

The effects of the minimum wage on inequality

A literature review

Javier Arribas Cámara, Luis Cárdenas and Adrián Rial

Javier Arribas Cámara is an Assistant Professor in the Department of Applied, Public and Political Economics at Complutense University in Madrid, Spain.

Luis Cárdenas is an Assistant Professor in the Department of Applied, Public and Political Economics at Complutense University in Madrid, Spain.

Adrián Rial is an Assistant Professor in the Department of Applied, Public and Political Economics at Complutense University in Madrid, Spain.

ABSTRACT

The effects of the minimum wage on employment and wages have been widely studied, but its impact on inequality has not yet been well analysed due to the multiple ways of observing it. This study aims to compile the most relevant publications that have dealt with inequality in order to organise them systematically by types of inequality and the conclusions that have been reached on the effects of the minimum wage. Finally, and taking into account the uncertainties that characterise any long-term forecast, it is observed that although the minimum wage is not neutral in its effects and has negative repercussions on employment, these are relatively mild. Nevertheless, from all the perspectives analysed, the minimum wage can be seen to have positive consequences for the reduction of inequality.

KEY WORDS

minimum wage; inequality; poverty; trade union; social policies; institutional relations

DOI: 10.13169/workorgalaboglob.18.2.196

Introduction

This literature review aims to delineate the results and methodologies used in the leading research on the effects of minimum wages on income inequality. While the effects of the minimum wage have been widely studied and debated, academic observation of the effects on inequality has received less attention. One of the main problems we encounter is that the term 'inequality' can be looked at from multiple points of view, so that even though there are huge amounts of analysis on the effects of the minimum wage, they always end up reducing their analysis to employment effects and overlook (or conflate) the difference between effects on real wages and impacts on other issues such as on the gender gap, racial, geographical and living conditions.

Methodology

The research presented in this article used a selection of the most relevant studies for a literature review based on the number of citations, publication in high-impact journals and the methodological robustness and/or genuineness of their object of study. Once they had been analysed, we proceeded to organise them not by results but in blocks. These blocks were organised according to whether or not the introduction of a minimum wage had resulted in an improvement or a deterioration in: the general living conditions of the population; all other wages; income, gender, racial or territorial inequalities; or employment. Thus, although the main research question of the analysis was not the effects of inequality *per se*, it was nevertheless considered helpful for the consistent development of the work to clarify and strengthen points that are more obscure concerning the impact of the minimum wage on other social, political and/or economic factors of interest.

One major issue we faced was the diverse interpretations of the term 'inequality', which has in the past led to a narrow focus on the employment effects when analysing the impact of the minimum wage. This approach often disregards or confuses the effects on real wages, the gender gap, racial disparities, geographical disparities and living conditions. We initially contemplated an idea that involved highlighting a comparative approach across several articles in the first draft of the paper. However, at best, such an approach would require that we address a major challenge we constantly faced throughout our research process: the multitude of nuanced variations present in each concept under study, the diversity in methodologies employed, sample sizes and limitations inherent in each individual study.

Due to these factors, a comprehensive comparison across studies was not considered feasible within the constraints of a journal article format, which often imposes word limits. In addition, the large number of texts analysed further complicated the task.

Therefore, given the intricate nature of the nuances of each concept, the divergent methodologies employed, the different sample sizes and the inherent limitations of each study, a comparative approach was impractical for the scope and limitations of our article. Once the literature review had been carried out and systematised in chronological order, we proceeded to summarise its most relevant conclusions in

relation to four fundamental questions: first, whether it improves or worsens general living conditions; second, how it affects other wages; third, whether it reduces inequalities (income, gender, racial or territorial); and fourth, the effects on employment, followed by its assessment on a scale from very serious to very slight. All of the above would allow us to gain an approximate impression of the effects of the minimum wage on inequality. To improve the ranking, the effects reported by the authors of the studies were taken into account by classifying them into *positive* or *negative* effects for each of the questions listed above and whether these were strong, moderate or low effects. Furthermore, this analysis would provide insights into the chronological evolution of the studies carried out and the conclusions drawn within the 'political' debate on the effects and recommendations for implementing the minimum wage.

The minimum wage as a policy tool to tackle poverty

In their *The Fundamentals of Minimum Wage Fixing*, Eiraud and Saget (2005) argued that, when minimum wage systems were established, legislators pursued social objectives and intended to guarantee and protect the minimum purchasing power of the most exposed workers. In their analysis, the minimum wage was not conceived as a wage policy instrument; it was initially a tool designed to protect the most vulnerable workers.

The positive side of the minimum wage is that it protects the lowest-paid wage earners. However, although it may be considered the perfect instrument to combat poverty in general, the minimum wage alone cannot take on the reduction of poverty in general. From the outset, the minimum wage has been disconnected from the act of production; it is a sum owed to the worker and is essentially linked to the worker's status as a wage earner. The employer's ability to pay and the productivity of the wage earner are not taken into account; minimum wage rates are calculated primarily based on the amount workers need to pay for their living expenses and those of their families. The notion of needs, and thus of protection against poverty, varies over time and space.

For these authors, the general evolution of the minimum wage concept has followed three steps. First, the notion of basic needs gave way to that of the requirements for a decent standard of living. Second, this was followed by a broadening of the notion of a decent standard of living to include different aspects of social protection outside the enterprise, such as pensions, family benefits, etc. Finally, there was an even greater extension, where the 'minimum' was taken to mean meeting the needs of the poorest workers and their families and enabling them to benefit from growth in general in the same way as other workers.

This variation in the concept of basic needs makes it difficult to define poverty and the role of the minimum wage, as we discuss below.

Several countries have adopted minimum wages as a way of addressing poverty and inequality at work, especially in the 1990s. In some countries, such as Algeria, Brazil and the Netherlands, there is a close link between minimum wages and social security

benefits, allowing them to serve as a 'social floor'. However, minimum wages only directly affect wage earners in the formal economy, which makes them ineffective in combating poverty. They are often used for social and economic purposes, reducing wage inequality and discrimination. Minimum wage increases can also reduce wage hierarchies, but this may be limited by social pressure to maintain the original wage hierarchy. Minimum wages may be more effective in combating wage discrimination, as they disproportionately benefit women, who are more likely to be in low-paid jobs (Eiraud & Saget, 2005).

Caraballo Cueto, in the 2017 publication *Reducing the Race to the Bottom: A Primer on a Global Floor for Minimum Wages* suggested that establishing a global minimum wage could be beneficial in reducing firms' race to reduce working conditions in search of comparative advantages. The results of the Cueto study show that policymakers in each developing country have two options: either they try to reduce their workers' wages to increase their competitiveness, or they can agree on a global binding minimum wage for all countries in the group.

These authors concluded from their research that setting a binding minimum wage in poorer countries can increase workers' purchasing power and stimulate demand, leading to economic growth and higher wages in both the formal and informal sectors. Businesses can also benefit from this through increased sales. In addition, this approach could be beneficial even in countries with multinational companies operating in free trade zones, because global demand for goods can be stimulated by increasing the purchasing power of developing countries.

Finally, we turn our attention to an article by Ochando (2020), which indicates that numerous studies have pointed out the limits of redistributive policies. This paper draws attention to eight factors that shape these limitations: first, the globalisation of economies; second, the size attained by some states in terms of territorial extension and population due to cross-border movements; third, fiscal competition between countries; fourth, high public indebtedness; fifth, limits related to the willingness of citizens or companies to pay tax increases; sixth, the weakening of inclusive economic growth; seventh, perverse incentives and undesired effects; and finally, the so-called 'endogamous' redistribution, caused by the fact that the effects do not directly reach the uncovered parts of the population and, at the same time, leave the upper end of the income and wealth distribution without redistributive effects.

Ochando's article argues that a 'pre-distributive' income policy would contribute to a more equitable distribution of primary labour income and, thus, to more sustained and stable economic growth. The term 'pre-distribution' usually refers to intervention mechanisms or tools to change income distribution at the source (intervention tools aimed directly at the labour market and economic activity). The essential intention is to act on the causes of inequality 'ex-ante' rather than 'ex-post'.

This would involve regulating labour market conditions, training and human capital, increasing productivity, strengthening collective bargaining and other such measures. Pre-distributive mechanisms in the labour market are developed in three areas of action: job creation, working conditions, and employment outcomes.

One of the most potent instruments for applying a 'pre-distributive income policy' is an increase in the minimum wage, bringing it closer to the average wage in the economy.

For this author, there is sufficient empirical evidence to show that the minimum wage has a very low or almost zero impact on hiring decisions. On the other hand, the existence of the minimum wage can have significant positive effects on the economy.

These include: improving the living conditions and security of workers (especially vulnerable workers, groups working on temporary or part-time contracts and people working in the informal sector); increasing the motivation of unskilled and unemployed workers to actively seek employment, although there is a possible loss of motivation later if there is a lack of interest in hiring by employers; providing incentives for companies to increase labour productivity; enabling the fight against poverty and social inequalities (including gender inequalities); reducing wage inequalities and the gender pay gap; and increasing consumption and aggregate demand by raising workers' incomes and purchasing power.

The following year, Abd Karim, Sok Gee and Hassan Hassan (2021) published a study arguing that inequality is a significant cause of economic and social problems and that the minimum wage can be a valuable tool to reduce income inequality. However, in their view, the existing literature is contradictory regarding whether the minimum wage has contributed to reducing income inequality. A common argument is that raising the minimum wage may harm the employment rate. The results of this study suggest that income inequality is much more affected by the size of the minimum wage itself than by its existence or non-existence, given that it may exist but only at such a low level as to be irrelevant.

The results suggest that minimum wages can be an effective tool to reduce income inequality. However, increasing the minimum wage can also have adverse effects such as a reduction in purchasing power due to undesired price effects, a reduction in some employers' incomes, and an increase in unemployment. Therefore, policymakers should carefully consider the level of minimum wage increases and their potential impact on the country's economy. (Freeman, 1996; Abd Karim, Sok Gee & Hassan, 2021).

Discussions on the different impacts of minimum wages in the international literature

Studies on ex-ante and ex-post differences in the USA

Studies in the United States on the impact of the minimum wage on employment, discussed in more detail below, have found that the effect is generally modest. Results may vary depending on the minimum wage level. Although there are some divergences between the results of the studies, overall the evidence suggests that the impact is moderate. Some of these differences may be due to factors such as economic shocks that affected states differently, but when more recent data are used, the different methodologies tend to agree more. In addition, regarding low-wage adult workers, the data are also more consistent across methodologies.

The debate on the impact of minimum wage increases on inequality and employment is a significant topic in economics. A pivotal study in this area by Card and Krueger (1995) used a difference-in-differences methodology to analyse the effects

of minimum wage hikes. Their research focused on the fast-food industry in New Jersey and Texas, examining firm-level wage data before and after minimum wage increases. They observed that these increases resulted in higher starting wages in the sector and, interestingly, were accompanied by an employment increase in the regions studied.

Furthermore, the study explored the long-term effects of minimum wage increases on investment and the rate of new fast-food restaurant openings. Contrary to some expectations, the findings indicated that higher minimum wages did not decrease the net number of restaurants or lead to a slowdown in their opening rates.

The broader impact of minimum wage increases in California and across the United States during the late 1980s and early 1990s was also assessed. The research found that these increases positively affected the wages of the lowest-paid workers, notably teenagers and those employed in retail and the restaurant sector. While some studies indicated a modest employment effect, other research concluded that the impact was either positive or negligible. Furthermore, the minimum wage hikes contributed to reducing wage inequality during this period, although the improvement in the standard of living for low-income families was modest, attributed to the relatively small increase in the federal minimum wage.

Regarding teenage employment, Card and Krueger's literature review revealed that both domestically and internationally minimum wage increases did not significantly affect teenage employment rates. Time series studies comparing changes in aggregate employment rates during higher and lower minimum wage periods found the impact of increases on employment to be minor and statistically insignificant.

Subsequently, Machin, Manning and Rahman (2003) reviewed previous literature on the impact of minimum wages on employment in the United States and abroad. They discussed various studies on the impact of minimum wages on employment, focusing on the United States and the United Kingdom. Previous research had suggested that minimum wages may have negative effects on employment, particularly for teenagers, but other studies found no significant impact on employment when comparing 'before and after' the implementation of minimum wages. In their study on the low-wage nursing home sector in the UK following the implementation of the national minimum wage, the authors found that the minimum wage had no significant impact on employment in that sector but noted that the impact could vary based on the level of the minimum wage and the characteristics of the labour market.

Finally, the study 'The economic effects of a citywide minimum wage', conducted by Dube, Naidu and Michael (2007), focused on the implementation of a citywide minimum wage in San Francisco. This wage was set at \$8.50 in 2004, rising to \$9.14 by 2007, representing an increase of over 26% above California's then-minimum wage of \$6.75. This study used a methodology that covered a wider range of control groups and outcomes compared to previous studies by Card and Krueger (1995), and Neumark and Wascher (2010). The research revealed that the minimum wage policy led to an increase in worker pay and a reduction in wage inequality, without detecting a loss of employment among the affected restaurants. The study's identification strategy considered restaurants as the 'treatment group' if they employed at least one worker with an hourly wage below \$8.50 and were covered by the law. The average wage in the

treatment group increased from \$10.22 to \$11.01, while in the control group, it rose from \$9.78 to \$10.09. The fraction of workers receiving wages below \$8.50 in the treatment group decreased significantly, from 50% to 5%, indicating a considerable impact of the minimum wage policy in raising wages at the lower level and reducing wage dispersion among restaurant workers. Finally, the treatment group showed an increase in both employment and full-time equivalent employment, with total work hours growing more in the treated sample than in the control groups, although these differences were not statistically significant. Surveys were conducted by phone, focusing on both fast-food and table-service restaurants, which allowed for testing heterogeneities in responses by type of restaurant. It was observed that the effects of the minimum wage increase were greater in fast-food restaurants compared to table-service restaurants.

Another study, 'Industry dynamics and the minimum wage: A putty-clay approach' by Aaronson, French, Sorkin and To (Aaronson & Sorkin, 2018), delved deeply into the implications of an increase in the minimum wage within the restaurant industry, particularly in limited-service establishments such as fast-food restaurants. This study revealed two significant empirical findings: first, an increase in the entry and exit of these types of establishments following a rise in the minimum wage; and second, stability in the level of employment in limited-service restaurants that remained operational. These results suggest that the impact on employment two years after a minimum wage increase is marginal. To reach these conclusions, the researchers utilised the Quarterly Census of Employment and Wages (QCEW) database, comparing restaurants located near state borders with varying minimum wages. They discovered that, in the year following a minimum wage increase, there was an uptick in restaurant entry and exit, especially in the case of chain restaurants. However, this phenomenon was not observed in full-service restaurants or apparent in establishments employing lower-wage workers. The 'putty-clay' model is an economic framework that explains how firms respond to changes in factor prices, such as labour costs. It suggests that while firms can initially adjust their production processes ('putty' phase) to adapt to changes, once these processes are established, they become fixed and inflexible ('clay' phase). The study proposes that the 'putty-clay' model can explain these findings and predicts that, despite the higher minimum wage costs being fully passed on to consumers through higher prices, a decline in profits and firm value is anticipated for restaurants affected by the minimum wage hike. Because operating restaurants cannot change their employment level, only a minimal response in terms of employment is expected in the short run. The model suggests that the unemployment impact of a minimum wage increase intensifies over time as labour-intensive restaurants affected by the hike are gradually replaced by new, more capital-intensive entrants. Thus, it is argued that the short-term effects on unemployment of minimum wage increases, being minimal, may provide limited guidance in understanding the long-term effects of such increases. The article investigates the impact of an unexpected and permanent increase in the minimum wage on the dynamics of restaurant entry and exit, focusing on how it affects employment through scale and substitution effects, known as the Hicks-Marshall channels. With free entry and expected zero profits, restaurants transfer higher labour costs to consumers in the form of higher prices, reducing demand and,

therefore, the need for inputs. This reduction in sales leads to a net exit of restaurants and an immediate drop in the employment of minimum-wage workers. In addition, an increase in the minimum wage makes low-skilled workers more expensive, leading restaurants to seek to replace them with other factors of production, e.g. capital investment or technology. However, in a putty-clay model, all substitution occurs through the entry and exit of restaurants. The study finds that the dynamics of restaurant exit, being committed to their input mix, is the only margin on which they can respond to higher labour costs, exiting earlier or later. As for the entry of restaurants and the response of product prices, these increase immediately to their new steady-state level following a minimum wage increase, as observed in previous empirical research. This is because the profits of new entrants are zero, and therefore, any change in factor prices is instantly transmitted to the product price. The article also notes that entry and exit are more responsive among chain restaurants than non-chain ones due to the higher capital intensity of the former. This is reflected in the compensation-to-sales ratio per full-time equivalent employee, which is lower in chains, according to a report by the National Restaurant Association. Finally, the study highlights that, while there is an increase in exit after a minimum wage increase in a model without putty-clay technology, this increase is barely perceptible. This implies that the entry response will also be smaller. Indeed, entry decreases, demonstrating that putty-clay technology is crucial to understanding an increase in restaurant entry following a minimum wage increase. In summary, the article suggests that minimum wage increases generate a complex dynamic in the restaurant industry, affecting both the entry and exit of establishments, and that these dynamics are more pronounced in putty-clay models compared to other approaches.

The article mentions that the short-term effect of minimum wage increases on unemployment may be minimal and, therefore, offer limited guidance in understanding the long-term effects of such increases. This observation is crucial as it suggests that immediate responses to a minimum wage increase do not necessarily reflect the full or sustained impact of these policies on the labour market. In the short term, minimum wage increases may not result in a significant increase in unemployment due to various factors. For example, businesses may take time to adjust their cost and employment structure, or they may find ways to temporarily absorb the additional costs without reducing employment. Additionally, the short-term effects may be mitigated by inelastic labour demand in certain sectors, where the need for workers does not significantly decrease despite the increase in labour costs. However, in the long term, the effects may be more pronounced. Businesses may implement more sustainable cost-reduction strategies, such as automation or personnel restructuring, which could lead to a reduction in employment. Furthermore, the long-term effects also include changes in the industry structure, such as the exit of less profitable companies from the market and the entry of new businesses with more efficient business models in terms of labour costs.

Subsequently, regarding the misinterpretation of recent evidence on negative effects, Clemens (2019) argues that the current conventional wisdom does not adequately interpret the entirety of recent evidence on the negative effects of minimum wages. According to him, various lines of research regularly conclude that high

minimum wages reduce opportunities for disadvantaged individuals. This assertion is based on the observation that, while some studies suggest small or non-existent effects of the minimum wage on employment, others show significant reductions in employment opportunities for disadvantaged groups, implying that the evidence is neither unanimous nor unequivocally favourable to minimum wage increases. Furthermore, Clemens points out that there are limitations in the theoretical basis for beneficial effects, arguing that the theoretical basis for claims about the beneficial effects of minimum wages is more limited than its proponents seem to realise. Advocates of the minimum wage offer reasons why current wage rates might be suppressed relative to their competitive market values, but these justifications are insufficient to substantiate claims about the effects of significant minimum wage increases. That is, while theories can explain why current wages might be below their optimal level in a competitive market, they do not provide a solid foundation for predicting the effects of substantial increases in the minimum wage. Lastly, according to Clemens, there are blind spots in economists' empirical methods, particularly regarding the nuanced responses of firms to changes in the minimum wage. He notes that economic methods can predictably fail to capture the entirety of firms' responses to these changes. These responses may include adjustments in the organisation of the workplace, changes in employees' schedules, modifications to fringe benefits, and other aspects that are crucial for firms' cost management and productivity, but which are not always reflected in the available data. This can lead to empirical evidence underestimating the negative effects of the minimum wage and overstating its benefits, as not all dimensions of the employment relationship and firms' adaptation strategies are fully captured.

Clemens and Wither (2019) explored the impact of the US federal minimum wage increase from \$5.15 to \$7.25 per hour (between 23 July 2007 and 24 July 2009) on the employment of low-skilled workers. They found significant employment declines in this demographic during the Recession, with a four percentage point drop among older adults and a ten-point drop among 16–21 year-olds.

The study used monthly individual-level panel data from the 2008 Survey of Income and Program Participation (SIPP) and applied a combination of difference-in-difference and triple-difference methodologies. This methodology focuses on three key differences that contribute to the credibility of the estimates. The first level of difference is established between groups that are more directly affected by minimum wage increases and those that are not. This allows researchers to focus on workers whose wage rates are indicative of being intensely affected by the minimum wage increases, as opposed to those workers who are not directly affected but are only moderately more qualified than the target group. The second level involves using a control group within the same state. This group consists of workers who are not directly affected by the minimum wage increase, as evidenced by their wage rates. The third level contributing to this triple-difference design combines the differences between the affected and unaffected groups, and the controls within the state, allowing for a more precise and adjusted comparison of the effects of the minimum wage in different contexts.

The findings revealed that the increase in minimum wage significantly reduced the employment of low-skilled workers. Two years after the \$7.25 minimum wage was

implemented, employment rates of the targeted individuals dropped by 6.6 percentage points (9%) more in states tied to the federal minimum wage than in the USA overall. The estimated elasticity of employment for this group concerning the minimum wage was -1 .

Furthermore, this study showed that binding minimum wage increases during this period decreased the average monthly earnings of low-skilled individuals. Compared to their counterparts in non-tied states, the earnings of workers in tied states dropped by \$90 in the first year and an additional \$50 in the subsequent two years. Overall, the study suggests that minimum wage increases during the Great Recession adversely impacted employment, earnings, and income growth for low-skilled workers. States fully implementing the federal minimum wage increase experienced at least a half-percentage point reduction in aggregate employment rates. The effects of the minimum wage varied significantly based on economic conditions and the underlying wage levels of low-skilled workers.

Cengiz, Dube, Lindner and Zipperer (2019) analysed the impact of minimum wage increases on the distribution of wages and employment. The authors used a difference-in-differences design and event analysis to assess the effects of 138 minimum wage increases across the United States. The results showed that minimum wage increases significantly affected wage distribution, especially at the bottom of the distribution, and that the number of surplus jobs at the minimum wage coincided with the number of missing jobs below the minimum wage.

Another paper with solid relevance is 'Are Minimum wage effects greater in low-wage areas?' (Godoy & Reich, 2021). This paper examined the differences in the effects of federal and state minimum wage increases between high- and low-wage counties. Most empirical work finds an aggregate effect on employment, averaging across high- and low-wage areas. In low-wage counties, where the fraction of workers employed in jobs paying close to the minimum is relatively high, minimum wage increases may be more effective in raising average earnings. At the same time, low-wage labour markets could potentially be less able to absorb minimum wage increases, leading to more negative employment effects.

This paper studies the effects of the minimum wage in rural counties in the United States. The results show that the minimum wage positively affects the wage distribution in rural counties, especially those with higher relative minimum wages and higher low-skilled labour intensity. No adverse employment effects were observed either in terms of the probability of working, hours or weeks worked, or on the employment of specific groups such as blacks, Hispanics, or women. However, it was found that minimum wage increases reduce the poverty rate of households and children in counties with higher relative minimum wages and higher low-skilled labour intensity. Two possible channels of adjustment, such as moving out of the area of residence and reallocation to self-employment, were also examined, but no evidence was found to support either hypothesis.

Despite the different conclusions reached by various studies on the impact of minimum wages on employment in the United States in recent decades, recent work has helped to reconcile some controversies. One of the contributions of this work has been to show that much of the divergence in the results is due to a temporary deviation

in employment growth between Democratic- and Republican-leaning states in the late 1980s and early 1990s. When these data are included in more extended panels, the differences in employment between states in the 1980s serve as a benchmark, leading some specifications to incorrectly attribute the relative decline in employment to states with higher minimum wages. When more recent data are used, and changes in minimum wages are explicitly analysed, the differences across studies are smaller (Dube, 2019).

Another study, 'The economic impact of a high national minimum wage: Evidence from the 1966 fair labour standards act' (Bailey, Di Nardo & Stuart, 2021) examined the economic aftermath of the 1966 amendments to the Fair Labour Standards Act (FLSA) in the USA. This legislation marked the end of a nearly 15-year run of real increases in the minimum wage, the latest increase in this period having elevated it to the highest level seen in the twentieth century. The amendment didn't just increase the minimum wage by 28% to \$11.83 (in 2019 values), but extended its coverage to an extra 9.1 million workers in low-wage industries, resulting in a 14% surge in the percentage of private-sector workers covered by the FLSA, and a 40% increase in covered government employees.

The authors argued that a sustained wage rise, in line with competitive and monopsonistic labour market models, could elicit larger employment reactions than the most recent minimum wage hikes, which were rapidly eroded by inflation. To verify this, they compared wage and employment responses across states based on the severity of the impact of the 1966 FLSA amendments, focusing on states with lower wages and coverage in 1966. The research used differences between states in the proportion of workers earning less than the new minimum wage of \$1.60, allowing analysis of impacts on both existing workers and new entrants. Their analysis revealed that the 1966 FLSA caused a significant reallocation of labour demand, primarily affecting less educated and black workers, despite modest impacts on total employment and hours worked compared to the notable increase in average wages.

Neumark and Shirley, in their 2022 paper 'Myth or measurement: What does the new minimum wage research say about minimum wages and job loss in the United States?' collate and analyse existing literature on the impact of minimum wages on employment in the USA. They conclude that the evidence is polarised, with some economists arguing that higher minimum wages do not reduce employment, while others state that the evidence is mixed and inconclusive. However, another segment of economists claims that most of the evidence implies that minimum wages negatively affect employment. Neumark and Shirley carried out an overview of a comprehensive set of studies since the emergence of the New Minimum Wage Research in 1992 and presented estimates reflecting each study's findings. Their analysis began with studies estimating the elasticity of employment in response to minimum wage changes, noting that most estimates are negative, suggesting a detrimental effect of minimum wage hikes on employment. Specifically, 79.2% of the estimates were negative, with 53.8% and 46.2% significantly negative at the 10% level or less and the 5% level or less, respectively.

Their study also proposed that worker substitution was taking place in response to minimum wage increases, suggesting employers might prefer higher-skilled workers

over lower-skilled ones. The authors identified two potential limitations: first, the incomparability of all employment elasticities studied due to varying population considerations and different identification strategies, and second, that other measures of minimum wage effects on employment could be more informative for certain policy questions. For example, the elasticity of wages may give a more accurate picture of how minimum wages are likely to affect the earnings of low-skilled workers, and the employment effects or elasticity of own wages for workers in low-income families may tell us more about the effects of minimum wages on the earnings of these families.

Despite these limitations, the authors concluded that there is a clear prevalence of negative estimates in the literature, implying that most research suggests higher minimum wages result in lower employment, especially among less skilled workers.

Occupational polarisation and minimum wages

DiNardo, Fortin and Lemieux (1996) found that overall wage inequality increased substantially in the United States during the 1980s and that changes in the wage structure in the United States were mainly due to secular increases in the relative demand for skilled workers (polarisation of the occupational structure of employment) and that, therefore, factors such as international trade and skill-based technology shocks had played a relevant role. To explain these developments, some previous authors had argued that these changes in demand, in combination with the slowdown in the growth rate of the supply of skilled workers, were the main causes of the observed changes in the wage structure. Much of the earlier literature on the distributional effects of the minimum wage concluded that minimum wages play little role in these developments.

Using a semi-parametric procedure, DiNardo et al. analysed the role of institutional and labour market factors in recent changes in the wage distribution. They considered five explanatory factors: first, changes in the real value of the minimum wage; second, changes in the level of unionisation; third, changes in the distribution of worker attributes other than unionisation, including industry affiliation; fourth, changes in the supply and demand of various categories of workers; and fifth, residual or 'unexplained' changes (including technology shocks).

Bound and Johnson (1992) focused their analysis on the period 1979–88, which witnessed the most dramatic changes in wage inequality and labour market institutions. They also contrasted this analysis with evidence from the 1973–79 and 1988–92 periods, during which wage inequality and labour market institutions were more stable.

This paper demonstrated that unionisation and supply and demand shocks were important factors explaining the increase in wage inequality from 1979 to 1988. However, this research indicated that the significant drop in the actual value of the minimum wage between 1979 and 1988 was a key factor behind the rising wage inequality during this period. This trend was particularly pronounced among women and low-wage earners. Consequently, it is clear that labour market policies played a crucial role, alongside supply and demand factors, in explaining the shifts in wage distribution in the United States from 1979 to 1988.

Another study (Lee, 1999) described the rise in wage and income inequality observed in the US labour market during the 1980s. Lee examined how the decrease in

the real value of the federal minimum wage in the 1980s, when it reached its lowest point since the 1950s, could have increased the observed wage inequality, regardless of its effect on employment, income, or earnings. He used regional variation in the relative level of the federal minimum wage to separate the impact of the minimum wage from that of national growth in the 'latent dispersion' of wages during the 1980s. This study suggests that the minimum wage can explain much of the increase in dispersion at the lower end of the wage distribution, especially for women.

Lee's study also presented three theoretical scenarios to model the relationship between the minimum wage and the observed wage distribution, using data from the Current Population Survey and applying a combination of time series analysis and regional variations to estimate the impact of the minimum wage on wage inequality.

The results indicated that, after accounting for the minimum wage, the average growth in wage dispersion at the lower end of state wage distributions during the 1980s was quite modest. Almost all the growth in the wage gap between the tenth and fiftieth percentiles could be attributed to the erosion of the real value of the federal minimum wage during this decade.

Explanations based on relatively stable growth in the demand for higher-skilled workers and fluctuations in the supply of skills, based on canonical supply and demand models, show a slowdown in the growth of demand for skills from the early 1990s onwards (Katz & Murphy, 1992).

The polarisation of the wage structure can be explained by a reinterpretation of the skill-based technical change hypothesis along the lines developed by authors such as Autor, Levy and Murnane (2003).

The effect on particular groups

In a chapter entitled 'Minimum wages, employment, and the distribution of income' in the *Handbook of Economics*, Charles Brown (1999) postulated that in the early 1980s research on the effects of the minimum wage in the USA began to show signs of consensus: relatively modest effects of the minimum wage both on employment (of the teenagers who were most likely to be directly affected) and on the distribution of income (because many minimum wage workers were members of middle-income families). However, as noted above, once the political disinterest in the issue was overcome, new research emerged towards the end of the 1990s suggesting that the employment effects were more considerable than initially estimated; other research indicated a strong link between the minimum wage and its ability to reduce inequalities.

Brown focused on all existing evidence and analysis so far (up to the late 1990s) in the USA and concluded that studies on the impact of the minimum wage on employment have shown mixed results, but, he suggested, the short-term effect on teenage employment was small. One possible explanation was that minimum wage coverage was incomplete and enforcement was imperfect. It was also possible that the small effects on teenage employment might mask the substitution of higher-skilled teenagers for lower-skilled ones. The data suggest that the effect on hours worked is more pronounced than the effect on the number of workers. The minimum wage also has a visible effect on the distribution of wages, especially for adolescents and adults in

the years analysed, when minimum wages were high relative to average wages. However, these effects can be challenging to measure due to the complexity of the wage structure and the lack of precise data.

Finally, for Brown, the minimum wage has a visible effect on wage distribution, especially for teenagers, but also for adults in specific years where the minimum wage is high relative to average wages. This effect may be partly because low-paid workers are less represented in the wage distribution, but it is also true that a significant fraction of the affected workers received wage increases up to the minimum. However, it is not clear how the minimum wage affects wage distribution in the long run. By measuring income distribution rather than wage distribution, the equalising potential of the minimum wage seems to be significantly diminished.

‘Minimum wages and racial inequality’ by Derenoncourt and Montialoux (2021) focuses on one of the most striking dimensions of inequality in the United States: the persistence of significant racial economic disparities. The income gap between black and white workers is a critical aspect of these disparities. This paper explores how the expansion of the federal minimum wage to new sectors of the economy in the 1960s and 1970s in the United States significantly reduced the earnings gap between white and African-American workers. Using data from the Bureau of Labor Statistics and the Labor Force Survey they showed that the 1967 reform significantly affected the wages of low-income workers, especially in industries previously not covered by the minimum wage and in which African-American workers were over-represented. In addition, it was found that the reform had a persistent impact on the earnings of affected workers until the late 1970s and that the earnings gap between white and African-American workers declined significantly during this period. Finally, the study showed that the expansion of the minimum wage can explain more than 20% of the decline in the black-white wage gap. Moreover, the replacement of black workers by white workers was extremely limited in the industries covered by the reform, which also contributed to the narrowing of the racial earnings gap.

Subsequently, Todorovic (2008) published a study that pointed out that advocates of raising the minimum wage argue that an increase in the minimum wage can help to increase the income levels of low-wage workers. On the other hand, opponents of the minimum wage policy argue that such a policy harms low-wage earners through a consequent increase in unemployment. This paper used the resource-based view (RBV)¹ paradigm, and the minimum wage is examined from the perspective of the national resource base.

Based on Todorovic’s publication we can highlight the opportunity cost of minimum wage employment: the possibility it might open up of creating other opportunities, such as education and training, that allow individuals to increase their skill level and earn higher incomes. These opportunities are more abundant in resource-rich countries and can increase overall productivity. Education, cost

¹ The study is based on the resource-based view approach, which is a theoretical framework in strategic management that focuses on an organisation’s internal resources as the main source of competitive advantage. In this context, the minimum wage is analysed by considering the resources available at the national level, assessing how these resources influence and relate to the minimum wage policy.

divergence, and entrepreneurship are also components of opportunity cost and are moderated by the availability of a country's resources. While minimum wage employment may have opportunity costs, it can also have positive effects, such as increased education, more productive operating practices, and an emphasis on skills development and high-value activities (Todorovic, 2008).

Evidence from Latin America

The research presented suggests that there is no consensus on the effects of minimum wage increases on poverty and inequality in Latin America. Results are contradictory and depend on the country, level of informality or institutional context. Some authors point to improvements in poverty and inequality resulting from the introduction of a minimum wage in some countries, such as Argentina or Uruguay among others, but, at the same time, other authors point to very ambiguous results in countries such as Brazil.

There is evidence of a positive impact of wage increases on poverty reduction in Nicaragua (Alaniz, Gindling & Terrell, 2011), Argentina (Grimshaw & Miozzo, 2003), Peru (Jaramillo, 2004) and Ecuador (Wong, 2018), while a negative influence was found in Brazil (Neumark, Cunningham & Siga, 2006) and Honduras (Gindling & Terrell, 2009).

The effect on inequality is also ambiguous. Maurizio and Vázquez (2016) in Argentina, Brazil, Chile and Uruguay, Alves et al. (2012) in Uruguay, and Maloney and Mendez (2003) in Colombia found evidence of a positive impact of minimum wage increases on inequality. However, Ferreira, Firpo and Messina (2017) found an ambiguous impact in Brazil.

This debate is connected to the high prevalence of the informal sector in Latin America, which affects women, unskilled workers, indigenous people and farmers to a greater extent. According to structuralist theories, the large scale of informality has arisen due to incomplete and forced industrialisation in an open economy, where less skilled workers are pushed into informality to subsist (Lewis, 1954; Prebisch & Cabañas, 1957). From an institutionalist perspective, informality is seen as the consequence of inefficient policy decisions and labour laws (Ghosheh, 2013).

In Bolivia (Nogales, Córdova & Urquidí, 2019) and Colombia (Mora & Muro, 2017), wage increases were found to be related to high informality, while in Costa Rica (Terrell & El Hamidi, 2002), they were associated with an increase in self-employment. A study by Pérez Pérez (2020) suggests that minimum wage increases affect both the formal and informal sectors in Colombia, although the impact is more significant in the formal sector. Introducing a minimum wage found wage responses for wages close to the minimum in both the informal and formal sectors. Increases were present in both sectors, being higher in the formal sector. Wages around the minimum increased by about 3% in the formal sector for every ten percentage point increase in the minimum wage and by about 1% in the informal sector. These increases were less than would be implied by full compliance with the minimum wage policy, but positive for some workers not directly affected. This suggests that employers partially comply with the minimum wage and use it as a benchmark. In Argentina, the impact on the informal sector is more potent than on the formal sector (Khamis, 2013), although Arcidiácono

(2015) argued that there is no 'lighthouse effect' (referring to the possibility that the minimum wage serves as a guide or reference for both the formal and informal sectors and for employers and employees).

In terms of employment, minimum wage increases are not related to the rise in unemployment in Argentina (Groisman, 2012), Brazil (Lemos, 2009), or Ecuador (Canelas, 2014), but a relationship was found in Colombia (Mora & Muro, 2017) and Bolivia (Nogales, Córdova & Urquidi, 2019).

The International Policy Centre for Inclusive Growth's report (Suarez Dillon Soares, 2018) concluded that the results of the labour impact of minimum wages are mixed, but that the level of the minimum wage matters, as do macroeconomic conditions. Enforcement of minimum wage laws is varied and complex due to the existence of the informal sector and the interaction between the formal and informal sectors. This seems clear in Bolivia, Brazil, Chile, Ecuador and Uruguay, where the minimum wage has doubled in a decade, but it seems less clear in Mexico and Central America.

The pre-2000 literature on Brazil, synthesised by Ulyssea and Foguel (2006), shows that increases in the minimum wage led to modest reductions in employment and reduced wage dispersion. However, Ferreira, Firpo and Messina (2017) and Silva, Almeida and Stokova (2015) found that, in a context of low growth and income stagnation between 1995 and 2002, minimum wage increases were associated with higher levels of non-compliance with the law, which increased inequality (the chain of events is: increase in the minimum wage leading to an increase in its non-compliance and an outcome of increased inequality). However, in other countries there were different patterns.

Bravo and Contreras (1998) and Saavedra and Torero (2000) found fewer negative effects on employment and a greater effect on inequality reduction in the cases of Chile and Peru, respectively.

In the case of Central American countries, Gindling and Terrell (2004) indicated that high minimum wages for unskilled workers and low minimum wages for skilled workers may have reduced wage inequality.

The decline in wage inequality in Brazil (Firpo & Portella, 2019) suggests that the decrease in wage inequality in Latin America was the result of a combination of favourable economic prospects, structural and institutional changes in the economy, an increase in the share of skilled labour and rising real minimum wages.

Regarding inequality, Maurizio and Vázquez (2016) in Argentina, Brazil, Chile and Uruguay, Alves et al. (2012) in Uruguay and Maloney and Mendez (2003) in Colombia found evidence of a positive impact of minimum wage increases on inequality, while in Brazil, Ferreira, Firpo and Messina (2017) found an ambiguous effect.

Suarez Dillon Soares (2018), in 'Minimum wage: Global challenges and perspectives', emphasises that the effects of the minimum wage on wage inequality depend on its level and the extent to which it is binding. Here, countries with a high minimum wage and high enforcement level, such as Brazil or Chile, are particularly relevant for the analysis. In contrast, in countries such as Mexico the minimum wage is too low to be effective, and in others, such as Colombia and Paraguay, it is so high that enforcement is impossible.

Overall, it can be concluded that minimum wage increases have not had a significant effect on unemployment in Argentina (Groisman, 2012), Brazil (Lemos,

2009) or Ecuador (Canelas, 2014). However, relationships between minimum wage increases and unemployment have been recorded in Colombia (Mora & Muro, 2017) and Bolivia (Nogales, Córdova & Urquidí, 2019).

The variability of minimum wage levels in the region stands out. In some countries, workers have seen modest increases, while in others these increases have been significant. The ratio of the minimum to the median wage also varies considerably across countries, further complicating the analysis of its effects. In sum, the impact of the minimum wage on wage inequality depends on its level and whether it is binding. The overall conclusion is that a rising minimum wage, despite widespread incomplete compliance and small employment losses, still has an equalising effect on wages.

A later study by Firpo and Portella (2019) found that the decline in wage inequality in Latin America, and Brazil in particular, was a generalised increase in the dispersion of the wage distribution had been observed since the 1980s. Several possible explanations for this were proposed, including: significant increases in the supply of more educated workers, which affected inequality through both price and composition effects; increases in the minimum wage and formalisation; trade liberalisation; and declining regional, racial and gender wage differentials.

The authors of the study concluded that the observed decline in inequality that began in the mid-1990s and accelerated during the 2000s was the result of a combination of favourable economic prospects, including macroeconomic stability and beneficial terms of trade, with structural and institutional changes in the economy, notably a growth in the share of skilled labour and rising real minimum wages. This allowed wages to rise overall, but at a faster pace at the bottom of the income distribution, thus reducing wage inequality.

Age-related technological changes, skills obsolescence, rising minimum wages and changes in labour market selection may have favoured younger workers and could be possible explanations for such a reduction, but empirical research on this topic is scarce.

Finally, the authors of the study highlight the diversity in minimum wage patterns in various regions, noting that, in some places, workers have experienced modest wage increases, while increases have been substantial in others. The effects of the minimum wage on wage inequality depend both on its level and whether it is effectively enforced. Despite the often partial enforcement and the constant but more minor job losses, it is concluded that an increase in the minimum wage continues to exert a homogenising effect on wages.

Analysis

Drawing on this literature review, we proceeded with our analysis. In each area, it was considered whether the effects had been positive or negative and, in turn, whether they were strong, moderate or slight. At the same time, the chronological development of the studies under consideration was taken into account.

This produced a picture of a contradictory evolution, although it is worth noting that, among the studies that focused on measuring the effects on inequality when the

minimum wage was introduced or its amount was changed, we selected for our analysis those that have had the most significant impact at the academic level.

We were aware that one of the elements that could contaminate the final result was the lack of a homogeneous criterion for defining inequality internationally: the studies analysed in this literature review refer to a range of different inequality variables, such as, for example, race, gender, income, or geography, but, at the same time, other results, such as the impact on employment or living conditions, are mixed. For these reasons, it was considered that, at the risk of exceeding the scope of the study, the full results had to be taken into account to draw more accurate conclusions. In this way, the average evaluation of each publication (the pros and cons of the existence or modification of the minimum wage) was calculated, and a final score was obtained for each piece of research.

In this complex evaluation, it is impossible to take detailed account of all the consequences on all dimensions of the minimum wage. Thus, we do not claim that these results are perfect. Nevertheless, we can observe that a significant part of the literature over time points to positive effects.

Taking all possible precautions when there is not a complete consensus on an issue, we can conclude that in many scenarios, the existence of a minimum wage is correlated with moderate overall positive effects on employment and high positive effects on inequality.

Finally, it is imperative to acknowledge the limitations we encountered in conducting a comprehensive analysis to fully comprehend the long-term impact of the minimum wage. This recognition calls for a profound reflection in the assessment of potential future scenarios, while recognising the growing presence of radical uncertainty that significantly constrains our ability to predict the far-reaching consequences of the minimum wage.

Conclusions

The following conclusions can be identified from the above:

- It is important that policymakers set the minimum wage at a level that carefully balances potential negative effects, considering their country's specific economic and social conditions, including the ratio of the minimum wage to the average wage. Moreover, the minimum wage should be only one part of a broader approach to improving working conditions and reducing inequality.
- The minimum wage has been commonly used as a tool to reduce inequality.
- Nearly three-quarters (73%) of the papers conclude that the minimum wage positively affects the reduction of inequality (60% of the papers observe significant improvements in inequality, and 13% observe slight improvements). In comparison, 8% of the publications interpret a slight or moderate negative impact on inequality. Eighteen per cent of the analysed publications conclude that the effects of the minimum wage are indirectly related to inequality and are analysed in other blocks of the literature review.

- Most of the publications analysed refer to the minimum wage's impact on employment. Thirty-one per cent of the papers note negative effects on employment (negative consequences in 7% of the cases and slight ones in 24%). On the other hand, 8% of the publications question the above results by pointing to moderately positive effects on job creation. Finally, it is essential to note that 13% of the publications indicate results close to zero or inconclusive when analysing the employment effects of the minimum wage. The rest of the research analysed does not observe this variable since it is not strictly speaking our object of study, despite its obvious relevance. The minimum wage has had a moderate effect on employment. Referring to a set of 36 United States estimates, the median estimate is -0.17 . This suggests that the proportional change in employment is much smaller than the change in wages (about one-sixth of the size). This small elasticity of employment concerning the minimum wage indicates that increases in the minimum wage have a relatively small impact on employment (Dube, 2019). This suggests that any employment losses are pretty small and that the minimum wage has positively impacted the wages of low-income workers.
- Other recent studies also confirm this conclusion and provide estimates of the impact of the policy, helping to explain the sometimes divergent estimates in the literature. These studies also show that any impact of minimum wage increases on employment will likely be small.
- Although studies on the effects of an increase in the statutory minimum wage are, in many cases, contradictory, the literature tends to point to a positive effect on wage variation in the lower income brackets. Methodologies focusing on *ex-ante* and *ex-post* effects have led to many empirical studies that have supported minimum wage increases in the USA, both at the local and state levels. It is worth noting that some studies in the USA indicate that the effect of the minimum wage on teenage employment and income distribution is modest and that many minimum-wage workers are members of middle-income families. However, the impact of the minimum wage on the distribution of wages, especially for teenagers and adults, over several years with high minimum wages relative to median wages, is visible. While this suggests a redistributive effect, it is not clear how it affects income distribution in the long run in all countries.
- The structural tendency towards occupational polarisation tends to increase income inequality, and many studies in this literature have found that freezing the minimum wage reinforced these tendencies and led to greater wage inequality. Thus, increasing the minimum wage serves not only to reduce inequality but also to prevent inequality from increasing. This is because, without such increases, labour income tends to become unequal.
- While some of the international literature has highlighted specific groups that may be disadvantaged, the use of the minimum wage as a poverty reduction policy requires that it be universally homogenous to avoid changes in the composition of the labour structure.

- Firms may pass on minimum wage increases to prices in low-price competition sectors, but this effect is less critical in high-inflation environments. Moreover, several adjustment margins have been found to absorb minimum wage increases without negatively affecting employment, such as the price response, which may include increases in consumer prices.
- Other factors that may limit the positive impact of the minimum wage on poverty or increase its negative impact on employment are monopsony power in the labour market and working time flexibility, such as the ability of firms to vary the length of the working day or the number of days worked. In addition, there is the difficulty of reaching uncovered workers.
- Finally, the effects of the minimum wage on inequality depend on a broader set of institutional factors.

Our research aimed to observe the effects of the minimum wage on inequality through a systematic literature review. Inequality has been addressed from multiple perspectives, since the effects of the minimum wage on inequality are also multiple. We have concluded that there are key elements that are essential for the minimum wage to have the effects desired by policymakers. It has also been observed that the evolution of studies, the availability of data over time and the improvement of analytical tools have been enhancing the results obtained in the literature, finally showing that the results of the introduction of the minimum wage can be generally considered as positive for the reduction of inequality. However, it is advisable to take into account all the many caveats identified in the analysis carried out in this research, as well as to extend the present study by introducing other blocks of countries, such as the European Union, and analysing and comparing the effect of their policies on minimum wages and the levels of inequality under the premises set out in this paper.

COPYRIGHT

© 2024, Javier Arribas Cámara, Luis Cárdenas and Adrián Rial. This is an open-access article distributed under the terms of the Creative Commons Attribution Licence (CC BY) 4.0 <https://creativecommons.org/licenses/by/4.0/>, which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

ACKNOWLEDGEMENTS

We are grateful for the funding received for the project PID2022–136664OA-I00, Proyectos de Generación de Conocimiento 2022, of the Ministry of Science and Innovation and for the project PR3/23–30810 of the Plan Propio of the Universidad Complutense de Madrid.

REFERENCES

- Aaronson, D., French, E Sorkin, I & To, T. (2018). 'Industry dynamics and the minimum wage: A putty-clay approach'. *International Economic Review*, 59 (1):51–84.
- Abd Karim, M., Sok Gee, C. & Hassan, S. (2021) 'Does minimum wage reduce income inequality? A cross-country evidence'. *Cuadernos de economía*, 44 (124):51–57.

- Alaniz, E., Gindling, T. & Terrell, K. (2011) 'The impact of minimum wages on wages, work and poverty in Nicaragua'. *Labour Economics*, 18:S45–S59.
- Alves, G., Amarante, V., Salas, G., & Vigorito, A. (2012). La desigualdad del ingreso en Uruguay entre 1986 y 2009. *Serie Documentos de Trabajo/FCEA-IE; DT03/12*.
- Arcidiácono, M. (2015) 'Salario mínimo y distribución salarial: Evidencia para Argentina 2003–2013'. *Documento de trabajo del CEDLAS*.
- Arribas Cámara, J. (2021) *Economía y sostenibilidad: El debate de la gestión*. Madrid: McGraw Hill.
- Autor, D., Levy, F. & Murnane, R. (2003) 'The skill content of recent technological change: an empirical exploration'. *The Quarterly Journal of Economics*, 118 (4):1279–333.
- Bailey, DiNardo, & Stuart (2021). 'The economic impact of a high national minimum wage: Evidence from the 1966 fair labour standards act'. *Journal of Labor Economics*, 39(S2), S329–S367.
- Bound, J. & Johnson, G. (1992) 'Changes in the structure of wages in the 1980s: An Evaluation of alternative explanations'. *The American Economic Review*, 82 (3):371–92.
- Bravo, D. & Contreras, D. (1998) 'Is there any relationship between minimum wage and employment? empirical evidence using natural experiments in a developing economy'. *Discussion Paper*, 157. Universidad de Chile, Facultad de Ciencias Económicas y Administrativas, Departamento de Economía.
- Brown, C. (1999) 'Minimum wages, employment and the distribution of income'. In O. Ashenfelter & D. Card (eds) *Handbook of Economics*. Amsterdam: Elsevier Science: 2102–34
- Canelas, C. (2014) 'Minimum wage and informality in Ecuador'. *WIDER Working Paper*. <https://doi.org/10.35188/unu-wider/2014/727-1>
- Caraballo Cueto, J. (2017) 'Reducing the race to the bottom: A primer on a global floor for minimum wages'. *Investigación Económica*, 76 (300):33–51.
- Card, D. & Krueger, A. (1995) *The New Economics of the Minimum Wage*. New Jersey: Princeton University Press.
- Cengiz, D., Dube, A., Lindner, A. & Zipperer, B. (2019) 'The effect of minimum wages on low-wage jobs'. *The Quarterly Journal of Economics*, 134 (4):1405–54.
- Clemens, J. (2019) 'Making sense of the minimum wage, a roadmap for navigating recent research'. *Policy Analysis*, 867:2–15. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3502551
- Clemens, J. & Wither, M. (2019) 'The minimum wage and the Great Recession: Evidence of effects on the employment and income trajectories of low-skilled workers'. *Journal of Public Economics*, 170 (20724):53–67.
- Derenoncourt, E. & Montialoux, C. (2021) 'Minimum wages and racial inequality'. *The Quarterly Journal of Economics*, 169–228.
- DiNardo, J., Fortin, N. & Lemieux, T. (1996) 'Labor market institutions and the distribution of wages, 1973–1992: A semiparametric approach'. *Econometrica*, 64 (5):1001–44.
- Dube, A. (2019) *Impacts of Minimum Wages: Review of the International Evidence*. Amherst, Cambridge y Boon: Universidad de Massachusetts Amherst, Oficina Nacional de Investigación Económica e Instituto IZA de economía.
- Dube, A., Naidu, S. & Michael, R. (2007) 'The economic effects of a citywide minimum'. *Industrial and Labor Relations Review*, 522–43.
- Eiraud, F. & Saget, C. (2005) *The Fundamental of Minimum Wage Fixing*. Genova: ILO.
- Ferreira, F., Firpo, S. & Messina, J. (2017) *Ageing Poorly? Accounting for the Decline in Earnings Inequality in Brazil 1995–2012*. *World Bank Policy Research Working Paper*, 8018. Nueva York: Banco Mundial.
- Firpo, S. & Portella, A. (2019) *Decline in Wage Inequality in Brazil*. Washington DC: World Bank Group.
- Freeman, R. (1996) 'The minimum wage as a redistributive tool'. *The Economic Journal* (106): 639–49.
- Ghoshel (2013) *Work Sharing During the Great Recession. New Developments and Beyond*. Cheltenham: Edward Elgar Publishing.

- Gindling, T.H. & Terrell, K. (2009) 'Minimum wages, wages and employment in various sectors in Honduras'. *Labour Economics*, 16 (3):291–303.
- Gindling, T. & Terrell, K. (2004) 'Minimum wages, inequality and globalisation'. *Michigan Journal of International Law* (26):245–70.
- Godoy, A. & Reich, M. (2021). 'Are minimum wage effects greater in low-wage areas?' *Industrial Relations*, 60 (1):36–83.
- Grimshaw, D. & Miozzo, M. (2003) *Minimum Wages and Pay Equity in Latin America*. Geneva: International Labour Office.
- Groisman, F. (2012) 'Salario mínimo y empleo en Argentina'. *Revista de Economía Política de Buenos Aires*, 16 (11):9–47.
- Jaramillo, M. (2004) 'Minimum wage effects under endogenous compliance: Evidence from Peru'. *Economica*, 50:85–123.
- Katz, L. & Murphy, K. (1992) 'Changes in relative wages, 1963–1987: Supply and demand factors'. *The Quarterly Journal of Economics*, 107 (1):35–78.
- Khamis, M. (2013) 'Does the minimum wage have a higher impact on the informal than on the formal labour market? Evidence from quasi-experiments'. *Applied Economics*, 45 (4):477–95.
- Lee, D. (1999) 'Wage inequality in the United States during the 1980s: Rising dispersion or falling minimum wages?' *The Quarterly Journal of Economics*, 114 (3):977–1023.
- Lemos, S. (2009) 'Minimum wage effects in a developing country'. *Labour Economics*, 16 (2):224–37.
- Lewis, W. (1954) 'Economic development with unlimited supplies for labour'. *The Manchester School*, 22 (2):139–91.
- Machin, S., Manning, A. & Rahman, L. (2003) *Journal of the European Economic Association. Where the minimum Wage Bites Hard: The Introduction of the UK National*, 1 (1):1–39.
- Maloney, W. & Mendez, J. (2003) *Measuring the Impact of Minimum Wage: Evidence from Latin America*. Chicago: University of Chicago Press.
- Maurizio, R. & Vázquez, G. (2016) 'Distribution effects of the minimum wage in four Latin American Countries: Argentina, Brazil, Chile and Uruguay'. *International Labour Review*, 97–131.
- Mora, J. J. & Muro, J. (2017) Dynamic effects of the minimum wage on informality in Colombia. *Labour*, 31 (1):59–72.
- Neumark, D., Cunningham, W. & Siga, L. (2006) 'The effects of the minimum wage in Brazil on the distribution of family incomes: 1996–2001'. *Journal of Development Economics*, 80 (1):136–59.
- Neumark, D. & Wascher, W. (2010) *Minimum Wages*. Cambridge: The MIT Press.
- Neumark & Shirley (2022) 'Myth or measurement: What does the new minimum wage research say about minimum wages and job loss in the United States?' *Industrial Relations: A Journal of Economy and Society*, 61 (4):384–417
- Nogales, R., Córdova, P. & Urquidí, M. (2019) 'On the relationship between labor market policies and outcomes in Bolivia: A search and matching approach'. *Estudios de economía*, 61–88. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3393668
- Ochando, C. (2020). 'Política económica y redistribución: hacia una nueva arquitectura "pre-distributiva" de la política de rentas'. *International Review of Economic Policy*, 2 (2):105–23.
- Pérez Pérez, J. (2020) 'The minimum wage in formal and informal sectors: Evidence from an inflation shock'. *World Development*, 133:104999.
- Prebisch, R. & Cabañas, G. (1957) 'El desarrollo económico de América latina y algunos de sus principales problemas'. *El trimestre económico*, 296–314. <https://hdl.handle.net/11362/2039>
- Saavedra, J. & Torero, M. (2000) 'Labor market reforms and their impact on formal labor demand and job market turnover: the case of Peru'. *IDB Working Paper*, 121.
- Silva, J., Almeida, R. & Strokova, V. (2015) Sustaining wage and employment gains in Brazil: A skill and jobs agenda. *Directions in Development Series*. Washington DC: World Bank.
- Suarez Dillon Soares, S. (2018) 'Minimum wage: global challenges and perspectives A publication of The International Policy Centre for Inclusive Growth'. *Policy in Focus*, 7–41. <http://hdl.handle.net/10419/197750>

- Terrell, K. & El Hamidi, F. (2005) 'The impact of minimum wages on wage inequality and employment in the formal and informal sector in Costa Rica', in R.B. Freeman (eds) *Inequality Around the World*. International Economic Association Series. London: Palgrave Macmillan. https://doi.org/10.1007/978-1-137-09971-6_8
- Todorovic, Z. (2008) 'A review of minimum wage regulation effect— the resource-based view perspective'. *Journal Collective Negotiations*, 32 (1):57–75.
- Ulysea, G. & Foguel, M. (2006) 'Efeitos do salário mínimo sobre o mercado de trabalho brasileiro'. *IPEA*, 1168.
- Wong, S. A. (2018) 'Minimum wage impacts on wages and hours worked of low-income workers in Ecuador'. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3163615>