

Mario Bossler and Joachim Möller The Effects of the Compulsory Minimum Wage in Germany



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The German Federal Government introduced a countrywide statutory minimum wage of 8.50 euros on 1 January 2015. Major exemptions were made for the long-term unemployed and for young workers below the age of 18. Moreover, for a transitional period, a few branches were allowed to pay below the minimum wage if a corresponding tariff wage had been negotiated between the unions and employer associations. The newly-implemented Minimum Wage Commission was mandated to recommend subsequent changes, resulting in a rise to 8.84 euros in 2017. For 2019, an increase to 9.19 euros has already been decided.

Before 1 January 2015, a couple of industries had already introduced a sectoral minimum wage. The forerunner was the construction sector, which implemented a binding wage floor in 1997. Using the legal framework of the Workers Posting Law of 1996, the regulations in the construction sector were especially aimed at preventing a downward spiral through massive underbidding by East European firms and workers.

To investigate the impact of the minimum wage on wages, employment and other outcome variables, the German Ministry of Labour commissioned a series of evaluation studies. These studies typically found significant effects on the wages of low-paid workers and minimal or no job losses (for an overview, see Möller 2012). A significant disemployment effect only occurred in a few sectors or professions where extraordinary high minimum wages were implemented. This was the case in the roofing sector in eastern Germany, for example, where the minimum wage exceeded the initial median wage (Aretz et al. 2013).

Despite highly favourable results regarding the effect of minimum wages in several industries, the implementation of the general statutory minimum wage was heavily debated ahead of its introduction. While support in the general public debate was quite large, a substantial number of economists delivered sharp warnings concerning potential employment losses. Calculations based on a neoclassical approach predicting an employment loss of 900,000 jobs seemingly supported such a pessimistic view (Knabe et al. 2014). It is therefore very important to analyse the actual consequences.

An initial observation is that the very positive development in the German labour market after the completion of labour market reforms in 2005 continued

after the introduction of the general statutory minimum wage. Employment due to social security contributions increased from 30.4 million in June 2014 to 32.5 million in June 2017. Hence, the compulsory wage floor was evidently not a major obstacle to another significant increase in regular employment. However, recognising the absence of a dip in the overall employment trend around the implementation period does not replace a closer investigation.

With the data that are now available, a growing number of empirical ex-post evaluations studies are comparing ex-ante projections with ex-post realisations. Typically, these studies use a difference-in-difference (DiD) approach. In addition to the already existing datasets like the German Socio-Economic Panel (GSOEP), the IAB Establishment Survey, the Integrated Employment Biographies (IEB), the Employment Register of the Federal Labor Agency and the Structure of Earnings Survey 2014, new data sources have also been created. One example is the Labour Market Mirror (LMM) published by the IAB. It was first published in January 2016 (Berge et al. 2016d) and has since been updated every six months (Berge et al. 2016e, 2017a, 2017b). The data feature transitions between different labour market states (regular social security jobs, minor employment as the so-called mini-jobs and unemployment). The IAB Linked Personnel Panel (LPP) is also suitable for evaluation purposes.

RESULTS OF EVALUATION STUDIES: WAGE EFFECTS

Based on the Structure of Earnings Survey, Bruttel et al. (2018) present the first descriptive evidence on the wage effects of the compulsory wage floor. The authors show that in 2015, wages in the 20 most affected industries increased by 7.1% compared to 2.5% over the aggregate.

Bossler and Gerner (2016) conduct a DiD analysis using the firm-level data of the IAB Establishment Survey and identify a treatment effect on earnings in the lower tail of the wage distribution of approximately 6%.

Using a DiD approach with LPP data, Bossler and Broszeit (2017) find an average effect on the hourly wages of the individuals surveyed of approximately 12%. This study also shows a significant increase in the pay satisfaction of the workers surveyed. By contrast, the authors find no statistically significant effects on a work engagement variable that serves as a proxy for workers' productivity.

Using the GSOEP, Caliendo et al. (2017) observe a positive wage effect in the lower tail of the hourly wage distribution, and a negative one on contracted working hours. As a result, the effects on monthly earnings turn out to be statistically insignificant. In line with such a finding of relatively weak effects on monthly earnings, Bruckmeier and Wiemers (2015) observe only a small reduction in the number of working poor, i.e., employees receiving social benefits on top of monthly wages.

Based on the register data of the Federal Employment Agency, the authors find that the number of employees who receive such benefits decreased by only 43,000 out of approximately 1 million.

By contrast, a very recent study again finds strong wage effects. Ahlfeldt et al. (2018) combine the IEB earnings data with imputed working hours from the labour force survey of the Statistical Office. The authors explore the regional variation in the bite of the minimum wage and uses a DiD approach. According to their findings, hourly wages at the 10th percentile increase by below one euro in western Germany and by 1.25 euros in eastern Germany, where the general wage level is lower. Moreover, their results show that a 1 percentage point higher regional bite led to 0.5% higher growth in hourly wages at the 10th percentile, whereas there were no economically significant effects at the median or the 90th percentile.

RESULTS OF EVALUATION STUDIES: EMPLOYMENT EFFECTS

The LMM data are suitable for studying the effects of the minimum wage on the dynamics of the employment structure (Berge et al. 2018). Berge and Weber (2017) compare the changes in the months just before and after the introduction of the minimum wage (December 2014 vs January 2015) with the changes over the same time window in previous years. The intertemporal comparison shows no substantial changes in the total number of newly-created jobs that are eligible for social contributions. However, there is a strong indication of a major change in the structure of employment, i.e., a sharp decline in the number of mini-jobs. The excess termination of mini-jobs in the treatment period amounted to 145,100. However, only 88,800 of these individuals left their employer, whereas 56,400 jobs were upgraded to regular social security jobs (mostly part-time). Only a small fraction of those who left their employer directly moved to another firm or became unemployed. Among these individuals, very young and rather old persons were overrepresented. One can assume that more than a few of these persons left the market.

Bruttel et al. (2018) summarise the results of the first report of the German Minimum Wage Commission. Herein, the authors exploit the variation in the minimum wage exposure in different sectors of the economy in a more descriptive way. For instance, they compare the employment trends of predefined minimum wage sectors such as restaurants or taxi services with the employment development in the total economy. As a result, the disemployment effects appear to be weak or nonexistent. Some of the industries with a high bite of the minimum wage even experienced a remarkable employment increase after 2015.

Bossler and Gerner (2016) were the first to analyse the employment effects of the German statutory minimum wage based on a genuine difference-in-differ-

ences approach. The analysis exploits the firm-level variation in the expected bite of the minimum wage measured by the IAB-Establishment Panel data of 2014, i.e., in the pre-treatment period. Comparing the firms' employment levels before and after the minimum wage implementation, the authors find an employment reduction of approximately 1.7% in the group of affected firms. Because small firms are clearly overrepresented, the estimated overall employment loss lies in the range of only 45,000 and 68,000 jobs. A reduction in hires, rather than increased separations, appears to largely drive the effect. When assessing the results, one should stress that the data does not allow for the distinction between mini-jobs and regular part-time or full-time jobs. Moreover, the authors show that the disemployment effect is mostly driven by (i) plants in eastern Germany and (ii) plants that already faced high product market competition before the minimum wage was introduced.

Garloff (2017), Schmitz (2017), Caliendo et al. (2018), and Bonin et al. (2018) all estimate the employment effects using a DiD approach and exploit the regional variation in the bite of the minimum wage to identify the treatment effects. Using register data from the Federal Employment Agency, Garloff (2017) and Schmitz (2017) both define the treatment variable as the share of full-time employees with a monthly wage below 1,400 euros among all full-time employees. By contrast, Caliendo et al. (2018) and Bonin et al. (2018) calculate the bite from the Structure of Earnings Survey 2014. Whereas Caliendo et al. (2018) use the fraction of employees paid below 8.50 euros in the pre-treatment year, Bonin et al. (2018) take the average wage gap between the minimum wage and hourly wages of 2014.

Garloff (2017) and Schmitz (2017) take the growth rate of employment as the outcome variable, whereas Bonin et al. (2018) and Caliendo et al. (2018) estimate the effects on the employment levels. Garloff (2017) finds a reduction in the fraction of affected workers in the 2015 employment growth rate of between 0.1 and 1.1 percentage points. The effect is even positive for the growth rate of regular social security employment, but negative for mini-jobs. Similarly, the effects presented in Schmitz (2017) show a negligible effect on the growth rate of social security employment, but a statistically significant negative effect on the growth rate of mini-jobs (approximately -1 percentage point). Bonin et al. (2018) find an effect on the affected region's employment level in the range of -0.5 and -0.8%, whereas Caliendo et al. (2018) present an employment effect for the affected fraction of social security employment ranging from between 0 and -1.7%.

Ahlfeldt et al. (2018) also use the variance in the regional bite of the statutory minimum wage and find that despite a significant wage effect, there was neither a reduction in employment nor an increase in unemployment in the more affected regions. In contrast, in 2016, they find a reduction in the unemployment rate

and an increase in the number of jobs caused by the treatment, although both effects are rather small.

What can we learn from the various studies exploiting the regional variation in the bite of the minimum wage to identify the employment effects of the minimum wage? The picture is somewhat mixed because even indications of the effects vary. However, one can conclude that the effects are weak in all events. Since all impacts are estimated from DiD specifications, they indicate employment changes for the treatment group compared to the control group. Hence, the effects are in relation to the number of treated employees. If existent, the disemployment effects are all in the ballpark of a 1% change. The number of affected employees was in the range of 4 and 5 million employees before the introduction of the compulsory minimum wage floor. Hence, a disemployment effect of 1% amounts to approximately 40,000 to 50,000 jobs, which is less than 0.2% of all jobs in Germany.

WORKING TIME EFFECTS

A possible adjustment path for employers after the introduction of the statutory minimum wage may be the reduction in working hours. The hourly wage could be increased to obey the minimum wage regulation while not adjusting monthly salaries.

While the empirical evidence concerning adjustments in working hours is comparably scarce, some indicative evidence suggests that working times may have declined. Wanger and Weber (2016) show a reduction in working hours among mini-jobbers by exploiting data from the German labour force survey. However, this reduction may also be explained by the changed composition of mini-jobbers, since some of them have been upgraded to regular social security employment (Berge and Weber 2017). Another indication of a working time reduction is provided in the establishment data. According to the subjective survey responses of employers, working time reductions are much more prominent than other adjustment measures (Bellmann et al. 2016). In addition, the DiD analyses by Bossler and Gerner (2016) show that the average contracted weekly working time decreased by 0.2 hours among the establishments surveyed in 2015. Moreover, estimates based on the German Socio-Economic Panel by Caliendo et al. (2017) also yield a reduction in working times.

FURTHER RESULTS

Since the minimum wage introduction only exerted relatively small employment effects, a crucial question remains as to where minimum wage induced labour costs have materialised. While there is no convincing evidence concerning firm profits presented in the existing literature, price adjustments appear to be a plausible adjustment channel. Descriptive analyses based on the IAB-Establishment Panel and the IAB-QUEST-Survey indicate that price increases are very frequent

among the self-reported adjustment measures of employers (Bellmann et al. 2016; Bossler und Jaenichen 2017). This channel is also corroborated in a DiD analysis by Link (2018), who shows that scheduled price increases became much more frequent among treated plants during the time of the minimum wage introduction. Since Bossler et al. (2018) do not detect any effects on the business volume of treated plants in Germany, the presence of a price increase suggests a low product price elasticity, which in turn indicates some sort of market power.

Other empirical results concern the exemption clauses of the new German minimum wage. The new legislation allows wages below the minimum wage for individuals below 18 years of age, apprentices, compulsory internships that are required in educational programmes, voluntary internships if the contract duration does not exceed 3 months, and for long-term unemployed people in the first 6 months of their reemployment.

The exemption clause for the long-term unemployed people was evaluated by the IAB (Berge et al. 2016). The empirical design exploits the variation in the definition of long-term unemployed, where the sharp threshold is one year of unemployment, which is when unemployed individuals become eligible for the exemption. The results show neither a significant effect on re-entry wages nor on employment probabilities. This absence of significant results is simply due to a low take-up rate, even although the potential cost savings can be quite substantial for employers.

As far as the exemption clause for internships is concerned, a study by Bossler and Wegmann (2017) presents results from the IAB-Establishment Panel and the user generated search data of Google. Their results do not show that the minimum wage has any effect on the number of internships or individuals' search intensity. However, the distinction between compulsory and voluntary internships became more important, and the minimum wage was successful in limiting the phenomenon of the "generation internship", which describes a societal sentiment that young graduates conduct multiple internships without any perspective of permanent jobs.

Looking at alternative establishment-level adjustment channels like investments in human capital, analyses based on the IAB-Establishment panel do not show significant effects on the number of posted or filled apprentice positions (Bossler et al. 2018). If anything, the results show a slight reduction in the provision of further training if the training is financed by the employer (Bellmann et al. 2017). While this latter effect becomes insignificant in some of the robustness checks, the study by Bellmann et al. (2017) highlights an important fact, namely that training plays a far smaller role in the low-paid segments of the labour market.

Additional analyses based on the IAB-Establishment Panel of Bellmann et al. (2018) look at the minimum wage's effect on collective bargaining coverage.

Against the background of steadily decreasing collective bargaining coverage, one of the political goals of minimum wage legislation was to strengthen the tariff autonomy. Theoretically, however, a minimum wage could also crowd out participation in collective agreements instead of strengthening social partnerships. Empirically, Bellmann et al. (2018) do not find a significant reduction in collective bargaining. However, the authors do observe a larger number of firms moving in and out of collective agreements.

OUTLOOK AND CONCLUSIONS

Despite some ambiguous results, several general conclusions can be drawn from the ex-post evaluation studies of the introduction of a German statutory minimum wage. Firstly, with the exception of a study based on GSOEP data, there is overwhelming evidence of significant positive wage and earnings effects in the low tail of the wage distribution. Secondly, it is fair to say that the introduction of the wage floor did not lead to massive job losses. Hence, ex-post evaluation studies do not support the terrifying predictions expressed by some economists in the lead-up to the introduction of minimum wages. Thirdly, also from the findings of the sectoral minimum wages, there are some indications that a minimum wage of a reasonable amount does not cause substantial disemployment effects.

In general, the findings are not consistent with expectations based on a purely neoclassical model of the labour market. In such a model, a binding minimum wage would have necessarily led to substantial job cuts. If, in the absence of a legal wage floor, employees were paid their marginal value and productivity was not (strongly) influenced by the minimum wage, one would observe substantial job losses in the aftermath of the introduction of a sharply binding minimum wage. In our view, the overall results suggest that one cannot realistically describe the labour market as a purely competitive market. Instead, it appears to be more plausible to characterise the market in terms of its substantial information asymmetries, transaction costs and other imperfections. In a world where employers exert some market power at least in some segments of the labour market, a compulsory wage floor benefits low-paid workers (see the new monopsony theory of the labour market as outlined by Manning 2003). Such a situation is particularly likely in cases of low tariff coverage. A statutory minimum wage of a reasonable level can correct market power imbalances at little or no costs. However, if the minimum wage is set at a level that exceeds the fictitious equilibrium point of a competitive market, significant job losses become increasingly likely.

Against the background of our interpretations of the existing results, it is less likely that an increase in the minimum wage would lead to a marked negative employment effect, even if this increase were to go beyond the general wage trend. However, the following

arguments contrast a disproportionate increase in the minimum wage level. The labour markets in eastern and western Germany continue to differ significantly. It is to be feared that unfavourable employment developments could intensify, especially in the peripheral regions of eastern Germany. A possible remedy could be to create a split minimum wage. However, a split minimum wage would increase the complexity of the law and would run counter to the political goal of approximating the wage levels between eastern and western Germany. Hence, this approach does not constitute a viable political option. As a consequence, a uniform minimum wage requires the consideration of the weakest members according to the escrow principle.

Another argument against a substantial increase in the minimum wage is the uncertainty over the effects of the minimum wage in a period of weaker labour market development. All available results related to the minimum wage should be seen against the background of positive economic and labour market developments. These results do not shed any light on the potential effects of the minimum wage in a downturn.

Another important point concerns the degree of noncompliance with the minimum wage. Studies for other countries like the United Kingdom also see non-compliance with the minimum wage as significant. Mori (2012) cites data from the Office for National Statistics (ONS) showing that part-timers are twice as likely as full-time workers to be deprived of the minimum wage. For Germany, recent studies suggest that noncompliance is a severe problem (Burauel et al. 2017, Pusch and Seifert 2017). If these findings are confirmed, the enforcement of the minimum wage should be given higher priority. Otherwise, there is no protection for those who need it the most.

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