The Effect of Minimum Wage Increases on Poverty in the United States

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The Effect of Minimum Wage Increases on Poverty in the United States

by

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Table of Contents

Dedication 2

Abstract 3

Introduction 4

Chapter 1: Conceptual Models of the Minimum Wage in Labor Markets 5

Chapter 2: Empirical Evidence of the Effects of Minimum Wage on Poverty 10

Conclusion 17

Works Cited 19

Figures 21
Dedication:

This paper is dedicated to Dr. David Allen. His help and patience with my economics education and development is greatly appreciated.
Abstract

Analyzing the data from various studies, this paper reviews the effectiveness of minimum wage increases in reducing poverty among workers, low skilled immigrants, and single mothers. The effect of minimum wage increases on reducing poverty are insignificant for all groups studied. The consensus of the literature reviewed is that minimum wages fail to decrease poverty due the increases mainly benefiting nonpoor households.
Introduction

The minimum wage is one of the most popular economic policy tools discussed in the public sphere. Of note, President Joe Biden (20 in his joint address to Congress commented “Let’s raise the minimum wage to $15” and that “no one working 40 hours a week should live below the poverty line”. As well, Tom Kludt (2016) reported that then-presidential nominee Donald Trump supported raising the minimum wage. However, that begs the question if raising the minimum wage is effective at reducing poverty?

To ascertain the effectiveness of the minimum wage in reducing poverty, this paper reviews the general effects of the minimum wage on employment. The three general models are perfectly competitive labor markets, monopsonistic labor markets, and oligopsonistic labor markets. Once the employment effects of those models are understood, the analysis will turn to the effectiveness of minimum wage increases in alleviating poverty of workers in general, of immigrants, and of single mothers. To analyze the effectiveness of minimum wage in improving the welfare of these groups, this paper will review the empirical evidence of various studies correlating minimum wages and poverty.
Chapter 1: Conceptual Models of the Minimum Wage in Labor Markets

Before examining the effects of the minimum wage on poverty rates, it is important to review the effects of minimum wage on employment. Employment is the chief source of income and increases to employment could improve a worker’s income. Improving worker’s income could then lift them out of poverty. According to Valletta (2006) employment status is tied with family living arrangements as the most important factors associated with poverty. The analysis will focus on the effects of the minimum wage on employment. The general models are of perfect competition in labor markets, monopsonistic labor markets, and oligopolistic labor markets.

The first model is that of perfect competition where there are many firms in the labor market so that no single firm can influence the market wage. As Rocheteau and Tasci (2007) describe “Firms have no power to set wages” in competitive labor markets. An example of a perfectly competitive market may be that of an area with many individual farms and farm hands. Each individual firm is a “price taker” in that it must accept the going wage rate of the market. A graphical model is found in Figure 1. Collectively, the firms hire the workers ($Q^*$) at wage ($W^*$) such that the marginal product of labor ($MRP_L$) equals the supply of labor ($S_L$). Figure 2 the employment decision for an individual firm in a perfectly competitive market. For an individual firm, the labor supply curve becomes horizontal. Kim (2004) notes that the supply curve also serves as the marginal cost of labor curve for the firm ($MC_L$) and the firms demand for labor ($d_L$) also serves as the marginal revenue product of labor for the firm ($MRP_L$). To maximize profits, the firm hires an amount of labor ($q^*$) such that $W^* = MC_L = MRP_L$. 
Now suppose that Congress passes a minimum wage law such that minimum mandated wage \((W_{\text{min}})\) is greater than the equilibrium wage. More workers are willing to work at the higher wage \((Q_{\text{min}}^S)\) than the firms collectively would like to hire at that wage \((Q_{\text{min}}^D)\). Rocheteau and Tasci (2007) comment that “some unemployed workers would gladly work for a lower wage but cannot find a job” since firms are forced to reduce their labor forces by the higher mandated wages. Therefore, firms hire less workers than those willing to work creating unemployment. This is reflected in Figure 2. The minimum wage raises the marginal cost curve for each firm. In order to maximize profits, each firm adjusts it employment levels so that \(W_{\text{min}} = MC_L = MRP_L\) which leads to reduction in the number of workers the firm hires \((q_{\text{min}})\). This unemployment could be resolved by repealing the minimum wage. Firms will hire workers (or reduce employees’ wages) until they return to equilibrium levels. As well, some workers will be unwilling to work for lower wages and exit the labor market. Therefore, each firm hires as many workers as they see fit, and everyone in the labor market who seeks work is employed.

The second model of monopsony analyses a labor market where a single firm faces the entire labor supply. In such a scenario, the firm is a wage setter. The classic example of such a firm is a remote mining town where the mining company is the only source of employment. The labor supply would be the town’s population (assuming that the mining firm cannot attract outside workers nor can workers move away from the town). A graphical model of this monopsony is described in Figure 3. The monopsonistic firm the hires the quantity of labor \((Q_L^*)\) such that the marginal revenue product of labor \((MRP_L)\) equals the marginal cost of labor \((MC_L)\) in order to maximize profits. Workers are exploited since the wage they are paid is less than their marginal revenue product. The wage under monopsony is less than the wage in a perfectly
competitive market ($W^{PC}$) and the firm hires less labor under monopsony than under perfect competition ($Q^L_{PC}$).

Again, suppose that Congress enacts a minimum wage above the monopsonistic wage. Figure 4 depicts the impact the minimum wage would have on this theoretical market. Rocheteau and Tasci (2007) note that the minimum wage flattens the marginal cost curve so at the minimum wage rate ($W^{min}$) until it intersects the labor supply curve at point A. The marginal cost curve then continues from point B onward. Where the minimum wage intersects the supply curve then determines the new equilibrium employment level ($Q^{min}$). This new level of employment is higher than the employment level than without the minimum wage. Thus, the minimum wage in monopsonistic labor market results in both higher wages and higher employment.

The last model to consider is that of an oligopsonistic labor market. Bhaskar, Manning, and To (2002) describe an oligopsony as “a situation where employer market power persists despite competition with other employers”. In this type of labor market, employers can still act a wage setter even though the face competition from other firms. An example of an oligopsonistic labor market would be a mining town with a few mining companies. Kim’s (2004) kinked labor supply model provides a sufficient general model for the effects of the minimum wage in this market. The kinked labor supply model for firm is depicted in Figure 5. It is important to note that this model assumes that each firm acts independently and approximately the same size. There are other models of oligopsonies that reduce these restrictions, but the general effect of the minimum wage stays roughly the same throughout. A key difference between the monopsonistic model and the oligopsonistic model is the kinked supply curve and the resulting disjointed marginal cost curve. The kink results from the wage competition the firm faces from its fellow
oligopsonists. If the firm raises the wage at the kink \( (W^*) \), Kim (2004) describes that the other competing will also raise their wages (to retain its employees), reducing the number of employees the firm can attract resulting in the steeper, less elastic upper half of the supply curve \( (S_L^-) \). Conversely, if the firm reduced its wage, the firm would lose employees to the higher paying firms, resulting in the more elastic, shallower supply curve \( (S_L) \). The marginal cost curve \( (MC_L-B-A-MC_L^-) \) then becomes disjointed due to the kink in the supply curve. The equilibrium employment level \( (Q_L^*) \) corresponds to where the marginal revenue product of labor \( (MRP_L) \) intersects the marginal cost curve. The supply curve at \( Q_L^* \) results in the equilibrium wage of \( W^* \). Again, similar to monopsonistic model, less workers are hired than in perfect competition and the workers who are hired are paid less than in perfect competition.

Finally, suppose that a minimum wage law in enacted. Similar to the effects modeled in monopsony, this results in a higher wage and more employment. This is accomplished by the minimum wage \( (W_{\text{min}}) \) changing the marginal cost curve to be \( W_{\text{min}}-D-E-MC_L^- \). This new marginal cost curve intersects the marginal revenue product of labor curve results in the new profit maximizing level of employment \( (Q_{\text{min}}) \). \( Q_{\text{min}} \) is greater than the employment level before the minimum wage regulation. This applies to each firm and since all firm are hiring more workers, the total employment will rise. Thus, a minimum wage could improve both employment and wages under an oligopsony.

In summary, only under a perfectly competitive model are minimum wages expected to harm employment. Imperfectly competitive markets, such as monopsonies and oligopsonies with minimum wages should improve employment levels. A naive hypothesis results that areas with imperfect labor markets should see a decrease in poverty with the enaction
of minimum wage laws. The logic is that minimum wage laws theoretically increase employment and wages; therefore, more people will be generating higher incomes reducing poverty.

Before analyzing the effects of the minimum wage on poverty, it is important to first review the empirical effects that the minimum wage has on employment. If minimum wages have negative employment effects, there then exists a logical chain that reduced employment reduces incomes, increases poverty (or at minimum having no impact on poverty).

Wolfson and Belman (2019) conduct a meta-analysis of 37 studies on the effects of the minimum wage on employment. The estimated employment elasticity is -0.082. This indicates that the minimum wage increases have a negative impact on employment albeit small effect. Wolfson and Belman (2019) highlight that this is smaller than the previous consensus range of -0.3 to -0.1 meaning that the employment effects of the minimum wage are also decreasing in magnitude. This result is weakly consistent with that of a perfectly competitive labor market, since an increase saw a small but negative effect on employment. Finally, Wolfson and Belman (2019) conclude that “the minimum wage has negative employment effects”, but the effects are mostly localized to teenagers. This then sheds doubt on the possibility of minimum wages decreasing poverty, since the minimum wage has little effect on employment.
Chapter 2: Empirical Evidence of the Effects of Minimum Wage on Poverty

The theory states that, under certain conditions, minimum wage increases should lead to increased employment and by extension lead to improvements in welfare. By examining the impact of the minimum wage on selective groups in the United States, the effectiveness of these minimum wage increase can be verified.

Burkhauser and Sabia (2007) analyzed the effects of increasing the minimum wage from $5.15 per hour to (at the time, proposed) $7.25 per hour on poverty. In the study, poverty was defined as having an income-to-needs ratio of less than 1.00. Using the 2003 household adjusted poverty line defines the need for a family, while the total household income was the income. Burkhauser and Sabia (2007) explain that for a family of four in 2003, the poverty line was and income of $18,810; if a household had a total income of $37,620, their income-to-needs ratio would be 2.0. Secondly, low wage workers are defined as earning less than 50% of the average private sector wage. Between 1939 and 2003, Burkhauser and Sabia (2007) cite that there was a decline in the relationship between being a low wage worker and the head of a poor household. In 1939, 31% of low wage workers were heads of poor households, while in 1969 it dropped to 11%, and in 2003, it fell to 9%. Conversely, low wage workers who were heads of households (regardless of income-to-needs ratio) decreased from 34% in 1939 to 21% in 1979, then increasing slightly to 29% in 2003. The relationship between being a low wage earner and living in poverty decreased, as Burkhauser and Sabia (2007) explain due to “low wage workers increasingly becoming the second or even third workers in nonpoor households”. As well, low
wage-earning heads of households had incomes supplemented by the earnings of other members pushing the household above the poverty line.

Burkhauser and Sabia (2007) then compare the effects of state increases to minimum wages and reductions in poverty from 1988 to 2003. Burkhauser and Sabia (2007) found no significant relationship between minimum wage increases and the poverty levels in states. They further specify the effects of minimum wages on workers and poverty since, as Burkhauser and Sabia (2007) explain, “poor families with no workers might be driving the insignificant relationship” of minimum wage increases and poverty in general. When specifying to only workers, again Burkhauser and Sabia (2007) found no significant relationship between decreases in poverty and the increase in minimum wages. A possible explanation is that the increase in wages helped some families escape poverty but decreases in employment drove other families into poverty. Another explanation, according to Burkhauser and Sabia (2007), is that minimum wage increases are not well targeted at poor workers.

Burkhauser and Sabia (2007) then examine the “target efficiency” of minimum wage increases by analyzing the benefits of different income strata workers. For the minimum wage to have high target efficiency, it must benefit poor workers more than higher income level workers. Burkhauser and Sabia (2007) achieve this analysis by simulating the effects of the (at the time) previous minimum wage increase from $4.25 to $5.15 in 1997 and the (at the time) proposed increase from $5.15 to $7.25 for 2003. Importantly, Burkhauser and Sabia (2007) ignore any negative employment effects (such as layoffs or reductions in hours) in order to create a “best case” scenario for minimum wage increases. Each increase would benefit less than 10% of all workers in the United States economy. For poor workers, only 27.3% were helped by the
increase to $5.15 and slightly more would be helped at 31.1% for the proposed $7.25. A majority of poor workers would see no benefit from the increased minimum wage. Burkhauser and Sabia (2007) also found that over 60% of minimum wage earners lived in households with income-to-needs ratios of 1.5 or higher for both increases. Over 40% of minimum wage earners for both periods were in households with ratios of 3.00 or greater. Of the benefits gained from the increases, poor households gained only 14.2% from the $5.15 increase and 12.7% from the proposed $7.25. Over 40% of the benefits for both minimum wage increases went to households with ratios of 3.00 or higher.

Burkhauser and Sabia (2007) then conclude that the minimum wage increases would do little to improve the welfare of poor workers due to very few of them receiving the benefits of the increase. These workers did not benefit due to many of them earning above the increased minimum wage. The wage increases were not target efficient since 14.7% of all workers helped were poor, even under the optimistic assumptions.

Following the minimum wage increase to $7.25 in 2009, Sabia and Burkhauser (2010) repeated their analysis of the effectiveness of the minimum wage. They first analyzed the effectiveness of state minimum wage increases in reducing state poverty levels from 2003 until 2009. Sabia and Burkhauser (2010) found no statistically significant relationship between state minimum wage increases and reductions in poverty. They also note that the poverty elasticity is small, suggesting that the lack of poverty diminishing effects is not wholly attributable to poor families.

In regard to the new federal minimum wage of $7.25, Sabia and Burkhauser (2010) found that only 29% of poor workers benefited from the increase. This is slightly less than what
Burkhauser and Sabia (2007) had predicted. Thus, the increase in the minimum wage did not improve the wages for a majority of workers from poor households. As well, only 15.5% of the net benefits of the increase went to poor households, indicating poor target efficiency of the $7.25 minimum wage increase. This is slightly larger than the 12.7% share for poor households predicted by Burkhauser and Sabia (2007) but it is still quite small.

For the proposed federal minimum wage increase to $9.50, Sabia and Burkhauser (2010) found that 17.7% of all workers in 2008 would be affected by the minimum wage increase. 51.1% of poor workers would see an increased wage as result of the new regulation. As well, Sabia and Burkhauser (2010) analyzed the share of benefits from the proposed increase. Sabia and Burkhauser (2010) predicted that 10.9% of the benefits of increased minimum wage would go to poor households. Households with ratios of 2.0 and above receive 62% of the benefits of the increase. Of interest, the estimated employment elasticity for the minimum wage increase was -0.086. This is similar to the estimated elasticity of -0.082 found by Wolfson and Belman (2019). Therefore, the proposed increase to $9.50 had poor target efficiency since a majority of the beneficiaries were from non-poor households.

Both Burkhauser and Sabia (2007) and Sabia and Burkhauser (2010) conclude that the minimum wage is an ineffective tool to reduce poverty. Both agree that a key reason for the ineffectiveness is that poor households do not receive a majority of the benefits of the increase. Over half of the benefits went to households above the poverty line. As well, most workers in poverty earned above the minimum wage increases before they were enacted. Sabia and Burkhauser (2010) also cite the possibility of adverse employment effects of a minimum wage increase which would further weaken its effectiveness. Finally, Sabia and Burkhauser (2010)
predict that the target efficiency of increases is also decreasing, noting that the effectiveness dropped from the poor receiving 15.5% of the benefits to 10.9% of the benefits.

Sabia (2014) considers the effects of minimum wages on poverty from 1979 to 2012 and the effects of the Fair Minimum Wage Act proposal to increase the minimum wage to $10.10 an hour. For poor workers, Sabia (2014) found that minimum wage increases were statistically insignificant in reducing poverty for households at or below the poverty line. For households, 50% and 100% above the poverty threshold, minimum wage increases lead to statistically significant increases in poverty. A 10% increase in the minimum wage increases poverty in households 50% above the poverty line by 1.39% and for households at 100% above the poverty line, poverty increases by 1.76%. Sabia (2014) cites adverse labor demand effects against near-poor households as possible cause for the positive correlation. Repeating the analysis and adding controls for family unit, location, and workers, Sabia (2014) found negative but statistically insignificant relationships between poverty and minimum wage increases. Thus, from 1979 to 2012 minimum wage increases had little to do with reductions in poverty.

Sabia (2014) measured the target efficiency of an increase in the minimum wage to $10.10 an hour. In 2012, Sabia (2014) found that only 13% of low wage workers lived in poor households, with 61% of low wage workers lived in households with incomes double the poverty threshold. Of workers who would see wage increases from the minimum wage increase, Sabia (2014) notes that only 12% of workers would be from poor households: 40% of workers who would see wage increases were from household with incomes three times above the poverty line. Finally, 49% of workers in households under double the poverty line already earns more than $10.10 and so will not directly benefit from the increase. Sabia (2014) then concludes that
minimum wage increases are not well targeted at poor workers and do little to improve their welfare.

The evidence this far indicates that minimum wage increases will not decrease poverty among workers in general. However, the minimum wage increases may benefit certain vulnerable subsections of poor populations. Two populations of interest are low skilled immigrants and single mothers. If the minimum wage increases can alleviate poverty among these subsections, they may be effective poverty reduction tools.

Churchill and Sabia (2019) study the effect of minimum wage increases on immigrants. They note that immigrants are more likely “to be bound by minimum wage increases” and therefore see a greater impact on wages and employment losses. Churchill and Sabia (2019) use the Current Population Survey (CPS) from 1994 to 2016 as the data set. Churchill and Sabia (2019) then define a low skilled immigrant as “a foreign born 20-to 54-year-old without a high school diploma or general education development (GED) who is not a US citizen at birth”. The CPS does not define if an immigrant is authorized, so Churchill and Sabia (2019) consider “non-Hispanic immigrants with less than a high school diploma” to likely be unauthorized. Churchill and Sabia (2019) further narrow the study to only analyzing immigrants that reported to be born in Mexico. The poverty threshold has been defined similarly to Burkhauser and Sabia (2007) and Sabia and Burkhauser (2010) with an income-to-needs ratio of less than one.

Churchill and Sabia (2019) found no significant relationship between increases in the minimum wage and decreases in poverty among low skilled immigrants. The relationship between poverty and minimum wage increases, while not significant, are positive. Churchill and Sabia (2019) describe that the “estimated poverty elasticities with respect to the minimum wage
are uniformly positive for immigrants.” As well, Churchill and Sabia (2019) conclude that the “findings provide little support for the claim that minimum wage increases alleviate poverty or increase household income among low-skilled immigrants, in part due to adverse employment effects”. These adverse employment effects are reflected that a 10% increase in the minimum wage leads to a 1.1% decrease in employment for low skilled Mexican immigrants. However, a 10% minimum wage increase causes a 1.62% increase in wages for that same group. Thus, the wage gains offset the decreases in employment, doing little to improve low-skilled immigrants’ condition.

In addition to analyzing the impact on workers in general, Burkhauser and Sabia (2007) and Sabia and Burkhauser (2010) considered how single mothers may be impacted by increases to the minimum wage. Burkhauser and Sabia (2007) found that 9.5% of beneficiaries are single working mothers benefited from the increase to $5.15. For the estimated impact of an increase to $7.25, Burkhauser and Sabia (2007) found that 13.2% of beneficiaries are single working mothers would benefit. Sabia and Burkhauser (2010) then measured the actual impact and found that only 12.0% of beneficiaries were single mothers. This is slightly under the estimated percentage of beneficiaries. For the increase to $9.50, the estimated percentage of single working mothers decreased. Only 11.1% of beneficiaries would be single working mothers. This indicates that minimum wage increases are also becoming less effective at helping single mothers. More single working mothers are making above the minimum wage over time as well. Of the single mothers who would benefit, Burkhauser and Sabia (2007) found that 22.4% were poor. Most single mothers who would benefit were not poor.
Therefore, even with selected groups minimum wage increases do not alleviate poverty. Minimum wage increases among immigrants to the US do little to impact their welfare. Similarly, the poor single mothers were not greatly helped by the increases to the minimum wage.

**Conclusion**

The effect of minimum wage increases does not seem to improve the welfare of both workers in general, immigrants, or single mothers. Burkhauser and Sabia (2007) and Sabia and Burkhauser (2010) found that increase tend to benefit nonpoor households. In addition, Burkhauser and Sabia (2007) cite that “most minimum wage workers who do gain [from minimum wage increases] live in nonpoor households” while poor workers tend to earn wages higher than proposed increases. Sabia and Burkhauser (2010) also postulate that adverse employment effects of the increases reduce the effectiveness for poor workers. Finally, Sabia and Burkhauser (2010) believe that minimum wage increases over time will also become even less effective in helping alleviate poverty. As for relieving poverty among single workers, the minimum wage also seems to be an ineffective tool. Churchill and Sabia (2019) suggest “that minimum wage increases had little effect on low-skilled immigrants well-being” and that minimum wage increases did anything to “increase household incomes among low skilled immigrants.” Similarly, more nonpoor single mothers benefited from minimum wage increases than poor single mothers. Minimum wage increases do not effectively focus on helping the working poor.

Burkhauser and Sabia (2007) and Sabia and Burkhauser (2010) recommend instead of minimum regulations expanding Earned Income Tax Credits (EITC) to alleviate poverty. EITC
is more target efficient since it is based on household income. Burkhauser and Sabia (2007) explain that poor worker earning above a proposed minimum wage would not benefit from the increase, “but would be eligible for EITC benefits”. Sabia and Burkhauser (2010) cite another benefit that EITC may also increase employment among single mothers. Valletta (2006) suggests that policies that encourage family and employment stability are critical to mitigating poverty. In summary, the minimum wage increases are an ineffective tool for reducing poverty in the United States due it largely benefiting nonpoor households.
Works Cited


Figures

Figure 1: Perfectly Competitive Labor Market and the Minimum Wage

Figure 2: Firm in a Perfectly Competitive Market
Figure 3: Monopsonistic Labor Market

Figure 4: Monopsonistic Labor Market with a Minimum Wage
Figure 5: Oligopsonistic Labor Market