
IMPACT OF WAGE INCREASE ON EMPLOYMENT

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LITERATURE REVIEW

I am using the following as my base paper. "Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania" by David Card and Alan Krueger, published in the American Economic Review in 1994. The paper uses a DiD approach to examine the effect of a minimum wage on an increase or decrease in employment levels in the fast-food industry.

The study was motivated by a 1992 increase in New Jersey's minimum wage from \$4.25 to \$5.05 per hour, which represented the largest minimum wage increase in U.S. history at the time. The authors compared employment levels in the fast-food industry in New Jersey and Pennsylvania before and after the

minimum wage increase, as well as employment levels in New Jersey relative to a control group of fast-food restaurants in New York, which did not experience a minimum wage increase.

The authors found that the minimum wage increase had no significant negative effect on employment levels in the fast-food industry in New Jersey. They also found that employment levels in New Jersey actually increased relative to Pennsylvania after the minimum wage increase, suggesting that the minimum wage increase may have had a positive effect on employment levels.

The paper has been influential in the debate over the effects of minimum wage increases on employment. It provides evidence that minimum wage increases do not necessarily lead to significant job losses, and that in some cases they may even have positive effects on employment levels. However, we must note that the study only examines a specific industry in a specific geographic region, and that the results may not generalise to other contexts.

OBJECTIVE OF THE RESEARCH

The objective of the research paper "Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania" by David Card and Alan Krueger, published in the American Economic Review in 1994, was to examine the effect of a minimum wage increase on increase or employment levels in the fast-food industry using a DiD approach. Specifically, the authors sought to answer the question of whether a minimum wage increase would lead to job losses in the industry, as predicted by conventional economic theory, or whether it would have little to no effect on employment levels, as suggested by some previous studies.

By comparing changes in employment levels in New Jersey, where the minimum wage increased, to changes in employment levels in Pennsylvania and New York, which did not experience a minimum wage increase, before and after the minimum wage increase, the authors aimed to estimate the causal effect of the minimum wage increase on employment levels. The study's goal was to offer empirical proof of how raising the minimum wage affects employment, which could inform policy debates on minimum wage laws and their potential impacts on the labour market.

I will take another dataset to check whether the results obtained by David Card and Alan Krueger in their paper hold true.

SIGNIFICANCE OF RESEARCH

The significance of the paper lies in its use of a DiD approach to estimate the effect of the minimum wage increase on increase or decrease in employment levels, which is a more rigorous and accurate method than previous studies that relied on cross-sectional comparisons. The authors used a natural experiment in which New Jersey increased its minimum wage while Pennsylvania did not, allowing them to compare changes in employment levels before and after the minimum wage increase in both states, as well as in a control group of fast-food restaurants in New York that did not experience a minimum wage increase. The paper's findings challenged the conventional economic theory that minimum wage increases necessarily lead to job losses, and instead suggested that such increases may have little to no effect on employment levels. Specifically, the authors found that the minimum wage increase in New Jersey did not lead to significant job losses in the fast-food industry, and may have even had a positive effect on employment levels. The significance of the paper is that it provided empirical evidence that could inform policy debates on minimum wage laws and their potential impacts on the labour market. The paper's use of a DiD approach also established a new methodological standard for future studies of the effects on employment levels due to minimum wage increases

Similarly, I will also use the DiD approach to check the effects of wage change on employment.

METHODOLOGY USED

The research paper "Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania" by David Card and Alan Krueger, published in the American Economic Review in 1994, used a DiD approach to estimate employment levels in the fast-food industry due to increase of minimum wage

The authors used a natural experiment in which New Jersey increased its minimum wage while Pennsylvania did not, allowing them to compare changes in employment levels before and after the minimum wage increase in both states, as well as in a control group of fast-food restaurants in New York that did not experience a minimum wage increase.

Specifically, the authors used the following steps to estimate the causal effect of the minimum wage increase on employment levels:

1. Data collection: Collected data on employment levels and other relevant variables for the fast-food industry in New Jersey, Pennsylvania, and New York, both before and after the minimum wage increase in New Jersey.
2. Selection of treatment and control groups: The authors identified fast-food restaurants in New Jersey and Pennsylvania as the treatment and control groups, respectively, because they were geographically close to each other and had similar characteristics that made them comparable.

3. DiD estimation: The authors used a DiD approach to estimate the effect of the minimum wage increase on employment levels by comparing changes in employment levels in New Jersey to changes in employment levels in Pennsylvania and New York, both before and after the minimum wage increase. This approach allowed the authors to control for any confounding factors that might have affected employment levels in the two states, such as differences in business cycles or other policies that might have affected the labour market.

The authors' use of a DiD approach and a natural experiment allowed them to estimate the effect of employment levels due to the minimum wage increase with greater accuracy than in previous studies. This approach is now widely used in studies of the effects of minimum wage laws on the labour market.

Similarly, I will perform the above-mentioned methodology on my dataset to arrive at a conclusion.

EXPECTED RESULTS

Several other papers have also concluded that wage increase did not result in a decrease in employment. I too expect the same to happen after carrying out my own tests with the help of DiD approach.

LEARNING OUTCOMES

The finding that the minimum wage hike does not cause a statistically significant decline in employment levels will be the learning outcome. This finding challenges the conventional economic theory that increasing the minimum wage would necessarily lead to decreased employment.

HYPOTHESES

1. Contrary to popular belief, raising the minimum wage is not always responsible in a decrease in employment.
2. The impact of a minimum wage increase may vary by industry, region, or other factors, and the effects may not always be negative as previously thought.

WHAT PROBLEM DOES MY PAPER TALK ABOUT?

The effect of an increase in wages on employment is a topic of ongoing debate in economics and labour market research. The relationship between wage and employment is complex. Various factors, such as the level of the minimum wage, labour market conditions, industry characteristics, and the overall economic environment can influence it.

Economists and researchers have put forth different theories and findings on the effect of wage increases on employment:

The classical view: According to classical economic theory, an increase in wage leads to a decrease in employment, as higher labour costs may reduce employers' demand for labour. When wages increase, employers may respond by cutting back on hiring or reducing work hours, which can result in lower employment levels.

The neoclassical view: Neoclassical economists argue that the impact of wage increases on employment depends on labour market conditions and the elasticity of labour demand. In highly competitive labour markets with elastic labour demand, a wage increase may lead to a decrease in employment. However, in less competitive labour markets with inelastic labour demand, a wage increase may not have a significant impact on employment, as employers may pass on the increased labour costs to consumers through higher prices or reduced profits.

The Keynesian view: Keynesian economists emphasize the role of aggregate demand in determining employment levels. According to this view, an increase in wages can boost consumer spending and aggregate demand, which in turn can stimulate business investment and lead to

higher employment levels. This view suggests that the relationship between wage and employment may be positive or neutral, depending on the overall economic conditions.

The labour market monopsony view: Some researchers argue that labour markets may be characterized by monopsony power, where employers have significant market power to set wages below the competitive level. In such cases, an increase in wages may lead to higher employment levels, as it can attract more workers and reduce turnover, resulting in higher productivity and reduced labour market inefficiencies.

Empirical evidence: Empirical studies examining the effect of wage increases on employment have yielded mixed findings, with results varying depending on the context, methodology, and data used. Some studies show a negative relationship between wage increases and employment, while others have found little or no impact on employment. There also exists evidence suggesting that the effect of wage increases on employment may be moderated by factors such as industry characteristics, regional differences, and the level of the minimum wage.

In conclusion, the effect of an increase in wage on employment is a complex and nuanced issue, with differing viewpoints and mixed empirical evidence. The relationship between wage and employment is influenced by various factors, and the actual impact may vary depending on the specific context and conditions of the labour market. Further research and analysis are needed to better understand the effects of wage increases on employment and inform policy decisions related to minimum wages and labour market regulations.

WHAT IS MY DATA SET ABOUT?

I will examine how raising the minimum wage would affect employment and wages in Mexico. The National Occupation and Employment Survey, which provides quarterly statistics on the labour dynamics of the Mexican population, provided the data used in this study.. For this, I have taken the following dataset.

Year	Employment%	wage
2012(1)	57.25	2019
2012(2)	55.29	2023
2012(3)	56.79	2002
2012(4)	56.84	1973
2013(1)	55.45	2021
2013(2)	56.76	2013
2013(3)	55.29	2010
2013(4)	57.25	1978

Control Group

The above dataset is our control group. In this group, no changes in wage were made.

Year	Employment	wage
2012(1)	54.62	1963.931
2012(2)	55.89	1963.931
2012(3)	55.85	1963.931
2012(4)	55.91	1963.931
2013(1)	54.22	1963.931
2013(2)	55.81	1963.931

2013(3)	55.49	1963.931
2013(4)	57.24	1963.931

Treatment Group

The above dataset is our treatment group. In this group, changes in wages were made for the year 2013.

We will need to add an appropriate dummy variable for our Difference in Difference estimation. After adding the dummy variable, our final dataset will be as follow.

Year	Employment%	wage	Treatment Dummy	Time Dummy	Treatment*Time Dummy
2012(1)	57.25	2021.05	0	0	0
2012(2)	55.29	2026.527	0	0	0
2012(3)	56.79	2003.053	0	0	0
2012(4)	56.84	1974.885	0	0	0
2013(1)	55.45	2024.962	0	1	0
2013(2)	56.76	2015.573	0	1	0
2013(3)	55.29	2014.008	0	1	0
2013(4)	57.25	1981.378	0	1	0
2012(1)	54.62	1963.931	1	0	0
2012(2)	55.89	1963.931	1	0	0
2012(3)	55.85	1963.931	1	0	0
2012(4)	55.91	1963.931	1	0	0
2013(1)	54.22	1963.931	1	1	1
2013(2)	55.81	1963.931	1	1	1
2013(3)	55.49	1963.931	1	1	1
2013(4)	57.24	1963.931	1	1	1

Dataset

As can be seen from the table, The data include wage and employment for a certain period. In our treatment group, the minimum wage was increased in 2013. The minimum wage was made equal to that of our controlled group. We will examine changes in employment by using

Difference in Difference estimation on this data set. According to the rule below, I have given the dummy variable a value of 1 or 0.

VARIABLES INCLUDED

- Employment percentage
- Wage of workers
- Treatment Dummy
- Time Dummy
- Treatment Dummy * Time Dummy

The difference-in-differences method is a statistical technique commonly used in econometrics to estimate the causal effect of a treatment or intervention.

In our equation,

β_0 represents the intercept,

β_1 represents the effect of the treatment dummy (j) on employment,

β_2 represents the effect of the time dummy (t) on employment,

β_3 represents the effect of the interaction between the treatment dummy and time dummy (it) on employment,

and β represents the effect of wages on employment.

The difference-in-differences method compares the changes in the outcome variable (employment in this case) between a treatment group and a control group before and after the treatment or intervention.

The treatment dummy variable (j) indicates whether an observation is in the treatment group (1) or the control group (0).

That is, the value of the treatment dummy variable is 1 for the treatment group and 0 for the control group.

The time dummy variable (t) indicates whether an observation is before (0) or after (1) the treatment or intervention.

That is, the value of the time dummy variable (t) is 1 if the observation is after the treatment or intervention and 0 if the observation is before the treatment or intervention.

Treatment Dummy(i) * Time Dummy(t) is the interaction term between the treatment and time dummies, which captures the differential treatment effect over time

By estimating the coefficients of the treatment dummy (β_1), time dummy (β_2), and interaction between the treatment dummy and time dummy (β_3), we can assess the impact of the treatment on employment over time while controlling for the wage of workers (β_{Wage}) and other factors. The error term $\varepsilon(it)$ captures unobserved factors that may affect employment but are not included in the model.

EQUATION

- $$\text{Employment}(it) = \beta_0 + \beta_1 (\text{Treatment Dummy})_j + \beta_2 (\text{Time Dummy})_t + \beta_3 (\text{Treatment Dummy} \times \text{Time Dummy})_{it} + \beta_{Wage}(it) + \varepsilon(it)$$

CODES

. reg Employment wage TreatmentDummy TimeDummy TreamtentTimeDummy						
Source	SS	df	MS	Number of obs	=	16
Model	6.65325083	4	1.66331271	F(4, 11)	=	2.76
Residual	6.63889292	11	.60353572	Prob > F	=	0.0824
				R-squared	=	0.5005
				Adj R-squared	=	0.3189
Total	13.2921438	15	.886142917	Root MSE	=	.77688

Employment	Coefficient	Std. err.	t	P> t	[95% conf. interval]	
wage	-.0284689	.0107881	-2.64	0.023	-.0522134	-.0047244
TreatmentDummy	-2.590609	.8225498	-3.15	0.009	-4.401029	-.7801891
TimeDummy	-.3194139	.5494995	-0.58	0.573	-1.528854	.8900264
TreamtentTimeDummy	2.093109	.9891188	2.12	0.058	-.0839269	4.270145
_cons	113.6013	21.62557	5.25	0.000	66.00369	161.1988

Above is the attached screenshot of my code along with its output in Stata. The t value is greater than 1.96, which is 2.12 for the Treatment*Time Dummy variable. The table shows us that the values are significant.

Therefore, it can be inferred that the increase in wages does not lead to a decrease in employment.

CONCLUSION

My dataset analysis shows no changes in employment due to increasing wages.

This contrasts with the views of

1. The classical view says an increase in wage leads to a decrease in employment.
2. The Keynesian view says the wage-employment relationship may be either positive or neutral.
3. The labour market monopsony view says an increase in wage leads to an increase in employment.

REFERENCES OF DATA USED

- The impact of the minimum wage on income and employment in Mexico by Raymundo M. Campos Vázquez, Gerardo Esquivel and Alma S. Santillán Hernández¹.
- Minimum Wage Effects on Employment, Substitution, and the Teenage Labour Supply: Evidence from Personnel Data by Laura Giuliano.
- Product Market Evidence on the Employment Effects of the Minimum Wage by Daniel Aaronson, Eric French.
- <https://catalog.data.gov/dataset?q=wage+employment&sort=score+desc%2C+name+asc>