Diving Deeper into a Complex Problem in Economics: How are Minimum Wages Determined

Derin Degerli¹ and Mustafa Alp²

¹²Uskudar American Academy, Istanbul, Turkey

DOI: 10.46609/IJSSER.2024.v09i06.024 URL: https://doi.org/10.46609/IJSSER.2024.v09i06.024

ABSTRACT

The purpose of this research paper is to make a comprehensive analysis of minimum wage and the economic and societal implications of it. The research explores the consequences of increases in the minimum wage and the existence of minimum wage within several economic and social indicators such as poverty, income inequality, and inflation with reference to experts and real-world data. In addition, this research also evaluates the different policies by which the minimum wage is set, from the formulaic approach to collective bargaining. Through analyzing countries with frequent minimum wage changes and varying economic problems the research shows that increases in the minimum wage while aimed at alleviating poverty often result in inflation. Furthermore, it was concluded that a mixed policy was necessary in order not to be affected by the negative consequences of minimum wage while maximizing the benefits of it.

Keywords: Income Inequality; Inflation; Minimum Wage; Poverty

Introduction

This research paper touches upon the importance of minimum wage, the policies to determine minimum wage, and the minimum wage in times of inflation in order to understand how economies determine the value of minimum wage, and how it affects hundreds of millions of lives all over the world. Ever since its initial imposition in 1894, the concept of setting a wage floor has been a controversial topic among economists and policymakers. From a technical point of view, the minimum wage can be defined as the minimum amount of remuneration that an employer is required to pay wage earners for the work performed during a given period, which cannot be reduced by collective agreement or an individual contract. From a more societal standpoint, the minimum wage is defined as the wage that is sufficient to meet the worker’s compulsory needs such as food, housing, clothing, health, transportation, and culture. Determining a value of minimum wage is always monumental for policymakers as they need to
take into account countless parameters and factors such as economic growth, stakeholders, unemployment, poverty, inequality, and etc. However, setting minimum wages in times of rising inflation adds another layer of difficulty to the problem of determining a minimum wage value. As for the goal of a minimum wage policy, the Labor Commission of the UK states minimum wage policy needs to "help as many as possible low-paid workers without adverse effects on the economy". Overall, this study aims to explore the effect minimum wage has on economy and society from a broad perspective.

2. Detailed Formats of Manuscript

This section describes how to prepare each part of the final manuscript more specifically. Your manuscript should be typed double-spaced in two-column format on one side of a sheet only, with margins of about 1.5 cm on left and right side and 2.5 cm on top and bottom side, respectively, of each page. The suggested length of a regular paper would be 5~10 pages in this style. The subsequent headings, so called the subsections, may as well not exceed further than one-step lower level. In other words, the headings like ‘2.1.2 two-step lower level’ are not recommended while ‘2. Section’ and ‘2.1 Subsection’ would be validated. As for the fonts and the sizes of the headings, this manuscript in itself constitutes a good example. The paper should be written in A4 (210mm by 297mm) size. All fonts are Times New Roman.

2. Importance of Minimum Wage to the Economy

2.1. Theory

The practical effects of minimum wages have been controversial among economists and politicians due to the perceived ambiguousness of the economic theory’s positives. Figure 1 below shows the implementation of minimum wage in theory.

**Fig. 1. Minimum Wage Theory**

![minimum wage theory diagram](image-url)
The imposition of a minimum wage (Wm) above the equilibrium price of labour (We) creates a surplus of labour -unemployment- equal to Qs-Qd, as it corresponds to the number of people in the labour force who would like to work but can’t find jobs. In practice, while the effects of minimum wages remain controversial, there is generally strong political support for their continued use on the grounds of greater equity in income distribution. In fact, more than 90% of the countries have one or more minimum wages set, showing that the debate is not about whether there should be minimum wages or not, but rather what their level should be. In addition, lowering the level of minimum wages after it has been set is a highly uncommon practice, hence the factors discussed in this section discusses what happens when the minimum wage level is increased.

2.2. Unemployment

There are hundreds of studies published about the effects of changes in the minimum wage on unemployment, yet all of them yield the same result: no conclusions can be drawn, and positive effects may be as likely as negative effects. In theory if a minimum wage is set at a level higher than the free market equilibrium wage, it is expected to create unemployment, as the businesses would like to maintain their initial cost of production by hiring less number of workers. However, some firms respond to the minimum wage by maintaining the same number of workers but cutting non-wage benefits (such as paid holidays or sick leave). Also, it is possible that labour productivity (defined as the amount of output produced per worker) may increase due to the minimum wage, as workers feel motivated to work harder, with the result that some firms hire more unskilled labour in response to minimum wages (CAMBRIDGE PRESS). This uncorrelated relationship between unemployment and minimum wage can also be seen in Figure 2 below.

Fig. 2. Minimum Wage and Unemployment
2.3. Income Inequality

In his redistribution theory, the economist Richard B. Freeman suggests that minimum wage affects the distribution of income in three different methods. The first method is when minimum wage increases the cost of production, which in turn increases the prices of goods and services. Hence the wage of the low-wage workers is increasing while the purchasing power of other consumers’ income decreases, thereby altering equality. The second method is when the business profits fall as the cost of production increases. Lowered profits decrease the income of investors (usually high-income earners) while the low-income earners’ wages increase. In contrast to the first two, the last method actually worsens the distribution of income. As the cost of production increases, businesses tend to operate with fewer workers for more profit. Accordingly, increases in the minimum wage would decrease the wages of the low-income earners due to unemployment, increasing income inequality. However, as mentioned before, it is proven that there is no direct correlation between minimum wage and income inequality, so this method is a contradiction. All of these three methods offer a relationship between the minimum wage and income inequality through redistribution: increases to the real value of the minimum wage redistribute wealth from the higher end of the income spectrum to the lower end of the spectrum, thereby decreasing inequality.

2.4. Stakeholders

→ Businesses: Businesses are worse off as they face higher costs of production due to the higher labour costs. This situation is particularly challenging for small businesses, as they mostly operate on lower profit margins and may have a hard time funding the increased wages, leading them to go out of business. However, workers might be more encouraged due to higher wages, increasing the quality of physical capital that businesses possess. On the other hand, higher wages can serve as a motivation for minimum wage earners as they may feel more valued, potentially enhancing the overall quality of physical labour within the business.

→ Workers: As discussed in the unemployment section before, the impacts on workers are indeed mixed. While some workers gain because they earn more, others may lose their jobs as businesses try to mitigate the increased costs of production. This situation leads to a more unequal distribution of income.

→ Consumers: As the cost of production increases, businesses often reflect these costs on the prices. Higher product prices and lower quantities can severely limit consumers’ purchasing power.

→ Government: The effect on the government is mixed. The workers who are paid minimum wage in the public sector create an additional burden on the government budget as their
wages increase. On the other hand, as workers’ income increases, so does their taxable income, leading to higher tax revenue generated by the government.

2.5. Economic Growth

A recent study in the US finds that a 10% increase in the minimum wage is associated with a 1−2% decrease in GDP generated by lower-skilled industries relative to higher-skilled industries. As can be seen in Figure 3 below, although an increase in the minimum wage leads to growth in sectors where high skills are needed, the very same increase in the minimum wage causes an even bigger rate of negative growth, leading to an overall decrease in the economic growth.

Fig. 3. Estimated Effect of a 10% Increase in the Minimum Wage on State GDP

Increases in the minimum wage or the implementation of a minimum wage policy may stimulate macroeconomic growth if productivity is shifted toward more highly-skilled sectors, possibly by inducing additional training for low-skilled workers. The relationship between minimum wages and economic growth is an empirical question and depends on how minimum wages affect: (i) the demand for low-skilled workers; (ii) low-skilled workers’ wages; (iii) availability of substitutes for goods produced by minimum wage workers; (iv) workers’ effort; and (v) job training and educational attainment. Therefore, simple correlational evidence on the relationship between minimum wage and economic growth is not straightforward. For instance, the US government enacted federal minimum wage increases in 1990–1991 and 2007–2009, which were periods of sharp declines in real GDP growth; on the other hand, there was strong economic growth during the period when the federal minimum wage was raised in 1996–1997 and during a recession in the early 2000s, when the real value of the minimum wage declined.
2.6. Poverty

It is widely accepted that the minimum wage should be a “living wage,” and it should serve to be above the poverty line, acting as an income required to afford the basic necessities of life. Keeping the income of the working populace no matter the labor surplus or other economic downturns enough to afford basic necessities has been the purpose of the minimum wage since its inception. As per the International Labor Organization, “Minimum wage fixing should constitute one element in a policy designed to overcome poverty and to ensure the satisfaction of the needs of all workers and their families” especially in developing and least economically developed countries. There are many aspects and circumstances that determine whether an increase in the minimum wage should be considered in order to alleviate poverty. Raising the minimum wage is likely to reduce poverty if job losses in the formal sector are minimal, informal sector wages increase and the earners are primarily heads of low-income households; furthermore, effective social safety nets can mitigate any adverse effects on poverty due to potential job losses among low-income workers. On the other hand, higher minimum wages are not likely to reduce poverty if they lead to job losses in the formal sector, do not cover many informal workers, affect mainly secondary family workers, and result in low-income workers being unable to find new jobs without the support of social safety nets, potentially increasing poverty instead. As such when considering the application of minimum wage in poverty reduction it is foremost that the social and economic structure of the country be considered.

3. Policies to Determine Minimum Wage

3.1. Formulaic Approach

The use of a formulaic approach has become more and more popular in recent years. As previously mentioned, numerous significant factors affect the level of minimum wages, but there are countless small parameters in the changing labour market conditions as well. Therefore, it is impossible to create a perfect formula, and countries often mix the formulaic approach with other policies. The formulaic approach has a quality not present in other policies: it isn’t subject to political constraints. This can both be beneficial and harmful. During extreme situations like a natural disaster, a formulaic approach would be far too inadequate due to the new parameters created. On the other hand, the level of the minimum wage wouldn’t be affected by special interest groups when the formulaic approach is used.

There is a specific method taken into consideration in most of the formulaic approaches called the “bite” of the minimum wage. The “bite” of the minimum wage is the ratio of the minimum wage to the median wage. To maintain the “bite” of the minimum wage, the following formula can be used:
New Minimum Wage = Old Minimum Wage + Change in Median Wage

The “bite” of the minimum wage measures the relative importance of the minimum wage in each labor market. For many countries, the minimum wage is set at around 50% of the median wage, as can be seen in Figure 4. However, it varies considerably for some countries as well, from under 30% in the US to more than 65% in France and New Zealand.

**Fig. 4. Minimum Wage Bite Across the OECD in 2005, 2015 and 2021**

This method is particularly useful in distributing the income more equally. The closer a country’s “bite” is to 50%, the lower the Gini coefficient the country has(20). Hence, countries must strive for a “bite” of 50% if they want to achieve better income equality.

### 3.2. Minimum Wage Set by Regimes

When the minimum wage is set by the government alone, no other third parties are involved. This method involves the risk of political factors affecting the level of minimum wage rather than purely economic reasons. On the contrary, the involvement of the government in setting a minimum wage level can be beneficial as well, as the government can potentially take bolder steps than other mechanisms used to set minimum wages. Furthermore, despite the possible involvement of political factors in the decision-making, the inclusion of an expert body offers a counterbalance as it oversees the government’s actions in a way. These expert bodies consist of employee and employer representatives from labour unions.
As can be seen in Figure 5, most of the countries that set the minimum wage levels by a regime follow a mixed approach where a committee is established consisting of both the government and an expert body.

**Fig. 5. The Global Prevalence of Different Minimum Wage Setting Systems**

The inner dynamics of this committee differ greatly in countries, shaping the outcome and perception of fairness in minimum wage adjustments. For example, the government delegation tends to cast the deciding vote in Turkey whereas, in Bulgaria, the workers and employers in the expert body are represented on equal footing with the government in the committee.

### 3.3. Collective Bargaining

Collective bargaining is all negotiations that take place between one or more employers, on the one hand, and one or more workers’ organizations, on the other, for determining working conditions and terms of employment, regulating relations between employers and workers, and regulating relations between employers’ organizations and workers’ organizations. Collective bargaining is a fundamental principle and considered an enabling right at work. The minimum wages determined by collective bargaining are often agreed at the sectoral level, which can result in multiple minimum wages. Studies show that collective bargaining can contribute to improvements in wages and working conditions, as well as equality. It has also been instrumental in facilitating the adaptability of enterprises and economies during an economic crisis.
mentioned, collective bargaining can be a means to fix minimum wages. During collective agreements, involved parties may have a hard time reconciling. Even after an agreement has been made, disputes may arise upon its interpretation and application. These disputes are a public concern as they can have negative consequences for the stakeholders in the economy. For these reasons, third parties need to intervene in establishing dispute resolution procedures and providing services that can assist the involved parties in resolving the dispute and return to the negotiating table. A negotiated agreement, no matter how unsatisfactory is always more desirable to an imposed solution. Moreover, in most countries, the coverage of collective bargaining is insufficient to protect minimum standards for a broad majority of workers. That is why there are only a few countries that rely exclusively on collective bargaining for minimum wage fixing.

4. Minimum Wage in Times of Inflation

Trying to determine a level of minimum wage is not easy, but setting a minimum wage during inflation adds another layer of difficulty to the problem. The relationship between minimum wage and inflation is complex. Economists are divided on whether increases in minimum wage lead to inflation.

Some economists argue that too high of a government-mandated minimum wage creates a highly inefficient artificial floor in the labour market, which can cause distortions in the production process. The theory is that there might be demand for a job with a $20 per hour pay in a free labour market. However, if there is an hourly pay floor of $25, a worker cannot bid lower for the job and this inefficiency will drive higher production costs, so producers will be willing and able to produce fewer goods and services. This leads to an elevation in the overall prices in the economy, creating wage-push inflation, or more commonly known as cost-push inflation. Conversely, some economists believe that increases in the minimum wage don’t lead to inflation because as wages increase, companies hire fewer people to preserve their profit margins. With more unemployment, workers have less disposable income, leading to a decrease in the aggregate demand and hence deflation in the economy. However, as discussed before in this paper, there is no conclusions can be drawn regarding the relationship between minimum wages and unemployment. Another argument that supports the correlation between minimum wage and inflation is that small businesses may not have the financial capabilities to supply that increased minimum wage. When these small businesses are forced to leave the market, a bigger market share and hence market power is left to the remaining businesses. As a result of reduced product availability with no change in product demand, the businesses that remain in the market can increase the prices. Keeping these in mind, a strong argument can be made that an increase in the minimum wage level increases inflation. When discussing minimum wage, it is important to make a distinction between nominal minimum wage and real minimum wage. The nominal minimum wage is the literal amount of money without taking into account inflation that a
minimum wage worker gets whereas the real minimum wage is the amount received after factoring in the current inflation. Figure 6 below shows how changes in CPI, referring to inflation, affected the real minimum wage in relation to the nominal minimum wage in the USA’s garment sector.

**Fig. 6. USA Minimum Wage and CPI in the Garment Sector**

As the interval 2011-2015 shows, the real minimum wage can fall below the nominal minimum wage with inflation. When that happens, an increase in the nominal minimum wage follows. The increases in the nominal minimum wage don’t resolve the issue of poverty and low standards of living if the percentage change falls behind the inflation rate. Argentina’s wage council, which is made up of government representatives, business leaders, and labour unions, approved a staggered increase in the minimum wage. Shortly after the announcement however, Autonomous CTA labour union leader Hugo Godoy said “Once again, the government is offering an increase that is below inflation, leaving the poorest sectors of society unprotected,” and rejected the new proposition. As shown in Table 1, this is a common problem in countries experiencing high inflation rates.
Table 1. Inflation Rates and Minimum Wages of Countries

<table>
<thead>
<tr>
<th>Countries</th>
<th>The percentage change in minimum wages</th>
<th>The percentage change in inflation rate between old and new minimum wages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venezuela</td>
<td>87.5%</td>
<td>167%</td>
</tr>
<tr>
<td>Argentina</td>
<td>26.6%</td>
<td>102.5</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>56.3%</td>
<td>73.6%</td>
</tr>
<tr>
<td>Nigeria</td>
<td>85.7%</td>
<td>109.8%</td>
</tr>
<tr>
<td>Iran</td>
<td>20%</td>
<td>48.7%</td>
</tr>
<tr>
<td>Turkey</td>
<td>35%</td>
<td>68%</td>
</tr>
<tr>
<td>Angola</td>
<td>26.6%</td>
<td>102.5%</td>
</tr>
</tbody>
</table>

To solve this problem, countries may reflect on their minimum wage-setting mechanisms. Necessary changes to the minimum wage often get stuck in bureaucracy and conflicting political interests within the government, especially in less economically developed countries. The lack of rapid action to high inflation rates and poverty aggravates the existing problems in the economies, frequently causing worker outrage as exemplified above. To prevent necessary economic changes from being delayed and establish a formalized process for setting a new minimum wage, a formulaic approach is needed. These formulas, often informed by economic indicators and social considerations, help mitigate arbitrary decision-making and promote stability in labor markets. Other policies to determine minimum wages also consider major factors like unemployment, economic growth and etc. but the use of a formulaic approach gives substantial meaning and value to these factors, which makes the use of a formulaic approach especially effective in times of inflation. However, following a policy exclusively based on a formulaic approach would not be ideal as economics has too many moving parts to solely rely on a pre-established metric. In addition, most of the countries using the formulaic approach are suffering from income inequality, as evidenced by their high Gini indexes. To compensate for the shortcomings of the formulaic approach, other policies should be integrated as well. A committee consisting of government experts and representatives from labour unions is essential to get different points of view on the matter and intervene when the formulaic approach is ineffective in extreme situations. Furthermore, consideration of the “bite of the minimum wage” and a clear line of communication for collective bargaining are necessary to achieve a more equal distribution of income in the economy. Essentially, an ideal minimum wage framework that balances socioeconomic objectives with practical realities can be determined by embracing a
mixed approach that combines all of the aforementioned policies, as these policies cover up for each other's shortcomings.

5. Conclusion

In this analysis, minimum wage laws are evaluated in a variety of economic settings with attention on how changes in the minimum wage affect employees, employers and the economy as a whole. The connection between the economy and shifts in minimum wages is illustrated by investigating how inflation, poverty rates or income inequality respond to changes in the minimum wage. The research also notes that while one of the main purposes of raising the minimum wage is to alleviate poverty research and data points out that such actions often have the opposite effect such as increases in unemployment and inflation among other negative consequences. The research shows that the effect of a change in the minimum wage is dependent on the economic structure of a country since it can either improve or worsen matters depending on the preexisting labor laws and other factors mentioned in the research. The importance of having a flexible and responsive policy framework that can adapt to shifting economic conditions is also revealed through analyzing and compiling the different perspectives of experts as well as through references to real world data. The investigation of different approaches to minimum wage setting, ranging from collective bargaining to formulaic approaches, to a mixed approach featured in the research highlights the necessity and benefits of having a dynamic minimum wage policy as well as the demerits of having a rigid and slow one. The paper supports these claims and analyses through a comprehensive look into the perspectives of experts and relevant organizations as well as the data on the relation between inflation and minimum wage observed in countries. Using comparative analyses the study offers an analysis on the policymaking of minimum wage changes through maximizing the positive effects of minimum wage laws while minimizing their negative effects. Further research into this topic can follow planning out a possible formulaic approach for a given country as well as a more detailed analysis of the policymaking process behind minimum wage laws and changes.

References


4. Cambridge Press Economics for the IB Diploma

5. Cambridge Press Economics for the IB Diploma


9. Determining the effect of the minimum wage on income ... (n.d.-a). https://cupola.gettysburg.edu/cgi/viewcontent.cgi?article=1388&context=student_scholarship


17. Gindling, T. H. “Does Increasing the Minimum Wage Reduce Poverty in Developing Countries?” IZA World of Labor, 21 Nov. 2018, wol.iza.org/articles/does-increasing-the-
minimum-wage-reduce-poverty-in-developing-countries/long.


29. “Trading Economics: 20 Million Indicators from 196 Countries.” TRADING ECONOMICS | 20 Million INDICATORS FROM 196 COUNTRIES,