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Minimum wage's impact on employees
An example from Israel

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Abstract

A heightened sensitivity to workers' welfare has led countries to implement a variety of policy tools providing support for workers at the lowest income levels. Two of the most common tools – both of which are used in Israel – are the minimum wage and the negative income tax (referred to as the Earned Income Tax Credit in the United States). This study examines the impact of a gradual increase in Israel's minimum wage during the period 2006-2009 on the wages and employment of workers at the lower wage levels. The findings indicate that the minimum wage increase led to higher wages, but that its effect on employment was not uniform. For men at the lower wage levels, minimum wage hikes caused a decline in movement into and out of employment – meaning that fewer workers stopped working, while fewer men became employed. For women, by contrast, there was a higher probability for termination of employment, with no change in the likelihood of joining the labor force. In summation, minimum wage increases benefitted men more than women at the lower wage levels, thereby widening the labor market gender gap. As such, there is a need for supplemental policies that provide differential support to women working at the lowest wage levels.

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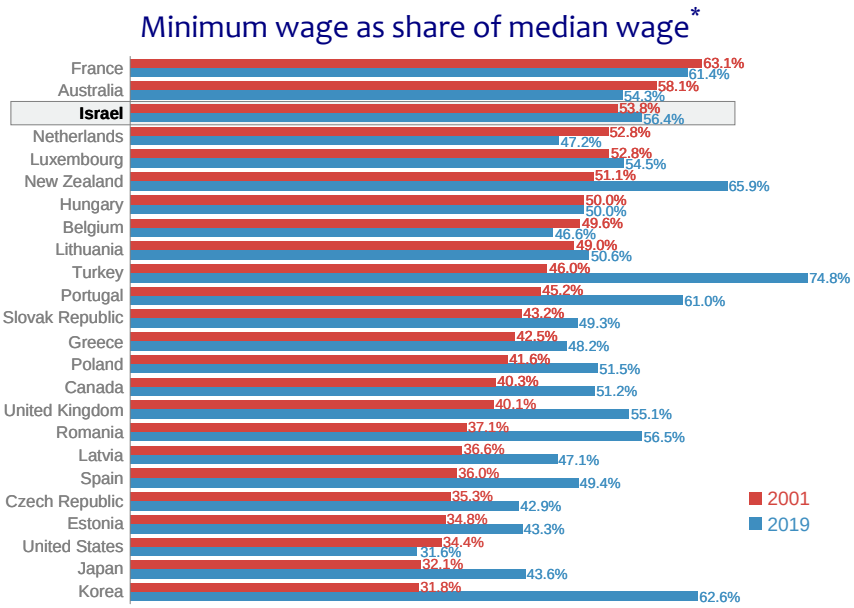
Background

The primary objective of requiring a minimum wage is to enable workers at the lowest income levels to earn what their respective societies consider a decent standard of living. In theory, workers in competitive labor markets receive wages equal to their labor productivity. Consequently, the legislation of a minimum wage can potentially lead to non-employment among workers whose labor productivity is lower than the minimum wage – the same workers that minimum wage policies are intended to support. An additional government policy intended to support low-wage workers – one that is not intended to result in employee dismissals – is the negative income tax (or Earned Income Tax Credit, as it is referred to in the United States) that is provided by the government. Unlike the minimum wage, which is imposed on employers – and, through them is transferred on to the consumers – negative income tax payments are funded by taxpayers. Since tax payments tend to rise with income, the negative income tax leads to a greater reduction in income inequality than does the minimum wage. Lower-income workers are often less able to negotiate with their employers, thereby earning less than their labor productivity. In such cases, the minimum wage's negative impact on employment is expected to be lower. In such scenario part of the minimum wage's cost comes out of the producers' above-normal profits – which may, from a national perspective, be economically preferable to the negative income tax.

Israel has implemented a minimum wage in one form or another since 1972, and it has been adjusted irregularly over the years. For the past two decades, the national minimum wage has stood at slightly over half the median full-time wage, placing Israel above the majority of OECD countries (Figure 1). While the minimum wage has been effective in raising families above the poverty line, the efficacy of this policy with regard to larger families has eroded in recent years. Figure 2 shows that the gap between a family with two persons earning just the minimum wage and the poverty line trended downward until 2014, remaining steady since then. As of 2012, such families with three children fell below the poverty line.

In an earlier study on the impact of minimum wage increases on wages and employment in Israel, Mazar and Peled (2012) found that raising the minimum wage improved the wages of low-wage workers, female workers in particular. Epstein and Drucker (2016) observed that raising the minimum wage led to employee dismissals in certain sectors. Drucker, Mazirov and Neumark (2021) show that minimum wage increases reduce employer profits, especially of lower-income business owners. Flug, Kassir, and Rubinstein (2000) found that minimum wage hikes negatively impacted employment in tradable sectors (which are exposed to competition from imports), but not in non-tradable sectors. At the same time, price increases were found in the non-tradable sectors, though not in the tradable sectors. This indicates that the cost of the higher minimum wage is borne by the workers in the tradable sectors, and by the consumers in the non-tradable sectors.

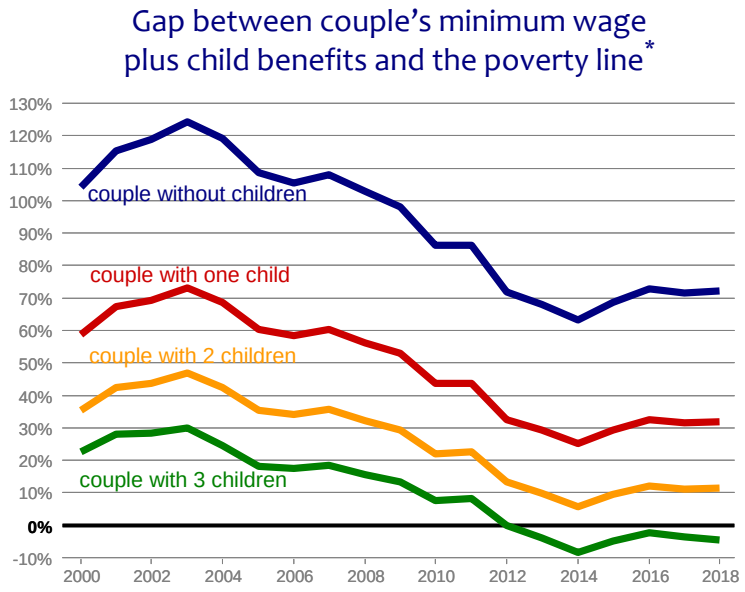
Figure 1



* median wage for full-time position.

Source: Brit Levanon, Tel Aviv University
Data: OECD

Figure 2



* minus compulsory payments.

Source: Brit Levanon, Tel Aviv University
Data: National Insurance Institute

Methodology for assessing minimum wage's impact

This study analyzes the impact of a steady increase in Israel's minimum wage during the years 2006-2009 on the wages and employment of workers who are expected to be the primary beneficiaries of the policy (referred heretofore as the treatment group). These are compared to workers as similar as possible (the control group) who are not expected to be as affected by minimum wage increases. The groups are redefined each year to account for the minimum wage increases. Specifically, the treatment group includes those individuals whose wages were equal to, or higher, than the minimum wage in the previous year, but lower than the minimum wage in the current year. The control group contains those individuals whose wages in the previous year were between 100% to 110% of the current year's minimum wage. While increases in the minimum wage may also indirectly affect workers in the control group, the direct impact on the treatment group is expected to be stronger. In other words, if a minimum wage hike is found to have a differential effect on the two groups of workers, then this must be because it affects lower-wage workers in an absolute, and not just a relative, manner.

The study utilizes an administrative database made available in the Central Bureau of Statistics' Research Room. The database contains information on all Israeli residents born during the years 1975-1985, including numerous socioeconomic characteristics of the study population as well as employment and income data for each of the relevant years. The database provides the number of jobs, the number of months of employment, and the gross annual income of those who were employed during a specific year – thus enabling the computation of monthly income. The employment sectors are known as well. Because the population in the sample is relatively young, most employees who pursued higher education were either not yet students or still engaged in their academic studies during the period of the study. As such, the positions held by such individuals most likely did not reflect their earning potential. Those who had already acquired higher education and realized their earning potential were, in most cases, earning far more than the minimum wage and, for this reason, were excluded from the treatment and the control

groups. In light of the above, the study population included only those individuals who did not attain academic degrees.

The impact of minimum wage increases on the actual wages of the treatment group were obtained using estimated wage equations for the period 2004-2010.[1] The estimation was done separately for men and women who held just one position in the year prior to the minimum wage hike and in the year following it.

Main findings

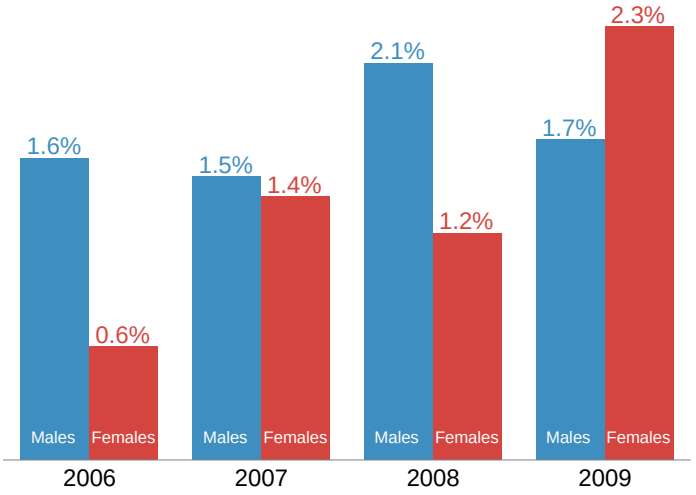
During the years in which the minimum wage rose, wages of individuals in the treatment group increased more than the wages in the control group. Figure 3 shows an annual gain in the relative wage of men in the treatment group, averaging 1.5 to 2 percent as a result of the minimum wage increase. For women, by contrast, the minimum wage hike's impact on wages in the treatment group versus the control group increased over the time period.

Alongside its effect on wages, increases in the minimum wage may also affect employment in two additional ways: on the employment of those already employed; and on the likelihood of those not employed to become employed.

To assess the impact of minimum wage increases on employment maintenance, workers who had been continuously employed (12 months) in a single position in the year prior to the minimum wage increase were reexamined after the

Figure 3

Annual wage increase in treatment group relative to control group*



* Treatment group: employees in minimum wage range. Control group: employees in range slightly above the minimum wage range who are expected to be less affected – if at all – by changes in the minimum wage.

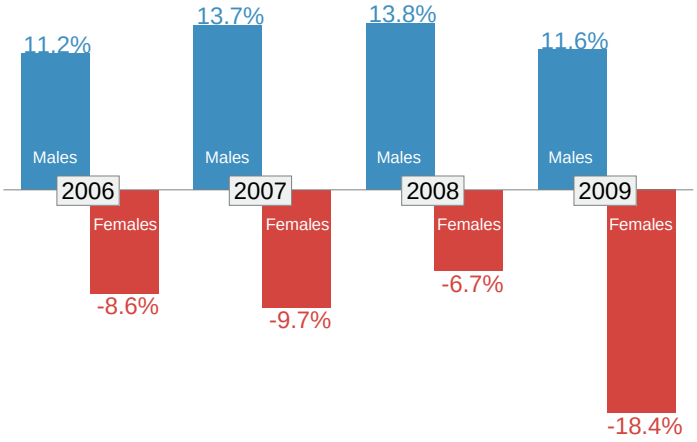
Source: Brit Levanon, Tel Aviv University
Data: Central Bureau of Statistics

[1] The equation is of the difference in differences type. The complete results can be found in Levanon (2021), or be obtained from the authors.

year of its increase.[2] Figure 4 shows that the minimum wage hike increased the likelihood of job retention among men in the treatment group than for men in the control group. The opposite was found for women. When compared with women in the control group, increases in the minimum wage reduced the probability of job retention among women in the treatment group.

Figure 4

Gap between treatment and control groups in probability to retain jobs*



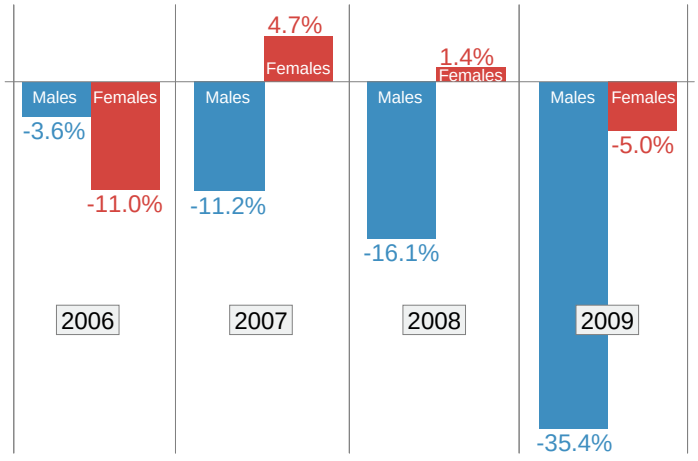
* Treatment group: employees in minimum wage range. Control group: employees in range slightly above the minimum wage range who are expected to be less affected – if at all – by changes in the minimum wage.

Source: Brit Levanon, Tel Aviv University
Data: Central Bureau of Statistics

To examine the impact of minimum wage hikes in terms of people entering employment, the study focused on workers who were not employed in the year prior to the minimum wage increase and estimated the likelihood of their being employed during the year following it.[3] In this case, the treatment and control groups were defined somewhat differently. Both groups included only individuals who were not employed during the period preceding the minimum wage increase. The treatment group comprised individuals who earned no more than the minimum wage after it was raised while the control group contained workers who earned from 100% to 110% of the minimum wage after it was raised. Here too, the data comprised only individuals who held just one position.

Figure 5

Gap between treatment and control groups in probability to begin employment*



* Treatment group: employees in minimum wage or below range. Control group: employees in range slightly above the minimum wage range who are expected to be less affected – if at all – by changes in the minimum wage.

Source: Brit Levanon, Tel Aviv University
Data: Central Bureau of Statistics

[2] The estimation was performed via logistic regression.
[3] The estimation was performed via logistic regression.

employed, relative to the control group. For women, the differences in likelihood of becoming employed between the treatment and the control groups are small, both quantitatively and statistically. For men, the findings show a decline in the probability of workers in the treatment group entering the labor force compared with workers in the control group, that becomes stronger over the years.

Summary

The rise in Israel's minimum wage during the period 2006-2009 increased the wages of workers at the lowest wage levels. However, its impact on employment was more complex, and differed between men and women. Women who had earned no more than the minimum wage had trouble remaining employed compared with women whose earnings were slightly higher. As such, the impact of the minimum wage hike on women was not uniform. Some women lost their jobs, while those who did manage to retain their jobs benefited from the wage increase.

The impact of the minimum wage increase on men's employment was different. The likelihood of men who had earned at the minimum wage threshold remaining employed grew, relative to men who had earned slightly more than they did. On the other hand, the probability of similar men entering the workforce declined.

Employment can be terminated at the initiative of the employee or of the employer. Raising the minimum wage is supposed to incentivize workers to remain employed, and on this score men and women are not supposed to differ. By contrast, employers may decide to dismiss some workers as a result of the increase. The fact that men at the lowest wage levels were more likely to remain employed indicates that their employers did not rush to dismiss them. However, the fact that women at the same wage levels became less likely to remain employed after the minimum wage hike attests to termination of employment at the employers' initiative. The decline in the probability of low-wage men becoming employed may be an outcome of the declining number of positions that became vacant. That is, the change in the minimum wage reduced the movement of men at low wage levels into and out of employment.

The question is why, in response to the minimum wage increase, employers preferred to curtail their employment of women at the lower wage levels, but not of men at the same wage levels. It is likely that men and women are employed at minimum wage in different sectors, which could account for the employers' differing responses. It is also possible that a greater number of women than men are employed at the minimum wage. This may make it more difficult for their employers to absorb the rise in their wages. Gender differences in the impact of minimum wage increases on employment may also be explained by the fact that most employment terminations are of part-time employees – with women tending to be employed part-time at higher rates than men. The available data do not include hours of work, and thus do not enable us to assess this possible explanation.

Ultimately, this study's findings suggest that raising the minimum wage benefits men at lower wage levels more than women at those wage levels, and therefore deepens the gender gap in the labor market. Consequently, consideration should be given to supplementing minimum wage increases with additional policy tools – such as a higher negative income tax – that support women's employment.

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