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INCOME INEQUALITY AND THE GREAT RECESSION IN CENTRAL AND EASTERN EUROPE

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Abstract

This paper uses the European Union Statistics on Income and Living Conditions (EU-SILC) data to study the changes in income inequality in Central and Eastern Europe during the Great Recession (2008-2012) and its determinants. Inequality changes are decomposed using an Oaxaca-Blinder-like decomposition analysis based on the Recentered Influence Function (RIF) methodology, which allows to split the overall change in inequality into endowment effects associated with changes in the distribution of inequality covariates and coefficient effects, which are related to the changing returns to these covariates. Our results show that the Gini for disposable incomes has increased over 2008-2012 in a statistically significant way for Bulgaria, Estonia, Hungary and Slovenia. For most of the countries with significant inequality increases, falling full-time employment rate played the biggest role in explaining changes in inequality. It accounted for about 50-60% of the Gini change for disposable incomes and for about 60-80% of the Gini change for market incomes. The fall in full-time employment rate had a smaller inequality-increasing effect for disposable incomes in Hungary (about 15% of the Gini increase). Increased part-time employment during the recession had either no impact on inequality or was rather inequality-decreasing. We did not find evidence that changes in the incidence of temporary jobs had any impact on income inequality.

Keywords:

income inequality, decomposition, RIF regression, Great Recession, Central and Eastern Europe

JEL:

D63, E32, G01, P24, P36

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1. Introduction

The Great Recession that hit the world economy after the financial crisis of 2007-2008 was the worst global economic recession since the Great Depression of the 1930s. Although the crisis started in the US and other advanced economies, most of the Central and Eastern European (CEE) countries were hit hard by the crisis as well. All CEE countries except for Poland suffered from negative growth in 2009. The GDP has dropped in 2009 by more than 10% in the Baltic states (Estonia, Latvia, Lithuania) and by more than 5% in Czech Republic, Hungary, Romania, Slovakia and Slovenia. The average unemployment rate for the CEE countries grew from 6.4% in 2008 to 12.1% in 2012. These facts suggest that the macroeconomic effects of the Great Recession in the CEE countries were profound. However, the impact of the recession on these economies at the microeconomic level, and in particular the effect on the distribution of household incomes, has not received sufficient attention. Several works have recently investigated the short-term distributional impact of the Great Recession. In particular, Jenkins et al. (2013) have studied the evolution of income distribution during the Great Recession in 21 rich OECD countries with detailed case studies for Germany, Ireland, Italy, Sweden, the UK and the USA. A few other works (see section 3.2 for a review) have explored the effect of the crisis on income distribution in particular, mostly Western, countries. However, there has been much less attention devoted to studying how the crisis affected income inequality in Central and Eastern European post-socialist countries.

We focus on the CEE countries for two additional reasons. First, while welfare state systems in advanced countries respond to a recession with increased social protection benefits (e.g. unemployment and welfare payments) acting as automatic stabilizers (Dolls et al, 2011). However, the CEE countries have less generous and comprehensive tax-and-transfer systems than the rest of the EU countries, one may expect that the mitigation of the distributional consequences of a recession which is due to the automatically increased social spending will be smaller in these countries. It is therefore interesting to study whether social welfare regimes in the post-socialist countries indeed provide less protection against rising inequality in times of a crisis. Second, during the transformation from socialism to market economies several CEE countries experienced large increases in income inequality – between late 1980s and 2010 the Gini index grew by 10 percentage points or more in Bulgaria, Estonia, Hungary, Latvia, Lithuania, and Romania (Tóth, 2014). It is worth checking whether these countries are susceptible to further widening of income distribution in times of economic crises.

The paper adds to the literature on the short-term distributional consequences of the Great Recession by providing an analysis of determinants of changes in income inequality in CEE countries between 2008 and 2012. We focus specifically on how factors related to the crisis – increasing unemployment, reduced labour market activity, increasing prevalence of part-time and temporary jobs – have affected income inequality in CEE countries. Our analysis is based on representative cross-country comparable microdata for ten CEE economies (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia).¹ The data come from the cross-sectional version of the European Union Statistics on Income and Living Conditions (EU-SILC). In particular, we use 2009 and 2013 EU-SILC databases, which deliver microdata on household incomes for 2008 and 2012.² Since the EU-SILC contains information on both the gross and the net household incomes, we are able to construct several income measures capturing the purchasing power of households at differ-

¹ All these post-socialist countries have become the European Union New Member States (NMS) after 2004. Bulgaria and Romania joined the European Union in 2007, and the other countries in 2004.

² For all CEE countries, information about incomes collected in the EU-SILC survey pertains to incomes received by households during the preceding calendar year. The 2013 database containing information about incomes received in 2012 is the last EU-SILC release available at the time of writing this paper.

ent stages of the redistribution through the tax and benefit system. This allows us to separate the impact of various crisis-related policies (i.e. stimulus packages and fiscal consolidation policies) and the role of automatic stabilizers (e.g. increase of spending on unemployment or welfare benefits during the crisis) from the changes in the economy itself such as the growing number of the unemployed, increasing share of temporary workers or changing distribution of individual or household characteristics (i.e. educational levels, occupational choices, etc.).

The microeconomic determinants of changes in income inequality in CEE countries during the recession are studied using an Oaxaca-Blinder type decomposition of over-time inequality changes based on the Recentered Influence Function (RIF) regressions (Firpo et al. 2007, 2009). This approach is suitable for dividing the overall change in inequality into endowments (characteristics) effects and coefficients effects for covariates of inequality. The endowments effects are related to the changes in the distribution of covariates such as employment status, educational level, marital status, job contract type, occupation and others. Coefficients effects are due to the changes in returns (prices) to these covariates. An advantage of the decomposition based on RIF regressions is that it allows for computing the individual endowment and coefficient effect for each covariate studied.

In order to separate changes in policies from changes undergoing in the economy, we conduct our decomposition exercises for different income concepts captured at various stages of redistribution (market income, post-tax income, post-benefit income, disposable income). Since some of the income variables used (especially market income and post-tax income) can contain a non-negligible number of negative and zero values, we choose the Gini index as our preferred inequality measure.³ In opposition to several other well-known inequality measures (e.g. several members of the Generalized Entropy or Atkinson families of inequality indices), the Gini index admits non-positive values.

The remainder of the paper is structured as follows. Section 2 discusses shortly the impact of the Great Recession on the GDP, unemployment and household incomes in the CEE region. In section 3, we review literature on the evolution of income inequality evolution in the CEE countries during the transition from socialism to market economy, as well as literature on the impact of Great Recession on income inequality. The decomposition methods are presented in section 4, while our dependent and independent variables are introduced in section 5. The penultimate section provides empirical results and section 7 concludes.

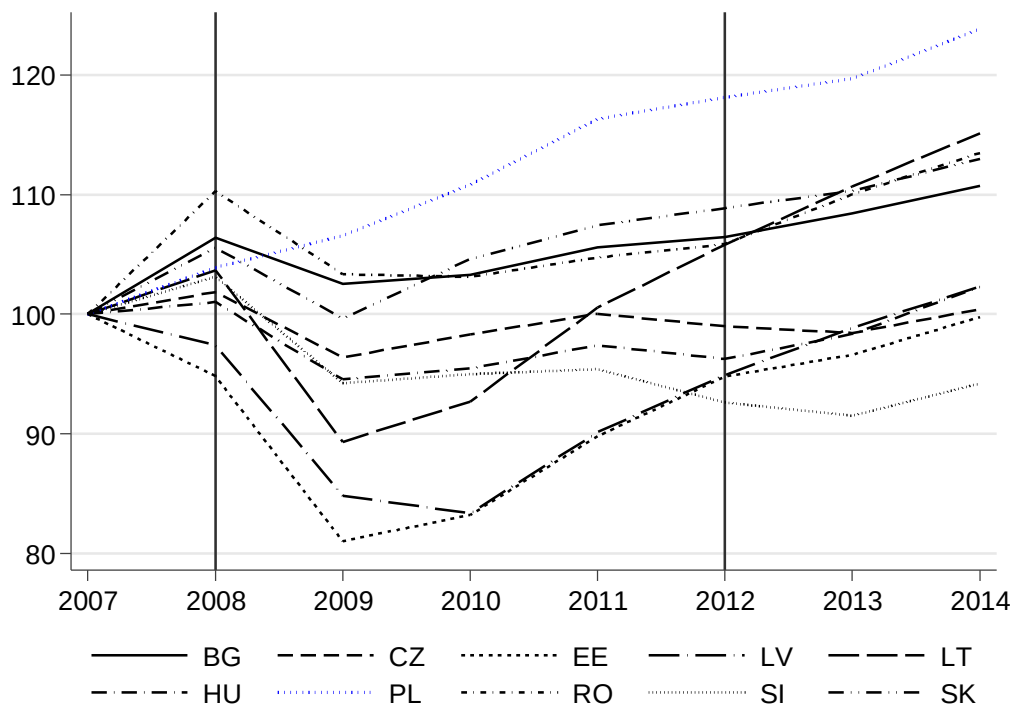
2. The Great Recession in Central and Eastern Europe

The Great Recession had a differential impact on the CEE countries. Figure 1 shows the evolution of the GDP per capita over 2007-2014 for our group of countries. In 2009, the declines in the GDP per capita for Estonia, Lithuania and Latvia reached 14-15%. For Bulgaria, Czech Republic, Hungary, Romania, Slovenia and Slovakia, the economy shrank in 2009 in the range between 4 to 8%. The recession in Romania was prolonged to 2010. The only country that did not experience a drop in the GDP per capita was Poland.

In effect of the reduced economic activity, unemployment rates grew significantly in most of the CEE countries (Figure 2). In Baltic countries, the unemployment rate increased from 6.3% on average in 2008 to 18% on average in 2010. The average unemployment rate for all CEE countries jumped from 6.4% in 2008 to 12.2% in 2010. Unemployment rates grew relatively little in the Czech Republic (from 4.4 to 7.3%), Hungary (from 7.8 to 11.2%), Poland (7.1 to 9.7%) and Slovenia (from 4.4 to 7.3%).

³ However, we have performed all analyses also for the following percentile ratios: P75/P50 and P25/P50. The obtained results were broadly similar to those for the Gini index. They are available upon request.

Figure 1. Real GDP per capita (constant 2005 US\$), CEE countries, 2007-2014 (2007=100)



Note: vertical bars denote period of analysis in the present paper.

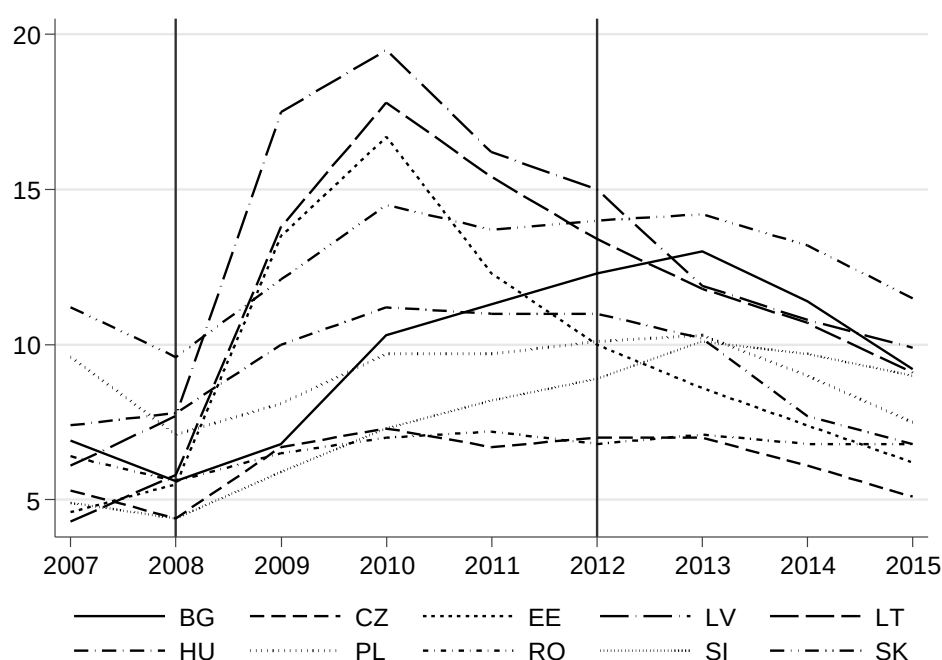
Source: World Development Indicators 2016 database.

However, the analysis of standard macroeconomic indicators does not tell the whole story about households' standard of living during recessions. The GDP includes not only incomes of the households, but also the income of businesses and the government. Hence, in studying the impact of recessions on the household income, it is better to focus on a measure providing information about the household sector only. Such measure is the real adjusted gross disposable income of households per capita, which is available for European countries from the Eurostat.⁴ Figure 2 plots the evolution of the GDP per capita versus real adjusted gross disposable household income per capita.

We can observe significant divergence between the two series for several countries. In most of the cases, household income did not suffer such sizable declines as the GDP. It also grew much faster than the GDP over 2007-2014 for each country under study. Figure 3 plots additionally the evolution of social protection benefits as percent of the GDP. It is important to account for the role of social transfers during recession as they act as automatic stabilizers (see, e.g. Dolls et al. 2011) providing additional income in the form of transfers like unemployment benefits to the persons who have become unemployed. Figure 3 shows that in most of the CEE countries social protection benefits expressed as a percent of the GDP grew very significantly during the recession. The only exception seems to be Hungary, where the benefits increased slightly over 2007-2009, but have been falling over 2009-2013 so that they were lower as a percentage of the GDP in 2013 compared to 2008.

⁴ Real adjusted gross disposable household income is real household income adjusted for the value of social transfers in kind.

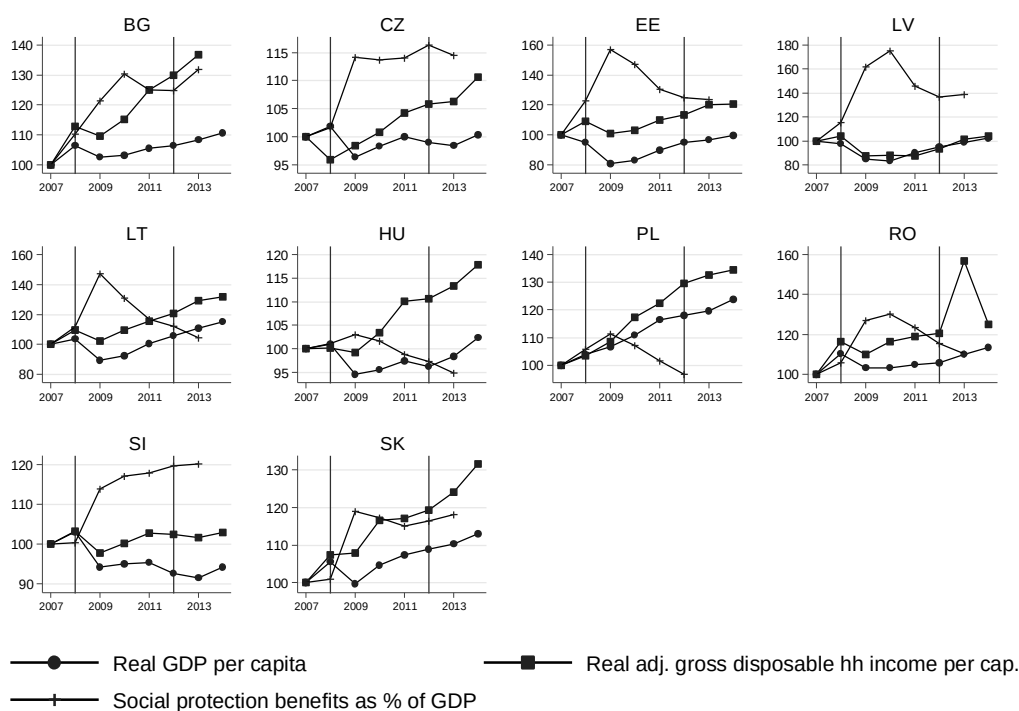
Figure 2. Unemployment rates in CEE countries, 2007-2015



Note: Unemployment rate is defined as the number of unemployed persons aged 15 to 74 as a percentage of the labour force. Vertical bars denote period of analysis in the present paper.

Source: Eurostat (tipsun20 series).

Figure 3. Real GDP per capita, real adjusted gross disposable income of households per capita and social protection benefits per capita, CEE countries, 2007-2014 (2007=100)



Note: vertical bars denote period of analysis in the present paper.

Source: Eurostat and World Development Indicators.

3. A review of related literature

3.1. The evolution of income inequality in CEE countries during the economic transformation

The process of economic transformation from state socialism to market economies has brought dramatic changes to income distribution in CEE countries. There is a substantial literature devoted to this topic, which is usefully summarized in recent papers by Alvaredo and Gasparini (2015) and Perugini and Pompei (2016). The income distribution at the end of state socialism in most of the CEE countries was relatively egalitarian. The range of observed values of the Gini coefficient of income inequality was from 0.2 to 0.25 (Tóth 2014; Milanovic 1998). This was similar to the levels of the Gini for the Scandinavian countries around 1989, while the average Gini for the OECD countries was 0.3 then (Flemming and Micklewright 2000). Income inequality increased during transformation in all CEE countries, but the size of the increases was heterogeneous across countries. As mentioned earlier, between late 1980s and 2010, huge inequality increases (growth in the Gini index by 10 percentage points or more) occurred in Bulgaria, Estonia, Hungary, Latvia, Lithuania, and Romania (Tóth, 2014). On the other hand, the growth in Gini was less than 10 percentage points for Czech Republic, Poland, Slovakia and Slovenia. The Baltic countries experienced the largest and the most rapid increase in inequality – the Gini index has grown from less than 0.25 to about 0.35 in Estonia and Lithuania over 1989-1993 and in Latvia over 1989-2004. It has remained around 0.35 in Latvia and Lithuania since then, but has fallen in Estonia to about 0.3 around 2008. In Hungary, the Gini index has been increasing steadily from about 0.2 in 1989 to about 0.3 around 2006. After that, the Gini for Hungary fell to about .24 in 2010 and again grew to 0.28 in 2014. In Poland, the Gini rose steadily from about 0.25 in 1989 to about 0.35 in 2005 and then fell to about 0.31 in 2010. Czech Republic and Slovakia have experienced the smallest inequality shocks - the Gini was close to 0.2 around 1989 and grew slowly to about 0.25-0.27 around 2005; it remained roughly unchanged since then.

The major factors responsible for inequality growth in the process of transition from communist regimes to market economies were associated with move ment toward privatization, liberalization and a decentralized wage setting, which resulted in an increased wage dispersion (Ferreira, 1999; Milanovic, 1999; Mitra and Yemtsov, 2007). This was coupled with the rise of educational premia for highly qualified workers employed in highly-skilled occupations. Milanovic (1999) has also stressed the importance of the “hollowing-out” of the state-sector middle class as it bifurcated partly into the relatively well-paid private sector and partly into the low-income sector of the unemployed. Other factors that could contribute to the rise of inequality include only weakly redistributive tax-and-transfer systems (Ivanova, 2007), the reduction of social in-kind benefits (e.g. education, health) (Flemming and Micklewright, 2000), as well as hyperinflation and deindustrialization (Ivaschenko, 2002). Some studies have also explored what was the impact of the intensity of socioeconomic reforms in post-socialist countries on inequality and poverty. In particular, (Milanovic and Ersado, 2012) have used panel data for 26 transition countries observed between 1990 and 2005 to analyze the impact of reforms as measured by the European Bank for Reconstruction and Development (EBRD) transition indicators on decile shares of income. They found that infrastructural reforms (introduction or increases of fees for services and large-scale privatization) had a negative impact on the income share of the bottom decile of population. On the other hand, small-scale privatization was increasing the incomes of the poor. Other factor that affected positively the bottom decile’s income share were democracy and lower inflation, while the authors did not find a positive relationship between government spending and inequality. Aristei and

Perugini (2014) conducted a related study focusing on the effect of speed and sequencing of reforms on income inequality in transition. According to their results, inequality grew less in countries where transition reforms were more coordinated and balanced than in countries in which uneven introduction of various reforms led to the formation of economic rents and monopolistic positions.

The relative impact of internal changes versus globalisation factors (e.g. imports, exports, foreign direct investments) on inequality in NMS was studied by (Barlow et al, 2009). They found that internal reforms (especially price liberalization) were more important in accounting for inequality growth in NMS than the globalization factors. The effects of imports and exports on inequality were positive, but these findings are not robust to all model specifications. On the other hand, foreign direct investments had a robust and fairly strong inequality-increasing effect, which gives some evidence for a skill-biased technological change due, which increased the relative demand for educated workers in NMS. Similar results were obtained by Esposito and Stehrer (2009). The effect of recent changes in institutional structure of labour markets on income inequality in transition countries was analysed by Hölscher et al (2011) and Perugini and Pompei (2015). Following Western European countries, the NMS have introduced since 1990s a number of labour market reforms toward more flexible and liberal work relations. These reforms included the liberalization and expansions of temporary (fixed-term) contracts and non-standard forms of employment (part-time work, working under contract of mandate, bogus self-employment, etc.). Hölscher et al (2011) and Perugini and Pompei (2015) have confirmed the existence of dual labour markets in NMS with temporary workers earning on average less than permanent workers. These wage differentials are mainly driven by the characteristics of temporary workers - their lower education and experience as well as by their more intensive employment in low-skill occupations.

Finally, another important factor that can explain the pattern of inequality growth in NMS is the welfare and redistribution systems adopted in these countries (Perugini and Pompei, 2016). Myant and Drahokoupil (2015) show that the Baltic countries represent the neoliberal model of capitalism with high pre-tax pre-transfer income inequality, which is also reduced to a relatively small degree by a tax and transfer system. On the other hand, the Visegrad countries (Poland, Hungary, the Czech and the Slovak Republics) and Slovenia have built redistributive systems, which reduce market levels of inequality and poverty to the levels comparable to that observed in advanced Western economics. These redistributive effects are smaller for Bulgaria and Romania. The redistributive power of a tax-and-transfer system depends not only on the welfare model adopted in a country, but also on the social preferences for redistribution prevailing in the country. This factor was studied in the context of NMS by Aristei and Perugini (2015). They show that aversion to income inequality is in general smaller in the NMS than in Western Europe. In particular, it is the lowest for Bulgaria and Romania, slightly higher for the Baltics and Hungary and close to the EU average for the rest of NMS. In contrast to Western Europe, inequality aversion in CEE is also negatively related to income inequality (i.e. it is lower in countries with higher income inequality). This result may partly explain why since 1990s several NMS have reformed their tax systems in the direction of flat tax rates or reduced progressivity of tax rates.

3.2. The impact of the Great Recession on income inequality

The distributional impact of the recession has been studied in several recent works. As mentioned in the introduction, Jenkins et al. (2013) have found that between 2007 and 2010 changes in income distribution in 21 rich OECD countries were rather modest: average incomes in general changed very little, inequality fell slightly in European countries (and rose

slightly in the USA), absolute and relative poverty rates typically also fell. However, the authors have also shown that the effect of the recession is different for various subpopulations. While in all six countries studied in detail (Germany, Ireland, Italy, Sweden, the UK, the US) the elderly were relatively well protected, absolute poverty for children and working age people increased in four out of six compared countries. Moreover, the authors warned that the long-term impact of the GR could be more pronounced.

In the context of the CEE countries, Matsaganis and Leventi (2014) have used a microsimulation approach to study the distributional consequences of the Great Recession for income distribution in several countries including Latvia, Lithuania and Romania, observed over 2009-2013. They have found, among others, that policy changes in the tax and benefit system contributed to higher income inequality in Lithuania in 2010, while in Latvia the policies had inequality-reducing effect. De Agostini et al. (2016) used a similar microsimulation setting to investigate the effect of tax and benefit policies on income distribution in 27 EU countries in the periods 2008-2011 and 2011-2014. With respect to the first period, the authors found that among the CEE countries the policies contributed sizably to the reduction of income inequality in Bulgaria, Latvia, Slovakia, Slovenia and Romania. These effects were mainly due to increased public pensions and means-tested benefits. On the other hand, the introduction of the flat tax reform in Hungary in 2011 resulted in rising income inequality (increasing the Gini index by 2 percentage points over 2008-2011).

4. Methods for decomposing changes in income inequality

4.1. Decomposing changes in social outcomes over time

In order to study the correlates of changes in income inequality over time we use standard decomposition methods that allow to divide the overall change in a given outcome (e.g. mean income, the Gini coefficient of inequality) or difference in the outcome between some groups (e.g. men versus women, blacks versus whites, etc.) into two kinds of components: one related to the changes (or differences) in the distribution of covariates for the outcome, and the other associated with the changes (or differences) in the returns to these covariates. The effects related to the changes in the distribution of covariates are called endowment (or composition) effects, while those resulting from changes in the returns to the covariates are labelled coefficient (also wage structure or price) effects.

Let θ be the social outcome of interest, for example mean income, μ , or the Gini coefficient of inequality, G . The objective of the decomposition is to break down the overall difference in the social outcome over time with $t = 0$ being the base period and $t = 1$ – the end period. We further assume that an individual outcome y , which is income in this paper, is a linear function of a vector X of covariates ($X_i = [X_{i1}, \dots, X_{iK}]$), which are observable in both periods:

$$y_t = X\beta_t + \varepsilon_t, \quad t = 0, 1, \quad (1)$$

where ε_t is an error term conditionally independent of X . The well-known Oaxaca-Blinder decomposition (Blinder 1973, Oaxaca 1973) was designed to decompose the overall difference in the mean outcome between two groups or time periods. In this case, $\theta = \mu$ and the overall difference in averages observed between periods $t = 0$ and $t = 1$ is simply defined as $\Delta_o^\mu = \mu_1 - \mu_0$. Under the linear model (1), the estimated difference $\hat{\Delta}_o^\mu$ can be decomposed as follows:

$$\hat{\Delta}_o^\mu = (\hat{\beta}_{10} - \hat{\beta}_{00}) + \sum_{k=1}^K \bar{X}_{1k} (\hat{\beta}_{1k} - \hat{\beta}_{0k}) + \sum_{k=1}^K (\bar{X}_{1k} - \bar{X}_{0k}) \hat{\beta}_{0k}, \quad (2)$$

where $\hat{\beta}_{t0}$ ($t = 0, 1$) and $\hat{\beta}_{tk}$ ($k = 1, \dots, K$) are, respectively, the estimated intercepts and slope coefficients from the regression models (1). The first two terms in (2) are called the “unexplained” part of the decomposition or the aggregate coefficient (or structural) effect, C . This effect identifies the part of the overall difference in mean outcomes, which is accounted for by the overall changes in the returns (or prices) to the covariates. The last term is the aggregate endowment effect, E , which is also known as the composition effect or the “explained” (by the changes in the distribution of covariates) part of the decomposition.

Equation (2) presents the aggregate decomposition of the differences in mean outcomes into aggregate effects C and E , which identify the overall coefficient and endowment effects of all covariates taken together. It is also useful to estimate a detailed decomposition, which divides C and E into the individual coefficient and endowment effects for particular covariates. The individual coefficient effect of a covariate k is given as $\bar{X}_{k1}(\hat{\beta}_{1k} - \hat{\beta}_{0k})$, while the individual endowment effect of this covariate is $(\bar{X}_{1k} - \bar{X}_{0k})\hat{\beta}_{0k}$. The detailed decomposition allows for identification of the coefficient and endowment effects of each covariate (personal or household characteristics) to the difference in the studied outcome. The coefficient effect related to the differences in estimated intercepts, $(\hat{\beta}_{10} - \hat{\beta}_{00})$, captures the part of the difference in outcomes which is due to the differences in unobservable factors.

The detailed decomposition of the aggregate coefficient effect suffers from the so-called identification problem (Jones 1983, Oaxaca and Ransom 1999), when categorical covariates are used as elements of X in regression models (1). In this case, the elements of the second term in (2) arbitrarily depend on the choice of the omitted category in estimated regressions. Despite the fact that various methods of overcoming this problem based on normalizing regression coefficients have been proposed in the literature (see, e.g., Yun 2005), Fortin et al. (2011) argue that they do not provide in general a solution to the omitted category problem. Therefore, in this paper we use another approach, which was recently applied by Gradín (2015) in his investigation of inequality differences between Spain and Germany. In this approach, categorical covariate variables are redefined on the household level as proportions of household members with a given characteristic (see section 4). This method allows to represent the covariates as continuous or quasi-continuous variables, which avoids the omitted category problem.⁵

4.2. The decomposition of the Gini index based on the RIF regression approach

The Oaxaca-Blinder decomposition methodology was generalized by Firpo et al. (2007, 2009) and Fortin et al. (2011) by using the concept of the Recentered Influence Function (RIF). The advantage of this approach is that it allows to decompose differences not only in mean outcomes, but in any distributional index like the Gini index of inequality, variance, median or any quantile, etc. In practice, the decomposition based on RIF regression relies on replacing the income variable in equations (1) with the Recentered Influence Function (RIF) of the statistic of interest (e.g. the Gini index). In case of the mean income, the RIF is simply equal to the income variable itself, so the standard Oaxaca-Blinder methodology is just a special case of the decomposition based on the RIF regression.

The RIF for a given distributional statistic, θ , is defined as the leading two terms of linear approximation of θ , that is as θ itself plus the influence function for this statistic,

⁵ Note, however, that in case of some categorical variables some of the proportions had to be excluded from regressions due to multicollinearity. In these cases, the omitted category problem may still affect the interpretation of the estimates for individual coefficient effects in the detailed decomposition. On the other hand, the major focus of this paper is identification of the detailed endowment effects, which is not subject to the omitted category problem.

$IF(y, \theta)$: $RIF(x, \theta) = IF(y; \theta) + \theta$. The influence function, IF , is a statistical tool from robust statistics that is used to assess the influence of a particular observation on the value of the distributional statistics of interest (Hampel 1974). The useful property of $RIF(y; \theta)$ for statistic θ is that its expected value coincides with the statistic itself, θ . The conditional expectation of $RIF(y; z)$ can be then modelled as a function of covariates X . If it is assumed that the conditional expectation of $RIF(y; z)$ is a linear function of X , we can perform the RIF-OLS regression:

$$\theta = E(RIF(x; \theta)) = E_X[E(RIF(x; \theta)|X)] = X\beta. \quad (3)$$

The parameters β in (3) obtained using OLS represent marginal effects of a small change in $E(X)$ on θ . Using estimates of β obtained from (3), we can perform aggregate and detailed decompositions of differences in θ as shown in section 4.1. It should be noted here that the linear approximation assumed in the RIF regression approach is only valid for small changes in the relevant covariates. However, an Oaxaca-Blinder-like decomposition using RIF regression results is based partly on over-time differences in magnitudes of covariates, which in the time of the Great Recession were in many cases rather large. For this reason, the estimates of coefficient effects from the decomposition (2), which pick up both the price effects due to changes in returns to covariates and the approximation error due to linearity assumption in the RIF regressions, should be treated cautiously.⁶ However, in this paper we focus mainly on identifying and interpreting the detailed endowment effects accounting for changes in income inequality.

In this paper, we decompose changes in income inequality as measured by the Gini index, G . The expression for the RIF for the Gini index, $RIF(x; G)$, is available in Firpo et al. (2007):⁷

$$RIF(x; G) = 1 - \frac{x}{\mu}G - \frac{y}{\mu} + \frac{2}{\mu} \int_0^x F(x)dx, \quad (4)$$

where $F(x)$ is the cumulative distribution of income x . Using the RIF for the Gini coefficient as defined in (4) we can perform the RIF regressions (3) for each studied period and each country independently and use the estimates of β to decompose the overall changes in Gini, $\hat{\Delta}_G^C$, into the aggregate and detailed coefficient and endowment effects just like in the case of differences in mean incomes (equation 2). Standard errors for all elements of the decompositions can be obtained by bootstrapping the whole two-step procedure of calculating RIFs for the Ginis and decomposing results of the RIF regressions.

The decomposition of inequality changes based on simple regression models (3) delivers information about how a given factor determining household income accounts for inequality changes while controlling for other factors. It must be stressed here, however, that the simple specification (3) precludes treating the established correlation between inequality changes and the covariates as a causal relationship. The reverse causality from inequality to household and individual characteristics seems to be a lesser issue since during the Great Recession major characteristics (especially related to the labour market) had been changing exogenously in effect of factors directly related to the crisis. On the other hand, we cannot exclude that there are important omitted variables that affected both inequality and the covariates during the studied period.

⁶ I would like to thank a referee for pointing this out.

⁷ See also Essama-Nssah and Lambert (2012) for a derivation of RIFs for a wide range of other distributional indices, including most of popular inequality measures.

5. Data

Our source of data is the EU Statistics on Income and Living Conditions (EU-SILC). EU-SILC is the EU reference source for cross-country comparable statistics on income distribution, living standards, and social exclusion (see Atkinson and Marlier 2010). EU-SILC started in 2003 and has been fully implemented in all EU countries since 2005. The survey annually collects extensive information about social and demographic characteristics of respondents as well as information related to income, education, housing, labour status, social exclusion and health.

We use cross-sectional EU-SILC data for ten CEE economies (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia). We perform our decomposition analyses for the period 2008-2012. For all our countries, the reference period for EU-SILC household income data is the calendar preceding the year of data collection. The 2013 EU-SILC database, which is the last available edition at the time of writing this paper, delivers therefore information about incomes received by households in 2012. The EU-SILC contains both net and gross income variables, which allow to construct various income measures suitable for the analysis of the redistributive impact of tax and benefit system. Our main income variable is disposable income (DI), which is defined as the sum of gross personal incomes for all household members (employee cash or near cash income, self-employment income, unemployment benefits, old-age benefits, disability benefits and education-related allowances) plus gross income components at household level minus regular taxes on wealth, regular inter-household cash transfer paid and tax on income and social insurance contributions. Following Fuest et al. (2010), we use three other income variables corresponding to income concepts at different stages of redistribution. Market income (MI) is defined as the sum of all employee and self-employment cash or near cash income for all household members plus gross income components at household level. Subtracting regular taxes on wealth, regular inter-household cash transfer paid and tax on income and social insurance contributions from EMI leads to the post-tax income (PTI). Adding social transfers (old-age benefits, unemployment benefits, survivor benefits, sickness benefits, disability benefits, education-related allowances, family/children related allowances, social exclusion not elsewhere classified, housing allowances) to EMI gives post-benefit income (PBI). MI plus all social benefits minus all income taxes is equal to DI. All income concepts are equivalized using the modified OECD equivalence scale. This scale gives a weight of 1 to the first adult, 0.5 to any other household member aged 14 and over and 0.3 to each child below 14. The resulting number is attributed to each household member. We denote the equivalized versions of MI, PTI, PBI and DI as, respectively, EMI, EPTI, EPBI and EDI. All income variables are expressed in local currency and in real terms using the Consumer Price Index. All our results are weighted using the sampling weights provided by the EU-SILC survey, which correct for survey non-response.

In our decomposition analyses, we use a number of individual characteristics and household-related variables that can have an impact on household income. Since our dependent variables (EMI, EPTI, EPBI, EDI) are measures at the household level, we construct most of the independent variables also at the household, not at the individual, level. Following Gradín (2015), we construct most of the independent variables in a continuous or quasi-continuous way as within-household proportions. We include standard variables describing the demographic structure of the household: the proportion of women in the household and proportions of household members within the following age intervals: 0-15, 16-25, 26-35, 36-45, 46-55, 56-65, 66 and older. We also use variables that measure the shares of household adult members who were single, married, or no longer married (separated, widowed, or divorced). Education is measured using proportions of adult household members reporting pri-

mary, secondary and tertiary education. We account for the place of household residence by using indicator variables for densely populated areas, intermediate areas, and thinly populated areas.

We account for the role of labour market changes by including several labour market variables in a manner similar to that proposed for the EU-SILC survey by Gradín (2015). The labour market activity rate is measured as the ratio of the number of months during the income reference period the household members spent in the labour market to the total number of months in which the household members could have been active in the labour market (i.e., the number of adult household members multiplied by 12). The full-time (part-time) employment rate is defined as the ratio of the number of months during the income reference period the household members spent in full-time (part-time) employment to the total number of months they spent in the labour force. The occupational structure of the households is measured using variables for the proportions of active household members who were working in each occupation, according to the ISCO system of classification (measured at the one-digit level). Job experience is taken into account using proportions of household members belonging to the labour force, who can be classified according to the following intervals of work experience: less than 1 year, 1-2 years, 3-5 years, 6-9 years, 10 or more years.⁸ We also use a variable measuring the proportion of active household members working in a given sector or industry in the economy with sectors measured according to the Eurostat classification based on NACE groups). The size of the working unit is accounted for by proportions of active household members employed in units of various sizes (1-2 workers, 3-5 workers, 6-10 workers, 11-49 workers or 50+ workers). Finally, the type of job contract is measured by the proportion of active household members having either a permanent job (or job contract of unlimited duration) or temporary contract (or job contract of limited duration).

The descriptive statistics for the countries that experienced statistically significant increases in income inequality over 2008-2012 are presented in the Appendix (Tables 1-5).

6. Empirical results

6.1. Trends in income inequality

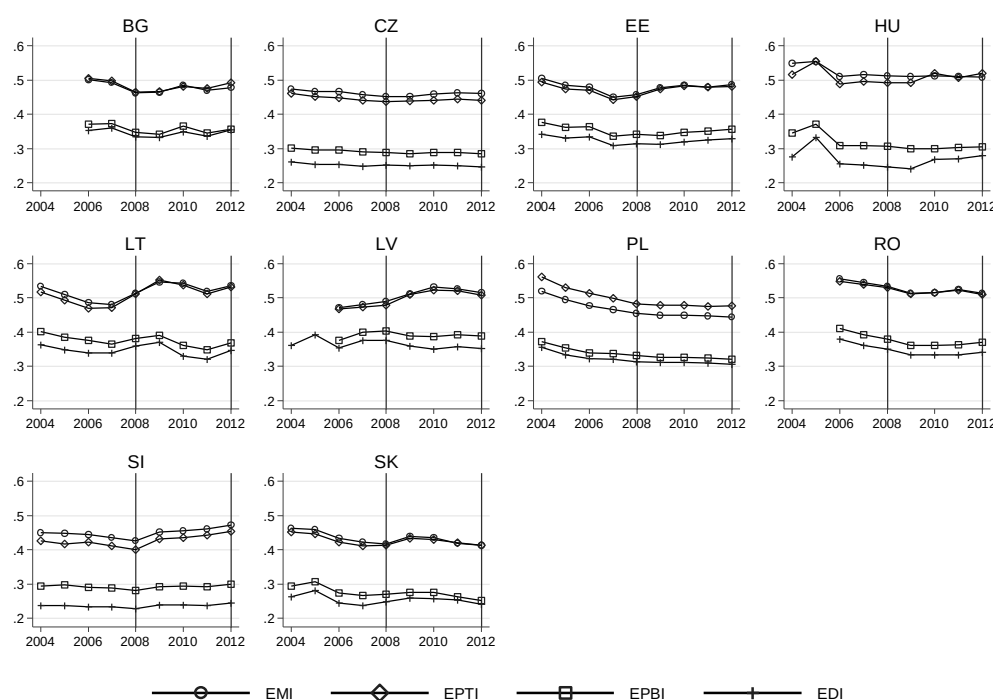
Figure 4 shows the trends in the Gini index in CEE countries for the four income concepts used in the period between 2004 and 2012. There seem to be much less heterogeneity in income inequality measured in terms of market incomes than measured in disposable incomes. The Gini index for market incomes is close to 0.5 for the Baltic countries, Hungary, Poland, Bulgaria and Romania. For the Czech Republic and Slovakia it varied rather in the range from 0.4 to 0.45, while for Slovenia it increased from a low level of about 0.4 in 2008 to a rather high level of about 0.47 in 2012. Visual inspection of the differences between inequality in terms of market incomes and inequality for disposable incomes shows that some countries use their tax-and-transfer systems to redistribute market incomes much more significantly than other countries. Those which redistribute more include Czech Republic, Hungary, Slovenia and Slovakia.

The evolution of the Gini index during the Great Recession and after is depicted on Figure 5. For easier evaluation of the magnitude of inequality changes, the numbers are normalized to the 2008 level. Several countries (Czech Republic, Poland and Romania) did not experience significant changes in income inequality over 2008-2012. The Gini index for EMI

⁸ There is no information about job experience for Bulgaria, Hungary and Slovenia.

increased by about 5% between 2008 and 2010 in Lithuania and Slovakia, but did not increase significantly for EDI in case of Slovakia and decreased for Lithuania. For Lithuania and Latvia, we can observe noticeable differences between inequality trends for market incomes and disposable incomes. In these countries, the Gini for EMI and EPTI rose by about 5% over 2008-2012, while the Gini for EPBI and EDI decreased by up to 5%. This suggests that the increases in market inequalities were more than compensated by higher social protection benefits, which is also visible on Figure 2. In Estonia, higher spending on social protection over 2008-2009 contributed to a much slower rise in inequality in terms of EDI than in terms of EMI. However, eventually the Gini index for EDI in Estonia has risen by about 5% between 2009 and 2012. Sizable growth of social protection spending in Slovenia have also contributed to a somewhat smaller rise in income inequality for EDI than for EMI. However, the Gini for EDI still grew over 2008-2012 by about 7.5% in Slovenia.

Figure 4. Evolution of the Gini index for various income concepts, CEE countries, 2004-2012



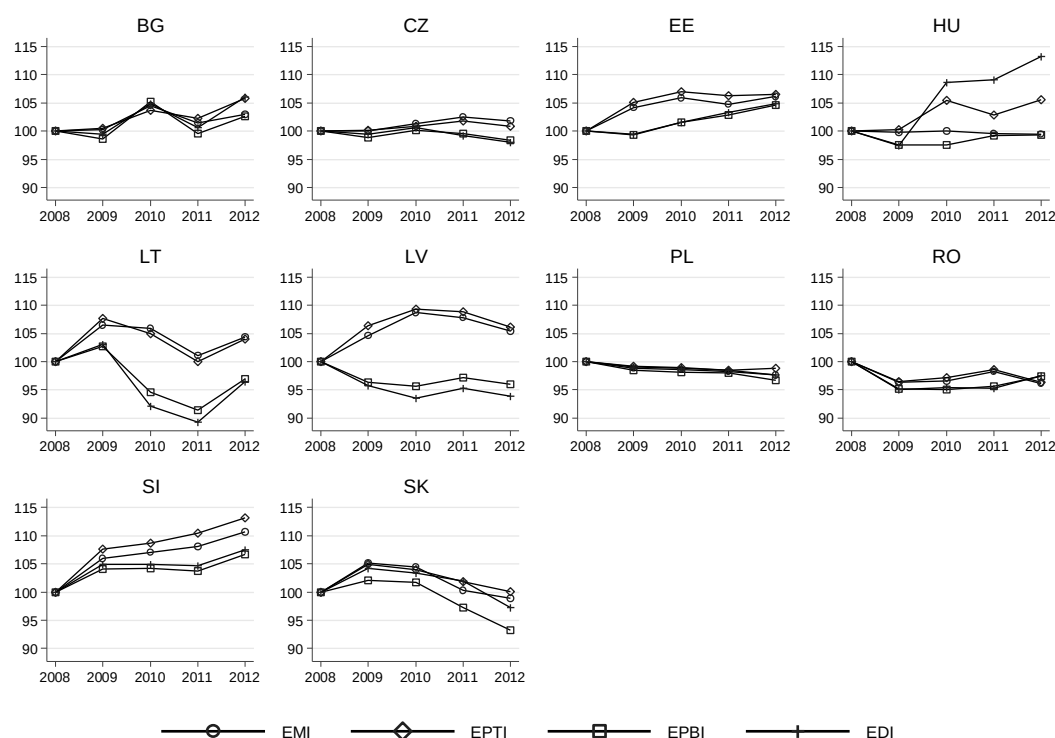
Note: See section 4 for definitions of income variables. Vertical bars denote period of analysis in the present paper.

Source: own construction using EU-SILC data.

Hungary presents an interesting case as the Gini for EDI grew substantially (by about 13.5%) between 2008 and 2012, while inequality in terms of EMI did not change over this period. Inequality for EPTI increased by about 5%, which suggests that the income tax system has become less progressive in Hungary in the studied period.⁹ It seems therefore that for Hungary the major reason for the sizable inequality growth over 2008-2012 was a policy change resulting in making the tax system less redistributive. To a lesser extent, this seems to be also a case of Bulgaria as for this country the Gini for EDI and EPTI grew slightly more than the Gini for EMI and EPBI.

⁹ Indeed, Hungary introduced a flat rate personal income tax in 2011.

Figure 5. Normalized changes in the Gini index for various income concepts, CEE countries, 2008-2012 (2008=100)



Source: own construction using EU-SILC data.

Overall, noticeable increases in income inequality as measured by the Gini index occurred between 2008 and 2012 in Bulgaria, Estonia, Hungary and Slovenia. Table 1 shows the estimates of the Gini index for various income concepts in all CEE countries observed in 2008 and 2012. The table presents also the results of the hypothesis tests about the changes in the Gini index between 2008 and 2012 in each country. In case of Bulgaria and Hungary, statistically significant increases in the Gini occurred only for EPTI and EDI. The Ginis for all income variables rose in a statistically significant way (at the 5% significance level) in Estonia and Slovenia. For Latvia, all inequality changes are also statistically significant – inequality increases for EMI and EPTI and inequality decreases for EPBI and EDI.

In the following section, we use decompositions based on RIF regressions to study the determinants of statistically significant changes in income inequality (as measured by the Gini index) identified in this section.

6.2. Results of the decomposition of changes in the Gini index over 2008-2012

Table 2 shows results of the aggregate and detailed decompositions of difference in the Gini index between 2008 and 2012 for Bulgaria. The estimated coefficients for RIF regressions for all countries and both time periods are presented in the Appendix (Tables 6-10 in the Appendix). A positive (negative) value of the endowment or coefficient effect in Table 2 means that a given factor is contributing positively (negatively) to the observed inequality growth. The results suggest that for all income concepts the aggregate endowment effect is statistically

significant, while the aggregate coefficient effect is not. We can therefore conclude that inequality increase in Bulgaria can be accounted for rather by the changing distribution of the individual and household characteristics than by changing returns to these characteristics. The most important individual effect is full-time employment rate, which accounts for 85% of the overall Gini increase in case of EMI and EPTI and for about 55% of the Gini increase in case of EDI. This corresponds to the fact that the full-time employment rate has fallen in Bulgaria from 69% to 62% between 2008 and 2012 (see Table 1 in the Appendix). Other inequality-increasing endowment effects include education and occupation, which account for 12-30% of the overall change in Gini. In case of education, it seems that the relevant factor was a growing share of population with tertiary education (growth by 4 percentage points over 2008-2012, see Table 1 in the Appendix).

Table 1. Gini coefficients of income inequality for CEE countries and various income definitions, 2008 and 2012

		BG	CZ	EE	HU	LT	LV	PL	RO	SI	SK
EMI	2008	0.463 (0.0057)	0.452 (0.0057)	0.458 (0.0066)	0.512 (0.0045)	0.513 (0.0083)	0.489 (0.0065)	0.455 (0.0051)	0.533 (0.0062)	0.427 (0.0038)	0.418 (0.0047)
	2012	0.477 (0.0073)	0.460 (0.0048)	0.486 (0.0054)	0.509 (0.0055)	0.535 (0.0079)	0.515 (0.0058)	0.444 (0.0035)	0.513 (0.0061)	0.472 (0.0042)	0.413 (0.0053)
	<i>p</i> -value	0.133	0.280	0.001	0.661	0.051	0.002	0.075	0.017	0.000	0.526
EPTI	2008	0.464 (0.0058)	0.437 (0.0059)	0.451 (0.0062)	0.492 (0.0046)	0.512 (0.0095)	0.479 (0.0073)	0.482 (0.0052)	0.530 (0.0064)	0.401 (0.0036)	0.413 (0.0049)
	2012	0.491 (0.0076)	0.441 (0.0047)	0.480 (0.0054)	0.519 (0.0057)	0.532 (0.0086)	0.508 (0.0056)	0.477 (0.0038)	0.510 (0.0061)	0.454 (0.0041)	0.413 (0.0054)
	<i>p</i> -value	0.004	0.637	0.000	0.000	0.110	0.001	0.359	0.027	0.000	0.975
EPBI	2008	0.347 (0.0048)	0.289 (0.0052)	0.341 (0.0059)	0.306 (0.0036)	0.381 (0.0079)	0.404 (0.0061)	0.332 (0.0047)	0.379 (0.0056)	0.282 (0.0027)	0.270 (0.0035)
	2012	0.356 (0.0069)	0.284 (0.0040)	0.357 (0.0047)	0.304 (0.0050)	0.369 (0.0073)	0.388 (0.0054)	0.321 (0.0032)	0.369 (0.0055)	0.301 (0.0030)	0.252 (0.0037)
	<i>p</i> -value	0.272	0.487	0.033	0.726	0.285	0.050	0.051	0.209	0.000	0.000
EDI	2008	0.334 (0.0048)	0.251 (0.0053)	0.314 (0.0057)	0.247 (0.0029)	0.359 (0.0087)	0.375 (0.0064)	0.314 (0.0044)	0.350 (0.0052)	0.227 (0.0022)	0.248 (0.0035)
	2012	0.354 (0.0075)	0.246 (0.0037)	0.329 (0.0043)	0.280 (0.0049)	0.346 (0.0073)	0.352 (0.0051)	0.307 (0.0030)	0.342 (0.0055)	0.244 (0.0025)	0.242 (0.0036)
	<i>p</i> -value	0.024	0.434	0.032	0.000	0.270	0.005	0.157	0.260	0.000	0.169

Note: See section 5 for definitions of income variables. Standard errors (in parentheses) were obtained by bootstrapping with 1,000 replications, which accounts for clustering of individuals within households. Goedemé (2013) shows that this way of computing standard errors for EU-SILC-based estimates produces approximately correct results. Rows denoted “*p*-value” show *p*-values from the test of equality of the Gini coefficients observed in 2008 and 2012.

Source: own computation using the EU-SILC data.

We now turn to the results for Estonia (Table 3). In this case, the total endowment effect is statistically significant for all our income concepts, while the total coefficient effect is significant only for EMI and EPTI. Similarly, to Bulgaria, we observe that endowment effect for full-time employment rate plays the biggest role in explaining the increase in Gini for all income concepts used. Depending on the income concept used, the endowment effect for full-time employment accounts for 62-80% of the overall Gini growth. It is a result of the decline in full-time employment rate from 72% in 2008 to 66.5% in 2012 (see Table 2 in the Appendix). On the other hand, the endowment effect for part-time employment rate has been an inequality-decreasing factor. However, its magnitude is rather small (5-7% of the overall Gini growth). This effect is associated with a small, but nonnegligible growth in part-time employment in Estonia between 2008 and 2012 (a change of 1 percentage point, see Table 2 in the Appendix).

Table 2. Decomposition of changes in the Gini index for Bulgaria, 2008-2012

	EMI		EPTI		EPBI		EDI	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Gini index in 2012	0.492***	0.008	0.492***	0.008	0.357***	0.007	0.354***	0.008
Gini index in 2008	0.466***	0.006	0.466***	0.006	0.347***	0.006	0.334***	0.004
Difference in Gini	0.026***	0.009	0.026***	0.009	0.009	0.010	0.020**	0.009
Total endowment effect	0.039***	0.007	0.039***	0.007	0.021***	0.006	0.019***	0.006
Total coefficient effect	-0.013	0.009	-0.013	0.009	-0.011	0.009	0.001	0.009
<i>Endowment effects</i>								
Activity rate	0.002	0.001	0.002	0.002	-0.001	0.001	-0.002	0.001
FT employment rate	0.022***	0.004	0.021***	0.004	0.013***	0.003	0.011***	0.002
PT employment rate	0.001	0.001	0.001	0.001	0.000	0.000	-0.000	0.000
Demographic factors	0.006***	0.002	0.007***	0.002	0.003*	0.001	0.003	0.002
Education	0.003*	0.001	0.003*	0.002	0.004***	0.001	0.004***	0.001
Occupation	0.004*	0.002	0.005**	0.002	0.005**	0.002	0.006***	0.002
Marital status	-0.001	0.001	-0.001	0.002	-0.000	0.002	-0.001	0.001
Urbanization	-0.003	0.002	-0.002	0.002	-0.004**	0.002	-0.003	0.002
Sector of the economy	0.006**	0.003	0.006**	0.003	0.003	0.002	0.002	0.003
Unit size	-0.001	0.001	-0.000	0.002	-0.001	0.001	-0.001	0.002
Type of contract	-0.000	0.001	0.000	0.001	-0.000	0.001	-0.000	0.001
<i>Coefficient effects</i>								
Activity rate	-0.025	0.034	-0.017	0.036	-0.049	0.034	-0.043	0.034
FT employment rate	0.026	0.022	0.041**	0.021	0.004	0.020	0.015	0.019
PT employment rate	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.002
Demographic factors	0.043	0.063	0.066	0.064	0.011	0.059	0.026	0.058
Education	0.027	0.057	0.017	0.070	0.065	0.059	0.062	0.072
Occupation	-0.011	0.067	-0.014	0.076	0.002	0.070	-0.007	0.071
Marital status	0.087	0.110	0.165	0.114	0.007	0.102	0.051	0.111
Urbanization	-0.022	0.017	-0.025	0.017	-0.009	0.016	-0.008	0.015
Sector of the economy	-0.071	0.070	-0.088	0.074	-0.065	0.061	-0.072	0.061
Unit size	0.591	1.066	0.654	0.995	0.511	0.891	0.543	0.843
Type of contract	-0.548	1.068	-0.579	0.999	-0.478	0.894	-0.482	0.839
Intercept	-0.125	0.175	-0.237	0.191	-0.012	0.172	-0.090	0.172

Note: *, ** and *** stand for statistically different from zero at, respectively, 10%, 5%, and 1% significance levels. Standard errors were computed using the bootstrapping with the decomposition procedure (with 500 replications), which accounts for clustering of individuals within households. See section 5 for definitions of variables. To ease the presentation, we subsume results for sets of dummies representing categorical variables under group variables such as education or occupation. Variable means in both periods as well as estimates of coefficients for RIF regressions are presented in tables included in the Appendix. The estimated values of the Gini index from Table 2 may be marginally different from estimates presented in Table 1 due to a small number of missing values for some covariates used in the decomposition analyses. Estimates from Table 1 are calculated using all income observations without removing observations with missing covariate values.

Source: own construction using the EU-SILC data.

Table 3. Decomposition of changes in the Gini index for Estonia, 2008-2012

	EMI		EPTI		EPBI		EDI	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Gini index in 2012	0.483***	0.005	0.478***	0.005	0.355***	0.005	0.327***	0.004
Gini index in 2008	0.456***	0.006	0.449***	0.006	0.339***	0.006	0.313***	0.006
Difference in Gini	0.027***	0.008	0.029***	0.008	0.015**	0.007	0.014**	0.007
Total endowment effect	0.015**	0.006	0.016***	0.006	0.010***	0.004	0.010***	0.004
Total coefficient effect	0.012*	0.007	0.013*	0.007	0.005	0.008	0.004	0.007
<i>Endowment effects</i>								
Activity rate	-0.001	0.000	-0.001	0.000	-0.001	0.001	-0.001	0.001
FT employment rate	0.018***	0.003	0.018***	0.003	0.012***	0.002	0.011***	0.002
PT employment rate	-0.002***	0.001	-0.002**	0.001	-0.001**	0.001	-0.001**	0.001
Demographic factors	0.001	0.002	0.001	0.002	0.000	0.001	-0.000	0.001
Education	-0.001	0.001	-0.001	0.001	0.001	0.001	0.001	0.001
Occupation	-0.002	0.003	-0.002	0.003	-0.002	0.003	-0.002	0.003
Job experience	0.000	0.001	0.000	0.001	-0.000	0.001	-0.000	0.001
Marital status	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Urbanization	0.000	0.001	-0.000	0.001	0.001	0.001	0.001	0.001
Sector of the economy	0.001	0.003	0.001	0.003	0.000	0.002	0.000	0.002
Unit size	-0.000	0.001	-0.000	0.001	-0.000	0.001	-0.000	0.001
Type of contract	0.000	0.001	0.000	0.001	0.001	0.001	0.001	0.001
<i>Coefficient effects</i>								
Activity rate	0.021	0.018	0.025	0.021	0.007	0.019	0.006	0.021
FT employment rate	-0.022	0.016	-0.022	0.018	-0.026	0.017	-0.024	0.016
PT employment rate	-0.001	0.002	0.000	0.002	-0.001	0.002	-0.000	0.002
Demographic factors	-0.010	0.046	-0.016	0.046	-0.000	0.044	-0.002	0.044
Education	0.220	0.242	0.212	0.224	0.187	0.225	0.156	0.231
Occupation	-0.143**	0.058	-0.162***	0.058	-0.128**	0.055	-0.127**	0.055
Job Experience	-0.046	0.054	-0.040	0.051	-0.047	0.060	-0.041	0.060
Marital status	-0.292	0.241	-0.283	0.227	-0.298	0.237	-0.279	0.235
Urbanization	0.006	0.008	0.005	0.008	0.004	0.007	0.003	0.007
Sector of the economy	0.040	0.067	0.047	0.064	0.092	0.066	0.107*	0.058
Unit size	-0.017	0.029	-0.016	0.030	-0.014	0.030	-0.010	0.029
Type of contract	0.028	0.140	0.039	0.126	-0.026	0.137	-0.044	0.116
Intercept	0.227	0.160	0.223	0.137	0.255*	0.137	0.261*	0.143

Note: see note for Table 2.

Source: own construction using the EU-SILC data.

Table 4. Decomposition of changes in the Gini index for Hungary, 2008-2012

	EMI		EPTI		EPBI		EDI	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Gini index in 2012	0.509***	0.005	0.519***	0.006	0.304***	0.005	0.280***	0.005
Gini index in 2008	0.512***	0.004	0.491***	0.005	0.306***	0.003	0.247***	0.003
Difference in Gini	-0.003	0.007	0.028***	0.008	-0.002	0.006	0.033***	0.006
Total endowment effect	0.024***	0.005	0.025***	0.005	0.016***	0.003	0.016***	0.003
Total coefficient effect	-0.028***	0.006	0.002	0.006	-0.019***	0.005	0.017***	0.006
<i>Endowment effects</i>								
Activity rate	-0.001	0.001	-0.001	0.001	0.001	0.001	0.001*	0.001
FT employment rate	0.016***	0.003	0.016***	0.003	0.006***	0.001	0.005***	0.001
PT employment rate	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000
Demographic factors	0.003**	0.001	0.004**	0.002	0.000	0.001	0.001	0.001
Education	0.002**	0.001	0.002*	0.001	0.003***	0.001	0.003***	0.001
Occupation	0.002	0.002	0.001	0.002	0.003*	0.002	0.002	0.002
Marital status	0.001*	0.000	0.000	0.000	0.001**	0.000	0.001**	0.000
Urbanization	-0.001	0.001	-0.001	0.001	-0.001	0.001	-0.001	0.001
Sector of the economy	0.001	0.001	0.001	0.002	0.001	0.001	0.000	0.001
Unit size	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Type of contract	0.001	0.001	0.003**	0.001	0.002*	0.001	0.005***	0.001
<i>Coefficient effects</i>								
Activity rate	0.015	0.018	0.023	0.016	0.025	0.017	0.035**	0.016
FT employment rate	0.008	0.015	0.036**	0.017	-0.016	0.014	-0.013	0.012
PT employment rate	-0.000	0.001	0.003*	0.001	-0.001	0.001	0.000	0.001
Demographic factors	0.029	0.036	0.018	0.031	0.015	0.032	0.003	0.030
Education	0.025	0.024	0.028	0.028	0.009	0.021	0.011	0.021
Occupation	-0.047	0.084	-0.054	0.073	-0.036	0.083	-0.035	0.072
Marital status	0.013	0.012	0.009	0.013	0.013	0.011	0.009	0.013
Urbanization	0.002	0.009	0.012	0.009	0.007	0.008	0.017**	0.009
Sector of the economy	-0.017	0.031	-0.030	0.038	-0.007	0.033	-0.013	0.028
Unit size	0.019	0.015	0.007	0.019	0.027*	0.015	0.012	0.016
Type of contract	-0.027	0.025	-0.048*	0.025	0.002	0.022	-0.026	0.023
Intercept	-0.047	0.103	-0.004	0.094	-0.056	0.101	0.018	0.091

Note: see note for Table 2.

Source: own construction using the EU-SILC data.

Table 5. Decomposition of changes in the Gini index for Latvia, 2008-2012

	EMI		EPTI		EPBI		EDI	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Gini index in 2012	0.514***	0.006	0.506***	0.006	0.386***	0.005	0.351***	0.005
Gini index in 2008	0.487***	0.007	0.477***	0.007	0.402***	0.007	0.374***	0.006
Difference in Gini	0.026***	0.009	0.030***	0.009	-0.016*	0.009	-0.023***	0.008
Total endowment effect	0.026***	0.006	0.026***	0.007	0.021***	0.005	0.017***	0.005
Total coefficient effect	0.001	0.009	0.003	0.008	-0.037***	0.009	-0.040***	0.009
<i>Endowment effects</i>								
Activity rate	-0.000	0.001	0.000	0.001	-0.002**	0.001	-0.002**	0.001
FT employment rate	0.018***	0.003	0.019***	0.003	0.012***	0.002	0.011***	0.002
PT employment rate	-0.002***	0.001	-0.003***	0.001	-0.001***	0.001	-0.002***	0.000
Demographic factors	0.004**	0.002	0.004**	0.002	0.002	0.002	0.001	0.001
Education	0.003**	0.001	0.003**	0.001	0.004***	0.001	0.003***	0.001
Occupation	0.002	0.003	0.002	0.003	0.002	0.003	0.001	0.002
Job experience	0.002*	0.001	0.001*	0.001	0.001	0.001	0.001	0.001
Marital status	-0.000	0.001	-0.000	0.001	0.000	0.001	-0.000	0.001
Urbanization	-0.000	0.000	-0.000	0.000	-0.001	0.001	-0.001*	0.000
Sector of the economy	-0.000	0.002	-0.000	0.002	0.002	0.002	0.002	0.002
Unit size	0.002	0.002	0.002	0.002	0.006***	0.002	0.006***	0.002
Type of contract	-0.001	0.002	-0.002	0.002	-0.003	0.002	-0.004**	0.002
<i>Coefficient effects</i>								
Activity rate	0.053**	0.024	0.056**	0.026	0.048*	0.026	0.050*	0.026
FT employment rate	-0.007	0.016	-0.012	0.016	0.015	0.017	0.020	0.016
PT employment rate	-0.001	0.002	-0.002	0.002	-0.001	0.002	-0.002	0.002
Demographic factors	-0.173	0.124	-0.162	0.144	-0.165	0.138	-0.146	0.125
Education	0.080	0.119	0.038	0.103	0.112	0.115	0.083	0.116
Occupation	-0.046	0.128	-0.076	0.152	-0.018	0.092	-0.023	0.096
Job Experience	0.017	0.050	0.041	0.047	-0.002	0.059	0.013	0.065
Marital status	0.047	0.147	0.099	0.132	-0.028	0.147	0.011	0.145
Urbanization	0.010	0.013	0.009	0.011	0.013	0.015	0.013	0.014
Sector of the economy	-0.113	0.069	-0.111	0.067	-0.066	0.062	-0.059	0.062
Unit size	1.586**	0.731	2.231**	0.892	1.102	0.671	1.593*	0.901
Type of contract	-1.514**	0.689	-2.042**	0.839	-1.193*	0.637	-1.655*	0.847
Intercept	0.062	0.245	-0.067	0.270	0.146	0.253	0.061	0.249

Note: see note for Table 2.

Source: own construction using the EU-SILC data.

Table 6. Decomposition of changes in the Gini index for Slovenia, 2008-2012

	EMI		EPTI		EPBI		EDI	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Gini index in 2012	0.472***	0.004	0.454***	0.004	0.301***	0.003	0.244***	0.002
Gini index in 2008	0.427***	0.004	0.401***	0.003	0.282***	0.003	0.227***	0.002
Difference in Gini	0.046***	0.006	0.052***	0.005	0.019***	0.004	0.017***	0.003
Total endowment effect	0.047***	0.004	0.051***	0.005	0.026***	0.002	0.022***	0.002
Total coefficient effect	-0.002	0.004	0.002	0.004	-0.007*	0.004	-0.005	0.003
<i>Endowment effects</i>								
Activity rate	-0.000	0.001	-0.000	0.000	0.001	0.001	0.001	0.001
FT employment rate	0.037***	0.003	0.039***	0.003	0.016***	0.001	0.012***	0.001
PT employment rate	-0.005***	0.001	-0.005***	0.001	-0.002***	0.000	-0.001**	0.000
Demographic factors	0.003***	0.001	0.003***	0.001	0.001*	0.001	0.001*	0.001
Education	0.003***	0.001	0.003***	0.001	0.005***	0.001	0.004***	0.001
Occupation	0.003*	0.002	0.002	0.001	0.002	0.002	0.001	0.001
Marital status	0.001***	0.000	0.001***	0.001	0.002***	0.001	0.002***	0.001
Sector of the economy	0.002	0.003	0.001	0.003	0.000	0.002	-0.001	0.003
Unit size	0.001	0.003	0.003	0.003	0.001	0.003	0.003	0.003
Type of contract	0.003***	0.001	0.004***	0.001	0.001	0.001	0.000	0.001
<i>Coefficient effects</i>								
Activity rate	0.019	0.018	0.024	0.017	0.033*	0.017	0.032**	0.015
FT employment rate	-0.006	0.012	-0.012	0.012	0.002	0.011	-0.001	0.011
PT employment rate	-0.000	0.001	0.000	0.001	-0.000	0.001	0.000	0.001
Demographic factors	0.013	0.075	0.018	0.088	0.017	0.067	0.016	0.054
Education	-0.051	0.041	-0.044	0.046	-0.047	0.048	-0.040	0.054
Occupation	-0.118**	0.052	-0.027	0.061	-0.548**	0.269	-0.509*	0.262
Marital status	0.094*	0.056	0.129**	0.060	0.087	0.071	0.096	0.069
Sector of the economy	-0.065	0.082	-0.074	0.080	-0.069	0.079	-0.070	0.071
Unit size	0.096	0.129	-0.006	0.128	0.675**	0.273	0.656**	0.271
Type of contract	-0.014	0.084	-0.032	0.076	-0.007	0.178	-0.016	0.152
Intercept	0.030	0.113	0.027	0.126	-0.149	0.109	-0.169	0.105

Note: see note for Table 2.

Source: own construction using the EU-SILC data.

For Hungary, only the changes in inequality for EPTI and EDI are statistically significant (Table 4). The Gini for EPTI in 2012 is larger than the Gini for EMI suggesting that the Hungarian personal tax system has become regressive. The insignificance of changes in inequality in terms of EMI and EPBI indicates that the major factor responsible for the growth of income inequality is reduced progressivity of the tax system due to the introduction of the flat rate personal income tax in 2011. This is consistent with the results of De Agostini et al. (2016), who found that this reform of the Hungarian tax system increased the Gini index by 2 percentage points over 2008-2011. For both EPTI and EDI, the total endowment effects are significant, while for EDI also the total coefficient effect is significant. In case of EPTI, similarly to Bulgaria and Estonia, the endowment effect for full-time employment rate plays a big role in accounting for inequality growth (57% of the rise in the Gini index). The full-time employment rate has dropped from 67.7% to 63.9% in Hungary between 2008 and 2012. It is worth noting, however, that the endowment effect for full-time employment rate is only one half percentage point for EDI, which accounts for only about 15% of the 3.3 percentage points increase in the Gini for EDI. Other inequality-increasing endowment effects for EDI include education and type of contract. The effect of education is related to the increased proportion of population with tertiary education (16.8% in 2008 and 19.2% in 2012; see Table 3 in the Appendix). Regarding the role of type of contract, we notice that the proportion of adult household members having permanent job dropped from 69.2% in 2008 to 64.1% in 2012 (see Table 3 in the Appendix). However, at the same time the proportion of missing information about contract type has increased by about 5 percentage points. We cannot therefore

reliably infer that declining share of workers with permanent jobs contributed to the growing inequality in Hungary in the period of the Great Recession.

The aggregate coefficient effect for EDI in Hungary is statistically significant and equal to 1.7 percentage point, which is 52% of the Gini increase. Two individual coefficient effects are statistically significant and large – those for activity rate (106% of the Gini growth) and urbanization (52%). These coefficient effects reflect the fact that the returns to the specific factors (being economically active, living in densely populated area) have increased substantially in Hungary over 2008-2012 (see Table 8 in the Appendix). The inequality-increasing role of returns to the activity rate may be explained by growing difference between incomes of persons active on the labour market and those inactive. The incomes of the latter could have been affected by the reduced social protection benefits in Hungary after 2010 (see Figure 2). However, it must be stressed here that the effects discussed here may be partially spurious due to the identification problem for detailed coefficient effects discussed in section 4.1.

Table 5 provides results of the decomposition analysis for Latvia – a country with increasing inequality in terms of EMI and EPTI, but falling inequality as measured according to EPBI and EDI. The aggregate endowment effect explains most of the inequality rise for EMI and EPTI. Among the individual endowment effects, the biggest role is again played by the full-time employment rate accounting for 63-69% of the Gini increase. As Table 4 in the Appendix shows, the full-time employment rate in Latvia dropped by 5.5 percentage points over 2008-2012. Increasing share of people with tertiary education and changing distribution of job experience also have inequality-increasing effects, although much smaller than full-time employment rate.

In case of EPBI and EDI, the total endowment effect contributes to increasing inequality, while statistically significant total coefficient effect plays inequality-decreasing role. The latter is also 75% higher than the former in case of EPBI and more than twice the former in case of EDI. Inequality-increasing endowment effects of full-time employment rate and education are present also for EPBI and EDI. Increasing labour market activity rate and part-time employment rate had small (up to 10% of the Gini change) inequality-decreasing effects.

Finally, Table 6 shows results for Slovenia. Most of the Gini growth for this country can be again accounted for by endowment effects. Decreasing full-time employment rate, from 75.6% in 2008 to 67.3% in 2012 (see Table 5 in the Appendix), is responsible for 75-80% of the Gini growth measured according to EMI and EPTI. Smaller inequality-increasing endowment effects are observed for demographic factors, education, occupation, marital status and type of contract. Part-time employment had a small inequality-reducing endowment effect. Turning to other income concepts including social protection benefits (EPBI, EDI), we can see that again endowment effect plays a much bigger compared to the coefficient effects. The inequality-increasing effect of full-time employment is somewhat reduced but still accounts for 71-74% of the Gini increase. The aggregate coefficient effect is marginally significant for EPBI and insignificant for EDI.¹⁰

Overall, our results show a substantial degree of heterogeneity in the short-term distributional consequences of the Great Recession in CEE countries. In half of the countries studied, income inequality in terms of EDI did not increase over 2008-2012. For most of the CEE countries that experienced worsening of income distributions, declines in full-time employment rate were the major factor responsible for income inequality growth. This is not surprising in the context of Bulgaria and Estonia – two countries with rather weak welfare states and poorly functioning automatic stabilizers (Dolls et al. 2011). The main policy conclusion implied by our analysis is that strengthening automatic stabilizers and providing more generous

¹⁰ Slovenia performs relatively better than most of the CEE countries with respect to the power of automatic stabilizers and generosity of welfare state, but it is below-average performer compared to the EU average.

welfare transfers to the households in need could mitigate the distributional consequences of recessions, if fiscal space is available.

7. Conclusions

This paper has studied the evolution of income inequality as measured by the Gini index in ten CEE countries during the period of the Great Recession (2008-2012). We have found that the Gini for disposable incomes has increased over the recession in a statistically significant way for Bulgaria, Estonia, Hungary and Slovenia. For Bulgaria, Estonia and Slovenia, the Gini grew in the range from 4.7 to 7.4%, while for Hungary it grew by 13.5%. The worsening of income distribution in Hungary, and to a lesser extent in Bulgaria, seems to be related to a policy change, which made the tax-and-benefit system less redistributive. In a group of countries (Czech Republic, Lithuania, Poland, Romania, Slovakia) there was no significant inequality change. Latvia experienced a fall in the Gini for disposable incomes by 6.1%.

In order to identify the determinants of these changes in income inequality, we have performed the Oaxaca-Blinder-like decomposition analyses based on the Recentered Influence Function (RIF) methodology applied to the Gini index. By this, we split the overall change in the Gini index into endowment effects associated with changes in the distribution of inequality covariates and coefficient effects, which are related to the changing returns to these covariates. The decomposition analyses are conducted for four income measures observed at various stages of the redistribution through the tax and benefit system. This allowed to separate changes which were due to policies from changes undergoing in the economy. Our results show that in most of the countries with significant inequality changes (Bulgaria, Estonia, Latvia, Slovenia) endowment effect for full-time employment rate, associated with the fall in this rate, played the biggest role in explaining inequality growth. It accounted for about 50-60% of the Gini change for EDI and for about 60-80% of the Gini change for EMI or EPTI. For Estonia and Slovenia, increases in part-time employment had a small inequality-decreasing effect (5-7% of the total Gini change).

The fall in full-time employment rate had a smaller inequality-increasing effect for EDI in Hungary (about 15% of the Gini increase). A bigger role in explaining sizable rise in inequality in terms of EDI in Hungary was played by reduced progressivity of the tax system.

Overall, this paper has found that the Great Recession in Central and Eastern Europe led to increased income inequality in some countries, mainly through reducing full-time employment rate. Increased part-time employment had either no impact on inequality or was rather inequality-decreasing. We did not find evidence in our data that changes in the incidence of temporary jobs had any impact on income inequality.

References

- Alvaredo F., Gasparini L. (2015), *Recent trends in inequality and poverty in developing countries*. In: Atkinson A. B., Bourguignon F. (eds.) *Handbook of Income Distribution*, vol. 2, Elsevier, Oxford, pp. 697–805.
- 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), pp. 542–570.
- Aristei D., Perugini C. (2015), *Social preferences for redistribution in Central Eastern Europe and in the Baltic countries*. In: Perugini C., Pompei F. (eds.) *Inequalities During and After Transition in Central and Eastern Europe*, Palgrave Macmillan, Houndmills, pp. 265–283.

- Atkinson A. B., Marlier E. (eds.), (2010), *Income and Living Conditions in Europe*. Luxembourg, European Union.
- Barlow D., Grimalda G., Meschi E. (2009), Globalisation vs internal reforms as factors of inequality in transition economies. *International Review of Applied Economics*, 23(3), pp. 265–287.
- Blinder, A. S.(1973). Wage discrimination: Reduced form and structural estimates. *Journal of Human Resources* 8: 436–455
- Bourguignon F., Ferreira F. H., Menendez M. (2007), Inequality of opportunity in Brazil. *Review of Income and Wealth*, vol. 53(4), pp. 585–618.
- De Agostini, Paola, Alari Paulus and Iva Tasseva (2016) “The effect of tax-benefit changes on the income distribution in 2008-2015”, EUROMOD Working Paper Series EM6/16.
- Dolls M., Fuest C., Peichl A. (2011), Automatic stabilizers, economic crisis and income distribution in Europe. *Research in Labor Economics*, 32, pp. 227–256.
- Esposito P., Stehrer R. (2009), The sector bias of skill-biased technical change and the rising skill premium in transition economies. *Empirica*, 36(3), pp. 351–364.
- Essama-Nssah, B. and Lambert, P. J. (2012), Influence functions for policy impact analysis, in J. A. Bishop and R. Salas, eds, ‘Inequality, Mobility and Segregation: Essays in Honor of Jacques Silber’, Vol. 20 of *Research on Economic Inequality*, Emerald Group Publishing, pp. 135–159.
- European Commission (2016) European economic forecast. Winter 2016. Technical report, European Commission.
- Ferreira F. H. (1999), Economic transition and the distributions of income and wealth. *Economics of Transition* 7(2):377–410
- Firpo, S., N.M. Fortin, and T. Lemieux (2007), “Decomposing Wage Distributions Using Re-centered Influence Function Regressions,” Unpublished Manuscript, University of British Columbia.
- Firpo, S., N.M. Fortin, and T. Lemieux (2009), “Unconditional Quantile Regressions,” *Econometrica*, 77, 953–973.
- Flemming JS, Micklewright J (2000) Income distribution, economic systems and transition. In: Atkinson AB, Bourguignon F (eds) *Handbook of Income Distribution*, vol 1, Elsevier, Oxford, pp 843–918
- Fortin, M.N., T. Lemieux, and S. Firpo (2011), “Decomposition methods in economics,” in O. Ashenfelter and D. Card, eds., *Handbook of Labor Economics*, 4, 1-102, North Holland, Amsterdam.
- Fuest, C., Peichl A., Niehues, J. (2010), “The Redistributive Effects of Tax Benefit Systems in the Enlarged EU.” *Public Finance Review* 38, 473-500.
- Goedemé, T. (2013), “How much Confidence can we have in EU-SILC? Complex Sample Designs and the Standard Error of the Europe 2020 Poverty Indicators”, *Social Indicators Research*, 110(1): 89-110.
- Gradín C. (2015), Why is income inequality so high in Spain?, unpublished.
- Hampel, F.R. (1974), “The influence curve and its role in robust estimation”, *Journal of the American Statistical Association*, 60, 383–393.
- Hölscher 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
- Ivanova M (2007) Inequality and government policies in central and eastern europe. *East European Quarterly* 41(2):167–205
- Ivaschenko O (2002) Growth and Inequality: Evidence from Transitional Economies. CESifo Working Paper Series 746, <https://ideas.repec.org/p/ces/ceswps/746.html>

- Jenkins, S. P., Brandolini, A., Micklewright, J., and B. Nolan, B. (Eds.). (2013). *The Great Recession and the distribution of household income*. Oxford University Press, Oxford, UK.
- Jones, F. L. (1983). On decomposing the wage gap: a critical comment on Blinder's method. *Journal of Human Resources*, 18(1), 126-130.
- Matsaganis, M., and C. Leventi (2014), *Distributive Effects of the Crisis and Austerity in Seven EU Countries*. ImPRovE Discussion Paper No. 14/04. Antwerp: Herman Deleeck Centre for Social Policy – University of Antwerp.
- Milanovic B (1998) Income, inequality, and poverty during the transition from planned to market economy. World Bank Washington, DC, New York
- Milanovic B. (1999) Explaining the increase in inequality during transition. *Economics of transition* 7(2):299–341
- Milanovic B., Ersado L. (2012) Reform and Inequality during the Transition: An Analysis Using Panel Household Survey Data, 1990–2005 In: *Economies in Transition: The Long-Run View*, edited by Gerard Roland, Palgrave Macmillan UK, London, pp. 84-108.
- Mitra P, Yemtsov R (2007) Increasing inequality in transition economies: is there more to come? In: Bourguignon F, Pleskovic B (eds) *Beyond Transition*, The World Bank, Washington, D.C., pp 59– 102
- Myant M, Drahokoupil J (2015) Welfare and redistribution in post-communist countries. In: Perugini C, Pompei F (eds) *Inequalities During and After Transition in Central and Eastern Europe*, Palgrave Macmillan, Houndmills, pp 284–305.
- Oaxaca, R. 1973. Male–female wage differentials in urban labor markets. *International Economic Review* 14: 693–709.
- Oaxaca, R. L., Ransom, M. R. (1999). Identification in detailed wage decompositions. *Review of Economics and Statistics*, 81(1), 154-157.
- Peragine, V., Palmisano, F., & Brunori, P. (2014). Economic growth and equality of opportunity. *The World Bank Economic Review*, 28(2), 247-281.
- Perugini, C., Pompei, F. (2015) (Eds), *Inequality During and After Transition in Central and Eastern Europe*, Palgrave-MacMillan, London, UK.
- Perugini, C., Pompei, F. (2016). Income Distribution. In J. Hölscher and H. Tomann (eds.) *Palgrave Dictionary of Emerging Markets and Transition Economics*, Palgrave Macmillan UK, pp. 458-476.
- Tóth, I.G. (2014), “Revisiting Grand Narratives of Growing Income Inequalities: Lessons from 30 Country Studies,” in B. Nolan, W. Salverda, D. Checchi, I. Marx, A. McKnight, I.G. Tóth, and H.G. van de Werfhorst (eds), *Changing Inequalities and Societal Impacts in Rich Countries: Thirty Countries’ Experiences*, pp. 11—47, Oxford University Press, Oxford.
- Yun, M. S. (2005). A simple solution to the identification problem in detailed wage decompositions. *Economic Inquiry*, 43(4), 766-772.

Appendix. Descriptive statistics and results of the RIF regressions

Table 1. Descriptive statistics for Bulgaria, 2008 and 2012

	2008		2012	
	Mean	SD	Mean	SD
EMI	6566.618	6000.593	6132.494	6511.104
EPTI	5622.963	5149.347	5083.265	5594.529
EPBI	7929.714	5589.541	7741.208	6331.486
EDI	6986.048	4751.081	6691.974	5462.000
Female	0.516	0.208	0.514	0.222
Age 0-15	0.145	0.182	0.145	0.196
Age 16-25	0.130	0.190	0.114	0.181
Age 26-35	0.149	0.202	0.135	0.206
Age 36-45	0.140	0.202	0.150	0.217
Age 46-55	0.138	0.223	0.134	0.223
Age 56-65	0.134	0.243	0.144	0.267
Age 66+	0.164	0.308	0.177	0.319
Activity rate	0.599	0.343	0.572	0.348
Full-time employment rate	0.689	0.403	0.617	0.425
Part-time employment rate	0.024	0.113	0.020	0.107
Single	0.253	0.293	0.277	0.314
Married	0.593	0.377	0.550	0.391
No longer married	0.170	0.296	0.177	0.311
Primary education	0.075	0.217	0.075	0.233
Secondary education	0.759	0.358	0.709	0.382
Tertiary education	0.168	0.302	0.208	0.335
Managers	0.050	0.157	0.026	0.113
Professionals	0.090	0.218	0.099	0.226
Technicians and assoc. professionals	0.068	0.176	0.063	0.169
Clerical support workers	0.063	0.161	0.054	0.159
Services and sales workers	0.134	0.231	0.155	0.257
Skilled agriculture workers	0.063	0.186	0.047	0.167
Craft and trade workers	0.154	0.242	0.138	0.243
Plant and machine operators	0.118	0.219	0.111	0.218
Elementary occupations	0.158	0.264	0.150	0.271
Occupation not available	0.098	0.178	0.119	0.204
Densely populated area	0.429	0.495	0.429	0.495
Intermediately populated area	0.063	0.242	0.226	0.418
Thinly populated area	0.509	0.500	0.345	0.475
Agriculture, forestry and fishing	0.042	0.146	0.035	0.136
Mining; manufacturing; electricity, gas and water supply	0.126	0.231	0.119	0.230
Construction	0.066	0.161	0.041	0.135
Wholesale and retail trade; repair vehicles	0.089	0.198	0.084	0.198
Hotels and restaurants	0.032	0.125	0.027	0.115
Transport, storage and communications	0.042	0.140	0.042	0.136
Financial intermediation	0.012	0.074	0.008	0.058
Real estate, renting and business activities	0.029	0.116	0.033	0.128
Public administration and defence; social security	0.033	0.117	0.037	0.129
Education	0.029	0.114	0.032	0.119
Health and social work	0.022	0.096	0.026	0.112
Other services	0.018	0.089	0.014	0.077
Sector not available	0.721	0.456	0.781	0.546
Unit size: 1-2 workers	0.583	0.362	0.584	0.363
Unit size: 3-5 workers	0.058	0.161	0.052	0.160
Unit size: 6-10 workers	0.040	0.143	0.038	0.141
Unit size: 11-49 workers	0.023	0.105	0.024	0.109
Unit size: 50+ workers	0.131	0.238	0.158	0.261
Unit size not available	0.160	0.262	0.141	0.249
Contract type not available	0.236	0.291	0.218	0.298
Permanent job or contract of unlimited duration	0.704	0.322	0.708	0.336
Temporary job or contract of limited duration	0.055	0.152	0.070	0.180
N	14,917		12,342	

Note: See section 4 for definitions of variables. Income variables for Hungary are expressed in thousands of forints.

Source: own construction using data from the EU-SILC.

Table 2. Descriptive statistics for Estonia, 2008 and 2012

	2008		2012	
	Mean	SD	Mean	SD
EMI	7.688	6.830	7.341	6.848
EPTI	6.207	5.352	5.825	5.323
EPBI	9.300	6.385	9.083	6.435
EDI	7.819	4.904	7.567	4.928
Female	0.541	0.254	0.540	0.258
Age 0-15	0.161	0.214	0.166	0.212
Age 16-25	0.150	0.228	0.134	0.214
Age 26-35	0.141	0.241	0.146	0.252
Age 36-45	0.134	0.220	0.135	0.221
Age 46-55	0.143	0.260	0.138	0.258
Age 56-65	0.112	0.267	0.121	0.276
Age 66+	0.160	0.328	0.161	0.331
Activity rate	0.575	0.358	0.563	0.364
Full-time employment rate	0.718	0.406	0.665	0.422
Part-time employment rate	0.034	0.129	0.044	0.150
Single	0.368	0.392	0.399	0.409
Married	0.426	0.439	0.409	0.434
No longer married	0.229	0.363	0.210	0.357
Primary education	0.039	0.154	0.027	0.127
Secondary education	0.692	0.381	0.651	0.395
Tertiary education	0.284	0.359	0.318	0.381
Managers	0.093	0.215	0.060	0.178
Professionals	0.130	0.261	0.130	0.260
Technicians and assoc. professionals	0.118	0.240	0.102	0.230
Clerical support workers	0.052	0.167	0.054	0.170
Services and sales workers	0.108	0.232	0.127	0.243
Skilled agriculture workers	0.024	0.120	0.023	0.116
Craft and trade workers	0.137	0.243	0.122	0.230
Plant and machine operators	0.133	0.253	0.120	0.241
Elementary occupations	0.113	0.247	0.108	0.246
Occupation not available	0.090	0.176	0.096	0.183
Experience: less than 1 year	0.017	0.085	0.018	0.091
Experience: 1-2 years	0.053	0.159	0.047	0.161
Experience: 3-5 years	0.081	0.218	0.069	0.192
Experience: 6-9 years	0.080	0.214	0.100	0.243
Experience: 10+ years	0.770	0.335	0.766	0.344
Densely populated area	0.496	0.500	0.592	0.492
Intermediately populated area	0.000	0.000	0.000	0.000
Thinly populated area	0.504	0.500	0.408	0.492
Agriculture, forestry and fishing	0.026	0.123	0.028	0.126
Mining; manufacturing; electricity, gas and water supply	0.122	0.240	0.117	0.237
Construction	0.053	0.157	0.051	0.155
Wholesale and retail trade; repair vehicles	0.076	0.192	0.071	0.192
Hotels and restaurants	0.021	0.111	0.019	0.100
Transport, storage and communications	0.061	0.174	0.059	0.173
Financial intermediation	0.008	0.065	0.009	0.071
Real estate, renting and business activities	0.047	0.157	0.050	0.170
Public administration and defence; social security	0.034	0.141	0.039	0.151
Education	0.059	0.175	0.055	0.172
Health and social work	0.028	0.123	0.032	0.131
Other services	0.027	0.121	0.026	0.123
Sector not available	0.781	0.632	0.777	0.561
Unit size: 1-2 workers	0.459	0.371	0.461	0.381
Unit size: 3-5 workers	0.043	0.150	0.042	0.151
Unit size: 6-10 workers	0.048	0.158	0.047	0.158
Unit size: 11-49 workers	0.050	0.157	0.042	0.147
Unit size: 50+ workers	0.192	0.293	0.191	0.292
Unit size not available	0.206	0.305	0.215	0.317
Contract type not available	0.144	0.239	0.159	0.253
Permanent job or contract of unlimited duration	0.822	0.264	0.801	0.284
Temporary job or contract of limited duration	0.032	0.127	0.039	0.146
<i>N</i>	13,447		14,946	

Note: See section 4 for definitions of variables.

Source: own construction using data from the EU-SILC.

Table 3. Descriptive statistics for Hungary, 2008 and 2012

	2008		2012	
	Mean	SD	Mean	SD
EMI	1340.519	1397.261	1191.075	1251.088
EPTI	896.238	846.803	859.295	942.093
EPBI	1920.491	1269.835	1684.857	1121.550
EDI	1476.210	746.055	1353.075	849.255
Female	0.527	0.230	0.527	0.225
Age 0-15	0.163	0.214	0.156	0.213
Age 16-25	0.135	0.199	0.134	0.202
Age 26-35	0.138	0.224	0.118	0.211
Age 36-45	0.136	0.204	0.138	0.208
Age 46-55	0.151	0.248	0.144	0.240
Age 56-65	0.134	0.273	0.161	0.295
Age 66+	0.143	0.304	0.149	0.310
Activity rate	0.516	0.344	0.527	0.350
Full-time employment rate	0.677	0.428	0.639	0.433
Part-time employment rate	0.032	0.140	0.030	0.133
Single	0.285	0.319	0.303	0.329
Married	0.535	0.413	0.522	0.411
No longer married	0.206	0.344	0.194	0.333
Primary education	0.052	0.177	0.034	0.143
Secondary education	0.806	0.353	0.791	0.358
Tertiary education	0.168	0.309	0.192	0.330
Managers	0.043	0.151	0.023	0.107
Professionals	0.098	0.236	0.090	0.225
Technicians and assoc. professionals	0.095	0.213	0.103	0.222
Clerical support workers	0.081	0.195	0.072	0.187
Services and sales workers	0.123	0.235	0.127	0.238
Skilled agriculture workers	0.046	0.164	0.035	0.140
Craft and trade workers	0.172	0.263	0.145	0.237
Plant and machine operators	0.110	0.221	0.117	0.229
Elementary occupations	0.120	0.242	0.128	0.249
Occupation not available	0.106	0.190	0.122	0.213
Densely populated area	0.317	0.465	0.303	0.460
Intermediately populated area	0.200	0.400	0.312	0.463
Thinly populated area	0.483	0.500	0.385	0.487
Agriculture, forestry and fishing	0.030	0.125	0.029	0.122
Mining; manufacturing; electricity, gas and water supply	0.113	0.226	0.114	0.225
Construction	0.047	0.144	0.034	0.121
Wholesale and retail trade; repair vehicles	0.067	0.179	0.062	0.172
Hotels and restaurants	0.017	0.096	0.016	0.088
Transport, storage and communications	0.046	0.147	0.044	0.144
Financial intermediation	0.010	0.070	0.012	0.079
Real estate, renting and business activities	0.031	0.126	0.035	0.134
Public administration and defence; social security	0.037	0.136	0.045	0.148
Education	0.041	0.142	0.042	0.147
Health and social work	0.031	0.122	0.032	0.125
Other services	0.015	0.087	0.017	0.092
Sector not available	0.859	0.600	0.850	0.632
Unit size: 1-2 workers	0.563	0.365	0.574	0.370
Unit size: 3-5 workers	0.062	0.176	0.060	0.178
Unit size: 6-10 workers	0.053	0.161	0.051	0.162
Unit size: 11-49 workers	0.052	0.155	0.042	0.139
Unit size: 50+ workers	0.116	0.229	0.120	0.230
Unit size not available	0.148	0.260	0.151	0.261
Contract type not available	0.220	0.294	0.271	0.333
Permanent job or contract of unlimited duration	0.692	0.339	0.641	0.364
Temporary job or contract of limited duration	0.082	0.202	0.085	0.203
<i>N</i>	24,847		25,323	

Note: See section 4 for definitions of variables.

Source: own construction using data from the EU-SILC.

Table 4. Descriptive statistics for Latvia, 2008 and 2012

	2008		2012	
	Mean	SD	Mean	SD
EMI	5.262	5.383	3.968	4.245
EPTI	4.076	4.193	2.968	3.058
EPBI	6.203	5.350	4.974	4.103
EDI	5.016	4.158	3.973	2.924
Female	0.543	0.245	0.545	0.247
Age 0-15	0.153	0.200	0.154	0.205
Age 16-25	0.151	0.208	0.126	0.197
Age 26-35	0.134	0.216	0.137	0.229
Age 36-45	0.138	0.219	0.137	0.218
Age 46-55	0.145	0.250	0.146	0.257
Age 56-65	0.112	0.248	0.124	0.265
Age 66+	0.166	0.315	0.177	0.324
Activity rate	0.596	0.352	0.566	0.355
Full-time employment rate	0.699	0.405	0.644	0.423
Part-time employment rate	0.026	0.120	0.039	0.150
Single	0.307	0.338	0.306	0.353
Married	0.445	0.414	0.433	0.424
No longer married	0.271	0.366	0.278	0.377
Primary education	0.030	0.132	0.027	0.130
Secondary education	0.761	0.352	0.713	0.374
Tertiary education	0.217	0.325	0.245	0.349
Managers	0.071	0.190	0.057	0.175
Professionals	0.123	0.247	0.111	0.240
Technicians and assoc. professionals	0.134	0.241	0.106	0.226
Clerical support workers	0.047	0.156	0.053	0.166
Services and sales workers	0.126	0.236	0.135	0.249
Skilled agriculture workers	0.034	0.140	0.034	0.136
Craft and trade workers	0.140	0.244	0.130	0.242
Plant and machine operators	0.093	0.198	0.088	0.194
Elementary occupations	0.140	0.257	0.140	0.261
Occupation not available	0.093	0.174	0.105	0.189
Experience: less than 1 year	0.000	0.000	0.014	0.076
Experience: 1-2 years	0.049	0.143	0.039	0.139
Experience: 3-5 years	0.074	0.181	0.066	0.187
Experience: 6-9 years	0.082	0.201	0.090	0.224
Experience: 10+ years	0.795	0.298	0.791	0.318
Densely populated area	0.497	0.500	0.525	0.499
Intermediately populated area	0.000	0.000	0.000	0.000
Thinly populated area	0.503	0.500	0.475	0.499
Agriculture, forestry and fishing	0.040	0.146	0.036	0.136
Mining; manufacturing; electricity, gas and water supply	0.079	0.192	0.086	0.206
Construction	0.039	0.130	0.037	0.128
Wholesale and retail trade; repair vehicles	0.082	0.197	0.084	0.202
Hotels and restaurants	0.018	0.093	0.014	0.081
Transport, storage and communications	0.052	0.160	0.060	0.172
Financial intermediation	0.011	0.077	0.013	0.086
Real estate, renting and business activities	0.039	0.140	0.043	0.150
Public administration and defence; social security	0.050	0.158	0.041	0.148
Education	0.045	0.150	0.051	0.163
Health and social work	0.027	0.114	0.030	0.126
Other services	0.027	0.118	0.024	0.109
Sector not available	0.801	0.522	0.791	0.546
Unit size: 1-2 workers	0.564	0.361	0.522	0.374
Unit size: 3-5 workers	0.078	0.199	0.044	0.150
Unit size: 6-10 workers	0.061	0.171	0.054	0.165
Unit size: 11-49 workers	0.043	0.146	0.037	0.135
Unit size: 50+ workers	0.146	0.254	0.199	0.297
Unit size not available	0.107	0.233	0.143	0.266
Contract type not available	0.206	0.287	0.168	0.253
Permanent job or contract of unlimited duration	0.760	0.306	0.785	0.288
Temporary job or contract of limited duration	0.033	0.125	0.046	0.156
N	14,294		14,471	

Note: See section 4 for definitions of variables.

Source: own construction using data from the EU-SILC.

Table 5. Descriptive statistics for Slovenia, 2008 and 2012

	2008		2012	
	Mean	SD	Mean	SD
EMI	13.564	11.189	12.156	11.198
EPTI	9.498	7.030	8.381	7.092
EPBI	17.450	9.987	16.126	9.907
EDI	13.384	5.900	12.351	5.910
Female	0.506	0.217	0.505	0.241
Age 0-15	0.159	0.211	0.166	0.219
Age 16-25	0.134	0.191	0.118	0.190
Age 26-35	0.144	0.217	0.141	0.231
Age 36-45	0.150	0.209	0.146	0.222
Age 46-55	0.152	0.234	0.152	0.242
Age 56-65	0.115	0.244	0.133	0.274
Age 66+	0.145	0.302	0.144	0.316
Activity rate	0.606	0.345	0.610	0.366
Full-time employment rate	0.756	0.386	0.673	0.411
Part-time employment rate	0.013	0.074	0.026	0.110
Single	0.358	0.336	0.374	0.378
Married	0.540	0.383	0.513	0.417
No longer married	0.114	0.261	0.132	0.295
Primary education	0.035	0.139	0.021	0.119
Secondary education	0.793	0.336	0.747	0.369
Tertiary education	0.186	0.306	0.248	0.347
Managers	0.046	0.148	0.042	0.151
Professionals	0.106	0.230	0.122	0.249
Technicians and assoc. professionals	0.147	0.244	0.131	0.247
Clerical support workers	0.082	0.187	0.074	0.189
Services and sales workers	0.106	0.211	0.112	0.228
Skilled agriculture workers	0.016	0.085	0.018	0.099
Craft and trade workers	0.105	0.199	0.122	0.227
Plant and machine operators	0.130	0.236	0.099	0.220
Elementary occupations	0.075	0.184	0.074	0.193
Occupation not available	0.185	0.245	0.163	0.242
Agriculture, forestry and fishing	0.011	0.066	0.012	0.078
Mining; manufacturing; electricity, gas and water supply	0.150	0.244	0.133	0.245
Construction	0.038	0.133	0.030	0.121
Wholesale and retail trade; repair vehicles	0.075	0.183	0.069	0.183
Hotels and restaurants	0.020	0.095	0.018	0.098
Transport, storage and communications	0.043	0.141	0.043	0.150
Financial intermediation	0.016	0.085	0.016	0.088
Real estate, renting and business activities	0.043	0.141	0.050	0.161
Public administration and defence; social security	0.031	0.122	0.029	0.121
Education	0.046	0.141	0.051	0.157
Health and social work	0.033	0.121	0.036	0.130
Other services	0.017	0.092	0.015	0.089
Sector not available	0.800	0.465	0.843	0.495
Unit size: 1-2 workers	0.470	0.359	0.497	0.384
Unit size: 3-5 workers	0.062	0.166	0.070	0.183
Unit size: 6-10 workers	0.039	0.137	0.036	0.136
Unit size: 11-49 workers	0.041	0.134	0.035	0.136
Unit size: 50+ workers	0.110	0.212	0.105	0.220
Unit size not available	0.275	0.311	0.254	0.321
Contract type not available	0.650	0.262	0.597	0.291
Permanent job or contract of unlimited duration	0.307	0.272	0.346	0.305
Temporary job or contract of limited duration	0.040	0.139	0.054	0.171
<i>N</i>	29,458		27,169	

Note: See section 4 for definitions of variables.

Source: own construction using data from the EU-SILC.

Table 6. RIF regressions for Bulgaria, 2008 and 2012

	EMI		EPTI		EPBI		EDI	
	2008	2012	2008	2012	2008	2012	2008	2012
Female	0.0387*	-0.00693	0.0300	-0.00163	0.0535**	0.0242	0.0479**	0.0314
	(0.0226)	(0.0343)	(0.0233)	(0.0330)	(0.0219)	(0.0342)	(0.0220)	(0.0317)
Age 0-15	-0.117	-0.0368	-0.138*	-0.0362	-0.143**	-0.0962	-0.154**	-0.101
	(0.0739)	(0.0753)	(0.0733)	(0.0767)	(0.0685)	(0.0753)	(0.0705)	(0.0692)
Age 16-25	-0.0962**	-0.102*	-0.0977**	-0.0992	-0.0615	-0.105*	-0.0552	-0.102*
	(0.0398)	(0.0602)	(0.0413)	(0.0622)	(0.0383)	(0.0550)	(0.0408)	(0.0573)
Age 26-35	-0.0135	-0.0586	-0.0109	-0.0529	-0.00451	-0.0478	0.00290	-0.0453
	(0.0324)	(0.0372)	(0.0318)	(0.0379)	(0.0299)	(0.0374)	(0.0319)	(0.0393)
Age 46-55	0.0780**	0.0272	0.0726**	0.0451	0.0698**	0.0206	0.0620*	0.0359
	(0.0318)	(0.0345)	(0.0315)	(0.0342)	(0.0307)	(0.0360)	(0.0322)	(0.0350)
Age 56-65	0.102**	0.0864	0.101**	0.118	0.0625	0.0542	0.0559	0.0757
	(0.0432)	(0.0680)	(0.0447)	(0.0718)	(0.0439)	(0.0645)	(0.0433)	(0.0681)
Age 66+	0.192***	0.192***	0.207***	0.228***	0.0318	-0.0430	0.0214	-0.0424
	(0.0443)	(0.0606)	(0.0491)	(0.0640)	(0.0438)	(0.0585)	(0.0446)	(0.0621)
Activity rate	-0.0350	-0.0914**	-0.0401	-0.0896**	0.124***	0.0352	0.135***	0.0526
	(0.0362)	(0.0399)	(0.0398)	(0.0418)	(0.0338)	(0.0389)	(0.0348)	(0.0409)
Full-time employment rate	-0.349***	-0.320***	-0.348***	-0.297***	-0.191***	-0.192***	-0.170***	-0.155***
	(0.0172)	(0.0234)	(0.0175)	(0.0234)	(0.0150)	(0.0212)	(0.0167)	(0.0228)
Part-time employment rate	-0.219***	-0.157***	-0.220***	-0.143*	-0.106**	-0.0100	-0.0906**	0.0265
	(0.0505)	(0.0585)	(0.0526)	(0.0771)	(0.0462)	(0.0615)	(0.0437)	(0.0794)
Single	0.0495*	0.0435	0.0435	0.0412	0.0479*	0.0508	0.0422	0.0511
	(0.0273)	(0.0369)	(0.0283)	(0.0342)	(0.0275)	(0.0360)	(0.0269)	(0.0317)
Married	0.0122	0.00589	0.0184	0.0145	-0.0182	-0.00811	-0.0183	0.00111
	(0.0124)	(0.0158)	(0.0128)	(0.0160)	(0.0121)	(0.0153)	(0.0120)	(0.0152)
Secondary education	-0.113***	-0.100***	-0.105***	-0.0958***	-0.116***	-0.110***	-0.105***	-0.105***
	(0.0150)	(0.0179)	(0.0162)	(0.0205)	(0.0139)	(0.0169)	(0.0166)	(0.0187)
Tertiary education	-0.0472	-0.0631**	-0.0463	-0.0523	-0.0263	-0.0474	-0.0207	-0.0280
	(0.0338)	(0.0315)	(0.0342)	(0.0339)	(0.0337)	(0.0303)	(0.0330)	(0.0338)
Professionals	-0.0491	-0.101	-0.0695	-0.118	-0.0586	-0.0806	-0.0715	-0.0940
	(0.0485)	(0.0698)	(0.0504)	(0.0748)	(0.0484)	(0.0676)	(0.0497)	(0.0742)
Technicians	-0.190***	-0.139**	-0.202***	-0.178**	-0.192***	-0.138*	-0.195***	-0.178**
	(0.0466)	(0.0691)	(0.0478)	(0.0766)	(0.0462)	(0.0714)	(0.0465)	(0.0721)
Clerical support workers	-0.217***	-0.265***	-0.233***	-0.299***	-0.201***	-0.240***	-0.206***	-0.272***
	(0.0549)	(0.0540)	(0.0569)	(0.0612)	(0.0550)	(0.0540)	(0.0569)	(0.0594)
Services and sales workers	-0.161***	-0.194***	-0.174***	-0.228***	-0.171***	-0.178***	-0.180***	-0.207***
	(0.0436)	(0.0554)	(0.0464)	(0.0594)	(0.0439)	(0.0569)	(0.0445)	(0.0562)
Skilled agriculture workers	-0.118**	-0.102**	-0.134**	-0.132**	-0.0783	-0.0538	-0.0828	-0.0760
	(0.0475)	(0.0494)	(0.0542)	(0.0557)	(0.0505)	(0.0486)	(0.0520)	(0.0538)
Craft and trade workers	-0.168***	-0.201***	-0.189***	-0.217***	-0.178***	-0.197***	-0.187***	-0.212***
	(0.0443)	(0.0504)	(0.0473)	(0.0564)	(0.0450)	(0.0515)	(0.0450)	(0.0551)
Plant and machine operators	-0.118**	-0.242***	-0.136**	-0.251***	-0.146***	-0.253***	-0.158***	-0.259***
	(0.0524)	(0.0506)	(0.0544)	(0.0579)	(0.0541)	(0.0529)	(0.0527)	(0.0557)
Elementary occupations	-0.114**	-0.130**	-0.139***	-0.154***	-0.0993**	-0.117**	-0.112**	-0.137**
	(0.0456)	(0.0513)	(0.0486)	(0.0555)	(0.0469)	(0.0508)	(0.0471)	(0.0552)
Occupation not available	-0.145***	-0.0953	-0.161***	-0.0888	-0.0952*	-0.0304	-0.0998*	-0.0201
	(0.0507)	(0.0734)	(0.0558)	(0.0766)	(0.0510)	(0.0723)	(0.0525)	(0.0784)
Densely populated area	0.0464***	0.00936	0.0489***	0.0172	0.0360**	0.0215	0.0357***	0.0286**
	(0.0142)	(0.0147)	(0.0138)	(0.0149)	(0.0141)	(0.0148)	(0.0136)	(0.0139)
Thinly populated area	0.0291**	0.0162	0.0351***	0.0129	0.0264**	0.0218*	0.0291**	0.0196*
	(0.0134)	(0.0129)	(0.0126)	(0.0126)	(0.0122)	(0.0122)	(0.0119)	(0.0113)
Mining; manufacturing; electricity	-0.0445	0.0117	-0.0584	0.0161	0.0211	0.0453	0.00826	0.0425
	(0.0473)	(0.0326)	(0.0449)	(0.0326)	(0.0448)	(0.0308)	(0.0441)	(0.0320)
Construction	-0.0893**	-0.0485	-0.0983**	-0.0410	-0.0156	-0.00235	-0.0185	0.00790
	(0.0396)	(0.0376)	(0.0410)	(0.0373)	(0.0413)	(0.0350)	(0.0391)	(0.0369)
Wholesale and retail trade	-0.0506	-0.0514	-0.0573	-0.0453	-0.0122	-0.0186	-0.0175	-0.0190
	(0.0389)	(0.0505)	(0.0421)	(0.0518)	(0.0403)	(0.0471)	(0.0404)	(0.0487)
Hotels and restaurants	-0.0914**	-0.0905*	-0.0900*	-0.0936*	-0.0418	-0.0677	-0.0344	-0.0769
	(0.0461)	(0.0525)	(0.0493)	(0.0499)	(0.0451)	(0.0486)	(0.0470)	(0.0479)
Transport, storage	0.000791	0.176**	-0.00575	0.180**	0.0652	0.234***	0.0614	0.232***
	(0.0491)	(0.0775)	(0.0500)	(0.0771)	(0.0485)	(0.0752)	(0.0472)	(0.0766)
Financial intermediation	0.235**	0.477***	0.219**	0.528***	0.335***	0.585***	0.322***	0.640***
	(0.114)	(0.181)	(0.109)	(0.200)	(0.113)	(0.193)	(0.118)	(0.210)
Real estate, renting	0.0136	0.0996	0.0198	0.131	0.0858	0.147*	0.0934	0.175**
	(0.0678)	(0.0859)	(0.0685)	(0.0815)	(0.0719)	(0.0816)	(0.0704)	(0.0821)
Public adm.; defence; social security	-0.0279	-0.0485	-0.0403	-0.00862	0.0723	0.00474	0.0652	0.0405
	(0.0712)	(0.0511)	(0.0722)	(0.0583)	(0.0759)	(0.0523)	(0.0718)	(0.0600)
Education	-0.184***	-0.0551	-0.193***	-0.0362	-0.118***	-0.0206	-0.127***	-0.00648

	(0.0502)	(0.0653)	(0.0454)	(0.0716)	(0.0456)	(0.0638)	(0.0448)	(0.0742)
Health and social work	-0.153***	0.00693	-0.158***	0.0381	-0.0881*	0.0345	-0.0896*	0.0548
	(0.0501)	(0.0830)	(0.0506)	(0.0952)	(0.0494)	(0.0823)	(0.0524)	(0.0870)
Other services	-0.0958	-0.106	-0.109*	-0.0767	-0.0363	-0.0312	-0.0437	0.000154
	(0.0675)	(0.0800)	(0.0659)	(0.0906)	(0.0684)	(0.0771)	(0.0644)	(0.0901)
Sector not available	0.111***	0.0701***	0.118***	0.0751***	0.103***	0.0573***	0.105***	0.0604***
	(0.0244)	(0.0219)	(0.0257)	(0.0236)	(0.0220)	(0.0208)	(0.0232)	(0.0219)
Unit size: 1-2 workers	-0.0340	-0.0459	-0.0345	-0.0417	-0.0675***	-0.0803***	-0.0671***	-0.0761**
	(0.0254)	(0.0307)	(0.0242)	(0.0318)	(0.0245)	(0.0298)	(0.0245)	(0.0296)
Unit size: 3-5 workers	-0.01000	-0.0744	-0.0139	-0.0826*	-0.0406	-0.142***	-0.0427	-0.152***
	(0.0481)	(0.0504)	(0.0469)	(0.0497)	(0.0447)	(0.0488)	(0.0465)	(0.0487)
Unit size: 6-10 workers	0.0169	-0.0468	0.0319	-0.0222	-0.0231	-0.0950**	-0.00937	-0.0693
	(0.0458)	(0.0461)	(0.0468)	(0.0546)	(0.0466)	(0.0463)	(0.0477)	(0.0484)
Unit size: 11-49 workers	0.219	0.207	0.224*	0.245*	0.180	0.176	0.181	0.211
	(0.140)	(0.137)	(0.120)	(0.141)	(0.135)	(0.128)	(0.131)	(0.135)
Unit size: 50+ workers	0.0122	-0.0499	0.0155	-0.0462	-0.0143	-0.0754**	-0.0117	-0.0733**
	(0.0274)	(0.0317)	(0.0265)	(0.0333)	(0.0256)	(0.0317)	(0.0269)	(0.0321)
Permanent job	-0.0596**	-0.0183	-0.0500**	-0.00494	-0.115***	-0.0622*	-0.114***	-0.0579*
	(0.0254)	(0.0336)	(0.0249)	(0.0337)	(0.0252)	(0.0328)	(0.0240)	(0.0351)
Temporary job	-0.0165	0.0147	-0.00567	0.0425	0.00155	0.00270	0.0141	0.0244
	(0.0336)	(0.0333)	(0.0367)	(0.0364)	(0.0353)	(0.0347)	(0.0354)	(0.0372)
Intercept	0.861***	0.911***	0.866***	0.874***	0.619***	0.713***	0.588***	0.654***
	(0.0784)	(0.109)	(0.0906)	(0.118)	(0.0852)	(0.107)	(0.0863)	(0.113)
N	14,917	12,342	14,917	12,342	14,917	12,342	14,917	12,342

Table 7. RIF regressions for Estonia, 2008 and 2012

	EMI		EPTI		EPBI		EDI	
	2008	2012	2008	2012	2008	2012	2008	2012
Female	-0.00813	0.0222	-0.0113	0.0144	-0.0217	0.0168	-0.0253	0.0115
	(0.0259)	(0.0169)	(0.0223)	(0.0161)	(0.0255)	(0.0166)	(0.0228)	(0.0163)
Age 0-15	-0.284***	-0.340***	-0.272***	-0.337***	-0.230**	-0.248***	-0.208**	-0.226***
	(0.0905)	(0.0717)	(0.0913)	(0.0712)	(0.0912)	(0.0684)	(0.0814)	(0.0656)
Age 16-25	-0.147**	-0.126***	-0.138**	-0.121***	-0.112*	-0.0878**	-0.0982*	-0.0758*
	(0.0653)	(0.0434)	(0.0594)	(0.0455)	(0.0635)	(0.0417)	(0.0573)	(0.0432)
Age 26-35	0.0577	-0.0175	0.0797*	-0.0171	0.0486	0.0198	0.0621	0.0256
	(0.0535)	(0.0354)	(0.0471)	(0.0373)	(0.0520)	(0.0379)	(0.0489)	(0.0363)
Age 46-55	-0.0535	-0.0427	-0.0515	-0.0345	-0.0673*	-0.0455*	-0.0648**	-0.0338
	(0.0362)	(0.0273)	(0.0328)	(0.0274)	(0.0377)	(0.0264)	(0.0320)	(0.0252)
Age 56-65	-0.0952**	-0.0785***	-0.0949**	-0.0713**	-0.120***	-0.121***	-0.115***	-0.113***
	(0.0376)	(0.0290)	(0.0372)	(0.0289)	(0.0401)	(0.0283)	(0.0331)	(0.0266)
Age 66+	0.0465	0.0281	0.0572	0.0435	-0.189***	-0.204***	-0.204***	-0.217***
	(0.0408)	(0.0303)	(0.0413)	(0.0308)	(0.0437)	(0.0299)	(0.0372)	(0.0274)
Activity rate	0.00675	0.0304	-0.00233	0.0278	0.0763**	0.0829***	0.0780**	0.0847***
	(0.0300)	(0.0215)	(0.0305)	(0.0228)	(0.0303)	(0.0238)	(0.0311)	(0.0235)
Full-time employment rate	-0.307***	-0.342***	-0.316***	-0.349***	-0.187***	-0.225***	-0.176***	-0.210***
	(0.0185)	(0.0142)	(0.0186)	(0.0154)	(0.0187)	(0.0140)	(0.0190)	(0.0146)
Part-time employment rate	-0.175***	-0.204***	-0.194***	-0.200***	-0.110***	-0.146***	-0.109***	-0.125***
	(0.0356)	(0.0322)	(0.0368)	(0.0329)	(0.0347)	(0.0294)	(0.0314)	(0.0282)
Single	-0.0494**	-0.0203	-0.0509**	-0.0143	-0.0530**	-0.0177	-0.0546***	-0.0107
	(0.0227)	(0.0156)	(0.0200)	(0.0150)	(0.0210)	(0.0174)	(0.0205)	(0.0151)
Married	-0.0861***	-0.0575***	-0.0854***	-0.0576***	-0.0892***	-0.0526***	-0.0867***	-0.0494***
	(0.0171)	(0.0113)	(0.0157)	(0.0112)	(0.0166)	(0.0114)	(0.0160)	(0.0100)
Secondary education	-0.0684**	-0.0516**	-0.0690**	-0.0575***	-0.0400	-0.0446**	-0.0312	-0.0442**
	(0.0279)	(0.0223)	(0.0302)	(0.0220)	(0.0292)	(0.0223)	(0.0273)	(0.0208)
Tertiary education	-0.0446	-0.0744***	-0.0467	-0.0820***	0.0194	-0.0313	0.0257	-0.0298
	(0.0319)	(0.0257)	(0.0320)	(0.0255)	(0.0326)	(0.0256)	(0.0286)	(0.0260)
Professionals	-0.0661	-0.138***	-0.0599	-0.126***	-0.0802*	-0.149***	-0.0728*	-0.132***
	(0.0481)	(0.0336)	(0.0422)	(0.0310)	(0.0440)	(0.0324)	(0.0437)	(0.0305)
Technicians	-0.125**	-0.153***	-0.122**	-0.147***	-0.121**	-0.183***	-0.112**	-0.174***
	(0.0538)	(0.0296)	(0.0499)	(0.0290)	(0.0522)	(0.0308)	(0.0493)	(0.0286)
Clerical support workers	-0.151***	-0.159***	-0.150***	-0.152***	-0.163***	-0.209***	-0.155***	-0.198***
	(0.0464)	(0.0296)	(0.0448)	(0.0294)	(0.0443)	(0.0306)	(0.0425)	(0.0285)
Services and sales workers	-0.0928**	-0.135***	-0.0884**	-0.129***	-0.137***	-0.187***	-0.132***	-0.175***
	(0.0412)	(0.0263)	(0.0402)	(0.0260)	(0.0390)	(0.0257)	(0.0384)	(0.0256)
Skilled agriculture workers	0.00244	-0.0721**	0.0165	-0.0679*	-0.0630	-0.0980***	-0.0480	-0.0908***
	(0.0417)	(0.0344)	(0.0427)	(0.0361)	(0.0386)	(0.0361)	(0.0386)	(0.0331)
Craft and trade workers	-0.147***	-0.175***	-0.138***	-0.171***	-0.171***	-0.205***	-0.156***	-0.191***
	(0.0448)	(0.0289)	(0.0410)	(0.0283)	(0.0431)	(0.0269)	(0.0417)	(0.0270)
Plant and machine operators	-0.144***	-0.137***	-0.134***	-0.137***	-0.166***	-0.191***	-0.150***	-0.183***
	(0.0473)	(0.0261)	(0.0447)	(0.0263)	(0.0458)	(0.0265)	(0.0440)	(0.0239)

Elementary occupations	-0.0675 (0.0444)	-0.0916*** (0.0260)	-0.0662 (0.0404)	-0.101*** (0.0259)	-0.105** (0.0410)	-0.144*** (0.0256)	-0.0972** (0.0396)	-0.144*** (0.0241)
Occupation not available	-0.165** (0.0743)	-0.216*** (0.0504)	-0.185*** (0.0718)	-0.230*** (0.0531)	-0.143** (0.0706)	-0.209*** (0.0516)	-0.142** (0.0718)	-0.199*** (0.0505)
Experience: less than 1 year	0.0361 (0.0458)	-0.0307 (0.0504)	0.0313 (0.0454)	-0.0175 (0.0471)	0.0592 (0.0441)	-0.0603 (0.0439)	0.0564 (0.0441)	-0.0531 (0.0445)
Experience: 3-5 years	0.0106 (0.0478)	-0.0863* (0.0514)	0.00990 (0.0484)	-0.0569 (0.0483)	0.0355 (0.0445)	-0.131*** (0.0438)	0.0334 (0.0468)	-0.113** (0.0478)
Experience: 6-9 years	0.0689 (0.0577)	-0.0450 (0.0503)	0.0610 (0.0592)	-0.0212 (0.0497)	0.121** (0.0576)	-0.105** (0.0451)	0.121** (0.0592)	-0.0981** (0.0464)
Experience: 10+ years	0.0698 (0.0480)	-0.0283 (0.0490)	0.0664 (0.0505)	-0.00495 (0.0458)	0.0807* (0.0457)	-0.0703* (0.0410)	0.0758 (0.0471)	-0.0621 (0.0446)
Densely population area	-0.00804 (0.00998)	0 (0.00716)	-0.00813 (0.00940)	0 (0.00746)	0.00177 (0.00945)	0 (0.00740)	0.00333 (0.00828)	0 (0.00734)
Thinly populated area	0 (0.00599)	-0.00130 (0.00374)	0 (0.00557)	0.000623 (0.00395)	0 (0.00469)	-0.00631 (0.00467)	0 (0.00485)	-0.00669 (0.00439)
Mining; manufacturing; electricity	-0.0477 (0.0385)	-0.0712** (0.0317)	-0.0592* (0.0359)	-0.0710** (0.0321)	-0.0127 (0.0378)	-0.0239 (0.0296)	-0.0172 (0.0347)	-0.0150 (0.0279)
Construction	-0.0353 (0.0571)	-0.0350 (0.0415)	-0.0617 (0.0551)	-0.0133 (0.0486)	0.00595 (0.0568)	0.0343 (0.0390)	-0.0164 (0.0511)	0.0600 (0.0410)
Wholesale and retail trade	-0.0841** (0.0370)	-0.0298 (0.0354)	-0.0953** (0.0380)	-0.0365 (0.0352)	-0.0464 (0.0357)	0.00665 (0.0321)	-0.0481 (0.0335)	0.00632 (0.0331)
Hotels and restaurants	-0.0969* (0.0538)	-0.0645 (0.0400)	-0.0893* (0.0519)	-0.0632 (0.0388)	-0.0749 (0.0541)	-0.0433 (0.0357)	-0.0592 (0.0532)	-0.0360 (0.0349)
Transport, storage	-0.0364 (0.0562)	-0.0699* (0.0382)	-0.0423 (0.0578)	-0.0670* (0.0363)	0.0244 (0.0565)	0.0219 (0.0373)	0.0283 (0.0522)	0.0376 (0.0372)
Financial intermediation	0.630** (0.278)	0.0605 (0.0920)	0.617** (0.260)	0.0667 (0.0906)	0.716** (0.310)	0.151* (0.0920)	0.712** (0.303)	0.161* (0.0863)
Real estate, renting	-0.0582 (0.0629)	-0.00646 (0.0426)	-0.0543 (0.0595)	-0.00669 (0.0416)	-0.0283 (0.0624)	0.0463 (0.0401)	-0.0174 (0.0559)	0.0532 (0.0410)
Public adm.; defence; social security	-0.0800 (0.0525)	-0.0475 (0.0472)	-0.0786 (0.0497)	-0.0405 (0.0450)	-0.0350 (0.0511)	-0.0161 (0.0425)	-0.0255 (0.0485)	-0.00974 (0.0409)
Education	-0.128*** (0.0438)	-0.0960*** (0.0335)	-0.143*** (0.0427)	-0.101*** (0.0314)	-0.0839** (0.0409)	-0.0613** (0.0285)	-0.0825** (0.0383)	-0.0529* (0.0283)
Health and social work	-0.0539 (0.0454)	0.00451 (0.0460)	-0.0582 (0.0452)	0.0125 (0.0473)	-0.00872 (0.0443)	0.0479 (0.0431)	-0.00337 (0.0447)	0.0651 (0.0432)
Other services	-0.0525 (0.0526)	-0.0423 (0.0448)	-0.0600 (0.0502)	-0.0321 (0.0459)	-0.0198 (0.0490)	0.000166 (0.0485)	-0.0139 (0.0519)	0.0207 (0.0463)
Sector not available	0.107*** (0.0242)	0.139*** (0.0273)	0.102*** (0.0239)	0.137*** (0.0257)	0.0633*** (0.0229)	0.0922*** (0.0247)	0.0545*** (0.0201)	0.0849*** (0.0232)
Unit size: 1-2 workers	0.106*** (0.0369)	0.0729*** (0.0260)	0.107*** (0.0333)	0.0809*** (0.0243)	0.0651* (0.0368)	0.0107 (0.0264)	0.0573* (0.0338)	0.0102 (0.0247)
Unit size: 3-5 workers	0.0460 (0.0446)	0.119*** (0.0435)	0.0709 (0.0437)	0.131*** (0.0433)	0.0253 (0.0434)	0.0821* (0.0471)	0.0455 (0.0441)	0.0918** (0.0428)
Unit size: 6-10 workers	0.0812** (0.0411)	-0.00153 (0.0388)	0.0742* (0.0407)	-0.0148 (0.0361)	0.0749* (0.0441)	0.00409 (0.0441)	0.0718* (0.0386)	0.0000919 (0.0410)
Unit size: 11-49 workers	-0.00143 (0.0390)	0.00770 (0.0358)	0.000802 (0.0363)	0.00538 (0.0383)	-0.00509 (0.0384)	0.00289 (0.0369)	-0.000634 (0.0353)	0.00230 (0.0339)
Unit size: 50+ workers	0.000463 (0.0339)	-0.0297* (0.0164)	0.00120 (0.0311)	-0.0287** (0.0146)	-0.00716 (0.0332)	-0.0374** (0.0157)	-0.00423 (0.0304)	-0.0331** (0.0156)
Permanent job	-0.0515 (0.0423)	-0.0653* (0.0345)	-0.0579 (0.0426)	-0.0727* (0.0377)	-0.0719* (0.0409)	-0.0894** (0.0361)	-0.0824** (0.0413)	-0.0973*** (0.0343)
Temporary job	-0.0304 (0.0606)	-0.114*** (0.0414)	-0.0600 (0.0590)	-0.127*** (0.0444)	0.00124 (0.0599)	-0.1000** (0.0418)	-0.0170 (0.0552)	-0.102** (0.0405)
Intercept	0.848*** (0.0820)	0.970*** (0.0828)	0.862*** (0.0788)	0.951*** (0.0840)	0.650*** (0.0798)	0.865*** (0.0773)	0.615*** (0.0793)	0.805*** (0.0780)
N	13,447	14,946	13,447	14,946	13,447	14,946	13,447	14,946

Table 8. RIF regressions for Hungary, 2008 and 2012

	EMI		EPTI		EPBI		EDI	
	2008	2012	2008	2012	2008	2012	2008	2012
Female	-0.0173 (0.0151)	-0.0256 (0.0196)	-0.0202 (0.0145)	-0.0398* (0.0210)	-0.0148 (0.0148)	-0.0404** (0.0190)	-0.0204 (0.0125)	-0.0570*** (0.0197)
Age 0-15	-0.143*** (0.0539)	-0.0485 (0.0637)	-0.140*** (0.0539)	-0.0526 (0.0708)	-0.150*** (0.0526)	-0.0545 (0.0572)	-0.113*** (0.0430)	-0.0218 (0.0601)
Age 16-25	-0.153*** (0.0339)	-0.170*** (0.0376)	-0.138*** (0.0320)	-0.181*** (0.0435)	-0.0832*** (0.0306)	-0.0820** (0.0337)	-0.0523* (0.0280)	-0.0607 (0.0384)
Age 26-35	0.00148 (0.0213)	-0.00656 (0.0297)	0.0259 (0.0209)	-0.0167 (0.0347)	0.00290 (0.0229)	-0.00640 (0.0305)	0.00676 (0.0171)	-0.0241 (0.0322)

Age 46-55	0.0187 (0.0260)	0.00731 (0.0261)	0.0188 (0.0240)	0.00653 (0.0291)	0.0133 (0.0244)	0.0153 (0.0263)	0.0113 (0.0197)	0.0177 (0.0268)
Age 56-65	-0.0178 (0.0327)	0.0461 (0.0295)	-0.0275 (0.0278)	0.0537 (0.0348)	-0.0404 (0.0301)	0.00788 (0.0291)	-0.0288 (0.0236)	0.0132 (0.0303)
Age 66+	0.0253 (0.0315)	0.124*** (0.0305)	0.0336 (0.0283)	0.160*** (0.0373)	-0.144*** (0.0294)	-0.0969*** (0.0311)	-0.130*** (0.0245)	-0.0843*** (0.0324)
Activity rate	-0.106*** (0.0200)	-0.0803*** (0.0262)	-0.142*** (0.0200)	-0.0994*** (0.0297)	0.0799*** (0.0198)	0.126*** (0.0253)	0.0661*** (0.0167)	0.132*** (0.0267)
Full-time employment rate	-0.417*** (0.0116)	-0.406*** (0.0157)	-0.466*** (0.0129)	-0.414*** (0.0194)	-0.136*** (0.0113)	-0.162*** (0.0139)	-0.105*** (0.0108)	-0.127*** (0.0154)
Part-time employment rate	-0.277*** (0.0261)	-0.291*** (0.0247)	-0.363*** (0.0277)	-0.292*** (0.0329)	-0.0472** (0.0225)	-0.0876*** (0.0232)	-0.0408** (0.0198)	-0.0467* (0.0281)
Single	0.0106 (0.0145)	0.0387** (0.0165)	0.00502 (0.0152)	0.0252 (0.0174)	0.0112 (0.0147)	0.0522*** (0.0168)	0.0156 (0.0120)	0.0442*** (0.0154)
Married	-0.00934 (0.00936)	-0.00143 (0.00968)	-0.0102 (0.00903)	-0.00254 (0.0123)	-0.00685 (0.00928)	-0.00505 (0.00931)	-0.00144 (0.00726)	0.0000223 (0.00982)
Secondary education	-0.0824*** (0.0131)	-0.0550*** (0.0190)	-0.0787*** (0.0144)	-0.0578** (0.0230)	-0.0866*** (0.0114)	-0.0709*** (0.0181)	-0.0567*** (0.0109)	-0.0513*** (0.0199)
Tertiary education	0.0305 (0.0249)	0.0295 (0.0310)	-0.0115 (0.0250)	0.0249 (0.0332)	0.112*** (0.0241)	0.0628** (0.0306)	0.0762*** (0.0199)	0.0789*** (0.0304)
Professionals	-0.0571 (0.0529)	-0.185** (0.0899)	-0.0432 (0.0479)	-0.168* (0.0870)	-0.0683 (0.0553)	-0.160* (0.0888)	-0.0625 (0.0425)	-0.121 (0.0897)
Technicians	-0.156*** (0.0392)	-0.199** (0.0872)	-0.122*** (0.0382)	-0.168** (0.0831)	-0.170*** (0.0418)	-0.223*** (0.0857)	-0.131*** (0.0332)	-0.185** (0.0842)
Clerical support workers	-0.141*** (0.0381)	-0.191** (0.0750)	-0.102*** (0.0377)	-0.169** (0.0726)	-0.176*** (0.0398)	-0.209*** (0.0738)	-0.141*** (0.0329)	-0.173** (0.0751)
Services and sales workers	-0.135*** (0.0334)	-0.185*** (0.0680)	-0.110*** (0.0326)	-0.187*** (0.0651)	-0.159*** (0.0365)	-0.199*** (0.0658)	-0.127*** (0.0300)	-0.179*** (0.0673)
Skilled agriculture work.	-0.0967*** (0.0340)	-0.107 (0.0820)	-0.0882** (0.0369)	-0.110 (0.0825)	-0.0742* (0.0381)	-0.0573 (0.0805)	-0.0751** (0.0321)	-0.0539 (0.0842)
Craft and trade workers	-0.117*** (0.0313)	-0.157** (0.0717)	-0.0975*** (0.0319)	-0.148** (0.0693)	-0.152*** (0.0343)	-0.182*** (0.0686)	-0.130*** (0.0288)	-0.161** (0.0721)
Plant and machine oper.	-0.120*** (0.0348)	-0.160** (0.0706)	-0.106*** (0.0342)	-0.142** (0.0673)	-0.150*** (0.0377)	-0.185*** (0.0686)	-0.129*** (0.0301)	-0.157** (0.0693)
Elementary occupations	-0.0549* (0.0323)	-0.0865 (0.0682)	-0.0613* (0.0325)	-0.0817 (0.0654)	-0.0728** (0.0353)	-0.105 (0.0661)	-0.0701** (0.0292)	-0.0897 (0.0678)
Occupation not available	-0.116*** (0.0448)	-0.152** (0.0773)	-0.153*** (0.0443)	-0.181** (0.0742)	-0.0552 (0.0481)	-0.0763 (0.0736)	-0.0553 (0.0396)	-0.0851 (0.0728)
Densely population area	0.00557 (0.0102)	0.0174 (0.0112)	-0.00718 (0.0104)	0.0247** (0.0115)	0.0108 (0.0110)	0.0318*** (0.0112)	-0.00311 (0.00948)	0.0395*** (0.0111)
Thinly populated area	0.0122 (0.00784)	0.00839 (0.00672)	0.00689 (0.00874)	0.0101 (0.00735)	0.00963 (0.00864)	0.00785 (0.00653)	0.00118 (0.00790)	0.00691 (0.00682)
Mining; manufacturing	-0.0775*** (0.0284)	-0.0768** (0.0390)	-0.0875*** (0.0252)	-0.0949* (0.0488)	0.00256 (0.0259)	0.0163 (0.0388)	-0.00364 (0.0220)	0.00355 (0.0433)
Construction	-0.0479 (0.0297)	-0.0490 (0.0416)	-0.0571* (0.0310)	-0.0687 (0.0505)	0.0256 (0.0296)	0.0493 (0.0392)	0.0228 (0.0252)	0.0462 (0.0443)
Wholesale and retail trade	-0.0366 (0.0351)	-0.00750 (0.0384)	-0.0529* (0.0299)	-0.0287 (0.0501)	0.0261 (0.0334)	0.0523 (0.0394)	0.00658 (0.0265)	0.0216 (0.0447)
Hotels and restaurants	-0.0307 (0.0323)	-0.00731 (0.0623)	-0.0293 (0.0359)	0.00846 (0.0914)	0.000783 (0.0320)	0.0451 (0.0644)	-0.00267 (0.0290)	0.0641 (0.0871)
Transport, storage	-0.00852 (0.0524)	-0.121*** (0.0455)	-0.0395 (0.0459)	-0.165*** (0.0486)	0.0985** (0.0488)	-0.00483 (0.0414)	0.0434 (0.0365)	-0.0425 (0.0426)
Financial intermediation	0.220** (0.0889)	0.368* (0.195)	0.148** (0.0732)	0.328* (0.195)	0.321*** (0.0860)	0.457** (0.202)	0.190*** (0.0641)	0.368* (0.207)
Real estate, renting	0.0641 (0.0490)	-0.00480 (0.0524)	0.0139 (0.0405)	-0.00744 (0.0621)	0.134** (0.0527)	0.0908* (0.0501)	0.0635* (0.0384)	0.0797 (0.0590)
Public adm.; defence	0.0185 (0.0366)	0.0827 (0.0565)	-0.0118 (0.0329)	0.0357 (0.0611)	0.104*** (0.0390)	0.153*** (0.0569)	0.0537* (0.0296)	0.0893* (0.0493)
Education	-0.106** (0.0479)	-0.0965** (0.0468)	-0.0962** (0.0438)	-0.122** (0.0593)	-0.0634 (0.0469)	-0.0613 (0.0475)	-0.0691** (0.0348)	-0.110** (0.0555)
Health and social work	-0.123*** (0.0324)	-0.0640 (0.0520)	-0.116*** (0.0294)	-0.0583 (0.0647)	-0.0565* (0.0319)	0.0358 (0.0559)	-0.0459 (0.0300)	0.0376 (0.0629)
Other services	-0.0500 (0.0718)	-0.123*** (0.0444)	-0.0683 (0.0641)	-0.161*** (0.0555)	0.0353 (0.0696)	-0.0647 (0.0499)	0.00571 (0.0545)	-0.102* (0.0528)
Sector not available	0.0813*** (0.0154)	0.0613*** (0.0187)	0.0816*** (0.0176)	0.0522** (0.0212)	0.0652*** (0.0148)	0.0522*** (0.0155)	0.0513*** (0.0128)	0.0341** (0.0154)
Unit size: 1-2 workers	-0.0583*** (0.0221)	-0.0178 (0.0296)	-0.0250 (0.0212)	0.00708 (0.0315)	-0.0931*** (0.0210)	-0.0267 (0.0311)	-0.0428** (0.0169)	0.00970 (0.0289)
Unit size: 3-5 workers	-0.0676* (0.0369)	0.0340 (0.0532)	-0.0136 (0.0366)	0.151** (0.0696)	-0.107*** (0.0363)	0.0327 (0.0595)	-0.0381 (0.0277)	0.156** (0.0692)
Unit size: 6-10 workers	-0.0580** (0.0262)	-0.0587* (0.0312)	-0.0275 (0.0252)	-0.00942 (0.0319)	-0.0992*** (0.0288)	-0.0793** (0.0314)	-0.0517** (0.0223)	-0.0147 (0.0312)

Unit size: 11-49 workers	-0.0573* (0.0309)	-0.0754** (0.0305)	-0.0267 (0.0258)	-0.0522* (0.0316)	-0.102*** (0.0291)	-0.0821*** (0.0296)	-0.0599*** (0.0213)	-0.0444 (0.0301)
Unit size: 50+ workers	-0.0550** (0.0254)	-0.0751*** (0.0234)	-0.0300 (0.0224)	-0.0556** (0.0238)	-0.0771*** (0.0260)	-0.0934*** (0.0237)	-0.0432** (0.0182)	-0.0658*** (0.0240)
Permanent job	0.00509 (0.0231)	-0.00795 (0.0171)	0.00735 (0.0209)	-0.0284 (0.0194)	-0.0545** (0.0231)	-0.0194 (0.0170)	-0.0518*** (0.0183)	-0.0515*** (0.0182)
Temporary job	0.00701 (0.0244)	0.0280 (0.0207)	-0.00280 (0.0229)	0.0351 (0.0248)	-0.00637 (0.0243)	0.0469** (0.0193)	0.000644 (0.0205)	0.0560** (0.0225)
Intercept	1.061*** (0.0495)	0.994*** (0.0961)	1.071*** (0.0511)	1.026*** (0.0953)	0.631*** (0.0513)	0.540*** (0.0927)	0.495*** (0.0436)	0.459*** (0.0909)
N	24,847	25,323	24,847	25,323	24,847	25,323	24,847	25,323

Table 9. RIF regressions for Latvia, 2008 and 2012

	EMI		EPTI		EPBI		EDI	
	2008	2012	2008	2012	2008	2012	2008	2012
Female	-0.0231 (0.0246)	-0.0139 (0.0171)	-0.0364 (0.0294)	-0.0182 (0.0178)	-0.0310 (0.0246)	-0.0266 (0.0171)	-0.0440 (0.0290)	-0.0317** (0.0161)
Age 0-15	-0.240*** (0.0682)	-0.175** (0.0727)	-0.253*** (0.0704)	-0.166** (0.0646)	-0.203*** (0.0676)	-0.189*** (0.0617)	-0.192*** (0.0690)	-0.167*** (0.0638)
Age 16-25	-0.198*** (0.0462)	-0.156*** (0.0515)	-0.210*** (0.0501)	-0.128** (0.0515)	-0.157*** (0.0527)	-0.152*** (0.0493)	-0.152*** (0.0491)	-0.119** (0.0462)
Age 26-35	-0.0754** (0.0368)	-0.0564 (0.0448)	-0.0807** (0.0381)	-0.0438 (0.0457)	-0.0582 (0.0370)	-0.0453 (0.0455)	-0.0543 (0.0381)	-0.0295 (0.0421)
Age 46-55	0.0525 (0.0331)	-0.0362 (0.0234)	0.0564 (0.0391)	-0.0266 (0.0232)	0.0569* (0.0343)	-0.0386 (0.0243)	0.0590 (0.0397)	-0.0277 (0.0229)
Age 56-65	-0.0326 (0.0320)	-0.0511 (0.0366)	-0.0237 (0.0341)	-0.0294 (0.0374)	-0.0416 (0.0308)	-0.0575* (0.0339)	-0.0397 (0.0336)	-0.0509 (0.0357)
Age 66+	0.0810** (0.0329)	0.0620* (0.0334)	0.0808** (0.0347)	0.0969*** (0.0350)	-0.0811*** (0.0314)	-0.160*** (0.0307)	-0.116*** (0.0343)	-0.174*** (0.0328)
Activity rate	-0.0768*** (0.0284)	0.00209 (0.0284)	-0.0967*** (0.0331)	-0.0120 (0.0274)	-0.00103 (0.0302)	0.0736*** (0.0276)	-0.00528 (0.0335)	0.0734*** (0.0263)
Full-time employment rate	-0.313*** (0.0178)	-0.330*** (0.0156)	-0.332*** (0.0185)	-0.352*** (0.0153)	-0.228*** (0.0180)	-0.210*** (0.0147)	-0.223*** (0.0183)	-0.196*** (0.0154)
Part-time employment rate	-0.110** (0.0546)	-0.171*** (0.0284)	-0.118* (0.0651)	-0.200*** (0.0304)	-0.0553 (0.0521)	-0.109*** (0.0254)	-0.0449 (0.0629)	-0.116*** (0.0256)
Single	0.0403** (0.0172)	0.0242 (0.0290)	0.0355* (0.0185)	0.0263 (0.0275)	0.0292* (0.0169)	0.00687 (0.0276)	0.0202 (0.0179)	0.00150 (0.0263)
Married	-0.0299** (0.0120)	-0.0427*** (0.0112)	-0.0308** (0.0130)	-0.0359*** (0.0113)	-0.0310** (0.0120)	-0.0406*** (0.0113)	-0.0357*** (0.0115)	-0.0372*** (0.0109)
Secondary education	-0.0975*** (0.0284)	-0.0670*** (0.0226)	-0.1000*** (0.0290)	-0.0738*** (0.0236)	-0.0815*** (0.0289)	-0.0552** (0.0222)	-0.0762** (0.0312)	-0.0501** (0.0225)
Tertiary education	-0.0398 (0.0339)	-0.000561 (0.0300)	-0.0501 (0.0339)	-0.0165 (0.0314)	0.0136 (0.0345)	0.0506* (0.0292)	0.0177 (0.0348)	0.0422 (0.0292)
Professionals	-0.162*** (0.0451)	-0.158*** (0.0539)	-0.178*** (0.0481)	-0.157*** (0.0495)	-0.175*** (0.0502)	-0.161*** (0.0517)	-0.191*** (0.0493)	-0.152*** (0.0490)
Technicians	-0.222*** (0.0480)	-0.214*** (0.0513)	-0.228*** (0.0478)	-0.199*** (0.0472)	-0.249*** (0.0495)	-0.228*** (0.0513)	-0.255*** (0.0498)	-0.202*** (0.0473)
Clerical support workers	-0.247*** (0.0459)	-0.215*** (0.0510)	-0.246*** (0.0485)	-0.201*** (0.0444)	-0.268*** (0.0488)	-0.235*** (0.0479)	-0.270*** (0.0506)	-0.214*** (0.0451)
Services and sales workers	-0.229*** (0.0432)	-0.159*** (0.0376)	-0.243*** (0.0482)	-0.153*** (0.0355)	-0.260*** (0.0480)	-0.186*** (0.0366)	-0.273*** (0.0494)	-0.171*** (0.0345)
Skilled agriculture work.	-0.0557 (0.0456)	-0.0811* (0.0416)	-0.0914* (0.0483)	-0.0960** (0.0407)	-0.0950* (0.0498)	-0.0846** (0.0396)	-0.125*** (0.0476)	-0.0819** (0.0399)
Craft and trade workers	-0.213*** (0.0437)	-0.176*** (0.0396)	-0.234*** (0.0492)	-0.187*** (0.0360)	-0.243*** (0.0481)	-0.202*** (0.0369)	-0.258*** (0.0483)	-0.198*** (0.0363)
Plant and machine oper.	-0.193*** (0.0421)	-0.202*** (0.0419)	-0.214*** (0.0453)	-0.203*** (0.0376)	-0.231*** (0.0449)	-0.243*** (0.0400)	-0.249*** (0.0453)	-0.233*** (0.0382)
Elementary occupations	-0.151*** (0.0428)	-0.0997** (0.0390)	-0.175*** (0.0465)	-0.108** (0.0364)	-0.186*** (0.0458)	-0.135*** (0.0377)	-0.207*** (0.0466)	-0.131*** (0.0364)
Occupation not available	-0.137* (0.0786)	-0.206*** (0.0593)	-0.167* (0.0906)	-0.239*** (0.0565)	-0.120 (0.0863)	-0.178*** (0.0568)	-0.145* (0.0881)	-0.202*** (0.0602)
Experience: less than 1 y.	0 (0)	0.111* (0.0647)	0 (0)	0.0947 (0.0661)	0 (0)	0.0971 (0.0645)	0 (0)	0.0860 (0.0587)
Experience: 1-2 years	0.0923 (0.0672)	0 (0.00394)	0.108 (0.0898)	0 (0.00580)	0.138* (0.0794)	0 (0.00619)	0.159* (0.0936)	0 (0.00656)
Experience: 3-5 years	0 (0.0385)	0.0246 (0.0370)	0 (0.0374)	0.0255 (0.0349)	0 (0.0492)	0.0396 (0.0315)	0 (0.0590)	0.0451 (0.0315)
Experience: 6-9 years	0.0419 (0.0352)	0.0161 (0.0443)	0.0393 (0.0400)	0.0316 (0.0406)	0.0806 (0.0519)	0.0286 (0.0393)	0.0887 (0.0568)	0.0473 (0.0360)
Experience: 10+ years	-0.0282 (0.0411)	0.0114 (0.0360)	-0.0374 (0.0407)	0.0304 (0.0336)	-0.00321 (0.0544)	0.0180 (0.0323)	-0.00322 (0.0573)	0.0366 (0.0311)
Densely population area	-0.00236 (0.0112)	0 (0.0136)	-0.00202 (0.0112)	0 (0.0133)	0.00174 (0.0101)	0 (0.0171)	0.00272 (0.0109)	0 (0.0173)
Thinly populated area	0 (0.00548)	0.0176* (0.00925)	0 (0.00680)	0.0165* (0.00852)	0 (0.00611)	0.0311** (0.0147)	0 (0.00644)	0.0322** (0.0144)
Mining; manufacturing	-0.0399 (0.0502)	-0.0724** (0.0329)	-0.0458 (0.0513)	-0.0825** (0.0335)	0.00288 (0.0494)	-0.00434 (0.0332)	0.00123 (0.0488)	-0.00463 (0.0346)
Construction	-0.110***	-0.153***	-0.109**	-0.164***	-0.0574	-0.0837**	-0.0486	-0.0791**

Wholesale and retail trade	(0.0404) 0.0167 (0.0633)	(0.0389) -0.0442 (0.0445)	(0.0433) 0.0455 (0.0813)	(0.0374) -0.0615 (0.0425)	(0.0382) 0.0524 (0.0652)	(0.0349) 0.00779 (0.0416)	(0.0415) 0.0823 (0.0811)	(0.0363) 0.00130 (0.0425)
Hotels and restaurants	-0.0195 (0.0439)	-0.0528 (0.0542)	-0.0169 (0.0469)	-0.0755 (0.0521)	0.00980 (0.0405)	-0.00409 (0.0505)	0.0123 (0.0437)	-0.00938 (0.0504)
Transport, storage	-0.0700 (0.0448)	0.0651 (0.0522)	-0.0744* (0.0437)	0.0493 (0.0527)	-0.0250 (0.0392)	0.135*** (0.0499)	-0.0267 (0.0424)	0.121*** (0.0481)
Financial intermediation	0.174 (0.123)	0.386** (0.165)	0.173 (0.109)	0.321** (0.147)	0.263* (0.147)	0.467*** (0.170)	0.267* (0.155)	0.394** (0.158)
Real estate, renting	-0.0688 (0.0436)	-0.0128 (0.0514)	-0.0761* (0.0431)	-0.0107 (0.0455)	0.000682 (0.0442)	0.0503 (0.0512)	0.00220 (0.0431)	0.0432 (0.0446)
Public adm.; defence	0.0224 (0.0483)	-0.133*** (0.0394)	0.00962 (0.0499)	-0.138*** (0.0408)	0.0811 (0.0510)	-0.0774** (0.0390)	0.0702 (0.0512)	-0.0776* (0.0398)
Education	-0.166*** (0.0382)	-0.178*** (0.0351)	-0.151*** (0.0392)	-0.180*** (0.0344)	-0.118*** (0.0336)	-0.110*** (0.0348)	-0.106*** (0.0344)	-0.105*** (0.0348)
Health and social work	-0.0894* (0.0499)	-0.0826 (0.0590)	-0.0800 (0.0515)	-0.0959* (0.0582)	-0.0194 (0.0475)	-0.00711 (0.0571)	-0.00879 (0.0515)	-0.00643 (0.0536)
Other services	-0.0141 (0.0616)	-0.104** (0.0453)	-0.0191 (0.0631)	-0.0910* (0.0466)	0.0276 (0.0587)	-0.0252 (0.0439)	0.0244 (0.0635)	0.00165 (0.0475)
Sector not available	0.134*** (0.0251)	0.110*** (0.0248)	0.129*** (0.0251)	0.107*** (0.0227)	0.106*** (0.0244)	0.0749*** (0.0203)	0.0948*** (0.0249)	0.0653*** (0.0214)
Unit size: 1-2 workers	-0.107*** (0.0302)	-0.0132 (0.0293)	-0.0909*** (0.0298)	-0.00898 (0.0273)	-0.142*** (0.0306)	-0.0959*** (0.0300)	-0.129*** (0.0301)	-0.0898*** (0.0272)
Unit size: 3-5 workers	0.0284 (0.0525)	-0.0904* (0.0490)	0.0437 (0.0512)	-0.0875* (0.0486)	-0.0179 (0.0541)	-0.172*** (0.0452)	-0.0125 (0.0484)	-0.171*** (0.0457)
Unit size: 6-10 workers	-0.00813 (0.0436)	-0.0779* (0.0408)	0.00821 (0.0486)	-0.0468 (0.0421)	-0.0517 (0.0498)	-0.135*** (0.0426)	-0.0446 (0.0468)	-0.110*** (0.0386)
Unit size: 11-49 workers	-0.105** (0.0412)	-0.0742* (0.0381)	-0.0934** (0.0400)	-0.0663* (0.0398)	-0.152*** (0.0395)	-0.112*** (0.0402)	-0.148*** (0.0382)	-0.0987** (0.0385)
Unit size: 50+ workers	-0.0513 (0.0372)	-0.0506* (0.0265)	-0.0241 (0.0391)	-0.0429* (0.0259)	-0.0923** (0.0394)	-0.0873*** (0.0266)	-0.0716* (0.0405)	-0.0728*** (0.0241)
Permanent job	-0.0572* (0.0312)	-0.0497 (0.0475)	-0.0674* (0.0376)	-0.0553 (0.0452)	-0.0638** (0.0321)	-0.102** (0.0437)	-0.0776** (0.0383)	-0.129*** (0.0453)
Temporary job	-0.0254 (0.0516)	-0.0108 (0.0489)	-0.0295 (0.0626)	-0.0256 (0.0462)	-0.0183 (0.0533)	-0.0501 (0.0454)	-0.0202 (0.0602)	-0.0782 (0.0477)
Intercept	1.127*** (0.0886)	0.991*** (0.0721)	1.176*** (0.100)	0.992*** (0.0697)	0.967*** (0.100)	0.875*** (0.0708)	0.964*** (0.112)	0.822*** (0.0672)
N	14,294	14,471	14,294	14,471	14,294	14,471	14,294	14,471

Table 10. RIF regressions for Slovenia, 2008 and 2012

	EMI		EPTI		EPBI		EDI	
	2008	2012	2008	2012	2008	2012	2008	2012
Female	0.00796 (0.0122)	0.00825 (0.0143)	0.00735 (0.0108)	-0.00309 (0.0141)	0.0123 (0.0124)	0.0192 (0.0148)	0.00621 (0.0103)	0.00224 (0.0116)
Age 0-15	-0.0990** (0.0447)	-0.0236 (0.0478)	-0.0868* (0.0447)	0.0240 (0.0470)	-0.196*** (0.0453)	-0.151*** (0.0445)	-0.176*** (0.0398)	-0.121*** (0.0372)
Age 16-25	-0.122*** (0.0256)	-0.104*** (0.0261)	-0.108*** (0.0226)	-0.0874*** (0.0285)	-0.102*** (0.0244)	-0.0778*** (0.0259)	-0.0832*** (0.0198)	-0.0615*** (0.0228)
Age 26-35	-0.0470*** (0.0182)	-0.0798*** (0.0179)	-0.0207 (0.0154)	-0.0530*** (0.0173)	-0.0508*** (0.0175)	-0.100*** (0.0192)	-0.0285** (0.0132)	-0.0714*** (0.0147)
Age 46-55	0.0268 (0.0183)	-0.00596 (0.0181)	0.0306** (0.0154)	-0.00134 (0.0162)	0.00709 (0.0170)	-0.0104 (0.0174)	-0.00100 (0.0131)	-0.00896 (0.0130)
Age 56-65	0.0327 (0.0257)	0.0343 (0.0290)	0.0430** (0.0207)	0.0515* (0.0280)	-0.0333 (0.0239)	-0.0103 (0.0277)	-0.0336* (0.0197)	-0.00566 (0.0250)
Age 66+	0.0456* (0.0241)	0.0465* (0.0280)	0.0717*** (0.0206)	0.0858*** (0.0264)	-0.0969*** (0.0220)	-0.101*** (0.0251)	-0.0806*** (0.0188)	-0.0674*** (0.0226)
Activity rate	-0.118*** (0.0169)	-0.0918*** (0.0212)	-0.112*** (0.0158)	-0.0781*** (0.0218)	0.0586*** (0.0179)	0.111*** (0.0200)	0.0805*** (0.0156)	0.130*** (0.0182)
Full-time employment rate	-0.425*** (0.0110)	-0.435*** (0.0130)	-0.444*** (0.0114)	-0.463*** (0.0128)	-0.183*** (0.0102)	-0.181*** (0.0113)	-0.141*** (0.00893)	-0.144*** (0.0101)
Part-time employment rate	-0.370*** (0.0421)	-0.412*** (0.0376)	-0.381*** (0.0408)	-0.375*** (0.0377)	-0.141*** (0.0408)	-0.163*** (0.0320)	-0.0738* (0.0400)	-0.0826*** (0.0299)
Single	-0.0216* (0.0112)	-0.0130 (0.0147)	-0.0166 (0.0116)	-0.0241* (0.0144)	-0.0430*** (0.0115)	-0.0266* (0.0158)	-0.0275*** (0.00966)	-0.0165 (0.0118)
Married	-0.00276 (0.00913)	-0.0249* (0.0131)	-0.000560 (0.00878)	-0.0245** (0.0122)	-0.0358*** (0.00910)	-0.0560*** (0.0127)	-0.0296*** (0.00836)	-0.0365*** (0.0108)
Secondary education	-0.0157 (0.0122)	-0.0224 (0.0139)	-0.0137 (0.0120)	-0.00290 (0.0143)	-0.0223* (0.0127)	-0.0528*** (0.0148)	-0.0105 (0.0116)	-0.0341*** (0.0128)
Tertiary education	0.0740*** (0.0231)	0.0431** (0.0210)	0.0474** (0.0206)	0.0528*** (0.0203)	0.111*** (0.0227)	0.0560*** (0.0202)	0.0867*** (0.0194)	0.0568*** (0.0183)
Professionals	-0.0400 (0.0377)	-0.137*** (0.0316)	-0.00799 (0.0296)	-0.127*** (0.0283)	-0.113*** (0.0356)	-0.147*** (0.0343)	-0.103*** (0.0291)	-0.132*** (0.0251)
Technicians	-0.112*** (0.0346)	-0.197*** (0.0299)	-0.0684** (0.0267)	-0.164*** (0.0279)	-0.201*** (0.0320)	-0.218*** (0.0315)	-0.177*** (0.0251)	-0.184*** (0.0231)
Clerical support workers	-0.129***	-0.209***	-0.0743**	-0.164***	-0.219***	-0.239***	-0.185***	-0.195***

	(0.0372)	(0.0291)	(0.0302)	(0.0281)	(0.0340)	(0.0301)	(0.0264)	(0.0234)
Services and sales workers	-0.101***	-0.196***	-0.0646**	-0.167***	-0.165***	-0.210***	-0.141***	-0.168***
	(0.0349)	(0.0277)	(0.0286)	(0.0266)	(0.0322)	(0.0286)	(0.0247)	(0.0216)
Skilled agriculture workers	-0.0475	-0.139***	-0.0484	-0.154***	-0.0387	-0.0502	-0.0418	-0.0319
	(0.0361)	(0.0336)	(0.0331)	(0.0406)	(0.0344)	(0.0325)	(0.0281)	(0.0323)
Craft and trade workers	-0.0980***	-0.174***	-0.0625**	-0.152***	-0.176***	-0.174***	-0.159***	-0.146***
	(0.0329)	(0.0281)	(0.0271)	(0.0277)	(0.0307)	(0.0291)	(0.0243)	(0.0227)
Plant and machine operators	-0.0750**	-0.169***	-0.0416	-0.143***	-0.140***	-0.176***	-0.130***	-0.149***
	(0.0334)	(0.0284)	(0.0266)	(0.0259)	(0.0304)	(0.0289)	(0.0240)	(0.0224)
Elementary occupations	-0.0750**	-0.162***	-0.0474*	-0.142***	-0.135***	-0.161***	-0.111***	-0.124***
	(0.0342)	(0.0267)	(0.0268)	(0.0268)	(0.0310)	(0.0289)	(0.0243)	(0.0222)
Occupation not available	-0.0507	-0.132***	-0.0539*	-0.132***	-0.0162	-0.0500	-0.0304	-0.0335
	(0.0347)	(0.0312)	(0.0283)	(0.0281)	(0.0326)	(0.0310)	(0.0256)	(0.0245)
Mining; manufacturing	-0.0489	-0.0224	-0.0241	-0.0389	0.0317	0.0654	0.0601**	0.0630*
	(0.0310)	(0.0431)	(0.0283)	(0.0435)	(0.0298)	(0.0413)	(0.0270)	(0.0330)
Construction	0.0312	0.00736	0.0370	-0.0160	0.122***	0.0963**	0.131***	0.101***
	(0.0358)	(0.0432)	(0.0349)	(0.0475)	(0.0359)	(0.0430)	(0.0322)	(0.0359)
Wholesale and retail trade	0.00562	0.0308	0.00858	-0.00983	0.104***	0.121***	0.0981***	0.0864**
	(0.0360)	(0.0443)	(0.0332)	(0.0442)	(0.0340)	(0.0429)	(0.0304)	(0.0348)
Hotels and restaurants	0.0292	0.0286	0.0356	-0.00360	0.0807**	0.104**	0.0905***	0.0968***
	(0.0394)	(0.0464)	(0.0348)	(0.0456)	(0.0380)	(0.0428)	(0.0322)	(0.0359)
Transport, storage	0.0140	0.0512	-0.000251	0.00478	0.132***	0.146***	0.110***	0.0979***
	(0.0405)	(0.0484)	(0.0324)	(0.0463)	(0.0393)	(0.0464)	(0.0301)	(0.0366)
Financial intermediation	0.124**	0.0208	0.0769	-0.00261	0.255***	0.148***	0.187***	0.0997**
	(0.0624)	(0.0540)	(0.0486)	(0.0568)	(0.0596)	(0.0549)	(0.0473)	(0.0455)
Real estate, renting	0.0669	0.0281	0.0580*	-0.00811	0.164***	0.129***	0.141***	0.0984***
	(0.0415)	(0.0434)	(0.0350)	(0.0449)	(0.0428)	(0.0430)	(0.0349)	(0.0359)
Public adm.; defence	-0.0280	-0.0579	-0.00156	-0.0749	0.0718*	0.0444	0.0755**	0.0300
	(0.0417)	(0.0451)	(0.0352)	(0.0473)	(0.0403)	(0.0462)	(0.0317)	(0.0365)
Education	-0.0570	-0.0860*	-0.0162	-0.0714	0.0370	-0.00136	0.0489	0.0133
	(0.0388)	(0.0444)	(0.0353)	(0.0459)	(0.0370)	(0.0431)	(0.0313)	(0.0349)
Health and social work	0.0409	0.0129	0.0521	-0.00500	0.144***	0.122**	0.144***	0.0965**
	(0.0434)	(0.0507)	(0.0393)	(0.0480)	(0.0429)	(0.0512)	(0.0356)	(0.0380)
Other services	0.0464	0.00332	0.0468	0.00806	0.126***	0.0507	0.122***	0.0492
	(0.0432)	(0.0545)	(0.0429)	(0.0621)	(0.0393)	(0.0566)	(0.0344)	(0.0507)
Sector not available	0.0712***	0.0224	0.0683***	0.0125	0.0610***	0.0349**	0.0549***	0.0278**
	(0.0186)	(0.0191)	(0.0176)	(0.0202)	(0.0201)	(0.0165)	(0.0165)	(0.0134)
Unit size: 1-2 workers	-0.00607	0.0436	0.0402	0.0776*	0.00652	0.0380	0.0734***	0.0903**
	(0.0320)	(0.0443)	(0.0325)	(0.0462)	(0.0306)	(0.0437)	(0.0267)	(0.0372)
Unit size: 3-5 workers	0.111***	0.111***	0.134***	0.140***	0.0535**	0.0523**	0.0852***	0.0979***
	(0.0258)	(0.0236)	(0.0226)	(0.0232)	(0.0248)	(0.0226)	(0.0203)	(0.0207)
Unit size: 6-10 workers	0.0516**	0.00519	0.0657***	0.0443*	0.0274	-0.0326	0.0438**	0.0105
	(0.0258)	(0.0237)	(0.0216)	(0.0245)	(0.0243)	(0.0238)	(0.0189)	(0.0202)
Unit size: 11-49 workers	-0.00829	-0.0279	0.0246	-0.000620	-0.0329	-0.0312	-0.000855	0.00284
	(0.0239)	(0.0235)	(0.0199)	(0.0213)	(0.0230)	(0.0227)	(0.0182)	(0.0174)
Unit size: 50+ workers	-0.0136	-0.00495	-0.00176	0.00863	-0.0187	-0.00905	-0.00159	0.00532
	(0.0177)	(0.0219)	(0.0150)	(0.0203)	(0.0179)	(0.0206)	(0.0122)	(0.0182)
Permanent job	0.0644***	0.0574***	0.0733***	0.0641***	0.00588	0.00588	-0.00374	-0.00265
	(0.0136)	(0.0135)	(0.0126)	(0.0138)	(0.0139)	(0.0139)	(0.0104)	(0.0121)
Temporary job	0.0374*	0.0501**	0.0340*	0.0664***	0.0167	0.0237	0.0192	0.0368**
	(0.0191)	(0.0203)	(0.0204)	(0.0213)	(0.0203)	(0.0195)	(0.0182)	(0.0183)
Intercept	0.843***	0.947***	0.754***	0.883***	0.499***	0.524***	0.335***	0.351***
	(0.0505)	(0.0562)	(0.0474)	(0.0544)	(0.0492)	(0.0494)	(0.0432)	(0.0462)
N	29,458	27,169	29,458	27,169	29,458	27,169	29,458	27,169



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