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## **FURSCA End of Summer Report**

### **Introduction**

Minimum wage policy is one of the most widely debated topics in economics, especially in discussions around poverty, income inequality, and job creation. While some economists think that raising the minimum wage improves living standards of poor workers, others predict possible negative effects such as lost jobs, inflation, or increased rents. Studies by Neumark (2014) and Brown (1984), among others, conclude that raising minimum wages can reduce employment, while others, such as Schmitt (2015) and Gopalan (2021), believe that employment effects are limited and overall consequences might be positive.

During this research, I compared the correlation of changes in the minimum wages at the state level for the period 2004-2024 with four economic indicators: unemployment, inflation, income inequality (Gini index), and housing prices. I collected publicly available data from the sources available like the Bureau of Labor Statistics (BLS), the U.S. Census Bureau, and the Federal Reserve Economic Data (FRED) portal to conduct a correlation analysis for all 50 U.S. states.

The aim of the project is to provide further insight into whether raising the minimum wage has enhanced economic performance or if it raises new issues.

### **1. State Minimum Wage and State Unemployment Rate**

Before analyzing results, it's important to understand the basic definitions used in this research:

**Federal Minimum Wage:** The federally mandated minimum hourly pay, currently \$7.25/hour (as of 2024).

**State Minimum Wage:** The lowest wage employers can legally pay in each state, which varies depending on state laws and is often higher than the federal rate.

**Unemployment Rate:** The percentage of the labor force that is jobless but actively seeking employment.

In this section I explored whether there is a relationship between minimum wage changes and unemployment rates across the 50 U.S. states from 2004 to 2024. Some economists argue that raising minimum wages leads to higher unemployment by increasing labor costs (Neumark, 2014; Brown, 1984). However, others find that higher wages can improve job market outcomes and reduce turnover (Schmitt, 2015).

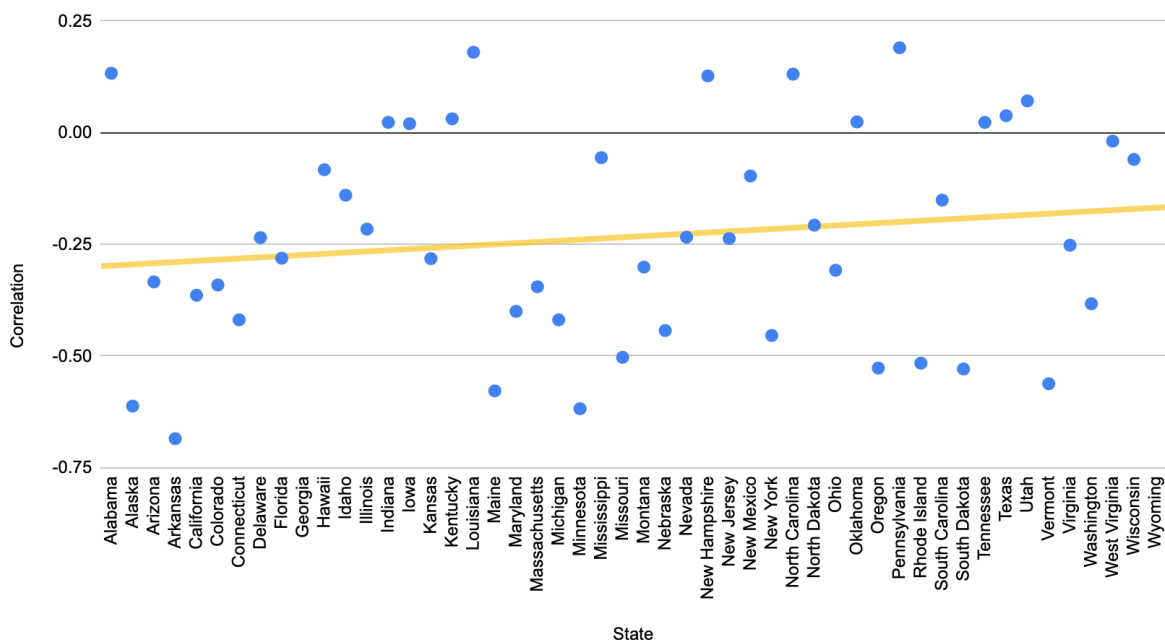
To investigate this, I calculated the correlation coefficient between the minimum wage and unemployment rate in each state. A negative correlation suggests that unemployment decreased as minimum wage increased, and a positive correlation suggests the opposite.

In many states, the data showed that unemployment went down when the minimum wage went up. A few states had small increases in unemployment, but overall, there was no strong evidence that higher wages consistently lead to job loss.

### State Minimum Wage and State Unemployment Rate:

Here is a scatter chart that shows the relationship between state minimum wages and unemployment rates. Each point represents a different state. As you can see, many of the points trend downward, suggesting that in most states, when the minimum wage increased, unemployment actually decreased.

Correlation vs. State ( State Minimum Wage and State Unemployment Rate)



**Note:** Correlation values could not be calculated for Georgia and Wyoming because there was no change in their state minimum wage during the study period (2004–2024).

States with positive correlation between minimum wage and unemployment:

State	Correlation(+)
Alabama	0.133
Indiana	0.023
Iowa	0.0201
Kentucky	0.031
Louisiana	0.18
New hampshire	0.127
Oklahoma	0.024
Pennsylvania	0.19
Tennessee	0.023
Texas	0.038
Utah	0.071

States with negative correlation between minimum wage and unemployment:

State	Correlation (Unemployment)	Missouri	-0.503
Alaska	-0.612	Montana	-0.301
Arizona	-0.334	Nebraska	-0.443
Arkansas	-0.685	Nevada	-0.234
California	-0.364	New Jersey	-0.237
Colorado	-0.341	New Mexico	-0.097
Connecticut	-0.419	New York	-0.454
Delaware	-0.235	North Carolina	0.131
Florida	-0.281	North Dakota	-0.207
Hawaii	-0.083	Ohio	-0.308
Idaho	-0.14	Oregon	-0.527
Illinois	-0.216	Rhode Island	-0.516
Kansas	-0.282	South Carolina	-0.151
Maine	-0.578	South Dakota	-0.529
Maryland	-0.4	Vermont	-0.562
Massachusetts	-0.345	Virginia	-0.252
Michigan	-0.419	Washington	-0.383
Minnesota	-0.618	West Virginia	-0.019
Mississippi	-0.056	Wisconsin	-0.06

## 2. State Minimum Wage and Income Inequality

**Gini Index:** The Gini index measures how equally income is distributed within a population. It ranges from 0 to 1, where 0 means perfect equality (everyone earns the same) and 1 means perfect inequality (one person earns all the income). A higher Gini index indicates a larger gap between rich and poor.

After that, I looked at income inequality using the Gini index. I expected that as minimum wages increased, the gap between rich and poor would shrink. However, the data showed a different story.

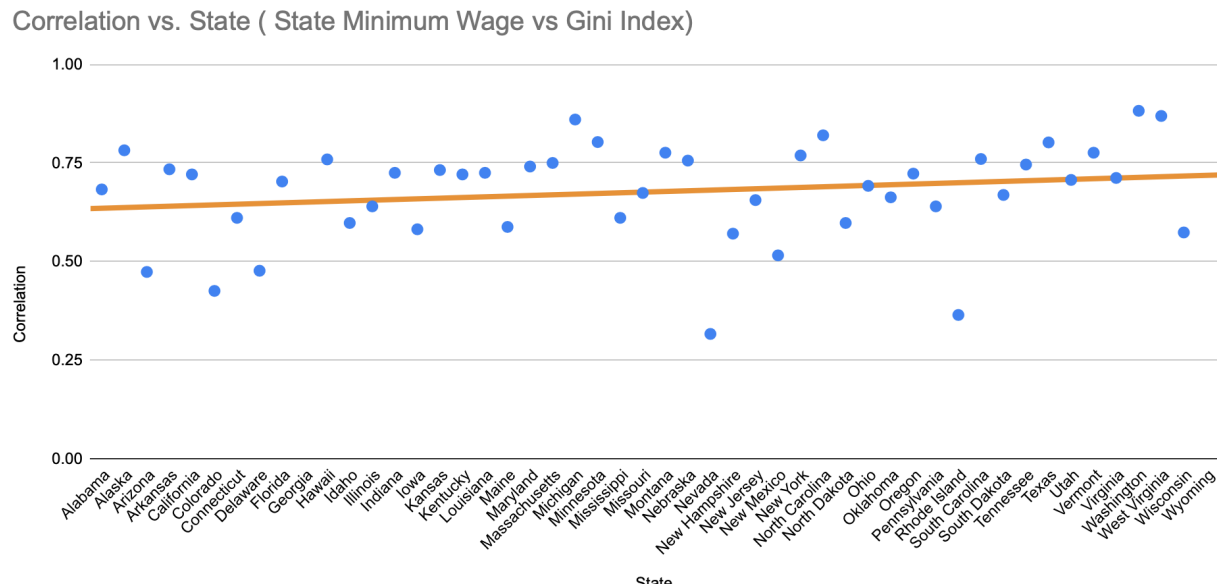
In every state, both the minimum wage and the Gini index increased over time. This means income inequality got worse, even though low-wage workers earned more. One possible reason is that incomes at the top grew even faster than those at the bottom, so the gap stayed wide.

Here is the full table of correlations between state minimum wages and the Gini index..

**Note:** Correlation values could not be calculated for Georgia and Wyoming because there was no change in their state minimum wage during the study period (2004–2024).

### State Minimum Wage and Income Inequality (Gini Index):

Here is a scatter chart that shows the relationship between state minimum wages and income inequality, measured by the Gini index. Each point represents a state. As you can see, most of the points trend upward, which suggests that in many states, both the minimum wage and income inequality increased over time. This means that even though low-wage workers earned more, the income gap between the rich and poor didn't shrink. One reason for this could be that high earners continued to gain income at a faster rate than others.



### States with positive correlation between minimum wage and Income Inequality

State	Correlation Gini	Montana	0.776
Alabama	0.683	Nebraska	0.756
Alaska	0.782	Nevada	0.317
Arizona	0.474	New Hampshire	0.571
Arkansas	0.734	New Jersey	0.656
California	0.721	New Mexico	0.516
Colorado	0.426	New York	0.769
Connecticut	0.611	North Carolina	0.82
Delaware	0.477	North Dakota	0.598
Florida	0.703	Ohio	0.692
Hawaii	0.759	Oklahoma	0.663
Idaho	0.598	Oregon	0.723
Illinois	0.64	Pennsylvania	0.64
Indiana	0.725	Rhode Island	0.365
Iowa	0.582	South Carolina	0.76
Kansas	0.732	South Dakota	0.669
Kentucky	0.721	Tennessee	0.746
Louisiana	0.725	Texas	0.802
Maine	0.588	Utah	0.707
Maryland	0.741	Vermont	0.776
Massachusetts	0.75	Virginia	0.712
Michigan	0.86	Washington	0.882
Minnesota	0.803	West Virginia	0.869
Mississippi	0.611	Wisconsin	0.574
Missouri	0.674		

### 3. State Minimum Wage and Inflation

**Inflation Rate:** The inflation rate measures how much prices for goods and services increase over time. It is often tracked using the Consumer Price Index (CPI). A rising inflation rate means things are getting more expensive, which can reduce the purchasing power of consumers.

In this section, I analyzed how changes in the minimum wage may relate to inflation. One common concern about raising the minimum wage is that it might lead to higher prices, especially for basic goods and services, as businesses try to cover higher labor costs.

When I looked at the data from 2004 to 2024 across all 50 states, the results were mixed. In about half the states, inflation went down or stayed the same while minimum wages increased. In the other half, inflation increased slightly. Only a few states showed a strong link between rising wages and rising prices.

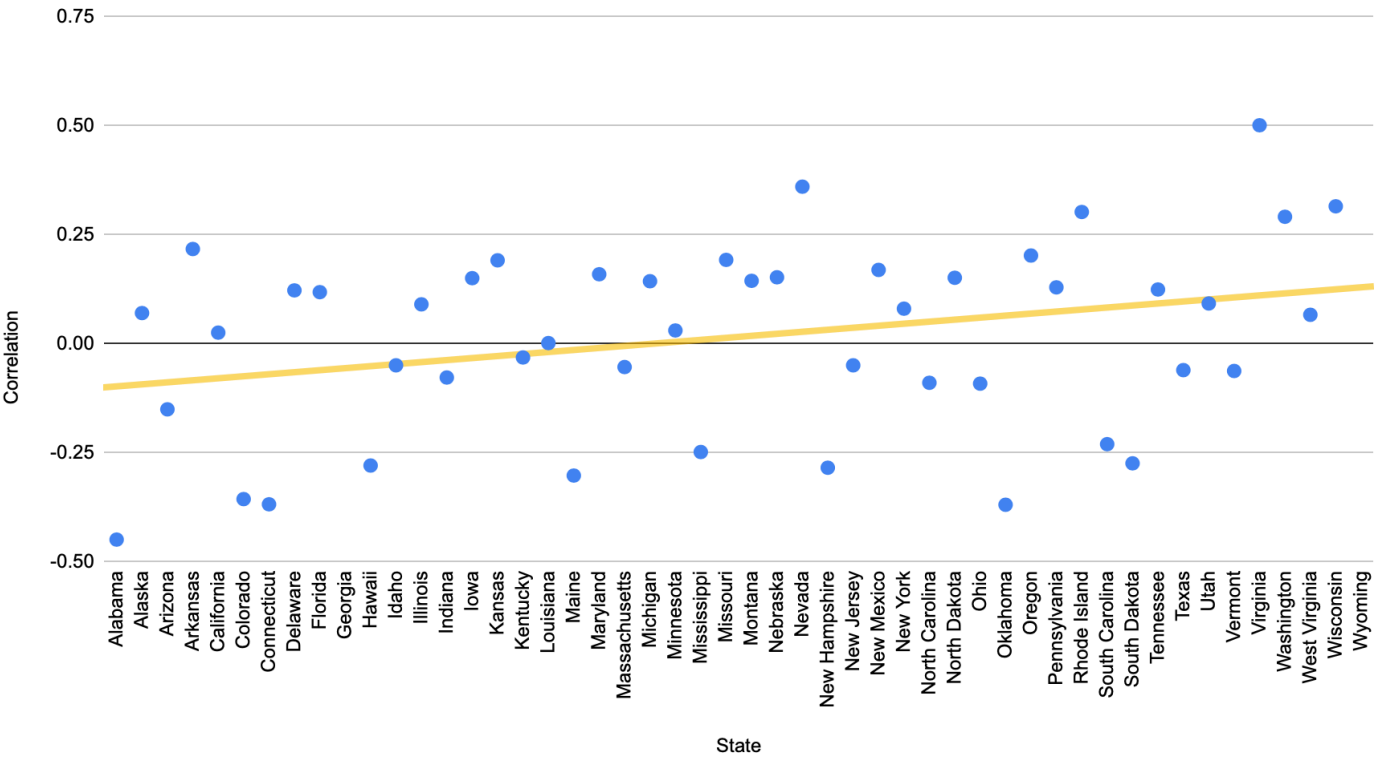
This suggests that increasing the minimum wage doesn't automatically lead to inflation. Many other factors also affect inflation, including energy prices, supply chain issues, and monetary policy.

**State Minimum Wage and Inflation Rate:**

Here is a scatter chart showing the relationship between state minimum wages and inflation rates. Each point represents a different state. The overall pattern is unclear—some states show a slight upward trend, while others show no trend or even a decrease. This shows that inflation and minimum wage do not have a consistent or strong relationship. In many cases, wages rose without causing noticeable inflation.

**Note:** Correlation values could not be calculated for Georgia and Wyoming because there was no change in their state minimum wage during the study period (2004–2024).

Correlation vs. State



**States with positive correlation between minimum wage and Inflation:**

State	+ Correlation Inflation	Nebraska	0.152
Alaska	0.07	Nevada	0.36
Arkansas	0.217	New Mexico	0.169
California	0.025	New York	0.08
Delaware	0.122	North Dakota	0.151
Florida	0.118	Oregon	0.202
Illinois	0.09	Pennsylvania	0.129
Iowa	0.15	Rhode Island	0.302
Kansas	0.191	Tennessee	0.124
Louisiana	0.001	Utah	0.092
Maryland	0.159	Virginia	0.501
Michigan	0.143	Washington	0.291
Minnesota	0.03	West Virginia	0.066
Missouri	0.192	Wisconsin	0.315
Montana	0.144		

**States with negative correlation between minimum wage and Inflation:**

State	- correlation( inflation)	Mississippi	-0.249
Alabama	-0.45	New Hampshire	-0.285
Arizona	-0.151	New Jersey	-0.05
Colorado	-0.357	North Carolina	-0.09
Connecticut	-0.369	Ohio	-0.092
Hawaii	-0.28	Oklahoma	-0.37
Idoha	-0.05	South Carolina	-0.231
Indiana	-0.078	South Dakota	-0.275
Kentucky	-0.032	Texas	-0.061
Maine	-0.303	Vermont	-0.063
Massachusetts	-0.054		

## 4. State Minimum Wage and Housing Prices

**Housing Prices:** The average cost of buying a home in each state.

In the final part of my project, I studied how changes in the minimum wage relate to housing prices from 2004 to 2024. I wanted to see if raising the minimum wage helps people afford homes or if it just causes housing prices to go up.

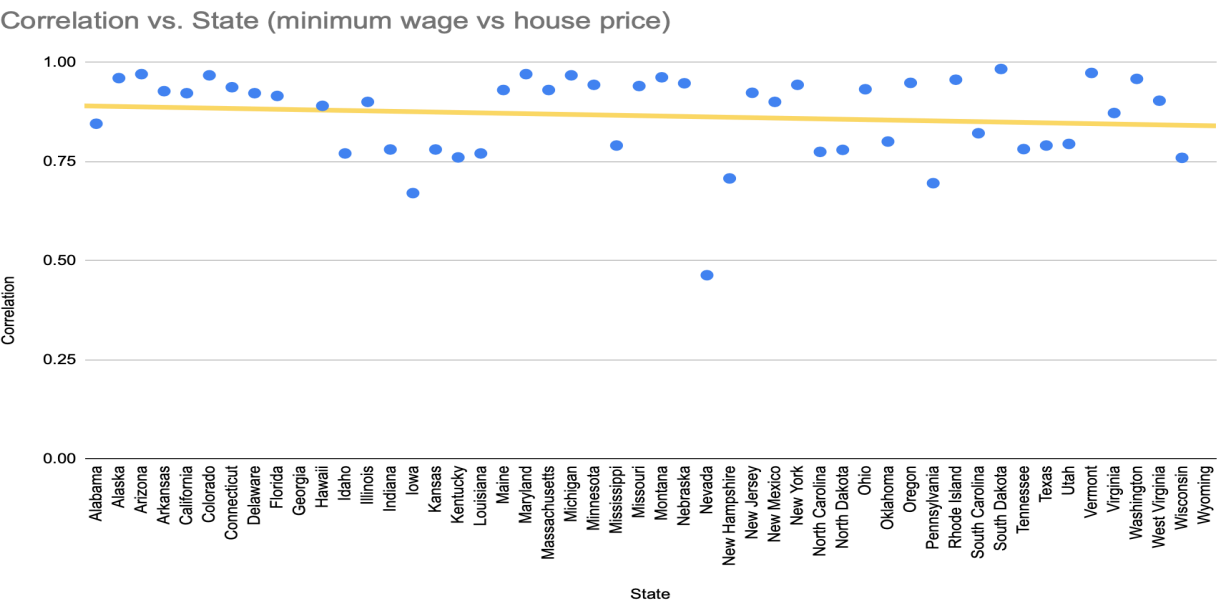
As I mentioned in my proposal, when people earn more, they may have more money to spend on housing. This can increase demand, which can drive up prices especially in places where housing is limited.

The results showed a strong positive correlation in all 50 states. That means when the minimum wage increased, housing prices usually went up too. In states like Colorado, Vermont, and Michigan, the connection was especially strong.

### State Minimum Wage and Housing Prices:

Here is a scatter chart that shows the relationship between minimum wage and housing prices. Each point stands for one state. Most points trend upward, showing that states with higher minimum wage growth also had rising home prices. Still, this doesn't mean higher wages caused the price increases.

**Note:** Correlation values could not be calculated for Georgia and Wyoming because there was no change in their state minimum wage during the study period (2004–2024).



### States with positive correlation between minimum wage and housing prices:

State	Correlation House price	Montana	0.962
Alabama	0.845	Nebraska	0.947
Alaska	0.96	Nevada	0.463
Arizona	0.97	New Hampshire	0.707
Arkansas	0.927	New Jersey	0.923
California	0.922	New Mexico	0.9
Colorado	0.967	New York	0.943
Connecticut	0.937	North Carolina	0.774
Delaware	0.922	North Dakota	0.779
Florida	0.915	Ohio	0.932
Hawaii	0.89	Oklahoma	0.8
Idaho	0.77	Oregon	0.948
Illinois	0.9	Pennsylvania	0.695
Indiana	0.78	Rhode Island	0.956
Iowa	0.67	South Carolina	0.821
Kansas	0.78	South Dakota	0.983
Kentucky	0.76	Tennessee	0.781
Louisiana	0.77	Texas	0.79
Maine	0.93	Utah	0.794
Maryland	0.97	Vermont	0.973
Massachusetts	0.93	Virginia	0.872
Michigan	0.967	Washington	0.958
Minnesota	0.943	West Virginia	0.903
Mississippi	0.79	Wisconsin	0.759
Missouri	0.94		

## Conclusion

This project has given me a better understanding of how minimum wage policy relates to everyday economic issues. By looking at long-term data from all 50 states, I've been able to see real patterns between wage changes and things like unemployment, inflation, inequality, and housing.

What I've found is that raising the minimum wage doesn't necessarily lead to the problems people expect, like rising unemployment and inflation. However, it doesn't completely solve deeper problems like income inequality and rising housing prices. This research has shown me that no single policy is enough to bring real change. Doing this research has helped me grow as a student and has given me valuable experience working with real data. I look forward to presenting my findings at the Elkin R. Isaacs Research Symposium next spring. I'm very grateful to FURSCA, my advisor, Dr. Azhar Uddin, and my donors for supporting this opportunity. I would also like to thank the Strossaker Faculty Student Research Fund for funding my summer research.

<https://docs.google.com/spreadsheets/d/1KyNqLU2V-pZ9M7izmWkhiFHnlMpVqCv5JWLTPaaUCCM/edit?usp=sharing>.

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