

**MODELLING THE EMPLOYMENT EFFECTS OF MINIMUM WAGE:
THE CASE OF LUXEMBOURG**

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The aim of this paper is to assess the impact of national statutory minimum wage on employment in Luxembourg's economy, with an emphasis on the low-wage segments of the Luxembourg's labour market. In our study, we use data covering all employees working in Luxembourg over the period 1992-2003. We have access to data on (i) all employees and (ii) establishments that employ these employees over the period 1992-2003. These data are from the files of Social Security Establishment of Luxembourg and concern around 250.000 employees each year of this period. We have two separate identification codes, one for each employee and another one for each establishment, which allow us to trace them over this period.

For the employees, we have information on their following characteristics: (i) payroll, number of employees and hours, each on a monthly basis (ii) date of birth (iii) years of presence on the labour market (iv) years of affiliation with the current employer (v) sex (vi) nationality (vii) country of residence (viii) legal status (ix) socio-professional status, and (ix) beginning/end of the labour contract. As for the establishments these employees work for, the following information are available: (i) legal status (ii) sector of activity (five-digit NACE code) (iii) hours worked, number of workers, full time equivalent number of workers, each on a monthly basis, and (iv) year of foundation an establishment.

In order to carry out the econometric analysis, we first aggregate our employee-level data set into an establishment-level one. Then, we estimate the following reduced-form labour demand change equation¹

$$\ln L_{it} - \ln L_{i,t-1} = \alpha_1 WMIN_{it} + \alpha_2 X_{i,t} + \alpha_3 SECTOR_t + \alpha_4 TIME_t + \epsilon_{it} \quad (1)$$

$\ln L_{it}$ measures the log difference in the number of workers or alternatively, the log difference in the number of hours worked in the firm. $WMIN_{it}$ is an indicator that measures the potential significance of minimum wages for firms, i.e. the vulnerability of firms to changes in minimum wages. X_{it} is a vector of firm-specific control variables.

Since minimum wage in Luxembourg is national, we cannot use it in equation (1) as an indicator of toughness of the minimum wage legislation without running into identification problems. In our paper, besides an indicator of "toughness" (Kaitz index), we use a number of minimum wage variables that aim at measuring the vulnerability of firms to increases in minimum wages. SECTOR and TIME are variables that include industry specific and annual dummies, respectively.

We add a wage equation to labour demand equation (1) to obtain the following simple structural model:

$$\ln L_{it} = \beta_1 + \beta_2 WAGE_{it} + \beta_3 X_{i,t} + \beta_4 SECTOR_t + \beta_5 TIME_t + \epsilon_{it}$$

$$\ln WAGE_{it} = \gamma_1 + \gamma_2 WMIN_{it} + \gamma_3 X_{i,t} + \epsilon_{it}$$

where WAGE denotes average hourly wage at the firm level.

Using appropriate estimation techniques, these equations are estimated for different low-wage segments of Luxembourg's economy.