

Minimum Wages and Employment: Effects of Rising Minimum Wages on Employment of Young Workers in Washington State

Silvester Tan
Drake University

ABSTRACT

This paper studies the effects of minimum wage on employment using data from two neighboring US states, Washington, which has increased its minimum wage over time, and Idaho, which has kept it constant. This study attempts to use conventional regressions with recent CPS data over a longer time period to provide additional insights into the effects of minimum wage on young worker employment, looking specifically at workers between the ages of 14 to 30. Using the data from Washington and Idaho, this study finds that recent minimum wage increases in Washington have produced a statistically significant negative effect on employment.

Subject Area: Economics

Article Type: Editorially Reviewed Journal Article

1. INTRODUCTION

This paper investigates the impact of minimum wage changes on employment, addressing the research question: “Does minimum wage have a negative effect on employment?” To explore this, the study employs a regression analysis using pooled data from 2016 to 2024. This issue is both economically significant and socially relevant, as the common argument against raising the minimum wage is that such increases may lead to reduced employment among lower-skilled or lower-income workers—groups that the wage increases are intended to benefit. Opponents argue that higher wage costs for businesses may lead to layoffs, thereby decreasing employment and adversely affecting the very workers the wage increase aims to help. This debate remains contentious, and this paper seeks to provide further clarity on the relationship between minimum wage and employment.

The analysis utilizes data from two U.S. states: Washington, which has substantially increased its minimum wage during the study period, and Idaho, which has maintained a constant minimum wage. The choice of these states is driven by two key factors: the contrast between increasing and static minimum wage levels and their geographical proximity as neighboring states. Given that much of the existing economic research suggests minimal to no significant relationship between minimum wage and employment, this study aims to contribute to the ongoing discussion by examining whether these findings hold true in the context of the selected states.

2. LITERATURE REVIEW

Economists and academics alike have long sought to find and clarify the relationship between minimum wage and employment. Many papers have been written over time, covering different demographics, states, and countries, in attempts to distill the base effect of minimum wage on employment. Nevertheless, there still remains much ongoing discussion and disparity between economists.

Card and Krueger (1994) conducted a study examining the impact of the 1992 minimum wage increase in New Jersey, which raised the wage from \$4.25 to \$5.05. The study involved surveying over 400 fast food restaurants in both New Jersey and Pennsylvania before and after the wage increase. By comparing employment growth in New Jersey, where the minimum wage increased, to Pennsylvania, where it remained unchanged, the authors found no evidence that the wage increase led to a reduction in employment. This approach is comparable to the research conducted in this paper, though this study utilizes data from the Current Population Survey rather than survey data collected directly by the author.

Slichter (2015) adopts a similar yet distinct approach in examining the effects of minimum wage on employment. The study compares border counties where the minimum wage increased to neighboring counties without such changes, introducing an innovative method by modeling the ratio of bias in these comparisons. Using data from various U.S. counties, Slichter concludes that

recent minimum wage increases have resulted in “modest or zero disemployment effects” for teenagers.

Neumark and Wascher (2006), diverging from the previous studies, conduct an exhaustive review of the literature on minimum wages and employment. Rather than providing new empirical insights, they compile perspectives from existing research. Their review highlights that some studies consistently indicate negative effects of minimum wages on employment, though these results are not always statistically significant. The most credible studies in their survey generally point to small negative employment effects, suggesting that minimum wage increases may reduce employment. Furthermore, they find that less-skilled workers experience the strongest disemployment effects from minimum wage increases, with substantial evidence supporting this conclusion in the literature.

Alan Manning’s (2021) paper addresses the ongoing debate about the employment effects of minimum wage increases. He argues that the lack of significant job losses in research may result from how labor markets function, often deviating from perfect competition. Studies on specific groups, like teenagers or low-educated workers, generally fail to isolate clear employment effects. Manning also reviews meta-analyses (Doucouliagos and Stanley, 2009; Chletsos and Giotis, 2015) that reveal a publication bias favoring studies with negative findings, while highlighting contested results from Clemens and Wither (2019). Additionally, he notes that organizations like the IMF and OECD increasingly acknowledge that moderate minimum wage increases do not cause job losses and may boost labor participation. Manning concludes that the relationship between minimum wages and employment is more complex than often assumed and suggests further research should focus on identifying the tipping point where negative effects occur.

Fishback and Seltzer (2021) offer a historical analysis of American minimum wage laws from their origins in the early 20th century through to the late 1960s, when federal minimum wages reached their peak in real value. Their study contributes to an extensive body of literature that has examined the economic, social, and political factors influencing minimum wage policies and their effects on the labor market. The paper also examines the regional implications of minimum wage policies. Fishback and Seltzer highlight how opposition from southern states played a key role in shaping federal wage policies. Southern legislators often resisted wage increases, fearing the impact on their region’s industries, which employed a large proportion of low-wage labor. This tension between northern and southern economic interests is a recurrent theme in the minimum wage literature, emphasizing the role of regional wage differentials in shaping national policy outcomes. Fishback and Seltzer’s (2021) analysis of the rise of minimum wages in the United States provides a historical framework that aligns with ongoing debates about the balance between protecting workers’ incomes and maintaining employment levels. Their literature reflects a continued division among economists, with no clear consensus on the employment effects of minimum wages, suggesting that the debate will likely persist as policymakers and scholars grapple with the complexities of labor market regulation.

Upon reviewing the literature, it becomes evident that the relationship between minimum wage and employment remains a deeply contested issue. The studies by Card and Krueger and Slichter suggest that minimum wage increases have minimal to no adverse effects on employment, particularly when examining different demographics and methodologies. In contrast, Neumark and Wascher present a broader view, indicating that while some studies do find negative employment effects, these results are often not statistically significant and tend to affect lower-skilled workers more. Manning's critique highlights the complexities in detecting significant job losses and points to a possible publication bias favoring negative findings. His review underscores the nuanced nature of the relationship, noting that moderate increases in minimum wage might not always lead to job losses and may even enhance labor force participation. Fishback and Seltzer provide a historical perspective, showing how regional and political factors have historically influenced minimum wage policies and their effects on employment. This historical lens reveals the persistent debate and regional disparities that continue to shape the discourse on minimum wage.

This paper aims to contribute to this ongoing debate by utilizing recent data from the CPS to investigate the effects of minimum wage in a more contemporary context. Similar to Card and Krueger's approach, this study will employ a comparative analysis between Idaho and Washington to explore these effects. The findings of this research will help clarify which viewpoint—whether the minimal impact or the existence of small negative effects—holds true in the current labor market. The results will be significant in understanding how the complexities and evolving nature of minimum wage policies influence employment today.

3. DATA

To address the research question, “Does minimum wage have a negative effect on employment?”, this study will utilize data from the Current Population Survey (CPS), accessed via the IPUMS website. The CPS provides comprehensive data collected through surveys of U.S. individuals and households, offering valuable insights into labor market dynamics. This analysis will focus specifically on data from two U.S. states: Washington and Idaho. By examining CPS data from these states, the study aims to assess the impact of minimum wage changes on employment levels, contributing to the ongoing debate on this critical economic issue.

The data is well-suited to help answer the research question as it is individual level population data, that can be easily separated by state. The census data includes many key data points that will help estimate the effect of minimum wage on state unemployment, while allowing controls for differences between population samples that arise from state differences. The data itself is pooled data, as it includes observations taken over the years 2016 - 2024, during which Washington raised its minimum wage from \$9.47 in 2016 to its current (and national highest) level of \$16.28. Washington raised its minimum wage over this period gradually, with yearly increases in the minimum wage. These increases were coded into Stata, replacing the “minwage” values if the state was Washington, and according to the year.

The CPS data is composed of individual records containing information that was collected on individual persons, and as such the unit of observation is the individual for this dataset. In the dataset there are 11,265 observations. Individuals outside the ages of 14 to 30 have been dropped, as the minimum wage will likely not be applicable nor binding to those outside of this age range. Additionally, observations where hourly wage “hourwage” = 999.99 have also been dropped, as these observations have no hourly wage data (999.99 meaning not in universe), and as such these individuals may not be paid wages and may not be applicable to this study

Table 1 lists the variables to be used in the regression. Dummy variables are used for year, state, and employment. Table 2 houses the descriptive statistics, with the means, standard deviations and min/max values included. All the values fall within expected ranges, and as many of the variables are dummy variables, many of the min/max values are shown as zero/one values in the table.

TABLE 1: VARIABLE DEFINITIONS

Variable	Definition	Formula
Employment	Dummy variable for employment status	1 = Employed 0 = Unemployed
Minimum Wage	Numerical value representing minimum wage	
State	Dummy variable for state	0 = Idaho 1 = Washington
Age	Biological age of the individual	
Sex	Biological sex of the individual	1 = Male
YearDum (2016 thru 2024)	Dummy variable for year	

SOURCE: US Current Population Survey (provided by IPUMS), 2016 - 2024.

TABLE 2: DESCRIPTIVE STATISTICS

	Number of observations	Mean	Standard deviation	Minimum	Maximum
Employment	11,265	.7214	.4483	0	1
Minimum Wage	11,851	11.1104	4.1243	7.25	16.28
State	11,851	.4749	.4993	0	1
Age	11,851	22.4366	4.8598	14	30
Sex	11,851	1.489	.4996	1	2
year dum16	11,851	.0077	.0872	0	1
year dum17	11,851	.0076	.0872	0	1
year dum18	11,851	.0070	.0838	0	1
year dum19	11,851	.0080	.0891	0	1
year dum20	11,851	.0059	.0766	0	1
year dum21	11,851	.0944	.2924	0	1
year dum22	11,851	.0930	.2905	0	1
year dum23	11,851	.6375	.4807	0	1
year dum24	11,851	.1385	.3454	0	1

SOURCE: US Current Population Survey (Provided by IPUMS), 2016 - 2024.

4. METHODOLOGY

The regression equation to be estimated can be written as follows.

$$\text{employment} = \beta_1 + \beta_2 \text{minwage} + \beta_3 \text{statedum} + \text{year dummies}$$

VARIABLES

Outcome Variable:

The outcome (dependent) variable is employment. An individual can be in one of two states of employment, either “employed” or “non-employed”. The state of non-employment covers various situations where an individual might not be employed, such as being unemployed or being out of the labor force.

Treatment Variable:

The treatment (independent) variable is the minimum wage coded as “minwage”. It is constant in Idaho and is increasing in Washington over time.

Controls:

The control variables include the dummy variables for state and the dummy variables for years. The year dummies help to control for changes in business conditions over time that affect both states, while the state dummies control for permanent differences between the two states. Additionally, variables for age and sex are included as controls for subsequent regressions

Functional Form

A linear functional form was chosen, without any transformations (such as logs, ratios, etc.), as it allows for a straightforward interpretation of the coefficients and their effect on the dependent variable.

Equation vs Research Question

The estimates obtained from the linear regression model may have a causal interpretation if certain conditions are met. In this context, we are examining whether changes in the state minimum wage led to changes in employment. However, establishing causality from observational data requires careful consideration of potential biases and the identification strategy employed.

There may be several sources of bias to consider. Omitted variable bias could occur if important variables that influence both minimum wage and employment are not included in the model. Factors such as overall economic conditions, industry composition, or labor market policies

could potentially affect employment. To help mitigate this risk we include controls in the model, but some factors like overall economic conditions cannot be controlled for in this study. Year dummies might not be sufficient controls if the economies of Washington and Idaho are not in sync over the time frame of the dataset. While the linear regression model provides a useful framework for exploring the relationship between the minimum wage and unemployment rate, careful attention must be paid to potential biases and limitations to draw valid causal inferences with minimal bias.

5. RESULTS

Table 3 shows the coefficient estimates for the regression done on the effect of minimum wage on employment. The coefficient estimate for minimum wage is the estimate that directly answers my research question, and looking at the three regressions the effect of controlling for age and sex can be seen. When controlling for both age and sex, the coefficient of minimum wage becomes less severe. Adjusted R-square improves through all regressions, suggesting that controlling for age and sex improves the ability of minimum wage to predict the change in employment.

The final regression coefficient estimate for minimum wage is -0.0151, with a standard error of 0.00683. The negative sign of this coefficient estimate is appropriate and suggests a negative relationship between minimum wage and employment, seeming to support my research question. With a small standard error and subsequent P-Value of 0.027, this coefficient estimate is statistically significant at the 5% significance level. The final coefficient estimate of -0.0151 suggests that a \$1 increase in the minimum wage will result in probability of young worker employment falling by 1.51 percentage points

Using the results from this regression, the estimated overall effect on the probability of employment in Washington, from the cumulative rise in minimum wage (2016 – 2024), can be calculated with the following formula:

$$-0.0151347 \times (\$16.28 - \$9.47)$$

$$\text{Overall estimated effect} = -0.103067$$

Interpreting this effect, the cumulative \$6.81 rise in the minimum wage of Washington during 2016 to 2024 has resulted in the employment of young workers in the state falling by 10.3 percentage points over the same period. To impart a sense of scale for this employment effect, the mean level of employment for the dataset was 72.1 percent.

TABLE 3: ESTIMATES OF THE EFFECT OF MINIMUM WAGE ON EMPLOYMENT

	(1)	(2)	(3)
Minimum Wage	-0.02134 (0.0072)	-0.0150 (0.00683)	-0.0151 (0.00682)
State	0.1202 (0.05919)	0.0583 (0.0557)	0.0589 (0.0557)
Age		0.0310 (0.0008)	0.0311 (0.0008)
Sex			-0.0303 (0.0074)
Adjusted R-square	0.1230	0.2243	0.2246
Number of observations	11,265	11,265	11,265

NOTES: Dependent variable is employment. Control variables include: state, age, sex, year. Year dummies are included in all three regressions for 2016 thru 2024.

6. CONCLUSION

The purpose of this study was to investigate the impact of minimum wage increases on employment, specifically focusing on whether higher minimum wages lead to a reduction in employment among young workers. To address this research question, this paper employed a comparative analysis of data from two U.S. states—Washington, which experienced significant minimum wage increases from 2016 to 2024, and Idaho, which maintained a constant minimum wage over the same period. The analysis utilized data from the Current Population Survey (CPS) and involved regression techniques to estimate the relationship between minimum wage changes and employment levels.

The findings of this study reveal a statistically significant negative impact of minimum wage increases on employment, particularly among young workers. Specifically, the analysis suggests that for every \$1 increase in the minimum wage, there is a 1.51 percentage point decrease in the probability of employment for this demographic. Over the study period, Washington's cumulative rise in the minimum wage contributed to an estimated 10.3 percentage point reduction in the likelihood of employment for young workers. These results lend support to the argument that minimum wage hikes can have a discernible adverse effect on employment among certain groups.

While these results support the notion that minimum wage increases can have a measurable adverse effect on employment, several limitations should be noted. First, the analysis is constrained to two states, which may not fully represent the broader national context. Additionally, the study focuses on a specific demographic group (young workers), and the impacts on other age groups or sectors may differ. The reliance on observational data also means that while correlations are identified, causality cannot be definitively established.

Future research should aim to expand on these findings by examining the effects of minimum wage changes across a more comprehensive range of states, industries, and demographic groups. A broader analysis would help determine whether the observed negative impact on young workers holds true in different contexts or if certain groups are more resilient to wage increases. Longitudinal studies that incorporate a wider variety of conditions, labor market characteristics, and policy environments could also offer deeper insights into the long-term effects of minimum wage policies. Such research would contribute to a greater understanding of the relationship between minimum wage policies and employment outcomes, offering a richer foundation for future labor market regulations.

REFERENCES

- Card, D., & Krueger, A. B. (1994). *Minimum wages and employment: a case study of the fast food industry in New Jersey and Pennsylvania*. *American Economic Review*, 84(4), 772-793.
- Neumark, D., & Wascher, W. L. (2007). *Minimum wages and employment*. *Foundations and Trends in Microeconomics*, 3(1-2), 1-186.
- Slichter, D. (2015). *The employment effects of the minimum wage: A selection ratio approach to measuring treatment effects*. *Journal of Applied Econometrics*, 38(3), 334–357.
<https://doi.org/10.1002/jae.2954>
- Fishback, Price V., and Andrew J. Seltzer. “*The Rise of American Minimum Wages, 1912–1968*.” *Journal of Economic Perspectives*, vol. 35, no. 1, 1 Feb. 2021, pp. 73–96,
<https://doi.org/10.1257/jep.35.1.73>.
- Manning, Alan. “*The Elusive Employment Effect of the Minimum Wage*.” *Journal of Economic Perspectives*, vol. 35, no. 1, 1 Feb. 2021, pp. 3–26,
pubs.aeaweb.org/doi/pdfplus/10.1257/jep.35.1.3, <https://doi.org/10.1257/jep.35.1.3>.
- Sarah Flood, Miriam King, Renae Rodgers, Steven Ruggles, J. Robert Warren, Daniel Backman, Annie Chen, Grace Cooper, Stephanie Richards, Megan Schouweiler, and Michael Westberry. *IPUMS CPS: Version 11.0 [dataset]*. Minneapolis, MN: IPUMS, 2023.
<https://doi.org/10.18128/D030.V11.0>

DATA APPENDIX

The data used in this paper was obtained from the IPUMS CPS website, selecting years 2016 – 2024 and all the included variables from the study (age, sex, hourly wage etc.). Observations that were missing hourly wage data were dropped, as without hourly wage data those individuals may have not been earning wages or may have been paid under a different compensation structure, making them poor candidates for this study. Additionally, individuals outside of the age 14 – 30 were dropped from the dataset, as they were unlikely to be affected by the changes in minimum wage. Previous economic studies also focused on younger workers, as there is a general correlation between worker age and worker skill (lower skilled workers being more likely to earn minimum wage).

In Stata, the regress command was used to compute the regression estimates.

The exact dataset and Stata code used to compute the estimates are available from the author on request.