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Wage inequality and migration within the European Union

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Abstract

Admission or expulsion of migrants has been a particularly frequent topic in the whole of Europe. It is rather easy to talk about, but much harder to draw the line between those fleeing famine and deep poverty and those „merely" expecting higher income. A growing number of economists hold it important to investigate the wage inequality from a prosperity standpoint. The acclaimed Stiglitz Committee emphasizes the wage inequalities within and between countries, as instability factors (Stiglitz et. al., 2009). Inequality favors only a few but hinders the masses (Senf, 2004). Declining standards of living, extreme poverty afflict over a billion people (Rosling, 2015), millions of whom are forced to provide for themselves in another place. Our study investigates the amount of wage inequality within the European Union, and what kind of migration processes do they launch, if the estimations of Barro-Sala-i-Martin (25% wage inequality leads to a maximum 1% increase in migration) hold true.

Keywords: inequality, income concentration, center-periphery, migration

1. Introduction

Acceptance or denial of the refugees, event their specification (migrant, illegal migrant, refugee, asylum seeker) has been an extremely "hot" topic in Europe. Countries and Brussels give different answers, absolutely controversial attitudes and opinions collide jeopardizing the intellectual and value harmony of the "Old Continent". It is easy to state, but much harder measure and decide about the borderline between those fleeing desolation and direct life danger, and those „merely" seeking a better (in this sense easier and more luxurious) life.

Global inequalities between countries are high, wage inequality has been rising both in developed and developing countries (European Commission Report, 2011). „The difference in income (for instance comparing the richest 10% of Americans and the poorest 10% of Ethiopians) is close to a ratio of 10000 to 1 (*Birdsall, 2005*). Attainable income in Europe is almost thirty times as much as it is in Africa. Income concentration, increasing economic inequality is not just unfair, but also unbearable. However, it is clear from the example of socialism that complete equality is unrealistic and unfeasible.

2. Literature review

Some of the most important quantifiers of the changes in global economy are the increase of local inequalities, the ongoing growth of social and economic differences and the differentiation of geographic space. Great local disparities have been formed on our continents that have been fixed by today on a very high level.

A growing number of economists hold it important to investigate the wage inequality from a prosperity standpoint. The acclaimed Stiglitz Committee emphasizes the wage inequalities within and between countries, as instability factors *(Stiglitz et. al. 2009).* Inequality favors only a few but hinders the masses *(Bernd Senf, 2004).* Declining standards of living, extreme poverty afflict over a billion people *(Rosling, 2006)*, millions of whom are forced to provide for themselves in another place. Migration due to income differences mostly takes place within countries, but another part of the population attempts to find better opportunities through regional and continental migration.

In the background of today's migration waves is that despite (or because of) globalization, the world is being polarized and the gap between poor and rich countries is becoming fatal. The economic theory of centre-periphery (or dependence theory) is the work of two economists; the Argentinean Raúl Prebisch and the German-English Hans Singer. According to their thesis, the world can be divided up to rich (centre) and poor (periphery) countries *(Tóth, 2016).* Income polarization means that if the perimeter social groups move away from the centre, the proportion of poor and rich groups grows equally in a given location.

Globally, a huge spread exists between the developed and less developed countries. A number of facts point out that the rich ones got richer, and the poor got poorer. Immanuel Wallerstein differentiates a third section along with periphery and centre: half-periphery. Therefore he divides the economic universe into periphery, half-periphery and centre (or private property). Half-periphery acts as periphery in the centre and centre in the periphery *(Wallerstein, 2000).*

Jan Tinbergen Nobel-laureate economist has mentioned the reduction of income inequalities in 1976, in the report of the Roman Club, which signifies the weight of the problem already *(Szigeti-Tóth, 2015).* This question is still present today, with the international wealth disparity's gaining importance for our future – it can reach never-before-seen heights within the bounds of our globalized world. In the 1970`s, income in the richest parts of the world was on average 1100 dollars per capita, in the poorest it was 85. According to Tinbergen, the 13:1 decile ratio and its trend is incompatible with the respectable social order (1979). During the course of 40 years, income inequalities between the poorest and the richest countries have not followed the plot recommended by Tinbergen, but rather they have significantly increased by threefold. Such an increase can be traced back to the facts that while the growth in the richest decile is over forty-fold, it is less than twenty-fold in the poorest *(Szigeti-Tóth, 2015)*. The forty-fold increase has become scary for the present, and the gap is getting ever wider.

Even the development map of the European Union is quite colorful. In the EU - both between countries and within each country -, development disparities are abound. There are so-called centre regions, for example the London-Paris-Amsterdam triangle, within which London plays a key role. Determining the economy of the Union are the large metropolises which, despite their developed industry, gain their importance through research and development, culture and political and commercial control centers.

Periphery regions on the downfall have multiple types in the EU. Such are, for example, the thinly inhabited northern regions (in Sweden or Finland), where the distance from the economic centers, adverse climatic conditions and small population hinder development. Mountain regions are in a similar situation. In the countryside, the higher proportion of the population in agriculture and the low income are the problem sources – this is prevalent in multiple regions of Spain, Portugal and Poland, too.

Multiple regions hold a transitional, semi-peripherical role, that, based on its development, can neither be grouped with the most or the least developed locations, however has shown major improvements in the recent times. Such are the Mediterranean Coast from Valencia to Genova, right up to the Mid-Italian regions (Florence and Bologna). Services, tourism and R&D provide development windows for the regions.

The richest, most populated, most dynamically developing and most urbanized region of the EU is the so-called „Blue Banana", spanning from London through the Benelux-states, Ruhr district and Southern Germany down to Milan. It`s characterized by high employment and income.

3. Methods and materials

Our current study is an investigative exploration where we place the emphasis on the understanding and analysis of the methods behind the geographical differences.

The main source of our study is the Eurostat database, specifically the most recent data published in 2015. Basis for the collected data were 28 representative countries from the European Union. Information gathered from the countries included the measure of the average economic development, the GDP, minimum legislated wage, as well as the average net income.

International migration statistics quantify the extern migration, accounting for the immigration and migration in the country, as well as the number of foreigners applying for or have already received Hungarian citizenship. To summarize – it describes the migration processes through the borders of the country *(Kovács, 2014).*

Hardly any reliable migration data sources exist to draw conclusions. In the globalizing world, and mostly in the EU with its disappearing borders, the previously hindered movement on the continent is accelerated, thereby diminishing the effectiveness of the traditionally effective migration statistics. Trending migration processes today are increasingly more difficult to trace with the rigid and bureaucratic system *(Tárki, 2012).* Furthermore, official statistics do not cover procedures like commute along the borders, studying disguised as grey jobs or welfare migration.

The following table shows the statistical quantifiers of geographical inequalities, which are able to investigate multiple phenomena in practice. There are three main groups of quantifiers: geographical polarization, spread and geographical distribution difference measures. „A portion of the quantifiers requires absolute data, whereas others require specific, however from the point of measurement level, most expect data measured on a relative scale" *(Makszim, 2012).*

Index of regional polarization	Spread type indices	Indices measuring regional spreads
Dataset range	Spread	Koncentration-index (Hirschman-Herfindahl)
Spread range	Relative spread	Koncentration ratio
Relative range	Middle-difference	Redundance-indicator (Theil-index)
Interquartal range	Absolute mean difference	GINI-index
Quartal difference	Regional difference	Boldrini-index
Dual-index (Éltető-Frigyes index)	Logarithmic spread	Hoover-index (special case: Robin Hood index)

Table 1.: Grouping of inequality quantifiers. Source: Makszim, 2012

Variables used in the research:

- GDP per capita (Taken from the indicators of general economic development level),
- Minimum wages – wage minima (applicable by law to all employees; wage minima per month are gross values, before taxes and social insurance coverage fees)
- Minimum wages calculated on purchase power parity (preventing the differences in price levels between countries and enables comparison between them)
- Monthly net average wages

Goal of the study is the exact analysis of the inequalities between the countries of the European Union through the investigation of the above mentioned areas. Our hypothesis concerning the investigation of the effect of macroeconomic processes on geographical inequalities is, that inner migration processes are generated also from the wage differences between the countries of the European Union.

4. Results

Even though the analysis of global inequalities is much more important according to Piketty, than on a continental or regional scale *(Piketty, 2015)*, we are still attempting to investigate the wage inequalities in the EU's countries, and what sort of theoretical migrational processes they generate.

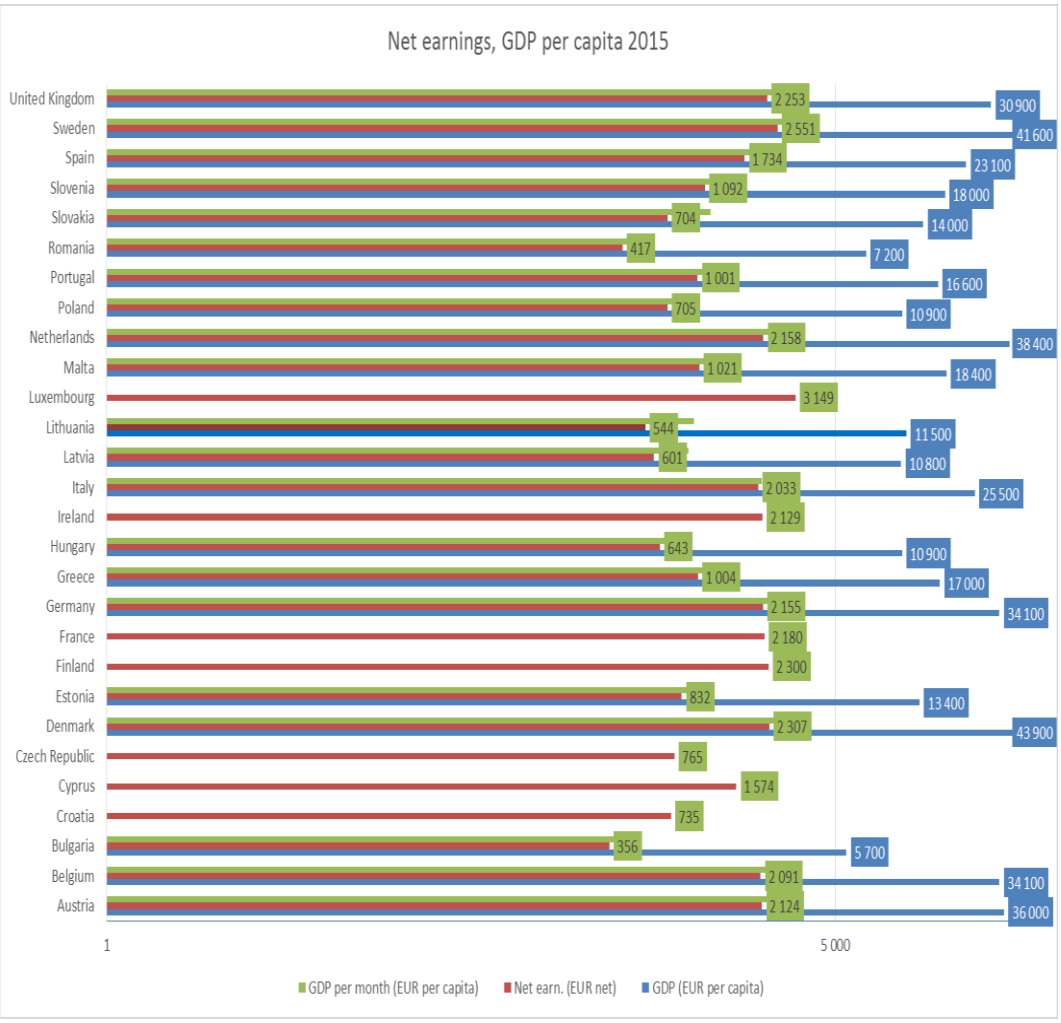

Figure 1.: GDP per capita and average net income in the EU in 2015 (EUR)
Source: own statistics based on Eurostat data

Significant differences are displayed in GDP per capita between countries. For example, in the United Kingdom, GDP per capita per year is 30 900 EUR, meaning 2575 EUR per month. However, this does not mean that everyone is earning this much, this only signifies the fact that everybody would be earning this much if there were no income inequalities. Net income in the country is 2253 EUR, but it has to be noted that even in the case of net income, differences are abundant: many do not reach the 2253 EUR mark, however there are many whose income exceeds this over ten times. This investigation

pertains to geographical inequalities between countries, so we neglect the differentiation within countries. Despite its flaws, the GDP per capita in EUR or its corrected value taking into account the price level differences is widely used to compare standards of living, therefore we cannot leave it out of our study. Each country has quite differing attributes, the value of GDP has shown a huge spread in 2015. Easy to see that, for example, Germany, Austria, Belgium, Denmark, the Netherlands and Sweden have left the EU-28 average behind (22 000 EUR), however some other members of the union (Romania and Bulgaria) are far below the average with around 10 000 EUR GDP per capita.

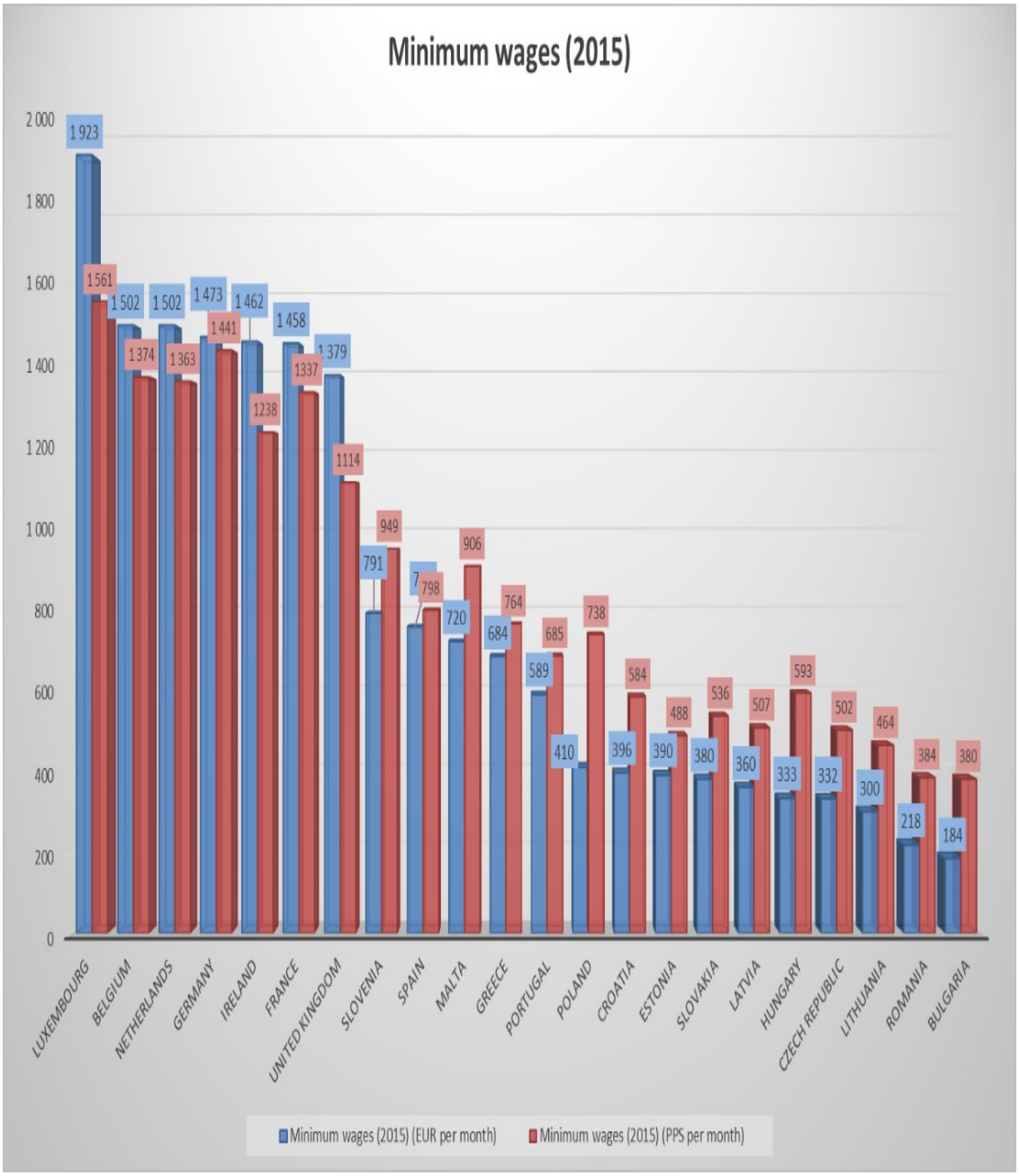

Figure 2.: Minimum wages in the EU (In EUR, with purchasing power standards) in 2015
Source: own statistics based on Eurostat data

Standard of living can be compared using a common currency as the basis for conversion (PPS – purchasing power standards), which measures the price of goods and services to the available income in the given country. Minimum wages on PPS gives an overview about the differences in standards of living within the Union.

Based on Fig. 2., the minimum income on PPS in Romania, Bulgaria, Estonia and Latvia are quite low compared to other countries. Relative to their economic development, Belgium, France, the Netherlands and Germany are way above average.

Sweden, Denmark, Finland, Austria, Italy and Cyprus are missing from the figure, because no data was available on them.

Luxembourg showed an even more outstanding difference, where the minimum wage is more than 4 times higher than in Bulgaria.

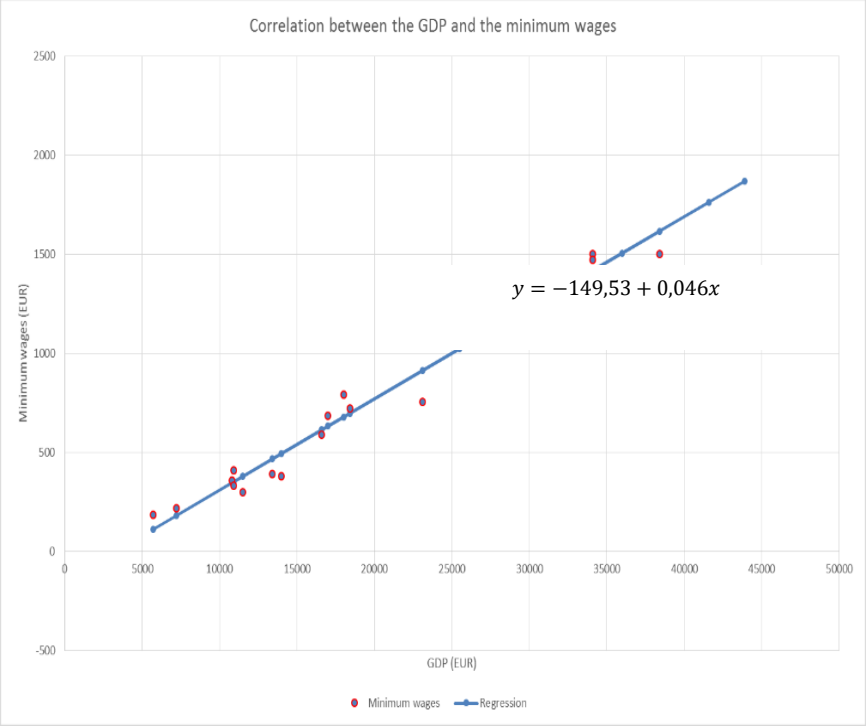

Figure 3.: Relationship between GDP in 2015 and minimum wages in the
Source: own statistics based on Eurostat data

Figure 3. represents the relationship between GDP and minimum wages well: a strong linear correspondance is shown, therefore the increase of GDP in a country has a strong effect on the minimum wages as well.

As an interesting side note, if we put the EU`s 22 000 EUR GDP per capita next to the world average of 760 EUR *(Piketty, 2015)* (if income was distributed completely evenly), we can immediately see a 29-fold difference.

Table 2. summarizes the basic statistical measures regarding the investigated attributes.

Attribute	GDP per capita (EUR)	Minimum wage per month (EUR)	Minimum wage (PPS)	Average net income (EUR)
Minimum	5 700	184	380	356
Maximum	43 900	1 923	1 561	3 149
Median	18 000	636	751	1 333
Standard deviation	12 046	545	384	796
Range	38 200	1 739	1 181	2 793
Average	22 000	797	850	1 470

Table 1.: Basic statistical indicators (2015)
Source: own calculations based on Eurostat data

Based on Table 2., the standard deviation of income in the EU is high, meaning that the income in the countries is far from the average. Range – the difference between the minimum and maximum investigated value – also supports the inequality theory. In terms of GDP, a difference of 38 200 EUR is shown between the richest and the poorest countries. On the topic of net income, the difference between the highest and the lowest value is 9-fold. Of the 28 economically developed countries, Bulgaria has the lowest minimum wage per month, based on PPS (380). It could be alarming if the income gap between the highest and lowest wages opens even wider in the EU. Range shows the actual differences just as well. The difference between the median and the average is also notable. Median is the value that splits our ordered row of data into two equals parts. Median of net income in our study is 1 333 EUR, meaning that not more than 50 % of data is smaller, and not more than 50 % is higher than this value. In all the calculated data points, median is less than the average, meaning that there are more countries below average, than above.

Table 3. compares the available income data for each country. Minimum wages in EUR formed the calculation basis of the data, since income and income differences from the point of view of workforce migration often times show that wage earned in a foreign country is spent in a high ratio in the native countries.

Cell values show the multiplication factor between the minimum wage of the country in the column header and that of the country in the row. Cells marked green indicate values below 1, meaning that the given country in the header has smaller minimum wage than the counterpart. In countries (columns) with mostly green cells, minimum wages are lower than almost all other EU members, like, for instance, Bulgaria and Romania. The „warmer" the colors are, the higher the cell values, the higher the wage difference. Belgium, France, Luxembourg, Germany, the Netherlands and the United Kingdom display 6-, 7-, 8- and 10-fold differences. Clearly the Eastern European countries joined in 2004 and 2007 are significantly behind the western states in income. Bulgaria and Romania are in the worst situation, and out of the "old" members, Greece and Spain are at the end of ranking. Leading the ranking is Luxembourg.

Since the economic motives of migration are hardly studied, we were curious to uncover what kind of inner migration processes the received results could launch, if the estimates of Barro-Sala-i-Martin (25% wage difference can be responsible of an up to 1% increase in migration) become reality. In the following paragraphs, a couple of sociological aspects of inner-EU migration will be presented, first and foremost its chances of theoretical occurrence and possible mechanisms.

Because on the foundational unified market of the union the free flow of goods, services, capital and workforce have distinguished the mobilitz through borders, therefore the free migration of people is a natural procedure. We suppose that migration with the goal of employment is clearly determined by the simple model of favorable wage expectations, and in the case of an 800-900 % wage difference, a highly increasing rate of employment-seeking migration can begin from the relatively recently joined countries to the richer European ones. The real wage differences between the origin countries and the accepting countries can realize a well-estimable employment-seeking migration and furthermore its increase, and the East-West migration will be a general phenomenon in the EU.

5. Summary

The problem of inequality is experienced as much in the European Union as a regional cluster as it is in the whole world.

Change in income distribution, assessment of wage levels of different social groups, poverty and social exclusion are major goal areas in the EU2020 strategy. From an economic standpoint it is understandable, that the inter-country migration (excluding refugees from war zones) is one of the most significant, very recent method of wage inequality reduction.

In the hope of a better life, people today do not just consider movement within the country, but also between countries and continents as well.

According to our findings, the European Union seriously has to consider the further legal East-West migration within Europe in the future.

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	Belgium	Bulgaria	Croatia	Czech Republic	Estonia	France	Germany	Greece	Hungary	Ireland	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Poland	Portugal	Romania	Slovakia	Soà	Spain	United Kingdom
Belgium	1,0	0,1	0,3	0,2	0,3	1,0	1,0	0,5	0,2	1,0	0,2	0,2	1,3	0,5	1,0	0,3	0,4	0,1	0,3	0,5	0,5	0,9
Bulgaria	8,2	1,0	2,1	1,8	2,1	7,9	8,0	3,7	1,8	7,9	2,0	1,6	10,4	3,9	8,2	2,2	3,2	1,2	2,1	4,3	4,1	7,5
Croatia	3,8	0,5	1,0	0,8	1,0	3,7	3,7	1,7	0,8	3,7	0,9	0,8	4,9	1,8	3,8	1,0	1,5	0,5	1,0	2,0	1,9	3,5
Czech Republic	4,5	0,6	1,2	1,0	1,2	4,4	4,4	2,1	1,0	4,4	1,1	0,9	5,8	2,2	4,5	1,2	1,8	0,7	1,1	2,4	2,3	4,2
Estonia	3,9	0,5	1,0	0,9	1,0	3,7	3,8	1,8	0,9	3,7	0,9	0,8	4,9	1,8	3,9	1,1	1,5	0,6	1,0	2,0	1,9	3,5
France	1,0	0,1	0,3	0,2	0,3	1,0	1,0	0,5	0,2	1,0	0,2	0,2	1,3	0,5	1,0	0,3	0,4	0,1	0,3	0,5	0,5	0,9
Germany	1,0	0,1	0,3	0,2	0,3	1,0	1,0	0,5	0,2	1,0	0,2	0,2	1,3	0,5	1,0	0,3	0,4	0,1	0,3	0,5	0,5	0,9
Greece	2,2	0,3	0,6	0,5	0,6	2,1	2,2	1,0	0,5	2,1	0,5	0,4	2,8	1,1	2,2	0,6	0,9	0,3	0,6	1,2	1,1	2,0
Hungary	4,5	0,6	1,2	1,0	1,2	4,4	4,4	2,1	1,0	4,4	1,1	0,9	5,8	2,2	4,5	1,2	1,8	0,7	1,1	2,4	2,3	4,1
Ireland	1,0	0,1	0,3	0,2	0,3	1,0	1,0	0,5	0,2	1,0	0,2	0,2	1,3	0,5	1,0	0,3	0,4	0,1	0,3	0,5	0,5	0,9
Latvia	4,2	0,5	1,1	0,9	1,1	4,0	4,1	1,9	0,9	4,1	1,0	0,8	5,3	2,0	4,2	1,1	1,6	0,6	1,1	2,2	2,1	3,8
Lithuania	5,0	0,6	1,3	1,1	1,3	4,9	4,9	2,3	1,1	4,9	1,2	1,0	6,4	2,4	5,0	1,4	2,0	0,7	1,3	2,6	2,5	4,6
Luxembourg	0,8	0,1	0,2	0,2	0,2	0,8	0,8	0,4	0,2	0,8	0,2	0,2	1,0	0,4	0,8	0,2	0,3	0,1	0,2	0,4	0,4	0,7
Malta	2,1	0,3	0,5	0,5	0,5	2,0	2,0	0,9	0,5	2,0	0,5	0,4	2,7	1,0	2,1	0,6	0,8	0,3	0,5	1,1	1,1	1,9
Netherlands	1,0	0,1	0,3	0,2	0,3	1,0	1,0	0,5	0,2	1,0	0,2	0,2	1,3	0,5	1,0	0,3	0,4	0,1	0,3	0,5	0,5	0,9
Poland	3,7	0,4	1,0	0,8	1,0	3,6	3,6	1,7	0,8	3,6	0,9	0,7	4,7	1,8	3,7	1,0	1,4	0,5	0,9	1,9	1,8	3,4
Portugal	2,5	0,3	0,7	0,6	0,7	2,5	2,5	1,2	0,6	2,5	0,6	0,5	3,3	1,2	2,5	0,7	1,0	0,4	0,6	1,3	1,3	2,3
Romania	6,9	0,8	1,8	1,5	1,8	6,7	6,8	3,1	1,5	6,7	1,7	1,4	8,8	3,3	6,9	1,9	2,7	1,0	1,7	3,6	3,5	6,3
Slovakia	4,0	0,5	1,0	0,9	1,0	3,8	3,9	1,8	0,9	3,8	0,9	0,8	5,1	1,9	4,0	1,1	1,6	0,6	1,0	2,1	2,0	3,6
Slovenia	1,9	0,2	0,5	0,4	0,5	1,8	1,9	0,9	0,4	1,8	0,5	0,4	2,4	0,9	1,9	0,5	0,7	0,3	0,5	1,0	1,0	1,7
Spain	2,0	0,2	0,5	0,4	0,5	1,9	1,9	0,9	0,4	1,9	0,5	0,4	2,5	1,0	2,0	0,5	0,8	0,3	0,5	1,0	1,0	1,8
United Kingdom	1,1	0,1	0,3	0,2	0,3	1,1	1,1	0,5	0,2	1,1	0,3	0,2	1,4	0,5	1,1	0,3	0,4	0,2	0,3	0,6	0,5	1,0

Table 3.: Minimum wage ratios
Source: own calculations based on Eurostat data