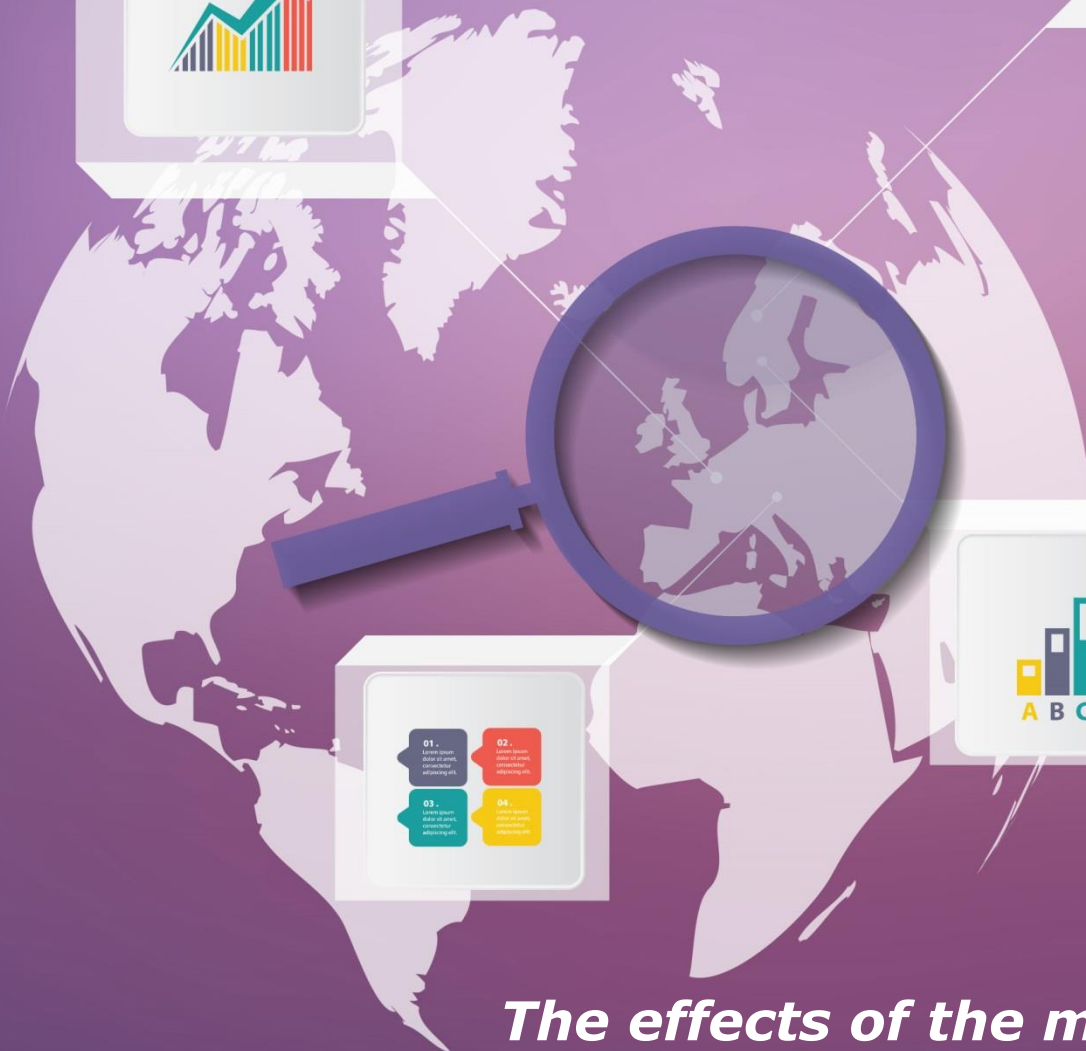
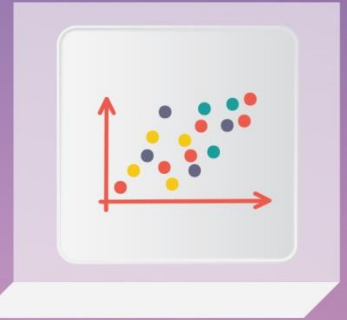


Analytical Web Note 1/2018



The effects of the minimum wage on employment: Evidence from a panel of EU Member States

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The effects of the minimum wage on employment: Evidence from a panel of EU Member States¹

Abstract. This note estimates the employment effects of statutory minimum wages for a panel of EU member states. Statistically significant negative effects of the minimum wage are found for young adults (ages 20-24), with estimated elasticities of about -0.15 to -0.2 in the preferred specifications. This means that a 10% increase in the minimum wage is associated with a 1.5% to 2% decrease in the employment rate of young adults, an estimate that is consistent with the range found in the previous literature. At the same time, results are unstable for the broader youth age group (ages 15-24). Further, statistically significant negative effects are found for low-skilled workers that are similar in magnitude to the effects for young adults. The effect of the minimum wage on the overall employment rate (ages 15-64) is estimated to be negative, but it is relatively small in magnitude and statistically not significant. Finally, the note documents that results are sensitive to the specification, in particular to whether controls of country-specific time trends are included.

1. Introduction

There is a high and increasing interest in the minimum wage as a policy tool to reward work, and support the incomes of low-wage earning families. The minimum wage sets a floor to earned labour income and in that way it can reduce in-work poverty. It may also reduce wage inequality, especially at the bottom of the wage distribution. In the Political Guidelines for the Commission, President Juncker (2014) said "(...) I believe it is necessary for all EU Member States to put in place a minimum wage". Wages (including the minimum wage) is one of the 20 policy domains included in the European Pillar of Social Rights.

The employment effect of the statutory minimum wage is one of its most often debated aspects. While there is no consensus in the literature, most studies find a negative effect of the minimum wage on employment of low-wage groups (see the overview of Neumark [2015]). These studies often focus on young workers, or specific low-wage sectors, in a particular country (often the US). Standard estimates of the employment elasticity of the minimum wage for young workers is between -0.1 and -0.2 , which means that a 10% increase in the minimum wage could reduce the youth employment by about 1 or 2% (Neumark, 2015). Nevertheless, a number of studies find results that are close to zero or statistically not significant and some have even found, in some sectors after some minimum wage increases, a positive employment effect. Thus the uncertainty about the employment effects of the minimum wage, which can be explained by economic theory by invoking various frictions in the labour market, needs to be taken seriously (see the overview of Manning [2016]).

While there is a large literature on the employment effects of the minimum wage based on specific countries (see, e.g., the surveys of Brown [1999], Neumark and Wascher [2006], and Neumark [2015]), there are relatively few cross-country analyses. Virtually all existing work focuses on a sample of OECD countries. Early cross-country analyses include Dolado et al. (1996) and OECD (1998). In a seminal study, Neumark and Wascher (2004) found negative employment elasticities between -0.1 and -0.2 in most specifications for the 15-24 age group. Dolton and Rosazza-Bondibene (2012) find, in their baseline estimations without country-specific trends, an elasticity of about -0.2 for

¹ A summary of this analysis appeared in the 2016 edition of the Annual Report "Labour Market and Wage Developments in Europe" (European Commission, 2016, Chapter II.1.3).

youth (ages 15-24) and of about -0.05 of adults (ages 25-54). They also find that the negative employment effect of the minimum wage is exacerbated in recessionary times for youth, but not for adults. Addison and Ozturk (2012) study the effect of the minimum wage on the employment of prime-aged women and find an elasticity of -0.079 in a baseline specification with country fixed-effects and country-specific trends, among a broad range of elasticities between -0.04 and -0.35 in various alternative specifications. Finally, Christl et al. (2015) find that the effect of the minimum wage on youth employment is non-linear: it turns negative only at a certain level, estimated to be at around 40% of the average wage. All contributions emphasise that the findings are sensitive to specification decisions.

The aim of the present contribution is to provide estimates of the employment effects of minimum wages on a panel of EU Member States. The focus on the EU allows the extension of the analysis to a number of countries that are not OECD members or are recent members and have therefore been neglected by most of the previous literature. It also allows a comparison across a set of countries which are arguably more homogeneous, and whose economic data are more harmonised, than it is the case across the OECD at large. Finally, and most importantly, focus on the EU allows an analysis of the minimum wage's effects on low-skilled employment, as information on this is collected in a harmonised way across the EU. Low-skilled workers, defined as those with less than upper secondary education, represent a group that is likely to be significantly affected by the minimum wage but one that has not been studied before in the cross-country literature.

The findings of the analysis are broadly consistent with the previous literature. First, negative employment effects are estimated for young workers, with robust and statistically significant results for young adults (elasticities of about -0.15 to -0.2 in the preferred specifications for the age group 20-24), but unstable results for the broader youth age group (ages 15-24). Second, statistically significant negative effects are found for low-skilled workers that are similar in magnitude to the effects for young adults. Third, while the effect of the minimum wage on the overall employment rate (age group 15-64) is consistently estimated to be negative, it is relatively small and estimated with a degree of uncertainty that makes it statistically not significant in the most stringent specifications in which country-specific trends are controlled for (the point estimates for the elasticities are close to -0.05 in these specifications). Finally, the note documents that results are sensitive to the specification; in particular to how country-specific trends are controlled for.

2. Analytical approach

This analysis follows previous cross-country studies in its empirical approach. As dependent variable, the employment rate (employment-to-population ratio) is chosen. Regressions are run separately for various groups of interest: the overall working-age population (age group 15-64); youth (age groups 15-24 and 20-24); and the low-skilled (ISCED level 0-2, age group 15-64). The main explanatory variable is the ratio of the minimum wage to the median wage.

Control variables include:

- (a) controls for the economic environment: the output gap or the unemployment rate of prime-aged males;
- (b) demographic and other controls relevant for the group studied: the share of the specific age or skill group in the overall working-age population; the share of the relevant youth age group in formal or informal education or training;

- (c) labour market institutions: spending on Active Labour Market Policies (ALMP) as a percentage of GDP; the indicator for the strictness of Employment Protection Legislation (EPL) of regular workers; the replacement rate of unemployment benefits; tax wedge; union density.

Country and year fixed effects are added in each specification, as is standard practice in the literature. Year fixed effects control for common trends across EU countries. Country fixed effects are introduced to control for time-invariant institutional and economic differences between countries.

Finally, each empirical relationship is studied both with and without the inclusion of a country-specific time trend.

The possible endogeneity (or simultaneity) of the minimum wage indicator and the variable controlling or the economic environment is dealt with, as in other papers, by lagging these variables by one year.

3. Variables and data

Information on the level of the minimum wage is taken from the earnings database of the OECD (2015). The database has information on 18 EU countries of the 21 that had a minimum wage over the sample period. (Germany became the 22nd Member State of the EU with a statutory minimum wage in 2015.) The database has no information on Bulgaria, Croatia, and Malta. Thus the countries in the sample are: Belgium, Czech Republic, Estonia, France, Greece, Hungary, Ireland, Latvia, Lithuania, Luxembourg, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and the UK.

Some previous analyses have included information on bargained minimum wages in countries that have no statutory minimum wage. Such data was assembled by Dolado et al. (1996) based on industry-specific data. This information was not taken into account in this analysis because the average of bargained minimum wages by industry is not easily comparable to a statutory minimum wage that is set for the whole economy. Most importantly, the average may mask significant heterogeneity, and uneven coverage, across industries.

Employment rates and demographic controls are taken from Eurostat, while the output gap is taken from the AMECO database of the European Commission. Controls institutional characteristics of the labour market (ALMP spending, EPL, replacement rate of unemployment benefits, tax wedge, union density) are obtained from OECD statistics. Data on ALMP spending was complemented from the Eurostat labour market policy database. Union density is complemented from the ICTWSS database (Visser, 2015). In the case of the other OECD variables, long historical (but discontinued) series have been complemented by up-to-date (but shorter) series also collected by the OECD.

The inclusion of institutional characteristics of the labour market as explanatory variables greatly reduces the sample for two reasons. First, recent observations are lost because some institutional variables are missing for most recent years. Second, the EPL indicator is not available for Latvia, Lithuania and Romania for the sample period. Therefore, to explore the robustness of the results, regressions are run both with and without institutional characteristics, and both for the restricted sample (15 countries and those years for which institutional variables are available) and for the unrestricted one (18 countries and all available years).

4. Results

This section presents the regression results for four groups of interest: Overall working age population (age group 15-64), youth (age groups 15-24 and 20-24), and the low-skilled (ISCED levels 0-2, i.e., those with less than upper secondary education). Table 1 provides a summary of all estimated elasticities. (Estimated coefficients are transformed into elasticities for easier comparability with previous findings of the literature.) The first four columns show specifications excluding country-specific time trends, while the last four columns show specifications including these. All five institutional control variables are included in columns (1) and (5). Only significant control variables are kept in columns (2) and (6). All institutional controls are excluded in columns (3) and (7). Finally, columns (4) and (8) repeat the regressions shown in columns (3) and (7), but for an unrestricted sample (i.e., a sample that is not restricted to the 15 countries, and to the years, for which institutional controls are available).

Table 1: The employment effect of the minimum wage: Summary of estimated elasticities

| Dependent variable | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|--------------------------------|----------------------|-------------|-------------------------------|-----------------------------|----------------------|-------------|-------------------------------|
| | No country-specific time trend | | | | Country-specific time trend | | | |
| | Restricted sample | | | Unrestr'd sample, no controls | Restricted sample | | | Unrestr'd sample, no controls |
| | All controls | Stat. sign. controls | No controls | | All controls | Stat. sign. controls | No controls | |
| Employment rate, overall working-age population (15-64) | -0.182* | -0.168** | -0.254* | -0.102 | -0.047 | -0.046 | -0.055 | -0.106 |
| Employment rate, youth (15-24) | -0.268* | -0.199 | -0.465 | -0.308* | -0.137 | -0.115 | -0.104 | -0.135 |
| Employment rate, youth (20-24) | -0.130 | -0.103 | -0.246* | -0.228** | -0.151 | -0.194** | -0.178** | -0.137** |
| Employment rate, low-skilled (ISCED 0-2; age group 15-64) | -0.217** | -0.201* | -0.212 | -0.157 | -0.173* | -0.162* | -0.162* | -0.193* |

Notes: (1) The table lists elasticities, calculated by scaling the relevant estimated regression coefficients. (2) All regressions estimated by Fixed-Effects panel estimation with robust standard errors. (3) The minimum wage indicator used in all regressions is the minimum wage to median wage ratio. (4) "Controls" refer to five variables controlling for labour market institutions: ALMP spending as a percentage of GDP; the strictness of Employment Protection Legislation; the replacement rate of unemployment benefits; the tax wedge; and union density. (5) Asterisks mark estimated coefficients which are statistically significant at the 10% (*), 5% (**), or the 1% level (***).

4.1 Employment of the working-age population

The first row of Table 1 summarises the results for the age group 15-64. (Table A1 of the Annex shows the full regression results.) A number of conclusions can be drawn. First, in all specifications, the effect of the minimum wage on employment is estimated to be negative, but in the majority of the specifications it is not statistically significant.

Second, the results are sensitive to whether country-specific time trends are controlled for. The estimated elasticity is sizeable (between -0.18 and -0.26) and statistically significant at least on the 10% level in the restricted sample when country-specific time trends are not included, regardless of the inclusion of institutional controls. In contrast, the elasticity falls to around -0.05 and is never statistically significant when country-specific time trends are included.

Specifications with country-specific time trends are taken as benchmark results for two reasons. The first, statistical argument is that F-tests of the joint significance of country-specific time trends strongly reject the hypothesis that these can be omitted. Secondly, results become much more robust to the choice of the sample and to the inclusion of institutional variables when country-specific time trends are included. The instability of results when country-specific trends are not controlled for may be due to spurious correlations between institutional variables and country-specific trends not properly

controlled for. Country-specific trends may be due to demographic, cultural, industrial change which is not controlled for properly by other variables.

4.2 Youth employment

The second and third rows of Table 1 summarise the results for the age group 15-24 and 20-24, respectively. (Tables A2 and A3 of the Annex show the full results.) A number of observations can be made. First, the estimated elasticities are in all cases negative, but they are more robust for the age group 20-24 than for 15-24. The estimated elasticities range from -0.1 to -0.5 for the age group 15-24, but in most cases it is not statistically significant. The range is in the much narrower range of -0.1 to -0.25 and in most cases statistically significant for the age group 20-24. The fact that results are more robust for the 20-24 age group suggests that some determinants of the employment of teenagers (the 15-19 age group) are not controlled for sufficiently. While the present analysis controls for the relative size of the cohorts and their rate of enrolment in education or training (the latter variable having a very strong predictive power over the employment rate), there might still remain factors that affected the evolution of the labour market participation of youth over time that are not sufficiently captured. This in turn might introduce noise into the estimation for the cohort including teenagers.

Second, controlling for country-specific time trends matters, but it matters less for the age group 20-24. The estimated elasticity for this age group, controlling for country-specific time trends, remains in the range of -0.13 and -0.2 and statistically significant at the 5% level in most cases. These estimates are not far from the ones without country-specific time trends, which contrast to the age group 15-24. For this broader group, the inclusion of country-specific time trends moderates the estimated elasticities substantially and makes the estimated effect statistically non-significant. This is consistent with the argument made previously that some determinants of teenage employment might not be fully captured in the analysis.

Again, specifications with country-specific trends are taken as benchmark results. Statistical tests strongly reject the hypothesis that country-specific time trends can be excluded. Also, results become more robust to sample choice and to the inclusion of institutional variables when country-specific trends are controlled for.

4.3 Employment of low-skilled workers

The last row of Table 1 summarises the results for the low-skilled (ISCED levels 0-2). (Table A4 of the Annex shows the full results.) The present analysis may be the first one to analyse the effect of minimum wages on low-skilled employment. Control variables include, beyond the unemployment rate of prime-aged males as a cyclical control and institutional variables, the share of low- and high-skilled in the working age population.

The point estimates for the employment elasticity of the minimum wage are within a range of -0.15 and -0.22 , thus the estimations are fairly robust to various specifications. In the baseline specifications with country-specific time trends, the range of estimated elasticities is between -0.16 and -0.2 . The estimated effect is in most cases statistically significant at the 10% level. This provides some evidence for the hypothesis that high minimum wages have a negative employment effect on the low-skilled.

4.4 The effect of other explanatory variables

Looking at other explanatory variables (see Tables A1-A4 in the Annex), the employment rate of all age groups is strongly related to the business cycle. The discussion below is limited to the benchmark specifications including country-specific time trends (columns

5-8 in each case). For the working-age population, a one-percent increase in the output gap (the difference between actual and potential GDP) is associated with a 0.4% to 0.5% increase in the employment rate (Table A1, columns 5-8). For young and low-skilled workers, there is a strong association between the unemployment rate of prime-age male workers (the business cycle proxy chosen in these specifications) and the employment rate of the groups in question. For instance, a one-percentage point increase in the prime-age male unemployment rate is associated with a nearly one percentage point decrease in the employment rate of young adults (Table A3, columns 5-8). The expansion of education also seems to be a strong determinant of youth employment: the share of young cohorts in education or training has a strong negative association with the employment rate of the same cohorts (Tables A2 and A3, columns 5-8).

Labour market institutions also affect employment outcomes. While ALMP spending and union density do not have a strong or statistically significant effect for any of the groups, EPL, the tax wedge and the replacement rate of unemployment benefits appear to affect labour market outcomes for at least some groups. The tax wedge is negatively associated with the employment rate of the overall working-age group and that of young adults (Tables A1 and A3, columns 5-8). The replacement rate of unemployment benefits is positively associated with the employment rate of the overall working-age group and the broader youth group (Tables A1 and A2, columns 5-8). Stricter EPL is positively associated with overall employment and negatively associated with that of young adults.

5. Conclusions

This note presented some estimations of the employment effect of the statutory minimum wage for various groups in 18 EU countries (15 in the restricted sample). The most reliable specifications, including country-specific time trends, found elasticities between -0.13 and -0.2 for young adults between 20 and 24 years old and elasticities between -0.16 and -0.2 for low-skilled workers. Results were not stable for the broader youth group (15-24) including teenagers, while for the overall working age population, the estimated elasticities were small and negative (around -0.05) and estimated with a degree of uncertainty which made them statistically not significant. Overall, the findings support the view that, at conventional levels, minimum wages do not have a large negative employment effect, but they appear to have some negative effects on the employment of low-wage groups. Thus, it is likely that policy-makers in most cases have to weigh the social benefits of a higher minimum wage against its social costs.

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Annex: Additional tables

Table A1: Regressions for overall employment rate (age group 15-64)

| Dependent variable: employment rate of age group 15-64 | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|--|--------------------------------|----------------------|-------------|----------------------------------|-----------------------------|----------------------|-------------|----------------------------------|
| | No country-specific time trend | | | | Country-specific time trend | | | |
| | Restricted sample | | | Unrestricted sample, no controls | Restricted sample | | | Unrestricted sample, no controls |
| | All controls | Stat. sign. controls | No controls | | All controls | Stat. sign. controls | No controls | |
| Minimum wage to median wage ratio, OECD, 1st lag | -0.227* | -0.210** | -0.317* | -0.129 | -0.058 | -0.058 | -0.069 | -0.134 |
| | (0.112) | (0.093) | (0.165) | (0.118) | (0.093) | (0.082) | (0.066) | (0.098) |
| Output gap, 1st lag | 0.502*** | 0.488*** | 0.450*** | 0.506*** | 0.406*** | 0.405*** | 0.466*** | 0.428*** |
| | (0.094) | (0.115) | (0.145) | (0.107) | (0.123) | (0.125) | (0.132) | (0.111) |
| ALMP expenditure as a share of GDP | 0.041 | | | | -0.000 | | | |
| | (0.029) | | | | (0.021) | | | |
| EPL for regular employment | -0.036*** | -0.039*** | | | 0.019* | 0.018** | | |
| | (0.010) | (0.009) | | | (0.010) | (0.008) | | |
| Union density | 0.187** | | | | 0.003 | | | |
| | (0.073) | | | | (0.147) | | | |
| Tax wedge | -0.109 | | | | -0.210* | -0.209* | | |
| | (0.111) | | | | (0.102) | (0.104) | | |
| Replacement rate of unemployment benefits | -0.344*** | -0.315*** | | | 0.181** | 0.180** | | |
| | (0.033) | (0.070) | | | (0.076) | (0.069) | | |
| <i>Implied minimum wage elasticity</i> | -0.182* | -0.168** | -0.254* | -0.102 | -0.047 | -0.046 | -0.055 | -0.106 |
| Observations | 221 | 221 | 221 | 408 | 221 | 221 | 221 | 408 |
| R-squared | 0.828 | 0.811 | 0.730 | 0.543 | 0.930 | 0.930 | 0.918 | 0.786 |
| Number of countries in the sample | 15 | 15 | 15 | 18 | 15 | 15 | 15 | 18 |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country-specific time trend | No | No | No | No | Yes | Yes | Yes | Yes |

Notes: All regressions estimated by Fixed-Effects panel estimation with robust standard errors. Asterisks mark estimated coefficients which are statistically significant at the 10% (*), 5% (**) or the 1% level (***).

Table A2: Regressions for age group 15-24

| Dependent var.: employment rate of age group 15-24 | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|--------------------------------|----------------------|-------------|----------------------------------|-----------------------------|----------------------|-------------|----------------------------------|
| | No country-specific time trend | | | | Country-specific time trend | | | |
| | Restricted sample | | | Unrestricted sample, no controls | Restricted sample | | | Unrestricted sample, no controls |
| | All controls | Stat. sign. controls | No controls | | All controls | Stat. sign. controls | No controls | |
| Minimum wage to median wage ratio, OECD, 1st lag | -0.189* | -0.140 | -0.327 | -0.207* | -0.096 | -0.081 | -0.073 | -0.090 |
| | (0.101) | (0.141) | (0.235) | (0.106) | (0.090) | (0.086) | (0.080) | (0.066) |
| Prime-age male unemployment rate, 1st lag | -0.868*** | -0.870*** | -1.057*** | -0.760*** | -0.655*** | -0.691*** | -0.692*** | -0.575*** |
| | (0.106) | (0.144) | (0.209) | (0.127) | (0.173) | (0.144) | (0.137) | (0.114) |
| Share of 15-24 age group in education or training | -0.633*** | -0.535*** | -0.517*** | -0.745*** | -0.412*** | -0.428*** | -0.479*** | -0.608*** |
| | (0.104) | (0.103) | (0.160) | (0.143) | (0.111) | (0.086) | (0.076) | (0.081) |
| Relative population of age group 15-24 to total 15-64 | 0.321 | | | | -0.221 | | | |
| | (0.343) | | | | (0.538) | | | |
| ALMP expenditure as a share of GDP | 0.050* | | | | -0.005 | | | |
| | (0.025) | | | | (0.027) | | | |
| EPL for regular employment | -0.042* | -0.034* | | | -0.011* | | | |
| | (0.022) | (0.018) | | | (0.005) | | | |
| Union density | -0.083 | | | | -0.076 | | | |
| | (0.201) | | | | (0.192) | | | |
| Tax wedge | 0.145 | | | | -0.173 | | | |
| | (0.174) | | | | (0.118) | | | |
| Replacement rate of unemployment benefits | -0.463*** | -0.437*** | | | 0.249*** | 0.283*** | | |
| | (0.086) | (0.073) | | | (0.082) | (0.079) | | |
| <i>Implied minimum wage elasticity</i> | -0.268* | -0.199 | -0.465 | -0.308* | -0.137 | -0.115 | -0.104 | -0.135 |
| Observations | 215 | 215 | 215 | 384 | 215 | 215 | 215 | 384 |
| R-squared | 0.797 | 0.783 | 0.712 | 0.786 | 0.915 | 0.912 | 0.904 | 0.896 |
| Number of countries in the sample | 15 | 15 | 15 | 18 | 15 | 15 | 15 | 18 |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country-specific time trend | No | No | No | No | Yes | Yes | Yes | Yes |

Notes: See notes to Table A1.

Table A3: Regressions for age group 20-24

| Dependent var.: employment rate of age group 20-24 | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|--------------------------------|----------------------|----------------------|----------------------------------|-----------------------------|----------------------|----------------------|----------------------------------|
| | No country-specific time trend | | | | Country-specific time trend | | | |
| | Restricted sample | | | Unrestricted sample, no controls | Restricted sample | | | Unrestricted sample, no controls |
| | All controls | Stat. sign. controls | No controls | | All controls | Stat. sign. controls | No controls | |
| Minimum wage to median wage ratio, OECD, 1st lag | -0.137 (0.102) | -0.109 (0.117) | -0.261* (0.143) | -0.235** (0.105) | -0.160 (0.100) | -0.205** (0.076) | -0.188** (0.063) | -0.141** (0.064) |
| Prime-age male unemployment rate, 1st lag | -1.196*** (0.135) | -1.171*** (0.140) | -1.280*** (0.174) | -1.021*** (0.105) | -0.895*** (0.141) | -0.957*** (0.134) | -0.981*** (0.131) | -0.888*** (0.148) |
| Share of 20-24 age group in education or training | -0.532*** (0.052) | -0.520*** (0.071) | -0.463*** (0.077) | -0.648*** (0.127) | -0.477*** (0.099) | -0.485*** (0.096) | -0.489*** (0.102) | -0.553*** (0.079) |
| Relative population of age group 20-24 to total 15-64 | 0.334 (0.749) | | | | 0.503 (0.524) | | | |
| ALMP expenditure as a share of GDP | 0.042 (0.030) | | | | -0.008 (0.027) | | | |
| EPL for regular employment | -0.049*** (0.014) | -0.048*** (0.012) | | | -0.016* (0.008) | -0.028** (0.011) | | |
| Union density | 0.098 (0.152) | | | | -0.068 (0.190) | | | |
| Tax wedge | 0.142 (0.183) | | | | -0.277** (0.119) | -0.261* (0.146) | | |
| Replacement rate of unemployment benefits | -0.310*** (0.065) | -0.280*** (0.053) | | | 0.170 (0.106) | | | |
| <i>Implied minimum wage elasticity</i> | <i>-0.130</i> | <i>-0.103</i> | <i>-0.246*</i> | <i>-0.228**</i> | <i>-0.151</i> | <i>-0.194**</i> | <i>-0.178**</i> | <i>-0.137**</i> |
| Observations | 215 | 215 | 215 | 384 | 215 | 215 | 215 | 384 |
| R-squared | 0.849 | 0.840 | 0.801 | 0.827 | 0.911 | 0.907 | 0.899 | 0.899 |
| Number of countries in the sample | 15 | 15 | 15 | 18 | 15 | 15 | 15 | 18 |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country-specific time trend | No | No | No | No | Yes | Yes | Yes | Yes |

Notes: See notes to Table A1.

Table A4: Regressions for the employment rate of the low-skilled (ISCED group 0-2)

| Dependent variable: employment rate of low-skilled | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|--|--------------------------------|----------------------|----------------------|----------------------------------|-----------------------------|----------------------|----------------------|----------------------------------|
| | No country-specific time trend | | | | Country-specific time trend | | | |
| | Restricted sample | | | Unrestricted sample, no controls | Restricted sample | | | Unrestricted sample, no controls |
| | All controls | Stat. sign. controls | No controls | | All controls | Stat. sign. controls | No controls | |
| Minimum wage to median wage ratio, OECD, 1st lag | -0.195** (0.079) | -0.181* (0.085) | -0.191 (0.117) | -0.135 (0.106) | -0.152* (0.073) | -0.146* (0.081) | -0.146* (0.081) | -0.166* (0.092) |
| Prime-age male unemployment rate, 1st lag | -0.652*** (0.100) | -0.645*** (0.092) | -0.653*** (0.124) | -0.585*** (0.103) | -0.612*** (0.102) | -0.675*** (0.098) | -0.675*** (0.098) | -0.646*** (0.082) |
| Relative population of low-skilled to all (age group 15-64) | -0.262 (0.203) | -0.305 (0.233) | -0.367 (0.330) | 0.211* (0.103) | 0.061 (0.192) | | | |
| Relative population of high-skilled to all (age group 15-64) | -0.680*** (0.210) | -0.719*** (0.193) | -0.567 (0.346) | 0.077 (0.167) | 0.001 (0.327) | | | |
| ALMP expenditure as a share of GDP | 0.015 (0.026) | | | | -0.001 (0.016) | | | |
| EPL for regular employment | -0.045*** (0.012) | -0.046*** (0.014) | | | -0.006 (0.010) | | | |
| Union density | -0.047 (0.140) | | | | -0.204 (0.196) | | | |
| Tax wedge | 0.156 (0.160) | | | | -0.056 (0.102) | | | |
| Replacement rate of unemployment benefits | -0.146** (0.058) | -0.158** (0.054) | | | 0.101 (0.090) | | | |
| <i>Implied minimum wage elasticity</i> | -0.217** | -0.201* | -0.212 | -0.157 | -0.173* | -0.162* | -0.162* | -0.193* |
| Observations | 184 | 184 | 184 | 343 | 184 | 184 | 184 | 343 |
| R-squared | 0.753 | 0.745 | 0.681 | 0.590 | 0.880 | 0.871 | 0.871 | 0.792 |
| Number of countries in the sample | 15 | 15 | 15 | 18 | 15 | 15 | 15 | 18 |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country-specific time trend | No | No | No | No | Yes | Yes | Yes | Yes |

Notes: See notes to Table A1.