**EFFECTS ON MINIMUM WAGE ON EMPLOYMENT AND CRIME:**

**A STUDY FOR THE UNITED STATES**

**Summary of Major Findings**

**(Authors: Sneha Kumari, Polina Zasheva, Will Payne)**

**Motivation and Summary:**

The debate about the effect increases in the minimum wage have on employment is ongoing. Some studies find either no or only a small effect while others find significant effects. A [study](https://www.aeaweb.org/research/charts/labor-demand-minimum-wage-impact-jobs) recently published by the American Economic Association Provides new evidence that increases in minimum wage reduce employment in the long run. The goal of this research is to review 8 years of historic data across the entire United States and arrive at our own understanding of the impacts of minimum wage on the overall economic profile of the country.

**Hypotheses:**

We set out to test three related hypotheses regarding the US economy:

* Higher minimum wage has the potential to increase unemployment over time
* Higher minimum wage has a short term impact on CPI which eventually levels off as unemployment rises
* Because of increased unemployment, crime rates will also go up over time.

Out assumptions were based on a number of academic publications describing impact of minimum wage on the economy ([click here for bibliography](https://docs.google.com/document/d/1D24Vd2OR2OWDq1c5VfYlbUbcKDtK9NntHIJ-DUsYTxo/edit?usp=sharing))

**Questions guiding our research:**

* What is the relationship between employment and crime?
  + Does this relationship vary by state, region, or is it consistent across the entire United States?
* Did minimum wage increase, decrease, or remain the same across the time frame of our data set?
* Did changes in minimum wage impact employment and subsequently crime?

**Data and Methodology:**

We found data on Minimum Wage, Consumer Price Index, Unemployment, and Crime over 8 years (2009-2017) and across all 50 states

* [Kaggle: US Minimum Wage By State](https://www.kaggle.com/lislejoem/us-minimum-wage-by-state-from-1968-to-2017)
* [National Conference of State Legislatures: State Unemployment Rates](http://www.ncsl.org/research/labor-and-employment/2012-state-unemployment-rates.aspx)
* [Uniform Crime Reporting Statistics](https://www.ucrdatatool.gov/Search/Crime/State/StatebyState.cfm?NoVariables=Y&CFID=342168921&CFTOKEN=88550c15a1421821-C4E4BBD1-941D-A466-81A627C92009886F)

**Summary of Findings:**

1. **What is the observed relationship between employment and crime?**
   * Overall, as employment decreases, we see a decrease in crime rates
   * 2014 demonstrates demonstrates the biggest drop in unemployment rates which is consistent with the tail end of the great recession from 2009

|  |
| --- |
| **Figure 1: Employment and Crime** |
| If we explore unemployment across the US to the Total Crime Index, we see a generally positive relationship – as unemployment increases, the overall crime rates also increase. That trend is consistent across all years we explored – 2009 to 2014. The color coding below represents each year in our data |

|  |
| --- |
| **Figure 2: Employment and Crime By Year** |
| By year, crime rates remained consistent with a very slight decline YOY and a bigger decline in 2014. That’s consistent with the decline in Unemployment Rates YOY, when in 2014 we saw the largest decline in the UI. These findings are consistent with our initial hypotheses that unemployment and crime move in the same general direction |

1. **Does this relationship vary by state, region, or is it consistent across the entire United States?**
   * In general, Crime and Unemployment move in the same direction though not proportionally which leads us to believe that though the two events may happen simultaneously, there is more than one factor that drive crime rates – this is especially evident as we break up our data at a more granular level (by state).
   * By state, we expected to see that states which stood out as having higher than average unemployment rates would also see high crime instances.
     + We found that not to be the case at the individual state level but rather on the aggregate (across the country).
     + In other words, on average, as unemployment rises, so does crime, however that is not consistent in state by state comparisons.

|  |
| --- |
| **Figure 3: Crime and Employment by State** |
| Some of the states with highest unemployment rates between 2009 and 2014 are Nevada, Michigan, California. Those states don’t particularly stand out as having the highest Crime Rates. |

1. **Did minimum wage increase, decrease, or remain the same across the time frame of our data set?**

Overall, between 2009 and 2017, average unemployment decreased significantly, through in some states, such as Puerto Rico, it remained noticeably higher than the national trend

|  |
| --- |
| **Figure 4: Unemployment Over Time** |
|  |

1. **Did changes in minimum wage impact employment and subsequently crime?**

It depends. States with historically high crime rates see bigger drops in crime as unemployment decreases compared to states with historically lower crime rates. This could indicate that there are other (potentially more impactful) factors on crime than unemployment. Within the 8 year time frame we studied, increases in minimum wage did not seem to have an adverse (negative) effect on unemployment. Unemployment dropped noticeably and consistently YOY while minimum wage rates remained the same and increased slightly.

|  |
| --- |
| **Figure 5: Crime and Minimum Wage by State (High Crime)** |
| States with historically high crime rates experience high drop in crime for small decreases in unemployment compared to states with more moderate and low levels of crime |

|  |
| --- |
| **Figure 6: Crime and Minimum Wage By State (medium and low crime)** |
| States with historically high crime rates experience high drop in crime for small decreases in unemployment compared to states with more moderate and low levels of crime |

|  |
| --- |
| **Figure 7: Crime and Minimum Wage By State (Very Low Crime States)** |
| States which have historically experienced very low crime rates, the impact of decreased unemployment in crime is minimal and almost unnoticed |

**Discussion:**

One of our initial hypotheses was that *because of increased unemployment, crime rates will also go up over time.* After analyzing our data, we determined that indeed crime rate and unemployment move in the same direction consistently where as unemployment decreases crime rates also decrease. However, we don’t have enough supporting evidence to establish causality. We would reframe the hypothesis to emphasize that though there is a positive relationship between the two, crime is not necessarily depended upon or determined by unemployment. In states with historically high crime rates, the effect of decreased unemployment on crime is much more noticeable than in states with lower crime. Minimum wage did not change drastically in the selected time period however, unemployment decreased drastically which had a positive impact on CPI. Our findings are heavily impacted by the recessions and post recession dynamics of the selected time-period.

**Post Mortem**

Our data was focused on the period between the height of the Great Recession and immediately after it. Some of our findings may be biased as a result of that. Several things will be interesting to explore further:

* Would our results remain consistent if we were to expand our time frame to include data **before**, during, and after a major recession?
* Do economic recessions and the unemployment generated as a result of them have a vastly different impact on crime compared to the unemployment during stable economic conditions?
* How do our findings compare to similar economic conditions that happened in the past? Specifically, if we were to explore crime and unemployment around the 30s and 40s (during the Great Depression), would our findings be similar to what we observed during and immediately after the great recession?