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ATHENS UNIVERSITY OF ECONOMICS AND BUSINESS

Minimum Wage Effects on Poverty and Inequality

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Working Paper Series

18-01

January 2018

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Abstract

Minimum wage effect on employment is one of the mostly studied fields in labour economics. Minimum wage is also considered as a redistributive tool but its efficiency is strongly doubted due to potential disemployment effect that may cause. In the present paper, redistributive ability of minimum wage is studied through microsimulation techniques and under several scenarios of employment elasticity.
The results indicate that minimum wage can reduce poverty even under the presence of a disemployment effect. Though, this anti-poverty effect is limited as employment elasticity is more negative. Similarly, inequality decreases when minimum wage increases are adopted, but the redistributive effect is weaker when they cause job losses. The above indicate that minimum wage policies should be used with caution and always take into account any possible impact on employment.

Keywords: minimum wages, unemployment, poverty, inequality

JEL classification: I38, J01, J08, J58

4.1 Introduction

Minimum wage policies are one of the most discussed and analyzed issues in the field of labour economics. Minimum wage impact on employment has been widely studied during the last decades and the results are still contradictory and not always compatible with theoretical predictions. Another issue that is of high academic and political interest is the effect of minimum wage on poverty and inequality and the redistributive effect of minimum wage.

In political level, minimum wage increases' proposals are very popular and attractive for politicians as it is predicted to increase incomes of working individuals and reduce wage inequality. In the U.S., the federal minimum wage was raised from $5.15 to $7.25 per hour in 2007 aiming to help the working poor. In Europe, minimum wages are to the top of the political agenda but reasons for that vary across EU member states. In Germany, a national minimum wage has been gradually introduced since 2015 and now it is fully in place. On the other hand, in Greece, the general minimum wage has been cut by 22% in 2012 in the context of internal devaluation while a youth subminimum wage has been introduced for those aged below 25 years. In general, only a few countries have no national minimum wage. Although, in countries where a national minimum wage exists, it varies a lot across countries. In 2007 in Bulgaria, the national monthly minimum wage is about € 235 while in Luxembourg it is € 1,998.

During the economic crisis that initially hit U.S. and then Europe, the relationship between minimum wage and poverty reduction is an even more topical issue as in-work poverty is a recently emerging phenomenon for the working-age population and decreasing wages and increasing unemployment are considered to lead to higher poverty rates (Cantillon et al., 2015). Also, protection of families with low income has come to the fore especially where the crisis hit more such as Greece, Ireland, Portugal or Spain.

In academic level, minimum wage effects on poverty and inequality have been strongly challenged despite that poverty effects of minimum wage changes are less researched. There are several studies (Card and Krueger 1995; Neumark and Wascher 2002; Burkhauser and Sabia 2007; Leigh 2007; Sabia 2008; Boeri and van Ours, 2013) that support a weak minimum wage increases' effect on poverty and especially on working poor. Some possible reasons for existence of that weak effect

are related with who is paid at the minimum wage. Card and Krueger (1995) argue that minimum wage cannot significantly affect poverty rates as poor Americans are not likely to be employed. Also, other studies support that minimum wage earners are not the main breadwinners in their households so the household disposable income will not be significantly affected by a minimum wage increase. However, the most important aspect of the relationship between minimum wage and poverty is related with any potential disemployment effect. As Neumark and Wascher (2008) support, a strong disemployment effect of minimum wage may cause wide job losses in case that minimum wage increases. Then, instead of increasing incomes, employment earnings will dramatically fall and workers previously paid at the minimum wage will enter unemployment and probably drop into poverty. On the contrary, workers who remain employed will probably escape from poverty as their employment earnings will raise. Thus, minimum wage effectiveness in reducing poverty is strongly dependent on employment losses that may be caused.

In the present chapter, minimum wage effect on poverty and inequality is examined using the EU microsimulation model EUROMOD for all EU countries. This model is used to simulate the effects of raising national minimum wages to a certain threshold equal to 50% of average hourly wages on poverty. EUROMOD allows taking into account interactions with social assistance and other tax-benefit policies. Simulations are conducted under three scenarios of employment elasticity to minimum wage. In the first, no adverse effects on employment are assumed. Thus, employment elasticity is assumed to be zero. In the second and third scenario, negative employment elasticities are selected. Specific values of employment elasticities have been selected from relevant meta-analyses that study minimum wage effect on employment. A low negative employment elasticity is assumed in the second scenario. Then, it is assumed that elasticity equals to -0.01. In the third scenario, employment elasticity is estimated to be larger in absolute terms and equal to -0.05. In all scenarios, no behavioural impact due to higher minimum wage is assumed. Finally, poverty and inequality measures are computed under scenarios described above and after simulating all available social assistance, tax and benefit policies.

The rest of the chapter is structures as follows. In Section 4.2, a literature review is presented in two parts. Firstly, meta-analyses that have studied the relationship between minimum wage and employment are presented. Thus, it is justified why the aforementioned employment elasticities to minimum wage have been selected.

Secondly, an extensive literature on the relationship between minimum wage and poverty and the redistributive role of minimum wage is presented. In Section 4.3, methodology that has been used is described as well as a short EUROMOD presentation. Then, some basic descriptive about minimum wages in the EU are presented in Section 4.4, the main results are discussed in Section 4.5 while Section 4.6 presents conclusions from the analysis and policy implications.

4.2 Literature Review

Minimum wages are one of the most controversial labour market institutions as there is a large and long-lasting debate about their effects on employment, hours worked, poverty and inequality. Regarding minimum wage effects on employment, on which the debate is more intense, there are no clear predictions as results in relative studies vary a lot. Furthermore, since 1995, many meta-analyses have been conducted in order to find out what the minimum wage effect on employment is. Firstly, **Card and Krueger (1995)** question the conventional view that existed until that time for the negative impact of minimum wages on employment. In their meta-analysis, they use results from 15 relative analysis and support that there is significant publication bias. Also, this bias is in favor of negative and statistically significant effects of the minimum wage on employment. Thus, Card and Krueger argue that increases in the minimum wage do not lead to reductions in employment.

A small disemployment effect of the minimum wage was also supported by **Brown (1999)** especially in the short-run. The reasons for that are considered to be the small minimum wage coverage, imperfect compliance and the uncovered sector's presence.

Another important meta-analysis is that of **Doucouliagos and Stanley (2009)**. In this analysis, authors use results from 64 surveys which combine 1,474 estimations of employment elasticities and they apply method of Card and Krueger. Finally, they conclude that there is no negative impact on employment from a minimum wage increase. It is also worth noting that Doucouliagos and Stanley have not used analyses that focus on minimum wage impact on unemployment (and not on employment), as they do not offer adequate information to be included in the meta-analysis or they apply logit (or probit) models' estimations. Regarding their findings, Doucouliagos and Stanley find that employment elasticity on minimum wage is very

low. In particular, if minimum wage increases by 10%, then employment is estimated to fall by 0.09%. Thus, employment change is very slight and there is no significant employment effect by minimum wage change.

In 2010, **Boockmann** conducted a meta-analysis using results from 55 empirical studies published since 1995. In this analysis, 67% of the sample's estimations includes negative employment elasticities but only 31.6% are statistically significant. In his findings, Boockmann highlights that minimum wage impact differs across countries and this fact shows that the institutional framework of each country should be taken into account as it is considered to play a very important role. Also, it has to be noted that the dependent variable that Boockmann uses is the probability of existence of negative employment elasticity on minimum wage changes.

In a later meta-analysis, **Nataraj et al. (2014)** study the impact of several labour market institutions on employment. Regarding minimum wage, they conclude that a minimum wage increase will have a positive impact on informal employment but a negative one on formal employment.

Further, **Leonard, Stanley and Doucouliagos (2014)** analyze 16 studies for the United Kingdom in which 236 employment elasticities with respect to minimum wage are included. They concluded that there is no adverse effect on employment from a minimum wage increase. So, employment elasticity is estimated to be near to zero.

The most recent meta-analysis has been conducted by **Belman and Wolfson (2014)** who use data from 23 studies which have been conducted since 2010. In their sample, 439 estimations for minimum wage effect on employment are included. Authors find that this effect is negative and statistically significant, but its absolute value is low. Specifically, the maximum (negative) employment elasticity that has been found equals to -0.07 for the entire labour force. Focusing on youths, the respective employment elasticity equals to -0.04.

As far as minimum wage effect on poverty and inequality, it is also controversial. According to **Boeri and van Ours (2013)**, it is doubtful if minimum wage can be an effective anti-poverty tool as it depends on who is effected by the minimum wage. For instance, minimum wage applies to employees. But if most of employees are not at risk of poverty, then minimum wage effect on poverty would not be significant. Furthermore, minimum wage effect on poverty and inequality could cause adverse

effects on employment and lead to higher poverty rates as some individuals would lose their jobs and their income would turn to zero.

In the literature studying the relationship between minimum wages and poverty, **Stigler (1946)** was the first to study it, arguing that low paid workers are not necessarily members of the poorest households. So, it is doubtful if minimum wage can help those who are at the bottom of the income distribution. The weak relationship between minimum wages and poverty is also supported by **Gramlich (1976)** and **Kelly (1976)**.

A benchmark study of the distributional effect of the minimum wage is that of **Card and Krueger (1995)** who find some reductions in poverty rates related with minimum wage increases but in general a very weak effect on poverty. On the other hand, **Neumark and Wascher (1997)** find almost no minimum wage effect on poverty.

Although, according to **Freeman (1994)**, minimum wage is a more attractive redistributive tool than other ones, as there are no budgetary consequences from a possible minimum wage increase. So, governments have strong incentives to use it ignoring though its potential disemployment effects. Secondly, a higher minimum wage can increase incentives to work. Thirdly, minimum wage is administratively simple and it guarantees a base compensation that takes wages and benefits "out of competition" at the bottom of the wage distribution.

Furthermore, **DiNardo et al. (1996)** study minimum wage effect on labour income and consequently on wage inequality. Under no employment effect and no spillovers, they assume that if minimum wage remains stable, wage distribution will not change too. DiNardo et al. also assume for disemployment elasticity of 0.15. But, distributional effect of minimum wage remains weak. Although, minimum wage effect depends on inequality measure as minimum wage variations matter more for standard deviation of labour income or S90/S10 ratio and less for the Gini index.

Addison and Blackburn (1998) use state-level data for the U.S. for the 1983-1996 period to study the relationship between minimum wage and poverty. They focus on three groups that are more likely to be affected: teenagers, young adults and junior high school dropouts. In their findings, Addison and Blackburn argue that poverty rates among these groups are at least double those of prime-age individuals and they find that minimum wage increases in the 1990s led to poverty reduction. This effect is estimated to be stronger for junior high school dropouts. In contrast, the results are

the opposite in the 1980s. This difference may be associated with the absence of any disemployment effect from minimum wage increases.

Focusing also in the U.S., **Stevans and Sessions (2001)** examine the minimum wage effect on poverty for the 1984-1998 period. Their main innovation is the use of random coefficient model and the inclusion of minimum wage coverage variable. Despite they find that minimum wage reduces poverty, they argue that it is not an effective anti-poverty policy. Also, increased labour force participation and higher minimum wage coverage affect poverty in a higher extent.

Later, **Angel-Urdinola and Wodon (2004)** analyze the potential effect from a minimum wage increase on wage inequality in Colombia and Brazil and they find that this effect depends on the distributional weights used for inequality measurement.

Fields and Kanbur (2005) analyze the conditions under which a minimum wage increase raises or decreases poverty. These conditions are how high the minimum wage is relative to the poverty line, labour demand elasticity, how much income-sharing takes place and poverty measure's sensitivity to depth of poverty. Finally, they support that a minimum wage increase can either raise or lower poverty. Thus, the relationship between minimum wage and poverty is more complex and depends on several factors.

The only paper that conducts a full distributional analysis of minimum wage is that of **Neumark, Schweitzer and Wascher (2005).** Using matched March CPS data, they provided nonparametric density estimates of the minimum wage impact on family incomes. Nonparametric estimates are used as it is assumed that minimum wage effect is different across income distribution. In their results, authors do not find that minimum wage reduce poverty or the proportion of low-income families.

Burkhauser and Sabia (2007) extend the work of Card and Krueger (1995) examining the efficiency of a higher minimum wage on poverty reduction. Using data from Current Population Survey for the 1988-2003 period, they still find no evidence that minimum wages increase leads to poverty reduction. The main reason is that minimum wage mainly benefits non-poor households.

The anti-poverty effect of minimum wages is also doubted by **Leigh (2007)** who uses data from household surveys over the period 1994-2003 in Australia. The weak minimum wage effect is due to the fact that minimum wage workers do not belong to low-income but to middle-income households. However, Leigh finds that minimum

wage impact on inequality depends on labour demand elasticity and hourly elasticity. Under negative labour demand elasticity, income and labour earnings inequality raises if minimum wage rises. The opposite happens under zero labour demand elasticity assumption.

Later on, **Müller and Steiner (2008)** analyse the distributional effects of a nationwide minimum wage of € 7.5 per hour in Germany through a microsimulation model and using data from the German Socio-Economic Panel (SOEP). They finally find that the proposed minimum wage would only have a modest effect on average wages. Additionally, there would be a little impact on net household incomes and minimum wage would not be well-targeted at the poor. Thus, minimum wage is not considered to be an effect redistributive and anti-poverty tool.

The same conclusion is argued by **Sabia and Burkhauser (2010)**. They used data from March Current Population Survey between 2003 and 2007 and find no evidence of negative relationship between minimum wages and poverty. According to their findings, this happens as an increased minimum wage (from $ 7.25 to $ 9.50 per hour) would not be well targeted to the working poor. This finding remains the same not only for the employed but also for the entire population. Sabia and Burkhauser also examine the effect of a previous minimum wage increase (from $ 5.15 to $ 7.25 per hour) and argue that this increase was not effective.

Except from poverty, **David et al. (2010)** focus on minimum wage impact on earnings inequality in the U.S. They estimate minimum wage to have a small net effect on earnings inequality as a potential minimum wage increase would not raise wage of all who earned below it.

Lee and Saez (2012) study the distributional effect of the minimum wage developing a theoretical model in a perfectly competitive labour market. They find that minimum wages are an efficient redistributive tool when low wage workers are in government's priorities. Indeed, this result remains the same in the presence of optimal nonlinear taxes or transfers.

Dube (2013) uses the March Current Population Survey from 1984 to 2013 to estimate the minimum wage effect on family incomes' distribution in the US. He finds that higher minimum wage increases incomes at the bottom of the family income distribution. Furthermore, he estimates that long-run minimum wage elasticities with respect to poverty rates to be between -0.220 and -.0552. Thus, when

minimum wage increases, poverty rate falls. In general, Dube's findings are consistent with the proposition that minimum wages reduce poverty.

Sabia and Nielsen (2015) analyze the minimum wage effect on poverty, material deprivation and government program participation. Using data from the Survey of Income and Program Participation from 1996, 2001 and 2004 waves, they support that demographic and economic controls affect poverty as theory predicts. As far as minimum wage, its relationship with poverty is estimated not to be statistically significant. Further, despite the fact that Sabia and Nielsen work with alternative definitions of poverty, using different poverty thresholds or measures, they do not find evidence of a statistically significant relationship between minimum wage and poverty rate. Also, authors do not find such evidence focusing on specific subgroups of the population like workers. Nevertheless, they find a negative relationship between minimum wage and poverty for the those who are less-educated and less-experienced. On the other hand, they find the opposite relationship for younger black individuals.

Using the 2012 Current Population Survey, **Belman et al. (2015)** examine who is affected by the minimum wage focusing on specific groups to assess outcomes of the minimum wage. For teenagers and young adults, they argue that minimum wage effect is either slightly negative or close to zero. However, they find that a minimum wage increase will raise employed teenager's wages, as teenagers are more likely to be paid near to the minimum wage. Furthermore, authors claim that most of the studies do not find any disemployment effect of the minimum wage for women apart from the low-educated. Regarding men, any reported disemployment effect of the minimum wage is restricted to worked hours' reduction. Additionally, Belman et al. support that Blacks and Hispanics are considered to be the most examined groups as far as minimum wage changes. Although, only Neumark and Wascher (2011) find significant minimum wage effects on these groups' employment. Furthermore, minimum wage is considered to be strongly associated with higher earnings but it is not likely to affect the entire earnings distribution at the same extent. Thus, minimum wage effect is higher at the lower part of the distribution and weaker for higher wages.

Summing up, most of the meta-analysis studying minimum wage effects on employment do not support the existence of any disemployment effect. Further, a slight disemployment effect is found in some other. Regarding the relationship

between minimum wage and poverty, a large majority of the literature support that it is either non-statistically significant or negative for some specific groups of the population.

4.3 Methodology and Data

As described in the introduction, the main aim of this chapter is to estimate minimum wage effects on poverty and inequality. Estimation is conducted through simulating a hypothetical raise of the minimum wage to 50% of national average hourly earnings. The present analysis uses the EU tax-benefit microsimulation model EUROMOD for these simulations. EUROMOD is based on data from a representative sample of each national population, using microdata from Eurostat and national versions of the European Union Statistics and Income and Living Conditions (EU-SILC) as input and the Family Resources for the UK. Using EUROMOD allows to simulate cash (but not in-kind) benefits, direct taxes and social insurance contribution liabilities as national rules are simulated based on legislation in place for each year.

First of all, the 'new' minimum wage is defined as 50% of average hourly earnings. Average hourly earnings are calculated as gross monthly earnings divided by usual working hours per month. Though, for these calculations, incomes of employees who have been working either full-time or part-time over the whole year. In particular, average hourly earnings are calculated as follows:

$$Average\ Hourly\ Earnings = \frac{yem}{lhw * \frac{52}{12}}$$

where *yem* is gross monthly labour income and *lhw* is usual weekly hours worked.

In three Member States (Bulgaria, France, and Italy), where information on whether employees had worked full-time or part-time is missing, all employees with an employment record of 12 months over the year are covered. Further, in the UK, information on months of employment is totally missing. In that case all employees are covered. Also, it has to be noted that youth subminimum wages are not simulated

as it is assumed that the new minimum wage applies for all workers irrespective of age.

Initially, baseline results are produced by EUROMOD. The baseline scenario concludes no minimum wage. Then, in the first scenario, EUROMOD simulates the 'new' minimum wage assuming no job losses. Thus, zero employment elasticity assumption is adopted and the increase in the minimum wage is not considered to entail employment reduction.

In the second and third scenario, negative employment elasticities are assumed based on what relative literature have predicted as described in the review presented above. Specifically, in the second scenario, employment elasticity to minimum wage equals to -0.01 according to findings of Doucouliagos and Stanley (2009). A higher (in absolute terms) elasticity is adopted in the third scenario as it is assumed to be equal to -0.05.

In scenarios where some employment losses are assumed, some individuals are turned from employed to unemployed because of the minimum wage increase. The crucial assumption of the present analysis is that low-paid workers are more likely to be affected by a potential minimum wage increase and lose their jobs (Neumark and Wascher, 2008). Then, employed individuals are ranked according to their wages and the required wage increase. Finally, the higher the required wage increase is the higher the probability of losing a job. So, depending on the selected employment elasticity to minimum wage, employment losses (the number of 'new' unemployed) are computed by multiplying the mean wage increase and employment elasticity and 'new' unemployed are those with the highest required wage increase.

After computing employment losses, the input dataset is edited since the number of unemployed has raised. Then, EUROMOD simulates tax-benefit policies including a minimum wage increase under negative employment impact. Taxes and benefits are simulated as they were in place in 2014. Then, minimum wage effects are estimated under the existence of disemployment effect.

Despite that 2014 policies are simulated, latest available datasets are not these of 2014. In Table 1, dataset used for each are presented. For countries where earlier than 2014 datasets have been used, incomes and all other monetary components have been uprated through EUROMOD to 2014. Only one country, Latvia, has a later than 2014 SILC dataset. In that case monetary components are downrated.

Table 1. Latest available dataset used in EUROMOD

Country	Year	Country	Year
Belgium (BE)	2012	Lithuania (LT)	2014
Bulgaria (BG)	2014	Luxembourg (LU)	2012
Czech Republic (CZ)	2012	Hungary (HU)	2012
Denmark (DK)	2012	Malta (MT)	2014
Germany (DE)	2012	Netherlands (NL)	2012
Estonia (EE)	2012	Austria (AT)	2014
Ireland (IE)	2012	Poland (PL)	2014
Greece (EL)	2014	Portugal (PT)	2014
Spain (ES)	2014	Romania (RO)	2014
France (FR)	2012	Slovenia (SI)	2014
Croatia (HR)	2014	Slovakia (SK)	2014
Italy (IT)	2014	Finland (FI)	2014
Cyprus (CY)	2014	Sweden (SE)	2014
Latvia (LV)	2015	United Kingdom (UK)	2013

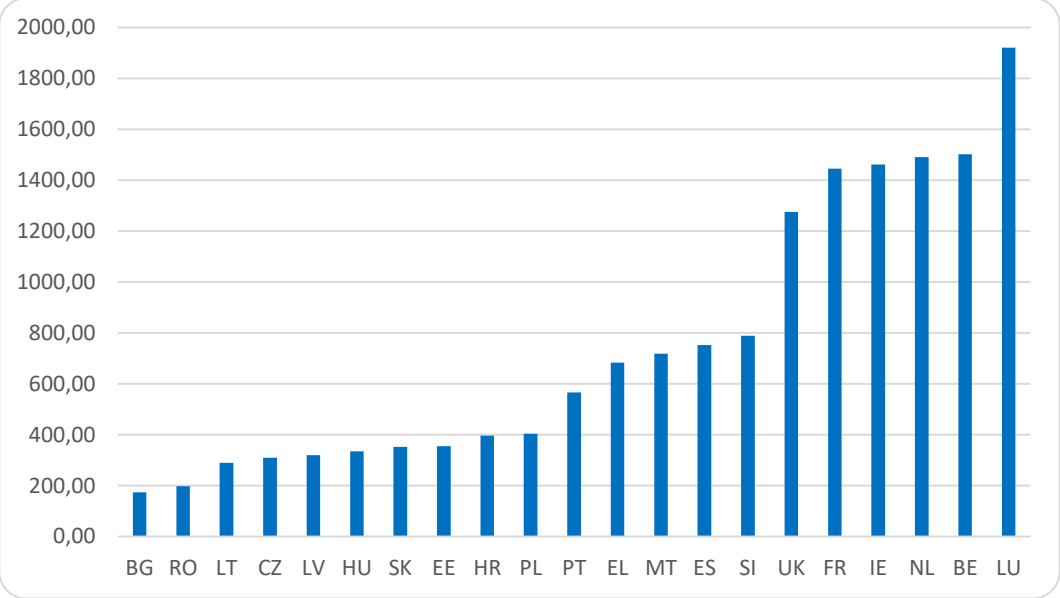
4.4 Minimum Wages in EU countries

Minimum wage dispersion is large across EU countries when minimum wage is expressed in monetary terms. In Figure 1, national monthly minimum wage in EU countries is presented for year 2014. In that figure, only countries where a national minimum wage is in place are included. It is clear that discrepancies across EU countries are huge. In monetary terms, national monthly minimum wage in Luxembourg is € 1,921.03 while in Bulgaria it is € 173.84.

From Figure 1, it can be obtained that EU countries where a national minimum wage is in place can be classified in three categories. Firstly, countries whose minimum wage is significantly higher than the average, which is € 749.54. In these countries, Luxembourg, Belgium, the Netherlands, Ireland, France and the United Kingdom are included. In the second class, countries whose minimum wage is close to the average are included, such as Slovenia, Spain, Malta, Greece and Portugal. Finally, in the third category, there are countries where national minimum wage is much lower than the EU average such as Poland, Croatia, Estonia, Slovakia, Hungary, Latvia, Romania, Czech Republic and Bulgaria.

Discrepancies described above are blunted if national minimum wage is expressed in Purchasing Power Standard (PPS)[1]. National monthly minimum wages in PPS across EU countries are presented in Figure 2. Differences across countries remain as in Belgium minimum wage in PPS equals to € 1,595.05 while in Bulgaria is € 363.18 which means that it is almost 4.4 times higher. However, when minimum wage is expressed in monetary terms this ratio is almost 11.1 times.

Figure 1. Minimum wage in EU countries (€), 2014.

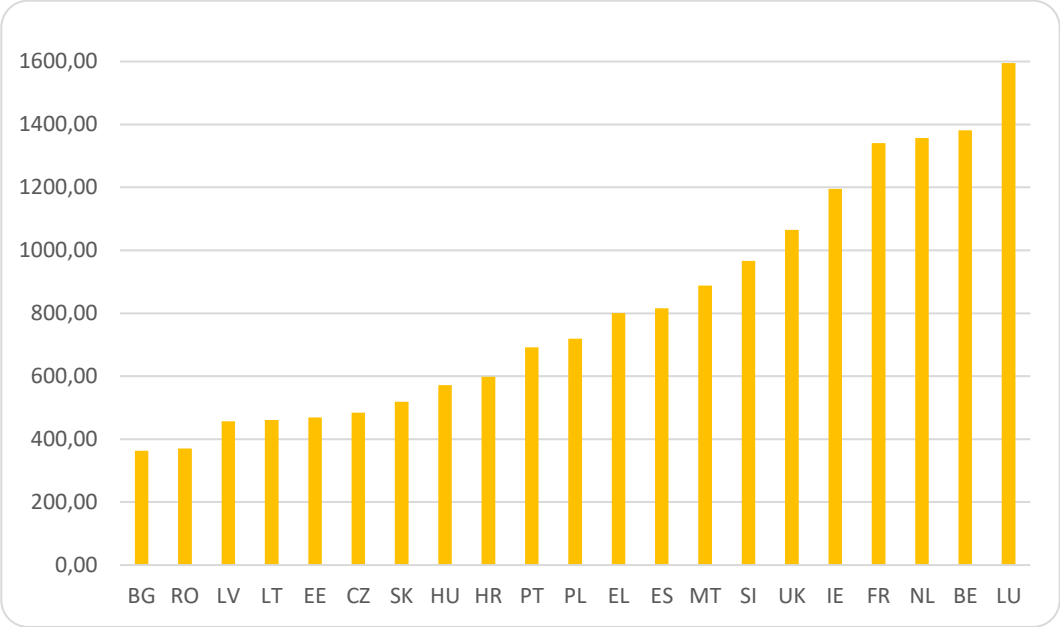


Source: Eurostat

As previously described, in present analysis minimum wage is simulated in hourly terms. Thus, monthly minimum wage presented before in nominal terms are also presented in hourly basis. Hourly minimum wage is calculated by dividing monthly minimum wage with normal weekly working hours multiplied by 4.33 (52 weeks per year divided by 12 months). In Table 3 (in Annex), normal weekly working hours for each EU country are presented. Then, hourly minimum wages across EU countries are presented in Figure 3. In comparison with what previously presented, there are extremely minor differences in terms of ranking as normal weekly working hours do not vary significantly across EU countries.

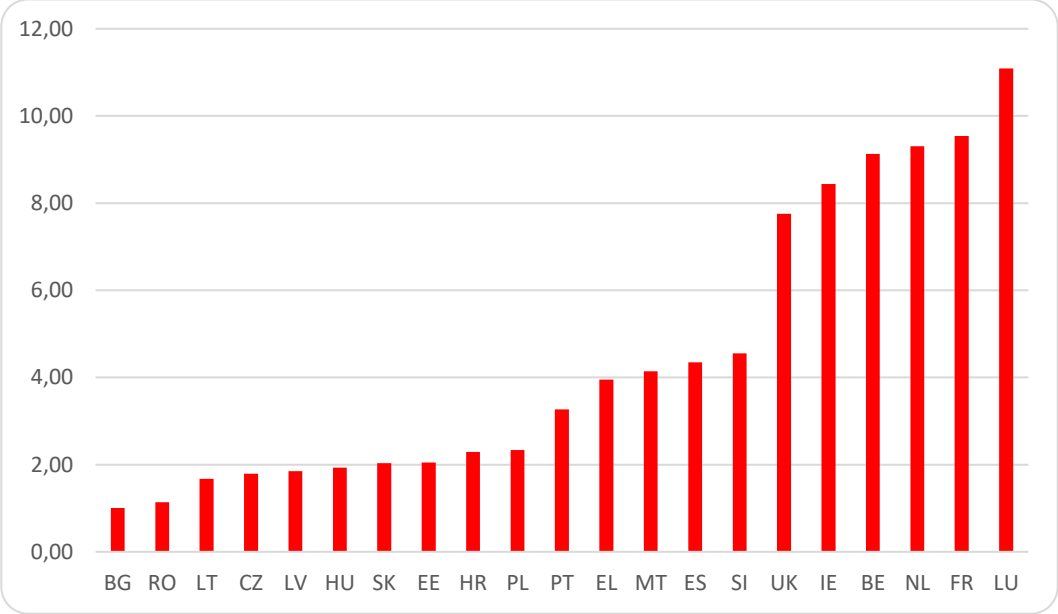
[1] According to Eurostat, PPS is an artificial currency unit. In theory, one PPS can buy the same amount of goods and services in each country. PPS are derived by dividing any economic aggregate of a country in national currency by its respective purchasing power parities. Purchasing power parities, abbreviated as PPPs, are indicators of price level differences across countries.

Figure 2. Minimum wage in EU countries in Purchasing Power Standard (PPS), 2014.



Source: Eurostat

Figure 3. Hourly minimum wage in EU countries (€), 2014.

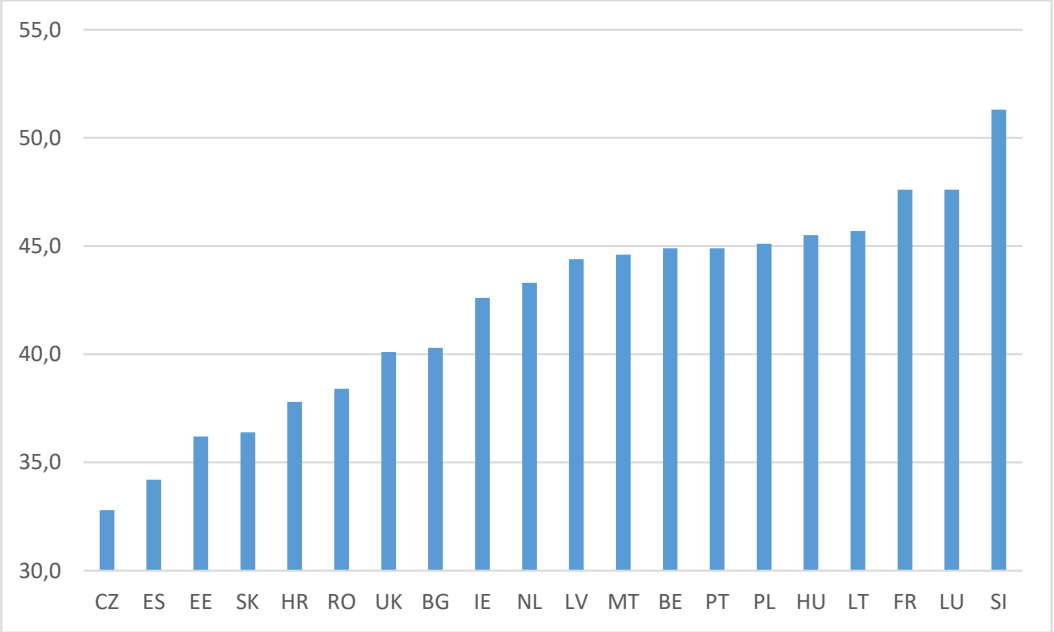


Source: Eurostat

For comparisons between countries, other measures related with minimum wage are used because they are considered to be more appropriate. Such a measure is the Kaitz index which equals to the ratio between minimum wage and mean (or median) wage. This measure takes into account the wage distribution in each country and efficiently

reveals the minimum wage coverage or how binding minimum wage is. In Figure 4, minimum wage ratios to average wage across EU countries are presented.

Figure 4. Minimum to average wage ratio, 2014.



Source: Eurostat

As presented, there are large differences in minimum wage coverage across EU countries. In Czech Republic, minimum wage equals to 32.8% of average wage. This means that minimum wage is not binding and a minimum wage change may not affect the entire wage distribution. Minimum to average wage ratio is also very low in Spain (34.2%). In Estonia, Slovakia, Croatia and Romania, it is lower than 40% and its coverage is low. On the other hand, minimum wage seems to be more binding in Slovenia as minimum to average wage ratio equals to 51.3%, in Luxembourg (47.6%) and France (47,6%). Further, this ratio remains above 45% in Latvia and Hungary. Higher values of Kaitz index indicate that minimum wage covers a larger part of the wage distribution. Consequently, changes in minimum wage will probably affect a larger part of this distribution and employment effects may be stronger.

4.5 Results

In present analysis, the new minimum wage equals to 50% of mean earnings of employees who have worked for an entire year either full-time or part-time. In Table 4, mean hourly employment earnings and the 50% of them (i.e. the new hourly minimum wage) are presented. Although, earnings in Table 4 are expressed in national currencies and not in Euros as in previous Tables. The reason is that monetary components in SILC are expressed in national currencies and EUROMOD treat them in the same way.

After computing mean employment earnings, according to methodology described in previous section, the number of potentially affected and not affected workers is calculated in the basis of the required wage increase in case that a higher minimum wage will be introduced. In Table 5, these numbers are presented. Workers are classified according to their hourly wage because when the new minimum wage will come in force, their hourly wage will have to raise. Theoretically, workers whose wage will have to raise are potentially affected not only in wage terms but also in terms of possible employment losses. Note that in present analysis a basic assumption is that the larger the required wage increase the greater the probability of losing a job. Though, absolute number of potentially affected workers is not useful for comparisons between countries as this number depends on total population of each country. Thus, computing the proportion of potentially affected to employed individuals is more plausible. It is obvious that these proportions are related with the form of employment earnings distribution. These ratios for all EU Member States are presented in Figure 5. As shown in the graph, proportion of potentially affected to employed individuals in Cyprus is the highest across the EU as it equals to 15.8% of employed. In two Baltic countries, Lithuania and Latvia it is also high as it is 15.4 and 15.0% respectively. Also, this proportion takes high values in Luxembourg (13.9%), in the United Kingdom (13.8%) and in Portugal (13.7%). It has to be noted that two of the countries above, Lithuania and Luxembourg, are also distinguished for high Kaitz index values which indicates a binding minimum wage. In combination with high proportions of potentially affected workers, the redistributive effect of an assumed minimum wage increase may be significant.

Table 4. Mean hourly employment earnings and new minimum wage.

	Mean hourly earnings	50% of mean
Belgium	20.4	10.2
Bulgaria	4.6	2.3
Czech Republic	138.5	69.2
Denmark	197.4	98.7
Germany	17.6	8.8
Estonia	5.9	3.0
Ireland	22.2	11.1
Greece	7.9	4.0
Spain	11.9	5.9
France	15.5	7.7
Croatia	36.8	18.4
Italy	14.2	7.1
Cyprus	11.6	5.8
Latvia	4.9	2.4
Lithuania	13.1	6.6
Luxembourg	24.7	12.4
Hungary	1,003.8	501.9
Malta	10.2	5.1
Netherlands	21.3	10.6
Austria	19.3	9.7
Poland	19.0	9.5
Portugal	7.1	3.6
Romania	8.6	4.3
Slovenia	9.6	4.8
Slovakia	4.4	2.2
Finland	21.0	10.5
Sweden	204.8	102.4
United Kingdom	13.6	6.8

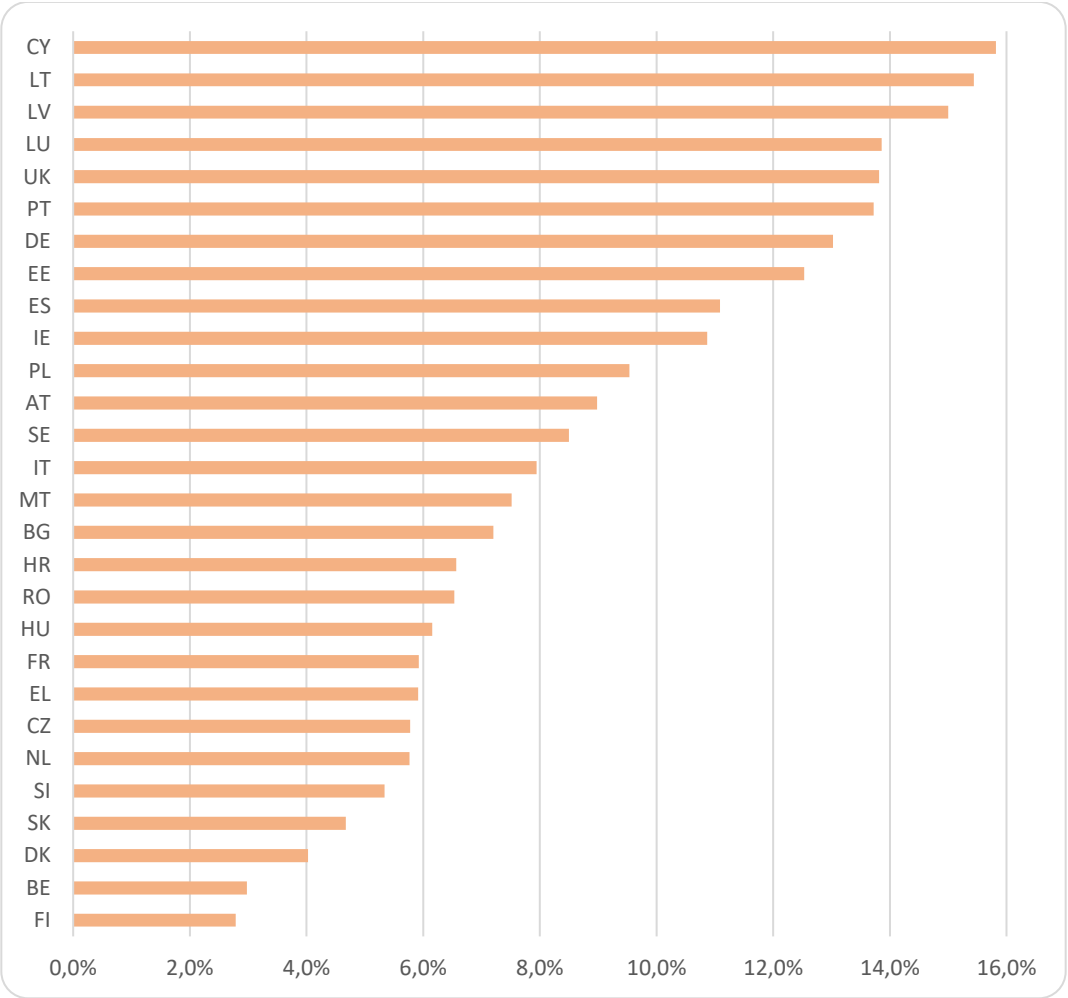
Source: EUROMOD G4.0+, SILC.

Table 5. Number of potentially affected and not affected workers.

	0-10%	10.01-20%	20.01-30%	30.01%+	No increase
Belgium	53,935	12,828	15,287	51,976	3,219,235
Bulgaria	64,043	42,043	10,483	94,339	2,089,645
Czech Republic	103,664	65,310	40,112	72,999	3,049,343
Denmark	17,670	18,074	15,816	54,740	1,642,926
Germany	1,046,663	637,589	529,066	2,855,134	25,203,429
Estonia	15,460	17,387	13,373	28,970	351,972
Ireland	62,478	54,962	29,072	55,227	962,384
Greece	76,303	39,468	27,673	62,327	1,693,324
Spain	387,672	284,896	204,463	1,031,440	9,522,320
France	255,670	153,546	152,131	986,487	18,133,904
Croatia	43,211	17,716	7,967	32,359	998,351
Italy	339,625	211,835	149,779	1,031,991	13,450,411
Cyprus	12,716	9,068	5,970	28,405	198,164
Latvia	34,115	27,978	20,641	46,108	524,977
Lithuania	52,508	60,831	23,528	61,995	777,619
Luxembourg	10,436	8,844	6,347	8,046	150,468
Hungary	99,957	92,298	24,031	34,249	2,524,949
Malta	3,923	4,982	1,009	3,464	120,571
Netherlands	130,317	90,797	58,860	182,727	5,082,200
Austria	83,886	40,443	26,156	211,847	2,327,272
Poland	595,200	313,374	182,114	396,321	8,720,672
Portugal	266,270	102,274	58,128	157,159	2,602,422
Romania	199,003	101,049	90,915	148,185	6,049,813
Slovenia	12,525	5,742	4,307	25,062	575,158
Slovakia	47,218	20,666	12,145	29,736	1,715,110
Finland	25,688	15,241	6,008	19,564	1,401,295
Sweden	59,268	40,281	29,976	261,192	2,841,659
United Kingdom	1,336,317	821,352	447,703	1,478,104	18,354,926

Source: EUROMOD G4.0+, SILC.

Figure 5. Proportion of potentially affected workers to employed, 2014.



Source: Eurostat

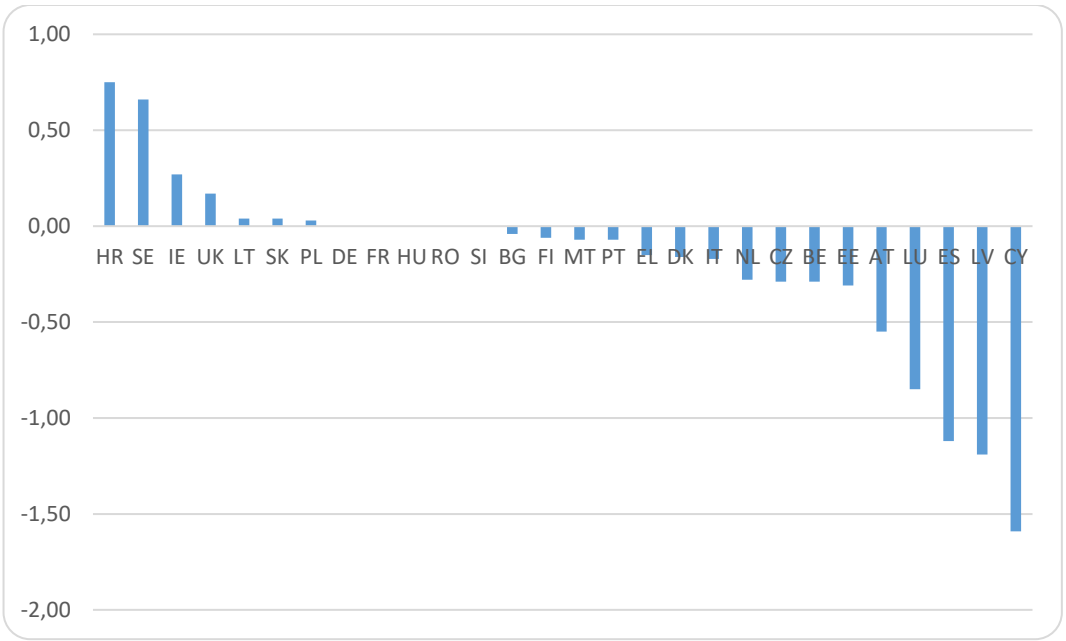
On the other hand, there are some countries like Finland or Belgium where proportion of potentially affected to employed individuals is very low. In Finland, only 2.8% of total employed will be subject to a wage increase due to minimum wage increase. In Belgium, this proportion is 3.0%. Furthermore, there are also other countries with low values of this proportion like Denmark (4.0%), Slovakia (4.7%), Slovenia (5.3%), the Netherlands (5.8%) and Czech Republic (5.8%). Low values of proportion of potentially affected to employed indicate that a little share of working population will be affected by a minimum wage increase. Consequently, employment losses may not be significant even if employment elasticity with respect to minimum wage is high in absolute terms.

4.5.1 Zero employment elasticity to minimum wage

In this section, minimum wage effect on poverty and inequality will be presented under zero employment elasticity assumption. So, it is assumed that the alleged minimum wage raise will have no adverse effect on employment which is a very usual finding in relative literature (Card and Krueger, 1995). Under this assumption, Card and Krueger (1995) also find a negative but weak impact of minimum wage raise on poverty.

Changes in total poverty rates after 'new' minimum wage simulation are presented in Figure 6. As expected, minimum wage raise reduces total poverty rates in the majority of countries. In particular, minimum wage raise reduces total poverty rate in Cyprus by 1.59%, in Latvia by 1.19% and in Spain 1.12%. In other countries, such as Luxembourg, Austria, Estonia, Belgium, Czech Republic and the Netherlands minimum wage effect remains negative but weaker. Further, there is a group of countries (Italy, Denmark, Greece, Portugal, Malta, Finland and Bulgaria) where minimum wage raise reduces total poverty rate but change is lower than 0.2%. So, the effect is modest.

Figure 6. Changes in total poverty rates after 'new' minimum wage simulation under no employment effect assumption.

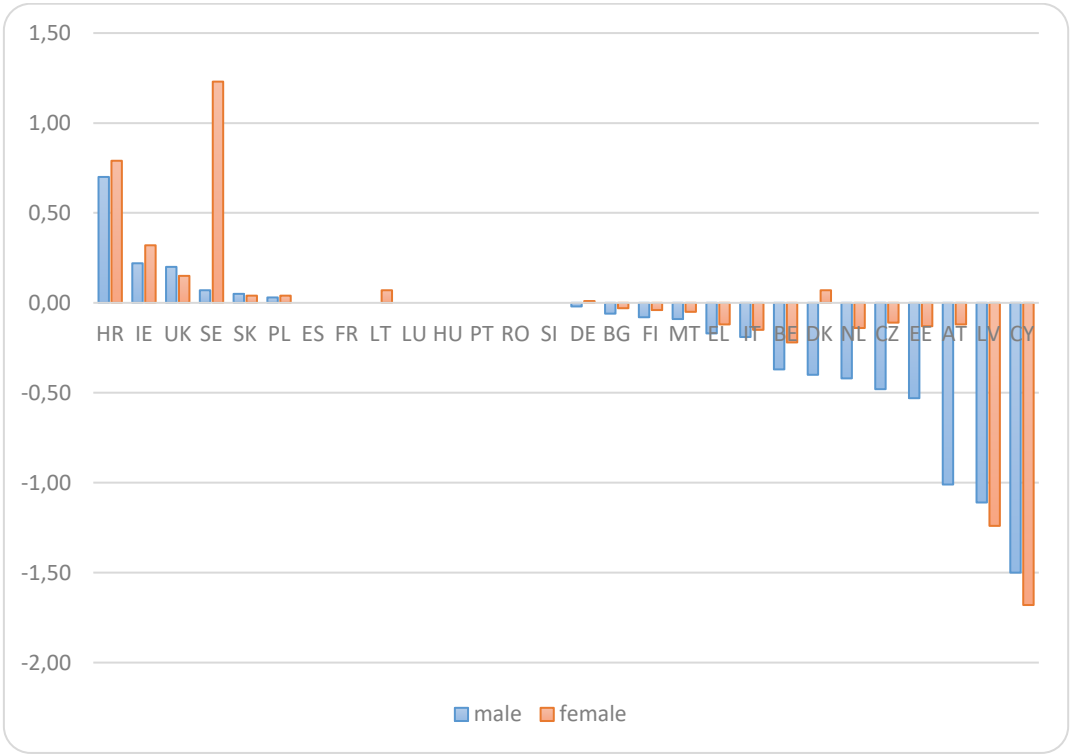


Source: EUROMOD G4.0+

Queerly, there are countries like Croatia, Sweden, Ireland and the United Kingdom where minimum wage raise increase poverty despite that this increase is slight. For such cases, there are a number of factors that Matsaganis et al. (2015) list and may lead to higher poverty rates despite minimum wage increase. The first reason is related with hours worked as minimum wage is simulated in hourly basis. Then, hourly minimum wage may raise but if an individual works for a few hours per month, his income will not increase higher than the poverty line. Another important reason is the position of minimum wage earners in the household as they may not be the main breadwinners. Also, their income may not significantly affect household income, so their contribution is very low.

Additionally, there are reasons related with interactions with the tax and benefit system. Thus, a minimum wage increase leads to increase in incomes but also increases income taxes and social insurance contributions. Secondly, subsequent rise in income may reduce social assistance and other cash benefits offered by the state. The interactions above are taken into account through EUROMOD and this is a comparative advantage of the present analysis.

Figure 7. Changes in total poverty rates by gender.



Source: EUROMOD G4.0+

In terms of gender, no significant differences arise. With the exceptions of Denmark, Germany and Lithuania, poverty changes have the same sign for men and women. The greatest changes are observed in Cyprus again where poverty rate falls by 1.68% for females and by 1.50% for males. The same pattern is also obtained in Latvia where minimum wage increase leads to a higher poverty reduction for females than males. In the majority of countries where a poverty reduction is observed, male poverty rates are decreased more than those of females. This could indicate that women in these countries are not affected by minimum wage changes as they are not low-paid. Although, differences between men and women poverty rates are too small in all countries either minimum wage increase is estimated to cause poverty reduction or poverty increase.

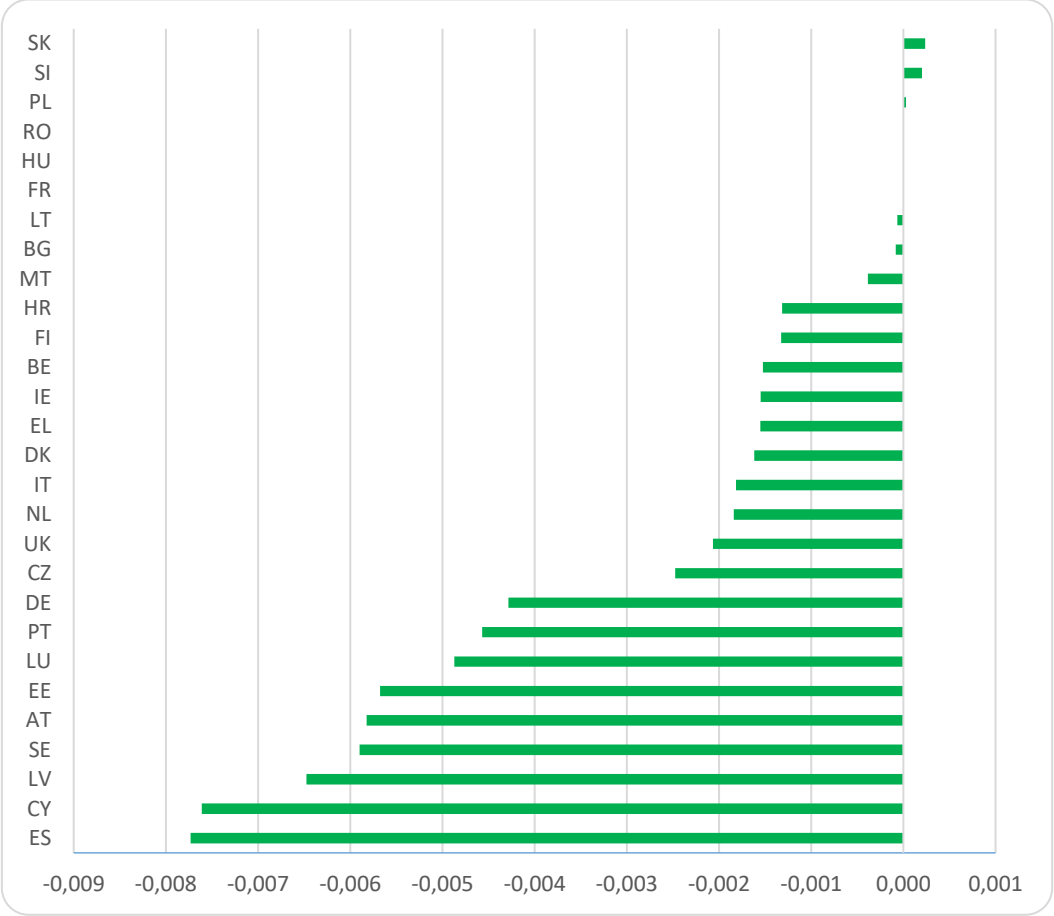
Age is another important aspect of the present study as it is estimated that a minimum wage increase will not favor all age groups in the same way. As described in present analysis' results (detailed tables in Annex) middle-age groups will benefit from minimum wage increase. This result is quite expected as minimum-wage earners are most likely to be aged between 18 and 64 years. On the other hand, individuals aged above 65 are most likely to be pensioners and not be affected by minimum wage changes. As a result, poverty rates for elderly are estimated to increase in most Member States while young people aged between 18-29 are mostly favored by minimum wage increase among middle-age groups. Also, poverty reduction for 18-29 age-group is much larger than total poverty rate reduction. Thus, minimum wage anti-poverty effect is stronger when focusing on specific age-groups.

Regarding child poverty, in 16 out of 28 Member States it would decline following minimum wage increase. Though, child poverty change is large in all EU countries as it varies from 0.87 (in Croatia) to -1.80% (in Latvia). In general, variation of minimum wage impact on child poverty is expected as children are not likely to have employment income as their poverty status depends on adults' (probably their parents) income.

As far as the redistributive effect of minimum wage increase, changes in Gini coefficient are presented in Figure 8. It is clear that the alleged minimum wage increase leads to inequality decrease but changes in Gini index are slight. Though, in most of the EU countries (19 out of 28) minimum wage increase reduces inequality. This reduction varies from -0.008 (or 0.8%) to -0.001 (or 0.1%). On the contrary,

inequality increases in Slovakia and Slovenia after a higher minimum wage implementation, but these increases are not significant as they are lower than 0.001.

Figure 8. Changes Gini index after implementing a higher minimum wage.



Source: EUROMOD G4.0+

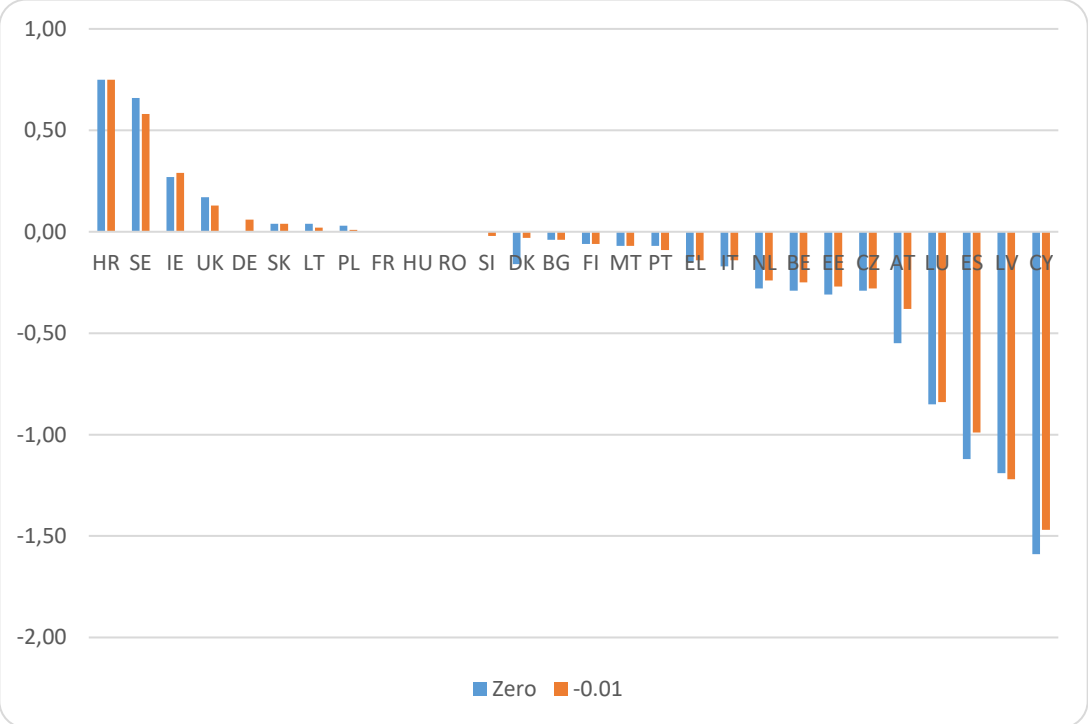
4.5.2 Employment elasticity equals to -0.01.

In this scenario, minimum wage increase is assumed to have a negative but slight effect on employment. As described in previous section, this kind of minimum wage effect is one of the most prevalent in the relative literature. Thus, it is assumed that employment elasticity equals to -0.01. This means that a 10% increase of wage will reduce by 0.1%. As a modest disemployment effect is assumed, there are some individuals that will lose their jobs. In this case, unemployment benefits (where there are no data limitations) and other social assistance measures are simulated by EUROMOD. Changes in employment are presented in Table 7 (in Annex). As

mentioned above, these changes also depend on the average wage increase that is required due to minimum wage increase.

As far as anti-poverty effect of the minimum wage, changes in poverty rates for total population are illustrated in Figure 9. In general, in most of EU countries it is estimated that minimum wage increase leads to poverty reduction even if a slight disemployment effect is assumed. In particular, poverty reduction is the highest in Cyprus as poverty rates for total population is estimated to fall by 1.47%. In Latvia, the respective estimated reduction is 1.22%. This reduction is lower than 1.0% in Spain (-0.99%) and in Luxembourg (-0.84%). On the other hand, poverty is estimated to increase following a minimum wage increase in Croatia, Sweden, Ireland, the United Kingdom, Germany, Slovakia, Lithuania and Poland. These countries are exactly the same with those in the first simulation where no disemployment effect is assumed.

Figure 9. Changes in total poverty rates after 'new' minimum wage simulation under employment elasticity equal to -0.01 and no disemployment effect.

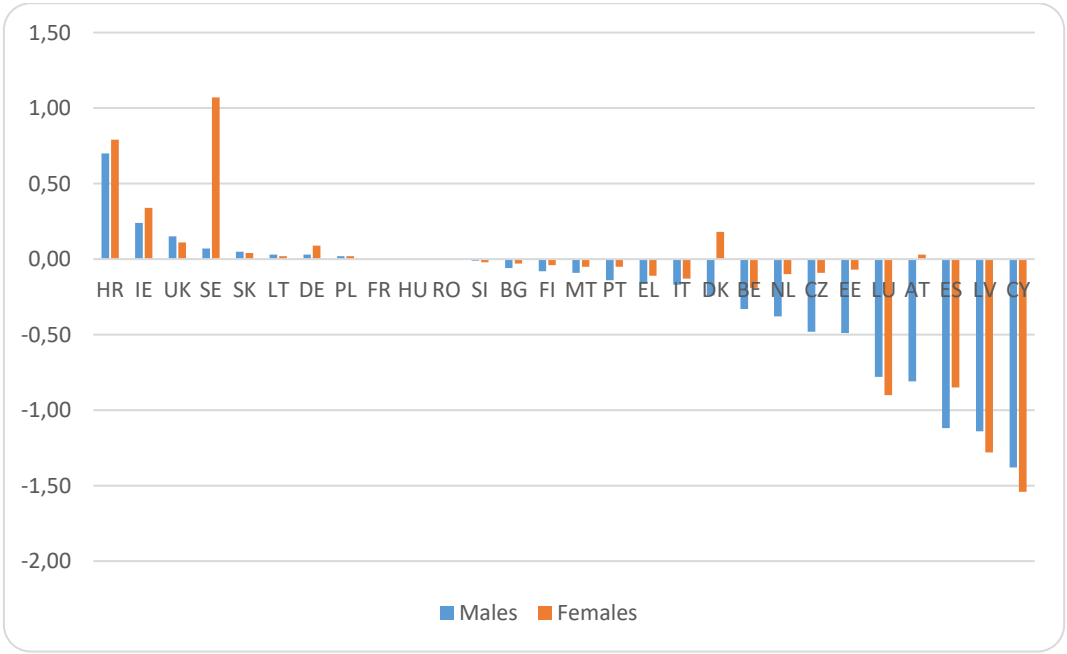


Source: EUROMOD G4.0+

A comparison between the first and the second scenario is important to find out what is the impact of any disemployment effect on minimum wage anti-poverty efficiency.

In Figure 9, changes in total poverty rates under no disemployment assumption are also shown. In countries where minimum wage increase leads to poverty reduction, anti-poverty efficiency of minimum wage is stronger under no disemployment effect. This result is expected as in the first scenario there are no employment losses but there are some losses in the second leading to zero employment earnings and subsequently to poverty. Then, it is also compatible with theoretical predictions anti-poverty effect of minimum age to weaken. On the other hand, there are also slight differences in poverty changes where poverty rates are estimated to increase. In Croatia, where poverty increase is the higher, poverty change is the same in both scenarios. Although, in Sweden, poverty increase is higher if negative employment elasticity is assumed. This is also the case in the United Kingdom, Lithuania and Poland. In Ireland and Germany, poverty increases more under zero employment elasticity assumption. However, a first general conclusion is that significant differences between movements of poverty rates either under zero employment elasticity or under some slight employment losses assumption.

Figure 10. Changes in total poverty rates by gender under employment elasticity equal to -0.01.



Source: EUROMOD G4.0+

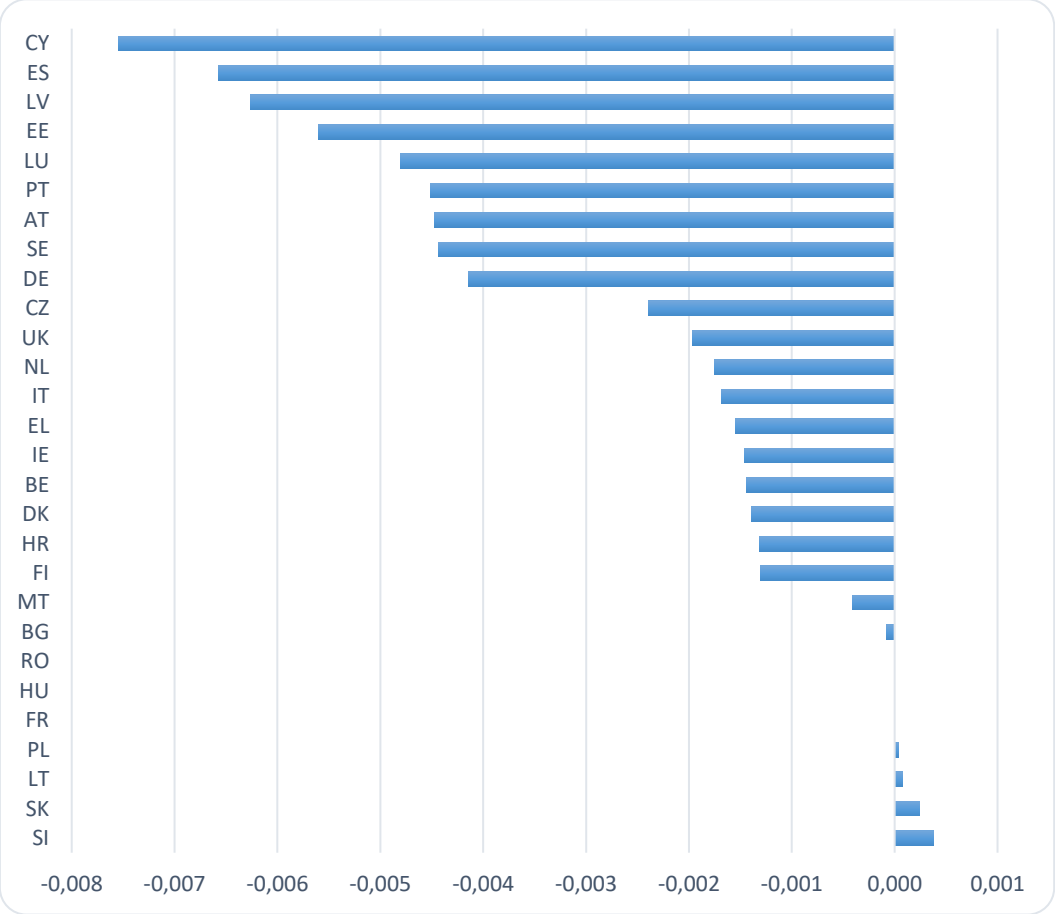
Regarding gender aspect, findings are mixed (Figure 10). There are countries where poverty rates both for men and women decrease even if a slightly negative

employment elasticity is assumed. These countries are Cyprus, Latvia and Spain. Further, in Austria, Luxembourg, Estonia, Czech Republic, the Netherlands and Belgium, men poverty rates fall more than those of women. This may be an indication that women are more hit by employment losses that have been assumed. On the contrary, there are countries where poverty rates increase less for men than women such as Croatia, Ireland, the Sweden while the opposite is estimated to happen in the United Kingdom and Slovakia.

Regarding age, results do not differ in comparison with zero elasticity scenario. The main benefited age group is those aged between 18 and 29 years despite that some employment losses are taken into account. This may be due to the fact that younger individuals are more likely to be low-paid as they are less experienced. On the contrary, the elderly are the losers as their income is not affected by minimum wage changes so they may fall in lower income position relatively to those whose earnings increase due to minimum wage increase.

Moreover, in terms of inequality, there are no significant changes as shown in Figure 11 despite that there are some small employment losses. Certainly, inequality reduction is being achieved in most of the countries but changes are slight. Although, minimum wage seems to be an effective redistributive tool irrespective of disemployment effect that may cause.

Figure 11. Changes Gini index after implementing a higher minimum wage and assuming low employment losses.



Source: EUROMOD G4.0+

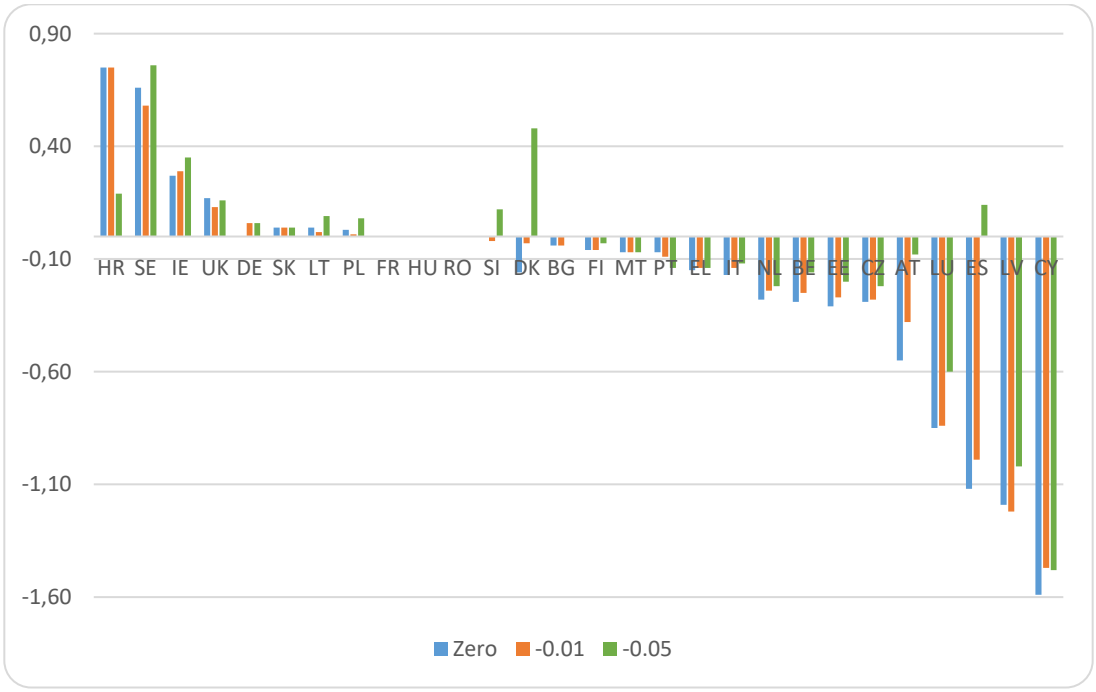
4.5.3 Employment elasticity equals to -0.05.

A higher (in absolute terms) employment elasticity is now assumed. Thus, employment elasticity to minimum wage changes is assumed to be -0.05. So, a 10% wage increase will reduce employment by 0.5%. Employment reduction under this scenario are presented in Table 7 (in Annex) taking into account the average required wage increase in order compliance to higher minimum wage to be achieved.

In Figure 12, changes in poverty rates for total population are presented under three disemployment effect scenarios previously described. After simulating a higher minimum wage, a first finding is that the impact of minimum wage on poverty is mixed if higher employment reduction is assumed. In 10 out of 28 countries, poverty rates for total population are estimated to increase while in other 15 countries the

opposite happens as poverty rates fall. In countries where poverty rates increase, this increase is higher than in scenarios where no or low employment losses are assumed. On the other hand, as far as countries where poverty is estimated to fall, poverty reduction is smaller than in previous scenarios.

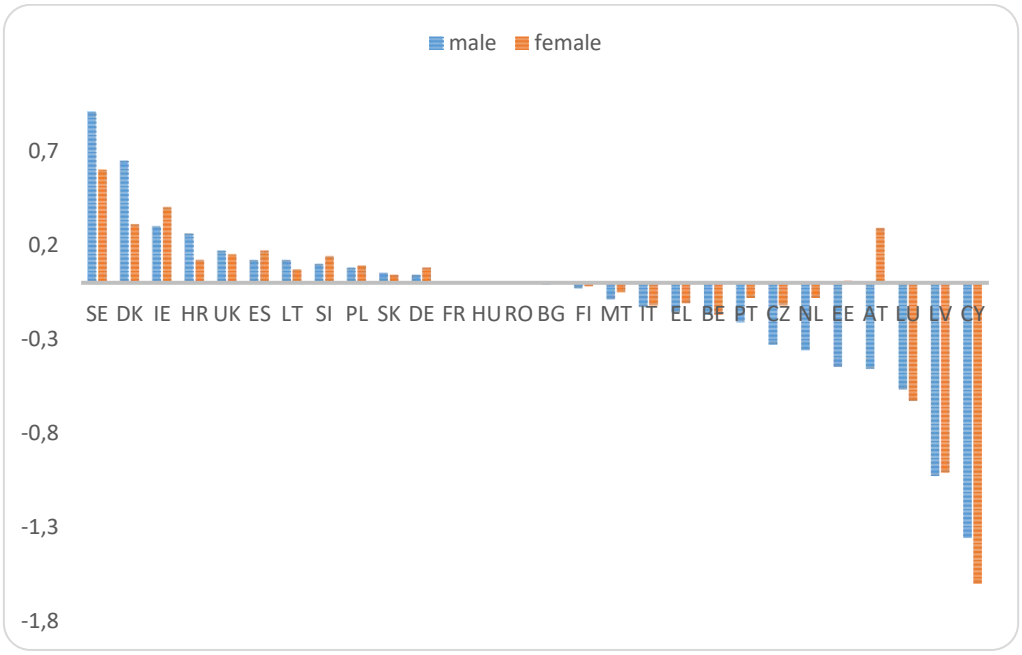
Figure 12. Changes in total poverty rates after 'new' minimum wage simulation under three disemployment effect scenarios.



Source: EUROMOD G4.0+

In general, it can be argued that under higher employment losses, anti-poverty efficiency of minimum wage is significantly reduced. Except from that, in some countries minimum wage increase leads to poverty increase as incomes' fall due to increasing unemployment probably outweighs incomes' raise due to minimum wage increase. Also, in that cases, unemployment and other social assistance benefits fail to protect those who lose their jobs because of minimum wage increase.

Figure 13. Changes in total poverty rates by gender under employment elasticity equal to -0.05.

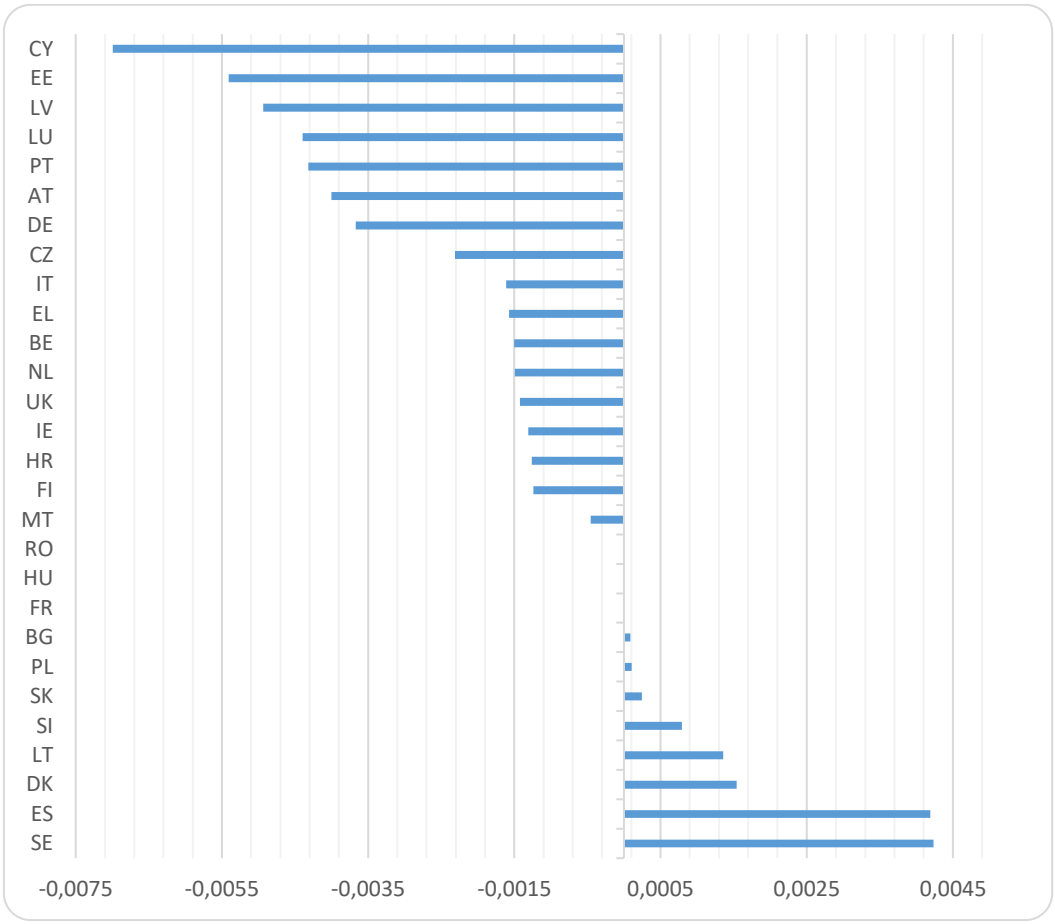


Source: EUROMOD G4.0+

Under high employment losses scenario, poverty rates changes are different from previous scenarios. In general, results remain mixed as there are 11 countries (Sweden, Denmark, Ireland, Croatia, the United Kingdom, Spain, Lithuania, Slovenia, Poland, Slovakia and Germany) where poverty rates are estimated to increase for both sexes. As shown in Figure 13, with the exception of France, Hungary and Romania (where there is no minimum wage increase) and Bulgaria, in all other countries poverty rates are estimated to decrease for both sexes. Only in Austria poverty rate for men falls while it raises for women. Cyprus, Latvia and Luxembourg are estimated to have the largest changes in poverty reduction and the opposite is observed for Sweden, Denmark and Ireland.

As far as specific age groups, results do not vary in comparison with previous scenarios. In particular, poverty rates for middle-aged groups (between 18 and 44 years) are estimated to fall even if a more negative employment elasticity is assumed. This happens as this age-group consist the majority of working population and it is more likely to be affected both in terms of wage and employment changes. Finally, poverty rates' changes are smaller than in previous scenarios. This result is compatible with what previously described as minimum wages seem not to be a very efficient tool against poverty when high employment losses are caused.

Figure 14. Changes Gini index after implementing a higher minimum wage and assuming high employment losses.



Source: EUROMOD G4.0+

Regarding inequality under high employment losses scenario, changes in Gini index are presented in Figure 14. Under this scenario, redistributive ability of minimum wage seems to be significantly restricted because Gini index is estimated to increase in more countries than in previous scenarios. So, Sweden, Spain, Denmark, Lithuania, Slovenia, Slovakia, Poland and Bulgaria are estimated to have higher income inequality where a higher minimum wage is simulated. On the contrary, where minimum wage increase causes lower income inequality, changes in Gini index are lower. The above findings lead to the conclusion that minimum wage is a less efficient redistributive tool if it causes high employment losses.

4.6 Conclusions

Minimum wage effect on employment outcomes has been widely studied during the last six decades. Although, there is another kind of effect that it has not been researched at the same extent. This is the minimum wage impact on poverty and inequality. In the present analysis, a hypothetical minimum wage raise in all EU countries is simulated. Then, new minimum wage equals to 50% of average employment earnings and it is assumed to be applied in hourly basis. The effects of that increase are obtained by simulations conducted by EUROMOD, a microsimulation model for all EU Member States.

The comparative advantage of the present study is that interactions with social assistance and other tax-benefit policies are taken into account as well as raising the minimum wage. Furthermore, the main contribution of this analysis is that minimum wage raise is simulated under three different scenarios related with possible disemployment effects. Firstly, it is assumed that minimum wage increase will not cause any employment losses. On the contrary, some employment losses are assumed in the second and third scenarios. In the second, a small negative employment effect is assumed while a larger negative effect is taken into account in the third one.

When no disemployment effect is assumed, minimum wage increase is estimated to decrease poverty in most of the countries. Although, this anti-poverty effect varies a lot across countries. Further, there are countries where poverty is estimated to slightly increase. In general, the effect of minimum wage on poverty is weak even there are no employment losses caused by minimum wage increase. As far as inequality, minimum wage seems to be an efficient redistributive tool as inequality is estimated to decrease on the large majority of EU countries. Again, a large variance across Gini index changes is observed. So, redistributive efficiency of minimum wage is larger in some countries like Spain, Cyprus or Latvia while it is lower in Lithuania, Bulgaria, and Malta.

In the second scenario, when a low negative employment effect is adopted, anti-poverty effect of minimum wage is estimated to be weaker in comparison with the first scenario. However, results between the two scenarios do not differ a lot as minimum wage impact on poverty remains low. Also, employment losses are really low as the elasticity assumption made in this scenario implies that a mean wage increase equals to 10% will cause an employment reduction equal to 0.1%. In terms

of inequality, minimum wage increase will have restricted redistributive effect as Gini index changes are estimated to be slightly smaller than under no disemployment effect assumption.

Finally, minimum wage effect on poverty rates seems to be even weaker when larger employment losses are assumed. In this case, a larger part of working population is affected in terms of employment as they lose their jobs and their employment income becomes zero. At this case, poverty rates are estimated to fall but in a lesser extent than in the previous scenarios. Additionally, the impact of a hypothetical minimum wage increase on inequality becomes ambiguous. Then, there are countries where inequality is still reduced but this reduction is smaller in comparison with previous scenarios and countries where inequality is estimated to raise despite that minimum wage increases.

Another important finding is that middle-aged groups of population are benefited by a hypothetical minimum wage increase. This is quite expected as these groups are the majority of working population. Further, in particular, the most benefited population group is estimated to be those aged between 18 and 29 years as they are more likely to be paid at the minimum wage. Regarding the gender-related aspect of the present analysis, estimated changes differ only marginally.

To sum up, minimum wage effect on poverty is estimated to be low but significant under all scenarios described above. Although, this effect weakens as employment elasticity with respect to wage is getting more negative. So, anti-poverty effect of minimum wage depends on employment responses to wage changes. The same result is obtained for inequality as the redistributive effect of minimum wage is limited when larger employment losses are simulated.

These low but significant effects lead to the conclusion that low earners may not be the main breadwinners of their households. So, their income does not affect household income in a large extent. Also, these effects might be an indication that there are very few households with low-earners. However, to better understand minimum wage effect and to analyze its impact on poverty and inequality, it is crucial to find out who is paid at the minimum wage and to know the main characteristics of the low-paid. In the present analysis, it is found that proportion of potentially affected workers by a minimum increase varies a lot across EU countries. Then, it is expected that minimum wage impact on poverty and inequality will vary

too. But, it is still necessary to know who is likely to be more affected by a minimum wage.

From a policy perspective, a hypothetical minimum wage increase is a bold venture not only because it is assumed to be implemented in EU level but also because a further and extensive analysis on who and how will be affected is needed. Although, present analysis' findings are compatible with a large part of the relative literature that support the existence of a weak minimum wage effect on poverty. Thus, minimum wage cannot be used as an anti-poverty or a redistributive tool as it might cause strong disemployment effects that will cancel out any potential positive effect on wages.

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Annex

Table 2. Average monthly minimum wage in EU countries, €, 2014

BG	173.84
RO	197.73
LT	289.62
CZ	309.77
LV	320.00
HU	334.93
SK	352.00
EE	355.00
HR	396.99
PL	404.28
PT	565.83
EL	683.76
MT	717.95
ES	752.85
SI	789.15
UK	1276.18
FR	1445.38
IE	1461.85
NL	1490.40
BE	1501.82
LU	1921.03
DK	n/a
DE	n/a
IT	n/a
CY	n/a
AT	n/a
FI	n/a
SE	n/a

Source: Eurostat

Table 3. Normal weekly working hours in EU countries

Country	Hours/week	Country	Hours/week
Belgium (BE)	38	Lithuania (LT)	40
Bulgaria (BG)	40	Luxembourg (LU)	40
Czech Republic (CZ)	40	Hungary (HU)	40
Denmark (DK)	40	Malta (MT)	40
Germany (DE)	40	Netherlands (NL)	37
Estonia (EE)	40	Austria (AT)	40
Ireland (IE)	40	Poland (PL)	40
Greece (EL)	40	Portugal (PT)	40
Spain (ES)	40	Romania (RO)	40
France (FR)	35	Slovenia (SI)	40
Croatia (HR)	40	Slovakia (SK)	40
Italy (IT)	40	Finland (FI)	40
Cyprus (CY)	40	Sweden (SE)	40
Latvia (LV)	40	United Kingdom (UK)	38

Source: EUROMOD G4.0+

Table 4. Hourly minimum wage in EU countries, €, 2014

BG	1.00
RO	1.14
LT	1.67
CZ	1.79
LV	1.85
HU	1.93
SK	2.03
EE	2.05
HR	2.29
PL	2.33
PT	3.27
EL	3.95
MT	4.15
ES	4.35
SI	4.56
UK	7.76
IE	8.44
BE	9.13
NL	9.30
FR	9.54
LU	11.09

Source: Eurostat

Table 6a. Baseline results without minimum wage introduction in EU countries.

	poverty rates								poverty line	Gini index
	total	by age					by gender			
		0-17	18-29	30-44	45-64	65+	male	female		
BE	11.64	14.03	13.69	10.81	9.83	10.84	11.29	11.99	1,042	0.225
BG	20.87	28.19	21.59	17.71	15.91	24.77	19.76	21.92	510	0.329
CZ	9.25	12.53	9.47	8.83	9.93	4.89	8.72	9.76	9,907	0.225
DK	11.19	8.75	29.39	10.98	7.06	6.19	11.56	10.83	10,012	0.214
DE	13.49	13.70	17.38	10.18	13.54	13.86	12.64	14.31	1,031	0.253
EE	18.92	17.04	17.89	15.95	20.80	22.72	17.64	20.01	357	0.306
IE	16.05	20.36	20.43	13.47	16.94	4.38	15.65	16.44	951	0.288
EL	19.28	23.69	26.46	20.41	19.69	9.34	19.41	19.15	407	0.319
ES	22.41	30.56	26.86	22.82	21.78	11.36	22.41	22.40	661	0.334
FR	11.81	15.89	14.85	11.66	10.15	6.95	11.45	12.14	986	0.287
HR	18.14	18.02	17.13	15.92	17.48	22.81	17.28	18.94	1,977	0.290
IT	18.54	24.84	22.53	19.98	17.25	11.58	17.68	19.36	777	0.313
CY	13.29	11.74	12.19	11.14	13.38	21.14	12.21	14.31	736	0.337
LV	21.48	22.59	16.46	17.05	20.21	30.89	19.06	23.51	275	0.341
LT	19.21	24.51	19.62	19.02	16.95	17.28	18.47	19.84	244	0.326
LU	8.48	13.43	10.47	7.57	7.43	2.03	8.18	8.78	1,705	0.243
HU	14.47	21.80	17.54	14.35	13.08	5.88	14.71	14.26	62,269	0.276
MT	14.68	17.56	9.18	13.68	14.91	18.06	14.63	14.72	665	0.274
NL	10.63	15.00	16.86	9.10	8.90	3.96	9.88	11.37	1,116	0.230
AT	13.11	16.30	15.21	12.95	11.24	11.43	12.71	13.49	1,139	0.254
PL	18.07	23.33	20.05	16.35	18.15	11.99	18.38	17.77	1,140	0.305
PT	19.23	24.64	21.48	16.58	19.78	15.13	18.62	19.79	424	0.334
RO	25.34	38.22	29.70	24.76	19.56	16.34	25.45	25.24	511	0.333
SI	13.42	12.67	12.86	11.49	14.02	16.42	12.85	13.98	585	0.235
SK	12.24	19.29	13.03	12.53	11.42	3.78	12.42	12.07	332	0.231
FI	11.38	10.94	18.91	8.64	9.59	11.31	11.37	11.39	1,164	0.253
SE	13.49	15.14	23.65	11.65	9.20	11.35	12.78	14.18	11,847	0.230
UK	14.46	15.24	15.24	13.16	14.98	13.51	14.30	14.61	765	0.298

Source: EUROMOD G4.0+.

Table 6b. Effect of raising minimum wage to 50% of average employment earnings on poverty and inequality in EU countries assuming no disemployment effect (zero employment elasticity).

	poverty rates								poverty line	Gini index
	total	by age					by gender			
		0-17	18-29	30-44	45-64	65+	male	female		
BE	11.35	13.46	12.49	10.47	9.81	11.31	10.92	11.77	1,053	0.223
BG	20.83	28.11	21.50	17.65	15.91	24.77	19.70	21.89	340	0.329
CZ	8.96	12.34	8.36	8.53	9.32	5.83	8.24	9.65	10,167	0.222
DK	11.03	8.96	27.77	11.13	6.77	6.58	11.16	10.90	10,081	0.213
DE	13.49	14.15	16.10	10.19	13.18	14.91	12.62	14.32	1,055	0.248
EE	18.61	16.41	17.02	15.21	19.02	26.13	17.11	19.88	364	0.301
IE	16.32	20.61	20.04	13.81	17.45	4.84	15.87	16.76	966	0.286
EL	19.13	23.20	26.35	20.06	19.64	9.57	19.24	19.03	411	0.317
ES	21.29	29.43	23.81	21.65	20.84	11.46	21.13	21.45	674	0.326
FR	11.81	15.89	14.85	11.66	10.15	6.95	11.45	12.14	986	0.287
HR	18.89	18.89	16.85	16.35	17.87	25.27	17.98	19.73	2,017	0.289
IT	18.37	24.28	21.76	19.74	16.99	12.25	17.49	19.21	787	0.312
CY	11.70	10.70	9.18	8.99	12.04	21.45	10.71	12.63	755	0.330
LV	20.29	20.79	15.32	15.49	18.30	31.65	17.95	22.27	279	0.334
LT	19.25	24.55	19.70	19.06	16.95	17.32	18.47	19.91	244	0.326
LU	7.63	11.79	9.31	6.85	6.99	1.79	7.39	7.87	1,725	0.238
HU	14.47	21.80	17.54	14.35	13.08	5.88	14.71	14.26	62,269	0.276
MT	14.61	17.53	9.03	13.68	14.87	17.92	14.54	14.67	665	0.274
NL	10.35	14.24	15.70	8.98	9.00	4.28	9.46	11.23	1,128	0.229
AT	12.56	15.16	12.29	11.82	11.05	13.50	11.70	13.37	1,180	0.248
PL	18.10	23.33	20.05	16.44	18.16	12.03	18.41	17.81	1,140	0.305
PT	19.16	24.19	20.56	15.97	19.74	16.50	18.48	19.78	436	0.329
RO	25.34	38.22	29.70	24.76	19.56	16.34	25.45	25.24	511	0.333
SI	13.42	12.68	12.87	11.52	14.01	16.39	12.85	13.98	585	0.235
SK	12.28	19.37	13.10	12.63	11.45	3.68	12.47	12.11	331	0.231
FI	11.32	10.87	18.16	8.38	9.73	11.70	11.29	11.35	1,173	0.251
SE	14.15	14.64	22.49	11.18	9.25	16.79	12.85	15.41	12,351	0.224
UK	14.63	15.58	15.08	13.28	14.87	14.28	14.50	14.76	779	0.296

Source: EUROMOD G4.0+.

Table 6c. Effect of raising minimum wage to 50% of average employment earnings on poverty and inequality in EU countries assuming employment elasticity equal to -0.01.

	poverty rates								poverty line	Gini index
	total	by age					by gender			
		0-17	18-29	30-44	45-64	65+	male	female		
BE	11.39	13.54	12.54	10.53	9.81	11.31	10.96	11.80	1,053	0.223
BG	20.83	28.11	21.50	17.65	15.91	24.77	19.70	21.89	340	0.329
CZ	8.97	12.34	8.43	8.55	9.30	5.83	8.24	9.67	10,162	0.223
DK	11.16	9.05	28.18	11.30	6.89	6.53	11.32	11.01	10,070	0.213
DE	13.55	14.18	16.25	10.21	13.26	14.94	12.67	14.40	1,055	0.249
EE	18.65	16.50	17.07	15.21	19.03	26.23	17.15	19.94	364	0.301
IE	16.34	20.65	20.04	13.83	17.47	4.84	15.89	16.78	966	0.287
EL	19.14	23.20	26.37	20.06	19.66	9.57	19.25	19.04	411	0.317
ES	21.42	29.68	24.09	21.74	20.94	11.46	21.29	21.55	671	0.327
FR	11.81	15.89	14.85	11.66	10.15	6.95	11.45	12.14	986	0.287
HR	18.89	18.89	16.85	16.35	17.87	25.27	17.98	19.73	2,017	0.289
IT	18.40	24.28	21.82	19.75	17.03	12.25	17.51	19.23	787	0.312
CY	14.47	21.80	17.54	14.35	13.08	5.88	14.71	14.26	62,269	0.276
LV	20.26	20.78	15.29	15.53	18.20	31.59	17.92	22.23	279	0.335
LT	19.23	24.54	19.62	19.06	16.99	17.28	18.50	19.86	244	0.326
LU	7.64	11.79	9.35	6.85	7.00	1.79	7.40	7.88	1,725	0.238
HU	14.02	21.10	17.03	13.63	12.73	5.89	14.21	13.84	62,496	0.273
MT	14.61	17.53	9.03	13.68	14.87	17.92	14.54	14.67	665	0.274
NL	10.39	14.32	15.70	9.08	9.00	4.31	9.50	11.27	1,128	0.229
AT	12.73	15.51	1.40	12.08	11.07	13.71	11.90	13.52	1,192	0.249
PL	18.08	23.30	20.05	16.42	18.15	12.03	18.40	17.79	1,140	0.305
PT	19.14	24.19	20.56	15.97	19.74	16.40	18.48	19.74	436	0.329
RO	25.34	38.22	29.70	24.76	19.56	16.34	25.45	25.24	511	0.333
SI	13.40	12.66	12.82	11.50	14.00	16.39	12.84	13.96	585	0.235
SK	12.28	19.37	13.10	12.63	11.45	3.68	12.47	12.11	331	0.231
FI	11.32	10.87	18.16	8.38	9.73	11.70	11.29	11.35	1,173	0.251
SE	14.07	14.77	22.51	11.34	9.23	16.04	12.85	15.25	12,251	0.225
UK	14.59	15.51	15.08	13.24	14.83	14.24	14.45	14.72	778	0.296

Source: EUROMOD G4.0+.

Table 6D. Effect of raising minimum wage to 50% of average employment earnings on poverty and inequality in EU countries assuming employment elasticity equal to -0.05.

	poverty rates								poverty line	Gini index
	total	by age					by gender			
		0-17	18-29	30-44	45-64	65+	male	female		
BE	11.48	13.76	12.72	10.64	9.80	11.31	11.12	11.82	1,052	0.223
BG	20.87	28.25	21.50	17.65	15.97	24.77	19.75	21.92	340	0.329
CZ	9.03	12.31	8.66	8.55	9.48	5.70	8.39	9.64	10,136	0.223
DK	11.67	9.42	29.35	11.73	7.72	6.25	12.21	11.14	10,004	0.216
DE	13.55	14.10	16.39	10.19	13.24	14.94	12.68	14.39	1,053	0.249
EE	18.72	16.54	17.14	15.31	19.08	26.30	17.19	20.02	364	0.301
IE	16.40	20.75	20.09	13.83	17.58	4.84	15.95	16.84	966	0.287
EL	19.14	23.20	26.37	20.06	19.66	9.57	19.25	19.04	411	0.317
ES	22.55	30.37	27.00	22.73	22.33	11.53	22.53	22.57	658	0.338
FR	11.81	15.89	14.85	11.66	10.15	6.95	11.45	12.14	986	0.287
HR	18.33	18.77	16.60	16.03	17.50	23.37	17.54	19.06	2,010	0.289
IT	18.42	24.26	21.82	19.84	17.08	12.23	17.55	19.24	787	0.312
CY	11.81	10.72	9.49	9.19	12.11	21.30	10.85	12.71	754	0.330
LV	20.46	21.03	15.67	15.58	18.50	31.62	18.03	22.50	278	0.336
LT	19.30	24.57	19.70	19.17	17.06	17.34	18.59	19.91	244	0.327
LU	7.88	12.38	9.47	7.14	7.09	1.79	7.61	8.15	1,725	0.239
HU	14.47	21.80	17.54	14.35	13.08	5.88	14.71	14.26	62,269	0.276
MT	14.61	17.53	9.03	13.68	14.87	17.92	14.54	14.67	665	0.274
NL	10.41	14.37	15.72	9.04	9.06	4.31	9.52	11.29	1,128	0.229
AT	13.03	16.40	12.90	12.60	11.28	13.19	12.25	13.78	1,169	0.250
PL	18.15	23.35	20.05	16.52	18.21	12.14	18.46	17.86	1,141	0.305
PT	19.09	24.13	20.56	15.90	19.70	16.32	18.41	19.71	435	0.329
RO	25.34	38.22	29.70	24.76	19.56	16.34	25.45	25.24	511	0.333
SI	13.54	12.83	13.06	11.70	14.09	16.41	12.95	14.12	585	0.236
SK	12.28	19.37	13.10	12.63	11.45	3.68	12.47	12.11	331	0.232
FI	11.35	10.92	18.24	8.38	9.77	11.70	11.34	11.37	1,173	0.252
SE	14.25	15.40	26.13	12.21	10.03	11.48	13.69	14.78	11,840	0.234
UK	14.62	15.47	15.23	13.23	14.93	14.17	14.47	14.76	776	0.297

Source: EUROMOD G4.0+.

Table 7. Employment change (%) under two hypothetical scenarios of minimum wage increase.

	Low elasticity	High elasticity
BE	-0.042	-0.21
BG	-0.098	-0.49
CZ	-0.024	-0.12
DK	-1.002	-5.01
DE	-0.042	-0.21
EE	-0.017	-0.08
IE	-0.019	-0.09
EL	-0.013	-0.06
ES	-0.403	-2.02
FR	n/a	n/a
HR	-0.012	-0.06
IT	-0.036	-0.18
CY	-0.023	-0.11
LV	-0.105	-0.52
LT	-0.061	-0.31
LU	-0.013	-0.07
HU	n/a	n/a
MT	-0.223	-1.11
NL	-0.145	-0.72
AT	-0.138	-0.69
PL	-0.014	-0.07
PT	-0.018	-0.09
RO	n/a	n/a
SI	-0.355	-1.78
SK	-0.074	-0.37
FI	-0.074	-0.37
SE	-0.586	-2.93
UK	-0.009	-0.05

Source: EUROMOD G4.0+, SILC.