THE IMPACT OF INCREASING MINIMUM WAGE

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ABSTRACT

Since the United States estabished a minimum wage with the Fair Labor Standards Act in 1938, minimum wage has been a largely discussed item within politics. One thought would be that it should be increased proportionally with regards to inflation in order to maintain the purchasing power of minimum wage. Over the years, the minimum wage has continued to increase slowly. However, this has not always been the case. Due to the recent movement of increasing minimum wage to 15 dollars per hour within larger cities, there is little known information about the impact that will occur with this significant increase. In order to address the impacts of increasing minimum wage, this paper will look at historical, as well as foreign data on minimum wage, unemployment, and the reduction of poverty. The idea of a minimum wage increase would appear to help reduce poverty. However, the actual impact is unknown due to the effects that it will have on unemployment, inflation, and other major factors. Looking at similar situations in other countries, it appears that increasing minimum wage has helped to improve poverty, quality of life, and worker morale.

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Chapter 1

Introduction

Since the United States minimum wage was started with the Fair Labor Standards Act in 1938, it has been a widely discussed topic within politics and the government. One of the most difficult topics regarding minimum wage is when to increase it and how much to increase it to. One argument is to set minimum wage at a point where a low-income family can support itself. Another argument is to increase minimum wage at a rate in proportion to inflation in order to maintain its purchasing power. One of the final arguments is that the market should determine the minimum wage. This paper will go into more depth on the first two arguments while the third argument will discussed briefly. Raising minimum wage has been a challenge throughout the years with many different ideas of the best way to determine how much it should increase, but there has been no substantial evidence proving one plan is more advantageous than another.

Minimum wage can be a very important factor within an economy. It can help to reduce poverty, improve income distribution, and improve many other aspects of an economy. Other benefits include improving the mental and physical health of low-income families, increasing economic consumption, and decreasing government spending for low-income families. However, there are also negative effects. One of the most impactful on an economy can be an increase unemployment. Others include increasing inflation, incentives to innovate, as well as other negative effects on the economy. Since, there are many pros and cons for increasing minimum wage, the difficult task is determining whether the pros outweigh the cons or vice versa and acting accordingly.

In the last couple of years, there have been multiple metropolitan areas that have considered raising their minimum wage to $15.00 per hour. This has led to much attention on the matter. The main purpose for this increase is to help to reduce the poverty levels within the United States. Assuming it works, there would be many families that would have a higher quality of life with very little effect on the rest of the economy. Throughout the history of the United States, there has not been an increase as substantial as this. With the current Federal Minimum Wage at $7.25 per hour, a minimum wage of $15.00 per hour would be substantially more and there is little known as to the economic side effects that this strategy may cause. One of the most prominent areas that has set their sights on this minimum wage increase is the city of Los Angeles. Currently, Los Angeles has a minimum wage of $10.00 per hour. This is already substantially higher than the Federal Minimum Wage. They are in the process of implementing this increase at $1.00 per year over the next five years. By doing this, the city may help to decrease many of the negative effects that may come out of such a large increase, but the actual effects are yet to be determined.

This paper will help to explain possible outcomes that a large minimum wage increase may cause. To start, it will cover other similar situations in other countries. The situations will not be the same, as there has not been others similar to this. Thus, instead of a large increase in minimum wage, the incorporation of new minimum wages will be looked at to see the similarities and determine what the economic outcomes may be. Other studies will be used to assist in determining whether or not this increase will help to decrease poverty and improve the well- being of low-income families as it has been designed to do. Next, an examination of the pros and cons will be used to show both sides of the minimum wage argument. Finally, there will be an analysis done to see what and by how much it may be impacted. As stated before, this is a very unique situation where only time can determine the actual outcome.

Chapter 2

Literature Review

The uniqueness of this change makes it hard to compare to other situations. With this in mind, this section discuss the two arguments on this increase. The one side being that the increase is needed to decrease poverty and improve the social and physical well-being of low-income families. The other side is that the increase may lead to many negative effects on the economy. Areas of research cover the improvements to well-being of individuals' lives, the incorporation of minimum wages in Germany and Hong Kong, and situations that show the benefits and harms that this may cause in the economy of the United States.

2.1 Physical and Mental Impacts

As stated before, there are two sides of minimum wage debate. One side arguing that it is needed to decrease poverty levels, and the other looking at the economic well-being of businesses and the United States economy. One are that seems to be overlooked is the mental and physical health of the families that rely on minimum wage. The following sections explain articles that discuss the impacts that an increase in minimum wage may have on the mental and physical well-being of low-income families.

2.1.1 Impact on Single-Mother Households

Two groups of individuals that are gererally overlooked when discussing minimum wage are single mothers and children. The future of the country lies in the hands of future generations. The more opportunities they have, the better the United States' future will be. One of the most difficult areas to address is the single-mother household. According to an article by Robert H. Defina, using data from 1992 to 2001, the reason for this is many single women have had limited access to education and experience. This resulted in having difficulties in finding well-paying jobs. In his analysis, Defina has seen a growth in the number of single mothers looking for work. With this being the case, he also found that increasing the minimum wage by states has helped to decrease child poverty rates. Even though he came to this conclusion, he also found through thorough analysis that there is not conclusive evidence that increasing minimum wage will continue to help with this problem and that there may be other policies that are more successful with improving the child poverty rates within this particular group (DeFina, 2008).

2.1.2 Mental Well-Being of Low-Income Families

Another interesting area that has been researched is the impact of minimum wage on the mental well-being of low-income earners and their families. In an article by Laura Smith, she analyzes the minimum wage rate and the impact that it has on the mental wellness of individuals and families who are reliant on it. She explains that the current minimum wage rate is not high enough to bring a family, with a single worker and a child, out of poverty. A full-time minimum wage earner would make just over $15,000, based on the Federal Minimum Wage, a year. When you compare that to the poverty line, which is set at just above $16,000 a year, it can be seen that there may be cause for concern. Starting in the late 1960s through the early 1980s, the minimum wage was able to keep a family with multiple children out of poverty (Smith, 2015). This helps to give the reader better understanding of the situation and purpose for Laura Smith's reasearch on the matter.

Findings have shown that the children of low-income families tend to have a higher chance of acquiring disorders. These health issues are not only psychological but are also include physical. In an analysis done by L. Strocschein, covered in Laura Smith's article, it was found that children of low-income families are more apt to be depressed and tend to have antisocial behavior. These children tend to struggle more in school than do other students. Not only do the children suffer but the adults of families also suffer. These adults also have higher levels of depression and evidence has shown that they are more apt to be sick and die at a younger age. Smith explains that even though the United States is one of the richest nations in the world (second highest GDP per capita in 1995), it also had the third highest poverty rate among industrialized nations. She goes on to explain that this is likely due to the high level of income inequality within the United States and there may be a solution in increasing the minimum wage. Multiple expirements have shown that when earnings in low-income areas increase, there are improvements to the overall health and psychological well-being of the area (Smith, 2015). This article helps to give some added perspective to the argument for increasing the minimum wage.

2.2 Foreign Minimum Wage Introduction

Due to there being little information on large increases in the minimum wage, the best alternative is to look at countries that recently incorporated minimum wages. This will focus on two main foreign regions, which are Germany and Hong Kong. The situation in Germany may give a better understanding as to what may occur in the United States as they are both developed countries. Hong Kong will also give us a good picture of possible outcomes. However, due to China still being considered a developing country, there may be some factors that could be improved that would not be seen in a developed country.

2.2.1 Minimum Wage in Germany

Germany did not have a statutory minimum wage until 2015. Andreas Knabe and Ronnie Schob wrote a very thorough article examining their situation and explaining what could occur. Up until Germany incorporated a minimum wage into the economy, the government did not see a reason to consider a minimum wage since the wages were set by labor unions and employer federations. When the unemployment and wage inequality of low-wage earners started to increase, their government started to look into what actions should be taken. The first thing the German government did was restructure their welfare system in order to promote employment among welfare recipients. After it was determined that this was not enough, they began to look into introducing a minimum wage. The thought was that a minimum wage would help to incentivize welfare earners to work. It was also thought that if low-skilled workers would earn more money, the government would not have to spend as much money on welfare benefits (Knabe and Schob, 2011).

Before the government incorporated the minimum wage, they needed to do an analysis to determine what to set the wage at and to determine the impact of setting a minimum wage. In the article by Knabe and Schob, they look at multiple simulations done by others as well as one of their own. One such study was done by Ragnitz and Thum. The outcome of their study was that setting the German minimum wage at EUR 7.50 would lead to a loss of approximately 1.1 million jobs. Another study done by Bachman, Bauer, Kluve, Schaffner, and Schmidt claimed that setting the minimum wage at EUR 7.50 would lead to a fiscal deficit of approximately EUR 9 billion each year due to unemployment benefits that would need to be paid to the additional unemployed workers. Another analysis by Bauer, Kluve, Schaffner, and Schmidt showed an increased burden on the government of approximately EUR 12 billion a year but only approximately 260,000 more unemployed. As for Knabe and Schob, their findings suggested that incorporating this same minimum wage would only help increase the income of families reliant on this wage while leading to an increase of unemployment of approximately 410,000 and 840,000 jobs as well as increasing the fiscal burden of the government. Their conclusion was that the best option would be to use wage subsidies instead of incorporating a minimum wage.

2.2.2 Minimum Wage in Hong Kong

In 2011, Hong Kong introduced their minimum wage of HK$28 ($3.60 US). Up until then, Hong Kong had a economic policy of no government interference and politics were greatly influenced by business. The topic of minimum wage became a social issue in the late 1990s and reaserch was done by the Legislative Council in 1998. It wasn't until the early 2000s when society started to put pressure on the government to establish a minimum wage. In 2004, a motion was created to protect outsourced government workers. However, the motion was not passed. This was due to there being more voting power among business and special interest groups than with elected officials. It wasn't until 2008 that a Minimum Wage Commision was created in order to advise as to what the minimum wage level should be. The following year, the Minimum Wage Bill was brought to the Legislative Council, which was passed in 2010. Then, as stated before, the minimum wage of HK$28 was established in 2011 (Wong, 2014).

2.3 Minimum Wage in the United States

Even though there are not many situations in the United States where the minimum wage was increased by a large percentage, there has been research done on minimum wage increases. The following articles explain research that has been done in the political spectrum as well as the economy. It is difficult to find substantial evidence on what the increase in minimum wage will do to the economy or if it will truly benefit those that the program was designed to help. However, the following will help to give additional insight as to what impacts this increase could have on the United States.

2.3.1 Different Views in Politics

In a paper by Eric A. Whitaker, Mitchel N. Herian, Christopher W. Larimer, and Michael Lang, it states that minimum wage is very split in the political spectrum. Their paper tries to find a middle ground for the two political sides. One side argues that increasing minimum wage helps to improve the well being of low-wage earners as well as helping to improve the wages of those that earn a higher wage to a "ripple effect". The ripple effect is where increases in the wages of the bottom earners leads to increases in the earnings of those who make slightly more than the bottom earners. The other side believes that a decrease in minimum wage should take place in order to limit consequences such as increases in unemployment and other negative economic effects. They also believe that the minimum wage is inefficient and that it can interfere with the naturally adjusting marketplace and thus, increase unemployment (Whitaker et al., 2012).

2.3.2 Effects on Poverty

There is much debate between economists as to the relationship between minimum wage and unemployment. Konczal and Covert cover this in their article. They state that an increase in minimum wage is unlikely to increase unemployment. With this in mind, it is important to understand that they came up with this conclusion looking at situations where the increase in minimum wage was 10% or lower. One study that they cover, but did not state the author, found that a 10% increase in the minimum wage would only have a 0.1% change in the unemployment level. Another thought is that a minimum wage increase would lead to more employers innovating and increasing the usage of automation. An argument against this is that employers will not necessarily replace workers with automation but instead will expect more efficiency out of them. Konczal and Covert believe that other likely outcomes would be that employers decrease bonuses of those holding higher paying jobs or increase prices. They did find that there would likely be a small impact on prices. It is their belief that the increasing minimum wage may lead to increases in employee retention, little to no impact on unemployment, and improve the economy and economic well-being of the employees relying on minimum wage (Konczal and Covert, 2014).

In an article by David Neumark, he covers the true impact of how well raising the minimum wage will benefit the poor or low-income families. On the surface, the plan to increase the minimum wage to $15.00 should help to improve the inequality found in the United States' labor market. Neumark does a good job of staying unbiased in this article. He explains that the higher minimum wage will benefit some families but could come at the cost of other jobs. Other issues with this plan are that of all low-income families, approximately 57% of these families with family members between 18 and 64 do not have any workers. Another issue that he explains is that a large portion of poor families are not poor because they are making minimum wage. They are poor because of not being able to find full-time employment and working low hours. His final issue is that teens and young adults from families that are not poor account for about a third of minimum wage or close to minimum wage earners. It is his belief, supported by thorough research and analysis, that the Earned Income Tax Credit is a much more effective way to combat poverty than increasing minimum wage due to the externalities that can be seen with a minimum wage increase. These outside factos include, but are not limited to, increased unemployment, increased income to individuals that are not poor, inflation, and added costs to businesses. Neumark's belief is that the benefit of a minimum wage increase is reliant on how much of it goes to low-income families but also believes that there are other programs that are more beneficial to combat poverty. These programs should be focused on more than the minimum wage (Neumark, 2015).

Chapter 3

Economic Theory

There are a couple of economic theories that are discussed in this paper. These thoeries help to explain how much minimum wage should be as well as the effects that may come from changes in minimum wage. The two main theories that are discussed or implied in this paper are Labor Theory of Value and Labor Supply and Demand. One important item to note when talking about these theories is that they assume that all variables, beside the ones being changed, are held constant. They also assume that the individual economic units (people) act rationally. This means that they make the decision that is best for them, with regards to their utility, with the information that is given to them. Utility is the enjoyment or benefit that one would receive from a decision. For example, by working 40 hours a week I have have a higher utility than working 45 hours a week, I would continue to decide to work 40 hours per week. The following sections will help to further describe the economic theories covered in this paper.

3.1 Labor Theory of Value

The Labor Theory of Value is a simplified model that helps to explain the value of something based on the labor costs and time. According to this theory, the value of a good or service is based on the cost of the labor to make the good. To give an example of this, if a basketball takes twice as long to make as a baseball, then a basketball is twice as valuable than a baseball is. With this in mind, the Labor Theory of Value is a great way to explain the relationship between minimum wage and inflation. There are many issues with this theory due to it missing many important items such as research and development, costs of resources used in the production of the good, and other economic inputs (Whitaker, 2001). However, much like other simple economic theories, it does a good job of simplifying an idea and making it easy to apply to many situations while still being useful. The way that this theory is useful to this paper is that it helps to show the reader that when you increase the cost of labor, you thus would increase the cost of a good or service. The effect of this increase in cost is inflation.

3.2 Labor Supply and Demand

Labor supply and demand is very important with regards to minimum wage and unemployment. It helps to add an economic explanation for why increasing the minimum wage would have any effect on unemployment. Labor supply is the number of individuals that are willing to work for a given amount of money. As the wage increases, more people are willing to work for that wage. Thus, labor supply has a positive, or upward slope. Conversely, labor demand is the number of individuals that employers are willing to hire at a given wage. As the wage decreases, employers are more willing to hire an individual, which leads to its negative, or downward slope. The point at where these two slopes meet is called the market equilibrium. At this point, labor supply and labor demand are equal, which means there is no unemployment (Laing, 2011). To start, labor supply will be further discussed followed by labor demand.

Labor supply assumes that each economic unit is maximizing their utility. It also assumes that each economic unit places value on both leisure and work. For this paper, the labor supply and demand model that is used is very simple and assumes both labor supply and demand are straight lines. The reason for this clarification is that in advanced labor economics, neither labor supply or labor demand are straight lines. As stated before, as wages increase, there are more individuals that are willing to work. The reason for this is that as wages increase, each individual will receive more utility. The opposite is also true. The importance of leisure and work is that as an individual works more, their utility decreases for each hour worked, until the marginal utility, the amount of utility gained by one additional hour of work, is 0 or even negative (Laing, 2011, pg. 101-106). However, no rational individual should work after their utility goes below zero. The idea of utility and hours worked is important but will not be addressed in this paper.

Labor demand assumes that the decision makers are firms. It is also reliant on the assumption that the firm's goal is to maximize profits. As stated before, as the wage decreases, employers are willing to hire more individuals and vice versa. It is important to note that the model used in this paper is that labor supply and demand are the market supply and demand for labor. Since the goal of employers is to maximize profit, these firms earn more utility from hiring at a lower wage. This is why firms are willing to hire more individuals at lower wages. Another important thing to understand is that, in the basic labor supply and demand model, all employees are assumed to be the same. With the ideas from labor supply and demand, the ideal economic location on the graph is where labor supply and demand are equal (Laing, 2011, pg 55-61).

Now that labor supply and demand have been covered, one may wonder, “how does this play into unemployment?”. When minimum wage is set at a wage that is higher than the equilibrium wage, there are more individuals willing to work than employers are willing to hire. Due to this, there is unemployment. This can be seen in Figure 3.1. Thus, as minimum wage increases above the equilibrium wage, unemployment also increases (Laing, 2011). This will play a part in better understanding the relationship between unemployment and the minimum wage rate.

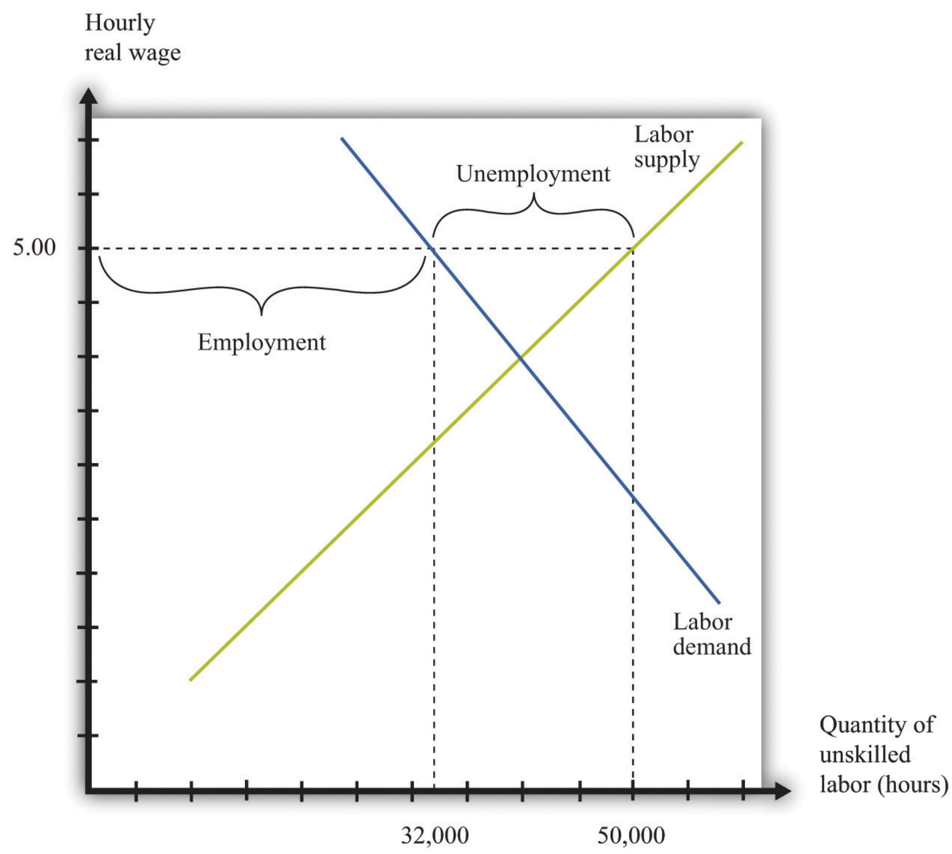

Figure 3.1: Labor Supply and Demand Example

Data Source:

http://catalog.flatworldknowledge.com/bookhub/reader/2992?e=coopermicro-ch10_s02

Chapter 4

Pros and Cons of a Minimum Wage Increase

After looking through the Literature Review found in Chapter 2, it can be seen that there are varied beliefs and arguments for and against the minimum wage increase. There are many pros and cons to doing so and much literature supporting both sides. This section attempts to show all of the pros and cons of a minimum wage increase and give the big picture of what could occur.

4.1 Pros of Increasing the Minimum Wage

The benefits of a minimum wage increase focus on two main things, which are the well-being of low-income families and reducing poverty. These benefits include reduced poverty levels, improved livelihood of low-income families, less government spending, and improved mental and physical health among low-income families. These benefits will be further explained in the following sections.

4.1.1 Reduced Poverty Levels

For quite some time, poverty has been an important topic within the United States. As Laura Smith's article, found in Section 2.1.2, explains that in 1995, the United States had the second highest GDP per capita in the world but ranked third in highest poverty among developed countries (Smith, 2015). One would think that 1995 was a long time ago and a lot could have changed. However, among the thirty OECD members, the United States ranks third in highest poverty level of 17% while the median of the members come in around 11%. The United States now ranks in at 18 when it comes to GDP per capita, which is at $57,300. This is very concerning since very little has changed over the last 20 years. The United States GDP per capita has dropped but not by a concerning amount. This does add some strength to the argument for a minimum wage increase but does bring up the question of whether or not a minimum wage increase is the best way address this issue.

4.1.2 Improved Livelihood of Low-Income Families

Increasing the minimum wage would help raise the amount of disposable income of low-income families assuming that it works the way it is intended to work. The best way to look at this is to look at the minimum wage and the purchasing power of minimum wage over the years. When the minimum wage was started in 1938, the federal minimum wage was $0.25 per hour, which is $3.98 in 2012 dollars. It reached its peak in 1968 when minimum wage was $1.60 per hour or $10.34 in 2012 dollars. Then the value diminished over the years and in 2012, the minimum wage was $7.25 per hour. This was a severe decrease in puchasing power of minimum wage from 1968 to 2012. One positive is that since 2006 ($5.91 per hour in 2012 dollars) there has been a substantial increase in the value of minimum wage, which can be seen in Figure 4.1. All in all, an increase in minimum wage could help to improve the lives of low-wage earners and their families.

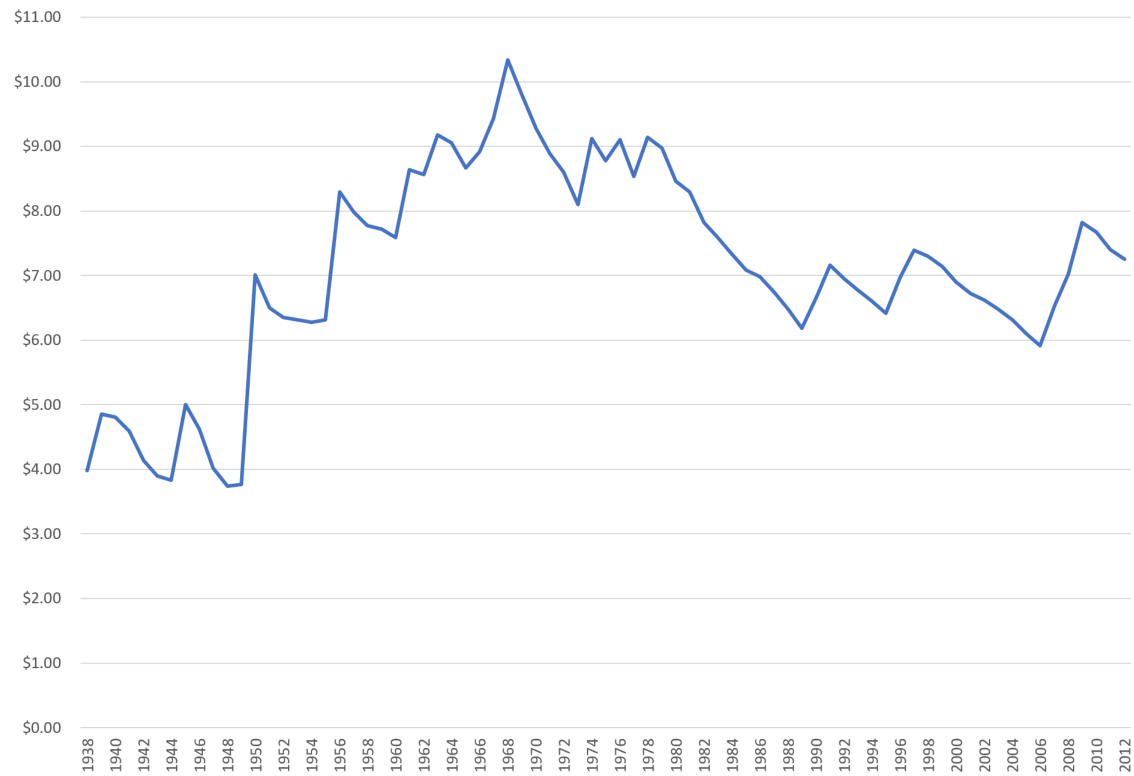

Figure 4.1: United States Minimum Wage in 2012 Dollars

Data Source: Graph Created by Robert Parker

4.1.3 Less Government Spending

This may come as a surprise to the reader as it is something that is not generally covered when discussing minimum wage. It is an intereresting idea since as you increase a low-income earners' wages, they may qualify for less government support. This could lead to less government spending on welfare programs. However, David Neumark found that there is not conclusive evidence to support this claim. Although he claims there is not enough conclusive evidence, there still could be a decrease in government spending (Neumark, 2015).

4.1.4 Improved Mental and Physical Health

Laura Smith's article discussing the benefits of a minimum wage increase on the mental physical health of low-income families has brought another benefit of this change. The mental and physical well-being of people and their families is an important item to focus on because of its impacts on the whole country. When people are sick, they go to get medical care, which is a cost to the government, since many of these families are on government supplied health programs. It is my belief that if the mental and physical health of these families is improved, it could lead to less government spending on these items. This adds another example to section 4.1.3. As Laura Smith stated in her article, the current federal minimum wage is not enough to push many families out of poverty. Furthermore, the children of these families tend to struggle more in school and have a higher chance of suffering from physical and mental disorders. As her research has shown, these issues can be reversed by improving their finances, which could be done through an increase in the minimum wage (Smith, 2015).

4.2 Cons of a Minimum Wage Increase

Although there are many benefits to a change to the minimum wage, an analysis of the negatives that could arise from this increase are important to look at. The negatives that may arise are more associated with the economy and not so much the well-being of individuals or families that rely on the minimum wage. These include an increase in unemployment, increase in inflation, incentives for businesses to innovate and use automation instead of workers, incentives for those that are not currently working to work, and other unknown effects on the economy.

4.2.1 Unemployment

As the cost for workers increases, businesses must determine how to address this increase. One such way is to hire fewer workers. A way that companies may do this is to hire employees that are more experienced and efficient. They would have already required a higher wage due to this and thus businesses would have more incentive to hire these types of individuals. As can be seen with the economic theory of supply and demand, as wages increase, fewer employers will be willing to hire workers although more workers are willing to work for that wage. This leads to an increase in unemployment. An increase in unemployment would likely have the opposite effect that the minimum wage increase was meant to have.

A minimum wage increase also decreases the opportunity cost of an employer to innovate in their company and automate more of their processes. This can be seen in your neighborhood market or local fast food restaurant. There are now machines that are taking the place of cashiers and other machines that make your drink for you at the local fast food restaurant. Recently, Hardee's started trying out automated kiosks where customers would place their orders. As simple as this may seem, it has made a huge change in the process of ordering food and likely will replace multiple employees. Smith and Dompe explain in their article that with the Hardee's example, it will be the workers with the lowest productivity that will be replaced first. They go on to explain that the rise in cost for companies that have relied on low-wage workers will lead to more incentive to use automated machines that could replace less productive workers. Although this is true for larger companies, it is not the case for smaller businesses who do not have the income to afford this kind of technology. This may cause much stress for smaller businesses and may lead to their downfall (Smith and Dompe, 2016).

Another point that needs to be addressed is that an increase in minimum wage may raise the incentive for individuals that are not currently working, such as stay-at-home parents, college students, or retired individuals, to enter the workforce. As can be seen with labor supply and demand, as the wage increases, so does the number of workers willing to work for that wage. Due to this, there may be an additional number of individuals that become part of the labor force and even with no change in current employment, there would be an increase in the unemplyment rate. The other question that arises is if these individuals, who are likely more educated than the current low-wage worker, will take these jobs from individuals who rely on minimum wage work. This is another situation that could occur where the outcome may be opposite of what the minimum wage increase was designed to help with.

4.2.2 Inflation

With increases in business costs, there are generally increases in the prices for the products that these businesses produce. The increases in these prices would lead to inflation. Inflation is not always bad, but it will lead to a decrease in the value of money. Although there not many items discussing inflation and increases in the minimum wage, the economic idea of wage-push inflation can help to describe this situation. Wage-push inflation is where wages are increased and this increase in wages leads to higher production costs and thus more expensive products. These increases in the cost of products will lead to inflation and a weaker dollar value. According to Jeremie Cohen-Setton's article, increases in wages will lead to inflation and higher costs of goods (Cohen-Setton, 2015). It is difficult to determine the true impact on inflation due to some items costing less than they did before due to innovation or off-shoring. Off-shoring is where a company will use the services or production of a country other than their own. Not only does this have an impact on inflation but also on unemployment. All in all, the direct correlation between inflation and minimum wage is not as simple to determine as it may have been before, but there are certain areas where the correlation will be seen.

Chapter 5

Data

For this section, there are two main goals. The first goal is to determine whether or not minimum wage has an impact on inflation. The second goal is to determine the impact of the minimum wage on unemployment. The other aspect that this paper addresses is whether or not low-income families will benefit from higher wages and if higher minimum wages will lead to a decrease in poverty. Due to this minimum wage increase being different from others, it is very difficult to determine analytically. Thus, this section will only focus on unemployment and inflation. To achieve these goals, two multivariate linear regressions will be run. One regression will have inflation as the dependent variable and economic variables that impact inflation as the independent variables. The other regression will use unemployment as the dependent variable and the economic variables that impact unemployment as the independent variables. For both of these, minimum wage will also be added to determine if there is significant proof that minimum wage may impact these two variables.

```
. reg inf wg_act pg ms_growth gdp_growth

      Source |       SS           df       MS      Number of obs   =        51
-------------+----------------------------------   F(4, 46)        =     10.39
       Model |  .019360866         4  .004840216   Prob > F        =    0.0000
    Residual |  .021433056        46  .000465936   R-squared       =    0.4746
-------------+----------------------------------   Adj R-squared   =    0.4289
       Total |  .040793922        50  .000815878   Root MSE        =    .02159

------------------------------------------------------------------------------
         inf |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      wg_act |   .1554143   .0493963     3.15   0.003     .0559848    .2548439
          pg |  -.7575358   .7891881    -0.96   0.342    -2.346089    .8310175
   ms_growth |  -.0005172   .1101331    -0.00   0.996    -.2222037    .2211693
  gdp_growth |   .5791836   .1151099     5.03   0.000     .3474794    .8108879
       _cons |   .0029507   .0128453     0.23   0.819    -.0229056     .028807
------------------------------------------------------------------------------
```

Figure 5.1: Inflation Regression - All Variables

Data Source: Regression Output Created by Robert Parker

5.1 Impact on Inflation

To start, there are many variables that may affect inflation. However, there are some that have more impact than others. For the regression ran on inflation, the variables are wage growth, population growth, GDP growth, and money supply growth. The data was pulled using the Federal Reserve Bank of St. Louis, also known as FRED, and the Department of Labor Statistics. All variables are in percentages and are from 1960 through 2010. The first regression that was run can be seen in Figure 5.1 and will be discussed in further detail. The original equation for the regression can be seen below.

$$inf = \beta_0 + \beta_1 \cdot wgact + \beta_2 \cdot pg + \beta_3 \cdot msgrowth + \beta_4 \cdot gdpgrowth + \varepsilon$$

The regression output is as to be expected. Wage growth and GDP growth both have positive coefficients, which mean that as they increase so does inflation. Money supply and population growth both have negative coefficients, meaning that as they increase, inflation will decrease and vice versa. The most surprising thing from this is that money supply growth has a negative coefficient. This is opposite of what generally would be expected with money supply and economic theory. However, it also has a very high P-value which shows that it may not fit into this regression at all or there may be another variable that has a high correlation with it. Before discussing the R-squared value and other values, adjustments will be made to the regression. For the next regression, population growth will be removed since it is the least supported by economic theory to be significant. The new regression can be seen in Figure 5.2.

```
. reg inf wg_act ms_growth gdp_growth

      Source |       SS           df       MS      Number of obs   =        51
-------------+----------------------------------   F(3, 47)        =     13.57
       Model |  .018931555         3  .006310518   Prob > F        =    0.0000
    Residual |  .021862366        47  .000465157   R-squared       =    0.4641
-------------+----------------------------------   Adj R-squared   =    0.4299
       Total |  .040793922        50  .000815878   Root MSE        =    .02157

------------------------------------------------------------------------------
         inf |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      wg_act |   .1587107   .0492355     3.22   0.002     .0596616    .2577599
   ms_growth |  -.0038504   .1099863    -0.04   0.972    -.2251143    .2174135
  gdp_growth |   .5850863   .1148494     5.09   0.000     .3540391    .8161334
       _cons |   -.005676   .0091702    -0.62   0.539    -.0241241    .0127721
------------------------------------------------------------------------------
```

Figure 5.2: Inflation Regression - Population Growth Removed

Data Source: Regression Output Created by Robert Parker

The new regression output shows a lower R-squared, slightly improved P-value for money supply growth, and lower P-value for wage growth. This is not the outcome that was hoped for and a further adjustment will be made to the regression. It appears that there may still be a correlation between money supply growth and another variable or that money supply is not as useful in determining inflation. The next regression that will be run will have money supply growth removed. After looking through the output of the new regression, no important changes were noted and the best regression for determining the changes in inflation is the first since it includes all variables that have been determined to impact inflation. Again, this regressionary output can be seen in Figure 5.1. The final equation for this regression can be seen below.

$$inf = 0.003 + 0.155 \cdot wgact - 0.758 \cdot pg - 0.001 \cdot msgrowth + 0.579 \cdot gdpgrowth$$

Looking at the original regression, we can see that there is a R-squared value of 0.4746. The important things to note are that wage growth and gdp growth are significant and positive and the P-value for F of the regression is significant. This means that the regression has some explanatory value in determining inflation. Wage growth has a coefficient of 0.155. This means that for every one percent increase in minimum wage, there will be approximately a 0.15% increase in inflation. This is evidence that minimum wage growth has a positively correlated impact on inflation.

5.2 Impact on Unemployment

There are many variables that have an impact on unemployment. Some are easier to determine and some more difficult. One of the more difficult items is cyclical unemployment. However, there are variables that are more easily determined. The variables used in this regression are the unemployment rate, wage growth, population growth and GDP growth. These variables were also gathered from the Department of Labor Statistics and FRED. The variables used are all in percentages and are from the years of 1960 through 2010. The original equation can be seen below and the original regression can be seen in Figure 5.3.

$$un = \beta_0 + \beta_1 \cdot wgact + \beta_2 \cdot pg + \beta_3 \cdot gdpgrowth + \varepsilon$$

```
. reg ur wg_act pg gdp_growth

      Source |       SS           df       MS      Number of obs   =        51
-------------+----------------------------------   F(3, 47)        =      2.80
       Model |  .001626958         3  .000542319   Prob > F        =    0.0499
    Residual |  .009092022        47  .000193447   R-squared       =    0.1518
-------------+----------------------------------   Adj R-squared   =    0.0976
       Total |  .01071898         50   .00021438   Root MSE        =    .01391

------------------------------------------------------------------------------
          ur |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      wg_act |  -.0502006   .0317926    -1.58   0.121    -.1141591    .0137579
          pg |  -.8387987   .5082563    -1.65   0.106    -1.861278    .1836811
  gdp_growth |   .1208097   .0678488     1.78   0.081    -.0156844    .2573039
       _cons |   .0620427    .007855     7.90   0.000     .0462405     .077845
------------------------------------------------------------------------------
```

Figure 5.3: Unemployment Regression

Data Source: Regression Output Created by Robert Parker

Looking at the original regression, it can be seen that there is a low R-squared score, no significant variables, and a wage growth coefficient with the opposite sign as would be believed. This is important to note due to the fact that this would not provide significant evidence that wage growth has an impact on the unemployment rate. The P-value for F is only significant at a 95% confidence interval. After running the original regression, there were no adjustments that could be made to improve the regression. There is some explanatory value in determining inflation, but for the purpose of this paper, no further analysis needs to be done. The final verdict is that there is not significant proof to determine if wage growth impacts the unemployment rate. However, further research should be done in this area to determine the true impact.

Chapter 6

Conclusion

Throughout this paper, evidence has shown for and against increasing minimum wage. One side argues that there should be an increase in order to decrease poverty and improve the lives of low-wage earners. The other side is against the increase because of the negative impacts that it could have on the economy. There are many pros and cons to this plan but when considering a large increase on minimum wage, it is difficult to understand what truly would happen. Regardless of your stance on the matter, there is no question that there will be negatives with the positives. It would not be possible to have such great improvements for low-wage earners without some sort of negative or complication.

Assuming that the increase goes as planned, the benefits are vast. It will help to improve the livelihoods of any family that is reliant on minimum wage. There will be improvements on their health, mental and physical, as well as future opportunities for the kids. Government spending could decrease as welfare and transfer payments decrease due to fewer families qualifying for these programs. This could possibly even lead to increased consumption in the economy, which could improve the economy further. However, the negatives as also very strong. Many individuals could lose their jobs due to companies being forced to decrease the number of employees. The purchasing power of the dollar could also decrease. Evidence of any of these situations occuring is very minimal due to the unique situation, although it is possible to look at the evidence and predict what may happen.

There were two examples of areas that incorporated a minimum wage successfully. Germany and Hong Kong both set up a minimum wage within the last eight years. As far as Germany goes, there is no substantial evidence that it has had any negative effects on the economy. The main reason for this is that there hasn't been enough time to see the true impacts. Hong Kong increased their minimum wage a few years ago and it appears to be going well. There have not been any noticeable problems within the economy. On a good note, about 70% of low-income families have more income now and 42% of individuals relying on government assistant started looking for work. However, about 40% of these families are still in depravity. All in all, it looks like a lot of great things have happened with few negatives.

Economic theories also help to explain the correlation between increasing minimum wage and inflation and unemployment. As much as these theories may help, the regressions that were run help to give an even better understanding of what may happen. Throughout the regressionary process, it was determined, with substantial evidence, that inflation is impacted by a minimum wage increase. It appears that inflation will increase close to .15% for every 1% increase in minimum wage. On the other hand, there was no evidence that unemployment is impacted by increasing minimum wage. All of the evidence that was gathered shows that the likely outcomes are inflation will increase, unknown effects on unemployment, and some improvements on the well-being of low-income families. The true impact of how well the increase works is based on how much of the benefits go to the low-income families. This paper has provided substanital evidence that warrants further analysis on this topic in order to determine the actual impacts that may occur.

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