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The effects of minimum wages on the health of working teenagers

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Abstract

This article examines the effect of minimum wage increases on the self-reported health of teenage workers. We use a difference-in-differences estimation strategy and data from the Current Population Survey, and disaggregate the sample by race/ethnicity and gender to uncover the differential effects of changes in the minimum wage on health. We find that white women are more likely to report better health with a minimum wage increase while Hispanic men report worse health.

Keywords

Minimum wage; self-reported health; teenagers; race/ethnic differences

Introduction

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. Since then, many states have increased or are discussing increasing their minimum wages. Changes in minimum wages affect 20–30% of workers (Belman and Wolfson 2014), and some policymakers cite the positive health effects of higher minimum wages (e.g. Bhatia 2014), thus understanding its impacts is important.

A literature in labour economics explores the effects of raising the minimum wage on teenage employment (Neumark, Salas, and Wascher 2014). A summary of the evidence suggests a higher minimum wage results in some job loss for the leastskilled workers including teenagers (Neumark 2015), although that is not a consensus (Allegretto, Dube, and Reich 2011). Belman, Wolfson, and Nawakitphaitoon (2015) note that there is general agreement that higher minimum wages are associated with higher wages and earnings for less-educated workers.

We consider whether increases in minimum wages impact the health of teenage workers. We measure working teenagers' health using self-rated health status, a common indicator of

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individual's overall health, and employ a difference-in-differences identification strategy using data from the Current Population Survey (CPS) 1996–2014.

The teenage years are important for investment in health. Adverse health events/changes during this time can have long-lasting effects (Sawyer et al. 2012). Money spent keeping teenagers healthy could bring substantial future savings, and hence lower health care costs. The minimum wage increase, by providing teens with more income, may positively affect their health.

Previous literature

Several authors have examined the health effects of the 1999 national minimum wage increase in the UK. Kronenberg, Jacobs, and Zucchelli (2015) find no significant health effects while Reeves et al. (2014, 2016) find that the increase led to improved mental health. Lenhart (2015) reports improved selfreported health.

For the US, Strain, Horn, and Maclean (2016) find that employed men have poorer physical health but fewer poor mental health days while unemployed men only experience worsened physical health. They find no effects for women. Wehby, Dave, and Kaestner (2016) find positive effects on birthweight.

We contribute to this literature by examining the effects of minimum wage increases on health for various race/ethnicity and gender groups among working teenagers. There are good reasons to believe that the effects may differ. First, evidence shows that the minimum wage employment effects differ across race (Belman, Wolfson, and Nawakitphaitoon 2015). Second, there are substantial racial and ethnic differences in the types of jobs held by low-income workers (Even and Macpherson 2011). Economic theory suggests that the employment effect of a wage increase will differ across job types depending on how easily capital can be substituted for labour, the elasticity of demand for the products produced and the labour-intensity of the production process (Clemens and Wither 2014). There are also wellknown differences in spending patterns (Bachman et al. 2014) and high school graduation rates across race/ethnicity and gender. Thus, any analysis that does not disaggregate risks potentially masking the differential effects of minimum wage changes.

To deal with the main empirical challenge in the literature – finding a group most likely affected by the minimum wage, besides focusing on teenagers, we also use two education groups and two measures of changes in minimum wages.

Data

We use data from the March CPS for our analysis. In 1996, the CPS started asking self-reported health status. Our binary dependent variable, based on the respondent's self-report of their own health measured on a 5-point Likert scale, is equal to one if self-reported health is fair or poor, zero otherwise. Fosse and Haas (2009) find self-reported health of adolescents to be a valid measure of their physical and emotional well-being.

We gather data on the prevailing minimum wage rate in each state over 1996–2014 from the January Monthly Labour Review. We calculate the minimum wage as the greater of the state

minimum wage (if one exists) or the federal and deflate using the CPIU (base years of 1982–1984). We also use the ratio of the minimum wage to the state's average wage as an alternative measure on the assumption that those who reside in states with higher average wages may not find minimum wage changes to be binding.

We control for several state-level factors that might be correlated with minimum wages and health including the percent of the state's workforce covered by a collective bargaining agreement, the percent of union membership, the state unemployment rate, state cigarette taxes and the percent of the state's population below the poverty line. We also control for the cutoff for Medicaid eligibility, state mental health parity laws and state expansion of dependent health insurance coverage prior to the 2010 Affordable Care Act to control for access to health insurance. We include the maximum AFDC/ TANF benefits for a family of three to control for differences in the state-level generosity of public transfer programmes. We combine this state-level data with the individual-level data from the March CPS. Sample means not shown here reveal that blacks and Hispanics are much more likely to report fair or poor health than whites and that within race women are more likely to report poor health than men. Few teens are married and very few are the head of their households.

We also use data from the CPS merged-outgoing rotation groups, which have a larger sample size and a more consistent measure of earnings than the March supplement, to verify if there is indeed an income effect through which increases in minimum wages might influence health.

Empirical model

We estimate the following equation:

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

where y_{ist} is our dependent variable for individual i , residing in state s at year t ; MW_{st} is the minimum wage (or the ratio of the minimum wage to the state's average wage); Z_{it} is a vector of individual controls; X_{st} is a vector of state-specific time-varying economic and policy controls; θ_s is the time-invariant state effect; τ_t is the time-invariant year effect; and ε_{ist} is an error term. Specific control variables were described in the Data section. Standard errors are clustered by state. We do not include state-specific time trends as they substantially reduce identifying variation (Sabia and Nielsen 2015).

Results

Table 1 presents income and employment effects of changes in minimum wages. Increases in minimum wages significantly increase the earnings for white and Hispanic women but not for Hispanic men or black men and women, while Hispanic and white men are likely to suffer job losses. The size of the coefficients is in line with those in the minimum wage literature.

Table 2 reports the results for the effects of the minimum wage and the ratio of the state minimum wage to the state average wage on health. Among those who see higher earnings, white women reported better health while white men and Hispanic women reported no change in health. Among those who did not see increased earnings, only Hispanic men reported significant (and negative) changes in health. This effect size corresponds to a \$1 increase in the real minimum wage which is substantially larger than any nominal changes in federal minimum wages over the time period of our sample.

Older workers might migrate to states with higher minimum wages; however, we do not believe that is an issue for teenagers. Their parents decide where they live and it is unlikely that parents choose location based on their teenagers' ability to earn higher wages in a state with a higher minimum wage. We also conducted a falsification test with those just slightly older and more educated. We find no significant effect of the minimum wage on this group, giving us confidence that our results are not spurious.

These heterogeneous effects are not unprecedented and there might be multiple explanations in addition to the hypothesized income effect. For example, Even and Macpherson (2011) note that Hispanic men are more likely than black or white men to hold jobs in construction, which may pose more health strain than retail or food service. Our results indicate that Hispanic men are likely to suffer job losses, thus those who retain their jobs may have to work more intensively at their physically demanding jobs since capital may not be easily substituted in these industries, making the result of worse self-rated health for Hispanic male teenage workers plausible even without an income effect. When using the ratio, this result is just shy of statistical significance. Teens who enjoy higher earnings may spend their income in ways that could either detract or have no effect on their health such as purchasing cigarettes or alcohol or cars. The results are qualitatively the same when we limit the sample to those with less than a high school education. Pooling all groups together yields no health effects, underscoring the importance of disaggregating by race/ethnicity and gender.

Conclusions

Policymakers increasingly call for higher minimum wages. We find distinctive effects of minimum wage increases on income and health. These heterogeneous effects may be explained given the differences across these groups in high school graduation rates, types of jobs held, their ability to gain work experience and the different ways teens might spend additional earnings.

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Table 1.

Results on income and employment effects.

	Hourly earnings (paid hourly)	Working	Hourly earnings (paid hourly)	Working
HS grad or less				
	Men		Women	
White				
Min. wage	0.141 *** (0.027)	−0.066 ** (0.032)	0.165 *** (0.026)	−0.011 (0.025)
Observations	50,174	146,302	47,728	133,095
Black				
Min. wage	0.042 (0.088)	−0.012 (0.055)	0.091 (0.058)	−0.021 (0.051)
Observations	4102	23,400	4354	22,421
Hispanic				
Min. wage	0.003 (0.054)	−0.147 ** (0.059)	0.276 *** (0.075)	0.010 (0.037)
Observations	7503	28,451	5827	25,913

Earnings are logged. Covariates as discussed. Clustered standard errors in parentheses.

 $p < 0.01$ **
 $p < 0.05$. Regressions are weighted.

Table 2.

Health results on poor/fair health.

HS grad or less				
	Men		Women	
	Min wage	Ratio	Min wage	Ratio
White				
	0.008	0.066	−0.017**	−0.117**
	(0.005)	(0.048)	(0.008)	(0.054)
Observations	24,114	24,114	22,884	22,884
Black				
	−0.003	−0.021	−0.016	−0.030
	(0.025)	(0.186)	(0.019)	(0.225)
Observations	1,928	1,928	2,045	2,045
Hispanic				
	0.036*	0.225	−0.013	−0.126
	(0.018)	(0.138)	(0.021)	(0.178)
Observations	4,948	4,948	3,732	3,732

See footnote for Table 1.