In early 2017, the government approved an 8% rise in the national minimum wage, bringing it to €707.6 per month (from €655.2), in 14 monthly payments. Moreover, on 22 November 2016, the Spanish Congress agreed to consider a legislative proposal on a phased increase of the national minimum wage to €800 per month by 1 January 2018 and €950 per month by 1 January 2020. This box aims to analyse the possible effects of these rises on employment and the wage structure.

The existence of a mandatory minimum wage below which employment contracts cannot be entered into is widespread among developed countries, the main aim being to enhance social equity. From a strictly economic standpoint, however, the theoretical literature emphasises that a minimum wage can also have an adverse impact on employment for certain groups of workers, especially those whose productivity level is below the minimum wage set by the authorities. Although the empirical evidence and the wide variety of findings available on the effects of minimum wage rises are not conclusive, increases in the minimum wage tend to be identified with adverse, albeit modest, effects on employment. For example, Belman and Wolfson (2014)[1], in compiling the findings of a broad range of studies, mostly relating to the United States labour market, have found adverse, but limited, effects on employment in about two thirds of them, with employment elasticity to the minimum wage of around-0.1% on average[2].

In the case of Spain, the estimates made by Galán and Puente (2015)[3] show that increases in the minimum wage between 2005 and 2010[4] significantly raised the probability of employment loss, although the impact on aggregate employment was limited, given the low percentage of workers affected by the national minimum wage in Spain[5]. In this study, which uses the microdata contained in the Social Security administrative labour records *(Muestra Continua de Vidas Laborales,* hereinafter MCVL), the group of workers affected by increases in the national minimum wage is defined as those whose wages in a given year are lower than the following year's national minimum wage. For this group of workers, employers must decide whether to adjust the wage to the new mandatory minimum or else terminate the employment relationship. To analyse the effects on employment for this group of workers, a model has been estimated on the probability of employment loss in the 12 months following a rise in the national minimum wage. In addition to different control variables, this model includes a measure of the existing gap between a worker's current wage and the new minimum wage. The coefficient of this variable can be interpreted as the effect of the minimum wage rise on the probability of employment loss[6]. As a result, the probability of employment loss following a rise in the minimum wage rose significantly for younger workers (aged 16 to 24), middle-aged workers (aged 33 to 45), and particularly for older workers (aged 45 or over). Thus, the average probability of affected workers losing their employment within a year rose from 11.2% to 24.9% in the 16-24 age band as a result of cumulative increases in the

1 D. Belman and P. Wolfson (2014). *What Does the Minimum Wage Do?,* W.E. Upjohn Institute for Employment Research, Kalamazoo, MI.

2 D. Neumark, J. M. Ian Salas, and W. Wascher (2014). In "Revisiting the Minimum Wage-Employment Debate: Throwing Out the Baby with the Bathwater?" *Industrial and Labor Relations Review,* 67 (Supplement), pp. 608-648, they stress that for certain groups of workers, such as younger, less qualified workers, these elasticities would be at least -0.2%.

3 "Minimum Wages: Do They Really Hurt Young People?", *B. E. Journal of Economic Analysis and Policy,* 15(1), pp 299-328.

4 There was a cumulative increase of 37.5% (18.7% in real terms) in the minimum wage.

5 Specifically, the wage rises implemented between 2005 and 2010 affected only 0.6% to 0.9% of all workers per year. These figures are higher among certain groups, such as younger workers (between 1.1% and 2.2%).

6 Account should be taken of the fact that this effect underestimates the possible effect on total job destruction, since it centres only on job losses, not on the creation of new jobs. This bias will be greater insofar as workers' productivity gains are higher owing to the experience they have gained, sufficient to offset increases in the national minimum wage. This offsetting effect is not available for workers seeking employment and, thus, for this group, the effects on job creation will be greater than on job destruction. Therefore, it is expected that the effect on employment for younger workers, who have the greatest experiential learning opportunities, will be underestimated.

**Table 1**
**EFFECT ON EMPLOYMENT** (a)

| Age | Scenario 1: Minimum wage = €707.6 | | | Scenario 2: Minimum wage = €800 | | | Scenario 3: Minimum wage = €950 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Workers affected (%) | Of whom, lose their employment (%) | Effect on total employment (%) | Workers affected (%) | Of whom, lose their employment (%) | Effect on total employment (%) | Workers affected (%) | Of whom, lose their employment (%) | Effect on total employment (%) |
| 16-25 | 15.72 | 4.87 | 0.76 | 20.46 | 10.93 | 2.24 | 32.57 | 17.52 | 5.71 |
| 25-33 | 5.57 | 1.58 | 0.09 | 8.53 | 3.21 | 0.27 | 18.01 | 4.70 | 0.85 |
| 33-46 | 1.47 | 2.23 | 0.03 | 3.43 | 4.69 | 0.16 | 10.00 | 7.24 | 0.72 |
| 46-70 | 1.27 | 6.36 | 0.08 | 2.87 | 13.66 | 0.39 | 7.97 | 20.65 | 1.65 |
| 16-70 | 3.09 | 3.46 | 0.11 | 5.30 | 7.48 | 0.40 | 12.26 | 11.32 | 1.39 |

SOURCES: Ministry of Employment and Social Security and Banco de España.

a Prepared with data from the 2015 Social Security administrative labour records (MCVL) (full-time workers who have worked the full month). National minimum wage on a pro-rata basis (12 annual payments).

minimum wage during the period analysed (2005-2010)[7], while the corresponding impact on workers aged 45 or over was much greater, with the probability rising from 11.2% to 49.9%[8].

This analysis can be used as the basis for estimating the potential effect of the aforementioned newly approved rise in the minimum wage[9]. To this end, a microsimulation exercise has been performed using the estimated probabilities, where each worker affected by the new minimum wage is assigned to one of the following two groups: workers who keep their employment and whose wages increase to match the new mandatory minimum amount, or workers who lose their employment. This exercise has been carried out for the minimum wage already approved in 2017 and also for the two proposals mentioned earlier, which involve raising the national minimum wage to €800 and €950.

Table 1 shows the results of this simulation for the three minimum wage increases considered. In terms of currently affected workers, the rise approved in 2017 gives a percentage of 3.1%, above the figures estimated for the 2005-2010 period (around 0.75% per year). By age group, the differences are considerable, since 15.7% of younger workers would be affected by the minimum wage rise, compared with a much lower figure of around 1%, among older workers. Naturally, these figures are higher for the scenarios of additional increases in the national minimum wage until 2020. These results show that, in the event of an increase of up to €950 per month, the percentage of affected workers would reach 12.3%, with almost a third being younger workers.

As regards the loss of employment resulting from these increases, a relatively limited potential impact is estimated for the economy as a whole. Specifically, the aggregate effect on employment would be a fall of 0.1% in the case of the minimum wage increase approved in 2017, and of 1.4% for the proposed rise to be achieved by 2020[10]. For workers affected by the increase, the potential loss of employment could reach 3.5% in the case of that approved in 2017, and 7.5% and 11.3% in the case of the proposed increases of €800 and €950, respectively. By groups of workers, the probability of employment loss for workers affected by the national minimum wage is higher among younger workers and higher still among older workers.

This exercise allows for the estimation of the impact of the increase in the minimum wage on total labour income and its distribution. As can be observed in Chart 1.1, in aggregate terms, the minimum wage rise has a limited impact on aggregate wage income, since the positive effects on workers who remain employed tend to be offset by the loss in wage income of those who lose their jobs. However, the changes are more significant as regards the distribution of wage income across different population groups. In particular, there are substantial differences by age band, with higher average income among younger workers, for whom the wage rise more than offsets employment losses. In contrast, for the group of workers aged 45 or

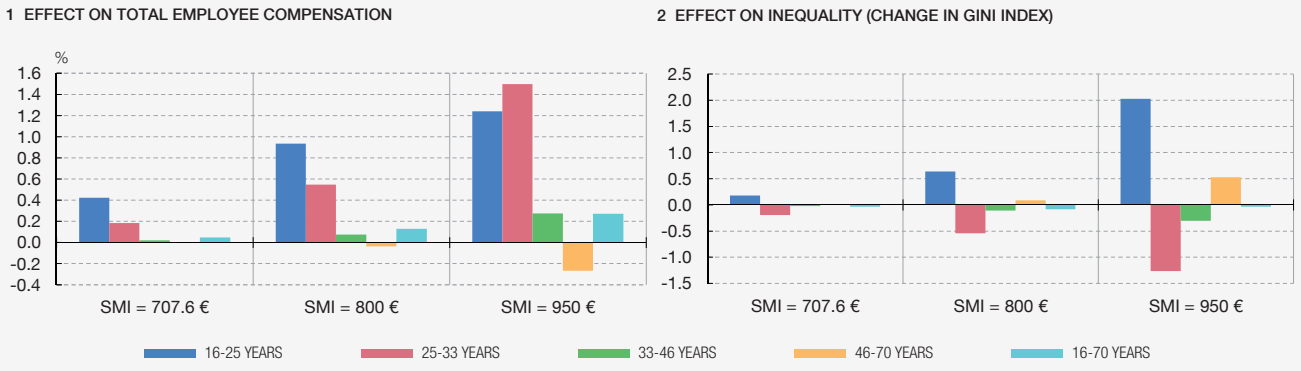
7 This probability is the result of simulating the cumulative increase in the minimum wage between 2005 to 2010 on the wage distribution observed in 2004.

8 Overall, the results would imply an elasticity of employment to minimum wage of around -0.2% for younger workers, in line with studies conducted on other countries, albeit very limited for aggregate employment, given given the low percentage of workers affected by the national minimum wage in Spain. However, it should be noted that the effects of the minimum wage on employment are not linear, since the number of affected workers for each additional euro is greater the higher the previous minimum wage level. Special caution is therefore needed when extrapolating elasticities to future rises in the national minimum wage, since they will generally be greater than previously estimated.

9 Specifically, for each affected worker in 2015 (the latest available year of the MCVL), the probability of employment loss is calculated on the basis of the worker's age and the difference between his/her current salary and the new national minimum wage considered. For part-time workers or those who have not worked a full month, the new minimum is adjusted to the corresponding proportion of time worked.

10 This non-linear effect arises for the reasons set out in footnote 8.

Chart 1
EFFECT ON TOTAL EMPLOYEE COMPENSATION AND INEQUALITY (a)




SOURCES: Ministry of Employment and Social Security and Banco de España.

a Prepared with data from the 2015 Social Security administrative labour records (MCVL) (full-time workers who have worked the full month). National minimum wage on a pro-rata basis (12 annual payments).

over, employment losses are so high that labour income declines. With respect to the impact on wage inequality, Chart 1.2 shows the effects of the three scenarios using the estimated variation of the Gini index[11]. The analysis shows that the aggregate inequality relative to wage income distribution hardly varies although the changes in inequality by age group are significant, with higher inequality among both younger and older workers, particularly in the scenarios of additional increases in the national minimum wage.

11 The Gini index is a measure of the degree of inequality across the entire income distribution. The more inequality, the higher the index. A totally even distribution would give an index of 0 while a totally unequal distribution, with all income concentrated in one individual, would give an index of 1.

Overall, the results presented in this box suggest a low aggregate impact on employment of the recent rise in the national minimum wage, given that the group of workers potentially affected by the increases in the national minimum wage is small. However, its impact on the probability of employment loss among certain groups, such as younger and older workers, is significant. It should be stressed that the effects of these increases are relatively limited since the minimum wages which are binding for most jobs in Spain are those agreed on in collective bargaining processes, and are currently higher than the mandatory minimum wage. These effects could be greater if the increases in the national minimum wage were to be applied to broader groups of workers, for example, if they were used as the basis for collective bargaining.