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The Sources of Diverging Wage Inequality in Eastern European Transitional Economies

Extended abstract

Rising wage inequality remains one of today's significant social and economic difficulties. The United Nations' Agenda 2030 for Sustainable Development of 2015 has declared a global vision of achieving full employment with an equal wage. Wages and salaries account for a significant portion of the income from employment, around 80% of the total earnings of employment (Katz and Autor 1999). Thus, widening wage inequality is harmful to socio-economic well-being through many channels. Wage disparities lead to household income inequality and consumption inequality, implying a noticeable change in economic well-being difference (Cutler and Katz 1992). Moreover, some studies show that wage dispersion is the cause of many social issues such as poverty, crime, unemployment, health problems, lower life expectancy, and lower levels of education (Stiglitz 2012). In turn, public policies on social welfare, taxation, and health and education services affect income distribution.

A substantial wage differential started in the 1980s and was maintained in the following decades in the US, which spread to other countries, including Canada, the UK, and some European countries. A great deal of research documented the changes in the wage structure of the US (Katz and Autor, 1999; Autor, Katz, and Kearney, 2008). The questions then arise: Has wage disparity risen in other developed countries? And has the wage gap also widened in developing countries? Gradín (2020) compared the changes in within-country income inequality between 1990 and 2010. The result shows that overall income inequality has gradually declined in developing countries since 1990, and it has slowly increased from 2005 to 2010 due to income heterogeneity between countries. Income inequality rose sharply in Eastern Europe and Central Asia (EECA) during the transition periods (the 1990s), but the average inequality has gradually declined since then (Ravallion 2016). Since 1990, income inequality increased in 19 countries, remained stable in 5 countries, and fell in 17 countries for EECA (Gradín 2020).

European Union Statistics on Income and Living Conditions (EU-SILC) presents a diverging trend in income inequality in EU countries. Compared to the EU income inequality data in 2010 and 2020, the income gap has increased in 12 out of 27 EU countries and decreased in others. Especially in the last decade, the income gap has widened the most in Bulgaria[1], whereas the gap has shrunk the most in Slovakia and Poland[2]. Furthermore, as of the second quarter of 2020, unexpected job losses and drop-in working hours due to the COVID-19 pandemic have led to a loss of 6.5% in the total wage bill on average in Europe. Primarily, half of this wage loss occurred to the workers at the bottom of the wage distribution, which implies that the pandemic has shifted the wage distribution to the highest-paid workers. As a result, the wage disparity is expected to increase in European countries (International Labour Organization 2020).

[1] The Gini coefficient increased by 23%.
[2] The Gini coefficient decreased by 19% and 9% in Slovakia and Poland respectively.

This research focuses on Eastern Europe (EE), paying particular attention to the six countries such as Bulgaria, Romania, Poland, Hungary, Czechia, and Slovakia. These countries are excellent examples of diverging trends in wage disparities. Namely, income inequality is high in Bulgaria and Romania, adequate in Hungary and Poland, and low in Czechia and Slovakia, according to the recent data from EU-SILC. Another reason for choosing these countries is that all of these countries have gone through a transition from a centrally planned economy to a market economy. The research aims to examine the main drivers behind the diverging patterns of wage inequality in these countries. In this regard, the following sets of activities are performed:

- To document and compare the evolution of wage distribution over the last two decades for six countries, focusing on four wage gap concepts: (i) changes in overall inequality (90/10, 80/20 wage gaps); (ii) changes in inequality in the lower and upper halves of the wage distribution (50/10, 90/50 and 90/40 wage gaps); (iii) between-group wage gaps (education, age, gender groups, and regions); and (iv) within-group wage gaps (90/10, 90/50, and 50/10 residual wage gaps conditioning on education, age, gender, occupation, and industry)
- To define leading proximate sources of diverging wage inequality for the six countries. In particular, the roles of individual, occupational, and industrial factors and institutional factors (minimum wage) are considered.
- To disentangle and quantify the contribution of factors to the changes in inequality indexes for 2010 and 2020 using the decomposition techniques.

Together, the two analyses provide distinctive explanations for why wage inequality diverges in countries with similar socio-economic environments.

A substantial amount of literature has been written to investigate the causes of these wage disparities. Most studies focus more on US and OECD evidence in greater depth than evidence from other countries (Cavanaugh and Breau 2018). Katz and Autor (1999) categorized the factors explaining the wage disparities into four broad explanations. The first explanation focuses on the shifts in the relative supply of skilled workers due to the changes in the size of well-educated cohorts entering the labor market and the expansion in unskilled immigrants. The second attributes the role of international trade in the rise of wage disparities. The third explanation emphasizes skill-biased technological change (SBTC), which is the cause of the increasing relative demand for skilled workers. The final reasoning is the institutional changes: de-unionization and minimum wages contribute to the wage disparities between skilled and unskilled workers.

Although these explanations may, to some extent, explain the change in wage disparities, the lesson learned from the literature review is that no single factor can explain the substantial differences in the wage distribution. Some may explain why wage disparities between skilled and unskilled workers widened, but they are unable to explain why disparities within the skilled group widened. Similarly, the minimum wage may explain declining wages at the low end of the distribution, but it may not explain the rising earnings of workers at the top. The supply, demand, and institutional frameworks commonly resolve these difficulties. According to Autor, Katz, and Kearney (2008), shifts in relative supply and demand for skilled workers, combined with labor market institutional factors such as de-unionization and minimum wage, explain much of the change in wage disparities.

Also, it is still unclear whether the explanations for wage differentials in advanced countries can also be consistent with the labor market trends in other countries. Therefore, there is more interest and a need

in the literature to study the recent development of wage inequality in countries other than advanced countries. This research attempts to fill a gap in wage equality research by improving the understanding of wage inequality in EE countries. According to prior literature conducted in EE countries, the factors directly associated with structural and institutional change played a crucial role in explaining the wage disparity at the beginning of the transition period (the 1990s). On the contrary, individual characteristics (including educational upgrade), firm characteristics, sectoral characteristics, institutional factors, and FDI are common in the literature of EE countries when market-based economies become dominant. An educational upgrade, minimum wage, and a foreign firm in the domestic market contribute to the within-country wage differentials. In contrast, firm and industry-related factors contribute to the between-country wage gaps.

To analyze the sources of diverging wage inequality, this research estimates quantile regression models for the determinations of the wage gaps (90/10, 90/50, and 50/10) and the Gini index. The quantile regression method allows determining how individual factors affect wages in different parts of the wage distribution. An ordinary least squares regression models the conditional mean of $E[Y|X]$, while the quantile regression captures the conditional distribution of the predicted variable (Y). Put simply, the quantile regression predicts the conditional quantiles $Q_\tau(Y|X)$. The method yields the fitted regression models for each quantile, such as 0.1, 0.5, and 0.9 (Angrist and Pischke 2009). Firpo, Fortin, and Lemieux (2009) introduced a new method for estimating unconditional quantile regression. It allows estimating the partial effect of regressors on the unconditional (marginal) quantiles of the outcome variable through recentered influence function (RIF). The strong point of this method is the compatibility with any distributional statistics such as the Gini index, Theil index, etc. In this regard, this paper uses the RIF regression approach.

Then, in a second step, the contribution of leading factors to the changes in wage inequality is disentangled and quantified using the extension of the Oaxaca-Blinder decomposition. Firpo, Fortin, and Lemieux (2018) offer the extension to the Oaxaca-Blinder (OB) decomposition depending on the RIF regression. It allows a two-stage procedure to perform the OB decomposition for the distributional parameters. It also enables calculating the contribution of each covariate in the composition effect. This analytical approach has significant advantages because earlier research that used microeconomic data took an indirect and/or partial approach to analyze wage disparity and its sources.

The research uses the EU-SILC microdata from 2010 to 2020 for the six selected countries to conduct the empirical analysis. EU-SILC is a microdata that provides comparable statistics on income, poverty, social exclusion, housing, labor, education, and health for the EU countries. A total of 29,500 households and 69,000 respondents were included in the annual survey of the EU-SILC from the selected countries. The preliminary result reveals characteristics that, in general, increase wage disparity in most countries. Individuals' educational advancement, in particular, is a primary predictor of growing inequality, which is supplemented to some extent by a growth in the share of workers in supervisory duties. Other factors, such as minimum wage adjustments and the growing percentage of non-natives working, on the other hand, either contribute to increased or decreased wage inequality.

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