



HAL
open science

Firms and wage inequality in Central and Eastern Europe

Iga Magda, Jan Gromadzki, Simone Moriconi

► **To cite this version:**

Iga Magda, Jan Gromadzki, Simone Moriconi. Firms and wage inequality in Central and Eastern Europe. *Journal of Comparative Economics*, 2021, 49 (2), pp.499-552. 10.1016/j.jce.2020.08.002 . hal-03269977

HAL Id: hal-03269977

<https://hal.science/hal-03269977>

Submitted on 24 May 2023

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution - NonCommercial 4.0 International License

Firms and wage inequality in Central and Eastern Europe¹

Iga Magda²
Jan Gromadzki³
Simone Moriconi⁴

Corresponding author:
Simone Moriconi
IÉSEG School of Management
3, rue de la Digue
59000 Lille, France
Email: s.moriconi@ieseg.fr
Telephone: +48517173644

¹ This paper has benefited from the financial support provided by the National Science Center, Poland (DEC-2013/10/E/HS4/00445) and by the World Bank Group (FY2016 DGF Network for Jobs and Development-DGF File: 502916-05). We would like to thank Peter Orazem, Carl Singleton, the participants of the 2018 EALE, 2018 IZA World Labour conference, the 2018 HSE/IZA workshop, and the 2019 IAAEU seminar for their comments and remarks. We also gratefully acknowledge use of the Python/Stata template provided by von Gaudecker (2014). This paper uses Eurostat data. Eurostat has no responsibility for the results and the conclusions, which are those of the authors.

² Warsaw School of Economics; Institute for Structural Research (IBS), Warsaw, Poland; IZA, Bonn, Germany. E-mail: iga.magda@ibs.org.pl.

³ Warsaw School of Economics; Institute for Structural Research (IBS), Warsaw, Poland. E-mail: jan.gromadzki@ibs.org.pl

⁴ IÉSEG School of Management and LEM-CNRS 9221. E-mail: s.moriconi@ieseg.fr

June 2020

Abstract

We use large linked employer-employee data to analyze wage inequality patterns in Central and Eastern European (CEE) countries between 2002 and 2014. We show that, unlike in many other advanced economies, wage inequality levels have decreased in almost all CEE countries. These reductions in wage inequality resulted from disproportionately large increases in wages at the bottom of the wage distribution, and from decreases in between-firm wage inequality. We further find that the declines in wage inequality were driven by large wage structure effects that compensated for changes in the composition of workers.

Keywords: wages, wage inequality, RIF regression, quantile decomposition, linked employer-employee data

JEL Classification: D22, J31, J40

1 Introduction

The issue of increasing income inequality is being publicly debated in most OECD countries. Many of the questions raised in these discussions center around the extent to which changes in wage inequality levels are driving income differentials. Much of the existing literature on this topic has focused on firm-level determinants, and has recognized the important role of inter-industry and firm-level wage differentials (Abowd, Kramarz, & Margolis, 1999; Du Caju et al., 2010; Krueger & Summers, 1988; Martins, 2004). We know far less about how between-firm wage inequality levels change over time, and whether firm-level factors have contributed to the increases in the wage inequality levels observed in many OECD countries. This paper contributes to this debate by investigating the workplace features that are likely to drive wage inequality, and how it changes at different points of the wage distribution.

While there is extensive research on recent determinants of wage inequality in the US, Germany, and many other advanced countries, this paper focuses on Central and Eastern European (CEE) countries. CEE countries are interesting not only because there is little comparative evidence on recent changes in their wage structures, but also because the countries in this geographical region have experienced similar wage inequality trends. While the transition from a socialist to a market economy was associated with increasing wage dispersion (Brzezinski, 2018), we show that the wage patterns continued to change in the period that followed. Specifically, we find that whereas wage inequality levels further increased in many advanced countries in the 2000s, they stabilized or declined in Central and Eastern Europe during this period.

There have been several institutional and economic changes in the region that likely contributed to the observed changes in wage inequality. These changes, which we discuss in detail in section 3, involved reforms of labor codes that increased workers' bargaining power, increases in minimum wages, and large migration outflows to Western European countries. We argue that all of these developments had the potential to reduce wage inequality. There is a broad consensus that an increase in the minimum wage reduces wage inequality, as both its direct and its spillover effects are concentrated at the lower end of the wage distribution

(Autor, Manning, & Smith, 2016; Cengiz et al., 2019; DiNardo, Fortin, & Lemieux, 1996). According to wage bargaining models, workers' bargaining power and workers' outside options determine wages (Pissarides, 2000). Therefore, the increase in workers' outside options due to the opening of Western labor markets should have led to an increase in workers' wages in the CEE countries. These increases were likely concentrated at the bottom of wage distribution, as the demand for migrant workers was largely limited to low-skilled jobs (Black et al., 2010).

This paper has three main objectives. First, we aim to present a clear picture of the changes in the wage dispersion patterns in post-transition CEE countries between 2002 and 2014 using harmonized, comparative data from a large, linked employer-employee dataset of the European Structure of Earnings Survey (ESES). We study both the variance of wages and the quantiles of the wage distribution. Second, we intend to analyze the role of firms in determining wage inequality, and to examine how much of this inequality is due to wage differentials arising between firms, and to within-firm wage inequality. Third, we investigate the potential micro-level factors associated with higher or lower levels of wage inequality, and particularly the drivers of the observed decrease in wage inequality during the 2006-2014 period.

Our results suggest that during the study period, wage inequality levels decreased in most CEE countries, especially in the Baltic states and Romania, where the initial wage inequality levels were the highest in the region. In these countries, the largest increases in real wages occurred at the bottom of the wage distribution. This may be related to the fact that those countries experienced the largest migration outflows and minimum wage increases during the study period, as argued above. Czechia, where the wage inequality level remains the lowest in the region, was the only CEE country that experienced a (slight) increase in wage inequality, which was observed both at the lower and the upper part of the wage distribution. Czechia also had the smallest migration outflows in CEE, and its minimum wage expressed as a fraction of the average wage decreased considerably.

We further show that the differences in the variance of wages across the CEE countries were primarily driven by the differences in the between-firm component of wage inequality (and,

to a lesser extent, by wage inequality within firms). We gain additional insight into the determinants of wage inequality by applying recentered influence function (RIF) regressions following Firpo, Fortin, and Lemieux (2018). We show that workplace characteristics played an important role in wage inequalities; and that of these workplace characteristics, the levels of education and the ages of an employee's co-workers were as crucial as her/his occupational and sectoral affiliation. Decomposition of the changes shows that reductions in wage inequality in the region between 2006 and 2014 were largely attributable to wage structure effects (changes in the wage premia paid for individual- and firm-level characteristics, as well as in the intercept), rather than to composition effects (changes in covariates). In line with Firpo, Fortin, and Lemieux (2018), we find that composition effects increased inequality, as the gains were greater at the top of the wage distribution. However, unlike in the US, we do not see polarization in wage growth, as the changes in workers' returns to wages were concentrated at the bottom of the wage distribution, and thus led to decreases in inequality.

2 Literature review

Our paper is related to two main strands of literature. The first strand is comprised of studies on changes in wage inequality and their determinants. Some of the most important works on this topic include Autor, Katz, and Kearney (2006); Autor, Katz, and Kearney (2008) for the US; Fortin et al. (2012) for Canada; Dustmann, Ludsteck, and Schönberg (2009) for Germany; and Machin (2016) for the UK. This literature has looked at the macro-level drivers of wage inequality, and has examined how trade and labor market frictions, technological change, and migration have contributed to wage inequality (Acemoglu & Autor, 2011; Akerman et al., 2013; Autor, Manning, & Smith, 2016; Ge & Yang, 2014; Goldschmidt & Schmieder, 2017; Helpman et al., 2017; Krishna, Poole, & Senses, 2012). Some studies (Autor, Katz, & Kearney, 2008; Lemieux, 2006) have taken a micro perspective, and have shown that the rise in wage inequality has been highly heterogeneous across worker characteristics, including education, age, and type of occupation. A striking feature of the steady rise in wage inequality that took place in the US from the 1970s onward is that earnings increased more at higher percentiles of the earnings distribution, even for the same skill levels. The literature on this trend has grown considerably in recent decades, and has focused mainly on developed economies (the

US and Western European countries) and some emerging economies (e.g., Brazil, China, see Alvarez et al. (2018); Appleton, Song, and Xia (2014); Messina and Silva (2017)). Only a few studies have dealt explicitly with recent developments in wage inequality in the CEE countries, which experienced a strong increase in wage dispersion during the transition to a market economy (Aristei & Perugini, 2014; Milanovic & Ersado, 2012). This phase seems to have been followed by a period in which wage inequality was slowly decreasing (Tyrowicz & Smyk, 2019); although the patterns varied across countries (Aristei & Perugini, 2012). Pryor (2014) emphasized that even after the surge in wage inequality levels during the transition, the degree of wage dispersion remained lower (around the 2000s) in the CEE countries than it was in most OECD countries. A more recent study by Mysíková and Večerník (2018) compared the developments in wage inequality in Poland and Czechia with those in Austria just before and after the Great Recession (2007). They found that in the two CEE countries, income polarization did not increase, and levels of wage inequality remained low along the gender, skill, and occupational dimensions. Our paper contributes to this literature by showing that wage inequality decreased in nine CEE countries during the 2000-2014 period.

The second strand of literature we want to contribute to focuses on firm-level drivers of wage inequality. The overall level of wage inequality can be decomposed into a within-firm component (wage differentials that arise within firms) and a between-firm component (differences in the average wages of firms). Establishment effects matter, as employers are affected differently by the various factors that shape changes in the wage distribution, such as skill-biased technological change or changes in labor market institutions; whereas workers are sorted among employers. Card et al. (2018) developed a theoretical model of wage setting that assumes that workers have idiosyncratic tastes for different workplaces; and that an increase in firm productivity will lead to an increase in individual wages because firms do not observe workers' preference shocks. Thus, according to this model, an increase in the dispersion of productivity across firms will lead to an increase in levels of between-firm wage inequality, and the propagation of productivity increases to wages depends directly on rent-sharing elasticity. For the UK, Bell, Bukowski, and Machin (2018) found that rent-sharing elasticity has decreased sharply since the 1980s, which has resulted in a reduction in the impact of increasing productivity differentials on wage inequality. Hence, it seems that increases in the dispersion of

firm productivity can explain only a portion of the observed increases in levels of between-firm wage inequality.

The empirical studies on the contribution of the between-firm component were summarized by Card et al. (2018). Barth et al. (2016) has shown that the increased variance of average earnings across establishments can explain about half of the rise in US wage inequality during the 1970-2000 period. Handwerker and Spletzer (2016) showed that the growing contribution of establishment effects to the widening of the distribution of wages is only partially explained by changes in the distribution of occupations among workplaces. Song et al. (2019) used linked employer-employee data to analyze the contributions of firms to the rise in earnings inequality in the United States from 1978 to 2013. They showed that about two-thirds of the increase in the variance of (log) earnings occurred between firms. They pointed out that the heterogeneity of the composition of the workforce among firms played a major role in this development. In a similar vein, Antonczyk, Fitzenberger, and Sommerfeld (2010) found that workplace effects contributed substantially to the increase in wage inequality in Germany. Card, Heining, and Kline (2013) also looked at West Germany (between 1985 and 2009), and confirmed that increasing firm-level heterogeneity explained a large share of the rise in wage inequality. By contrast, the role of the between-firm component was found to be relatively small in Italy (Devicienti, Fanfani, & Maida, 2019), Sweden (Akerman et al., 2013), and the United Kingdom (Schaefer & Singleton, 2019).

Very few studies have touched upon the potential role of firms in shaping wage inequality in the CEE countries, though a recent World Bank study (Kelly et al., 2017) has suggested that in Bulgaria, Estonia, and Latvia, differences in wages across firms explain more than half of wage inequality, while differences in educational attainment levels or occupations across workers explain only a third or less of wage inequality.

We add four contributions to the previous literature. First, we provide evidence based on harmonized data on recent reductions in wage inequality in most CEE countries, and discuss these changes in the light of institutional and economic developments in the CEE. Second,

we investigate the contributions of the within-firm and the between-firm component to the levels of and the changes in the overall wage inequality in nine CEE countries. Third, we conduct a detailed analysis of the micro-level determinants of wage inequality, and of how wage inequality has changed over time. Finally, while the literature on drivers of increases in wage inequality is abundant, we provide novel evidence on the determinants of wage inequality decreases as opposed to wage inequality increases.

3 Institutional and Economic Background

In the early 2000s, the CEE countries had not yet completed the transition from having a centrally planned economy with artificially low levels of wage inequality to having a capitalist, market-based economy.¹ The countries in the region continued to reform their legal and economic frameworks to meet the EU requirements. As part of this process, the CEE countries made changes to their national labor codes and minimum wages. After the EU enlargement in 2004, the CEE countries continued to introduce structural adjustments in line with the agenda of the EU's Cohesion Policy (Sedelmeier, 2008). These changes were accompanied by high levels GDP growth. On average, GDP growth was twice as high in the CEE countries as it was in the EU incumbent countries between 2004 and 2014. This strong economic growth in the CEE countries was driven by high rates of investment in the region (the GDP share of investment was, on average, 20-25% higher in the CEE countries than it was in the Western European countries), FDI inflows, re-industrialization, and increased participation in trade and Global Value Chains (Carstensen & Toubal, 2004; Parteka & Wolszczak-Derlacz, 2013).

The post-enlargement period was also marked by a wave of emigration, as labor markets in Western Europe were opened to CEE workers (Kaczmarczyk & Okólski, 2008; Kahanec & Zimmermann, 2016; Zaiceva & Zimmermann, 2008). Between 2006 and 2014 the number of CEE migrants in the EU almost tripled. Nevertheless, there was substantial variation in migration patterns across the CEE countries. In 2014, nearly 12% of the Romanian population were

¹Still, they were at different stages in this process. Czechia, Poland, Hungary, Slovakia, and the Baltic countries were at more advanced stages in this transition. Romania and Bulgaria were at earlier stages in this process (Carstensen & Toubal, 2004), which led to their later entry into the EU.

living in other EU countries, compared to less than 2% of the Czech population (see Table D.3).

Rapid economic growth in the CEE countries contributed to an overall increase in the demand for labor. This rising labor demand, coupled with high rates of emigration, put pressure on wages (Kohl, 2009). Thus, wages in the CEE countries grew considerably during the 2006-2014 period. Between 2006 and 2014, average real hourly wages increased by an average of 40% in the region, compared to by an average of roughly 23% in the EU28.²

It is also likely that many of the institutional adjustments that these countries made contributed to their high levels of wage growth and to decreases in wage inequality. In the years immediately after the EU accession, the CEE countries needed to consolidate the system of labor market institutions that had resulted from the institutional restructuring during the transition. Meeting EU employment law standards was a necessary step for successful integration into the EU. Among the first changes the CEE countries made were major reforms of their national labor codes, and the introduction of multiple measures that reinforced their adherence to the European standards, which led to increases in workers' bargaining power.³

A second direction of reform was in the implementation of wage floors through the enforcement of minimum wages and/or extension mechanisms. After the EU accession, most CEE countries introduced new wage floors or reinforced existing ones. Currently, all CEE countries have a wage floor, which was generally the result of the introduction of a national minimum wage, and/or of bi/tripartite collective negotiations with extension mechanisms (as in the case of Romania and Bulgaria, see Kohl, 2009). In most CEE countries, the minimum wage

²During this period, the Great Recession hit the CEE countries hard (particularly the Baltic States, where GDP decreased by more than 14%). However, after the downturn, these countries quickly resumed their high rates of growth. At the same time, there was a clear pattern of dualization in the labor markets associated with changing contractual arrangements. Numbers of temporary jobs and of self-employed workers increased while full-time employment rates declined, in particular in the countries that were most affected by the Great Recession, with mixed effects on wage inequality (Brzezinski, 2018; Hoelscher, Perugini, and Pompei, 2011).

³These included actions aimed at strengthening the social partners' ability to bargain, and at engaging in the European Social dialogue and the procedural regulation of labor markets (e.g., through the implementation and reinforcement of work councils). Labor market institutions were also reformed through involvement in the European "Open Method of Coordination" in the fields of labor and social policies. These measures ultimately increased trade unions' bargaining power, directly or indirectly, by reinforcing the procedural legitimacy of collective agreements. Thus, the power and the effectiveness of collective bargaining institutions were enhanced, even though trade union densities and coverage declined in the region after 2002. See Magda, Marsden, and Moriconi, 2016 for details.

increased substantially, both in real terms and as a fraction of average wages (see [D.1](#) and [D.2](#)). Bulgaria and Czechia were the only CEE countries where the increases in the minimum wage were smaller than the increases in average wages. In general, the countries that had the lowest minimum wages in 2006 (Bulgaria, Romania, and Latvia) also had relatively high wage inequality. Those countries experienced the highest levels of minimum wage growth between 2006 and 2014. In our analysis, we argue that these increases in the minimum wage likely contributed to the reduction in wage inequality, as wages at the bottom of the wage distribution increased significantly in those countries.

Furthermore, the wage distributions in all countries may have been affected by technological change. Keister and Lewandowski (2017) have shown that in most CEE countries, the intensity of routine cognitive tasks has increased. The authors argued that sustained demand for routine work prevented increases in wage inequality in the CEE countries. This pattern contrasts with that in Western Europe, where decreased demand for routine work led to increases in wage inequality.

4 Data

We use repeated cross-sectional data from the European Structure of Earnings Survey (ESES) for the years 2002, 2006, 2010, and 2014. The ESES is a large matched employer–employee dataset provided by Eurostat. It includes information on workers’ earnings, and on their individual-, job-, and firm-level characteristics. We use data for the following nine CEE countries: Czechia, Estonia, Hungary, Lithuania, Latvia, Poland, Romania, Slovakia, and Bulgaria. We additionally draw on ESES data for the Netherlands, Norway, Sweden, and Portugal in order to compare some of our results with those for Western European countries.

While the ESES data are characterized by a high degree of cross-country comparability, we had to carry out a number of cleaning steps to guarantee that the national samples and our analyses were fully harmonized across countries. In particular, we dropped observations that referred to workers in the smallest firms (fewer than 10 workers), because comparable data were available for only some of the countries. We also dropped observations from the top

and the bottom 0.1% of the hourly wage distribution to avoid outliers. In the 2002 wave of the survey, the inclusion of observations from the non-market services sector was optional. Because the 2002 data for Estonia, Latvia, and Hungary are incomplete, we were not able to obtain comparable datasets for all countries for that year. For this reason, we have chosen to analyze the 2002 data only for countries with datasets that included all sectors, and only for descriptive statistics. We provide detailed analyses for the 2006-2014 period only. The sizes of the final samples are large: they range from 32,000 observations in Lithuania in 2010 to more than two million observations in Czechia in 2014⁴. Such large samples reduce the risk of any potential sample biases. Summary statistics across countries and years are presented in Table 1. To check for potential data inconsistency issues, we compare the ESES wage data with an alternative data source. We show that our descriptive statistics based on the ESES are in line with the statistics provided by the OECD (see [Appendix E](#) for further details).

Table 1: Summary statistics

(a) Number of observations									
year	Bulgaria	Czechia	Estonia	Hungary	Lithuania	Latvia	Poland	Romania	Slovakia
2002	151 090	1 023 598			135 978		629 101	229 423	417 173
2006	162 838	1 914 027	114 656	676 050	114 892	271 872	639 784	247 433	670 603
2010	175 575	1 948 513	108 903	781 240	32 773	198 862	668 022	262 983	767 368
2014	168 345	2 148 818	112 569	770 148	38 483	153 540	707 999	270 582	863 864

(b) Number of firms									
year	Bulgaria	Czechia	Estonia	Hungary	Lithuania	Latvia	Poland	Romania	Slovakia
2002	2 454	2 289			5 915		13 392	8 870	1 391
2006	4 596	11 673	2 628	13 916	5 305	7 641	13 978	10 778	2 971
2010	5 187	11 193	2 502	13 681	2 690	5 261	14 423	12 161	4 739
2014	4 904	12 159	2 348	12 638	3 089	3 688	14 608	12 075	5 695

(c) Mean of hourly earnings (PPS)									
year	Bulgaria	Czechia	Estonia	Hungary	Lithuania	Latvia	Poland	Romania	Slovakia
2002	1.96	5.40			3.76		5.73	2.52	4.46
2006	2.93	6.92	5.60	5.89	5.18	4.66	7.09	3.69	4.53
2010	4.60	7.45	7.14	7.25	5.94	4.35	8.69	5.09	7.05
2014	4.92	8.35	7.66	7.76	6.30	6.37	10.10	5.20	7.92

Data: European Structure of Earnings Survey.

⁴The reduction in the number of observations in Lithuania between 2006 and 2010 was caused by a change in the sampling procedure. This should not affect our results, because we use in all of our calculations the sample weights provided by Eurostat, which take these changes into account. Furthermore, we show that the descriptive statistics are in line with an external source of data, the OECD (see [Appendix E](#)).

Panel C in Table 1 summarizes the changes in average hourly gross wages in the CEE countries between 2002 and 2014. We can see that real wages were lowest in the late EU entrants, Romania and Bulgaria; and were, on average, twice as high in Czechia and Poland. In all of the CEE countries, there were substantial increases in average earnings over the analyzed period.

Our baseline measure of wages is real hourly gross wage, expressed in PPS (Purchasing Power Standard)⁵. This measure includes earnings, earnings related to overtime, special payments for shift work, social security contributions, and taxes; but it does not include annual bonuses and allowances that were not paid in each period. We use the variance of log hourly wages as our measure of wage inequality. This is a common statistical measure of dispersion, and, unlike other popular measures of inequality, such as the Gini coefficient or the 90-10 wage gap, the variance is additively decomposable into the between-firm component and the within-firm component, which we draw on in our analysis. We use log wages because the variance of log wages is a mean independent measure (unlike the variance of wages, see Atkinson (1970)). The downside of using variance as a measure of inequality is that it may be masking changes at the tails of the wage distribution. Therefore, we supplement our study with an analysis of changes in quantiles of the wage distribution. Moreover, we show that the trends in wage inequality based on alternative measures (Gini index, Atkinson index, Theil index, and decile dispersion ratios) are very similar to the trends in changes in the variance of wages (see Tables A.1-A.6 in the Appendix).

5 Methodological approach

Our analysis is carried out in two main steps. First, we analyze levels of and changes in wage inequality in each country over time, discussing changes at the mean and at the tails of the wage distribution. We also determine the respective contributions of the within-firm component and the between-firm component to total wage inequality. In the second step, we investigate the determinants of the levels of wage inequality, as well as the changes in wage

⁵PPS is an artificial currency unit derived by the Eurostat that accounts for cross-country differences in the prices of goods. Thus, one PPS can buy the same amount of goods and services in each country.

inequality, over time.

We start the first part of our analysis by normalizing wages for each year and country, such that individual wages are defined as $\hat{w}_{it} = \log(100 * \frac{w_{it}}{\bar{w}_t})$, where w_{it} denotes the individual hourly wage and \bar{w}_t is the average hourly wage in a given year t . We then calculate the variance of log wages for each country and each year and other measures of wage inequality, presented in Tables [A.1-A.6](#) in the Appendix.

For each country, we analyze to what extent the level of overall wage inequality and its changes are determined by the within-firm and the between-firm wage inequality, following the methodology applied by Lazear and Shaw (2009) and Barth et al. (2016). We decompose the overall variance of log wages ($Var(\hat{w}_{it})$) into the within-firm component ($Var(within)$) and the between-firm component ($Var(between)$). Thus, the variance decomposition of log wages, $Var(\hat{w}_{it}) = Var(within) + Var(between)$, is given by the following equation:

$$Var(\hat{w}_{it}) = \frac{1}{N_t} \sum_i (\hat{w}_{it} - \hat{w}_t)^2 = \frac{1}{N_t} \sum_j \sum_{i \in j} (\hat{w}_{it} - \hat{w}_{jt})^2 + \frac{1}{N_t} \sum_j N_{jt} (\hat{w}_{jt} - \hat{w}_t)^2 \quad (1)$$

where \hat{w}_t is the average log wage in year t in a given country, \hat{w}_{jt} denotes the average log wage for workers in firm j in year t , N_t is the number of all workers in year t , and N_{jt} is the number of workers in firm j in year t .

We also repeat the above analysis, but while looking at *residual* wage inequality; that is, the wage inequality that remains after the workers' and workplaces' observable characteristics are accounted for. First, for each year and country, we estimate a standard Mincerian wage equation of the following form:

$$\hat{w}_i = \beta_0 + \beta_1 X_i + \beta_2 X_j + \epsilon_i \quad (2)$$

where X_i is a set of individual and job characteristics, such as age, gender, education, occupation, type of contract; and X_j is a set of firm characteristics, such as the enterprise's sector and forms of economic and financial control. We also account for peer effects (share of female

workers, share of workers with tertiary education, share of workers aged 50 or older, and share of workers with a tenure of less than two years) in order to capture more firm heterogeneity (Card & De La Rica, 2006). Next, we calculate the residuals from the estimated model, and analyze the variance of the obtained residuals. In other words, the residual variance is the variance of the unexplained component of wages.

While the exercises above provide us with a broad picture of the aggregate wage dispersion trends, they give us little insight into the determinants of these trends. Several recent studies have tried to distinguish the individual determinants of wage inequality (associated with gender, age, job experience) from job and firm characteristics (Barth et al., 2016; Handwerker & Spletzer, 2016). To add to this line of research, we estimate in the second step the variance of wages as a function of worker and firm characteristics (the same characteristics as in the Mincerian equation above). To this end, we use the recentered influence function regression, which calculates the partial effect of a small change in the distribution of covariates on the distributional statistic of interest (Firpo, Fortin, & Lemieux, 2018), which in our case is the variance. In other words, we calculate the recentered influence function value for each observation according to the following formula:

$$RIF(\hat{w}_{it}) = (\hat{w}_{it} - \hat{\bar{w}}_t)^2 \quad (3)$$

Next, we estimate the following model for each country and each year:

$$RIF(\hat{w}_{it}) = \beta_0 + \beta_1 X_{it} + \beta_2 X_{jt} + \epsilon_{it} \quad (4)$$

The notation is the same as in Equation (2). We obtain the estimated partial effects of small changes in the distribution of selected variables on the variance of log wages for each country and for each year. Thus, we can observe differences in the magnitude of the effects over time.

Furthermore, to gain a better understanding of the determinants of changes in inequality over time, we decompose the changes in the variance of log wages into the composition effect (changes in the covariates X_{it} and X_{jt}) and the wage structure effect (changes in the coeffi-

coefficients from the RIF regression $(\beta_0, \beta_1, \beta_2)$ following Firpo, Fortin, and Lemieux (2018). The decomposition is given by the following equation:

$$\begin{aligned} Var(w_{i,\hat{2014}}) - Var(w_{i,\hat{2006}}) &= (\mathbb{E}[X|Y = 2014] - \mathbb{E}[X|Y = 2006])'\beta_{2006} \\ &+ \mathbb{E}[X|Y = 2006](\beta_{2014} - \beta_{2006}) \end{aligned} \quad (5)$$

The first term reflects changes in the variance driven by changes in the covariates, assuming that the coefficients remained at the 2006 level (composition effect). The second term captures the unexplained part of the changes in wage inequality; namely, the change in the coefficients $(\beta_{2014} - \beta_{2006})$, assuming that the covariates remained at the 2006 level (wage structure effect).

Finally, to better understand the heterogeneity of the sources of changes in the wage distribution, we decompose the changes at different deciles using an unconditional quantile regression (Firpo, Fortin, & Lemieux, 2018).

6 Results

6.1 Overall wage dispersion and its changes

Table 2: Variance of log wages

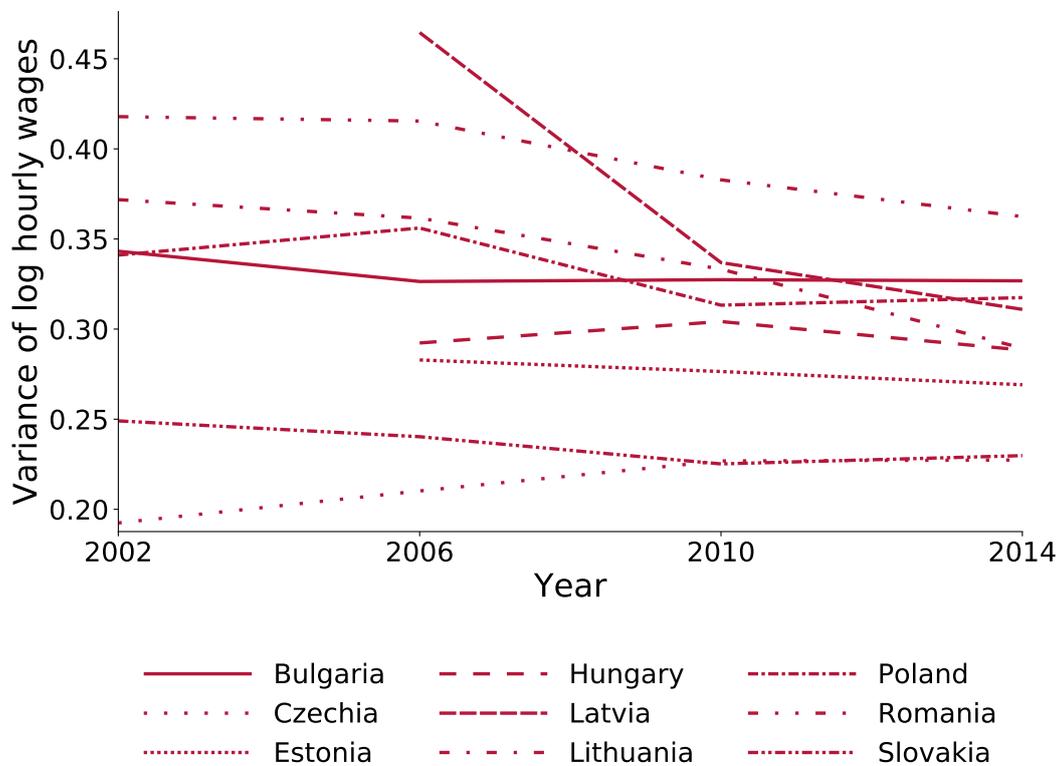
year	Bulgaria	Czechia	Estonia	Hungary	Lithuania	Latvia	Poland	Romania	Slovakia
2002	0.34	0.19			0.37		0.34	0.42	0.25
2006	0.33	0.21	0.28	0.29	0.36	0.46	0.36	0.42	0.24
2010	0.33	0.23	0.28	0.30	0.33	0.34	0.31	0.38	0.23
2014	0.33	0.23	0.27	0.29	0.29	0.31	0.32	0.36	0.23

Data: European Structure of Earnings Survey.

The results show that levels of wage inequality varied substantially across the CEE countries (Table 2). In 2014, the lowest wage inequality levels were observed in Czechia and Slovakia (where the variance of log wages amounted to 0.23), while the highest wage inequality level was observed in Romania (0.36). When we compare the wage inequality levels in the CEE countries to those in the more advanced European countries (Table F.2), we see that the levels in Czechia and Slovakia were similar to the level in the Netherlands, and that the high variance of wages in Romania corresponded to the level of wage inequality in Portugal (where

wages were the most dispersed among EU countries, if measured with the D9/D1 decile dispersion (Eurostat, 2014)). The average level of the variance of log wages observed in the CEE countries was around three times higher than it was in the two Scandinavian countries in our study sample (Norway and Sweden). All in all, we find that wages were, on average, more unequal in the CEE countries than in the older EU member states; a result that is confirmed by the Eurostat D9/D1 dispersion statistics.

Figure 1: Overall variance of log wages: 2002-2014



Note: Figure shows variance of log of normalised gross hourly wages. Tables A.7-A.9 show variance of log of normalised gross hourly wages by sector.

Data: European Structure of Earnings Survey.

There were substantial changes in the wage inequality patterns in the CEE countries between the early to mid-2000s and 2014 (Table 2). These changes included a slight increase in the level of wage inequality in Czechia, the CEE country that had the lowest initial level; there, the variance of log wages increased from 0.19 in 2002 to 0.23 in 2014. Over the same period, the levels of wage dispersion decreased in the CEE countries that had high initial wage inequality levels. The variance of log wages decreased the most in Latvia (from 0.46 in 2006

to 0.31 in 2014), Romania (from 0.42 in 2006 to 0.36 in 2014), and Lithuania (from 0.37 in 2002 to 0.29 in 2014). Wage inequality levels remained stable in Bulgaria, Estonia, Hungary, and Slovakia. The data suggest that the sharpest declines in wage inequality levels occurred after 2006 (between 2006 and 2010, in particular). When we look at the 2002-2006 sub-period (during which seven of the nine CEE countries we analyze entered the European Union), we observe hardly any changes in the overall wage dispersion patterns – although it should be noted that we have information for only a few of the CEE countries in this period. In sum, the differences in the levels of wage dispersion among the CEE countries narrowed considerably in the 2000s and the early 2010s (see Figure 1).

The narrowing of wage inequality occurred mostly at the lower tails of the wage distribution (see Tables A.5- A.6). Between 2006 and 2014, the D50/D10 ratio decreased in Hungary, Lithuania, Latvia, Poland, and Romania; it increased in Czechia; and it remained stable in the remaining countries. The Baltic states were the only CEE countries where the D90/D50 ratio decreased between 2006 and 2014, reflecting a decrease in wage inequality in the upper part of the wage distribution. None of the other CEE countries experienced large changes in the D90/D50 ratio. To shed more light on these changes, Figure 2 shows the cumulative distributions of real hourly wages in 2006 and 2014. We see a substantial increase in real wages at the very bottom of the distribution in Hungary, Latvia, Lithuania, Poland, and Romania (compared to the other points of the wage distribution). These changes were likely facilitated by the institutional and economic changes discussed in section 2 (i.e., changes related to minimum wage policies, sustained economic growth, and emigration), as there was greater density around the minimum wage in 2014 than in 2006 (see Figure A.1 for kernel density estimates) in the countries with narrowed lower-end wage distributions. It appears that in Bulgaria, Estonia, and Slovakia, real wages increased equally across the wage distribution. Finally, wages in Czechia increased slightly throughout most of the wage distribution, although less at the very bottom and more at the very top.

Table 3: Contribution of the within component to level and change in variance of log wages

	Level 2006 (percent)	Change 2006-2014 (percent)
Estonia	60	70
Czechia	55	16
Slovakia	50	19
Lithuania	49	58
Hungary	48	25
Latvia	47	46
Poland	44	35
Romania	36	56
Bulgaria	29	51

Note: the first column shows the contribution of the within-firm component to the level of the variance of log wages in 2006 ($\frac{Var(w_{i,2006}^{within})}{Var(w_{i,2006})}$). The unreported between component is 100% minus the reported within component. The second column shows the contribution of the within component to the change of the variance ($\frac{|\Delta Var(w_{i,t}^{within})|}{(|\Delta Var(w_{i,t}^{within})|+|\Delta Var(w_{i,t}^{between})|)}$).

Data: European Structure of Earnings Survey.

Table 4: Variance decomposition

(a) Within-firm variance of log wages

year	Bulgaria	Czechia	Estonia	Hungary	Lithuania	Latvia	Poland	Romania	Slovakia
2002	0.10	0.11			0.18		0.15	0.16	0.12
2006	0.09	0.12	0.17	0.14	0.18	0.22	0.16	0.15	0.12
2010	0.10	0.11	0.15	0.14	0.16	0.16	0.15	0.14	0.11
2014	0.11	0.11	0.14	0.14	0.13	0.15	0.14	0.12	0.12

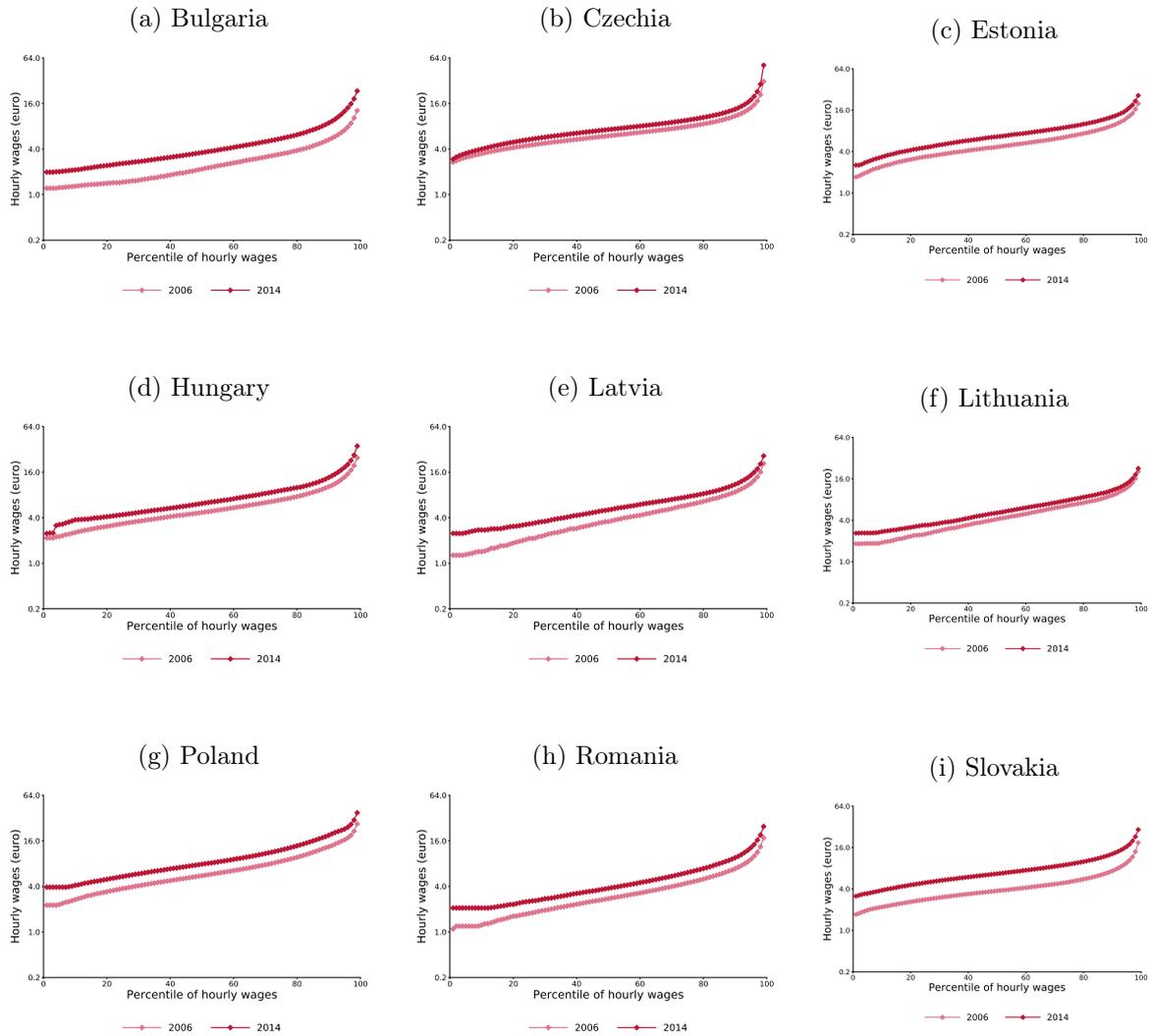
Data: European Structure of Earnings Survey.

(b) Between-firm variance of log wages

year	Bulgaria	Czechia	Estonia	Hungary	Lithuania	Latvia	Poland	Romania	Slovakia
2002	0.24	0.09			0.19		0.19	0.26	0.13
2006	0.23	0.09	0.11	0.15	0.18	0.25	0.20	0.26	0.12
2010	0.22	0.12	0.13	0.16	0.18	0.18	0.17	0.24	0.11
2014	0.22	0.12	0.12	0.15	0.15	0.17	0.18	0.24	0.11

Data: European Structure of Earnings Survey.

Figure 2: Cumulative Distributions of Hourly Wages: 2006 and 2014



Notes: For each percentile, the statistics are based on the minimum hourly wages among individuals in that percentile of earnings in each year. The vertical axis is log-scaled. Changes in log hourly wages (2006-2014) are shown in Figure A.2.

Data: European Structure of Earnings Survey.

6.2 The role of between- and within-firm wage inequality

The overall wage inequality at the country level arises from the dispersion in average wages between firms, and from the inequality in wages that exists within firms. Thus, as we discussed in the methodological section, we can decompose overall wage inequality into two components: within-firm and between-firm wage inequality. Tables 3 and 4 summarize the results of such

an exercise.

The CEE countries differed primarily with respect to between-firm wage inequality, as this component explained most of the existing differences in the total wage inequality levels between countries (see Table 4). In 2014, within-firm wage inequality varied from 0.11 in Bulgaria and Czechia to 0.15 in Latvia; while between-firm wage inequality ranged from 0.1 in Slovakia to 0.24 in Romania. Thus, between-firm wage inequality was the main contributor to differences in the levels of total wage inequality among the CEE countries. The countries with high levels of overall wage inequality (Romania, Bulgaria) had much higher levels of between-firm wage inequality than the countries with low levels of overall wage inequality (Czechia, Slovakia), whereas the levels of within-firm wage inequality in these two groups of countries were more similar. The share of within-firm wage inequality in overall wage inequality varied from 33% in Bulgaria to 54% in Estonia (in 2014). These patterns appear to be similar to those observed in the four Western European countries to which we compare our results for the CEE countries: i.e., in the Netherlands, Norway, Portugal, and Sweden, the levels of between-firm wage inequality varied more than the levels of within-firm wage inequality.

In the CEE countries, between-firm wage inequality was both higher and more dispersed than within-firm wage inequality in the early to mid-2000s as well. Among the CEE countries for which 2002 data are available, within-firm wage inequality varied in 2002 from 0.10 in Bulgaria to 0.18 in Lithuania, while the variance of wages between firms in 2002 ranged from a low of 0.09 in Czechia to 0.26 in Romania. Thus, even in the early 2000s, between-firm wage inequality accounted for the majority of the total wage inequality in all of the CEE countries except for Czechia. It is important to note, however, that there was no single pattern of changes over time. For instance, Romania saw a decrease in both within-firm and between-firm wage inequality, but the decline was greater in the former than in the latter component. By contrast, in Czechia, the increase in wage inequality was driven by the increase in the between-firm variance of wages. In most of the CEE countries, both within-firm and between-firm wage inequality decreased over the study period. Table 3 shows that the between-firm component was the main driver of the changes in wage inequality levels between 2006 and 2014 in five CEE countries (Czechia, Hungary, Latvia, Poland, and Slovakia). In Bulgaria, Estonia,

Lithuania, and Romania, the decrease in within-firm inequality contributed the most to the changes in overall wage inequality. Interestingly, it appears that the decrease in between-firm wage inequality was mainly attributable to the higher rates of growth in average wages in the low- than in the high-paying firms, except in Czechia, Slovakia, and Estonia (cf. Figure A.3 in the Appendix).

In terms of both the absolute level and the share of total wage inequality, between-firm wage inequality was generally higher in countries with higher levels of the overall variance of wages. Interestingly, this was also the case in the Western European countries (see Table F.2 in the Appendix, Card, Heining, and Kline (2013) for Germany and Barth et al. (2016) for the US). In both Bulgaria and Portugal, between-firm wage inequality explained around two-thirds of total wage inequality. This component played a smaller role in the Netherlands, where the share of between-firm wage inequality was similar to the average level observed among the CEE countries; and it played an even smaller role in Sweden, where between-firm wage inequality accounted for only one-third of total wage inequality.

6.3 Residual variance

We now check whether our findings on the role of within-firm and between-firm wage inequality are robust once we account for observed worker and firm characteristics. To this end, we estimate the Mincerian wage equation (equation (2)), calculate the variance of the residuals, and then decompose this residual variance into within-firm and between-firm components.

Our findings indicate that residual wage inequality accounted for around 40-60% of overall wage inequality (see Table 5). This means that while the observable characteristics of workers and firms explained around one-half of the wage inequality in the CEE countries, the remaining inequality was related to unobserved factors. These factors include both workers' characteristics that impact their productivity and wages, and firm-specific wage premia (associated with, for instance, rent-sharing, union bargaining power, managerial inputs, or efficiency wages). Moreover, when we look at residual wage inequality rather than at total wage inequality, we see that the share of the within-firm variance is higher. This means that

Table 5: Residual variance decomposition

(a) Total residual variance of log wages

year	Bulgaria	Czechia	Estonia	Hungary	Lithuania	Latvia	Poland	Romania	Slovakia
2002	0.18	0.10			0.22		0.15	0.21	0.14
2006	0.17	0.10	0.14	0.14	0.22	0.31	0.15	0.21	0.12
2010	0.16	0.11	0.12	0.13	0.19	0.20	0.14	0.19	0.11
2014	0.16	0.10	0.13	0.13	0.17	0.18	0.14	0.18	0.12

Note: Table shows the decomposition of residual variance of normalised log gross hourly wages. The residuals are calculated from the estimated Mincerian wage equation that includes worker and firm characteristics.

Data: European Structure of Earnings Survey.

(b) Within-firm residual variance of log wages

year	Bulgaria	Czechia	Estonia	Hungary	Lithuania	Latvia	Poland	Romania	Slovakia
2002	0.06	0.05			0.11		0.07	0.09	0.07
2006	0.05	0.06	0.09	0.07	0.11	0.14	0.08	0.08	0.07
2010	0.06	0.06	0.07	0.07	0.09	0.10	0.08	0.07	0.06
2014	0.06	0.06	0.09	0.08	0.08	0.10	0.08	0.07	0.07

Note: Table shows the decomposition of residual variance of normalised log gross hourly wages. The residuals are calculated from the estimated Mincerian wage equation that includes worker and firm characteristics.

Data: European Structure of Earnings Survey.

(c) Between-firm residual variance of log wages

year	Bulgaria	Czechia	Estonia	Hungary	Lithuania	Latvia	Poland	Romania	Slovakia
2002	0.12	0.04			0.11		0.08	0.12	0.07
2006	0.11	0.04	0.05	0.07	0.11	0.17	0.07	0.12	0.06
2010	0.10	0.05	0.05	0.06	0.10	0.10	0.06	0.11	0.05
2014	0.10	0.04	0.05	0.05	0.09	0.09	0.06	0.11	0.05

Note: Table shows the decomposition of residual variance of normalised log gross hourly wages. The residuals are calculated from the estimated Mincerian wage equation that includes worker and firm characteristics.

Data: European Structure of Earnings Survey.

a non-negligible share of wage inequality between firms is driven by their sectoral structure and the heterogeneity of workers' sorting into firms. Within-firm residual wage inequality explained almost 40% of total residual wage inequality in Bulgaria and Romania, around 47% in Lithuania, and 50-70% in most other CEE countries. The share of within-firm residual wage inequality was also higher in countries with lower levels of overall wage inequality; and it was lower in high-inequality countries like Bulgaria and Romania, where between-firm (residual) wage inequality was relatively high. These patterns are in line with those observed for the overall wage levels. Thus, while a large share of wage inequality was attributable to observable heterogeneity among workers within firms, workers' sorting and inter-industry and firm wage differentials drove between-firm wage inequality, as well as the differences in the role and the size of this component across the CEE.

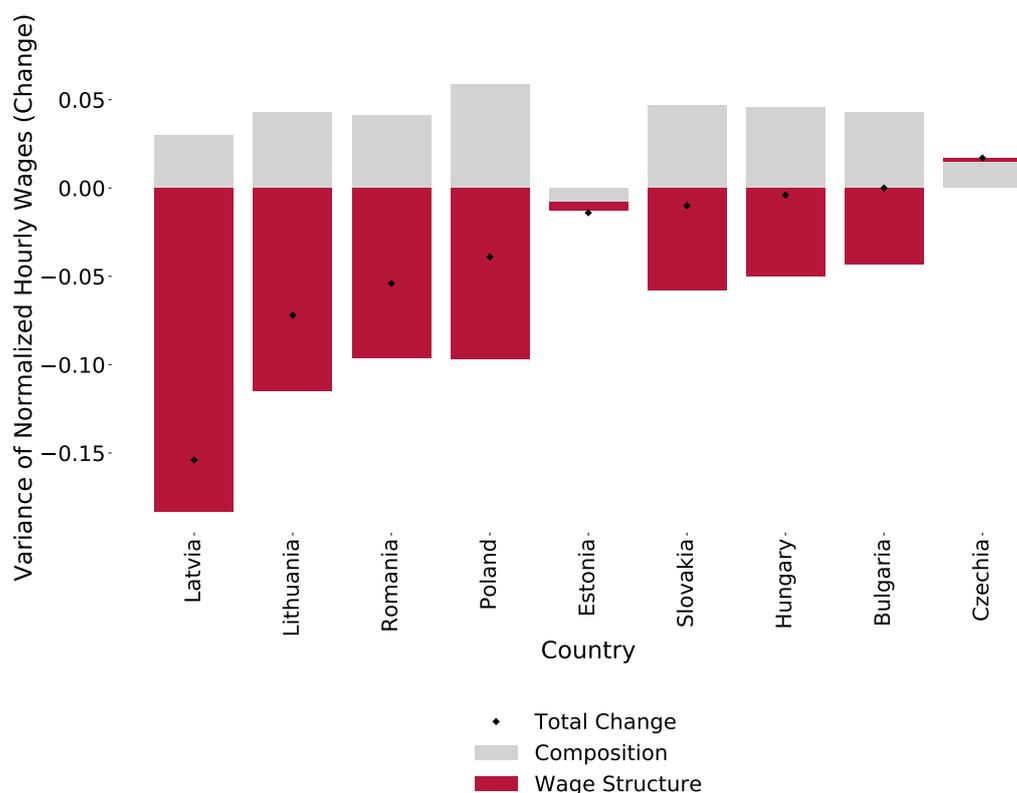
6.4 Microeconomic determinants of levels and changes in wage inequality

We continue our analysis by investigating the role of micro-level factors in shaping wage inequality in the CEE countries. We aim to capture the potential contributions of a set of individual and firm characteristics to the observed wage inequality levels, and changes in these contributions over time. First, we estimate RIF regressions that explain wage inequality levels. Next, we display the results of the decomposition of changes in wage inequality over time in order to show how the role of these characteristics changed over time along the wage distribution and across countries. These results shed additional light on the role of firms, as we find that firm-level factors are crucial in determining the levels and changes in wage inequality.

RIF regression results offer interesting insights into the contributions of micro factors to the observed wage inequality levels in the CEE countries (see Tables [B.1-B.5](#)). We find that firm-level characteristics were crucial in explaining the levels of wage inequality. First, we show that sectoral affiliation was an important determinant of wage inequality, with financial and insurance services contributing the most to increased levels in all countries. Second, we find that peer effects played a large role: i.e., in all of the countries and years analyzed, workplaces with large shares of tertiary-educated workers contributed substantially to increases in wage inequality, while workplaces with large shares of older workers contributed to decreases in wage inequality, all other things being equal. Third, we find that public sector workplaces had lower levels of wage inequality. Finally, our results indicate that occupation was strongly related to the level of wage inequality.

In order to analyze the contribution of micro-level factors to changes in wage inequality over time, we decompose the above estimates using the approach by Firpo, Fortin, and Lemieux (2018), as we discussed in the methodology section. This approach allows us to distinguish between the composition effect (i.e., changes in individual characteristics and firm characteristics) and the wage structure effect (i.e., returns to these characteristics) on the change in the variance of log wages between 2006 and 2014. The analysis is performed for each country separately. We find that composition effects (the changing structure of workers' and firms' characteristics) contributed to increases in wage inequality, while wage structure effects (which

Figure 3: Decomposition of overall change in variance of log wages into composition and wage structure effects



Note: Figure shows the results of the decomposition of changes in the variance of log of normalized gross hourly wages between 2006 and 2014 based on RIF regressions following Firpo, Fortin, and Lemieux (2018). Composition effects capture changes in log wages driven by changes in the covariates, assuming that the coefficients remained at the 2006 level. The wage structure effects reflect the unexplained share of changes in log wages due to changes in returns to covariates.

Data: European Structure of Earnings Survey.

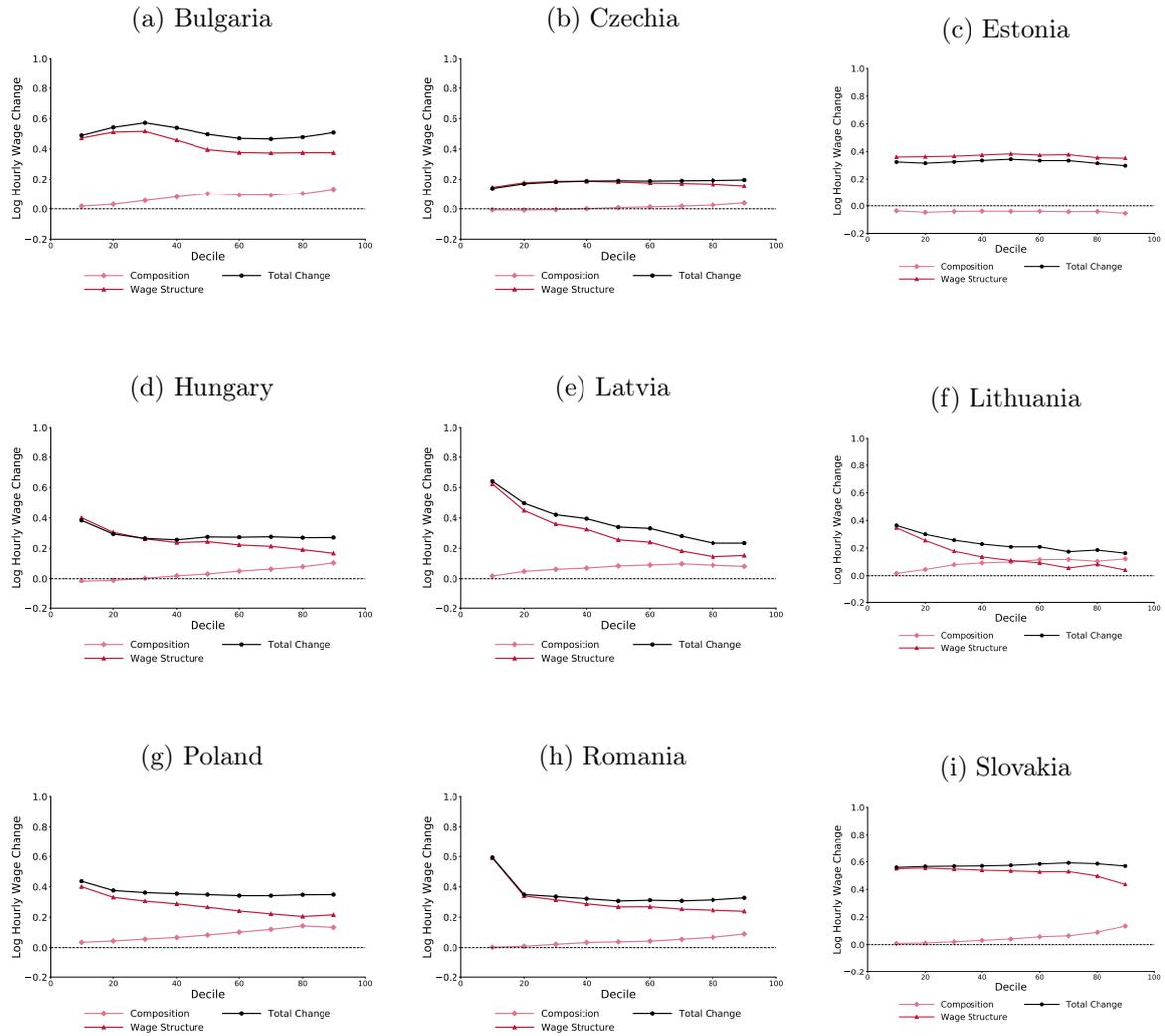
reflect how much employers were willing to pay for these characteristics) contributed to decreases in inequality (see Figure 3). Thus, the overall observed pattern of decreasing wage inequality resulted from larger changes in returns to covariates, rather than from changes in covariates. Czechia was the only country where changes in covariates led to a (slight) increase in wage inequality. In Bulgaria, Hungary, and Slovakia, inequality-increasing changes in covariates were offset by changes in returns, which resulted in stable wage inequality levels. The largest composition effect was observed in Poland, and this effect would have led to increased inequality had it not been offset by substantial wage structure effects. The largest inequality-decreasing wage structure effect was found in Latvia, where the variance of wages decreased substantially.

Changes in variance may mask developments at the tails of the wage distribution. Hence, we additionally estimate unconditional quantile regressions, and decompose the changes in real wage growth between 2006 and 2014 into composition and wage structure effects for each decile of the wage distribution. This analysis helps us better understand where the changes in wage inequality came from. The results show that in most countries, the largest wage increases were in the lowest deciles, which led to a reduction in overall wage inequality (see Figure 4). We find that these decreases in wage inequality were driven by large wage structure effects (changes in the returns to covariates), which were concentrated at the bottom of the distribution. In the absence of wage structure effects, wage inequality would have increased because the wage gains driven by the composition effects were concentrated at the top of the wage distribution.

We observe the largest changes in returns to wages (wage structure effects) at the bottom of the wage distribution in the countries that also experienced the largest minimum wage increases (Latvia, Poland, Romania, see Figure D.2). The only two countries in which the wage structure effects were not the largest for the bottom decile were the countries where the minimum wage increases were smaller than the increases in average earnings (Bulgaria and Czechia). These findings reinforce our view that the institutional adjustments and the variation in these adjustments across countries likely contributed to the narrowing of the wage distribution. In addition, we observe the largest wage structure effects in the countries with

the greatest migration outflows (Latvia, Lithuania, Romania, see Figure D.3).

Figure 4: Decomposition of total wage change into composition and wage structure effects: deciles



Notes: Figure shows the results of the decomposition of changes in log real hourly wages (euro) between 2006 and 2014 based on unconditional quantile regressions using RIF following Firpo, Fortin, and Lemieux (2018). Composition effects capture changes in log wages driven by changes in the covariates, assuming that the coefficients remained at the 2006 level. The wage structure effects reflect the unexplained share of changes in log wages due to changes in returns to covariates.

Data: European Structure of Earnings Survey.

The detailed results of the decomposition provide us with interesting insights into the micro-determinants of changes in inequality (Tables B.6-B.17 in the Appendix). The analysis of both

the changes in the variance and the quantiles show a coherent picture. First, we see that the decline in returns to tertiary education was an important factor associated with decreasing wage inequality. In most of the CEE countries, we observe that the decreases in returns to tertiary education were largest at the top of the wage distribution. We see the opposite pattern for the composition effects related to tertiary education, but find that these composition effects were smaller than the wage structure effects⁶. Second, we observe that the returns to age became more inequality-increasing in all of the countries except for Poland. The largest increases in the returns to age were found for the top decile of the wage distribution.

Finally, the decomposition of changes in quantiles of the wage distribution offers interesting insights into the drivers of between-firm inequality. In particular, we see that the firm-level share of tertiary educated workers increased more at the top than at the bottom of the wage distribution. In several countries (Bulgaria, Latvia, Lithuania, and Hungary), these composition effects were compensated for by decreases in returns to firm characteristics, which again were larger at the top than at the bottom of the wage distribution, contributing to its narrowing. Finally, in all of the countries that experienced significant decreases in wage inequality (except Lithuania), we observe that changes in the intercept contributed substantially to this trend. These changes were likely linked to institutional adjustments, and may have affected both within- and between-firm wage inequality⁷.

6.5 Robustness tests

We run two additional sets of analyses as robustness checks. First, since public sector employment constituted an important share of employment in the CEE countries during the study period, and thus contributed to the observed decreases in wage inequality, we decided to run an additional analysis that included private sector employees only. The results show that in

⁶There are several plausible explanations for the observed decline in returns to tertiary education. First, the substantial increases in the supply of tertiary educated workforce could lower the price of high-skilled labor. Minimum wages could have also contributed to the converging returns to covariates, as they mechanically reduce the gap between high- and low-skilled workers. An increased outside option due to migration could also decrease returns to tertiary education, as most emigrants performed low-skilled jobs.

⁷We find similar results for the role of firm-level factors in changes in the between-firm wage inequality when we decompose changes in the variance of average wages at the firm level (Tables B.18 - B.20 in the Appendix).

the private sector, as in the total economy, changes in coefficients contributed to decreases in inequality, and changes in endowments contributed to increases in inequality in all of the CEE countries except Czechia. In other respects, however, there were no significant differences in the results of the two RIF regressions (see Tables C.1-C.5 in the Appendix) and the decomposition into wage structure and composition effects (see Tables C.6-C.8).

Second, in our analysis, we excluded observations with the top and the bottom 0.1% of wages to account for potential errors in reporting wages. As this could bias our results, we replicate the results using the full sample, and show that trimming of the sample does not affect the results of the analysis (see Appendix C.1).

We acknowledge that we are likely not observing all of the changes at the top of the wage distribution. First, high earners might have moved out of paid employment into other forms of employment not captured by our data (self-employment, managerial contracts, etc.). Second, we observe monetary benefits only, even though some of the changes in wage inequality might have been driven by changes in non-monetary compensation, especially at the top of the labor income distribution. We believe that these reservations do not alter our results.

7 Conclusions

Using harmonized linked employer-employee data, we analyzed changes in wage distributions in Central and Eastern European countries. We found that in all but one of these countries, wage inequality decreased between the early 2000s and the mid-2010s. Czechia, which still has the lowest levels of wage inequality in the region, was the only CEE country that saw a slight increase in wage inequality during this period. The reduction in wage inequality occurred mainly in the lower part of the wage distribution, although the Baltic states saw a decrease in wage dispersion in the upper part of the wage distribution as well.

Our aim was to shed more light on the factors associated with decreases in wage inequality in the CEE. To do so, we first decomposed the variance of log wages into the within- and between-firm components, and found that in both the early 2000s and 2014, wage inequality in the CEE was greater between than within firms. Our results show that the contributions of the between-firm component explained most of the cross-country differences in levels of wage inequality, and in how these levels changed over time. Thus, it appears that wage inequality in these countries was largely driven by where an individual was working, and with whom s/he was working. The role of the between-firm component in wage inequality in the CEE countries puts these countries closer to the US than to Sweden or Italy. High-inequality CEE countries (Bulgaria and Romania in particular) continue to have much larger shares of between-firm wage inequality than low-inequality CEE countries, mainly due to the greater heterogeneity of their firms.

We further analyzed the micro determinants of changes in wage inequality by decomposing changes in both the variance of log wages and the quantiles of wage distribution into wage structure and composition effects. We found that the decline in wage inequality was mainly driven by wage structure effects; i.e., by changes in the returns to individual and firm characteristics. These changes were largest at the bottom of the wage distribution, and decreased along the wage distribution. This pattern stands in contrast to the U-shaped wage structure effects observed in the US (Firpo, Fortin, & Lemieux, 2018), where wage premia have increased both for low-paid and high-paid workers. We also found that like in the US, the composition effects (changes in the structure of workers with respect to their individual and workplace characteristics) in the CEE contributed to increases in wage inequality, as they were concentrated at the top of the distribution. However, as the composition effects were much smaller than the wage structure effects, there was a substantial reduction in wage inequality in the CEE that was absent in most Western countries.

Among the micro factors that had an impact on changes in the wage distribution, educational attainment stands out. The increase in the number of tertiary-educated workers was an important inequality-increasing factor (in line with what Lemieux (2006) found for the US). In the CEE countries, workers' rising educational attainment levels were accompanied by decreasing

returns to tertiary education. We also found that firm-level characteristics played a key role in determining both the levels and the changes in wage inequality, which further confirmed the importance of the between-firm component of wage inequality. Finally, a large share of changes remains unexplained by micro-level covariates, as this share is captured by changes in the constant of the wage equation.

While the formal analysis of the potential impact of institutional changes on the wage distribution is beyond the scope of our paper, we argue that the substantial increases in the minimum wages in the CEE countries we observed likely contributed to the narrowing of the bottom levels of their wage distributions. Migration flows and cross-border commuting likely also had an effect by increasing workers' outside options. In line with these expectations, we found that inequality decreased the most in the CEE countries that experienced the largest minimum wage increases and very large migration outflows. The problem of how the effects of particular institutional changes on wage inequality could be disentangled, while accounting for potential reverse causality, would benefit from further research.

References

- Abowd, J. M., Kramarz, F., & Margolis, D. N. (1999). High wage workers and high wage firms. *Econometrica*, *67*(2), 251–333. <https://doi.org/10.1111/1468-0262.00020>
- Acemoglu, D., & Autor, D. H. (2011). Chapter 12 - skills, tasks and technologies: Implications for employment and earnings (D. Card & O. Ashenfelter, Eds.). In D. Card & O. Ashenfelter (Eds.). Elsevier. [https://doi.org/10.1016/S0169-7218\(11\)02410-5](https://doi.org/10.1016/S0169-7218(11)02410-5)
- Akerman, A., Helpman, E., Itskhoki, O., Muendler, M.-A., & Redding, S. (2013). Sources of wage inequality. *American Economic Review*, *103*(3), 214–219. <https://doi.org/10.1257/aer.103.3.214>
- Alvarez, J., Benguria, F., Engbom, N., & Moser, C. (2018). Firms and the decline in earnings inequality in Brazil. *American Economic Journal: Macroeconomics*, *10*(1), 149–189. <https://doi.org/10.1257/mac.20150355>
- Antonczyk, D., Fitzenberger, B., & Sommerfeld, K. (2010). Rising wage inequality, the decline of collective bargaining, and the gender wage gap. *Labour Economics*, *17*(5), 835–847. <https://doi.org/10.1016/j.labeco.2010.04.008>
- Appleton, S., Song, L., & Xia, Q. (2014). Understanding urban wage inequality in China 1988–2008: Evidence from quantile analysis. *World Development*, *62*, 1–13. <https://doi.org/10.1016/j.worlddev.2014.04.005>
- Aristei, D., & Perugini, C. (2012). Inequality and reforms in transition countries. *Economic Systems*, *36*(1), 2–10. <https://doi.org/10.1016/j.ecosys.2011.09.001>
- Aristei, D., & Perugini, C. (2014). Speed and sequencing of transition reforms and income inequality: A panel data analysis. *Review of Income and Wealth*, *60*(3), 542–570. <https://doi.org/10.1111/roiw.12090>
- Atkinson, A. B. (1970). On the measurement of inequality. *Journal of Economic Theory*, *2*(3), 244–263.
- Autor, D. H., Katz, L. F., & Kearney, M. S. (2006). The polarization of the U.S. labor market. *American Economic Review*, *96*(2), 189–194. <https://doi.org/10.1257/000282806777212620>
- Autor, D. H., Katz, L. F., & Kearney, M. S. (2008). Trends in U.S. wage inequality: Revising the revisionists. *Review of Economics and Statistics*, *90*(2), 300–323. <https://doi.org/10.1162/rest.90.2.300>
- Autor, D. H., Manning, A., & Smith, C. L. (2016). The contribution of the minimum wage to US wage inequality over three decades: A reassessment. *American Economic Journal: Applied Economics*, *8*(1), 58–99. <https://doi.org/10.1257/app.20140073>
- Barth, E., Bryson, A., Davis, J. C., & Freeman, R. (2016). It's where you work: Increases in the dispersion of earnings across establishments and individuals in the United States. *Journal of Labor Economics*, *34*(S2), 244–263. <https://doi.org/10.1086/684045>

- Bell, B., Bukowski, P., & Machin, S. (2018). *Rent Sharing and Inclusive Growth* (CEP Discussion Papers dp1584). Centre for Economic Performance, LSE. <https://ideas.repec.org/p/cep/cepdps/dp1584.html>
- Black, R., Pantiru, C., Okólski, M., & Engbersen, G. (2010). *A continent moving west?: EU enlargement and labour migration from Central and Eastern Europe*. Amsterdam University Press.
- Brzezinski, M. (2018). Income inequality and the Great Recession in Central and Eastern Europe. *Economic Systems*, 42(2), 219–247. <https://doi.org/10.1016/j.ecosys.2017.07.003>
- Card, D., & De La Rica, S. (2006). Firm-level contracting and the structure of wages in Spain. *Industrial and Labor Relations Review*, 59(4), 573–592. <https://doi.org/10.1177/001979390605900403>
- Card, D., Heining, J., & Kline, P. (2013). Workplace heterogeneity and the rise of West German wage inequality. *The Quarterly Journal of Economics*, 128(3), 967–1015. <https://doi.org/10.1093/qje/qjt006>
- Card, D., Cardoso, A. R., Heining, J., & Kline, P. (2018). Firms and labor market inequality: Evidence and some theory. *Journal of Labor Economics*, 36(S1), 13–70. <https://doi.org/10.1086/694153>
- Carstensen, K., & Toubal, F. (2004). Foreign direct investment in Central and Eastern European countries: A dynamic panel analysis. *Journal of Comparative Economics*, 32(1), 3–22. <https://doi.org/10.1016/j.jce.2003.11.001>
- Cengiz, D., Dube, A., Lindner, A., & Zipperer, B. (2019). The Effect of Minimum Wages on Low-Wage Jobs. *The Quarterly Journal of Economics*, 134(3), 1405–1454. <https://doi.org/10.1093/qje/qjz014>
- Devicienti, F., Fanfani, B., & Maida, A. (2019). Collective bargaining and the evolution of wage inequality in Italy. *British Journal of Industrial Relations*, 57(2), 377–407. <https://doi.org/10.1111/bjir.12444>
- DiNardo, J., Fortin, N. M., & Lemieux, T. (1996). Labor market institutions and the distribution of wages, 1973–1992: A semiparametric approach. *Econometrica*, 64(5), 1001–1044. <https://doi.org/10.2307/2171954>
- Du Caju, P., Kátay, G., Lamo, A., Nicolitsas, D., & Poelhekke, S. (2010). Inter-industry wage differentials in EU countries: What do cross-country time varying data add to the picture? *Journal of the European Economic Association*, 8(2-3), 478–486. <https://doi.org/10.1111/j.1542-4774.2010.tb00518.x>
- Dustmann, C., Ludsteck, J., & Schönberg, U. (2009). Revisiting the German wage structure. *The Quarterly Journal of Economics*, 124(2), 843–881. <https://doi.org/10.1162/qjec.2009.124.2.843>
- Eurostat. (2014). *D9 D1 dispersion ratio in the EU Member States*. Retrieved September 21, 2018, from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:D9_D1_dispersion_ratio_in_the_EU_Member_States,_2014_update.png

- Firpo, S., Fortin, N., & Lemieux, T. (2018). Decomposing wage distributions using recentered influence function regressions. *Econometrics*, 6. <https://doi.org/10.3390/econometrics6020028>
- Fortin, N., Green, D. A., Lemieux, T., Milligan, K., & Riddell, W. C. (2012). Canadian inequality: Recent developments and policy options. *Canadian Public Policy*, 38(2), 121–145. <https://doi.org/10.3138/cpp.38.2.121>
- Ge, S., & Yang, D. T. (2014). Changes In China’s Wage Structure. *Journal of the European Economic Association*, 12(2), 300–336. <https://doi.org/10.1111/jeea.12072>
- Goldschmidt, D., & Schmieder, J. F. (2017). The rise of domestic outsourcing and the evolution of the German wage structure. *The Quarterly Journal of Economics*, 132(3), 1165–1217. <https://doi.org/10.1093/qje/qjx008>
- Handwerker, E. W., & Spletzer, J. R. (2016). The role of establishments and the concentration of occupations in wage inequality. In *Inequality: Causes and consequences* (pp. 167–193). <https://doi.org/10.1108/S0147-912120160000043013>
- Helpman, E., Itskhoki, O., Muendler, M.-A., & Redding, S. (2017). Trade and inequality: From theory to estimation. *The Review of Economic Studies*, 84(1), 357–405. <https://doi.org/10.1093/restud/rdw025>
- Hoelscher, J., Perugini, C., & Pompei, F. (2011). Wage inequality, labour market flexibility and duality in Eastern and Western Europe. *Post-Communist Economies*, 23(3), 271–310. <https://doi.org/10.1080/14631377.2011.595119>
- Kaczmarczyk, P., & Okólski, M. (2008). Demographic and labour-market impacts of migration on Poland. *Oxford Review of Economic Policy*, 24(3), 599–624. <https://doi.org/10.1093/oxrep/grn029>
- Kahanec, M., & Zimmermann, K. F. (2016). EU post-enlargement migration and the Great Recession: Lessons and policy implications, In *Labor Migration, EU Enlargement, and the Great Recession*. https://doi.org/10.1007/978-3-662-45320-9_17
- Keister, R., & Lewandowski, P. (2017). A routine transition in the digital era? The rise of routine work in Central and Eastern Europe. *Transfer: European Review of Labour and Research*, 23(3), 263–279. <https://doi.org/10.1177/1024258917703557>
- Kelly, T., Liaplina, A., Tan, S. T., & Winkler, H. (2017). *Reaping digital dividends: Leveraging the internet for development in Europe and Central Asia*. World Bank. <https://doi.org/10.1596/978-1-4648-1025-1>
- Kohl, H. (2009). *Freedom of Association, Employees’ Rights and Social Dialogue in Central and Eastern Europe and the Western Balkans* (tech. rep.). Friedrich-Ebert-Stiftung Division for International Dialogue.
- Krishna, P., Poole, J. P., & Senses, M. Z. (2012). Trade, labor market frictions, and residual wage inequality across worker groups. *American Economic Review*, 102(3), 417–423. <https://doi.org/10.1257/aer.102.3.417>
- Krueger, A. B., & Summers, L. H. (1988). Efficiency wages and the inter-industry wage structure. *Econometrica*, 56(2), 259–293. <https://doi.org/10.2307/1911072>

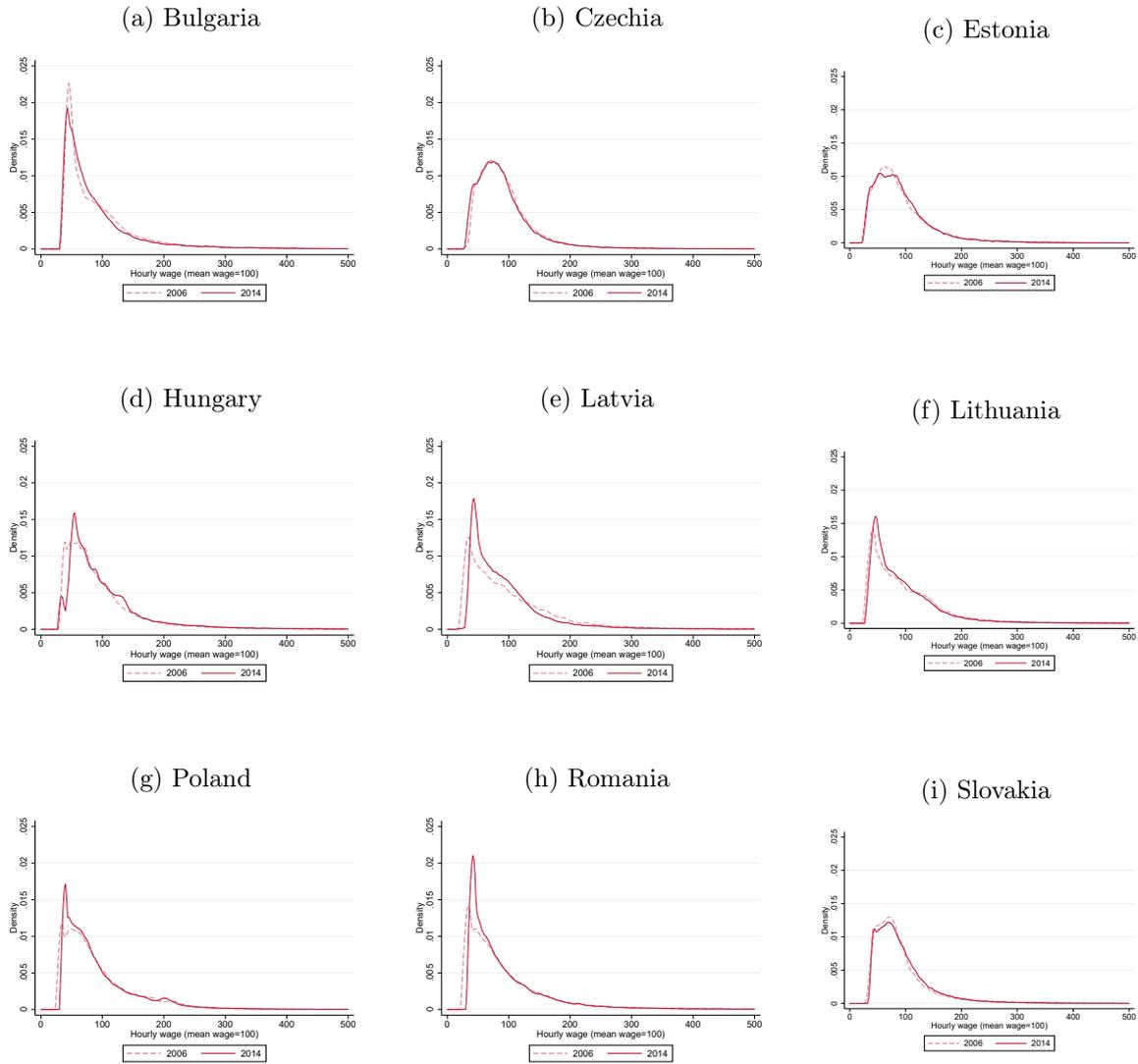
- Lazear, E. P., & Shaw, K. L. (2009). *The structure of wages: An international comparison*. University of Chicago Press. <https://doi.org/10.7208/chicago/9780226470511.001.0001>
- Lemieux, T. (2006). Increasing residual wage inequality: Composition effects, noisy data, or rising demand for skill? *American Economic Review*, *96*(3), 461–498. <https://doi.org/10.1257/aer.96.3.461>
- Machin, S. (2016). Rising wage inequality, real wage stagnation and unions. In *Inequality: Causes and consequences* (pp. 329–354). <https://doi.org/10.1108/S0147-912120160000043017>
- Magda, I., Marsden, D., & Moriconi, S. (2016). Lower coverage but stronger unions? Institutional changes and union wage premia in central europe. *Journal of Comparative Economics*, *44*(3), 638–656.
- Martins, P. S. (2004). Industry wage premia: evidence from the wage distribution. *Economics Letters*, *83*(2), 157–163. <https://doi.org/10.1016/j.econlet.2003.11.002>
- Messina, J., & Silva, J. (2017). *Wage inequality in Latin America: Understanding the past to prepare for the future*. The World Bank. <https://doi.org/10.1596/978-1-4648-1039-8>
- Milanovic, B., & Ersado, L. (2012). Reform and inequality during the transition: An analysis using panel household survey data, 1990–2005, In *Economies in transition*. Springer. https://doi.org/10.1057/9780230361836_4
- Mysíková, M., & Večerník, J. (2018). Personal earnings inequality and polarization: The Czech Republic in comparison with Austria and Poland. *Eastern European Economics*, *56*(1), 57–80. <https://doi.org/10.1080/00128775.2017.1402685>
- Parteka, A., & Wolszczak-Derlacz, J. (2013). The impact of trade integration with the European Union on productivity in a posttransition economy: The case of Polish manufacturing sectors. *Emerging markets Finance and trade*, *49*(2), 84–104. <https://doi.org/10.2753/REE1540-496X490206>
- Pissarides, C. A. (2000). *Equilibrium unemployment theory*. MIT press.
- Pryor, F. L. (2014). A note on income inequality in East and Central Europe. *Comparative Economic Studies*, *56*(1), 42–51. <https://doi.org/10.1057/ces.2013.31>
- Schaefer, D., & Singleton, C. (2019). Recent changes in British wage inequality: Evidence from large firms and occupations. *Scottish Journal of Political Economy*. <https://doi.org/10.1111/sjpe.12225>
- Sedelmeier, U. (2008). After conditionality: Post-accession compliance with EU law in East Central Europe. *Journal of European Public Policy*, *15*(6), 806–825. <https://doi.org/10.1080/13501760802196549>
- Song, J., Price, D. J., Guvenen, F., Bloom, N., & Wachter, T. von. (2019). Firming up inequality. *The Quarterly Journal of Economics*, *134*(1), 1–50. <https://doi.org/10.1093/qje/qjy025>
- Tyrowicz, J., & Smyk, M. (2019). Wage inequality and structural change. *Social Indicators Research*, *141*(2), 503–538. <https://doi.org/10.1007/s11205-018-1846-y>

Zaiceva, A., & Zimmermann, K. F. (2008). Scale, diversity, and determinants of labour migration in Europe. *Oxford Review of Economic Policy*, 24(3), 427–451. <https://doi.org/10.1093/oxrep/grn028>

Appendix A Descriptive statistics

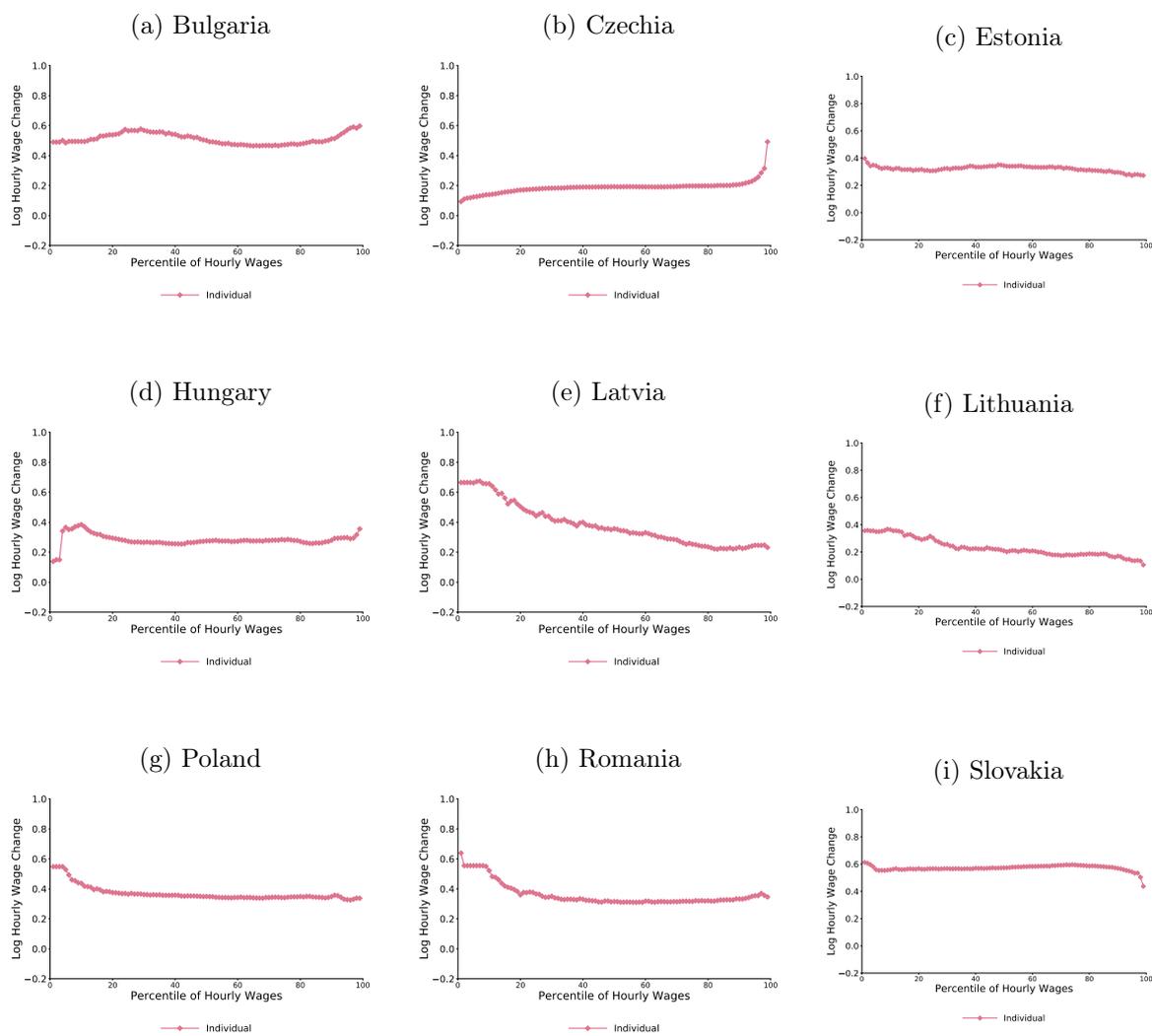
A.1 Wage distribution

Figure A.1: Kernel density estimates



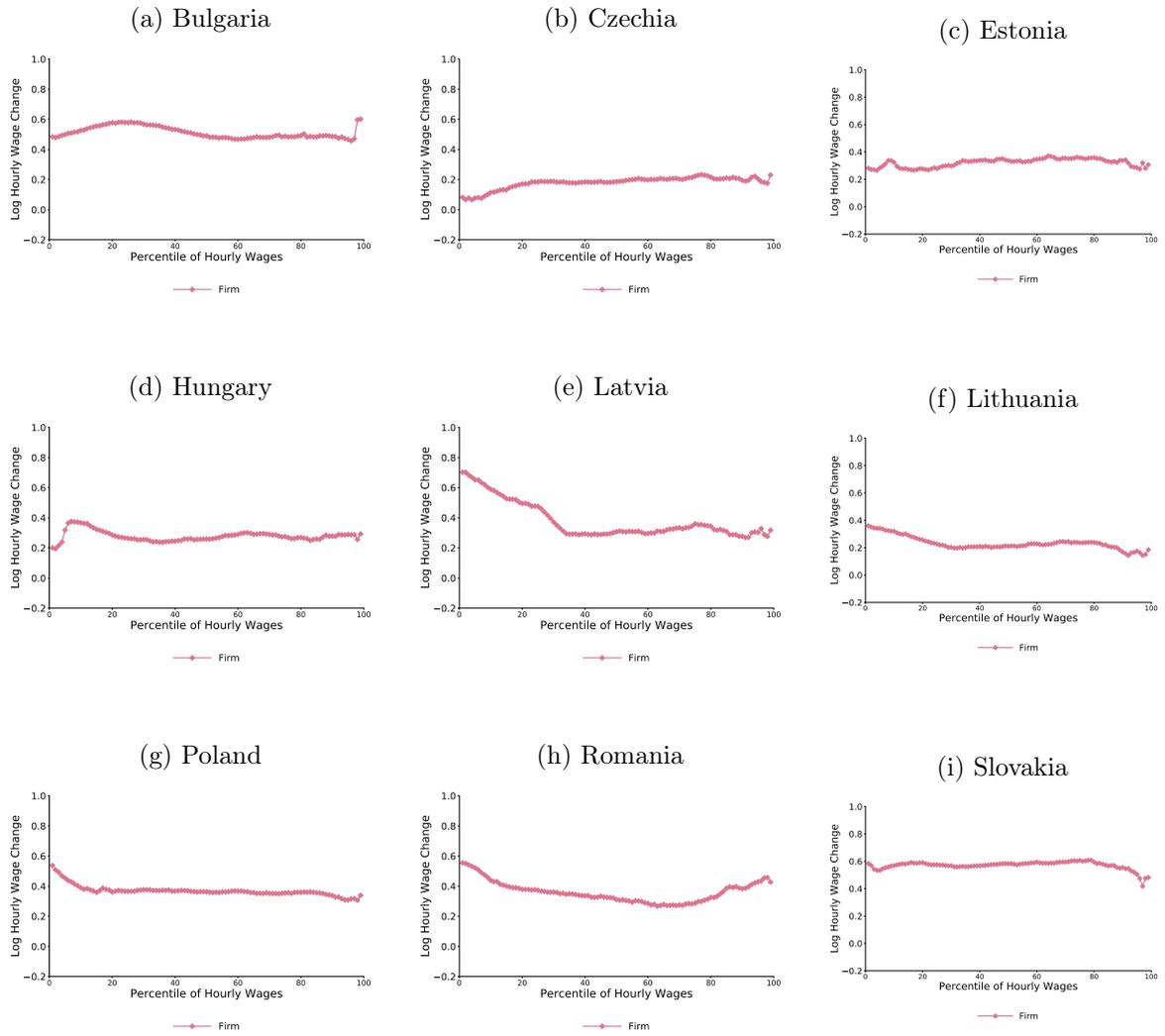
Notes: Graphs show kernel density estimates of hourly wages in 2006 and 2014. Dashed lines show the results for 2006 and solid lines show the results for 2014. Wages are indexed so that mean wage equals 100. In order to make the figures clear and comparable, we show results for wages not exceeding five times the mean wage. Data: European Structure of Earnings Survey.

Figure A.2: Cumulative distributions of individual hourly wages: 2006-2014 change



Notes: Figure shows changes in percentiles of log real hourly wages between 2006 and 2014.
 Data: European Structure of Earnings Survey.

Figure A.3: Cumulative distributions of average firm-level hourly wages: 2006-2014 change



Notes: Figure shows changes in percentiles of log average firm-level hourly wages between 2006 and 2014. Data: European Structure of Earnings Survey.

A.2 Alternative measures of wage inequality

Table A.1: Gini coefficient

year	Bulgaria	Czechia	Estonia	Hungary	Lithuania	Latvia	Poland	Romania	Slovakia
2002	0.34	0.26			0.36		0.34	0.38	0.30
2006	0.35	0.27	0.31	0.32	0.35	0.39	0.35	0.38	0.30
2010	0.35	0.28	0.30	0.33	0.34	0.34	0.33	0.37	0.28
2014	0.36	0.28	0.30	0.32	0.32	0.33	0.34	0.37	0.29

Data: European Structure of Earnings Survey.

Table A.2: Atkinson index ($\epsilon = 2$)

year	Bulgaria	Czechia	Estonia	Hungary	Lithuania	Latvia	Poland	Romania	Slovakia
2002	0.29	0.18			0.31		0.29	0.34	0.23
2006	0.28	0.19	0.25	0.26	0.30	0.37	0.30	0.34	0.22
2010	0.28	0.21	0.24	0.26	0.28	0.29	0.27	0.32	0.21
2014	0.28	0.21	0.24	0.25	0.25	0.27	0.27	0.31	0.21

Data: European Structure of Earnings Survey.

Table A.3: Theil T index

year	Bulgaria	Czechia	Estonia	Hungary	Lithuania	Latvia	Poland	Romania	Slovakia
2002	0.20	0.12			0.22		0.21	0.26	0.19
2006	0.23	0.14	0.16	0.19	0.21	0.26	0.21	0.26	0.17
2010	0.23	0.14	0.16	0.20	0.19	0.20	0.19	0.26	0.15
2014	0.24	0.15	0.15	0.19	0.17	0.20	0.20	0.25	0.15

Data: European Structure of Earnings Survey.

Table A.4: Decile dispersion ratio (90-10)

year	Bulgaria	Czechia	Estonia	Hungary	Lithuania	Latvia	Poland	Romania	Slovakia
2002	4.78	2.93			4.87		4.71	5.43	3.43
2006	4.10	3.14	3.95	4.03	4.86	6.12	5.00	5.57	3.34
2010	4.10	3.33	3.98	4.02	4.54	4.54	4.55	4.60	3.29
2014	4.18	3.36	3.84	3.63	4.00	4.01	4.58	4.61	3.38

Data: European Structure of Earnings Survey.

Table A.5: Decile dispersion ratio (50-10)

year	Bulgaria	Czechia	Estonia	Hungary	Lithuania	Latvia	Poland	Romania	Slovakia
2002	2.24	1.71			2.10		1.96	2.26	1.75
2006	1.68	1.71	1.93	1.84	2.20	2.49	2.07	2.24	1.72
2010	1.76	1.79	2.01	1.75	2.03	2.04	1.94	1.86	1.73
2014	1.69	1.81	1.97	1.65	1.88	1.84	1.90	1.82	1.74

Data: European Structure of Earnings Survey.

Table A.6: Decile dispersion ratio (90-50)

year	Bulgaria	Czechia	Estonia	Hungary	Lithuania	Latvia	Poland	Romania	Slovakia
2002	2.13	1.72			2.32		2.40	2.41	1.95
2006	2.44	1.83	2.05	2.19	2.21	2.46	2.41	2.49	1.95
2010	2.33	1.86	1.98	2.30	2.24	2.23	2.35	2.47	1.90
2014	2.47	1.86	1.95	2.20	2.13	2.17	2.41	2.53	1.94

Data: European Structure of Earnings Survey.

A.3 Variance of log wages: sectors

Table A.7: Variance of log wages: manufacturing and construction

year	Bulgaria	Czechia	Estonia	Hungary	Lithuania	Latvia	Poland	Romania	Slovakia
2002	0.38	0.19			0.34		0.30	0.36	0.22
2006	0.31	0.18	0.25	0.31	0.35	0.45	0.31	0.33	0.23
2010	0.29	0.19	0.24	0.29	0.29	0.31	0.25	0.32	0.20
2014	0.30	0.19	0.22	0.25	0.27	0.29	0.26	0.28	0.20

Data: European Structure of Earnings Survey.

Table A.8: Variance of log wages: market services

year	Bulgaria	Czechia	Estonia	Hungary	Lithuania	Latvia	Poland	Romania	Slovakia
2002	0.43	0.23			0.44		0.37	0.58	0.31
2006	0.40	0.29	0.33	0.39	0.39	0.52	0.38	0.52	0.31
2010	0.40	0.31	0.33	0.36	0.36	0.40	0.35	0.48	0.29
2014	0.40	0.31	0.32	0.33	0.32	0.38	0.36	0.46	0.28

Data: European Structure of Earnings Survey.

Table A.9: Variance of log wages: non-market services

year	Bulgaria	Czechia	Estonia	Hungary	Lithuania	Latvia	Poland	Romania	Slovakia
2002	0.20	0.14			0.35		0.34	0.36	0.18
2006	0.26	0.16	0.28	0.21	0.33	0.42	0.32	0.41	0.18
2010	0.24	0.16	0.25	0.26	0.32	0.29	0.30	0.36	0.17
2014	0.24	0.17	0.25	0.27	0.27	0.26	0.29	0.35	0.19

Data: European Structure of Earnings Survey.

Appendix B Detailed results: RIF regressions and Decomposition into Composition and Wage Structure Effects

Table B.1: Results of RIF regression: Bulgaria and Romania

	Bulgaria				Romania			
	2002	2006	2010	2014	2002	2006	2010	2014
<i>Individual effects</i>								
<i>reference: primary education</i>								
tertiary education	0.055***	0.028***	-0.004	-0.015**	0.297***	0.025***	0.029***	-0.018***
secondary education	-0.003	-0.025***	-0.043***	-0.021***	-0.026***	0.004	-0.032***	-0.013***
<i>reference: under 30 years old</i>								
30-49 years old	-0.000	0.018***	0.066***	0.091***	-0.002	0.034***	0.051***	0.080***
50 years old or more	0.022***	0.026***	0.067***	0.091***	0.084***	0.112***	0.078***	0.099***
<i>reference: male</i>								
female	-0.064***	-0.069***	-0.071***	-0.081***	-0.031***	-0.025***	-0.025***	-0.051***
<i>reference: tenure of less than a year</i>								
tenure: 1-4 years	-0.023***	0.015***	-0.004	-0.009**	-0.003	-0.013***	-0.001	-0.007**
tenure: 5-9 years	-0.013***	0.040***	0.013***	0.010**	-0.017***	-0.012***	-0.004	-0.010**
tenure: 10 years or more	0.013***	0.088***	0.037***	0.031***	0.013**	0.018***	0.016***	0.038***
<i>reference: ISCO 5</i>								
ISCO 1	0.411***	0.553***	0.558***	0.650***	0.480***	0.991***	0.635***	0.673***
ISCO 2	0.069***	0.183***	0.145***	0.215***	-0.216***	0.280***	-0.035***	0.109***
ISCO 3	-0.045***	-0.055***	-0.021***	-0.048***	-0.164***	-0.058***	-0.157***	-0.126***
ISCO 4	-0.092***	-0.102***	-0.122***	-0.117***	-0.321***	-0.177***	-0.251***	-0.186***
ISCO 6	-0.050**	-0.044*	0.011	0.740***	-0.133***	-0.049**	-0.109***	-0.036
ISCO 7	-0.041***	-0.050***	-0.080***	-0.089***	-0.191***	-0.092***	-0.175***	-0.122***
ISCO 8	-0.062***	-0.083***	-0.100***	-0.134***	-0.242***	-0.109***	-0.199***	-0.148***
ISCO 9	0.002	-0.000	0.022***	0.014***	-0.081***	0.040***	-0.018***	-0.034***
<i>reference: permanent contract</i>								
fixed contract	0.003	0.068***	0.021***	0.034***	0.024***	-0.046***	-0.016**	-0.051***
<i>Firm effects</i>								
<i>reference: NACE C</i>								
NACE B	0.209***	0.268***	0.197***	0.280***	0.330***	0.307***	0.343***	0.613***
NACE D+E	0.194***	0.229***	0.163***	0.203***	0.206***	0.074***	0.098***	0.087***
NACE F	-0.082***	-0.111***	-0.059***	-0.039***	-0.025***	0.027***	-0.002	-0.029***
NACE G	0.004	-0.047***	-0.095***	-0.110***	0.084***	0.050***	-0.016***	-0.024***
NACE H+J	-0.007	0.008	0.129***	0.167***	0.208***	0.081***	0.118***	0.122***
NACE I	0.038***	-0.039***	-0.075***	-0.128***	0.049***	0.064***	-0.016**	0.024***
NACE K	0.267***	0.216***	0.071***	0.004	0.607***	0.703***	0.560***	0.344***
NACE L+M+N	-0.019***	0.035***	0.106***	0.068***	0.002	0.115***	0.015***	0.003
NACE O	-0.204***	-0.144***	-0.187***	-0.143***	0.029***	0.197***	0.029***	0.039***
NACE P	-0.310***	-0.396***	-0.298***	-0.268***	-0.321***	-0.187***	-0.360***	-0.322***
NACE Q	-0.208***	-0.111***	-0.151***	-0.107***	-0.066***	-0.067***	-0.116***	-0.103***
NACE R+S	-0.093***	-0.012*	-0.123***	-0.154***	0.032***	-0.004	-0.149***	-0.131***
<i>reference: private ownership of a firm</i>								
public ownership of a firm	-0.067***	-0.078***	-0.110***	-0.112***	-0.072***	-0.024***	-0.017***	-0.061***
tenure: less than 2 years (share)	0.117***	0.018***	0.071***	0.065***	0.138***	0.073***	0.028***	0.101***
age: 50 years or more (share)	-0.486***	-0.375***	-0.374***	-0.445***	-0.361***	-0.284***	-0.160***	-0.198***
tertiary education (share)	0.250***	0.378***	0.404***	0.325***	0.497***	0.245***	0.488***	0.533***
female (share)	-0.058***	-0.046***	0.003	-0.029***	0.073***	0.045***	-0.009	-0.027***
constant	0.488***	0.390***	0.326***	0.345***	0.429***	0.255***	0.333***	0.219***
Observations	150,392	162,838	175,575	168,345	220,284	241,708	262,983	270,582
R-squared	0.175	0.187	0.198	0.217	0.221	0.260	0.227	0.250

Notes: Table shows the coefficients estimated by Recentered Influence Function regression (Firpo, Fortin, & Lemieux, 2018). The coefficients measure the impact of an infinitesimal shift to the right in the distribution of the regressors on variance of normalized log hourly wages in a given country in a given year. Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. Dummy variables indicating 1-digit level occupational groups from International Standard Classification of Occupations (ISCO) are included. There was no inconsistency in 1-digit level occupational groups between ISCO-88 and ISCO-08. ISCO 1 - managers, ISCO 2 - Professional, ISCO 3 - Technicians and associate professionals, ISCO 4 - Clerical support workers, ISCO 5 - Service and sales workers, ISCO 6 - Skilled agricultural, forestry and fishery workers, ISCO 7 - Craft and related trades workers, ISCO 8 - Plant and machine operators, and assemblers, ISCO 9 - Elementary occupations. Dummy variables indicating NACE Level 1 sectors were included (NACE Rev.2). Few Level 1 sectors were pooled for the reason of inconsistencies between NACE Rev.1 and NACE Rev.2. NACE B - Mining and Quarrying, NACE C - Manufacturing, NACE D+E - Electricity, Gas, Steam and Air Conditioning Supply, Water Supply; Sewerage, Waste Management and Remediation Activities, NACE F - Construction, NACE G - Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles, NACE H+J - Transportation and Storage, Information and Communication, NACE I - Accommodation and Food Service Activities, NACE K - Financial and Insurance Activities, NACE L+M+N - Real Estate Activities, Professional, Scientific and Technical Activities, Administrative and Support Service Activities, NACE O - Public Administration and Defence; Compulsory Social Security, NACE P - Education, NACE Q - Human Health and Social Work Activities, NACE R+S - Arts, Entertainment and Recreation, Other Service Activities.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table B.2: Results of RIF regression: Czechia and Slovakia

	Czechia				Slovakia			
	2002	2006	2010	2014	2002	2006	2010	2014
<i>Individual effects</i>								
<i>reference: primary education</i>								
tertiary education	0.163***	0.155***	0.141***	0.084***	0.066***	0.059***	0.049***	0.008***
secondary education	-0.043***	-0.054***	-0.054***	-0.066***	-0.070***	-0.111***	-0.091***	-0.094***
<i>reference: under 30 years old</i>								
30-49 years old	0.039***	0.078***	0.089***	0.098***	0.056***	0.069***	0.089***	0.098***
50 years old or more	0.050***	0.079***	0.093***	0.103***	0.068***	0.065***	0.094***	0.101***
<i>reference: male</i>								
female	-0.039***	-0.052***	-0.049***	-0.057***	-0.061***	-0.055***	-0.056***	-0.055***
<i>reference: tenure of less than a year</i>								
tenure: 1-4 years	-0.008***	-0.015***	-0.017***	-0.031***	-0.008***	0.004**	-0.003*	-0.018***
tenure: 5-9 years	-0.004***	0.001	-0.017***	-0.033***	0.008**	0.018***	0.008***	-0.016***
tenure: 10 years or more	-0.018***	-0.001	0.003***	-0.028***	-0.018***	0.020***	0.004**	-0.017***
<i>reference: ISCO 5</i>								
ISCO 1	0.274***	0.312***	0.366***	0.447***	0.350***	0.465***	0.474***	0.411***
ISCO 2	-0.139***	-0.124***	-0.052***	-0.029***	-0.126***	-0.081***	-0.051***	-0.030***
ISCO 3	-0.098***	-0.101***	-0.107***	-0.129***	-0.158***	-0.127***	-0.112***	-0.095***
ISCO 4	-0.097***	-0.135***	-0.164***	-0.173***	-0.054***	-0.125***	-0.133***	-0.108***
ISCO 6	-0.009	-0.002	-0.069***	-0.066***	0.038	0.018	-0.023**	0.031***
ISCO 7	-0.123***	-0.152***	-0.147***	-0.172***	-0.196***	-0.145***	-0.130***	-0.101***
ISCO 8	-0.128***	-0.161***	-0.157***	-0.171***	-0.193***	-0.163***	-0.153***	-0.114***
ISCO 9	0.005***	0.044***	0.058***	0.068***	-0.033***	0.005**	-0.002	0.061***
<i>reference: permanent contract</i>								
fixed contract	0.018***	0.023***	0.008***	-0.015***	0.031***	0.001	0.022***	0.004***
<i>Firm effects</i>								
<i>reference: NACE C</i>								
NACE B	-0.000	0.033***	0.036***	0.046***	-0.005	-0.061***	0.030***	0.061***
NACE D+E	0.002	0.094***	0.064***	0.055***	0.153***	0.157***	0.098***	0.098***
NACE F	-0.007***	-0.012***	-0.005***	-0.047***	-0.038***	-0.028***	-0.011***	0.008***
NACE G	-0.016***	0.013***	-0.012***	-0.003***	0.054***	-0.025***	-0.022***	-0.025***
NACE H+J	-0.009***	0.069***	0.103***	0.088***	0.039***	0.029***	0.073***	0.092***
NACE I	0.028***	0.017***	0.156***	0.072***	-0.009	0.015***	0.010***	-0.006*
NACE K	0.053***	0.265***	0.200***	0.160***	0.077***	0.123***	0.078***	0.066***
NACE L+M+N	-0.013***	0.013***	0.046***	0.030***	0.122***	0.046***	0.020***	0.041***
NACE O	-0.103***	-0.024***	-0.031***	-0.071***	-0.033***	-0.041***	-0.031***	-0.038***
NACE P	-0.155***	-0.108***	-0.158***	-0.187***	-0.198***	-0.179***	-0.172***	-0.112***
NACE Q	-0.060***	-0.032***	-0.030***	-0.020***	0.006	-0.038***	-0.017***	0.012***
NACE R+S	-0.055***	-0.007***	-0.037***	-0.052***	-0.087***	-0.048***	-0.100***	-0.031***
<i>reference: private ownership of a firm</i>								
public ownership of a firm	-0.037***	-0.086***	-0.093***	-0.082***	-0.089***	-0.095***	-0.109***	-0.114***
tenure: less than 2 years (share)	0.053***	0.027***	0.090***	0.063***	0.010**	-0.053***	0.020***	0.022***
age: 50 years or more (share)	-0.157***	-0.203***	-0.117***	-0.111***	-0.369***	-0.274***	-0.183***	-0.142***
tertiary education (share)	0.137***	0.176***	0.116***	0.192***	0.283***	0.266***	0.240***	0.193***
female (share)	0.036***	0.041***	0.021***	0.001	-0.014***	-0.021***	0.020***	0.036***
constant	0.286***	0.290***	0.255***	0.307***	0.440***	0.441***	0.313***	0.276***
Observations	978,110	1,914,027	1,948,513	2,148,818	391,714	670,603	767,368	863,864
R-squared	0.183	0.201	0.207	0.219	0.130	0.200	0.216	0.191

Notes: Table shows the coefficients estimated by Recentered Influence Function regression (Firpo, Fortin, & Lemieux, 2018). The coefficients measure the impact of an infinitesimal shift to the right in the distribution of the regressors on variance of normalized log hourly wages in a given country in a given year. Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. For the detailed explanation of ISCO and NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table B.3: Results of RIF regression: Estonia and Poland

	Estonia			Poland			
	2006	2010	2014	2002	2006	2010	2014
<i>Individual effects</i>							
<i>reference: primary education</i>							
tertiary education	0.079***	0.055***	0.078***	0.230***	0.215***	0.155***	0.120***
secondary education	-0.026***	-0.034***	-0.018***	-0.012***	-0.006***	-0.016***	-0.018***
<i>reference: under 30 years old</i>							
30-49 years old	0.077***	0.085***	0.090***	0.072***	0.114***	0.109***	0.103***
50 years old or more	0.065***	0.084***	0.084***	0.117***	0.159***	0.133***	0.125***
<i>reference: male</i>							
female	-0.080***	-0.072***	-0.089***	-0.037***	-0.046***	-0.055***	-0.068***
<i>reference: tenure of less than a year</i>							
tenure: 1-4 years	-0.005	-0.008**	0.000	-0.047***	-0.004*	-0.015***	-0.003*
tenure: 5-9 years	0.029***	-0.003	0.005	-0.043***	-0.010***	-0.027***	-0.015***
tenure: 10 years or more	-0.004	-0.004	-0.005	-0.050***	-0.015***	0.006***	0.026***
<i>reference: ISCO 5</i>							
ISCO 1	0.366***	0.370***	0.286***	0.383***	0.263***	0.285***	0.309***
ISCO 2	-0.018***	-0.045***	-0.048***	-0.021***	-0.099***	-0.027***	-0.023***
ISCO 3	-0.077***	-0.145***	-0.094***	-0.127***	-0.210***	-0.139***	-0.142***
ISCO 4	-0.123***	-0.166***	-0.147***	-0.184***	-0.220***	-0.180***	-0.170***
ISCO 6	0.257***	0.025	-0.064*	-0.061***	-0.142***	0.026	-0.062***
ISCO 7	-0.060***	-0.125***	-0.087***	-0.092***	-0.128***	-0.078***	-0.087***
ISCO 8	-0.096***	-0.129***	-0.132***	-0.150***	-0.190***	-0.121***	-0.122***
ISCO 9	0.209***	0.129***	0.097***	-0.006**	-0.048***	0.009***	-0.001
<i>reference: permanent contract</i>							
fixed contract	0.050***	0.045***	0.043***				
<i>Firm effects</i>							
<i>reference: NACE C</i>							
NACE B	-0.001	0.118***	0.077***	0.233***	0.207***	0.103***	0.213***
NACE D+E	-0.076***	0.020**	0.039***	0.028***	0.017***	-0.010***	-0.010***
NACE F	0.044***	0.038***	0.019***	-0.015***	-0.022***	0.009***	0.015***
NACE G	0.037***	0.002	0.028***	-0.003	-0.023***	-0.008***	0.025***
NACE H+J	0.048***	0.112***	0.132***	0.010***	0.016***	0.041***	0.045***
NACE I	0.019**	-0.007	-0.015*	0.040***	0.013**	-0.006	0.028***
NACE K	0.240***	0.193***	0.235***	-0.026***	0.056***	0.050***	0.019***
NACE L+M+N	0.070***	0.014***	0.064***	0.008***	0.038***	0.056***	0.044***
NACE O	-0.092***	-0.044***	-0.030***	-0.104***	-0.076***	-0.138***	-0.113***
NACE P	-0.035***	-0.093***	-0.034***	-0.017***	0.010***	0.042***	0.070***
NACE Q	0.101***	0.090***	0.075***	-0.077***	-0.129***	-0.080***	-0.083***
NACE R+S	-0.004	-0.010	0.013*	-0.082***	-0.048***	-0.073***	-0.078***
<i>reference: private ownership of a firm</i>							
public ownership of a firm	-0.037***	-0.060***	-0.033***	-0.131***	-0.118***	-0.084***	-0.069***
tenure: less than 2 years (share)	-0.016**	0.036***	0.029***	0.109***	0.135***	0.081***	0.083***
age: 50 years or more (share)	-0.112***	-0.115***	-0.084***	-0.179***	-0.153***	-0.159***	-0.082***
tertiary education (share)	0.146***	0.152***	0.094***	0.304***	0.196***	0.166***	0.153***
female (share)	0.002	0.075***	0.067***	0.083***	0.084***	0.065***	0.027***
constant	0.251***	0.249***	0.211***	0.322***	0.285***	0.212***	0.194***
Observations	114,656	108,903	112,569	629,101	639,784	667,963	707,999
R-squared	0.161	0.183	0.134	0.199	0.183	0.185	0.170

Notes: Table shows the coefficients estimated by Recentered Influence Function regression (Firpo, Fortin, & Lemieux, 2018). The coefficients measure the impact of an infinitesimal shift to the right in the distribution of the regressors on variance of normalized log hourly wages in a given country in a given year. Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. For the detailed explanation of ISCO and NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table B.4: Results of RIF regression: Lithuania and Latvia

	Lithuania				Latvia		
	2002	2006	2010	2014	2006	2010	2014
<i>Individual effects</i>							
<i>reference: primary education</i>							
tertiary education	0.139***	0.132***	0.131***	0.035***	0.077***	0.033***	0.000
secondary education	-0.010**	-0.001	0.014	-0.012	-0.028***	-0.029***	-0.032***
<i>reference: under 30 years old</i>							
30-49 years old	0.035***	0.066***	0.062***	0.087***	0.079***	0.084***	0.103***
50 years old or more	0.046***	0.074***	0.079***	0.097***	0.070***	0.067***	0.095***
<i>reference: male</i>							
female	-0.058***	-0.069***	-0.081***	-0.088***	-0.073***	-0.079***	-0.067***
<i>reference: tenure of less than a year</i>							
tenure: 1-4 years	0.002	0.016***	0.005	-0.013**	0.018***	-0.001	0.018***
tenure: 5-9 years	0.018***	0.054***	0.014*	-0.008	0.052***	0.015***	0.021***
tenure: 10 years or more	0.028***	0.048***	0.052***	0.008	0.038***	0.006*	0.004
<i>reference: ISCO 5</i>							
ISCO 1	0.310***	0.274***	0.235***	0.329***	0.320***	0.331***	0.322***
ISCO 2	-0.029***	-0.060***	-0.047***	-0.027***	0.007	-0.007*	0.017***
ISCO 3	-0.041***	-0.060***	-0.100***	-0.088***	-0.100***	-0.100***	-0.104***
ISCO 4	-0.110***	-0.129***	-0.145***	-0.122***	-0.121***	-0.121***	-0.152***
ISCO 6	0.028	0.159***	0.026	-0.165	0.103***	0.038	0.081***
ISCO 7	-0.026***	-0.013**	-0.046***	-0.060***	-0.034***	-0.059***	-0.047***
ISCO 8	-0.031***	-0.058***	-0.115***	-0.122***	-0.038***	-0.063***	-0.067***
ISCO 9	0.085***	0.118***	0.083***	0.038***	0.124***	0.086***	0.086***
<i>reference: permanent contract</i>							
fixed contract	-0.029***	0.052***	0.041***	-0.009	0.187***	0.064***	0.047***
<i>Firm effects</i>							
<i>reference: NACE C</i>							
NACE B	0.067***	0.020	-0.026	-0.036	-0.100***	-0.111***	-0.027
NACE D+E	0.081***	0.072***	0.018	0.026*	0.120***	-0.013*	0.003
NACE F	0.012**	0.074***	-0.061***	-0.049***	-0.003	-0.032***	-0.050***
NACE G	0.012**	0.010**	0.011	-0.039***	0.029***	-0.029***	-0.027***
NACE H+J	0.086***	0.084***	0.065***	0.052***	0.072***	0.072***	0.092***
NACE I	0.072***	0.064***	0.049***	0.016	0.067***	0.014*	-0.034***
NACE K	0.260***	0.300***	0.244***	0.247***	0.286***	0.281***	0.322***
NACE L+M+N	-0.022***	-0.007	0.006	0.007	0.068***	-0.023***	0.008
NACE O	0.026***	0.059***	-0.021	-0.035***	-0.081***	-0.186***	-0.191***
NACE P	-0.012*	0.010	0.090***	0.007	0.002	-0.113***	-0.146***
NACE Q	-0.052***	0.074***	0.041***	0.065***	0.068***	-0.008	0.036***
NACE R+S	-0.055***	-0.022***	-0.053***	-0.063***	0.002	-0.101***	-0.089***
<i>reference: private ownership of a firm</i>							
public ownership of a firm	-0.083***	-0.119***	-0.100***	-0.089***	-0.147***	-0.061***	-0.075***
tenure: less than 2 years (share)	0.052***	0.063***	0.040***	0.004	0.077***	0.059***	0.020***
age: 50 years or more (share)	-0.205***	-0.096***	-0.080***	-0.067***	-0.183***	-0.171***	-0.158***
tertiary education (share)	0.359***	0.231***	0.161***	0.144***	0.349***	0.367***	0.402***
female (share)	-0.026***	0.014**	-0.014	0.020**	-0.022***	-0.019***	-0.031***
constant	0.284***	0.195***	0.237***	0.240***	0.341***	0.277***	0.226***
Observations	135,978	114,892	32,773	38,483	271,872	198,862	153,540
R-squared	0.159	0.132	0.138	0.146	0.117	0.166	0.157

Notes: Table shows the coefficients estimated by Recentered Influence Function regression (Firpo, Fortin, & Lemieux, 2018). The coefficients measure the impact of an infinitesimal shift to the right in the distribution of the regressors on variance of normalized log hourly wages in a given country in a given year. Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. For the detailed explanation of ISCO and NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table B.5: Results of RIF regression: Hungary

	Hungary		
	2006	2010	2014
<i>Individual effects</i>			
<i>reference: primary education</i>			
tertiary education	0.217***	0.205***	0.095***
secondary education	-0.028***	-0.032***	-0.085***
<i>reference: under 30 years old</i>			
30-49 years old	0.080***	0.091***	0.096***
50 years old or more	0.106***	0.106***	0.120***
<i>reference: male</i>			
female	-0.064***	-0.077***	-0.069***
<i>reference: tenure of less than a year</i>			
tenure: 1-4 years	-0.014***	-0.048***	-0.113***
tenure: 5-9 years	-0.005***	-0.049***	-0.091***
tenure: 10 years or more	-0.021***	-0.041***	-0.103***
<i>reference: ISCO 5</i>			
ISCO 1	0.341***	0.351***	0.428***
ISCO 2	-0.051***	-0.044***	0.010***
ISCO 3	-0.101***	-0.112***	-0.080***
ISCO 4	-0.124***	-0.117***	-0.089***
ISCO 6	0.045***	0.034***	0.117***
ISCO 7	-0.109***	-0.122***	-0.090***
ISCO 8	-0.151***	-0.133***	-0.152***
ISCO 9	0.025***	0.143***	0.082***
<i>reference: permanent contract</i>			
fixed contract	0.015***	-0.024***	-0.056***
<i>Firm effects</i>			
<i>reference: NACE C</i>			
NACE B	0.037***	0.011	-0.012
NACE D+E	0.074***	0.020***	-0.016***
NACE F	0.028***	-0.070***	-0.108***
NACE G	0.024***	-0.084***	-0.035***
NACE H+J	0.048***	0.046***	0.044***
NACE I	-0.017***	-0.101***	-0.100***
NACE K	0.223***	0.271***	0.267***
NACE L+M+N	0.001	-0.024***	-0.071***
NACE O	-0.027***	-0.081***	0.044***
NACE P	-0.320***	-0.379***	-0.223***
NACE Q	-0.094***	-0.123***	-0.049***
NACE R+S	-0.087***	-0.188***	-0.114***
<i>reference: private ownership of a firm</i>			
public ownership of a firm	-0.085***	-0.058***	-0.049***
tenure: less than 2 years (share)	0.079***	0.100***	0.148***
age: 50 years or more (share)	-0.163***	-0.164***	-0.194***
tertiary education (share)	0.316***	0.362***	0.220***
female (share)	-0.054***	-0.026***	-0.099***
constant	0.322***	0.312***	0.379***
Observations	676,050	781,240	770,148
R-squared	0.252	0.244	0.248

Notes: Table shows the coefficients estimated by Recentered Influence Function regression (Firpo, Fortin, & Lemieux, 2018). The coefficients measure the impact of an infinitesimal shift to the right in the distribution of the regressors on variance of normalized log hourly wages in a given country in a given year. Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. For the detailed explanation of ISCO and NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table B.6: Decomposition of overall change in variance of log wages into composition and wage structure effects: Bulgaria, Czechia and Estonia

	Bulgaria		Czechia		Estonia	
	Composition	Wage Structure	Composition	Wage Structure	Composition	Wage Structure
<i>Individual effects</i>						
<i>reference: primary education</i>						
tertiary education	0.002***	-0.016***	0.006***	-0.014***	-0.002***	-0.000
secondary education	0.000***	0.002	0.001***	-0.009***	-0.000***	0.005
<i>reference: under 30 years old</i>						
30-49 years old	-0.000***	0.037***	0.002***	0.011***	-0.001***	0.006**
50 years old or more	0.001***	0.023***	-0.001***	0.007***	0.003***	0.007***
<i>reference: male</i>						
female	-0.001***	-0.006**	-0.001***	-0.003*	0.001***	-0.005
<i>reference: tenure of less than a year</i>						
tenure: 1-4 years	-0.000***	-0.008***	0.000***	-0.005***	0.001	0.002
tenure: 5-9 years	0.002***	-0.006***	0.000	-0.008***	-0.000	-0.005***
tenure: 10 years or more	-0.001***	-0.012***	-0.000	-0.008***	-0.000	-0.000
<i>reference: ISCO 5</i>						
ISCO 1	0.003***	0.005***	-0.006***	0.006***	-0.001*	-0.005***
ISCO 2	0.011***	0.006***	-0.003***	0.014***	-0.001*	-0.006***
ISCO 3	0.000***	0.001	0.002***	-0.006***	0.001***	-0.003**
ISCO 4	0.001***	-0.001***	-0.001***	-0.003***	0.000***	-0.002**
ISCO 6	-0.000***	0.002***	-0.000	-0.000**	0.000**	-0.000***
ISCO 7	0.001***	-0.005***	0.006***	-0.003***	0.001***	-0.003***
ISCO 8	0.002***	-0.007***	-0.001***	-0.002**	0.003***	-0.004***
ISCO 9	0.000	0.002***	-0.000***	0.002***	0.001***	-0.012***
<i>reference: permanent contract</i>						
fixed contract	-0.003***	-0.003***	0.001***	-0.008***	-0.001***	-0.000
<i>Firm effects</i>						
<i>reference: NACE C</i>						
NACE B	-0.001***	0.000	-0.000***	0.000**	0.000	0.001***
NACE D+E	0.001***	-0.001*	0.001***	-0.001***	0.000***	0.002***
NACE F	0.002***	0.005***	0.000***	-0.002***	0.000***	-0.001**
NACE G	-0.001***	-0.008***	-0.000**	-0.002**	0.001***	-0.001
NACE H+J	0.000	0.015***	0.001***	0.002***	0.001***	0.008***
NACE I	-0.000***	-0.004***	0.000**	0.001***	0.000*	-0.001**
NACE K	0.002***	-0.006***	0.001***	-0.002***	-0.002***	-0.000
NACE L+M+N	0.001***	0.003***	0.000**	0.002**	0.000***	-0.001
NACE O	0.001***	0.000	-0.000***	-0.004***	0.001***	0.005***
NACE P	0.003***	0.011***	-0.000	-0.006***	-0.000***	0.000
NACE Q	-0.001***	0.000	-0.000***	0.001*	-0.000**	-0.002**
NACE R+S	0.000	-0.003***	0.000	-0.001***	0.000	0.000
<i>reference: private ownership of a firm</i>						
public ownership of a firm	0.005***	-0.009***	-0.001***	0.001	0.001***	0.001
tenure: less than 2 years (share)	-0.001***	0.020***	-0.000***	0.012***	-0.000	0.017***
age: 50 years or more (share)	-0.016***	-0.024***	0.002***	0.026***	-0.005***	0.010*
tertiary education (share)	0.027***	-0.020***	0.006***	0.003	-0.010***	-0.014***
female (share)	-0.001***	0.009*	0.001***	-0.018***	0.000	0.036***
constant		-0.044***		0.017**		-0.040**
total	0.043***	-0.043***	0.015***	0.002	-0.008***	-0.005**
Observations		331,183		4,062,845		227,225

Notes: Table represent the results of the decomposition of changes in variance of normalized log hourly wages between 2006 and 2014 into composition and wage structure effect following Firpo, Fortin, and Lemieux (2018). Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. For the detailed explanation of ISCO and NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table B.7: Decomposition of overall change in variance of log wages into composition and wage structure effects: Latvia, Lithuania and Hungary

	Latvia		Lithuania		Hungary	
	Composition	Wage Structure	Composition	Wage Structure	Composition	Wage Structure
<i>Individual effects</i>						
<i>reference: primary education</i>						
tertiary education	0.007***	-0.032***	0.020***	-0.046***	0.011***	-0.037***
secondary education	0.003***	-0.002	0.000	-0.005	0.001***	-0.032***
<i>reference: under 30 years old</i>						
30-49 years old	-0.002***	0.011***	-0.005***	0.010**	0.002***	0.009***
50 years old or more	0.003***	0.009***	0.005***	0.008**	-0.001***	0.004***
<i>reference: male</i>						
female	-0.001***	0.003	-0.001***	-0.010**	0.002***	-0.002
<i>reference: tenure of less than a year</i>						
tenure: 1-4 years	-0.001***	0.000	-0.000***	-0.009***	-0.000	-0.032***
tenure: 5-9 years	0.000***	-0.006***	0.002***	-0.012***	0.000	-0.016***
tenure: 10 years or more	0.002***	-0.009***	0.001***	-0.011***	0.001***	-0.022***
<i>reference: ISCO 5</i>						
ISCO 1	-0.003***	0.000	-0.006***	0.005**	-0.005***	0.005***
ISCO 2	0.000	0.002	-0.003***	0.010**	-0.001***	0.012***
ISCO 3	0.001***	-0.001	0.000	-0.003**	-0.001***	0.004***
ISCO 4	0.002***	-0.002***	0.001***	0.000	0.004***	0.002***
ISCO 6	-0.000***	-0.000	-0.000***	-0.000***	-0.000	0.000***
ISCO 7	0.001***	-0.002	0.001**	-0.007***	-0.001***	0.003***
ISCO 8	0.000***	-0.003***	0.000**	-0.007***	-0.002***	-0.000
ISCO 9	0.001***	-0.005***	-0.001***	-0.009***	0.001***	0.009***
<i>reference: permanent contract</i>						
fixed contract	0.001***	-0.008***	0.001***	-0.003***	-0.000***	-0.003***
<i>Firm effects</i>						
<i>reference: NACE C</i>						
NACE B	-0.000***	0.000***	-0.000	-0.000*	0.000**	-0.000*
NACE D+E	0.001***	-0.003***	0.000***	-0.001**	-0.000***	-0.002***
NACE F	0.000	-0.003***	-0.002***	-0.009***	-0.000***	-0.005***
NACE G	-0.000***	-0.007***	0.000	-0.007***	0.000	-0.006***
NACE H+J	0.002***	0.002**	0.002***	-0.003***	0.001***	-0.000
NACE I	0.000	-0.003***	0.000***	-0.001***	0.000*	-0.002***
NACE K	-0.001***	0.001	-0.001***	-0.001	0.002***	0.001**
NACE L+M+N	-0.000***	-0.004***	-0.000	0.001	0.000	-0.005***
NACE O	0.001***	-0.010***	0.000	-0.007***	-0.000***	0.011***
NACE P	0.000	-0.029***	-0.000	-0.000	0.006***	0.013***
NACE Q	0.001***	-0.003**	0.001***	-0.001	0.000***	0.004***
NACE R+S	-0.000	-0.002***	0.000**	-0.001**	0.002***	-0.001***
<i>reference: private ownership of a firm</i>						
public ownership of a firm	-0.004***	0.033***	0.002***	0.011**	0.003***	0.016***
tenure: less than 2 years (share)	-0.005***	-0.023***	-0.004***	-0.023***	0.006***	0.029***
age: 50 years or more (share)	-0.009***	0.009	-0.007***	0.010	0.001***	-0.009***
tertiary education (share)	0.030***	0.022***	0.035***	-0.040***	0.015***	-0.031***
female (share)	-0.000***	-0.005	0.000*	0.003	0.001***	-0.023***
constant		-0.115***		0.045**		0.057***
total	0.030***	-0.183***	0.043***	-0.115***	0.046***	-0.050***
Observations		425,412		153,375		1,446,198

Notes: Table represent the results of the decomposition of changes in variance of normalized log hourly wages between 2006 and 2014 into composition and wage structure effect following Firpo, Fortin, and Lemieux (2018). Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. For the detailed explanation of ISCO and NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table B.8: Decomposition of overall change in variance of log wages into composition and wage structure effects: Poland, Romania and Slovakia

	Poland		Romania		Slovakia	
	Composition	Wage Structure	Composition	Wage Structure	Composition	Wage Structure
<i>Individual effects</i>						
<i>reference: primary education</i>						
tertiary education	0.020***	-0.037***	0.000***	-0.014***	0.005***	-0.016***
secondary education	0.000***	-0.007***	0.000	-0.011***	0.009***	0.010***
<i>reference: under 30 years old</i>						
30-49 years old	-0.001***	-0.006***	-0.000	0.027***	-0.001***	0.015***
50 years old or more	0.007***	-0.009***	0.004***	-0.003**	0.003***	0.011***
<i>reference: male</i>						
female	-0.000***	-0.011***	-0.000*	-0.012***	-0.000***	0.000
<i>reference: tenure of less than a year</i>						
tenure: 1-4 years	0.000*	0.000	0.001***	0.002	-0.000	-0.006***
tenure: 5-9 years	-0.000***	-0.001	-0.001**	0.001	0.001***	-0.008***
tenure: 10 years or more	-0.000**	0.015***	0.000***	0.006**	0.001***	-0.012***
<i>reference: ISCO 5</i>						
ISCO 1	0.004***	0.004***	0.012***	-0.018***	0.003***	-0.003***
ISCO 2	-0.003***	0.020***	0.023***	-0.039***	-0.005***	0.010***
ISCO 3	0.003***	0.008***	0.002***	-0.006***	0.007***	0.005***
ISCO 4	0.002***	0.004***	0.001***	-0.001	-0.002***	0.001***
ISCO 6	-0.000***	0.000***	0.000**	0.000	-0.000	0.000
ISCO 7	0.003***	0.006***	0.004***	-0.005***	0.010***	0.005***
ISCO 8	0.000***	0.008***	0.005***	-0.005***	-0.000***	0.008***
ISCO 9	0.001***	0.004***	0.001***	-0.011***	-0.000	0.004***
<i>Firm effects</i>						
<i>reference: NACE C</i>						
NACE B	-0.000***	0.000	-0.004***	0.003***	0.000***	0.001***
NACE D+E	0.000***	-0.001***	0.000***	0.001	0.001***	-0.002***
NACE F	-0.000***	0.002***	-0.000***	-0.004***	0.001***	0.001***
NACE G	-0.000***	0.007***	0.001***	-0.009***	-0.000***	0.000
NACE H+J	0.000***	0.003***	0.002***	0.004***	0.001***	0.006***
NACE I	0.000**	0.000**	0.001***	-0.001***	-0.000	-0.000*
NACE K	0.000***	-0.001***	0.001***	-0.005***	0.001***	-0.001***
NACE L+M+N	0.000***	0.000	0.004***	-0.011***	0.001***	-0.000
NACE O	-0.000***	-0.002***	-0.001***	-0.010***	-0.001***	0.000
NACE P	-0.000**	0.008***	0.001***	-0.012***	-0.003***	0.008***
NACE Q	0.002***	0.003***	-0.000***	-0.003***	0.000***	0.004***
NACE R+S	0.000***	-0.000***	-0.000	-0.003***	0.001***	0.000*
<i>reference: private ownership of a firm</i>						
public ownership of a firm	0.008***	0.017***	0.001***	-0.011***	-0.001***	-0.006***
tenure: less than 2 years (share)	-0.001***	-0.015***	-0.005***	0.009***	0.004***	0.022***
age: 50 years or more (share)	-0.007***	0.019***	-0.011***	0.022***	-0.011***	0.042***
tertiary education (share)	0.018***	-0.017***	0.002***	0.093***	0.024***	-0.022***
female (share)	0.000***	-0.028***	0.000***	-0.034***	-0.000***	0.029***
<i>reference: permanent contract</i>						
fixed contract			-0.001***	-0.000	0.000	0.001
constant		-0.091***		-0.035***		-0.165***
total	0.059***	-0.097***	0.041***	-0.096***	0.047***	-0.058***
Observations	1,347,783		512,290		1,534,467	

Notes: Table represent the results of the decomposition of changes in variance of normalized log hourly wages between 2006 and 2014 into composition and wage structure effect following Firpo, Fortin, and Lemieux (2018). Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. For the detailed explanation of ISCO and NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table B.9: Decomposition of total wage change into composition and wage structure effects: Bulgaria, quantiles

	10th Quantile		50th Quantile		90th Quantile	
	Composition	Wage Structure	Composition	Wage Structure	Composition	Wage Structure
<i>Individual effects</i>						
<i>reference: primary education</i>						
tertiary education	-0.001***	-0.001	0.008***	0.015***	0.005***	-0.019**
secondary education	0.000	0.001	0.000	0.043***	0.001***	0.032***
<i>reference: under 30 years old</i>						
30-49 years old	-0.002***	-0.042***	-0.002***	-0.043***	-0.002***	0.044***
50 years old or more	0.005***	-0.031***	0.005***	-0.029***	0.006***	0.017***
<i>reference: male</i>						
female	0.000***	0.002	-0.001***	0.002	-0.002***	-0.018***
<i>reference: tenure of less than a year</i>						
tenure: 1-4 years	-0.001***	0.002	-0.001***	-0.004	-0.002***	-0.009**
tenure: 5-9 years	0.003***	0.006***	0.009***	-0.005**	0.008***	-0.004
tenure: 10 years or more	-0.000***	0.010***	-0.002***	-0.020***	-0.002***	-0.024***
<i>reference: ISCO 5</i>						
ISCO 1	0.000***	0.005***	0.007***	-0.014***	0.009***	0.024***
ISCO 2	0.004***	0.015***	0.059***	-0.070***	0.039***	0.047***
ISCO 3	-0.001***	0.010***	-0.007***	-0.029***	-0.001***	0.013***
ISCO 4	-0.000***	0.005***	-0.003***	-0.011***	0.001***	-0.002
ISCO 6	-0.000	0.000***	-0.000	0.001***	-0.000**	0.006***
ISCO 7	-0.001***	0.013***	-0.009***	-0.008***	-0.001***	-0.008***
ISCO 8	-0.002***	0.012***	-0.011***	-0.024***	0.001***	-0.014***
ISCO 9	0.002***	-0.002**	0.002***	-0.004***	0.002***	-0.001
<i>reference: permanent contract</i>						
fixed contract	-0.000	0.002***	-0.001***	0.002***	-0.006***	-0.004***
<i>Firm effects</i>						
<i>reference: NACE C</i>						
NACE B	-0.000***	0.000***	-0.001***	-0.001***	-0.003***	0.004***
NACE D+E	0.000**	0.001***	0.003***	-0.011***	0.004***	-0.001
NACE F	-0.002***	-0.009***	-0.000	-0.002***	0.004***	0.008***
NACE G	0.000**	0.011***	-0.001*	-0.001	-0.003***	-0.005**
NACE H+J	-0.000	0.000	0.000	-0.002	-0.002***	0.038***
NACE I	0.001***	0.003***	-0.000	-0.001**	-0.001***	-0.004***
NACE K	0.000***	-0.001***	0.003***	-0.004***	0.007***	-0.016***
NACE L+M+N	-0.004***	0.004***	-0.004***	0.002	-0.002***	0.012***
NACE O	0.000***	-0.001***	0.000***	-0.011***	0.003***	-0.005**
NACE P	0.001***	0.001**	0.003***	0.023***	0.008***	0.027***
NACE Q	-0.001***	0.003***	-0.005***	0.022***	-0.004***	0.002
NACE R+S	0.002***	-0.001***	0.005***	-0.005***	0.004***	-0.009***
<i>reference: private ownership of a firm</i>						
public ownership of a firm	-0.003***	0.010***	-0.012***	-0.022***	0.005***	-0.010
tenure: less than 2 years (share)	0.004***	-0.022***	0.023***	0.078***	0.013***	0.082***
age: 50 years or more (share)	0.002***	-0.046***	0.001**	-0.161***	-0.028***	-0.224***
tertiary education (share)	0.011***	0.001	0.035***	-0.009	0.073***	-0.002
female (share)	-0.000***	0.023***	-0.002***	-0.042***	-0.003***	0.042***
constant		0.489***		0.738***		0.359***
total	0.018***	0.472***	0.102***	0.395***	0.133***	0.375***
Observations		331,183		331,183		331,183

Notes: Table represent the results of the decomposition of changes in log real hourly wages between 2006 and 2014 for the 10th, 50th and 90th percentile of wage distribution into composition and wage structure effect following Firpo, Fortin, and Lemieux (2018). Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. For the detailed explanation of ISCO and NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table B.10: Decomposition of total wage change into composition and wage structure effects: Czechia, quantiles

	10th Quantile		50th Quantile		90th Quantile	
	Composition	Wage Structure	Composition	Wage Structure	Composition	Wage Structure
<i>Individual effects</i>						
<i>reference: primary education</i>						
tertiary education	0.005***	0.012***	0.007***	-0.006***	0.018***	-0.020***
secondary education	-0.002***	0.040***	-0.001***	-0.001	0.001***	0.019***
<i>reference: under 30 years old</i>						
30-49 years old	-0.000***	-0.023***	0.002***	0.001	0.006***	0.023***
50 years old or more	0.000**	-0.012***	-0.001***	-0.003**	-0.002***	0.014***
<i>reference: male</i>						
female	-0.002***	0.021***	-0.003***	0.010***	-0.005***	0.006**
<i>reference: tenure of less than a year</i>						
tenure: 1-4 years	-0.003***	-0.001	-0.003***	-0.003**	-0.002***	-0.014***
tenure: 5-9 years	0.001***	0.001	0.001***	-0.005***	0.001***	-0.019***
tenure: 10 years or more	0.002***	0.007**	0.002***	0.000	0.002***	-0.016***
<i>reference: ISCO 5</i>						
ISCO 1	-0.009***	-0.001**	-0.009***	0.000	-0.020***	0.011***
ISCO 2	0.014***	-0.014***	0.012***	-0.001	0.006***	0.035***
ISCO 3	-0.009***	-0.011***	-0.007***	-0.006***	-0.004***	-0.024***
ISCO 4	0.003***	0.001	0.001***	0.005***	-0.001***	-0.005***
ISCO 6	0.000	0.000	-0.000	-0.000	0.000	-0.001
ISCO 7	-0.013***	0.002	-0.003***	-0.001	0.009***	-0.009***
ISCO 8	0.003***	-0.008***	0.000***	-0.007***	-0.002***	-0.016***
ISCO 9	0.001***	-0.005***	0.000***	-0.001***	0.000***	-0.003***
<i>reference: permanent contract</i>						
fixed contract	-0.004***	0.018***	-0.003***	-0.004***	-0.001**	-0.009***
<i>Firm effects</i>						
<i>reference: NACE C</i>						
NACE B	-0.000***	0.000	-0.001***	0.000***	-0.001***	0.000
NACE D+E	-0.000***	0.000	0.001***	-0.002***	0.002***	-0.003***
NACE F	0.001***	0.001*	0.001***	-0.004***	0.001***	-0.004***
NACE G	0.001***	0.002*	0.000***	-0.004***	0.000	-0.008***
NACE H+J	-0.000***	-0.017***	0.001***	-0.007***	0.003***	-0.007***
NACE I	-0.001***	-0.010***	-0.000***	-0.003***	-0.000***	-0.004***
NACE K	-0.000***	-0.002***	0.000***	-0.002***	0.002***	-0.007***
NACE L+M+N	-0.004***	-0.002**	-0.001***	-0.000	-0.001***	-0.005***
NACE O	-0.001***	-0.014***	-0.000	-0.011***	0.000**	-0.033***
NACE P	-0.000	-0.009***	-0.000	-0.005***	-0.000	-0.024***
NACE Q	0.000	-0.009***	-0.000	-0.006***	-0.001***	-0.008***
NACE R+S	0.000***	-0.001	0.000***	-0.002***	0.000***	-0.004***
<i>reference: private ownership of a firm</i>						
public ownership of a firm	0.001***	0.021***	0.001***	0.004**	-0.001***	0.017***
tenure: less than 2 years (share)	0.002***	-0.069***	0.001***	-0.041***	-0.000*	-0.028***
age: 50 years or more (share)	0.003***	-0.079***	0.004***	0.010**	0.007***	0.022***
tertiary education (share)	0.011***	-0.000	0.010***	-0.001	0.024***	-0.005
female (share)	-0.004***	0.092***	-0.005***	0.023***	-0.003***	0.035***
constant		0.216***		0.254***		0.248***
total	-0.007***	0.146***	0.008***	0.182***	0.039***	0.156***
Observations	4,062,845		4,062,845		4,062,845	

Notes: Table represent the results of the decomposition of changes in log real hourly wages between 2006 and 2014 for the 10th, 50th and 90th percentile of wage distribution into composition and wage structure effect following Firpo, Fortin, and Lemieux (2018). Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. For the detailed explanation of ISCO and NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table B.11: Decomposition of total wage change into composition and wage structure effects: Estonia, quantiles

	10th Quantile		50th Quantile		90th Quantile	
	Composition	Wage Structure	Composition	Wage Structure	Composition	Wage Structure
<i>Individual effects</i>						
<i>reference: primary education</i>						
tertiary education	-0.003***	-0.008	-0.005***	-0.008**	-0.007***	0.003
secondary education	0.001***	-0.020	0.001***	-0.006	0.000	0.004
<i>reference: under 30 years old</i>						
30-49 years old	0.001***	-0.013**	0.000	0.022***	-0.003***	0.025***
50 years old or more	-0.006***	-0.009	-0.003***	0.009**	0.002**	0.027***
<i>reference: male</i>						
female	0.001***	0.031***	0.002***	0.012**	0.003***	0.006
<i>reference: tenure of less than a year</i>						
tenure: 1-4 years	-0.006***	-0.010	-0.013***	-0.014***	-0.007***	-0.010*
tenure: 5-9 years	-0.000	0.000	-0.000	-0.016***	-0.000	-0.018***
tenure: 10 years or more	0.001***	-0.001	0.002***	-0.014***	0.001***	-0.010
<i>reference: ISCO 5</i>						
ISCO 1	-0.001*	-0.002	-0.001*	-0.003***	-0.002*	-0.015***
ISCO 2	0.019***	-0.001	0.021***	-0.016***	0.019***	-0.021***
ISCO 3	-0.004***	-0.011***	-0.004***	-0.001	-0.002***	-0.014***
ISCO 4	-0.001***	-0.001	-0.001***	0.003**	0.000***	-0.002
ISCO 6	-0.000	0.001*	0.000	-0.000	0.000***	-0.000***
ISCO 7	-0.001***	-0.002	-0.002***	-0.000	-0.000	-0.009***
ISCO 8	-0.006***	-0.001	-0.005***	-0.005***	0.002***	-0.009***
ISCO 9	-0.003***	0.033***	-0.000***	0.003*	0.000	-0.004**
<i>reference: permanent contract</i>						
fixed contract	-0.001**	-0.004***	-0.000	-0.002***	-0.002***	-0.003*
<i>Firm effects</i>						
<i>reference: NACE C</i>						
NACE B	-0.000***	-0.001***	-0.000**	0.002***	-0.001***	0.002**
NACE D+E	-0.000	-0.003***	0.000**	0.001**	0.001***	0.004***
NACE F	-0.000***	-0.004***	0.000***	-0.004***	0.000***	-0.008***
NACE G	-0.002***	-0.005	0.001***	-0.011***	0.002***	-0.012***
NACE H+J	-0.001***	-0.019***	0.002***	-0.013***	0.001***	0.006**
NACE I	-0.001	-0.000	0.001***	-0.005***	0.000	-0.002**
NACE K	0.001***	-0.002***	-0.001***	-0.002***	-0.004***	-0.003**
NACE L+M+N	-0.000**	-0.010***	-0.000	-0.002	0.000***	-0.006**
NACE O	0.001***	-0.008***	0.001***	0.010***	0.003***	0.015***
NACE P	-0.003***	-0.011***	-0.001***	0.001	-0.003***	0.003
NACE Q	0.000	-0.002	-0.000**	-0.003*	-0.001**	-0.007***
NACE R+S	0.001***	-0.005***	0.001***	-0.004***	0.001***	-0.002
<i>reference: private ownership of a firm</i>						
public ownership of a firm	0.002***	0.020***	0.001**	-0.003	0.004***	0.004
tenure: less than 2 years (share)	0.002***	-0.097***	0.002***	-0.061***	0.001	-0.024*
age: 50 years or more (share)	-0.016***	-0.034**	-0.016***	-0.005	-0.029***	0.022
tertiary education (share)	-0.011***	0.010	-0.021***	0.032***	-0.034***	-0.023**
female (share)	-0.000	-0.023	-0.000	-0.017	-0.000	0.085***
constant		0.571***		0.503***		0.349***
total	-0.036***	0.360***	-0.040***	0.383***	-0.054***	0.351***
Observations		227,225		227,225		227,225

Notes: Table represent the results of the decomposition of changes in log real hourly wages between 2006 and 2014 for the 10th, 50th and 90th percentile of wage distribution into composition and wage structure effect following Firpo, Fortin, and Lemieux (2018). Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. For the detailed explanation of ISCO and NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table B.12: Decomposition of total wage change into composition and wage structure effects: Latvia, quantiles

	10th Quantile		50th Quantile		90th Quantile	
	Composition	Wage Structure	Composition	Wage Structure	Composition	Wage Structure
<i>Individual effects</i>						
<i>reference: primary education</i>						
tertiary education	0.004***	-0.000	0.027***	-0.043***	0.021***	-0.072***
secondary education	-0.002**	-0.001	-0.006***	-0.024***	0.001	-0.025***
<i>reference: under 30 years old</i>						
30-49 years old	0.001***	0.013***	0.003***	0.023***	-0.002***	0.052***
50 years old or more	-0.003***	0.013***	-0.009***	0.035***	0.001**	0.042***
<i>reference: male</i>						
female	-0.000***	0.000	-0.001***	-0.004	-0.002***	-0.021**
<i>reference: tenure of less than a year</i>						
tenure: 1-4 years	-0.001***	-0.012***	-0.003***	0.003	-0.003***	-0.001
tenure: 5-9 years	0.001***	-0.008***	0.002***	0.008***	0.002***	-0.013***
tenure: 10 years or more	0.006***	-0.013***	0.019***	-0.021***	0.012***	-0.029***
<i>reference: ISCO 5</i>						
ISCO 1	-0.001***	-0.009***	-0.007***	-0.009***	-0.005***	0.016***
ISCO 2	0.007***	-0.009***	0.037***	-0.042***	0.016***	0.024***
ISCO 3	-0.002***	-0.010***	-0.007***	-0.010***	-0.001***	-0.013***
ISCO 4	-0.002***	-0.006***	-0.005***	-0.002*	0.001***	-0.008***
ISCO 6	0.000***	0.000**	0.000	-0.000**	-0.000*	0.001**
ISCO 7	-0.001***	-0.005***	-0.007***	0.001	0.000**	-0.001
ISCO 8	-0.000	-0.004***	-0.001***	-0.003	0.000***	-0.009***
ISCO 9	-0.001***	-0.008***	-0.000***	0.004*	0.000**	0.002
<i>reference: permanent contract</i>						
fixed contract	-0.000***	0.005***	0.000***	0.004***	0.002***	-0.003**
<i>Firm effects</i>						
<i>reference: NACE C</i>						
NACE B	0.000***	-0.000***	0.000***	-0.001***	0.000***	-0.001**
NACE D+E	-0.001***	0.001***	0.002***	-0.003***	0.003***	-0.008***
NACE F	-0.000***	0.000	0.000***	0.002	-0.000***	-0.011***
NACE G	0.001***	0.010***	-0.000	-0.001	0.000	-0.001
NACE H+J	-0.002***	0.003***	0.001***	0.001	0.002***	0.012***
NACE I	-0.000	0.005***	-0.000	0.002***	-0.000	-0.001*
NACE K	-0.000**	0.000	-0.001***	-0.001***	-0.002***	0.002
NACE L+M+N	0.000***	0.006***	0.001***	0.013***	-0.000*	-0.001
NACE O	0.002***	0.012***	0.004***	0.018***	0.004***	-0.020***
NACE P	-0.010***	0.007***	-0.023***	0.016***	-0.016***	-0.068***
NACE Q	-0.000***	-0.000	-0.002***	0.002	0.002***	-0.013***
NACE R+S	0.004***	0.003***	0.009***	0.003***	0.006***	-0.004***
<i>reference: private ownership of a firm</i>						
public ownership of a firm	0.004***	-0.051***	0.003***	0.007	-0.004***	0.012
tenure: less than 2 years (share)	0.003***	0.029***	0.008***	-0.082***	-0.002***	-0.076***
age: 50 years or more (share)	0.001*	-0.032***	-0.002***	-0.206***	-0.018***	-0.083***
tertiary education (share)	0.010***	-0.071***	0.045***	-0.071***	0.068***	0.083***
female (share)	-0.001***	0.019***	-0.002***	-0.113***	-0.002***	-0.045***
constant		0.736***		0.748***		0.436***
total	0.018***	0.623***	0.084***	0.256***	0.081***	0.153***
Observations		425,412		425,412		425,412

Notes: Table represent the results of the decomposition of changes in log real hourly wages between 2006 and 2014 for the 10th, 50th and 90th percentile of wage distribution into composition and wage structure effect following Firpo, Fortin, and Lemieux (2018). Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. For the detailed explanation of ISCO and NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table B.13: Decomposition of total wage change into composition and wage structure effects: Lithuania, quantiles

	10th Quantile		50th Quantile		90th Quantile	
	Composition	Wage Structure	Composition	Wage Structure	Composition	Wage Structure
<i>Individual effects</i>						
<i>reference: primary education</i>						
tertiary education	0.009***	0.002	0.057***	-0.064***	0.059***	-0.114***
secondary education	-0.000	0.004	-0.006***	0.003	-0.003***	-0.017**
<i>reference: under 30 years old</i>						
30-49 years old	0.002***	-0.004	0.003***	0.012	-0.005***	0.025***
50 years old or more	-0.003***	0.004	-0.007***	0.017**	0.005***	0.028***
<i>reference: male</i>						
female	-0.000***	0.004	-0.002***	0.014*	-0.003***	-0.020*
<i>reference: tenure of less than a year</i>						
tenure: 1-4 years	-0.000***	-0.003	-0.002***	0.003	-0.002***	-0.013**
tenure: 5-9 years	0.001***	0.000	0.006***	-0.000	0.006***	-0.016***
tenure: 10 years or more	0.002***	-0.005	0.009***	-0.014**	0.007***	-0.026***
<i>reference: ISCO 5</i>						
ISCO 1	-0.001***	0.004**	-0.012***	0.013***	-0.017***	0.012***
ISCO 2	0.004***	0.027***	0.028***	0.048***	0.005***	0.054***
ISCO 3	-0.000	0.004**	-0.000	0.010***	0.000	-0.003
ISCO 4	-0.000***	0.000	-0.001***	-0.001	0.001***	0.000
ISCO 6	0.000**	0.000**	0.000**	0.000	-0.000	-0.000**
ISCO 7	-0.000	-0.001	-0.006***	0.015***	-0.002***	-0.017***
ISCO 8	-0.000**	0.004**	-0.001**	0.006*	-0.000	-0.011***
ISCO 9	0.001***	0.003	0.001***	0.008***	-0.000**	-0.002
<i>reference: permanent contract</i>						
fixed contract	0.001***	0.002***	0.001***	-0.002	0.003***	-0.010***
<i>Firm effects</i>						
<i>reference: NACE C</i>						
NACE B	-0.000*	-0.000	-0.000*	0.000	-0.000*	-0.000***
NACE D+E	-0.000**	0.001***	0.000***	-0.004***	0.001***	-0.003**
NACE F	-0.001***	-0.009***	-0.007***	-0.038***	-0.007***	-0.037***
NACE G	-0.000***	0.003	-0.001***	-0.009**	-0.000**	-0.013***
NACE H+J	-0.002***	0.001	-0.007***	-0.001	-0.001	0.004
NACE I	-0.000**	0.001	-0.001***	-0.000	-0.000**	-0.002**
NACE K	-0.000**	-0.001***	-0.001***	-0.002***	-0.001***	-0.003***
NACE L+M+N	-0.000***	0.000	-0.004***	0.006***	-0.002***	0.003
NACE O	-0.000	0.001	-0.000	-0.003	-0.000	-0.008**
NACE P	0.001***	-0.005	0.002***	0.002	0.002***	0.015**
NACE Q	-0.000	-0.003*	-0.003***	-0.016***	0.001**	0.000
NACE R+S	0.001***	-0.002***	0.004***	-0.006***	0.002***	-0.003***
<i>reference: private ownership of a firm</i>						
public ownership of a firm	-0.001***	-0.004	-0.002***	0.033***	0.001***	-0.011
tenure: less than 2 years (share)	0.006***	0.036***	0.011***	0.012	0.002**	-0.005
age: 50 years or more (share)	-0.001	-0.030***	-0.012***	-0.060***	-0.017***	-0.024
tertiary education (share)	0.003**	-0.031***	0.053***	-0.081***	0.089***	-0.096***
female (share)	-0.000**	0.009	-0.001***	-0.031*	-0.000***	-0.008
constant		0.332***		0.240***		0.363***
total	0.017***	0.347***	0.099***	0.110***	0.122***	0.041***
Observations		153,375		153,375		153,375

Notes: Table represent the results of the decomposition of changes in log real hourly wages between 2006 and 2014 for the 10th, 50th and 90th percentile of wage distribution into composition and wage structure effect following Firpo, Fortin, and Lemieux (2018). Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. For the detailed explanation of ISCO and NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table B.14: Decomposition of total wage change into composition and wage structure effects: Hungary, quantiles

	10th Quantile		50th Quantile		90th Quantile	
	Composition	Wage Structure	Composition	Wage Structure	Composition	Wage Structure
<i>Individual effects</i>						
<i>reference: primary education</i>						
tertiary education	-0.001***	0.049***	0.019***	-0.002	0.030***	-0.019***
secondary education	0.000***	0.096***	-0.003***	-0.030***	0.001***	-0.008**
<i>reference: under 30 years old</i>						
30-49 years old	0.000	-0.005	0.001***	0.027***	0.005***	0.058***
50 years old or more	-0.000***	-0.012***	-0.001***	0.014***	-0.003***	0.016***
<i>reference: male</i>						
female	0.001***	0.011***	0.002***	0.002	0.006***	-0.013***
<i>reference: tenure of less than a year</i>						
tenure: 1-4 years	0.000	0.021***	0.000	-0.005***	0.000	-0.033***
tenure: 5-9 years	-0.002***	0.005***	-0.002***	-0.009***	-0.001***	-0.016***
tenure: 10 years or more	-0.004***	0.007***	-0.006***	-0.010***	-0.001***	-0.031***
<i>reference: ISCO 5</i>						
ISCO 1	-0.004***	-0.014***	-0.007***	0.007***	-0.015***	0.016***
ISCO 2	0.004***	-0.023***	0.013***	0.012***	0.003***	0.030***
ISCO 3	0.002***	-0.034***	0.003***	0.002	-0.000***	-0.016***
ISCO 4	-0.007***	-0.014***	-0.003***	0.008***	0.005***	-0.005***
ISCO 6	0.000	-0.000**	0.000	0.000***	0.000	0.000
ISCO 7	0.001***	-0.016***	-0.000	0.015***	-0.002***	-0.013***
ISCO 8	0.003***	-0.034***	0.001***	-0.002	-0.004***	-0.030***
ISCO 9	-0.004***	-0.043***	-0.007***	0.019***	-0.005***	-0.017***
<i>reference: permanent contract</i>						
fixed contract	0.000	0.003***	0.001***	0.000	-0.000	-0.003***
<i>Firm effects</i>						
<i>reference: NACE C</i>						
NACE B	-0.000*	0.000*	-0.000	-0.000	-0.000	-0.000
NACE D+E	-0.000**	-0.000	-0.000***	0.001*	-0.000***	-0.006***
NACE F	0.004***	0.014***	0.002***	-0.000	0.002***	-0.003***
NACE G	-0.000	0.025***	-0.000	-0.002**	-0.000	-0.004**
NACE H+J	-0.001***	0.002***	0.000***	-0.008***	0.000	0.002
NACE I	0.000***	0.005***	0.000***	-0.000	0.000***	-0.001***
NACE K	0.000***	-0.004***	0.002***	-0.005***	0.004***	0.000
NACE L+M+N	-0.002***	0.011***	-0.001***	-0.001*	-0.001***	-0.010***
NACE O	-0.002***	-0.025***	-0.001***	-0.036***	-0.001***	-0.049***
NACE P	0.004***	0.008***	0.005***	-0.009***	0.017***	-0.022***
NACE Q	0.000***	-0.003***	0.000***	-0.023***	0.001***	-0.004**
NACE R+S	0.002***	0.001**	0.003***	-0.004***	0.006***	-0.004***
<i>reference: private ownership of a firm</i>						
public ownership of a firm	-0.005***	-0.075***	-0.002***	-0.024***	0.003***	-0.028***
tenure: less than 2 years (share)	-0.026***	0.077***	-0.013***	0.048***	-0.004***	0.073***
age: 50 years or more (share)	-0.000***	-0.018***	0.002***	0.014***	0.003***	-0.076***
tertiary education (share)	0.022***	-0.091***	0.019***	0.011***	0.051***	-0.038***
female (share)	-0.003***	-0.002	0.005***	0.059***	0.004***	0.013
constant		0.478***		0.176***		0.409***
total	-0.016***	0.401***	0.031***	0.244***	0.104***	0.167***
Observations	1,446,198		1,446,198		1,446,198	

Notes: Table represent the results of the decomposition of changes in log real hourly wages between 2006 and 2014 for the 10th, 50th and 90th percentile of wage distribution into composition and wage structure effect following Firpo, Fortin, and Lemieux (2018). Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. For the detailed explanation of ISCO and NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table B.15: Decomposition of total wage change into composition and wage structure effects: Poland, quantiles

	10th Quantile		50th Quantile		90th Quantile	
	Composition	Wage Structure	Composition	Wage Structure	Composition	Wage Structure
<i>Individual effects</i>						
<i>reference: primary education</i>						
tertiary education	0.000	-0.012***	0.022***	-0.012***	0.044***	-0.060***
secondary education	-0.001**	-0.022***	-0.005***	-0.014***	-0.002***	-0.040***
<i>reference: under 30 years old</i>						
30-49 years old	0.000***	0.013***	-0.001***	-0.003	-0.002***	-0.002
50 years old or more	-0.003***	0.015***	0.007***	-0.008***	0.014***	-0.008***
<i>reference: male</i>						
female	-0.000***	0.025***	-0.001***	0.002*	-0.001***	-0.027***
<i>reference: tenure of less than a year</i>						
tenure: 1-4 years	-0.004***	-0.016***	-0.004***	-0.005***	-0.005***	-0.009***
tenure: 5-9 years	0.002***	-0.031***	0.002***	-0.011***	0.002***	-0.025***
tenure: 10 years or more	0.001***	-0.079***	0.001***	-0.023***	0.001***	0.015***
<i>reference: ISCO 5</i>						
ISCO 1	0.009***	-0.027***	0.012***	-0.007***	0.012***	0.009***
ISCO 2	0.009***	-0.059***	0.015***	-0.012***	0.006***	0.028***
ISCO 3	-0.006***	-0.029***	-0.005***	-0.008***	0.001***	0.003***
ISCO 4	-0.003***	-0.019***	-0.001***	-0.006***	0.001***	-0.002***
ISCO 6	0.000***	-0.000***	-0.000	-0.000**	-0.000**	0.000
ISCO 7	-0.004***	-0.015***	-0.002***	0.003**	0.002***	0.006***
ISCO 8	-0.001***	-0.026***	-0.000***	-0.004***	0.000***	0.004***
ISCO 9	-0.002***	-0.006***	0.003***	0.002***	0.002***	0.002***
<i>Firm effects</i>						
<i>reference: NACE C</i>						
NACE B	0.000***	0.001***	-0.001***	-0.000***	-0.001***	0.002***
NACE D+E	-0.000***	0.002***	0.001***	-0.003***	-0.000	-0.002***
NACE F	-0.000***	-0.004***	-0.000***	-0.004***	-0.000***	-0.001
NACE G	-0.000	-0.007***	-0.001***	-0.000	-0.001***	0.007***
NACE H+J	-0.001***	-0.003***	0.000***	-0.009***	0.001***	-0.004***
NACE I	-0.001***	0.001***	0.000**	-0.002***	-0.000***	0.000*
NACE K	-0.000***	-0.003***	0.000***	-0.007***	0.000	-0.005***
NACE L+M+N	-0.001***	0.007***	-0.000***	-0.000	-0.000***	-0.002***
NACE O	-0.000***	0.000	-0.000***	-0.013***	-0.000***	-0.016***
NACE P	0.001***	0.002**	0.000***	-0.012***	-0.000***	0.013***
NACE Q	-0.000***	-0.012***	0.002***	-0.013***	0.003***	-0.010***
NACE R+S	0.001***	0.000	0.001***	-0.002***	0.001***	-0.003***
<i>reference: private ownership of a firm</i>						
public ownership of a firm	-0.017***	-0.046***	-0.006***	0.025***	0.005***	0.037***
tenure: less than 2 years (share)	0.002***	0.060***	0.000***	-0.008***	-0.000***	-0.013***
age: 50 years or more (share)	-0.006***	0.037***	-0.008***	0.010***	-0.021***	0.058***
tertiary education (share)	0.062***	-0.104***	0.054***	-0.017***	0.069***	-0.036***
female (share)	-0.001***	0.112***	-0.002***	0.027***	-0.000**	0.006
constant		0.646***		0.401***		0.291***
total	0.035***	0.401***	0.083***	0.266***	0.133***	0.216***
Observations	1,347,783		1,347,783		1,347,783	

Notes: Table represent the results of the decomposition of changes in log real hourly wages between 2006 and 2014 for the 10th, 50th and 90th percentile of wage distribution into composition and wage structure effect following Firpo, Fortin, and Lemieux (2018). Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. For the detailed explanation of ISCO and NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table B.16: Decomposition of total wage change into composition and wage structure effects: Romania, quantiles

	10th Quantile		50th Quantile		90th Quantile	
	Composition	Wage Structure	Composition	Wage Structure	Composition	Wage Structure
<i>Individual effects</i>						
<i>reference: primary education</i>						
tertiary education	-0.000**	0.005***	0.001***	0.007	0.001***	0.011*
secondary education	-0.000	0.002	0.002***	0.013**	0.002***	-0.039***
<i>reference: under 30 years old</i>						
30-49 years old	-0.000	-0.007***	-0.000	-0.036***	-0.000	0.042***
50 years old or more	0.000	-0.001	0.004***	-0.020***	0.009***	-0.009**
<i>reference: male</i>						
female	-0.000*	0.004***	-0.000**	0.012***	-0.000**	-0.014***
<i>reference: tenure of less than a year</i>						
tenure: 1-4 years	-0.000*	-0.003*	-0.002***	0.003	-0.001***	-0.005
tenure: 5-9 years	0.002***	-0.007***	0.007***	-0.003	0.003***	-0.009**
tenure: 10 years or more	0.001***	-0.014***	0.007***	-0.011***	0.005***	-0.010*
<i>reference: ISCO 5</i>						
ISCO 1	0.002***	-0.011***	0.010***	-0.003***	0.026***	-0.041***
ISCO 2	0.014***	-0.038***	0.067***	-0.010***	0.084***	-0.111***
ISCO 3	-0.005***	-0.011***	-0.025***	-0.008***	-0.007***	-0.014***
ISCO 4	-0.001***	-0.010***	-0.003***	0.001	-0.000**	-0.012***
ISCO 6	-0.000**	-0.000**	0.000***	-0.000***	0.000***	-0.000***
ISCO 7	-0.004***	-0.017***	-0.011***	0.007***	-0.002***	-0.025***
ISCO 8	-0.005***	-0.014***	-0.011***	0.003**	-0.001***	-0.019***
ISCO 9	-0.001***	0.006***	-0.001***	0.002	0.001***	-0.020***
<i>reference: permanent contract</i>						
fixed contract	-0.000***	0.001***	-0.001***	0.003***	-0.002***	0.003***
<i>Firm effects</i>						
<i>reference: NACE C</i>						
NACE B	0.000	0.000	-0.006***	-0.002***	-0.010***	0.008***
NACE D+E	-0.000***	0.002***	0.001***	-0.007***	0.001***	0.002
NACE F	0.000***	0.004***	0.000***	-0.015***	0.000	-0.015***
NACE G	-0.001***	0.015***	-0.001***	-0.019***	-0.000***	-0.019***
NACE H+J	-0.003***	0.011***	-0.000	-0.014***	0.001	0.009***
NACE I	-0.002***	0.004***	-0.000**	-0.006***	0.000	-0.005***
NACE K	-0.000***	0.001***	0.000***	-0.006***	0.002***	-0.012***
NACE L+M+N	-0.003***	0.008***	-0.006***	-0.008***	0.001**	-0.016***
NACE O	0.001***	0.013***	0.002***	-0.022***	0.000	-0.019***
NACE P	0.001***	0.013***	0.002***	-0.036***	0.003***	-0.052***
NACE Q	-0.001***	0.005***	-0.001***	-0.019***	-0.002***	-0.015***
NACE R+S	-0.000**	0.001***	-0.000**	-0.008***	-0.000**	-0.011***
<i>reference: private ownership of a firm</i>						
public ownership of a firm	-0.004***	-0.033***	-0.010***	-0.003	-0.008***	-0.054***
tenure: less than 2 years (share)	0.010***	0.043***	0.014***	-0.006	-0.002**	0.005
age: 50 years or more (share)	0.002***	-0.013***	-0.004***	-0.008	-0.019***	0.029***
tertiary education (share)	0.001***	-0.037***	0.003***	0.049***	0.005***	0.192***
female (share)	-0.000	0.001	-0.001***	0.085***	0.000**	-0.026***
constant		0.669***		0.353***		0.511***
total	0.003***	0.591***	0.038***	0.268***	0.090***	0.239***
Observations	512,290		512,290		512,290	

Notes: Table represent the results of the decomposition of changes in log real hourly wages between 2006 and 2014 for the 10th, 50th and 90th percentile of wage distribution into composition and wage structure effect following Firpo, Fortin, and Lemieux (2018). Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. For the detailed explanation of ISCO and NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table B.17: Decomposition of total wage change into composition and wage structure effects: Slovakia, quantiles

	10th Quantile		50th Quantile		90th Quantile	
	Composition	Wage Structure	Composition	Wage Structure	Composition	Wage Structure
<i>Individual effects</i>						
<i>reference: primary education</i>						
tertiary education	0.028***	-0.010***	0.027***	0.014***	0.039***	-0.040***
secondary education	-0.026***	-0.046***	-0.010***	0.024***	0.003***	-0.009***
<i>reference: under 30 years old</i>						
30-49 years old	-0.000**	-0.024***	-0.001***	-0.000	-0.002***	0.047***
50 years old or more	0.001***	-0.018***	0.004***	-0.006***	0.007***	0.029***
<i>reference: male</i>						
female	-0.000***	0.007***	-0.000***	0.004**	-0.001***	-0.002
<i>reference: tenure of less than a year</i>						
tenure: 1-4 years	-0.007***	0.009***	-0.010***	-0.002	-0.010***	-0.014***
tenure: 5-9 years	0.004***	0.009***	0.006***	0.000	0.007***	-0.020***
tenure: 10 years or more	0.007***	0.015***	0.010***	0.004**	0.012***	-0.025***
<i>reference: ISCO 5</i>						
ISCO 1	0.002***	-0.004***	0.003***	-0.000	0.008***	-0.003
ISCO 2	0.024***	-0.005**	0.025***	-0.002	0.018***	0.015***
ISCO 3	-0.020***	-0.013***	-0.017***	-0.004***	-0.004***	-0.000
ISCO 4	0.004***	0.001	0.002***	-0.000	-0.001***	0.003***
ISCO 6	0.000	-0.000	0.000***	-0.000	0.000***	0.000
ISCO 7	-0.010***	-0.004***	-0.005***	0.001	0.016***	0.012***
ISCO 8	0.001***	-0.015***	0.000***	-0.012***	-0.001***	0.010***
ISCO 9	0.001***	-0.011***	0.001***	-0.001	0.001***	0.007***
<i>reference: permanent contract</i>						
fixed contract	-0.002***	0.006***	-0.003***	0.001	-0.003***	0.011***
<i>Firm effects</i>						
<i>reference: NACE C</i>						
NACE B	-0.000**	-0.000***	-0.000***	-0.000	0.001***	0.002***
NACE D+E	-0.000***	0.001***	0.000***	-0.002***	0.002***	-0.004***
NACE F	0.002***	-0.002***	0.003***	-0.001**	0.007***	0.005***
NACE G	-0.001***	0.001	-0.001***	0.002*	-0.002***	0.010***
NACE H+J	-0.001***	-0.016***	0.001***	-0.018***	-0.001***	0.009***
NACE I	0.001***	-0.002***	0.000***	-0.001***	0.000***	-0.001**
NACE K	-0.000***	-0.002***	0.001***	-0.000**	0.002***	-0.001**
NACE L+M+N	-0.003***	-0.009***	-0.003***	0.002**	-0.002***	0.001
NACE O	-0.003***	-0.011***	-0.001***	-0.004***	-0.006***	0.004**
NACE P	-0.003***	-0.020***	-0.002***	-0.002*	-0.011***	0.007***
NACE Q	0.002***	-0.005***	0.001***	0.002***	0.003***	0.011***
NACE R+S	0.002***	-0.004***	0.004***	-0.001***	0.006***	0.001**
<i>reference: private ownership of a firm</i>						
public ownership of a firm	0.001***	0.015***	0.001***	-0.004**	-0.001***	-0.010***
tenure: less than 2 years (share)	0.001*	-0.050***	-0.002***	-0.029***	0.016***	0.052***
age: 50 years or more (share)	-0.003***	-0.061***	-0.011***	-0.044***	-0.034***	0.076***
tertiary education (share)	0.010***	0.013***	0.020***	0.001	0.064***	-0.026***
female (share)	-0.001***	0.024***	-0.001***	-0.009**	-0.002***	0.143***
constant		0.780***		0.622***		0.135***
total	0.009***	0.550***	0.041***	0.534***	0.134***	0.436***
Observations	1,534,467		1,534,467		1,534,467	

Notes: Table represent the results of the decomposition of changes in log real hourly wages between 2006 and 2014 for the 10th, 50th and 90th percentile of wage distribution into composition and wage structure effect following Firpo, Fortin, and Lemieux (2018). Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. For the detailed explanation of ISCO and NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table B.18: Decomposition of overall change in variance of firm average log wages into composition and wage structure effects: Bulgaria, Czechia and Estonia

	Bulgaria		Czechia		Estonia	
	Composition	Wage Structure	Composition	Wage Structure	Composition	Wage Structure
<i>Firm effects</i>						
<i>reference: NACE C</i>						
NACE B	-0.001	-0.000	-0.000	0.000	0.000	0.001**
NACE D+E	0.001	-0.001	0.001**	-0.000	0.000	0.002**
NACE F	0.002***	0.004**	-0.000	-0.000	0.000	-0.001
NACE G	-0.002**	-0.004	-0.001**	-0.001	0.001	-0.001
NACE H+J	-0.001	0.017***	0.001***	0.004	0.000	0.008*
NACE I	-0.000	-0.002**	0.000*	0.002***	0.002**	-0.002
NACE K	0.002*	-0.006**	0.000	-0.002*	-0.001	0.005**
NACE L+M+N	0.001	0.006	0.001***	0.000	0.000	0.000
NACE O	0.001	0.004	0.000	-0.003	0.000	0.005
NACE P	0.002	0.014**	-0.000	-0.002	-0.000	0.002
NACE Q	-0.002*	0.009*	-0.000**	0.002	0.000	0.002
NACE R+S	-0.000	-0.002**	-0.000	-0.001*	-0.000	0.001
<i>reference: private ownership of a firm</i>						
public ownership of a firm	0.002	-0.007	-0.000	-0.004	0.002	0.009
tenure: less than 2 years (share)	-0.000	0.019	-0.000	0.026***	-0.001	0.030*
age: 50 years or more (share)	-0.014***	-0.008	0.001***	0.037***	-0.002	0.012
tertiary education (share)	0.031***	-0.025	0.007***	0.014	-0.010***	-0.018
female (share)	-0.001*	0.004	0.001	-0.028**	-0.000	0.024
constant		-0.058		-0.033		-0.065*
total	0.022***	-0.036***	0.011***	0.011*	-0.008*	0.015*
Observations		9,500		23,832		4,976

Notes: Table represent the results of the decomposition of changes in variance of firm average normalized log hourly wages between 2006 and 2014 into composition and wage structure effect following Firpo, Fortin, and Lemieux (2018). Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. For the detailed explanation of NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table B.19: Decomposition of overall change in variance of firm-average log wages into composition and wage structure effects: Latvia, Lithuania and Hungary

	Latvia		Lithuania		Hungary	
	Composition	Wage Structure	Composition	Wage Structure	Composition	Wage Structure
<i>Firm effects</i>						
<i>reference: NACE C</i>						
NACE B	-0.000	0.000*	-0.000	-0.000	0.000	-0.000
NACE D+E	0.002***	-0.004***	0.000	-0.001	-0.000	-0.002
NACE F	0.000	0.000	-0.001**	-0.005**	-0.001***	-0.005***
NACE G	-0.000	-0.004	0.000	0.001	0.000	-0.006***
NACE H+J	0.001**	0.003	0.002***	-0.003	0.001*	-0.000
NACE I	0.000	-0.003*	0.000	-0.001	-0.000	-0.002***
NACE K	-0.001	0.001	-0.000	-0.000	0.002***	0.002
NACE L+M+N	-0.000	-0.002	0.000	0.003	0.001	-0.003
NACE O	0.001	-0.005	0.000	-0.006***	-0.000	0.027***
NACE P	-0.008***	0.002	0.001	0.007	0.004***	0.014***
NACE Q	-0.001*	0.000	-0.001*	0.004	0.000	0.005**
NACE R+S	0.000	-0.001	0.000	0.000	0.001*	0.000
<i>reference: private ownership of a firm</i>						
public ownership of a firm	-0.004***	0.042***	0.001	0.003	0.002***	0.016
tenure: less than 2 years (share)	-0.003**	-0.003	-0.003**	-0.027***	0.007***	0.056***
age: 50 years or more (share)	-0.010***	0.032*	-0.007***	0.016	0.001***	0.016
tertiary education (share)	0.024***	0.004	0.032***	-0.035**	0.020***	-0.048***
female (share)	-0.001*	0.003	-0.000	0.006	0.002***	-0.022
constant		-0.148***		-0.017		-0.090***
total	-0.000	-0.083***	0.025***	-0.056***	0.038***	-0.043***
Observations		11,329		8,394		26,554

Notes: Table represent the results of the decomposition of changes in variance of firm average normalized log hourly wages between 2006 and 2014 into composition and wage structure effect following Firpo, Fortin, and Lemieux (2018). Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. For the detailed explanation of NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table B.20: Decomposition of overall change in variance of firm-average log wages into composition and wage structure effects: Poland, Romania and Slovakia

	Poland		Romania		Slovakia	
	Composition	Wage Structure	Composition	Wage Structure	Composition	Wage Structure
<i>Firm effects</i>						
<i>reference: NACE C</i>						
NACE B	-0.001	0.000	-0.004***	0.003***	0.000	0.001**
NACE D+E	0.000	-0.000	0.001*	0.000	0.001	-0.001
NACE F	0.000	0.002***	-0.000	-0.003	0.000	0.002*
NACE G	0.000	0.010***	0.001**	-0.006***	0.000	0.001
NACE H+J	0.000	0.004**	0.001**	0.005	0.001	0.007**
NACE I	0.000	0.000	0.001*	0.001	-0.000	0.000
NACE K	0.000	-0.001	0.001	-0.005*	0.000	-0.001
NACE L+M+N	0.000	0.001	0.005***	-0.011***	0.002***	0.002
NACE O	-0.000	0.001	-0.001*	-0.003	-0.001	0.004
NACE P	0.000	0.007**	0.001	-0.011***	-0.002**	0.007**
NACE Q	0.001***	0.005***	-0.001*	0.005*	0.000	0.001
NACE R+S	0.000	0.000	-0.000	-0.002**	-0.000	0.000
<i>reference: private ownership of a firm</i>						
public ownership of a firm	0.006***	0.006	0.000	-0.014	-0.001	-0.009
tenure: less than 2 years (share)	-0.001	-0.014**	-0.004***	0.006	0.005**	0.021*
age: 50 years or more (share)	-0.002**	0.018**	-0.010***	0.027***	-0.008***	0.035**
tertiary education (share)	0.024***	-0.035***	0.003**	0.065***	0.028***	-0.027*
female (share)	0.000	-0.041***	0.000	-0.048***	-0.000	0.012
constant		-0.019		-0.026		-0.091**
total	0.030***	-0.055***	-0.006*	-0.017**	0.026***	-0.035***
Observations		28,586		22,572		8,666

Notes: Table represent the results of the decomposition of changes in variance of firm average normalized log hourly wages between 2006 and 2014 into composition and wage structure effect following Firpo, Fortin, and Lemieux (2018). Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. For the detailed explanation of NACE codes see Table B.1.

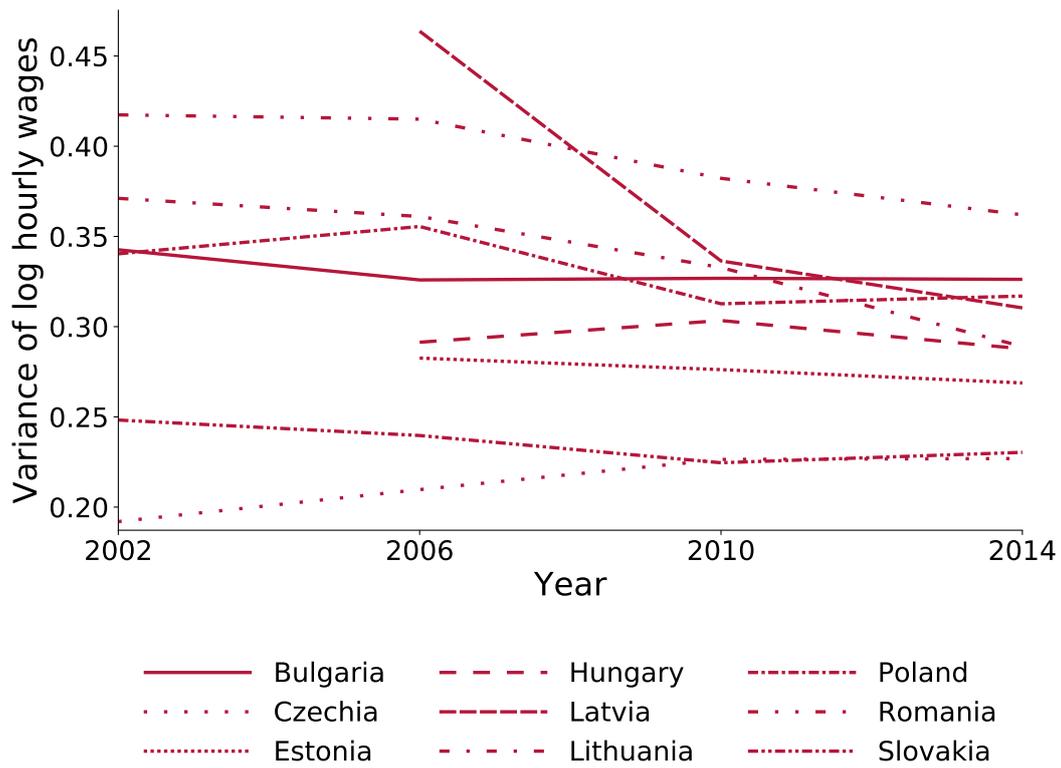
* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Appendix C Sensitivity tests

C.1 Results without trimming

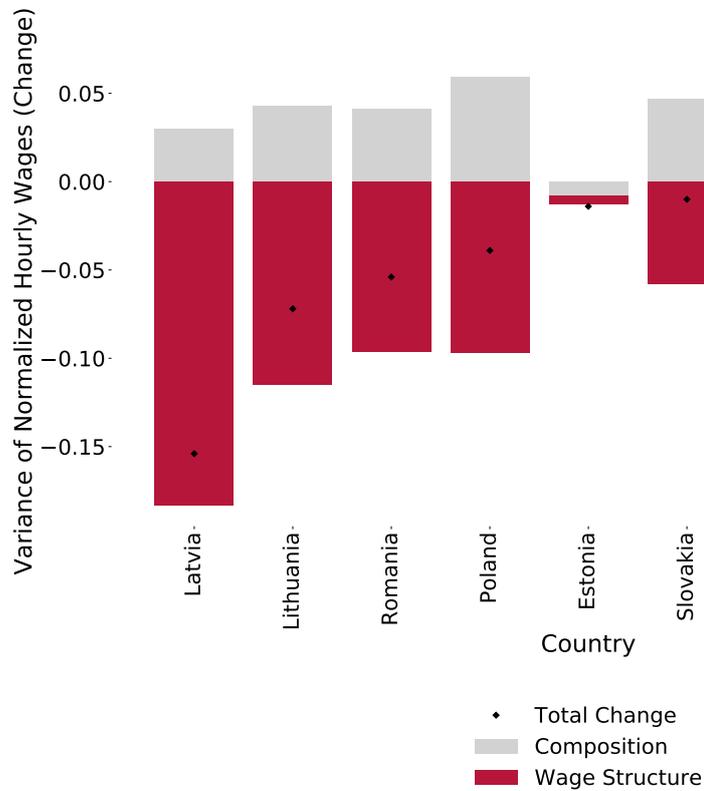
Figure C.1: Overall variance of log wages: 2002-2014, full sample



Note: Figure shows variance of log of normalised gross hourly wages. Sample includes top 0.1% and bottom 0.1%.

Data: European Structure of Earnings Survey.

Figure C.2: Decomposition of Change in Variance of Hourly Wages into Composition and Wage Structure Effects, full sample



Note: Figure shows the results of the decomposition of change in variance of hourly wages between 2006 and 2014 into composition and wage structure effects based on RIF regressions. Sample includes top 0.1% and bottom 0.1%.

Data: European Structure of Earnings Survey.

C.2 Results without public sector

Table C.1: Results of RIF regression: Bulgaria and Romania (excluding public sector)

	Bulgaria				Romania			
	2002	2006	2010	2014	2002	2006	2010	2014
<i>Individual effects</i>								
<i>reference: primary education</i>								
tertiary education	0.106***	0.057***	0.034***	0.000	0.406***	0.018***	0.043***	-0.065***
secondary education	-0.001	-0.024***	-0.020***	-0.019***	-0.016***	-0.003	-0.002	-0.001
<i>reference: under 30 years old</i>								
30-49 years old	0.009**	0.019***	0.064***	0.094***	0.017***	0.038***	0.073***	0.092***
50 years old or more	0.006	-0.003	0.042***	0.077***	0.084***	0.068***	0.074***	0.084***
<i>reference: male</i>								
female	-0.062***	-0.063***	-0.067***	-0.075***	-0.041***	-0.038***	-0.033***	-0.060***
<i>reference: tenure of less than a year</i>								
tenure: 1-4 years	0.004	0.024***	0.010**	0.003	0.002	-0.000	0.009**	-0.004
tenure: 5-9 years	0.033***	0.066***	0.031***	0.016***	-0.015**	0.027***	0.012**	0.011**
tenure: 10 years or more	0.079***	0.170***	0.093***	0.059***	-0.009	0.022***	0.026***	0.048***
<i>reference: ISCO 5</i>								
ISCO 1	0.679***	0.715***	0.788***	0.879***	0.710***	1.136***	0.847***	0.844***
ISCO 2	0.226***	0.339***	0.369***	0.421***	-0.140***	0.444***	0.197***	0.324***
ISCO 3	0.091***	0.028***	0.054***	0.004	-0.107***	0.033***	-0.063***	-0.060***
ISCO 4	-0.052***	-0.095***	-0.109***	-0.101***	-0.206***	-0.060***	-0.161***	-0.130***
ISCO 6	0.063	0.028	0.076**	0.908***	-0.123***	0.043	-0.065*	-0.035
ISCO 7	0.063***	0.019***	-0.019***	-0.034***	-0.152***	-0.065***	-0.098***	-0.088***
ISCO 8	0.026***	-0.029***	-0.056***	-0.095***	-0.168***	-0.083***	-0.129***	-0.127***
ISCO 9	0.001	0.002	0.024***	0.029***	-0.100***	0.001	0.018***	-0.042***
<i>reference: permanent contract</i>								
fixed contract	0.012**	0.025***	-0.005	0.063***	-0.020	-0.029**	0.025***	-0.036***
<i>Firm effects</i>								
<i>reference: NACE C</i>								
NACE B	0.134***	0.176***	0.128***	0.202***	0.126***	0.354***	0.235***	0.669***
NACE D+E	0.217***	0.217***	0.097***	0.040***	-0.021	0.056***	0.004	0.013
NACE F	-0.042***	-0.088***	-0.026***	-0.043***	-0.041***	0.025***	-0.011**	-0.064***
NACE G	-0.017***	-0.046***	-0.066***	-0.092***	-0.013**	0.013***	-0.038***	-0.062***
NACE H+J	0.078***	0.065***	0.194***	0.193***	0.221***	0.104***	0.055***	0.090***
NACE I	0.092***	-0.002	-0.046***	-0.113***	0.015	0.031***	-0.009	-0.012
NACE K	0.410***	0.204***	0.067***	0.005	0.477***	0.679***	0.426***	0.266***
NACE L+M+N	0.012	0.055***	0.117***	0.081***	-0.012	0.116***	0.015***	-0.017***
NACE P	0.055	-0.097***	-0.063**	-0.272***	-0.175***	-0.020	-0.275***	-0.285***
NACE Q	-0.328***	-0.574***	-0.167***	-0.181***	-0.437***	-0.195***	-0.290***	-0.351***
NACE R+S	-0.055***	-0.043***	-0.096***	-0.207***	0.063***	-0.061***	-0.101***	-0.139***
tenure: less than 2 years (share)	-0.035***	-0.044***	0.055***	0.072***	0.004	0.004	0.017***	0.064***
age: 50 years or more (share)	-0.649***	-0.381***	-0.355***	-0.422***	-0.497***	-0.299***	-0.170***	-0.190***
tertiary education (share)	0.412***	0.599***	0.470***	0.371***	1.076***	0.349***	0.678***	0.684***
female (share)	-0.170***	-0.081***	0.023***	-0.034***	-0.004	-0.013**	0.023***	-0.019***
constant	0.476***	0.324***	0.197***	0.247***	0.377***	0.241***	0.165***	0.146***
Observations	84,017	106,996	123,992	124,450	144,604	173,531	168,987	175,087
R-squared	0.207	0.254	0.274	0.279	0.284	0.290	0.288	0.312

Notes: Table shows the coefficients estimated by Recentered Influence Function regression (Firpo, Fortin, & Lemieux, 2018). The coefficients measure the impact of an infinitesimal shift to the right in the distribution of the regressors on variance of normalized log hourly wages in a given country in a given year. Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. Sample includes only private sector firms. For the detailed explanation of ISCO and NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table C.2: Results of RIF regression: Czechia and Slovakia (excluding public sector)

	Czechia				Slovakia			
	2002	2006	2010	2014	2002	2006	2010	2014
<i>Individual effects</i>								
<i>reference: primary education</i>								
tertiary education	0.247***	0.238***	0.229***	0.158***	0.089***	0.127***	0.123***	0.056***
secondary education	-0.046***	-0.050***	-0.048***	-0.059***	-0.056***	-0.111***	-0.087***	-0.090***
<i>reference: under 30 years old</i>								
30-49 years old	0.042***	0.086***	0.105***	0.108***	0.044***	0.076***	0.099***	0.104***
50 years old or more	0.048***	0.079***	0.092***	0.101***	0.054***	0.058***	0.090***	0.091***
<i>reference: male</i>								
female	-0.053***	-0.053***	-0.057***	-0.060***	-0.043***	-0.057***	-0.063***	-0.055***
<i>reference: tenure of less than a year</i>								
tenure: 1-4 years	-0.007***	-0.009***	-0.002	-0.017***	0.004	0.011***	-0.005***	-0.022***
tenure: 5-9 years	-0.001	0.015***	0.004***	-0.008***	0.032***	0.034***	0.018***	-0.010***
tenure: 10 years or more	-0.017***	0.007***	0.021***	-0.001	0.007	0.050***	0.018***	0.004**
<i>reference: ISCO 5</i>								
ISCO 1	0.335***	0.379***	0.455***	0.529***	0.480***	0.544***	0.518***	0.481***
ISCO 2	-0.172***	-0.074***	-0.008***	0.044***	-0.049***	-0.038***	0.039***	0.028***
ISCO 3	-0.111***	-0.106***	-0.110***	-0.127***	-0.157***	-0.096***	-0.070***	-0.090***
ISCO 4	-0.114***	-0.146***	-0.175***	-0.183***	-0.142***	-0.102***	-0.120***	-0.134***
ISCO 6	-0.036***	0.004	-0.092***	-0.105***	-0.058	0.036**	0.017	-0.056***
ISCO 7	-0.136***	-0.134***	-0.140***	-0.156***	-0.149***	-0.099***	-0.077***	-0.084***
ISCO 8	-0.151***	-0.153***	-0.150***	-0.154***	-0.146***	-0.122***	-0.105***	-0.099***
ISCO 9	-0.050***	-0.016***	0.004**	-0.008***	-0.024***	-0.003	0.008***	-0.001
<i>reference: permanent contract</i>								
fixed contract	0.014***	0.030***	0.008***	-0.014***	0.006	0.000	0.018***	0.002
<i>Firm effects</i>								
<i>reference: NACE C</i>								
NACE B	0.035***	0.057***	0.048***	0.054***	-0.013	-0.071***	0.024***	0.063***
NACE D+E	-0.003	0.031***	0.017***	-0.035***	0.047***	0.004	0.088***	0.096***
NACE F	-0.005***	-0.001	-0.003**	-0.051***	0.006	-0.015***	-0.009***	0.014***
NACE G	-0.029***	0.005***	-0.016***	-0.005***	0.069***	-0.027***	-0.012***	-0.024***
NACE H+J	0.040***	0.101***	0.119***	0.082***	0.033***	0.039***	0.094***	0.105***
NACE I	0.022***	0.012***	0.148***	0.082***	0.040***	0.049***	0.031***	0.008**
NACE K	0.032***	0.201***	0.177***	0.123***	0.019**	0.026***	0.005**	0.026***
NACE L+M+N	-0.006***	-0.011***	0.044***	0.033***	0.189***	0.032***	0.024***	0.050***
NACE P	-0.042***	-0.252***	-0.304***	-0.353***	-0.331***	-0.308***	-0.401***	-0.255***
NACE Q	-0.069***	-0.130***	-0.107***	-0.082***	0.111***	-0.069***	-0.070***	-0.027***
NACE R+S	-0.018***	0.011***	0.013***	-0.011***	-0.101***	-0.059***	-0.173***	-0.041***
tenure: less than 2 years (share)	0.018***	0.039***	0.069***	0.071***	0.024***	-0.031***	0.018***	0.030***
age: 50 years or more (share)	-0.206***	-0.169***	-0.117***	-0.081***	-0.394***	-0.295***	-0.202***	-0.180***
tertiary education (share)	0.164***	0.295***	0.164***	0.251***	0.223***	0.373***	0.312***	0.183***
female (share)	0.057***	0.107***	0.045***	0.022***	0.075***	0.031***	0.065***	0.048***
constant	0.304***	0.211***	0.207***	0.236***	0.346***	0.345***	0.230***	0.251***
Observations	600,224	1,007,549	1,152,883	1,242,217	247,517	441,569	503,585	572,365
R-squared	0.212	0.235	0.236	0.251	0.131	0.224	0.242	0.216

Notes: Table shows the coefficients estimated by Recentered Influence Function regression (Firpo, Fortin, & Lemieux, 2018). The coefficients measure the impact of an infinitesimal shift to the right in the distribution of the regressors on variance of normalized log hourly wages in a given country in a given year. Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. Sample includes only private sector firms. For the detailed explanation of ISCO and NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table C.3: Results of RIF regression: Estonia and Poland (excluding public sector)

	Estonia			Poland			
	2006	2010	2014	2002	2006	2010	2014
<i>Individual effects</i>							
<i>reference: primary education</i>							
tertiary education	0.129***	0.084***	0.112***	0.301***	0.267***	0.172***	0.126***
secondary education	-0.017***	-0.030***	-0.013***	-0.012***	-0.005	-0.016***	-0.020***
<i>reference: under 30 years old</i>							
30-49 years old	0.077***	0.091***	0.091***	0.098***	0.129***	0.131***	0.132***
50 years old or more	0.044***	0.068***	0.068***	0.152***	0.170***	0.150***	0.142***
<i>reference: male</i>							
female	-0.054***	-0.061***	-0.081***	-0.056***	-0.077***	-0.084***	-0.092***
<i>reference: tenure of less than a year</i>							
tenure: 1-4 years	-0.026***	-0.014***	-0.006	-0.028***	-0.008**	-0.008***	0.003
tenure: 5-9 years	0.006	-0.013**	0.005	-0.012***	0.003	0.000	-0.001
tenure: 10 years or more	-0.015**	-0.016***	-0.009*	-0.049***	-0.025***	0.011***	0.035***
<i>reference: ISCO 5</i>							
ISCO 1	0.461***	0.518***	0.369***	0.681***	0.521***	0.509***	0.482***
ISCO 2	0.184***	0.132***	0.134***	0.042***	-0.075***	-0.026***	-0.052***
ISCO 3	0.009	-0.071***	-0.025***	-0.083***	-0.164***	-0.120***	-0.133***
ISCO 4	-0.133***	-0.156***	-0.135***	-0.170***	-0.204***	-0.178***	-0.183***
ISCO 6	0.175	0.129**	-0.097*	-0.122***	-0.208***	0.033	-0.073***
ISCO 7	-0.017***	-0.063***	-0.028***	-0.068***	-0.118***	-0.080***	-0.091***
ISCO 8	-0.047***	-0.075***	-0.073***	-0.126***	-0.178***	-0.124***	-0.140***
ISCO 9	0.124***	0.061***	0.051***	-0.031***	-0.057***	-0.011***	-0.010***
<i>reference: permanent contract</i>							
fixed contract	0.048***	0.070***	0.083***				
<i>Firm effects</i>							
<i>reference: NACE C</i>							
NACE B	0.011	0.103***	0.094***	0.257***	0.423***	0.178***	0.278***
NACE D+E	-0.081***	-0.034**	-0.031**	0.070***	0.040***	0.018***	0.071***
NACE F	0.034***	0.017***	0.006	-0.030***	-0.038***	-0.016***	-0.017***
NACE G	0.055***	0.018***	0.048***	-0.043***	-0.060***	-0.035***	-0.006**
NACE H+J	0.038***	0.106***	0.110***	0.087***	0.049***	0.052***	0.054***
NACE I	0.065***	0.031***	0.028***	0.026***	-0.008	-0.019***	-0.016***
NACE K	0.172***	0.159***	0.187***	-0.122***	0.062***	0.020***	-0.013***
NACE L+M+N	0.113***	0.037***	0.085***	0.006	0.017***	0.032***	0.024***
NACE P	-0.218***	-0.248***	-0.081***	-0.096***	-0.393***	-0.336***	-0.261***
NACE Q	0.012	0.013	0.033***	-0.260***	-0.205***	-0.126***	-0.108***
NACE R+S	-0.001	0.016	0.013	-0.031***	0.013	0.040***	0.044***
tenure: less than 2 years (share)	-0.044***	0.053***	0.022***	0.078***	0.050***	0.039***	0.038***
age: 50 years or more (share)	-0.116***	-0.106***	-0.058***	-0.297***	-0.166***	-0.151***	-0.089***
tertiary education (share)	0.089***	0.149***	0.070***	0.758***	0.511***	0.434***	0.367***
female (share)	-0.032***	0.051***	0.054***	0.105***	0.040***	0.032***	0.000
constant	0.249***	0.193***	0.162***	0.195***	0.227***	0.139***	0.138***
Observations	76,863	66,752	69,999	293,325	316,821	336,871	404,022
R-squared	0.190	0.225	0.165	0.269	0.245	0.252	0.227

Notes: Table shows the coefficients estimated by Recentered Influence Function regression (Firpo, Fortin, & Lemieux, 2018). The coefficients measure the impact of an infinitesimal shift to the right in the distribution of the regressors on variance of normalized log hourly wages in a given country in a given year. Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. Sample includes only private sector firms. For the detailed explanation of ISCO and NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table C.4: Results of RIF regression: Lithuania and Latvia (excluding public sector)

	Lithuania				Latvia		
	2002	2006	2010	2014	2006	2010	2014
<i>Individual effects</i>							
<i>reference: primary education</i>							
tertiary education	0.178***	0.174***	0.131***	0.038**	0.103***	0.055***	0.054***
secondary education	0.005	0.003	0.009	-0.006	-0.029***	-0.044***	-0.024***
<i>reference: under 30 years old</i>							
30-49 years old	0.017***	0.059***	0.045***	0.090***	0.079***	0.108***	0.117***
50 years old or more	0.004	0.033***	0.036***	0.085***	0.038***	0.067***	0.091***
<i>reference: male</i>							
female	-0.078***	-0.079***	-0.089***	-0.099***	-0.091***	-0.093***	-0.073***
<i>reference: tenure of less than a year</i>							
tenure: 1-4 years	0.007	0.023***	0.044***	-0.013*	0.014***	0.008**	0.017***
tenure: 5-9 years	0.051***	0.083***	0.049***	0.010	0.075***	0.030***	0.032***
tenure: 10 years or more	0.034***	0.099***	0.127***	0.037***	0.083***	0.033***	0.005
<i>reference: ISCO 5</i>							
ISCO 1	0.451***	0.323***	0.356***	0.424***	0.378***	0.446***	0.418***
ISCO 2	0.092***	-0.021**	0.076***	0.093***	0.142***	0.155***	0.213***
ISCO 3	0.024**	-0.032***	-0.036**	-0.030**	-0.053***	-0.014**	-0.049***
ISCO 4	-0.086***	-0.157***	-0.145***	-0.125***	-0.135***	-0.099***	-0.122***
ISCO 6	0.105	0.079	0.032	-0.143	0.055**	0.079**	0.097**
ISCO 7	0.013	-0.023***	-0.011	-0.033***	-0.012*	0.030***	0.015*
ISCO 8	0.010	-0.067***	-0.065***	-0.097***	-0.024***	0.021***	-0.002
ISCO 9	0.006	0.010	0.030*	-0.010	0.015**	0.036***	0.034***
<i>reference: permanent contract</i>							
fixed contract	-0.027***	0.063***	0.002	0.001	0.077***	0.047***	0.021**
<i>Firm effects</i>							
<i>reference: NACE C</i>							
NACE B	0.105***	0.046*	0.010	-0.015	-0.028	-0.050***	-0.006
NACE D+E	-0.023	-0.082***	0.020	0.018	0.095***	-0.020	-0.054***
NACE F	-0.017**	0.104***	-0.072***	-0.069***	-0.009	-0.039***	-0.040***
NACE G	-0.007	-0.007	0.001	-0.053***	0.027***	-0.015***	-0.008
NACE H+J	0.072***	0.068***	0.015	0.028***	0.062***	0.084***	0.090***
NACE I	0.016	0.035***	0.025	-0.004	0.063***	0.038***	0.001
NACE K	0.255***	0.293***	0.248***	0.245***	0.272***	0.200***	0.276***
NACE L+M+N	-0.035***	-0.017*	0.009	-0.001	0.099***	0.001	0.021**
NACE P	-0.071**	0.057	-0.185**	-0.207***	-0.111***	-0.208***	-0.293***
NACE Q	-0.114***	-0.009	-0.065**	0.098***	0.022	-0.005	0.087***
NACE R+S	0.030*	-0.025*	0.010	-0.020	0.036***	-0.002	0.119***
tenure: less than 2 years (share)	-0.047***	0.040***	0.037**	-0.021*	0.007	0.075***	0.036***
age: 50 years or more (share)	-0.299***	-0.107***	-0.076***	-0.126***	-0.308***	-0.299***	-0.189***
tertiary education (share)	0.435***	0.264***	0.254***	0.152***	0.377***	0.381***	0.281***
female (share)	-0.076***	-0.018*	-0.037**	0.007	-0.055***	0.009	-0.000
constant	0.318***	0.212***	0.170***	0.233***	0.413***	0.205***	0.166***
Observations	67,576	71,351	18,407	24,961	151,134	108,080	58,685
R-squared	0.193	0.152	0.170	0.185	0.135	0.203	0.180

Notes: Table shows the coefficients estimated by Recentered Influence Function regression (Firpo, Fortin, & Lemieux, 2018). The coefficients measure the impact of an infinitesimal shift to the right in the distribution of the regressors on variance of normalized log hourly wages in a given country in a given year. Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. Sample includes only private sector firms. For the detailed explanation of ISCO and NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table C.5: Results of RIF regression: Hungary (excluding public sector)

	Hungary		
	2006	2010	2014
<i>Individual effects</i>			
<i>reference: primary education</i>			
tertiary education	0.332***	0.321***	0.230***
secondary education	-0.004	-0.012***	-0.028***
<i>reference: under 30 years old</i>			
30-49 years old	0.100***	0.108***	0.097***
50 years old or more	0.086***	0.094***	0.101***
<i>reference: male</i>			
female	-0.075***	-0.072***	-0.063***
<i>reference: tenure of less than a year</i>			
tenure: 1-4 years	-0.004	0.004	-0.026***
tenure: 5-9 years	0.029***	0.016***	-0.010**
tenure: 10 years or more	0.034***	0.046***	0.005
<i>reference: ISCO 5</i>			
ISCO 1	0.364***	0.373***	0.458***
ISCO 2	0.100***	0.128***	0.127***
ISCO 3	-0.098***	-0.091***	-0.076***
ISCO 4	-0.150***	-0.117***	-0.117***
ISCO 6	-0.003	-0.016	0.000
ISCO 7	-0.104***	-0.081***	-0.054***
ISCO 8	-0.148***	-0.080***	-0.090***
ISCO 9	-0.004	0.065***	0.013
<i>reference: permanent contract</i>			
fixed contract	0.001	0.023***	0.033***
<i>Firm effects</i>			
<i>reference: NACE C</i>			
NACE B	0.065***	0.025	0.021
NACE D+E	0.054***	0.028***	0.006
NACE F	0.016***	-0.018***	-0.013**
NACE G	-0.003	-0.063***	-0.021***
NACE H+J	0.107***	0.050***	0.031***
NACE I	-0.031***	-0.038***	-0.022***
NACE K	0.209***	0.206***	0.148***
NACE L+M+N	-0.017***	0.019***	-0.016***
NACE P	-0.528***	-0.497***	-0.426***
NACE Q	-0.130***	-0.142***	-0.062***
NACE R+S	-0.079***	-0.144***	-0.069***
tenure: less than 2 years (share)	0.044***	0.049***	0.047***
age: 50 years or more (share)	-0.259***	-0.191***	-0.145***
tertiary education (share)	0.446***	0.349***	0.306***
female (share)	-0.016**	0.048***	0.009
constant	0.260***	0.175***	0.174***
Observations	124,960	122,372	136,216
R-squared	0.288	0.276	0.284

Notes: Table shows the coefficients estimated by Recentered Influence Function regression (Firpo, Fortin, & Lemieux, 2018). The coefficients measure the impact of an infinitesimal shift to the right in the distribution of the regressors on variance of normalized log hourly wages in a given country in a given year. Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. Sample includes only private sector firms. For the detailed explanation of ISCO and NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table C.6: Decomposition of overall change in variance of log wages into composition and wage structure effects: Bulgaria, Czechia and Estonia (excluding public sector)

	Bulgaria		Czechia		Estonia	
	Composition	Wage Structure	Composition	Wage Structure	Composition	Wage Structure
<i>Individual effects</i>						
<i>reference: primary education</i>						
tertiary education	0.005***	-0.016***	0.006***	-0.011***	-0.001***	-0.003
secondary education	0.001***	0.003	0.000***	-0.007**	0.000**	0.003
<i>reference: under 30 years old</i>						
30-49 years old	0.000	0.039***	0.003***	0.012***	-0.000**	0.007*
50 years old or more	-0.000	0.023***	-0.001***	0.006***	0.002***	0.008***
<i>reference: male</i>						
female	-0.001***	-0.006*	-0.001***	-0.003	0.002***	-0.014***
<i>reference: tenure of less than a year</i>						
tenure: 1-4 years	-0.001***	-0.008***	0.000**	-0.003**	0.003***	0.007**
tenure: 5-9 years	0.005***	-0.011***	0.000***	-0.005***	-0.000	-0.000
tenure: 10 years or more	0.002***	-0.015***	0.000	-0.002	-0.001	0.001
<i>reference: ISCO 5</i>						
ISCO 1	0.004***	0.008***	-0.009***	0.007***	0.002***	-0.006***
ISCO 2	0.014***	0.009***	-0.001***	0.011***	0.004***	-0.004**
ISCO 3	0.000**	-0.002*	0.001***	-0.004***	0.000	-0.005***
ISCO 4	-0.001***	-0.001	-0.001***	-0.003***	0.000**	-0.000
ISCO 6	0.000**	0.003***	0.000	-0.000**	0.000**	-0.000***
ISCO 7	-0.001***	-0.008***	0.007***	-0.004***	0.000*	-0.002
ISCO 8	0.001***	-0.010***	-0.003***	-0.000	0.002***	-0.004**
ISCO 9	-0.000	0.004***	-0.000***	0.001	0.001***	-0.009***
<i>reference: permanent contract</i>						
fixed contract	-0.001***	0.003***	0.001***	-0.010***	-0.001***	0.001**
<i>Firm effects</i>						
<i>reference: NACE C</i>						
NACE B	-0.001***	0.000	-0.000***	-0.000	0.000	0.001***
NACE D+E	0.002***	-0.004***	0.000***	-0.001***	-0.000*	0.001**
NACE F	0.003***	0.004***	0.000	-0.003***	0.000**	-0.002**
NACE G	-0.001***	-0.008***	-0.000	-0.002	0.002***	-0.001
NACE H+J	0.003***	0.013***	0.004***	-0.002***	0.001***	0.008***
NACE I	-0.000	-0.006***	0.000	0.002***	0.001***	-0.002***
NACE K	0.003***	-0.008***	0.001***	-0.002***	-0.002***	0.000
NACE L+M+N	0.002***	0.003*	-0.000*	0.005***	-0.000	-0.003*
NACE P	-0.000	-0.001***	0.001***	-0.001***	0.000	0.001***
NACE Q	-0.008***	0.007***	-0.001***	0.001***	0.000	0.001
NACE R+S	-0.000	-0.004***	0.000	-0.000*	-0.000	0.000
tenure: less than 2 years (share)	0.004***	0.058***	-0.001***	0.013***	0.000	0.028***
age: 50 years or more (share)	-0.011***	-0.012***	0.003***	0.022***	-0.005***	0.019***
tertiary education (share)	0.054***	-0.064***	0.007***	-0.006*	-0.004***	-0.003
female (share)	-0.001***	0.021***	0.002***	-0.034***	0.001***	0.042***
constant		-0.077***		0.026**		-0.087***
total	0.078***	-0.062***	0.019***	0.002	0.007***	-0.019***
Observations		231,446		2,249,766		146,862

Notes: Table represent the results of the decomposition of changes in variance of normalized log hourly wages between 2006 and 2014 into composition and wage structure effect following Firpo, Fortin, and Lemieux (2018). Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. Sample includes only private sector firms. For the detailed explanation of ISCO and NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table C.7: Decomposition of overall change in variance of log wages into composition and wage structure effects: Latvia, Lithuania and Hungary (excluding public sector)

	Latvia		Lithuania		Hungary	
	Composition	Wage Structure	Composition	Wage Structure	Composition	Wage Structure
<i>Individual effects</i>						
<i>reference: primary education</i>						
tertiary education	0.006***	-0.015***	0.028***	-0.052***	0.018***	-0.022***
secondary education	0.002***	0.002	-0.000	-0.005	0.000	-0.015***
<i>reference: under 30 years old</i>						
30-49 years old	-0.001***	0.018***	-0.003***	0.015***	0.004***	-0.002
50 years old or more	0.001***	0.016***	0.002***	0.015***	-0.000***	0.004**
<i>reference: male</i>						
female	0.001***	0.008*	-0.002***	-0.009	0.002***	0.005**
<i>reference: tenure of less than a year</i>						
tenure: 1-4 years	-0.001***	0.001	-0.001***	-0.014***	0.000	-0.009***
tenure: 5-9 years	0.001***	-0.008***	0.004***	-0.014***	0.000***	-0.008***
tenure: 10 years or more	0.005***	-0.013***	0.005***	-0.010***	0.000	-0.006***
<i>reference: ISCO 5</i>						
ISCO 1	-0.002***	0.004	-0.005***	0.010***	-0.007***	0.006***
ISCO 2	0.001***	0.007***	-0.000**	0.019***	0.003***	0.003
ISCO 3	0.000**	0.000	-0.001***	0.000	-0.001***	0.004**
ISCO 4	0.001***	0.001	0.001***	0.001*	0.003***	0.002***
ISCO 6	-0.000***	0.000	-0.000*	-0.000**	0.000	0.000
ISCO 7	0.000*	0.005**	0.001***	-0.002	-0.001***	0.011***
ISCO 8	-0.000**	0.003*	-0.000	-0.005**	-0.004***	0.012***
ISCO 9	0.000**	0.002	0.000	-0.002*	-0.000	0.003*
<i>reference: permanent contract</i>						
fixed contract	0.001***	-0.003***	0.002***	-0.004***	-0.000	0.002***
<i>Firm effects</i>						
<i>reference: NACE C</i>						
NACE B	-0.000*	0.000	-0.000	-0.000*	0.000*	-0.000*
NACE D+E	0.001***	-0.002***	-0.000**	0.001***	-0.000***	-0.001***
NACE F	0.000	-0.004***	-0.004***	-0.021***	-0.000***	-0.002***
NACE G	-0.000***	-0.008***	-0.000	-0.010***	0.000	-0.003***
NACE H+J	0.005***	0.004**	0.003***	-0.005***	0.004***	-0.007***
NACE I	0.000***	-0.003***	0.000**	-0.002**	-0.000	0.000
NACE K	-0.001***	0.000	-0.001***	-0.001	0.003***	-0.003***
NACE L+M+N	0.000**	-0.007***	-0.001*	0.002	-0.000***	0.000
NACE P	-0.000**	-0.002***	0.000	-0.001***	0.004***	0.002***
NACE Q	0.000	0.002**	-0.000	0.003**	0.000***	0.001***
NACE R+S	-0.001***	0.001	0.000*	0.000	0.001***	0.000
tenure: less than 2 years (share)	-0.001	0.015*	-0.004***	-0.031***	-0.000***	0.002
age: 50 years or more (share)	-0.010***	0.035***	-0.007***	-0.005	0.001***	0.028***
tertiary education (share)	0.022***	-0.029***	0.042***	-0.042***	0.026***	-0.034***
female (share)	0.001***	0.024***	-0.000*	0.011	0.000**	0.010**
constant		-0.247***		0.020		-0.086***
total	0.035***	-0.192***	0.059***	-0.139***	0.055***	-0.104***
Observations		209,819		96,312		261,176

Notes: Table represent the results of the decomposition of changes in variance of normalized log hourly wages between 2006 and 2014 into composition and wage structure effect following Firpo, Fortin, and Lemieux (2018). Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. Sample includes only private sector firms. For the detailed explanation of ISCO and NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

Table C.8: Decomposition of overall change in variance of log wages into composition and wage structure effects: Poland, Romania and Slovakia (excluding public sector)

	Poland		Romania		Slovakia	
	Composition	Wage Structure	Composition	Wage Structure	Composition	Wage Structure
<i>Individual effects</i>						
<i>reference: primary education</i>						
tertiary education	0.029***	-0.042***	0.000**	-0.019***	0.008***	-0.016***
secondary education	0.001**	-0.010***	-0.000	0.002	0.007***	0.014***
<i>reference: under 30 years old</i>						
30-49 years old	0.004***	0.001	0.000	0.033***	0.000***	0.015***
50 years old or more	0.004***	-0.006***	0.002***	0.003*	0.002***	0.009***
<i>reference: male</i>						
female	-0.000	-0.006***	0.000**	-0.009***	0.000**	0.001
<i>reference: tenure of less than a year</i>						
tenure: 1-4 years	0.001***	0.004***	0.000	-0.002	-0.001***	-0.011***
tenure: 5-9 years	0.000	-0.001	0.002***	-0.004	0.001***	-0.011***
tenure: 10 years or more	-0.000***	0.016***	-0.000	0.005**	0.002***	-0.012***
<i>reference: ISCO 5</i>						
ISCO 1	0.008***	-0.003***	0.018***	-0.017***	0.001***	-0.004***
ISCO 2	-0.004***	0.004***	0.019***	-0.015***	-0.002***	0.008***
ISCO 3	0.002***	0.003***	0.000***	-0.008***	0.002***	0.001
ISCO 4	0.003***	0.002***	-0.000***	-0.004***	-0.002***	-0.003***
ISCO 6	-0.000***	0.000***	-0.000**	-0.000***	-0.000	-0.000*
ISCO 7	0.004***	0.005***	0.003***	-0.005***	0.008***	0.003**
ISCO 8	0.001***	0.006***	0.005***	-0.007***	-0.002***	0.005***
ISCO 9	0.001***	0.004***	0.000	-0.008***	0.000	0.000
<i>Firm effects</i>						
<i>reference: NACE C</i>						
NACE B	0.002***	-0.001***	-0.005***	0.003***	0.000***	0.001***
NACE D+E	0.001***	0.001***	0.000**	-0.001*	0.000	0.002***
NACE F	0.000	0.002***	-0.000***	-0.009***	0.000***	0.001***
NACE G	0.000***	0.012***	0.000**	-0.013***	-0.000***	0.001
NACE H+J	0.002***	0.000	0.004***	-0.001	0.002***	0.006***
NACE I	-0.000	-0.000	0.000***	-0.001***	-0.000***	-0.001***
NACE K	0.000	-0.003***	0.005***	-0.008***	0.000*	-0.000
NACE L+M+N	0.000***	0.001	0.005***	-0.016***	0.001***	0.002*
NACE P	-0.003***	0.003***	-0.000	-0.001***	-0.000***	0.001***
NACE Q	0.000***	0.002***	-0.001***	-0.002***	-0.000***	0.002***
NACE R+S	-0.000	0.000**	0.000	-0.002***	0.001***	0.000
tenure: less than 2 years (share)	-0.001***	-0.004*	-0.000	0.025***	0.002***	0.021***
age: 50 years or more (share)	-0.004***	0.017***	-0.011***	0.022***	-0.008***	0.031***
tertiary education (share)	0.055***	-0.043***	0.006***	0.082***	0.024***	-0.042***
female (share)	0.000**	-0.016***	0.000	-0.003	-0.000***	0.007*
<i>reference: permanent contract</i>						
fixed contract			-0.001**	-0.000	0.000	0.000
constant		-0.089***		-0.095***		-0.094***
total	0.104***	-0.143***	0.054***	-0.075***	0.048***	-0.061***
Observations		720,843		348,618		1,013,934

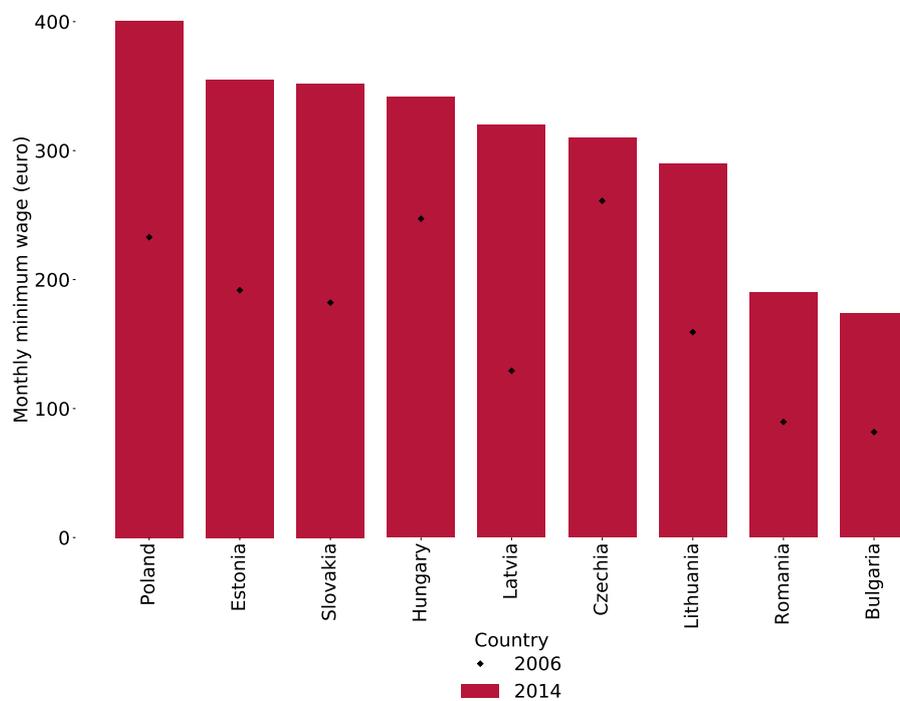
Notes: Table represent the results of the decomposition of changes in variance of normalized log hourly wages between 2006 and 2014 into composition and wage structure effect following Firpo, Fortin, and Lemieux (2018). Trimmed sample does not include the top 0.1% and the bottom 0.1% hourly wages. Sample includes only private sector firms. For the detailed explanation of ISCO and NACE codes see Table B.1.

* p<0.1, ** p<0.05, ***p<0.01

Data: European Structure of Earnings Survey.

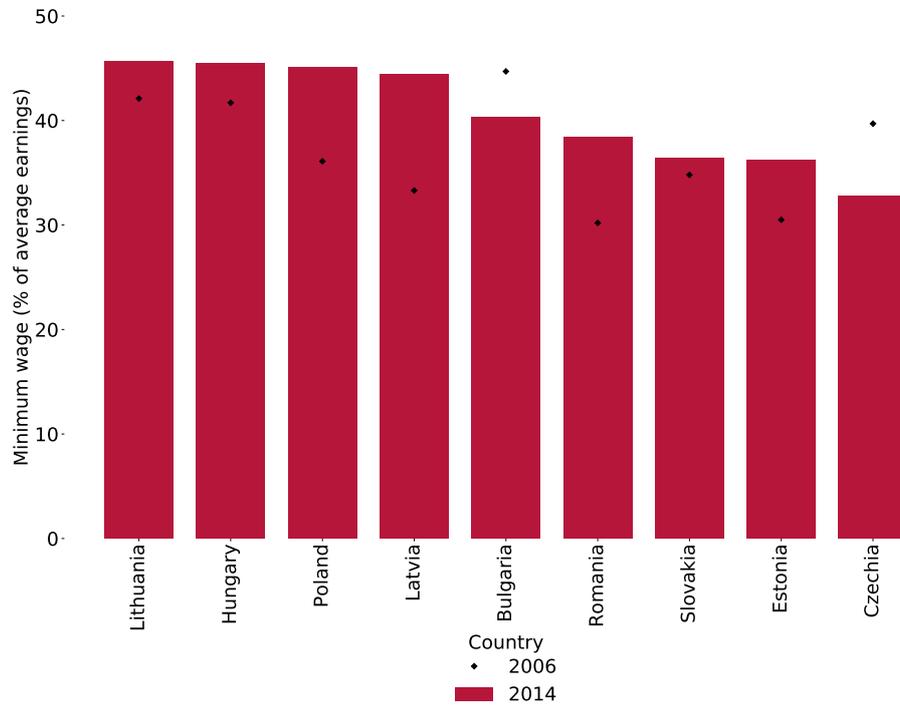
Appendix D Institutional and structural changes in CEE

Figure D.1: Monthly minimum wage (EUR)



Notes: Graph shows national monthly minimum wages in 2006 and 2014 expressed in euro.
Data: Eurostat

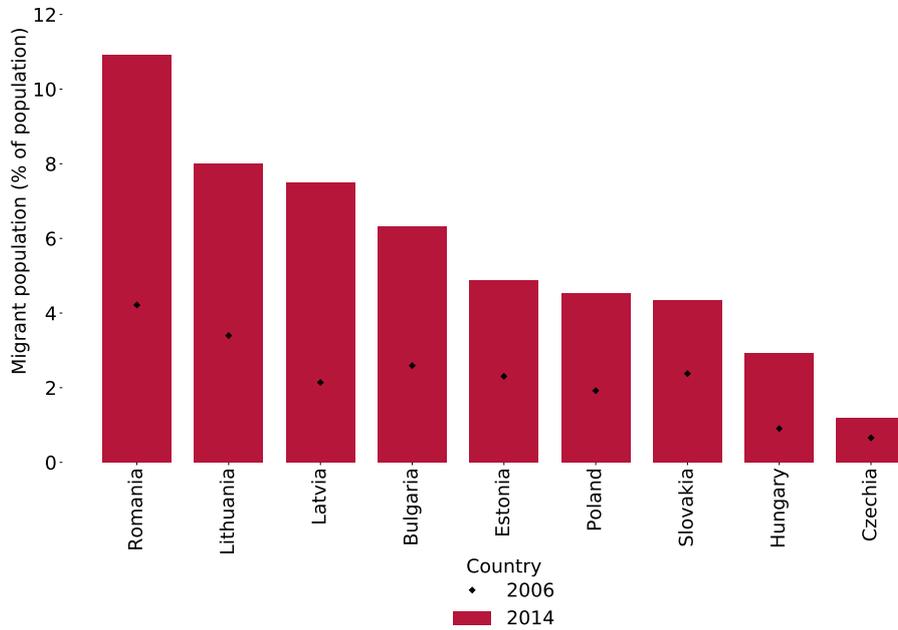
Figure D.2: Monthly minimum wage (% of average monthly earnings)



Notes: Graph shows national monthly minimum wages as a proportion of average monthly earnings (%).

Data: Eurostat

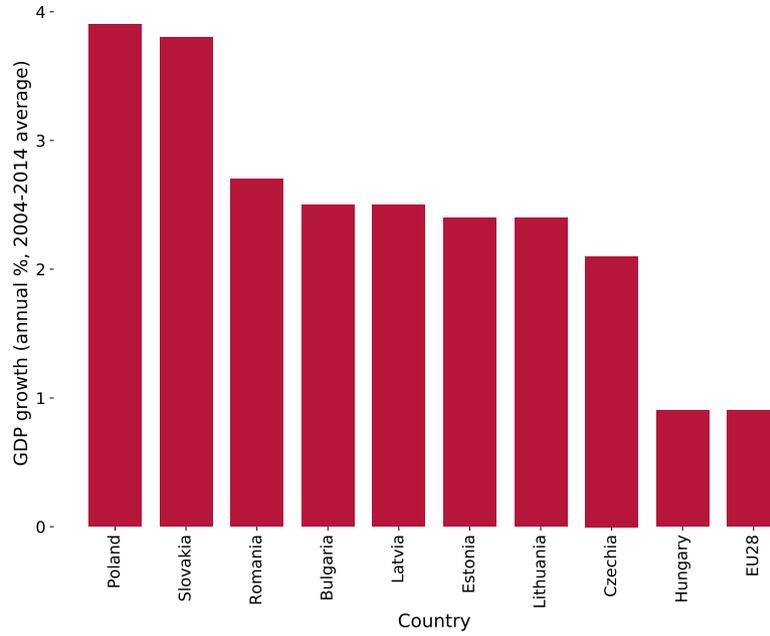
Figure D.3: Total emigrant population (% of population)



Notes: Graph shows the number of citizens living in other EU member states as a share of all citizens of a given country. Data is missing on foreign residents in Croatia, Cyprus, Estonia, France, Greece, Lithuania, Luxembourg, Malta, and Romania. Graphs shows data for 2006 and 2014, some countries did not report foreign population in these exact years. In such cases we used data from the next year available to 2006 and 2014.

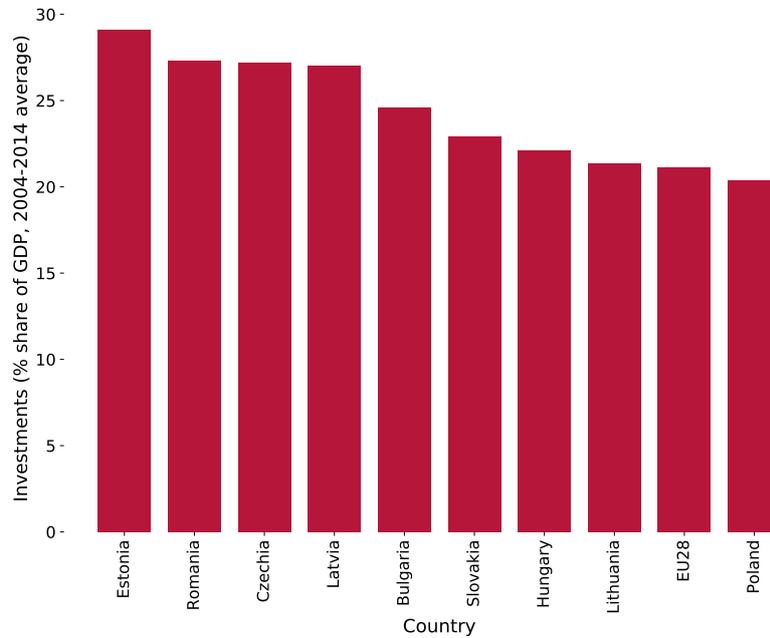
Data: Eurostat

Figure D.4: GDP growth



Notes: Graph shows average annual GDP growth (% , 2004-2014).
Data: Eurostat

Figure D.5: Investment rate



Notes: Graph shows investments as proportion of GDP (% , 2004-2014 average).
Data: Eurostat

Appendix E Comparison of ESES descriptive statistics with OECD data

European Structure of Earnings Survey is the largest harmonised linked employer-employee dataset in Europe and the main source of earnings statistics for Eurostat. However, the harmonisation of the study has some limitations. First, we restrict our sample to firms with 10 or more employees, as some countries have not surveyed smaller firms. Second, we exclude three countries from analysis of 2002 data because they did not survey firms in the non-market services sector. Given the limitations of the 2002 data, we focused on the period 2006-2014 and provided only descriptive statistics for 2002.

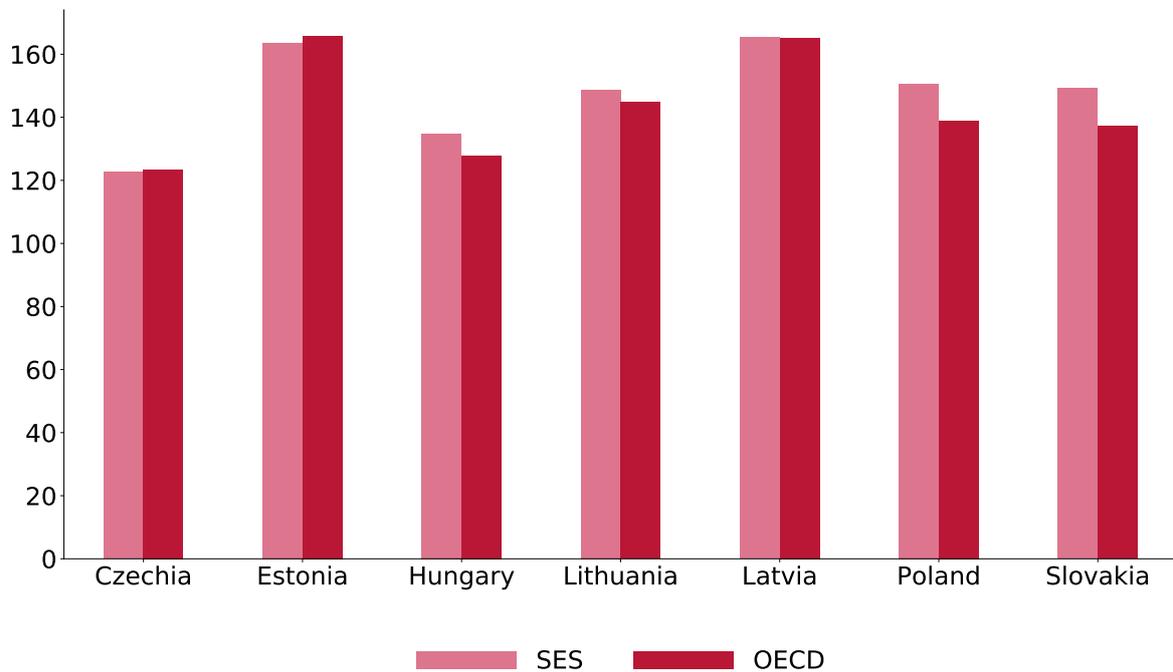
Moreover, Table 1 shows that the number of observations varies considerably depending on country. This partly reflects differences in the populations of individual countries (the population of Latvia is almost 20 times smaller than that of Poland), but also differences in sampling procedures. In case of few countries we see significant changes in the number of observations across waves of the study. The most notable example is Lithuania, which changed its sampling procedures in 2010 and started to collect less observations within one firm. These changes in sampling procedures should not affect the results of our study because we use weights provided by Eurostat that take into account these differences.

We compare descriptive statistics obtained from our sample with data from an external source (OECD) to address data quality concerns. First, we show statistics related to changes in our main variable, earnings. Unfortunately, the OECD does not provide comparable statistics about hourly earnings (it shows hourly wages expressed in index form but does not indicate whether it is nominal or real terms). Hence, we compare growth of average nominal annual wages between 2006 and 2014, the main years used in the study (see Table E.1). OECD statistics are obtained by dividing the national-accounts-based total wage bill by the average number of employees in the total economy, which is then multiplied by the ratio of the average usual weekly hours per full-time employee to the average usually weekly hours for all employees. This means that the OECD statistics may still differ from our results because we exclude small firms. Nevertheless, our statistics are very similar to those published by

the OECD. Next, we compare decile dispersion ratios of wages with those calculated by the OECD. Again, we find that our results are in line with OECD statistics (see Table E.2).

Finally, we compare the sectoral composition of employment (Figures E.3-E.5). In this case, OECD publishes data for different size categories of firms so the results should be comparable. Figures show that there are no large differences in employment structure, except for a few sectors in Estonia and Slovakia.

Figure E.1: Average annual wage in 2014: SES vs. OECD (2006=100)



Notes: Graph shows the average nominal annual wages (current prices in national currency) expressed as percentage of 2006 average annual wages based on data used in our study (ESES) and an alternative data source (OECD, https://stats.oecd.org/Index.aspx?DataSetCode=AV_AN_WAGE). Estonia, Latvia, and Slovakia accessed Eurozone between 2006 and 2014. In OECD data, the data for these three countries is expressed in euros both in 2006 and 2014. Hence, we used exchange rates at the accession rate to calculate annual wages for 2006 in SES data.

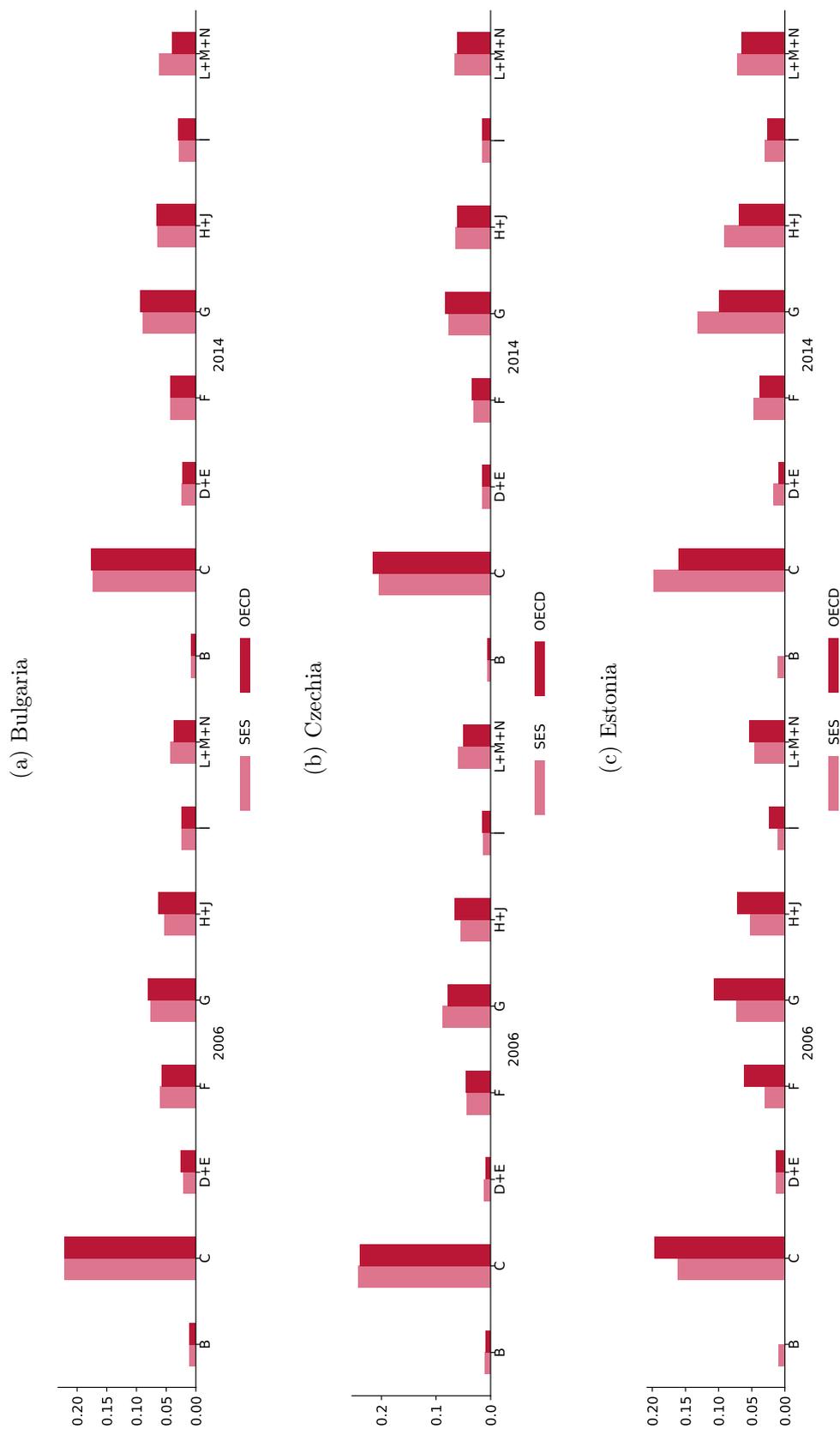
Data: European Structure of Earnings Survey, OECD.

Figure E.2: Decile dispersion ratios: SES vs. OECD



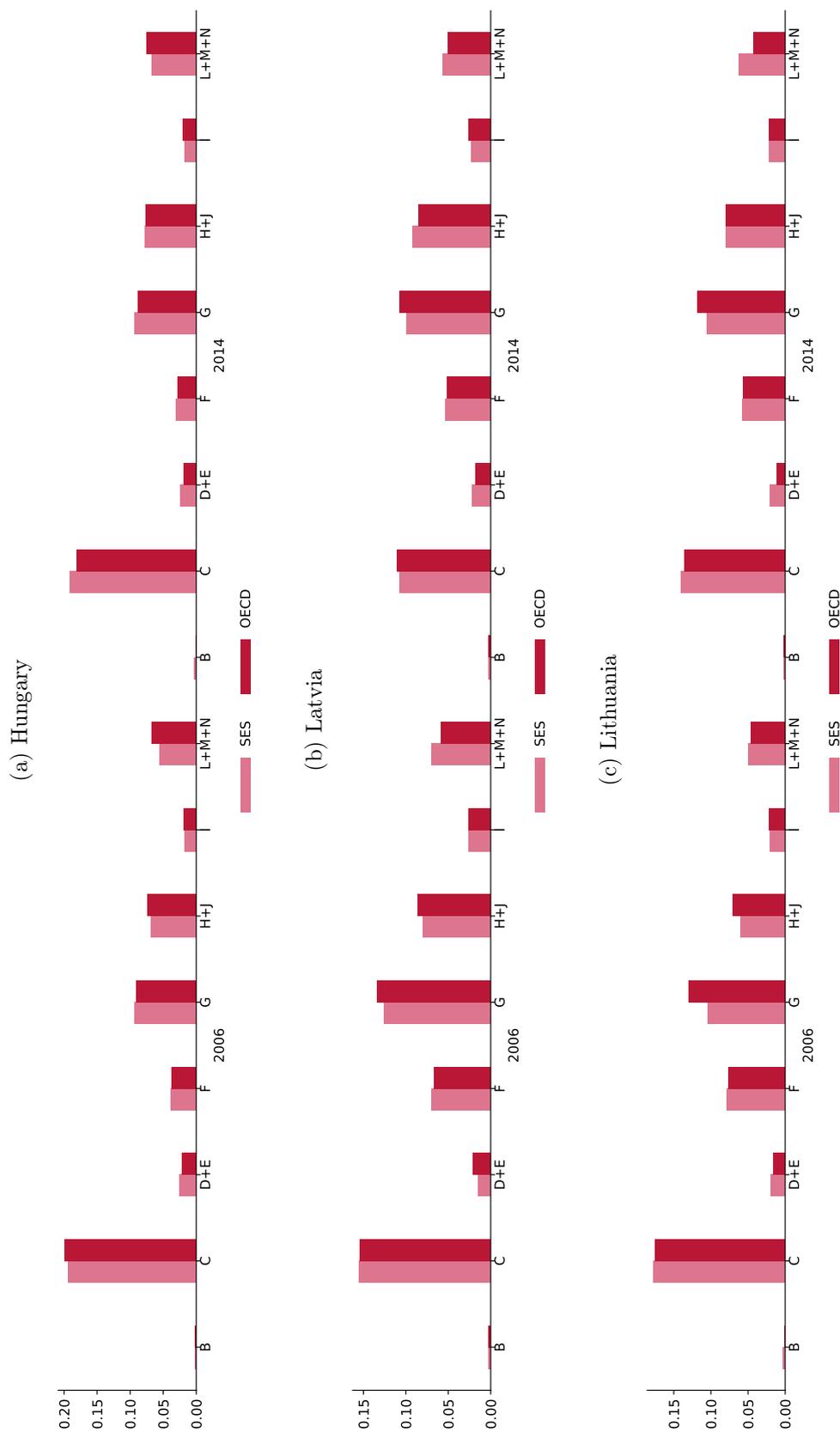
Notes: Graphs show decile dispersion ratio for years 2006, 2010, 2014 based on data used in our study (ESES) and an alternative data source (OECD, https://stats.oecd.org/Index.aspx?DataSetCode=DEC_I).
Data: European Structure of Earnings Survey, OECD.

Figure E.3: Sectoral composition of employment: SES vs. OECD (i.)



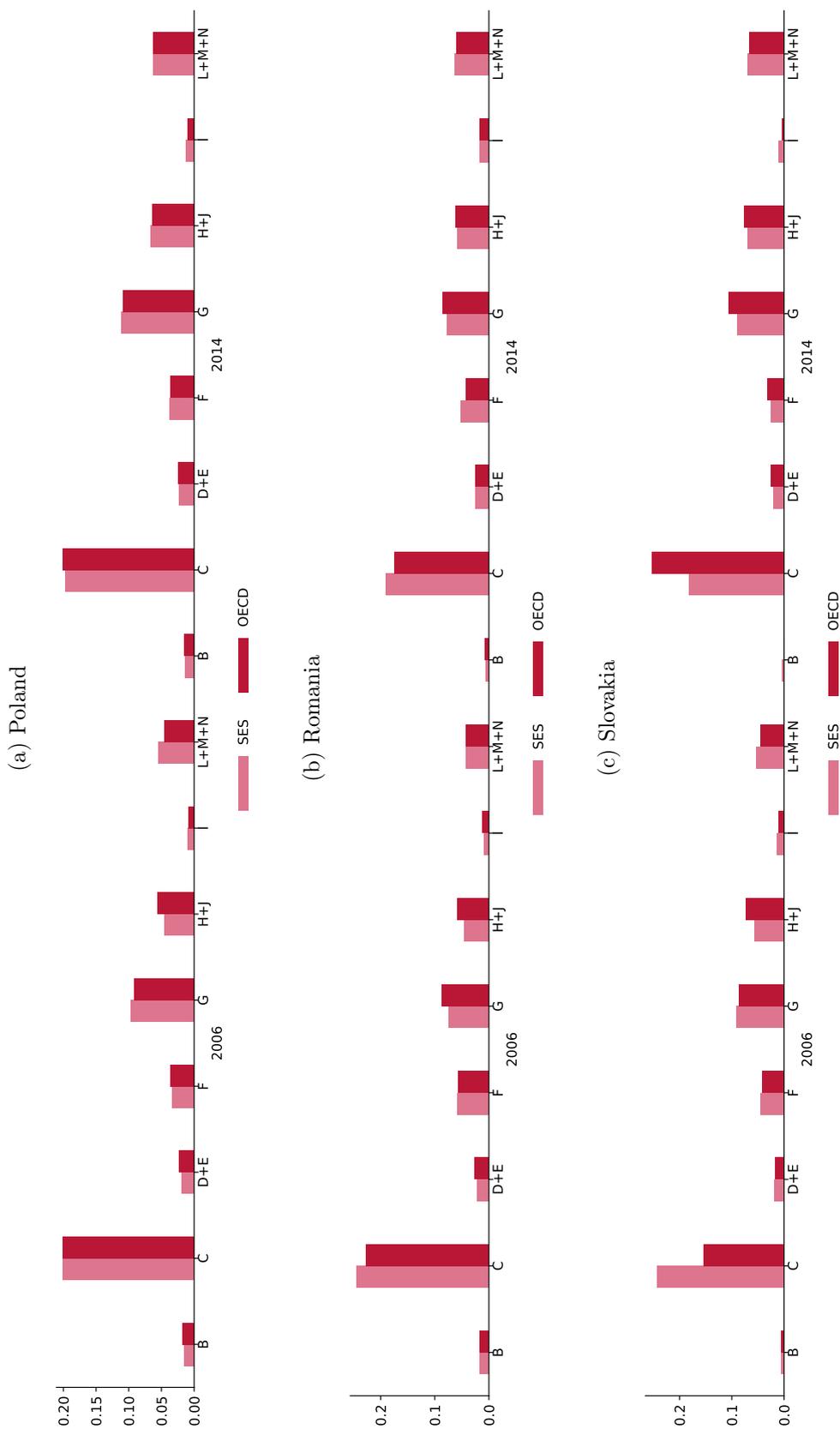
Notes: Graphs show sectoral composition of employment for years 2006 and 2014 based on data used in our study (ESES) and an alternative data source (OECD, https://stats.oecd.org/Index.aspx?DataSetCode=SSIS_BSC_ISIC4). OECD data includes only sectors from B to N (market economy) excluding K so employment shares shown in the graphs are based on these sectors only. Data: European Structure of Earnings Survey, OECD.

Figure E.4: Sectoral composition of employment: SES vs. OECD (ii.)



Notes: Graphs show sectoral composition of employment for years 2006 and 2014 based on data used in our study (ESES) and an alternative data source (OECD, https://stats.oecd.org/Index.aspx?DataSetCode=SSIS_BSC_ISIC4). OECD data includes only sectors from B to N (market economy) excluding K so employment shares shown in the graphs are based on these sectors only. Data: European Structure of Earnings Survey, OECD.

Figure E.5: Sectoral composition of employment: SES vs. OECD (ii.)



Notes: Graphs show sectoral composition of employment for years 2006 and 2014 based on data used in our study (SES) and an alternative data source (OECD, https://stats.oecd.org/Index.aspx?DataSetCode=SSIS_BSC_ISIC4). OECD data includes only sectors from B to N (market economy) excluding K so employment shares shown in the graphs are based on these sectors only. Data: European Structure of Earnings Survey, OECD.

Appendix F Wage inequality in selected advanced EU countries

Table F.1: Summary statistics

(a) Number of observations				
year	Netherlands	Norway	Portugal	Sweden
2002	53 317	517 068		
2006	64 197	867 818	62 147	273 084
2010	91 331	1 254 883	87 350	271 899
2014	79 810	1 343 311	60 838	251 963
(b) Number of firms				
year	Netherlands	Norway	Portugal	Sweden
2002	1 550	10 179		
2006	2 068	17 589	3 346	4 733
2010	2 500	28 897	4 449	4 918
2014	2 180	31 073	2 852	3 650
(c) Mean of hourly earnings (EUR)				
year	Netherlands	Norway	Portugal	Sweden
2002	15.99	22.12		
2006	15.92	23.98	7.24	15.93
2010	18.00	28.16	8.09	17.67
2014	18.87	31.04	7.72	20.56

Data: European Structure of Earnings Survey.

Table F.2: Variance decomposition

(a) Variance of log wages

year	Netherlands	Norway	Portugal	Sweden
2002	0.21			
2006	0.28	0.12	0.42	0.09
2010	0.27	0.12	0.40	0.09
2014	0.23	0.12	0.35	0.09

Data: European Structure of Earnings Survey.

(b) Within-firm variance of log wages

year	Netherlands	Norway	Portugal	Sweden
2002	0.13			
2006	0.18	0.06	0.16	0.06
2010	0.17	0.06	0.16	0.06
2014	0.11	0.06	0.14	0.06

Data: European Structure of Earnings Survey.

(c) Between-firm variance of log wages

year	Netherlands	Norway	Portugal	Sweden
2002	0.08			
2006	0.10	0.05	0.26	0.03
2010	0.10	0.05	0.24	0.03
2014	0.12	0.06	0.20	0.03

Data: European Structure of Earnings Survey.

Table F.3: Contribution of the within component to variance of log wages

	Level 2006 (percent)	Change 2006-2014 (percent)
Netherlands	63	77
Norway	54	10
Sweden	66	39
Portugal	39	26

Note: the first column shows the contribution of the within-firm component to the level of the variance of log wages in 2006 ($\frac{\text{Var}(\text{within}_{2006})}{\text{Var}(w_{i,2006})}$). The unreported between component is 100% minus the reported within component. The second column shows the contribution of the within component to the change of the variance ($\frac{|\Delta \text{Var}(\text{within})|}{(|\Delta \text{Var}(\text{within})| + |\Delta \text{Var}(\text{between})|)}$).

Data: European Structure of Earnings Survey.