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Leave it to the States: Exploring Variation in State Minimum Wages from 2009-2021

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ABSTRACT

The variation in minimum wages at the state level and the factors that influence this variation have been studied by researchers for decades, yet there is little research on current period of stagnancy in the federal minimum wage. The last federal minimum wage increase occurred in 2009 and states have taken it upon themselves to raise their wages in accordance with their state's needs. This paper explores the political and economic factors that influence states to raise their minimum wages and determines what causes the variation in wages across states and over time. The economic factors include state inflation rates, cost of living, and unions as an economic factor. The political factors include unions as a political factor, party control, public opinion, and ballot access. I conduct three multiple regression analyses to compare the influence of political and economic factors across all 50 states between the years of 2009 to 2021. I discover that economic and political factors both impact state minimum wages, yet some factors are not significant depending on the time period in which they are studied, and some factors become more significant over time. State level economic and political factors become less important as state parties increasingly become more nationalized and promote party platforms. Economic factors prove to be mediated through political institutions; therefore, the combined effect of economic and political factors influences the variation in state minimum wages.

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Chapter 1

Introduction

In 2012, a group of fast-food workers in New York city demanded a \$15 minimum wage, giving birth to the “Fight for \$15” campaign. Along with workers in Seattle, they argued that the current minimum wage was not a “living wage” (Luce, 2021). The “Fight for \$15” movement spread across the United States, reaching workers in all different professions and job sectors. The movement gained the support of unions and led some states to increase their minimum wages beyond the current federal minimum wage of \$7.25. Some states raised their wages to account for costs of living, but these increases did not occur in all states. Some states, California and Maine, have raised their minimum wages as a means of assisting the public and deterring the “one-size-fits-all” standard of the federal minimum wage (DeSilver, 2021). Other states, such as Pennsylvania and Alabama, have decided to stick with the federal minimum. The “Fight for \$15” campaign has spread across the United States and determining the correct minimum wage is gradually becoming a national partisan battle. This raises the question of why states behave differently regarding the minimum wage.

I argue that states can set their own minimum wage above the federal level and each state’s behavior is based upon political and economic factors. The current federal minimum wage was implemented in 2009 through the Fair Minimum Wage Act of 2007. The federal minimum wage changes approximately every five to ten years to account for the ever-changing political environment and economy (“Changes in Basic Minimum Wages in Non-Farm Employment under State Law: Selected Years 1968 to 2020”, 2021). When economic downturns like recessions occur, the federal minimum wage changes more frequently. While there have been recent economic downturns, like the Covid Recession in 2020, the federal government has been

unresponsive in terms of increasing the minimum wage. There has not been an increase in the federal minimum wage in over sixteen years, creating the longest period in history of wage stagnancy. Originally, society put pressure on the federal government to raise the minimum wage. Eventually, society shifted their pressure to state governments to make these necessary changes. The federal minimum wage impacts American workers, and the stagnancy of federal minimum wage led wages to become prominent issue in American society.

There are disagreements across literature on whether economic or political factors have a stronger impact. In departure from existing work, I argue that changes in the political system and the nationalization of state parties have led economic and political factors to jointly influence minimum wage increases. The nationalization of state parties reveals that states with the same party control will enact similar legislation, causing party polarization across the country (Grumbach, 2022). The nationalization of state parties has become significant in the past decade, and I argue that there will be greater variation in wage legislation in more recent years.

Understanding the difference between political and economic factors is integral to this study. Political factors are related to parties and public attitudes, whereas economic factors are related to purchasing power and income. By analyzing the factors that cause the differences in minimum wage, we will be able to better understand each states' circumstances causing them to alter their minimum wage.

Minimum wage rates are a highly debated issue in American politics and the topic of raising the minimum wage has garnered much support from the American public. Over the past few years, more states have been gradually increasing their minimum wages to amounts above the federal level. Currently, there are 21 states where workers still earn the federal minimum wage of \$7.25 meaning more than half of the United States has recognized the need for higher

minimum wages (Draeger, 2021). Some states have scheduled yearly adjustments to raise their wages (Draeger, 2021). Furthermore, it is expected that 24 states will increase their minimum wages to assist the needs of their constituents in the next few years (Soergel & Clark, 2021). The federal government does not focus on appealing to the public by increasing the minimum wage, and states are more likely to listen to the needs of their constituents and create new laws. The public concern surrounding the issue of minimum wage has brought the topic to the forefront of American politics. The American public has learned to rely on their state governments and ballot initiatives for potential changes in their minimum wage legislation.

Minimum wages affect the working population in America and states are attempting to create livable minimum wages. The common factors that contribute to changes in the minimum wage are state inflation, median household income, the influence of unions, public opinion, ballot access, and state party control. The variation in states' minimum wages influences Americans across the United States and it is important to understand the economic and political factors that cause these disparities. My analysis illustrates that both economic and political factors influence a state's decision to increase their minimum wage and that economic factors are often mediated through political institutions.

Chapter 2

Literature Review

Under federal law, states have the authority to set their state minimum wages above the federal level of \$7.25. Existing work that examines states' decisions to set minimum wages above the federal level has established that both economic and political factors contribute to states altering their minimum wages. Economic factors that could influence state minimum wages include state inflation rates, median household income, and the presence of unions. Political factors that impact state minimum wages include party control, political attitudes towards minimum wage, and the influence of unions. However, what this body of work does not address is how the importance of these factors may have changed in what is certainly a different context, one that has been transformed by changed economies, decreases in unionization, and new political environments. To establish a foundation for further study, it is important to consider what we know and do not know about the variables relevant to states' decisions on the minimum wage.

Economic Factors

Inflation

State inflation rates put pressure on political institutions to increase state minimum wages in response to the higher consumer prices in the market. By considering that every state has different economic variables and inflation levels, a minimum wage that suits one state will not always suit another (Card, 1992). State governments evaluate inflation levels and enact laws to account for price changes in consumer goods when the federal government does not create a new federal minimum wage. Since the federal minimum wage does not account for inflation, states have boosted their wages to improve their economies. State inflation levels are not equal across

states therefore state minimum wages vary. Minimum wages impact purchasing power of consumers which is influenced by state inflation rates. Purchasing power is the ability for a consumer to purchase the same amount of goods at the same price from year to year. It is evident that inflation increases are accounted for in the price of goods, yet inflation is not always accounted for in the minimum wage. When federal minimum wages do not keep up with the pace of inflation, “cumulative inflation [can erode] the purchasing power of the minimum wage” (Card, 1992). Geographic dispersion demonstrates that state wage variation and the individual state wage floors cause a deviation from the federal minimum wage. State inflation is a strong economic factor and accounting for inflation led states to adopt new minimum wage legislation.

Cost of Living

Median household income is an influential factor in the adoption of minimum wage legislation. Some states with increased wages have created systems that adjust the minimum wage annually (DeSilver, 2021). These systems that adjust the minimum wage account for inflation or cost of living so consumers have the same purchasing power annually relative to the median household income. The cost of living and inflation often rise yearly causing Americans to need higher wages to support their same standard of living (DeSilver, 2021). The minimum wage theory incorporates the importance of median household income and explains the influence of the minimum wage on employment. Minimum wage theory explains that “an increase in the minimum [wage] can either increase or reduce the number of labor force participants and unemployment” meaning that a change in minimum wage directly impacts the number of people working (Brown, 1988 pp. 135).

People are more likely to work in states with higher wages because individuals have reservation wages higher than the minimum wage. The minimum wage theory suggests that the

minimum wage influences income distribution and states with higher minimum wages are expected to have higher median household incomes. Therefore, it is evident that states with higher median household incomes have higher minimum wages. Furthermore, other states are “raising their minimums on a multiyear schedule” meaning they will have scheduled increases each year or plan to increase to a certain minimum wage level (DeSilver, 2021). Workers desire to consume the same amount of goods each year and the minimum wage must be adjusted to maintain consumers’ purchasing power. Median household income influences a state’s decision to adjust their minimum wage to uphold the same standard of living. There is a weak relationship between minimum wage and income distribution meaning that wages do not correlate with the income distribution. Ford argues that cost of living does not have a strong impact on the variation in states’ minimum wages (Ford et al., 2012). DeSilver and Brown ascertain that median household income affects minimum wage variation because states with higher median household incomes will be more likely to adjust their minimum wages to accommodate for purchasing power and the cost of living.

Unions as an Economic Factor

Many studies demonstrate that collective bargaining impacts the minimum wage in a state. Typically, those who are paid the minimum wage have low bargaining power and rely on unions to negotiate wages. On average, states with a greater union presence tend to have higher state minimum wages compared to the national average (Banerjee et al., 2021). When comparing high-union-density states and low-union-density states, “average minimum wage in the high-union-density states is \$3.31 higher—or more than 40% higher—than in the low-union-density states” (Banerjee et al., 2021). Therefore, states that have high-union-densities set higher minimum wage floors. Since states with higher union densities have higher minimum wages, it is

expected that these states will have higher median household incomes compared to the states with lower union densities (Banerjee, 2021). The influence of unions on median household income and minimum wages shows that their presence raises wages at the household and individual levels.

As union presence in the United States has decreased over time, states are seeing smaller increases in minimum wages (Western & Rosenfeld, 2011). In some states, unionization is discouraged, meaning that people who would like to form a union are not working together to unionize. Western and Rosenfeld (2011) explain that states are seeing lower increases in minimum wages over the years because the unionization rates are decreasing. The decline of unions over the last decade demonstrates the growing importance of unions in the United States and how this decline has led to further wage stagnation.

Political Factors

Unions as a Political Factor

Unions influence minimum wage legislation in a state through the exercise of their political power and they can help prevent the increase in income inequality across the United States. The collective decision-making process impacts legislative decision making and unions are a powerful tool for collective bargaining efforts (Silberman & Durden, 1976). Regarding minimum wage legislation, unions, small business, and regional characteristics were the factors that have the greatest influence on legislatures passing minimum wage bills into law (Silberman & Durden, 1976). Analyzing which factors have the greatest influence on legislative decision-making demonstrates that collective groups with more resources turn out to have a larger impact. Unions encourage people to come together to fight for better working conditions including increased minimum wages.

Additionally, states have different preferences towards unions because the income levels, development levels, and political ideologies are varied across the states (Bucci, 2018). States that have a strong union presence tend to have more stability in their labor markets and do not experience declining union membership. In other states, there is an effort to reduce the presence of unions since union membership has a strong influence on income inequality (Bucci, 2018). The Power Resources theory emphasizes that states with left-oriented political groups and higher rates of union density will experience decreased levels in income inequality (Bucci, 2018). Democratic states with higher levels of union density will experience less inequality and often higher minimum wages. Unions have a strong voice in the discussion of wages and the strength of unions impacts a state's decision to adjust their minimum wages. Unions influence minimum wage legislation and income inequality by urging political figures to listen to worker voice on increasing minimum wages.

Party control

State party control can influence whether a state chooses to alter their minimum wage and states act similarly based on their party platform. The factors of "relative wealth, strength of the political left, and the ideological propensities of the public" help determine state party control (Waltman & Pittman, 2002 pp. 51). Typically, the party control of a state aligns with citizen values and party control can motivate a state's decision to alter the minimum wage. Welfare state theory and comparative state theory demonstrate that a state's minimum wage is formed from a combination of state's relative wealth, the control Democrats have over state government, and the ideologies of state's citizens (Waltman & Pittman, 2002). Welfare state theory and comparative state theory imply that the party control and the influence of Democrats in state government impacts a state's minimum wage legislation.

Researchers must consider the impact of political leanings when evaluating a state's decision to increase or adhere to the minimum wage because political parties do not respond the same way to minimum wage legislation. It is evident that "the political composition of a state's legislature appears to be a better indicator of the likelihood of the future minimum wage increases" compared to economic factors (Ford et al., 2012 pp. 66). Legislative composition determines which party has the majority and controls the legislature. Furthermore, parties usually stick to their party platform and enact legislation that aligns with the party's values and the values of the party's constituents in a particular state.

In the early 2000s, political parties were decentralized and localized. Over the past few decades, political parties have become more centralized and are transforming into partisan teams (Grumbach, 2022). These partisan teams allow for the nationalization of parties which refers to "political parties in which aligned groups, activists, candidates, and incumbents— in all offices at all levels of government—share similar policy agendas and see themselves engaged in broader political conflict with the other national party" (Grumbach, 2022). Previously, these parties were not as close-knit and party members did not share the exact same ideas. Over time, party members are gradually agreeing on the same agendas, creating distance between the average Democrat and the average Republican (Grumbach, 2022). These party agendas indicate that Democratic states are expected to act similarly and increase minimum wages, and Republican states are expected to act similarly and utilize the federal minimum wage. Party control determines whether states are likely to alter wages, explaining recent variation in minimum wages.

Public Opinion

Public opinion and individual political identities influence the variation in states' minimum wages. State minimum wage levels are determined by how people align politically, and political identity influences public attitudes. State governments should listen to their citizens regarding minimum wage levels to find a minimum wage that supports the constituents' opinion. If constituents of a state desire new minimum wage laws, there must be public discussion and debate to get the attention of law makers. Lawmakers will often agree with the views of their party and will enact laws in accordance with their party platform.

Studies demonstrate that “the politics in the choice of methodological models can lead to different ideological positions” (Levin-Waldman, 1998 pp.775). Other studies explore the politics of minimum wage and the relevance of political ideology and federalism as it pertains to state minimum wages. While there is public support for the minimum wage to rise, Congress is not listening to the desires of the American public and leaves the decision to the individual states. Regarding minimum wage increases, federalism is key because states create their own legislation when the federal government is not acting. Previous studies analyze the method of state minimum wage increase and whether the method was a ballot initiative or occurred through the state legislatures (Flavin & Shufeldt, 2017). States are using ballot initiatives which are causing a widening in variation. It is predicted that this growth of variation will continue over the next few years until a new federal minimum is passed (Flavin & Shufeldt, 2017). Political behavior and state party control affect the variation in minimum wages and minimum wages differ based on states and constituents' ideologies.

Voting trends strengthen the argument that minimum wage is a political issue, and it is expected there will be more political interest regarding minimum wage in the next few years.

There are broad implications of minimum wages, and the minimum wage is not an issue that solely affects people living in poverty; it is an issue that impacts the entire labor market (Levin-Waldman, 1998). In many states, the minimum wage does not reflect the ideological propensities of the public. Policies regarding the minimum wage are often responsive to the mass public preferences yet not responsive enough (Simonovitz et al., 2018). While there are successful ballot initiatives that have taken place locally and at the state level, some of these initiatives may have greater appeal to the mass public. Studies that argue in favor of public attitudes aim to measure the relationship between state liberalism of public opinion and policy outcomes. In the case of minimum wages, studies demonstrate the strength of policy bias meaning that state minimum wages are not always responsive to the desires of voters (Simonovitz et al., 2018). The research surrounding public attitudes towards the minimum wage displays a positive correlation between liberalism of public opinion in a state and policy outcomes.

Ballot Access

State minimum wages are often raised through state legislatures, yet some states offer ballot initiatives to pass legislation. Having access to ballot initiatives allows for a direct form of democracy where citizens can express their opinions on policies through the direct initiative, the indirect initiative, the popular referendum, and the legislative referendum (Gray et al., 2018). Some states allow for ballot initiatives enabling citizens and interest groups to create policy proposals. Several states have utilized ballot initiatives to pass new minimum wage legislation. Studies indicate that minimum wage policies in states that have access to ballot initiatives are more representative compared to the policies in states without ballot initiative access (Simonovitz et al., 2018). Furthermore, it is evident that ballot initiatives regarding minimum wages have been more successful at the local level compared to the state level demonstrating that

preferences may be more distinct at the local level (Simonovitz et. al., 2018). Ballot access determines whether citizens can propose their own policies and “the initiative grants the power to make policy directly to the citizens” (Gray et al., 2018, pp. 136). Research indicates that access to ballot initiatives in a state is typically associated with increases in the minimum wage and higher levels of policy responsiveness.

The federal wage floor has remained stagnant for the longest period in the history of the minimum wage, causing states to enact their state right to raise it. Federalism has led states to increase their minimum wages based on the political and economic factors within their state. The main economic factors that influence minimum wage include state inflation, median household income, and the presence of unions. Minimum wage can be impacted by political factors such as the influence of unions, party control, ballot access, and public attitudes toward the minimum wage. A combination of economic and political factors can impact whether a state decides to raise their minimum wage floor above the federal level. While economic and political factors both influence state minimum wage law, this body of literature explains that some factors may have greater influence compared to others. In my research, I plan to analyze the influence of economic and political factors on minimum wages and explain how economic factors can be mediated through political factors.

Chapter 3

Theory

State minimum wage legislation is determined by state legislatures that consider their state's economic and political environments. The state minimum wage is the wage floor set by each individual state. Each state can adjust its minimum wage to create a wage that best suits their state as opposed to adhering to the federal minimum. The federal minimum wage law sets the wage floor to ensure that states cannot set their state minimum wages below the federal level for specific job sectors. The federal minimum wage has not been increased since 2009, leaving it up to the states to pass minimum wage laws. Since 2009, states have become more nationalized. Recently, Republican states have started enacting similar legislation and Democratic states started enacting similar legislation (Grumbach, 2022). This nationalization of states can explain why certain states are implementing similar minimum wage legislation. As outlined in the literature, unions, state party control, public opinion, state inflation, ballot access, and cost of living all impact a state's minimum wage. The different economic and political environments of states explain the variance in minimum wages across the United States and the nationalization of state parties explains why certain states behave alike.

States with minimum wages that adhere to the federal minimum are viewed as more restrictive states that may be less responsive to constituents (Simonovitz et al., 2018). Additionally, these states may have lower costs of living and the federal minimum wage could be efficient depending on the labor market. States with wages above the federal minimum are considered liberal states that are more responsive to constituents (Simonovitz et al., 2018). These states may have higher costs of living and the federal minimum wage would be inefficient for workers in the state. Determining efficient minimum wages that requires states to consider their

current economic environment and public attitudes towards minimum wages. Once there is a proposition for a new minimum, the state's economic factors (including the cost of living and inflation) are mediated through political institutions. Therefore, new state minimum wage legislation is often responsive to current economic and political environments. It is important to recognize the influence of both economic and political environments because their combined effect impacts the minimum wage level of a state. While it has been argued that either economic factors or political factors have greater influence over the minimum wage, I argue the economic factors and political factors have an equivalent effect on minimum wages and that both sets of factors are influential. The changing political and economic environments impact a state's decision to change the minimum wage.

Hypotheses

Economic Factors

The economic environment of a state is a key determinant of a state's minimum wage and successful economic environments are associated with higher state minimum wages. The most important economic factors that contribute to state minimum wage legislation are average cost of living, state inflation, and union presence. States' economic environments can motivate politicians to enact new minimum wage legislation demonstrating that economic factors are mediated through political institutions.

State inflation rates demonstrate the rise in prices for consumers and a decrease in purchasing power of goods. The inflation rate for each state differs based on the economic conditions of the state and the consumer market for goods. Some goods are more costly than others depending on where they are being purchased. People have more purchasing power in states that have lower rates of inflation and people have less purchasing power in states with

higher rates of inflation. In the past, the federal government raised the federal minimum wage to account for national inflation. There has not been a federal increase in the minimum wage since the Fair Labor Standards Act was fully implemented in 2009 therefore the federal government has not been keeping up with inflation. States have taken it upon themselves to account for inflation. State inflation rates allow the individual states to analyze increases in the prices for consumer goods and adjust their minimum wages accordingly. Since higher inflation creates increased prices for goods, I expect that states with higher rates of inflation will raise their minimum wages to account for the higher prices for goods.

Median household income correlates with the cost of living in a state and is used to determine what an effective household income would be for the standard of living. The standard of living demonstrates to what extent a person's income can afford comfortable living and necessary goods. There are findings that demonstrate that states with a higher cost of living also have higher minimum wages (Brown, 1998). These findings suggest that states will increase their minimum wages to maintain the same standard of living for their constituents by using the median household income as a basis for their increases. It could be the case that higher minimum wages lead to higher median household incomes. I expect to observe the relationship that states increase wages to correspond with the standard of living.

H1: States with higher rates of inflation will have higher minimum wages.

H2: States with higher costs of living will have higher minimum wages.

Unions

The presence of unions is important to consider when explaining minimum wage variation. Some states have stronger union presence compared to others and unions are a voice for worker representation in the workplace. Unions demonstrate the importance of worker

opinion on workplace issues and wages are an issue that unions try to discuss with management. In recent years, the unionization rate in the United States had been decreasing and union presence in the workplace is low. The decreasing presence of unions could be the reason there is stagnation with the federal minimum wage. There may not be enough worker representation on the national level to push for a federal increase, yet in some states there is enough worker voice to push for a state level increase. A stronger union presence in a state lead to greater stability in the labor market and less declining union membership (Bucci, 2018). Union presence will be linked to minimum wages, and I argue that strong union presence will be associated with higher minimum wages.

H3: States with strong union presence will have higher minimum wages

Political Factors

The composition of a state's legislature is influential in explaining the variation in minimum wages across the United States. The legislatures make the laws and policies within a state and the political leanings of the state legislatures determine whether the state is likely to pass new minimum wage legislation. It is evident that states with democratic legislatures are more likely to support minimum wage increases. The Democratic party platform supports higher minimum wages because it helps workers and enables them to have more purchasing power. On the other hand, states with Republican legislatures are less likely to support minimum wage increases. Higher minimum wages place the burden on businesses and the businesses will have higher labor costs. Higher labor costs can lead to worker layoffs and increased prices of goods because businesses must compensate for production costs. Republican legislatures prefer to adhere to the federal minimum and not pass new minimum wage legislation. Democratic states will be more likely to have increased minimum wages. I argue that party control has a key

influence on the minimum wage and the two parties have different approaches to minimum wage legislation. States will pass minimum wage legislation based on the party control of their legislature (Flavin & Shufeldt, 2017).

Public opinion is essential to understand when studying minimum wages and public opinion demonstrates how favorable an issue is with constituents. The public tends to favor increased minimum wages because increased wages benefit many workers. While public officials are not always responsive to public opinion, some officials desire to be responsive to win over the public for elections. I argue that states with low public support for governmental programs will have lower minimum wages and states with high public support for governmental programs will have higher minimum wages. Furthermore, states that are more favorable towards increasing the minimum wage will inherently increase the minimum wage.

Because public opinion tends to be favorable toward minimum wages, it is expected that referendums and initiatives are influential. Ballot access allows the public to vote on issues directly without having to pass the initiative through the legislature. After receiving a certain number of signatures and meeting specific requirements, the initiative to raise the minimum wage can be put on the ballot. Since higher minimum wages are favorable amongst the public, I will expect to see states with ballot initiatives or referendums to have higher minimum wages.

H4: States with Democratic control will have higher minimum wages than states that are Republican controlled.

H5: States with higher levels of public opinion will have higher minimum wages.

H6: States with a referendum or ballot initiative will have higher minimum wages.

Minimum Wages Over Time

Over time, there has been a nationalization of state parties and a clear divide in the two-party system. The two parties have formed strong party platforms and specific stances on issues are associated with different party platforms. Since federal institutions are becoming increasingly decentralized, national political issues are being decided by state level institutions (Grumbach, 2022). States are enacting similar legislation based on their party control. Democratic states have become more alike and Republican states have become more alike. This dynamic where states are becoming more polarized is creating more definitive policy agendas based upon party control. States are forming into partisan teams because states are getting more authority on decisions that have previously been made at the federal level (Grumbach, 2022). I argue that Republican states will act similarly and adhere to the federal minimum wage. Furthermore, Democratic states will act similarly and over time more Democratic states will increase their minimum wages. The national level analysis of state minimum wage variation will allow for comparisons over time.

H7: Over time, states are more likely to enact similar wage legislation as states with the same party control.

In my analysis, I expect that the economic factors of cost of living and state inflation rates will have the same impact on minimum wages as the political factors of public opinion, ballot access, and party control. Furthermore, I anticipate that unions as a political and economic factor will have a similar influence on state minimum wages. It may be the case that some of the linkages I have outlined in my hypotheses might not be true for every state. Some states may not be responsive to cost of living, inflation rates, public opinion, unions, ballot access or party control. I argue that certain states may not alter their minimum wage if the states are not

responsive to economic and political factors. While certain states may not be responsive, I argue that these hypotheses will apply to most of the states, and I expect to see these linkages across the economic and political factors. Furthermore, certain factors may not have as great of an influence on minimum wages depending on the time period in which they are analyzed. The influence of political and economic factors may differ across time.

Chapter 4

Analytic Approach

I will use a time series cross-sectional analysis approach to analyze the impacts of economic and political factors on state minimum wages across all fifty states over the years from 2009 to 2021. The unit of analysis in my study is the individual state and year. By incorporating this method of analysis, I will determine whether economic factors or political factors have greater influence on the variation in minimum wages. This method allows for a quantitative analysis of all fifty states, which is integral to the study to demonstrate a nationwide perspective on the factors that will have the greatest impact on a state's decision to change their minimum wage. I will incorporate a multivariate regression to test the significance of the independent variables of state inflation rate, state cost of living, the extent of union participation, party control of state government, whether the state allows for ballot initiatives, and state level public opinion about government programs on the dependent variable of minimum wage. I will include an interaction term between public opinion and ballot initiatives to determine if the public uses ballot initiatives to increase the minimum wage.

Furthermore, this approach will allow me to study the over time effects of increasing minimum wages and examine how minimum wages vary across states and time. From 2014 to 2015, eleven states adopt new minimum wage legislation. Consequently, the data are split into two time periods -- 2009 to 2014 and 2015 to 2021. Therefore, I chose to split the data based on this observation. I will be conducting two multivariate regressions to analyze the influence of economic and political variables on minimum wages in both periods. By analyzing both periods, it will allow me to test which variables become more significant over time and which variables

have developed stronger correlations. These quantitative analyses will enable me to determine the factors that have the most impact on a state's decision to increase their minimum wage.

Operationalization of Concepts

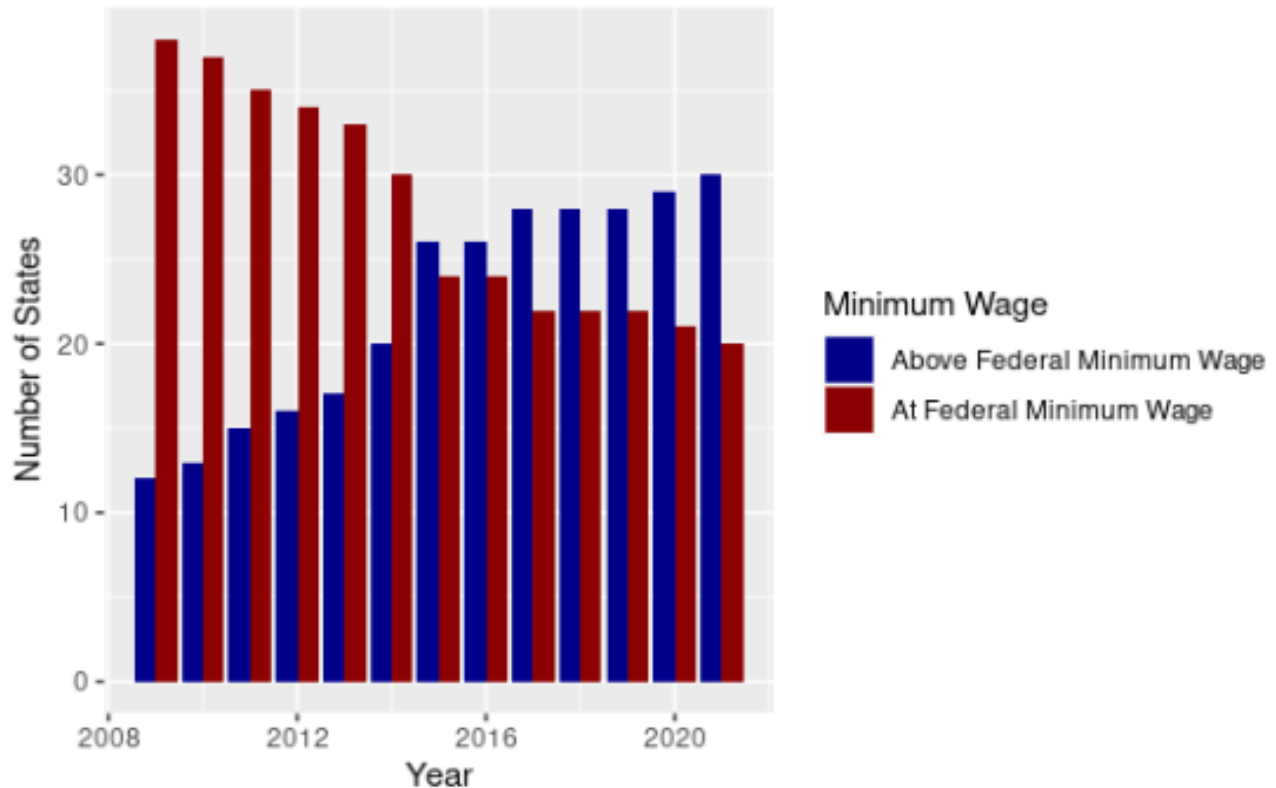
Dependent variable: Minimum Wage

The dependent variable of the study is the state minimum wage. The individual state minimum wage reflects an individual state's economy and political environment. The minimum wage is operationalized as a measure of the absolute dollar amount. The data for my dependent variable is retrieved from the United States Department of Labor publication, "Changes in Basic Minimum Wages in Non-Farm Employment under State Law: Selected Years 1968 to 2022" ("Changes in Basic Minimum Wages in Non-Farm Employment under State Law: Selected Years 1968 to 2020"). This document includes all state minimum wages from 1968 to 2022. The federal minimum wage floor is \$7.25, yet some states have lower minimums based on the occupation, job sector, and business size. State minimum wages range from \$2.00 to \$13.69 during the years 2009 to 2021 (Table 1).

In 2009, only twelve states had minimum wages above the federal minimum wage (Figure 1). By the year 2021, there were thirty states with minimum wages above the federal level (Figure 1). During this period of stagnation in the federal minimum wage, most states are raising their minimum wages. There is an upward trend of states increasing their minimum wages over time demonstrating that there is a corresponding increase in average wages over time. As the number of states with minimum wages above the federal level increases, the number of states with minimum wages at the federal level decreases. From 2009 to 2013, the average minimum wage increased across all states. After 2013, there were large increases in the average minimum wage across all states. The largest increase in average wages occurred between the

years of 2018 and 2019. State minimum wages vary across states and time, and it is evident that many states are increasing their minimum wages creating wide variation.

Figure 1: Bar Graph of the Number of States with Minimum Wages at or Above the Federal Minimum



This figure displays the absolute number of states with minimum wages at the federal minimum and above the federal minimum from 2009 to 2021. Blue bars indicate a state with a minimum wage above the federal level. Red bars indicate a state with a minimum at the federal level.

Independent Variable: Cost of Living

The cost of living is the first independent variable I plan to test in this study. The cost of living is operationalized as state median household income in dollars. I will be collecting these data from the Federal Reserve Economic Data (FRED) report on “Real Median Household Income by State, Annual” (“Release Tables: Real Median Household Income by State, Annual,”

2023). These data are organized yearly by state and the cost of living prices across the United States range from \$37,673.00 to \$101,283.00 (Table 1). The mean cost of living is \$65,965.11 with a standard deviation of \$11,203.61 (Table 1). Using these data, I plan to test the correlation between the median household income and minimum wages. I expect state minimum wages will increase as median household income increases, therefore, the higher the median household income the higher the state minimum wage.

Independent Variable: State Inflation Rate

Another independent variable I am operationalizing is the state inflation rate. This value is calculated using the yearly regional CPIs (Consumer Price Indexes) across the United States. The CPI measures the average market price of a basket of goods purchased by consumers during a specific period. Ideally, I would be incorporating state CPIs into this study, yet this information is not readily available. Using regional CPI data as opposed to state CPI data may be a limitation to my study, but the regional CPI data will still provide geographical context to the variation in minimum wages. I have collected regional CPI data from the Bureau of Labor Statistics from the Consumer Price Index Regional Resources from 2009 to 2021 (“Regional Resources,” 2022). The CPI ranges from -0.60% to 5.10% during my selected time (Table 1). The average inflation rate is 1.79% and the standard deviation is 1.28% (Table 1). This annual, regional CPI data will demonstrate how changes in the market price of a basket of consumer goods impact how states determine their minimum wage legislation. I expect that as the CPI to see a positive correlation between minimum wage and CPI.

Independent Variable: Union Participation

The variable of union participation is created to demonstrate the relationship between the percentage of workers who are actively involved in a union and a state’s decision to increase

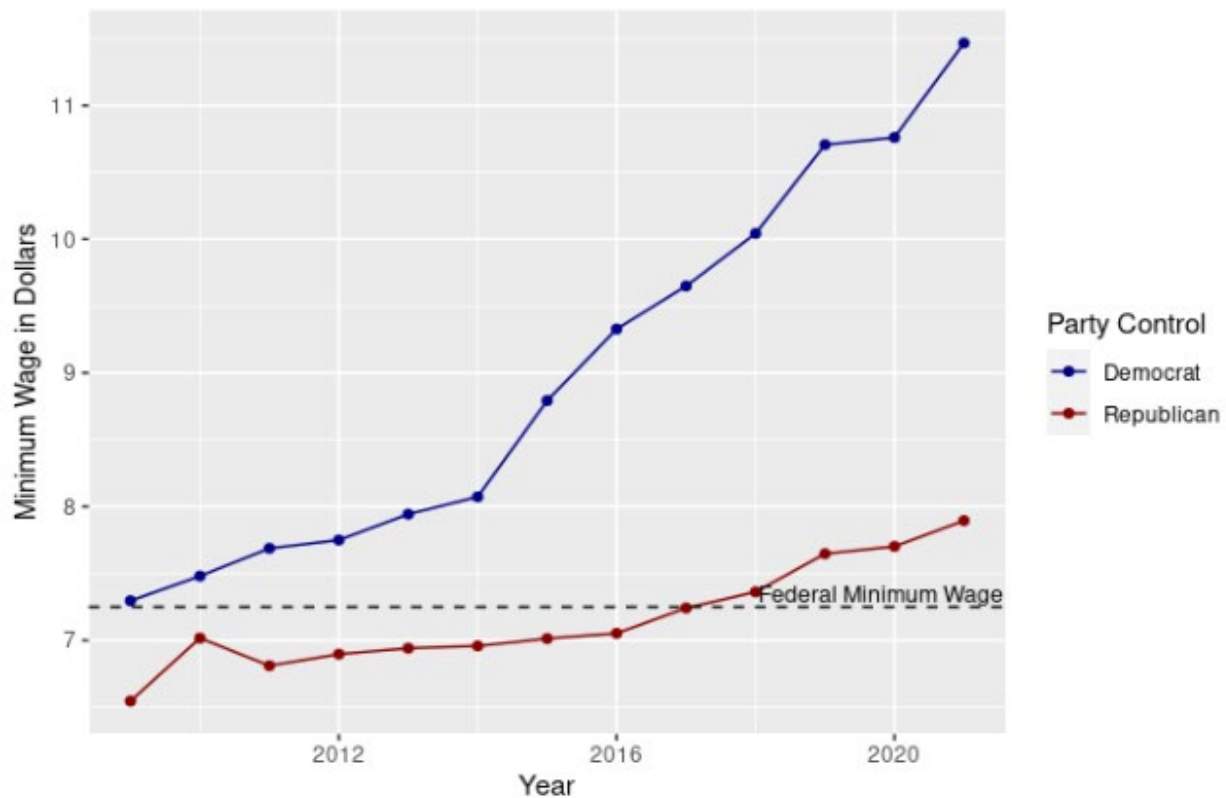
their minimum wage. The union participation data are derived from the Union Membership and Coverage Database using the "State: Union Membership, Coverage, Density, and Employment by State and Sector, 1983-2021" information (Hirsch & Macpherson, 2022). These data are commonly referenced in labor union research and the data are utilized by the Industrial Labor Organization (ILO). This dataset provides the most comprehensive estimates on union membership, coverage, and density (Hirsch & Macpherson, 2022). These data are collected yearly by the state through the Current Population Survey (CPS) and union participation varies across states. The variable is measured as a percentage, and it is calculated by dividing the number of workers in a union by the number of workers employed and multiplying it by 100. Union participation rates range from 1.60% to 25.20% (Table 1). The average union participation rate in a state is 10.29% with a standard deviation of 5.21% (Table 1). The variable of union participation will demonstrate how state union participation rates influence a state's decision to enact minimum wage legislation.

Independent Variable: State Party Control

The data for state party control is derived from the National Conference for State Legislatures State Partisan Composition. These data have been collected for each year from 2009 to 2021 demonstrating which party controls the state government each year (Mahony & Williams, 2021). In this analysis, state party control is defined as which state has the dominant control of the state in terms of the legislature control and governor party control. I have coded the variable as -1 for Democrat, 0 for split or divided, and 1 for Republican. By coding this variable in terms of the dominant party control, I will examine which states are Republican, split, or Democratic states and which party is more likely to pass minimum wage legislation. This measure of state party control is the most basic measure that allows for an analysis of party

influence on minimum wage variation. This variable will demonstrate the impact of party control on the passage of state minimum wage legislation.

Figure 2: Line Graph of Average Minimum Wages Over Time



This figure demonstrates the average minimum wages across Democratic and Republican states from 2009 to 2021. The dotted black line indicates the federal minimum wage at \$7.25. The blue line displays the average minimum wages for Democratic states and the red line displays minimum wages for Republican states. Some states have minimum wages below the federal minimum due to industry specific state minimum wage laws.

Independent Variable: Public Opinion

The next independent variable I will include in this study is public opinion. I am measuring public opinion using state policy mood which measures the public's support of governmental programs. There is not a readily available current measure of public opinion on state minimum wages, therefore state policy mood is the next best measure to demonstrate the

impact of public opinion on minimum wages. The variable of public opinion measures the state policy mood weighted by population size based on individual level surveys from the Roper Center for Public Opinion Research. This measure of state policy mood was developed by Lagodny, Jones, Koch, and Enns and estimates the mood of the mass public on a scale from 0 to 1 (Lagodny et al., 2022). The data on public opinion from 2009 to 2021 ranges from 0.33 to 0.65 with an average public opinion of 0.48 and a standard deviation of 0.08 (Table 1). This measure indicates that 0 is associated with low public support for governmental programs and 1 is associated with high public support for governmental programs. These data do not include information on public opinion for 2021, so the same data are used for 2020 and 2021. This is a limitation to my analysis, yet it still will represent the correlation between public opinion and minimum wages. I expect greater approval of government programs to be correlated with higher minimum wages.

Independent Variable: Ballot Access

The last variable I will be studying is ballot access in each state. I will be using a measure of ballot access that I created utilizing information on whether states have popular referendum or citizen referendum or no referendum. I gathered this information from the National Conference of State Legislatures (NCSL) chart of the initiative states (“Report Initiative and Referendum Processes,” 2023). States that have either a popular referendum or a citizen referendum are coded as 1. States that do not have a referendum are coded as 0. This measure of ballot access encompasses all types of ballot initiatives or ways to pass legislation utilizing public support. This is the simplest measure of demonstrating whether a state allows their citizens to create new legislation. New state minimum wage laws can be passed through ballot initiatives; therefore, it is important to recognize whether a state having ballot access is correlated with higher minimum

wages. Furthermore, there will be an interaction term to measure the impact of public opinion and a state having ballot access on minimum wages. It is expected that increased levels of public opinion and a state having ballot access leads to higher minimum wages.

Below, I have created a table of descriptive statistics for the discrete variables referenced throughout the analysis. The range, mean, and standard deviation for the minimum wage, median household income, state inflation rate, total union participation rate, and public opinion on government programs are included in Table 1.

Table 1: Univariate Statistics

	Mean	SD	Minimum	Maximum
Minimum Wage	\$7.80	\$1.76	\$2.00	\$13.69
Cost of Living	\$65,965.11	\$11,203.61	\$37,673.00	\$101,283.00
Inflation Rate (%)	1.79	1.28	-0.60	5.10
Union Participation Rate (%)	10.29	5.21	1.60	25.20
Public Opinion	0.48	0.08	0.33	0.65

Chapter 5

Results

In my multiple regression analyses, I am evaluating the regression results from the initial multiple regression including economic and political variables during 2009 to 2021. This initial regression in Table 2 demonstrates the significance of the economic and political variables over the entire period. The next regression model in Table 3 is another multiple regression, yet this model includes the two separate time periods of 2009 to 2014 and 2015 to 2021. The Table 3 model allows for the comparison across time, which is integral to my analysis. Using this model, I will discover which variables are significant and the strength of the correlation. Additionally, the model will reveal any differences in the relationships between my independent variables and the minimum wage across the two periods. Moreover, I will determine the significance and direction of correlation for the independent variables and state whether it is consistent with my hypotheses.

Table 2: Regression Model of Minimum Wage with Economic and Political Variables from 2009 to 2021

Table 2: Regression Model of Minimum Wage with Economic and Political Variables

Dependent variable:	
Minimum Wage in Dollars	
Inflation Rate	0.060 (0.055)
Median Household Income	0.00002*** (0.00001)
Democratic Party Control	0.496*** (0.181)
Split Party Control	-0.141 (0.143)
Percentage of Total Union Members	0.073*** (0.013)
Public Opinion	7.615*** (1.163)
Ballot Access	1.752*** (0.674)
Public Opinion and Ballot Access	0.067 (0.139)
Year	0.017 (0.028)
Year 2	-0.001 (0.002)
Year 3	-3.728*** (1.385)
Constant	0.891 (0.591)
Observations	650
R2	0.474
Adjusted R2	0.465
Residual Std. Error	1.285 (df = 638)
F Statistic	52.164*** (df = 11; 638)

Note: *p<0.1; **p<0.05; ***p<0.01

This regression demonstrates the correlation between the economic and political independent variables and the dependent variable of state minimum wage from 2009 to 2021. This regression uses a cubic polynomial of time to capture temporal dependence.

H1: States with higher rates of inflation will have higher minimum wages.

As predicted, there is a positive correlation between inflation and minimum wages, yet the coefficient is not significant. Since the coefficient is not statistically significant there is insufficient evidence that we can reject the possibility of no effect (Table 2). This hypothesis is incorrect for the time period of 2009 to 2021 demonstrating that states with high inflation rates will not always have higher wages.

H2: States with higher costs of living will have higher minimum wages.

The regression coefficient is 0.00002 indicating a slight positive relationship as predicted in my hypothesis (Table 2). While this correlation is positive, it is very tiny. There is a correlation between cost of living and minimum wages and this variable is statistically significant at the 1% level. An increase of \$10,000 in median household incomes is correlated with a \$0.20 increase in the minimum wage. This significant relationship is consistent with my hypothesis. The relationship displays that states with higher costs of living are correlated with higher minimum wages.

H3: States with strong union presence will have higher minimum wages.

As expected, the regression coefficient on total union membership is positive and significant (Table 2). The regression demonstrates that there is a relationship between the percentage of total union members and minimum wages that is significant at the 1% level. The significance level indicates that there is a strong correlation between the variables. The regression coefficient is 0.073 meaning there is a slight positive correlation (Table 2). For every 10% of total union members, there is a \$0.73 increase in minimum wages. Therefore, higher percentages of total union membership are associated with states having higher minimum wages which is consistent with my hypothesis.

H4: States with Democratic control will have higher minimum wages than states that are Republican controlled.

Recall that the variable Democratic party control is a dichotomous variable that equals 1 if the state is Democrat controlled and 0 otherwise. Split is a dichotomous variable that equals 1 if the state has split control and 0 if otherwise. The omitted baseline category is Republican control meaning that the coefficient on Democratic party control displays the effect of being a Democrat-controlled state as opposed to a Republican-controlled state. As predicted, the coefficient on Democratic party control is positive and statistically significant. This demonstrates that the minimum wage is \$0.496 greater in Democratic-controlled states as compared to Republican-controlled states, which is substantively meaningful (Table 2). The relationship between states having Democratic party control is significant at the 1% level which displays a strong relationship between Democratic states and minimum wages. This significant, positive relationship is consistent with my hypothesis. The average minimum wage across the United States during this selected time period is \$7.80. Therefore, a \$0.496 increase in the average minimum wage equates to a 6.36% increase in the average minimum wage.

As mentioned above, the variable split control is a dichotomous variable and exemplifies the difference between states with split and Republican party control. The regression demonstrates there is not a significant relationship between split control and the minimum wage (Table 2).

H5: States with higher levels of public opinion will have higher minimum wages.

As predicted, the regression coefficient on public opinion is positive and statistically significant. The correlation between public opinion and minimum wages is significant at the 1% level. The regression coefficient is 7.615 demonstrating a strong, positive correlation (Table 2).

The regression coefficient of 7.615 is the effect of a one-unit increase in public opinion in states that do not have ballot access. The effect of public opinion in states that have ballot access is 7.682, which is the regression coefficient plus the interaction term's regression coefficient. For every 0.1 unit increase in public opinion in states that do not have ballot access, there is a corresponding \$0.7615 increase in the minimum wage. For every 0.1 unit increase in public opinion in states that have ballot access, there is a \$0.7682 increase in the minimum wage. This significant, positive relationship is consistent with my hypothesis that higher levels of public opinion are correlated with high minimum wages. Note that there cannot be a one-unit increase in public opinion because the variable is scaled from 0 to 1.

H6: States with a referendum will have higher minimum wages.

The variable representing states with referenda is ballot access which is positive and significant as predicted through my hypothesis. Ballot access is significant at the 1% level and has a regression coefficient of 1.752 (Table 2). The effect of a state having ballot access when public opinion is 0 is 1.752 (Table 2). The effect of a state having ballot access when public opinion is 1 is 1.819. Since there is a significant, positive relationship between minimum wages and ballot access, the results align with my hypothesis.

The interaction term with public opinion and ballot access demonstrates that there is no significant difference between the effect of public opinion across states that have ballot access and states that do not have ballot access. Furthermore, there is no significant difference between having ballot access when public opinion is 0 and when public opinion is 1. Since the interaction term between ballot access and public opinion did not prove to be significant in Table 2, I chose to not include the variable in the next regression model. In the next regression model, there is no cubic polynomial of time to capture temporal dependence. Given that the time period is shorter,

it is not appropriate to implement the cubic polynomial of time to demonstrate the relationship between the variables.

Table 3: Regression Model of Minimum Wage with Economic and Political Variables from 2009 to 2014 and 2015 to 2021

Table 3: Regression Model of Minimum Wage with Economic and Political Variables from 2009-2014 and 2015-2021

	Dependent variable:	
	Minimum Wage in Dollars	
	(2009-2014)	(2015-2021)
Inflation Rate	0.135** (0.058)	0.180*** (0.065)
Median Household Income	0.00001* (0.00001)	0.00004*** (0.00001)
Democratic Party Control	0.296 (0.207)	0.707** (0.281)
Split Party Control	-0.320* (0.164)	-0.342 (0.210)
Percentage of Total Union Members	0.041*** (0.014)	0.087*** (0.020)
Public Opinion	2.272** (1.002)	8.393*** (1.176)
Ballot Access	0.260** (0.125)	-0.329** (0.152)
Constant	4.503*** (0.574)	0.885 (0.696)
Observations	300	350
R2	0.200	0.526
Adjusted R2	0.180	0.516
Residual Std. Error	1.034 (df = 292)	1.407 (df = 342)
F Statistic	10.398*** (df = 7; 292)	54.126*** (df = 7; 342)

Note: *p<0.1; **p<0.05; ***p<0.01

This regression demonstrates the correlation between economic and political variables and the minimum wage from 2009 to 2014 and 2015 to 2021.

H1: States with higher rates of inflation will have higher minimum wages.

In the 2009 to 2014 regression, the inflation rate is significant and positive as predicted in my hypothesis. This variable is significant at the 5% level with a regression coefficient of 0.135 (Table 3). The relationship indicates that there is a strong correlation between the inflation rate and minimum wage. For every one unit increase in the state inflation rate, there is a corresponding \$0.135 increase in the minimum wage. This is consistent with my hypothesis that states with high inflation rates will be correlated with higher minimum wages.

The 2015 to 2021 regression shows that inflation has a significant positive relationship with minimum wages as expected. The relationship between state minimum wages and state inflation rates is significant at the 1% level demonstrating a strong correlation between the variables. The regression coefficient for the inflation rate is 0.180 meaning for every one unit increase in the inflation rate, there is a \$0.180 increase in minimum wages (Table 3). This observation aligns with my hypothesis that higher inflation rates are associated with higher minimum wages. There is a stronger relationship between inflation rates and minimum wages in this regression compared to the earlier time period based on the direction of the regression coefficient increasing from 0.135 to 0.180. Note that the inflation rate was not significant in the initial regression meaning that the cubic polynomial capturing temporal dependence could impact the initial regression.

H2: States with higher costs of living will have higher minimum wages.

In the first regression, median household income and minimum wages have a significant relationship at the 10% level. There is a weak correlation between these variables and the regression coefficient is 0.00001 demonstrating a slightly positive relationship (Table 3). This significant, positive relationship is consistent with my hypothesis that higher costs of living will

be correlated with increased minimum wages. Each \$10,000 increase in the cost of living corresponds with a \$0.10 increase in state minimum wages demonstrating substantive significance.

The second regression also has a significant relationship between cost of living and minimum wages, yet this relationship is significant at the 1% level. Since this relationship is significant at the 1% level, there is a stronger relationship between median household income and minimum wages during 2015 to 2021. The second regression aligns with my hypothesis because there is a significant, positive relationship between the two variables. Additionally, for every \$10,000 increase in cost of living, there is a corresponding \$0.40 increase in the minimum wage (Table 3).

H3: States with strong union presence will have higher minimum wages.

As predicted, the correlation between union participation and minimum wages is significant and positive during 2009 to 2014. This correlation is remarkably similar to the initial regression correlation. In this relationship, the regression coefficient is 0.041 and is significant at the 1% level. This indicated that every 10% increase in total union members is associated with a \$0.41 increase in the minimum wage (Table 3). This correlation is weaker compared to the initial regression where the regression coefficient was 0.073. This positive, significant relationship between union participation and minimum wages aligns with my hypothesis.

The percentage of total union members and minimum wages have a significant relationship during 2015 to 2021. The regression coefficient is 0.087 and is significant at the 1% level (Table 3). There is sufficient evidence to conclude that the relationship between the variables does not rely on chance alone. Therefore, every 10% increase union participation is correlated with a \$0.87 minimum wage increase. The relationship between these variables

confirms my hypothesis that high levels of union presence in a state is associated with higher minimum wages. There is a stronger relationship between the variables during 2015 to 2021 compared to 2009 to 2014 since the relationship is more positive (meaning the regression coefficient increases from 0.041 to 0.087).

H4: States with Democratic control will have higher minimum wages.

Democratic party control is not significant in the 2009 to 2014 regression meaning that the regression coefficient is not significantly different from zero (Table 3). Furthermore, the relationship between Democratic party control and minimum wages completely relies on chance. This observation is not consistent with my hypothesis. While Democratic party control is no longer significant, it is interesting that split party control becomes significant compared to the initial regression. Split party control is significant at the 10% level and negative, indicating a weak negative relationship between split control and minimum wages during 2009 to 2014. Even though I do not have a hypothesis regarding split control, the difference in regressions is interesting to note. This significant, positive relationship is consistent with my hypothesis. The average minimum wage is \$7.80. Therefore, a \$0.32 decrease in the average minimum wage equates to a 4.10% decrease in the average minimum wage.

The second regression shows that the variable of Democratic party control becomes significant from 2015 to 2021. Democratic party control is significant at the 5% level and has a positive relationship between states with minimum wages. The regression coefficient on Democratic party control is 0.707 demonstrating a positive relationship between the variables. The average minimum wage is \$7.80 across the United States. Therefore, a \$0.707 increase in the average minimum wage equates to a 9.06% increase in the average minimum wage (Table 3). The relationship between these variables is consistent with hypothesis demonstrating that states

with Democratic control will have increased minimum wages. Split party control is insignificant in this regression displaying that there is insufficient evidence that the regression coefficient is statistically different from zero (Table 3). Therefore, the relationship between split control and minimum wages relies completely on chance alone.

The insignificance of Democratic party control and significance of Split party control in 2009 to 2014 demonstrates that political parties were still decentralized. As Democratic party control becomes significant and Split party control becomes insignificant during 2015 to 2021, it is evident that political parties are transforming into nationalized, partisan teams over time.

H5: States with higher levels of public opinion will have higher minimum wages.

Public opinion is less significant during 2009 to 2014 compared to the initial regression. As predicted, the relationship between public support for minimum wages and public opinion is positive and significant. During this period, public support for government programs is significant at the 5% level demonstrating a strong relationship between the variable and minimum wages. Public opinion has a positive correlation with minimum wages with a regression coefficient of 2.272. For every 0.1 unit increase in public opinion, there is a \$0.2272 increase in minimum wages. This aligns with my hypothesis that high levels of public opinion are correlated with increased minimum wages.

Public support for government programs is statistically significant and positive during 2015 to 2021. The relationship between the variables is stronger than the first regression and is significant at the 1% level. The relationship is positive with a regression coefficient of 8.393 indicating that for every 0.1 unit increase in public opinion there is a \$0.8393 minimum wage increase. This is substantively significant. Since the relationship between public opinion and minimum wages is significant and positive, it is consistent with my hypothesis that states with

high levels of public opinion are associated with having higher minimum wages. The relationship between public opinion and minimum wages becomes stronger in terms of significance and correlation over time.

H6: States with a referendum will have higher minimum wages.

Ballot access becomes less significant over the years of 2009 to 2014 compared to the initial regression. Ballot access is significant at the 5% level and has a positive correlation with minimum wages with a regression coefficient of 0.260. For every one unit increase in ballot access, there is a \$0.260 in minimum wages. This positive, significant relationship illustrates that states with ballot access are associated with having higher minimum wages, which is consistent my hypothesis.

The 2015 to 2021 regression model demonstrates that ballot access is statistically significant at the 10% level. The regression coefficient is -0.329 illustrating a negative relationship between states having referenda and minimum wages (Table 3). Moreover, each increase in ballot access is associated with a \$0.329 decrease in minimum wages. This relationship does not support my hypothesis because I expected there to be a positive relationship between ballot access and minimum wages. The first regression demonstrates a statistically significant positive relationship between minimum wages and ballot access. Over time, the correlation ballot access becomes less significant and negative. The over time analysis here is interesting because the public originally could have used ballot initiatives to increase the minimum wage. During the second period, the public could be using ballot initiatives less and still see increases in minimum wages through legislation.

H7: Over time, states are more likely to enact similar wage legislation as states with the same party control.

Based on the results from the two separate regression analyses from 2009 to 2014 and 2015 to 2021, it is evident that states begin to act more similarly regarding minimum wage legislation over time. In the 2009 to 2014 regression, Democratic party control is not significant meaning that party control did not directly impact minimum wages in this regression. Since there is not sufficient evidence against the null hypothesis that there is no relationship between party control and minimum wages, I cannot reject the null hypothesis. In the 2015 to 2021 regression, Democratic party control is statistically significant, illustrating robust evidence consistent with the null hypothesis. Since there is a clear change in the significance of Democratic party control, Table 3 demonstrates that states with the same party control are more apt to create similar wage legislation. Additionally, Figure 2 provides support for this hypothesis as Democratic states have higher average wages over time and Republican states have lower average wages over time.

Chapter 6

Conclusion

My research sought to discover whether economic or political factors have a greater impact on the variation in minimum wages or if the factors jointly influence the variation. There is support in previous literature that political factors have a stronger influence on the variation in minimum wages. Conversely, the literature also supports the assertion that economic factors have a more significant impact. I argue that economic and political factors work together to impact minimum wages. In my research, the findings of the overall multiple regression analysis and the two-period regression analysis uncover significant relationships between the both the economic and political variables and minimum wage. Across all the regressions, each independent variable proves to be significant in either 2009 to 2021, 2009 to 2014, or 2015 to 2021 demonstrating support for my hypotheses. Some of the independent variables proved to be significant across every regression whereas others were significant in one time period but not the others. Furthermore, some of the independent variables proved to become more significant and develop stronger correlations over time.

Regarding the economic variables of state inflation rate, cost of living, and unions, these variables proved to have an influence on a state's decision to alter the minimum wage. The state inflation rate variable was not significant in the overall time period of 2009 to 2021, yet the variable is significant across the two separate time periods. The significance of this variable is interesting because the state inflation rate loses significance over a longer time period, but it is clear that the variable positively impacts minimum wages during a shorter period of time. There is no support for my hypothesis that high levels of inflation are correlated with high minimum wages over the years of 2009 to 2021, yet there is support for my hypothesis across the two

shorter time periods. Both the cost of living variable and unions are significant over the entire time period indicating that higher costs of living and high levels of union participation influence states to increase their minimum wages. The cost of living variable becomes more significant over time when comparing the two time periods. This relationship shows that median household income has a greater influence on minimum wages from 2015 to 2021 than 2009 to 2014. Moreover, union participation remains significant in the two shorter time periods, demonstrating consistency with my hypothesis that higher levels of union participation are associated with higher minimum wages across all time periods. Through my analysis of economic variables, I found support for each of my hypotheses revealing that economic variables contribute to the variation in state minimum wages.

In my analysis of political variables, union participation, public opinion, ballot access, and state party control demonstrated their impact on minimum wages across the studied time periods. As mentioned previously, union participation is highly correlated with minimum wages across all time periods demonstrating support for my hypothesis and it is important to recognize that unions act as both an economic variable and political variable. The variable of public opinion proved to be significant across each regression and became more significant during 2015 to 2021. The relationship between public support for government programs and minimum wages provides support for my hypothesis that states with strong public attitudes will have higher minimum wages. Therefore, the significance of this variable explains some of the variation in minimum wages. Ballot access shows a unique relationship with minimum wages. In Table 2, the regression displays a significant positive relationship with minimum wages indicating support for my hypothesis that states with ballot access will have higher minimum wages. Ballot access remains significant and positive from 2009 to 2014, but the direction of the correlation

changes from 2015 to 2021. While the relationship between ballot access during 2015 to 2021 is not consistent with my hypothesis, the negative correlation indicates that ballot access may not be utilized to increase the minimum wage as much as it was used previously. I argue that the different relationships between minimum wages and ballot access are important and future studies could help further research on this correlation.

The independent variable of state party control displays interesting results in the regression models. In Table 2, Democratic party control is significant and positive revealing a clear relationship between Democratic party control and minimum wages during 2009 to 2021. Furthermore, Table 3 indicates that Democratic party control is insignificant during 2009 to 2014 yet becomes significant in the later period. Additionally, Figure 2 demonstrates that there is an increasing difference in minimum wages between Democratic and Republican states. The regressions in Table 3 and Figure 2 support my hypothesis that states enact similar minimum wage legislation as states of the same party control and that states are becoming more nationalized over time. While there is support for my hypothesis that states with Democratic control are more likely to have higher minimum wages during 2009 to 2021 and 2015 to 2021, I did not find support for this hypothesis during 2009 to 2014. I argue that this result is not consistent with my hypothesis because political parties were more decentralized during 2009 to 2014. Gradually, political parties are becoming more polarized, and the nationalization of parties is impacting minimum wage legislation across the United States. The relationships between the political variables and minimum wages provides support for my hypotheses clarifying that political factors influence the variation in minimum wages.

The regression models indicate that both economic and political factors explain the variation in minimum wages. Some variables have varying significance levels and fluctuating

regression coefficients showing that the variable's influence is subject to the time period in which it is studied. The models indicate that neither economic variables nor political variables have a greater influence on the variation in minimum wages. I argue that the results show that economic and political factors jointly impact minimum wages. The variation in minimum wages is explained by state inflation rates, cost of living, state party control, strength of union participation, public opinion, and ballot access. Furthermore, it is evident that economic factors are mediated through political institutions and the economic factors could inherently influence the political factors as well. Minimum wages vary across the United States and a combination of economic and political factors help to determine a state's minimum wage rate.

To further research on the variation in state minimum wages, future studies should work to improve measures and extend the time period of analysis. A limitation to the study I conducted is that the measure for state inflation rate is regional. I argue that future studies can be more robust if there is a measure for individual state inflation rates. Another limitation to my study is that there is not a measure of public opinion directly on minimum wages. I assume that this measure would indicate higher levels of public opinion compared to general support for government programs. Additionally, I argue that changing the time period studied could provide expand on my research and provide more explanation for the variation in minimum wages over time. This could help to further explain the stagnation in the federal minimum wage and how states are effectively responding to new federal minimum wages throughout the history of the minimum wage. The research I conducted examines the period of stagnation in the federal minimum wage during the years of 2009 to 2021 and demonstrates that both economic and political factors explain the widening variation in minimum wages across the United States.

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ACADEMIC VITA

EDUCATION

The Pennsylvania State University (University Park) **May 2023**
Schreyer Honors College, Paterno Fellows Honors Program
B.A. in Economics, B.A. in Political Science, Minor in Labor, and Employment Relations
Study Abroad Program **Bern, Switzerland**
Economics of the Swiss Economy **Mar. 2022**

- Engaged with the Swiss culture and toured consulting firms and financial intuitions to learn about the Swiss Economy

RELEVANT EXPERIENCE

Penn State Department of Economics **University Park, PA**
Research Assistant, Research Experiences for Undergraduates (REU) Program **Aug. 2022 – Present**

- Collaborated with research team members from Penn State and MIT to study the economic and environmental impacts of randomized firm relocation of approximately 20,000 firms in Delhi, India

Mid Penn Bank **May 2022 – Aug. 2022**
Intern, Project Support Specialist **Wyomissing, PA**

- Facilitated financial center transactions and assisted clients with financial services and wealth management decisions
- Supported local communities through a combination of financial support, education, and employee involvement
- Participated in classes offered by Mid Penn University to expand knowledge of credit and commercial lending

The Borgen Project **June 2021 – Aug. 2021**
Political Affairs Intern **Tacoma, WA (Remote)**

- Advocated support for integral legislation to political leaders and media at two local community and political events
- Mobilized 50 individuals to contact congressional representatives in support of key poverty-reducing bills

Riverview Bank (RNB) **Mar. 2020 – Aug. 2021**
Retail Banking Intern **Temple, PA**

- Assisted 900 households in making informed banking decisions and helped bank reach 21 million asset goal
- Collaborated with teams by attending banking trainings to strengthen security and health protocol during the pandemic

LEADERSHIP EXPERIENCES

Penn State Department of Economics **University Park, PA**
Teaching Assistant, Environmental Economics **Aug. 2022 – Present**

- Assisted professor with efficient grading of 8 homework assignments in collaboration with another teaching assistant

Teaching Assistant, Introduction to Macroeconomics **Jan. 2021 – May 2021**

- Completed grading large quantity of exams in a fast paced, accurate manner to assist professor

Teaching Assistant, Introduction to Econometrics **Aug. 2021 – Dec. 2021**

- Collaborated with other graders and professor to analyze answer key for exams and attribute proper credit to students

Pillar Benefitting THON, Penn State Dance Marathon (THON) **University Park, PA**
President and Executive Board Member **Aug. 2019 – Present**

- Developed valuable connections with THON families through biweekly calls, texts, and organized family events
- Organized 25 fundraisers to contribute to achieving overall fundraising goals of \$55,000.00 to help fight childhood cancer
- Prioritized new member involvement and expanded number of active organization members from 35 to 50

Liberal Arts Academic Integrity Committee **Sept. 2021 – Present**
Elected Chair Member

- Discussed current academic violations with committee members to determine appropriate verdicts on integrity cases

INTERESTS AND ADDITIONAL EXPERIENCES

Empowering Women in Law Aug. 2020 – Present
Schreyer for Women Feb. 2021 – Present