**	1.083**	1.244**
	(0.170)	(0.105)	(0.053)	(0.089)	(0.059)	(0.4379)	(0.169)	(0.039)	(0.187)	(0.258)	(0.325)
Observations	15,935	15,072	15,937	15,937	15,377	15,377	11,765	15,059	4,223	15,930	15,919
R-squared	0.001	0.000	0.000	0.000	0.002		0.001	0.001	0.000	0.016	0.020
Panel D: BRFSS: Lagged ratio (no covariates and no state and year fixed effects)											
Ratio	-0.004	0.006**	0.000	-0.003	-0.000	-0.0079	-0.004	-0.004	-0.023**	0.005	0.009
	(0.005)	(0.002)	(0.003)	(0.005)	(0.002)	(0.0074)	(0.004)	(0.002)	(0.006)	(0.005)	(0.007)
Constant	0.793**	0.014	0.144	0.341*	0.608**	1.6630**	0.880**	0.315**	1.490**	0.257	0.187
	(0.153)	(0.058)	(0.088)	(0.167)	(0.062)	(0.2586)	(0.126)	(0.085)	(0.240)	(0.187)	(0.254)
Observations	15,935	15,072	15,937	15,937	15,377	15,377	11,765	15,059	4,223	15,930	15,919
R-squared	0.001	0.004	0.000	0.001	0.000		0.002	0.002	0.044	0.001	0.005

Standard errors clustered at the state level in parentheses. Blood pressure only asked until 2000. All models estimated with OLS except for days of poor mental health estimated with a negative binomial model. Affording care refers to needing to see Dr. in past year but not able to afford to. Ratio refers to (state min wage/state average wage)*100, ** p<0.01, * p<0.05

Table 4: BRFSS: Access to health care and Health outcomes

VARIABLES	(1) Health insurance	(2) Can't Afford care	(3) Exc. hlth	(4) Fair/poor hlth	(5) Good mental hlth.	(6) Days poor mental hlth
Panel A: BRFSS: Contemporaneous minimum wage						
Real min wage	0.049	0.088*	0.041	-0.056	-0.062	-0.1690
	(0.027)	(0.042)	(0.029)	(0.031)	(0.045)	(0.1454)
Age	0.004**	-0.001*	-0.000	0.004**	0.005**	-0.0118**
	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.0027)
Democrat governor	0.006	0.004	0.023**	-0.017	-0.005	0.1159*
	(0.018)	(0.020)	(0.007)	(0.012)	(0.014)	(0.0505)
Never married	-0.096**	0.018	0.022	0.024	0.005	0.2078*
	(0.020)	(0.017)	(0.015)	(0.013)	(0.021)	(0.0807)
Separated/divorced/widowed	-0.056**	0.067**	0.001	0.030	-0.057**	0.4709**
	(0.015)	(0.013)	(0.009)	(0.017)	(0.012)	(0.0957)
No children	-0.032*	-0.025	-0.030	0.002	0.013	-0.0381
	(0.014)	(0.027)	(0.018)	(0.013)	(0.037)	(0.1419)
No E-verify	0.066	-0.005	0.004	-0.085**	0.068	-0.1601
	(0.047)	(0.040)	(0.030)	(0.025)	(0.051)	(0.1680)
Less than HS	-0.201**	0.089**	-0.086**	0.174**	-0.004	0.1312*
	(0.020)	(0.018)	(0.026)	(0.023)	(0.015)	(0.0563)
Constant	0.410**	-0.081	0.090	0.214*	0.285	2.4556**
	(0.140)	(0.152)	(0.112)	(0.103)	(0.192)	(0.9225)
Observations	16,570	15,708	16,571	16,571	15,999	15,999
R-squared	0.109	0.045	0.032	0.094	0.035	
Panel B: BRFSS: Contemporaneous ratio						
Ratio	0.004*	0.008*	0.003	-0.001	-0.004	-0.0118**
	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.0027)
Age	0.004**	-0.001*	-0.000	0.004**	0.005**	0.1055*
	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.0501)
Democrat governor	0.005	0.003	0.022**	-0.020	-0.005	0.2086**
	(0.017)	(0.021)	(0.008)	(0.011)	(0.014)	(0.0803)
Never married	-0.096**	0.018	0.022	0.024	0.005	0.4714**
	(0.019)	(0.017)	(0.015)	(0.013)	(0.021)	(0.0951)
Separated/divorced/widowed	-0.056**	0.067**	0.000	0.030	-0.057**	-0.0348
	(0.015)	(0.013)	(0.009)	(0.017)	(0.012)	(0.1407)
No children	-0.033*	-0.025	-0.030	0.002	0.014	-0.1389
	(0.014)	(0.027)	(0.019)	(0.013)	(0.037)	(0.1607)
No E-verify	0.066	-0.005	0.003	-0.078**	0.071	0.1317*
	(0.048)	(0.040)	(0.031)	(0.026)	(0.052)	(0.0570)
Less than HS	-0.202**	0.088**	-0.086**	0.175**	-0.004	-0.0020
	(0.020)	(0.018)	(0.026)	(0.023)	(0.015)	(0.0100)
Constant	0.378*	-0.158	0.078	0.106	0.280	2.1284**
	(0.154)	(0.174)	(0.131)	(0.103)	(0.160)	(0.7969)
Observations	16,570	15,708	16,571	16,571	15,999	15,999
R-squared	0.109	0.045	0.032	0.093	0.035	

All models include other controls variables show in Table 1 and state, year and month of interview fixed effects. All regressions estimated by OLS except days of poor mental health which uses a negative binomial regression. Affording care refers to needing to see Dr. in past year but not able to afford to. Standard errors clustered at the state level in parentheses. Ratio refers to (state min wage/state average wage)*100, ** p<0.01, * p<0.05

Table 5: Preventive care

VARIABLES	(1) Checkup in past year	(2) Flu shot past year	(3) BP taken past year	(4) Breast exam past year	(5) Pap test past year
			Panel A: BRFSS: Contemporaneous minimum wage		
Real min wage	-0.033	0.022	-0.049	-0.067	-0.063
	(0.047)	(0.028)	(0.242)	(0.039)	(0.044)
Age	0.002**	0.003**	-0.000	0.001*	-0.001
	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)
Democrat governor	0.023	0.043	0.082	0.039	0.027
	(0.016)	(0.023)	(0.076)	(0.021)	(0.020)
Never married	-0.023	0.034**	-0.041*	-0.061**	-0.109**
	(0.015)	(0.010)	(0.020)	(0.022)	(0.029)
Sep./div./widowed	-0.058**	-0.002	-0.014	-0.012	-0.038**
	(0.015)	(0.011)	(0.027)	(0.021)	(0.009)
No children	0.026	0.033*	0.010	-0.002	0.001
	(0.015)	(0.014)	(0.015)	(0.013)	(0.012)
No E-verify	0.014	0.038		0.005	0.030
	(0.045)	(0.042)		(0.045)	(0.039)
Less than HS	-0.009	-0.022**	-0.011	-0.061**	-0.040*
	(0.035)	(0.007)	(0.014)	(0.008)	(0.018)
Constant	0.275	-0.047	0.572	1.027**	1.116**
	(0.173)	(0.173)	(0.565)	(0.231)	(0.178)
Observations	12,394	15,707	4,902	16,563	16,554
R-squared	0.042	0.076	0.495	0.183	0.249
			Panel B: Contemporaneous ratio		
Ratio	-0.005	0.004*	-0.019	-0.005*	-0.003
	(0.002)	(0.002)	(0.013)	(0.002)	(0.002)
Age	0.002**	0.003**	-0.000	0.001*	-0.001
	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)
Democrat governor	0.026	0.040	0.077	0.039	0.026
	(0.015)	(0.022)	(0.081)	(0.020)	(0.019)
Never married	-0.023	0.034**	-0.039	-0.061**	-0.109**
	(0.015)	(0.010)	(0.020)	(0.022)	(0.029)
Sep./div./widowed	-0.058**	-0.002	-0.014	-0.012	-0.038**
	(0.015)	(0.011)	(0.027)	(0.021)	(0.009)
No children	0.027	0.033*	0.011	-0.002	0.001
	(0.015)	(0.014)	(0.015)	(0.013)	(0.013)
No E-verify	0.014	0.044		0.006	0.033
	(0.046)	(0.043)		(0.044)	(0.037)
Less than HS	-0.009	-0.022**	-0.011	-0.060**	-0.040*
	(0.035)	(0.007)	(0.014)	(0.008)	(0.018)
Constant	0.369*	-0.155	1.134*	1.058**	1.097**
	(0.143)	(0.186)	(0.533)	(0.198)	(0.141)
Observations	12,394	15,707	4,902	16,563	16,554
R-squared	0.042	0.077	0.498	0.183	0.248

All models include other controls variables shown in Table 1 and state, year and month of interview fixed effects. All regressions estimated by OLS. Standard errors clustered at the state level in parentheses. Ratio refers to (state min wage/state average wage)*100. Blood pressure was measured before E-verify laws had been enacted. ** p<0.01, * p<0.05

Table 6: BRFSS: Access to health care and Health outcomes

VARIABLES	(1) Health insurance	(2) Can't Afford care	(3) Exc. hlth	(4) Fair/poor hlth	(5) Good mental hlth.	(6) Days poor mental hlth
			Panel A: Lagged minimum wage			
Lagged real min wage	0.045*	0.076*	-0.015	-0.076	-0.104*	0.0127
	(0.019)	(0.036)	(0.038)	(0.039)	(0.041)	(0.1341)
Age	0.004**	-0.002*	-0.000	0.004**	0.005**	-0.0132**
	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.0029)
Democrat governor	0.001	0.019	0.026**	-0.020	-0.011	0.0445
	(0.016)	(0.021)	(0.009)	(0.012)	(0.017)	(0.0455)
Never married	-0.095**	0.022	0.020	0.040*	-0.008	0.2347**
	(0.023)	(0.017)	(0.018)	(0.017)	(0.021)	(0.0803)
Separated/divorced/widowed	-0.060**	0.080**	-0.001	0.040*	-0.056**	0.4923**
	(0.016)	(0.010)	(0.009)	(0.018)	(0.017)	(0.1138)
No children	-0.026	-0.029	-0.033	0.003	0.012	0.0099
	(0.017)	(0.031)	(0.019)	(0.014)	(0.038)	(0.1308)
No E-verify	0.066	-0.011	-0.003	-0.086**	0.076	-0.1401
	(0.048)	(0.036)	(0.030)	(0.026)	(0.050)	(0.1595)
Less than HS	-0.198**	0.089**	-0.086**	0.174**	-0.004	0.1174
	(0.019)	(0.020)	(0.025)	(0.024)	(0.019)	(0.0616)
Constant	0.202	0.137	0.187	0.295*	0.273	2.3714**
	(0.131)	(0.153)	(0.110)	(0.115)	(0.146)	(0.6615)
Observations	15,884	15,022	15,886	15,886	15,327	15,327
R-squared	0.110	0.051	0.033	0.097	0.035	
			Panel B: Lagged ratio			
Lagged ratio	0.005*	0.005**	-0.000	-0.003	-0.004	-0.0132**
	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.0029)
Age	0.004**	-0.002*	-0.000	0.004**	0.005**	0.0483
	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.0464)
Democrat governor	0.002	0.021	0.025*	-0.023	-0.014	0.2338**
	(0.016)	(0.021)	(0.009)	(0.012)	(0.017)	(0.0792)
Never married	-0.095**	0.022	0.020	0.040*	-0.008	0.4910**
	(0.023)	(0.017)	(0.018)	(0.017)	(0.021)	(0.1142)
Separated/divorced/widowed	-0.060**	0.080**	-0.001	0.040*	-0.056**	0.0065
	(0.016)	(0.010)	(0.009)	(0.018)	(0.017)	(0.1320)
No children	-0.027	-0.029	-0.033	0.003	0.013	-0.1438
	(0.017)	(0.031)	(0.019)	(0.014)	(0.038)	(0.1588)
No E-verify	0.066	-0.013	-0.002	-0.082**	0.081	0.1203
	(0.047)	(0.035)	(0.031)	(0.027)	(0.052)	(0.0646)
Less than HS	-0.197**	0.089**	-0.086**	0.175**	-0.004	-0.0109
	(0.019)	(0.020)	(0.025)	(0.024)	(0.019)	(0.0154)
Constant	0.124	0.106	0.170	0.225*	0.197	2.7954**
	(0.165)	(0.139)	(0.120)	(0.109)	(0.155)	(0.8470)
Observations	15,884	15,022	15,886	15,886	15,327	15,327
R-squared	0.110	0.051	0.033	0.096	0.035	

All models include other controls variables show in Table 1 and state, year and month of interview fixed effects. All regressions estimated by OLS except days of poor mental health which uses a negative binomial regression. Affording care refers to needing to see doctor in past year but not able to afford to. Ratio refers to (state min wage/state average wage)*100. Standard errors clustered at the state level in parentheses. ** p<0.01, * p<0.05

Table 7: BRFSS: Preventive care

VARIABLES	(1) Checkup in past year	(2) Flu shot past year	(3) BP taken past year	(4) Breast exam past year	(5) Pap test past year
			Panel A: Lagged minimum wage		
Lagged real min wage	0.096	0.044	0.214	-0.089	-0.040
	(0.049)	(0.032)	(0.493)	(0.053)	(0.035)
Age	0.001*	0.004**	-0.000	0.001*	-0.001
	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)
Democrat governor	0.027	0.025	-0.001	0.053*	0.053*
	(0.018)	(0.018)	(0.065)	(0.025)	(0.021)
Never married	-0.028*	0.033**	-0.051*	-0.054*	-0.100**
	(0.013)	(0.010)	(0.024)	(0.021)	(0.025)
Sep./div./widowed	-0.059**	-0.012	-0.018	-0.010	-0.029**
	(0.015)	(0.013)	(0.033)	(0.022)	(0.010)
No children	0.032	0.029	0.020	-0.007	-0.002
	(0.017)	(0.016)	(0.014)	(0.014)	(0.016)
No E-verify	0.011	0.040		0.008	0.038
	(0.045)	(0.040)		(0.045)	(0.038)
Less than HS	-0.000	-0.021*	-0.008	-0.058**	-0.034
	(0.034)	(0.008)	(0.017)	(0.008)	(0.019)
Constant	0.064	-0.089	-1.220	1.135**	1.148**
	(0.247)	(0.128)	(1.757)	(0.261)	(0.169)
Observations	11,729	15,019	4,213	15,877	15,867
R-squared	0.043	0.073	0.362	0.195	0.267
			Panel B: Lagged ratio		
Lagged ratio	0.003	-0.000	-0.014	-0.004	-0.000
	(0.003)	(0.003)	(0.016)	(0.002)	(0.003)
Age	0.001*	0.004**	-0.000	0.001*	-0.001
	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)
Democrat governor	0.031	0.027	0.010	0.051*	0.051*
	(0.018)	(0.019)	(0.067)	(0.024)	(0.021)
Never married	-0.028*	0.033**	-0.053*	-0.054*	-0.100**
	(0.014)	(0.010)	(0.026)	(0.021)	(0.025)
Sep./div./widowed	-0.059**	-0.012	-0.018	-0.010	-0.029**
	(0.015)	(0.013)	(0.033)	(0.022)	(0.010)
No children	0.032	0.029	0.019	-0.007	-0.002
	(0.017)	(0.016)	(0.014)	(0.014)	(0.016)
No E-verify	0.014	0.037		0.012	0.041
	(0.045)	(0.040)		(0.044)	(0.037)
Less than HS	-0.001	-0.022*	-0.009	-0.058**	-0.034
	(0.034)	(0.009)	(0.017)	(0.008)	(0.019)
Constant	0.170	0.015	-0.046	1.085**	1.071**
	(0.242)	(0.158)	(1.108)	(0.232)	(0.178)
Observations	11,729	15,019	4,213	15,877	15,867
R-squared	0.043	0.073	0.363	0.195	0.266

All models include other controls variables show in Table 1 and state, year and month of interview fixed effects. All regressions estimated by OLS. Standard errors clustered at the state level in parentheses. Ratio refers to (state min wage/state average wage)*100. Blood pressure was measured before E-verify laws had been enacted. ** p<0.01, * p<0.05

Table 8: CPS ASEC outcomes with no covariates, state fixed effects and year fixed effects

VARIABLES	(1) Health insurance	(2) Exc. hlth	(3) Fair/poor hlth
Panel A: CPS ASEC: Contemporaneous minimum wage (no covariates and no state and year fixed effects)			
Real min wage	0.034	-0.015	-0.000
	(0.024)	(0.013)	(0.009)
Constant	0.512**	0.286**	0.092**
	(0.086)	(0.045)	(0.032)
Observations	43,595	47,396	47,396
R-squared	0.001	0.000	0.000
Panel B: CPS ASEC: Contemporaneous ratio (no covariates and no state and year fixed effects)			
	(1) Health insurance	(2) Exc. hlth	(3) Fair/poor hlth
Ratio	-0.000	-0.002*	-0.000
	(0.002)	(0.001)	(0.001)
Constant	0.633**	0.309**	0.092**
	(0.074)	(0.041)	(0.021)
Observations	43,595	47,396	47,396
R-squared	0.000	0.000	0.000
Panel C: CPS ASEC: Lagged minimum wage (no covariates and no state and year fixed effects)			
VARIABLES	(1) Health insurance	(2) Exc. hlth	(3) Fair/poor hlth
Real min wage	0.039	-0.014	0.001
	(0.024)	(0.012)	(0.009)
Constant	0.497***	0.282***	0.086***
	(0.088)	(0.038)	(0.032)
Observations	42,080	47,396	47,396
R-squared	0.001	0.000	0.000
Panel D: CPS ASEC: Lagged ratio (no covariates and no state and year fixed effects			
	(1) Health insurance	(2) Exc. hlth	(3) Fair/poor hlth
Ratio	0.001	-0.002	0.000
	(0.002)	(0.001)	(0.000)
Constant	0.594**	0.301**	0.075**
	(0.065)	(0.037)	(0.017)
Observations	42,080	47,396	47,396
R-squared	0.000	0.000	0.000

Standard errors clustered at the state level in parentheses. Ratio refers to (state min wage/state average wage)*100. ** p<0.01, * p<0.05

Table 9: CPS ASEC: Insurance outcome: contemporaneous minimum wage

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	BRFSS	CPS	CPS	CPS	CPS	CPS	CPS
VARIABLES	BRFSS from Table 4A	Same specification as BRFSS	Baseline CPS	Baseline and industry dummies	Baseline, industry dummies and paid by the hour	Baseline, industry dummies and earn within 200% of minimum wage	Baseline, paid by the hour, earn within 200% and 2 largest industries
Real min wage	0.049	0.009	0.007	0.010	0.023	-0.011	-0.058
	(0.027)	(0.024)	(0.021)	(0.020)	(0.052)	(0.057)	(0.069)
Foreign born: not citizen			-0.247**	-0.235**	-0.192**	-0.172**	-0.192**
			(0.006)	(0.006)	(0.017)	(0.022)	(0.038)
Foreign born: naturalized			-0.061**	-0.060**	-0.020	-0.008	-0.004
			(0.006)	(0.007)	(0.024)	(0.024)	(0.040)
Age	0.004**	0.004**	0.004**	0.004**	0.003*	0.002	0.003
	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.002)
Democrat governor	0.006	0.012	0.003	0.003	-0.030	-0.040	-0.019
	(0.018)	(0.011)	(0.011)	(0.010)	(0.026)	(0.032)	(0.041)
Never married	-0.096**	-0.074**	-0.093**	-0.088**	-0.111**	-0.092**	-0.080**
	(0.020)	(0.010)	(0.008)	(0.009)	(0.020)	(0.016)	(0.018)
Separated/divorced/widowed	-0.056**	-0.071**	-0.092**	-0.089**	-0.078**	-0.085**	-0.044
	(0.015)	(0.011)	(0.012)	(0.011)	(0.016)	(0.013)	(0.030)
No children	-0.032*	-0.033*	-0.043**	-0.040**	-0.017	-0.009	0.010
	(0.014)	(0.016)	(0.015)	(0.014)	(0.017)	(0.023)	(0.033)
No E-verify	0.066	0.033*	0.026	0.024	0.042	0.070*	0.113
	(0.047)	(0.016)	(0.013)	(0.013)	(0.032)	(0.034)	(0.072)
Less than HS	-0.201**	-0.167**	-0.095**	-0.086**	-0.099**	-0.096**	-0.130**
	(0.020)	(0.008)	(0.009)	(0.010)	(0.019)	(0.014)	(0.018)
Constant	0.410**	0.341**	0.526**	0.519**	0.865*	0.236	-0.104
	(0.140)	(0.082)	(0.083)	(0.090)	(0.363)	(0.388)	(0.299)
Observations	16,570	43,595	43,595	43,595	6,441	4,279	2,115
R-squared	0.109	0.071	0.118	0.132	0.123	0.128	0.138

All models include state and year fixed effects. All regressions estimated by OLS. Data from 1994-2013 due to change in insurance question.
Standard errors clustered at the state level in parentheses. ** p<0.01, * p<0.05

Table 10: CPS ASEC: Excellent Self Assessed Health: contemporaneous minimum wage

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	BRFSS	CPS	CPS	CPS	CPS	CPS	CPS
VARIABLES	BRFSS from Table 4A	Same specification as BRFSS	Baseline CPS	Baseline and industry dummies	Baseline, industry dummies and paid by the hour	Baseline, industry dummies and earn within 200% of minimum wage	Baseline, paid by the hour, earn within 200% and 2 largest industries
Real min wage	0.041	0.021	0.001	0.002	-0.014	0.001	0.082
	(0.029)	(0.015)	(0.016)	(0.016)	(0.046)	(0.059)	(0.099)
Foreign born: not citizen			-0.024*	-0.020	-0.006	-0.004	-0.032
			(0.011)	(0.010)	(0.015)	(0.019)	(0.024)
Foreign born: naturalized			-0.004	-0.002	0.008	0.014	0.036
			(0.009)	(0.008)	(0.023)	(0.025)	(0.038)
Age	-0.000	-0.005**	-0.005**	-0.005**	-0.005**	-0.005**	-0.005**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
Democrat governor	0.023**	-0.005	-0.007	-0.007	-0.035*	-0.059*	-0.049
	(0.007)	(0.008)	(0.009)	(0.009)	(0.016)	(0.025)	(0.031)
Never married	0.022	-0.087**	-0.014*	-0.015*	-0.024	-0.007	-0.001
	(0.015)	(0.029)	(0.006)	(0.006)	(0.017)	(0.027)	(0.038)
Separated/divorced/widowed	0.001	-0.084**	-0.011*	-0.011*	-0.009	-0.004	-0.004
	(0.009)	(0.029)	(0.005)	(0.005)	(0.014)	(0.019)	(0.025)
No children	-0.030	0.074	0.015**	0.014**	0.019	0.009	0.013
	(0.018)	(0.048)	(0.005)	(0.005)	(0.011)	(0.011)	(0.020)
No E-verify	0.004	0.009	0.001	0.001	-0.049	-0.064	-0.027
	(0.030)	(0.011)	(0.012)	(0.012)	(0.026)	(0.037)	(0.059)
Less than HS	-0.086**	-0.034**	-0.027**	-0.024**	-0.018	-0.021*	0.001
	(0.026)	(0.005)	(0.004)	(0.004)	(0.009)	(0.009)	(0.021)
Constant	0.090	0.563**	0.578**	0.577**	0.599**	0.608	0.079
	(0.112)	(0.089)	(0.091)	(0.090)	(0.151)	(0.541)	(0.312)
Observations	16,571	47,396	47,396	47,396	7,260	4,643	2,347
R-squared	0.032	0.025	0.025	0.027	0.042	0.053	0.065

All models include state and year fixed effects. All regressions estimated by OLS. Standard errors clustered at the state level in parentheses. ** p<0.01, * p<0.05

Table 11: CPS ASEC: Fair/poor Self Assessed Health: contemporaneous minimum wage

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	BRFSS	CPS	CPS	CPS	CPS	CPS	CPS
VARIABLES	BRFSS from Table 4A	Same specification as BRFSS	Baseline CPS	Baseline and industry dummies	Baseline, industry dummies and paid by the hour	Baseline, industry dummies and earn within 200% of minimum wage	Baseline, paid by the hour, earn within 200% and 2 largest industries
Real min wage	-0.056	-0.005	-0.001	-0.002	0.009	-0.017	-0.018
	(0.031)	(0.011)	(0.011)	(0.011)	(0.015)	(0.021)	(0.033)
Foreign born: not citizen			-0.013	-0.010	-0.026**	-0.028*	-0.014
			(0.008)	(0.008)	(0.009)	(0.014)	(0.020)
Foreign born: naturalized			-0.013*	-0.012*	-0.027*	-0.032	-0.021
			(0.006)	(0.006)	(0.011)	(0.025)	(0.031)
Age	0.004**	0.004**	0.004**	0.004**	0.004**	0.005**	0.005**
	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.002)
Democrat governor	-0.017	-0.005	-0.002	-0.002	0.002	0.013	0.025
	(0.012)	(0.004)	(0.004)	(0.004)	(0.009)	(0.013)	(0.018)
Never married	0.024	0.039	0.012*	0.012*	-0.012	0.005	0.027
	(0.013)	(0.024)	(0.005)	(0.006)	(0.014)	(0.014)	(0.023)
Separated/divorced/widowed	0.030	0.039	0.013**	0.012**	0.010	0.022	0.053
	(0.017)	(0.022)	(0.003)	(0.003)	(0.011)	(0.017)	(0.027)
No children	0.002	0.001	0.002	0.002	0.001	0.003	0.012
	(0.013)	(0.022)	(0.003)	(0.003)	(0.009)	(0.013)	(0.020)
No E-verify	-0.085**	-0.012	-0.002	-0.002	0.036**	0.008	-0.003
	(0.025)	(0.006)	(0.007)	(0.007)	(0.013)	(0.020)	(0.029)
Less than HS	0.174**	0.033**	0.036**	0.037**	0.023**	0.017*	0.023
	(0.023)	(0.002)	(0.003)	(0.004)	(0.006)	(0.007)	(0.014)
Constant	0.214*	-0.173**	-0.179**	-0.161**	-0.132	-0.142	-0.134
	(0.103)	(0.037)	(0.031)	(0.032)	(0.091)	(0.171)	(0.189)
Observations	16,571	47,396	47,396	47,396	7,260	4,643	2,347
R-squared	0.094	0.030	0.030	0.031	0.044	0.056	0.082

All models include state and year fixed effects. All regressions estimated by OLS. Standard errors clustered at the state level in parentheses. ** p<0.01, * p<0.05

Table 12: CPS ASEC: Insurance outcome: contemporaneous ratio

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	BRFSS BRFSS from Table 4B	CPS Same specification as BRFSS	CPS Baseline CPS	CPS Baseline and industry dummies	CPS Baseline, industry dummies and paid by the hour	CPS Baseline, industry dummies and earn within 200% of minimum wage	CPS Baseline, paid by the hour, earn within 200% and 2 largest industries
Ratio	0.004*	0.000	0.000	0.000	-0.003	-0.003	-0.006
	(0.002)	(0.002)	(0.001)	(0.001)	(0.003)	(0.003)	(0.005)
Foreign born: not citizen			-0.247**	-0.235**	-0.191**	-0.172**	-0.192**
			(0.006)	(0.006)	(0.017)	(0.022)	(0.038)
Foreign born: naturalized			-0.061**	-0.060**	-0.019	-0.008	-0.005
			(0.006)	(0.007)	(0.024)	(0.024)	(0.040)
Age	0.004**	0.004**	0.004**	0.004**	0.003*	0.002	0.003
	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.002)
Democrat governor	0.005	0.012	0.003	0.004	-0.024	-0.036	-0.017
	(0.017)	(0.011)	(0.010)	(0.010)	(0.026)	(0.030)	(0.040)
Never married	-0.096**	-0.074**	-0.093**	-0.088**	-0.111**	-0.093**	-0.081**
	(0.019)	(0.010)	(0.008)	(0.009)	(0.020)	(0.017)	(0.018)
Separated/divorced/widowed	-0.056**	-0.071**	-0.092**	-0.089**	-0.078**	-0.085**	-0.044
	(0.015)	(0.011)	(0.012)	(0.011)	(0.016)	(0.013)	(0.030)
No children	-0.033*	-0.033*	-0.043**	-0.040**	-0.016	-0.009	0.009
	(0.014)	(0.016)	(0.015)	(0.014)	(0.017)	(0.023)	(0.033)
No E-verify	0.066	0.033*	0.025	0.024	0.035	0.066	0.109
	(0.048)	(0.016)	(0.013)	(0.013)	(0.032)	(0.034)	(0.076)
Less than HS	-0.202**	-0.167**	-0.095**	-0.086**	-0.099**	-0.096**	-0.131**
	(0.020)	(0.008)	(0.009)	(0.010)	(0.019)	(0.014)	(0.018)
Constant	0.378*	0.348**	0.540**	0.525**	1.050*	0.326	0.009
	(0.154)	(0.089)	(0.088)	(0.096)	(0.434)	(0.398)	(0.322)
Observations	16,570	43,595	43,595	43,595	6,441	4,279	2,115
R-squared	0.109	0.071	0.118	0.132	0.123	0.128	0.138

All models state and year fixed effects. Ratio refers to (state min wage/state average wage)*100. Standard errors clustered at the state level in parentheses. ** p<0.01, * p<0.05

Table 13: CPS ASEC: Excellent Self Assessed Health: contemporaneous ratio

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	BRFSS BRFSS from Table 4B	CPS Same specification as BRFSS	CPS Baseline CPS	CPS Baseline and industry dummies	CPS Baseline, industry dummies and paid by the hour	CPS Baseline, industry dummies and earn within 200% of minimum wage	CPS Baseline, paid by the hour, earn within 200% and 2 largest industries
Ratio	0.003	-0.001	-0.001	-0.001	-0.006*	-0.004	-0.002
	(0.003)	(0.001)	(0.001)	(0.001)	(0.003)	(0.003)	(0.005)
Foreign born: not citizen			-0.024*	-0.020	-0.006	-0.004	-0.033
			(0.011)	(0.010)	(0.015)	(0.019)	(0.024)
Foreign born: naturalized			-0.004	-0.002	0.008	0.015	0.036
			(0.009)	(0.008)	(0.023)	(0.025)	(0.037)
Age	-0.000	-0.005**	-0.005**	-0.005**	-0.005**	-0.005**	-0.005**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
Democrat governor	0.022**	-0.003	-0.006	-0.006	-0.034*	-0.056*	-0.041
	(0.008)	(0.008)	(0.009)	(0.009)	(0.015)	(0.023)	(0.028)
Never married	0.022	-0.012	-0.014*	-0.015*	-0.024	-0.007	-0.001
	(0.015)	(0.007)	(0.006)	(0.006)	(0.017)	(0.027)	(0.038)
Separated/divorced/widowed	0.000	-0.009	-0.011*	-0.011*	-0.009	-0.004	-0.005
	(0.009)	(0.005)	(0.005)	(0.005)	(0.014)	(0.019)	(0.025)
No children	-0.030	0.017**	0.015**	0.014**	0.019	0.009	0.012
	(0.019)	(0.005)	(0.005)	(0.005)	(0.011)	(0.011)	(0.020)
No E-verify	0.003	0.009	-0.000	-0.001	-0.058*	-0.069	-0.033
	(0.031)	(0.012)	(0.011)	(0.011)	(0.026)	(0.037)	(0.065)
Less than HS	-0.086**	-0.034**	-0.027**	-0.024**	-0.017	-0.021*	-0.000
	(0.026)	(0.005)	(0.004)	(0.004)	(0.009)	(0.009)	(0.022)
Constant	0.078	0.592**	0.617**	0.618**	0.817**	0.918	0.355
	(0.131)	(0.099)	(0.080)	(0.079)	(0.133)	(0.536)	(0.315)
Observations	16,571	47,396	47,396	47,396	7,260	4,643	2,347
R-squared	0.032	0.024	0.025	0.027	0.043	0.054	0.064

All models include state and year fixed effects. All regressions estimated by OLS. Ratio refers to (state min wage/state average wage)*100.
Standard errors clustered at the state level in parentheses. ** p<0.01, * p<0.05

Table 14: CPS ASEC: Fair/poor SAH: contemporaneous ratio

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	BRFSS	CPS	CPS	CPS	CPS	CPS	CPS
VARIABLES	BRFSS from Table 4B	Same specification as BRFSS	Baseline CPS	Baseline and industry dummies	Baseline, industry dummies and paid by the hour	Baseline, industry dummies and earn within 200% of minimum wage	Baseline, paid by the hour, earn within 200% and 2 largest industries
Ratio	-0.001	-0.000	0.001	0.001	0.001	-0.000	0.003
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
Foreign born: not citizen			-0.013	-0.010	-0.026**	-0.028*	-0.014
			(0.008)	(0.008)	(0.009)	(0.014)	(0.020)
Foreign born: naturalized			-0.013*	-0.012*	-0.027*	-0.032	-0.021
			(0.006)	(0.006)	(0.011)	(0.024)	(0.031)
Age	0.004**	0.004**	0.004**	0.004**	0.004**	0.005**	0.005**
	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.002)
Democrat governor	-0.020	-0.005	-0.002	-0.003	0.002	0.012	0.022
	(0.011)	(0.004)	(0.004)	(0.004)	(0.009)	(0.012)	(0.017)
Never married	0.024	0.014*	0.012*	0.012*	-0.012	0.005	0.027
	(0.013)	(0.006)	(0.005)	(0.006)	(0.014)	(0.014)	(0.023)
Separated/divorced/widowed	0.030	0.014**	0.013**	0.012**	0.010	0.022	0.053
	(0.017)	(0.004)	(0.003)	(0.003)	(0.010)	(0.016)	(0.027)
No children	0.002	0.003	0.002	0.002	0.001	0.004	0.013
	(0.013)	(0.003)	(0.003)	(0.003)	(0.009)	(0.013)	(0.020)
No E-verify	-0.078**	-0.012	-0.001	-0.001	0.037**	0.008	0.001
	(0.026)	(0.006)	(0.007)	(0.007)	(0.013)	(0.021)	(0.028)
Less than HS	0.175**	0.033**	0.036**	0.037**	0.023**	0.017*	0.024
	(0.023)	(0.002)	(0.003)	(0.004)	(0.006)	(0.007)	(0.014)
Constant	0.106	-0.154**	-0.215**	-0.198**	-0.150	-0.165	-0.287
	(0.103)	(0.034)	(0.037)	(0.037)	(0.104)	(0.216)	(0.145)
Observations	16,571	47,396	47,396	47,396	7,260	4,643	2,347
R-squared	0.093	0.030	0.030	0.031	0.044	0.056	0.083

All models include state and year fixed effects. All regressions estimated by OLS. Ratio refers to (state min wage/state average wage)*100
Standard errors clustered at the state level in parentheses. ** p<0.01, * p<0.05

Table 15: Lagged minimum wage and ratio results by outcome

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	BRFSS	CPS	CPS	CPS	CPS	CPS	CPS
VARIABLES	BRFSS from Table 6	Same specification as BRFSS	Baseline CPS (adds foreign born)	Baseline and industry dummies	Baseline, industry dummies and paid by the hour	Baseline, industry dummies and earn within 200% of minimum wage	Baseline, paid by the hour, earn within 200% and 2 largest industries
Outcome: Insurance							
Lagged min wage	0.045*	0.015	0.001	0.006	0.034	-0.016	-0.106
	(0.019)	(0.023)	(0.020)	(0.019)	(0.048)	(0.045)	(0.064)
Observations	15,884	42,080	42,080	42,080	6,268	4,117	2,045
Lagged ratio	0.005*	0.001	-0.000	0.000	-0.000	-0.002	-0.005
	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.003)	(0.004)
Observations	15,884	42,080	42,080	42,080	6,268	4,117	2,045
Outcome: Exc. SAH							
Lagged min wage	-0.015	-0.006	-0.005	-0.006	-0.049	-0.089	0.044
	(0.038)	(0.016)	(0.017)	(0.017)	(0.035)	(0.049)	(0.086)
Observations	15,886	45,937	45,937	45,937	7,093	4,500	2,283
Lagged ratio	-0.000	-0.001	-0.001	-0.001	-0.006*	-0.004	-0.001
	(0.003)	(0.001)	(0.001)	(0.001)	(0.003)	(0.003)	(0.005)
Observations	15,886	45,937	45,937	45,937	7,093	4,500	2,283
Outcome: Poor/fair SAH							
Lagged min wage	-0.076	0.020**	0.016*	0.016*	0.027	0.017	0.041
	(0.039)	(0.007)	(0.006)	(0.006)	(0.017)	(0.022)	(0.046)
Observations	15,886	45,937	45,937	45,937	7,093	4,500	2,283
Lagged ratio	-0.003	0.001	0.001	0.001	0.001	-0.000	0.002
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
Observations	15,886	45,937	45,937	45,937	7,093	4,500	2,283

All models include state and year fixed effects. All regressions estimated by OLS. Ratio refers to (state min wage/state average wage)*100.
Standard errors clustered at the state level in parentheses. ** p<0.01, * p<0.05

Appendix Table 1: Effects of minimum wage increases on hourly earnings for Hispanic women

VARIABLES	Nominal earnings per hour	Usual hours worked	Nominal earnings per hour	Usual hours worked
Nominal minimum wage	0.318***	-0.238**		
	(0.061)	(0.101)		
Lagged nominal minimum wage			0.254***	-0.098
			(0.066)	(0.110)
Age	0.058***	0.050***	0.059***	0.051***
	(0.005)	(0.005)	(0.005)	(0.005)
Democrat governor	-0.116*	-0.003	-0.059	-0.010
	(0.061)	(0.087)	(0.056)	(0.083)
Poverty	-0.041**	-0.067*	-0.033**	-0.069**
	(0.016)	(0.036)	(0.015)	(0.033)
Unemployment	0.041*	-0.173***	0.007	-0.160**
	(0.024)	(0.059)	(0.022)	(0.062)
Union member	0.198***	0.171	0.271***	0.106
	(0.061)	(0.134)	(0.064)	(0.125)
Represented by unions	-0.097	-0.205	-0.161**	-0.153
	(0.061)	(0.124)	(0.060)	(0.120)
Never married	-0.568***	-0.488***	-0.578***	-0.489***
	(0.065)	(0.107)	(0.062)	(0.107)
Sep./div./widowed	-0.186***	0.596***	-0.199***	0.592***
	(0.048)	(0.073)	(0.043)	(0.075)
Less than HS	-1.788***	-1.234***	-1.794***	-1.231***
	(0.130)	(0.299)	(0.133)	(0.312)
No e-verify	0.200**	-0.064	0.192*	-0.053
	(0.091)	(0.146)	(0.099)	(0.153)
Foreign born not citizen	-1.308***	0.160	-1.331***	0.145
	(0.198)	(0.182)	(0.200)	(0.163)
Foreign born naturalized citizen	-0.482***	0.246	-0.498***	0.252
	(0.143)	(0.216)	(0.144)	(0.202)
No children	-0.166***	-0.078	-0.174***	-0.080
	(0.056)	(0.141)	(0.056)	(0.141)
Constant	4.615***	38.953***	4.621***	38.113***
	(0.459)	(0.760)	(0.409)	(0.784)
Observations	62,348	87,752	60,422	84,816
R-squared	0.239	0.019	0.243	0.019

Standard errors clustered at the state level in parentheses

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

All models include state and year fixed effects.

Data is from the CPS Merged outgoing rotation groups for the years 1994-2015.

Appendix Table 2: Endogeneity of location using CPS ASEC

	A Share Hispanic	B Share of healthy Hispanic Women
Lag of nominal minimum wage	0.001	-0.000
	(0.003)	(0.001)
Constant	0.013	0.004
	(0.017)	(0.003)
Observations	1,065	1,065
R-squared	0.981	0.821

Outcome is the share of the Hispanics living in the state (column A) and share of Hispanic women reporting excellent health in a state (column B). Standard errors clustered at the state level in parentheses. Unit of observation is a state in a year hence the smaller sample sizes. Model includes full set of covariates shown in table 2 plus state and year fixed effects and state specific time trend. *** $p<0.01$, ** $p<0.05$