Support for establishing a minimum wage-setting mechanism in Romania

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SUPPORT FOR ESTABLISHING A MINIMUM WAGE-SETTING MECHANISM IN ROMANIA

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Executive summary

Purpose and importance of the problem

The main purpose of this exercise consisted in providing a recommendation for a sound institutional process of minimum wage setting in Romania. The design of a transparent mechanism for minimum wage setting based on objective criteria, in order to set the grounds for evidence based dialog and decision making is a matter of extreme importance to the wage policy in Romania due to the number of employees who are affected, on one hand, and to the economic and social effects of this form of state intervention on the labour market, on the other. As a country particularity, in Romania the wage distribution is highly asymmetrical at the bottom, with more than one quarter of the employees (1.3 million persons) being paid at the minimum wage level.

As a starting point of our undertaking, a best practices analysis of such mechanisms implemented in other EU or OECD countries was conducted and a guiding context for observing minimum wage systems by selecting case studies with better social outcomes within country-groups with similar economic patterns was proposed. The cluster analysis placed Romania in the same group with its neighbours and also former socialist countries: Bulgaria, Hungary, Croatia, along also with Italy, Greece, Spain and Portugal. The results are, however, subject to the limitation of only reflecting a static point in time, based on the current socio-economic context.

The general conclusions drawn from the analysis of best practices indicated that there is no evidence in favour of a minimum wage setting regime that could work best in a country. This is because minimum wage policies highly depend on the context. Country specific legal regimes, as well as the socio-economic context are of extreme importance when setting the minimum wage level.

However, following other countries' practices, the proposed mechanism for Romania has two main characteristic features: it is documented and transparent, both providing for sound social dialog and socio-economic development. Full consultation of the government with the social partners (i.e. workers' and employers' organizations) in the process of minimum wage fixing based on scientific impact assessment grounds is considered to be an indispensable requirement for an effective mechanism implementation.

Institutional framework

The core of the proposed mechanism is an independent expert body, having the responsibility of elaborating annually alternative minimum wage adjustment scenarios based on the development of selected socio-economic indicators (i.e. criteria for minimum wage setting) and of assessing the social and economic impact of such changes (ex-ante and ex-post analysis).

The expert body should be made up of specialists in social and economic policies, in macro and micro economic modelling and in data processing, nominated on tripartite basis. Impact assessment results shall set up the bases for consultations or negotiations between the Government and social partners for establishing the minimum wage level for the following year. The decision of choosing among alternative scenarios with different implications at different levels rests with the Government depending on its goals or priorities, but after reaching an agreement with the social partners. Details on the legal framework, membership, budgeting, monitoring and control of the expert body have also been discussed in the description of the mechanism.

The main message of this exercise is the need to have an impact assessment before any decision on minimum wages is taken and to plead for a real consultation with social partners based on scientific-evidence-based data. The mechanism is merely dedicated to provide a sound institutional process for minimum wage setting and impact assessment, in order to support a scientific background to the consultation or negotiation process between social partners and to legitimate the economic and social consistency of Government final decision for minimum wage setting. The dissemination of the expert body's reports would strengthen the credibility of policy decision to the business environment providing an illustration of what the consequences would be if some specific normative criteria were to be applied (e.g., indexation to inflation, to average wage growth etc.).

Overall, developing a framework for documented minimum wage indexation, despite of being a complex and demanding task, once achieved, even if not in itself sufficient, could assist in establishing social and economic policy in Romania on sound foundations. Although there is room for further improvement, we consider that our undertaking is a very good starting point for a more predictable minimum wage policy.

Draft proposal of minimum wage mechanism

As an illustration of the functioning of such mechanism, herein we have drawn up a list of indicators with relevance in minimum wage setting and selected four of them as being potential criteria for alternative scenarios on minimum wage indexation, based on the current context: average wage growth rate, GDP per capita growth rate, inflation rate and the growth rate of the cost of a minimum consumption basket.

Table 1. Indicators used and their role in the minimum wage setting mechanism

Criterion	Sub-criterion	Indicator	Function
Social criterion	**General level of wages**	Average gross wages	Minimum wage setting
		Ratio between gross minimum wage and median gross wage	Impact assessment
		Number of employees paid with minimum wage	Impact assessment
		Share of wages in GDP	Impact assessment
		Distribution of employees paid with minimum wage, by gender, age groups, occupation, NACE codes	Impact assessment
	Living standards	In-work poverty	Impact assessment
		Inequality of wages	Impact assessment
		Minimum expenditure basket	Minimum wage setting
Economic criterion	**General level of prices**	Consumer Prices Index/ Inflation rate	Minimum wage setting
	Employment	Employment rate (total, by age groups and gender)	Impact assessment
	Economic development/ productivity	GDP per capita (PPS)	Minimum wage setting
	Competitiveness	Real effective exchange rate (REER)	Impact assessment
		Unit labour cost	Impact assessment
	Economic activity of enterprises	Turnover, profitability	Impact assessment

Source: authors' own contribution

Based on the selected indicators presented above four scenarios are developed. To these four scenarios which are the guiding principle of this exercise, we have also added, for illustrative purposes, the scenario based on the Government program decision, which is in place for 2017-2020. Compared to the other scenarios based on well-defined normative criteria, however, the government program decision scenario represents an ex-post comparison of the already taken political decision with the other hypothetical scenarios. Given another possible context or better, more detailed statistical evidence on indicators/ criteria related to minimum wage, the expert body could choose/ propose other alternative scenarios.

The mechanism should entail annual impact assessments of the socio-economic effects of the minimum wage adjustments. For this purpose, only scenarios assuming above 1 per cent positive annual change are proposed to be taken into consideration.

The scenarios are briefly presented as follows:

Scenario 1 - The minimum wage would be adjusted to the evolution of the gross average wage, in order to maintain a constant ratio to average earnings. Based

on this backword-looking scenario hypothesis, for the year 2018 it was estimated an increase in the minimum wage of about **11.2%,** equal to the previous annual growth rate of the average gross wage.

Scenario 2 – The gross minimum wage would be adjusted with the evolution of GDP/capita. Using the IMF[1] forecast for Gross domestic product based on purchasing-power-parity (PPP) per capita, the evolution of gross minimum wage for the year 2018 was considered of about **6.23%** increase.

Scenario 3– The gross minimum wage would be adjusted to the evolution of the inflation rate. As an illustration, considering CNP forecasts for the gross average wage and the inflation rate forecasted by the IMF, the evolution of the Gross minimum wage for the year 2018 was considered of about **1.7%,** equal to the forecasted annual inflation rate for the previous year.

Scenario 4– The gross minimum wage would be adjusted to the evolution of the minimum expenditure basket. As the potential increase of the minimum basket level is quite low, as it depends mostly on the dynamic of prices in the context of negative inflation rates registered in 2015 and 2016, in this case scenario it is particularly difficult to build a solid and reliable hypothesis regarding the future dynamic of the minimum expenditure basket. Moreover, since no forecasts of the level of this indicator are available for the year 2017, the only possible assumption could consist in correlating the dynamic of the minimum expenditure basket with the dynamic of prices. Under this assumption, however, the hypothesis will be identical to the one corresponding to scenario 3, meaning that for the year 2018 the minimum wage will increase by **1.7%,** which is equal to the forecasted annual inflation rate for the previous year. In case of any other hypothesis that will assume an increase of the minimum expenditure basket of less than 1%, the impact assessment on socio-economic variables shall not be estimated. But, the scenario should be evaluated each year and be activated whenever the annual growth rate would exceed 1%. In this sense, we suggest that an updated methodology of the minimum expenditure basket to be developed most likely by the National Institute of Statistics (NIS), in order to combine normative methods based on expert judgement with inputs from the effective expenditure patterns of the population.

Scenario 5 – The gross minimum wage will evolve according to the Government program for the period 2017-2020, meaning an **8.1%** increase for 2018, a 6.5% for 2019 and a 6.1% estimated for 2020.

According to scenarios' assumptions, the minimum wage would increase in 2018 with rates starting from 1.7% and up to 11.2% (corresponding to the average wage growth rate).

The scenarios presented include both economic and social impact assessment and should play a role of guidelines developed to inform and support the actual decision on what the minimum wage increase should be. The latter would not need to be restricted to the choice of one of specific scenario among the ones presented to be applied automatically thereafter.

[1] International Monetary Fund, World Economic Outlook Database, October 2016.

Rather, it allows the government in consultation with social partners, to update the minimum wage taking into account all the possible implications of any rate of increase based on the provided impact assessment.

The main results of the overall impact assessment for the year 2018, based on the various scenarios considered, are summarised in the following table:

Table 2. Summary of the overall impact assessment results based on scenario analysis

	Baseline	SCENARIO 1 (Gross average wage)	SCENARIO 2 (GDP per capita)	SCENARIO 3 (Inflation rate)	SCENARIO 5 (Government program)
Percentage change on baseline (%)					
Number of employees paid by the minimum wage	1289696	46.0%	28.0%	12.0%	35.0%
The ratio between gross minimum wage and the median gross wage	79.9%	10%	6%	2%	8%
In-work poverty rate	19.8%	-0.45%	-0.24%	-0.42%	-0.48%
Gini index	25.5%	-3.7%	-2.1%	-0.6%	-2.8%
Inflation rate*		4.6%	2.6%	0.7%	3.4%
Unit labour cost	13.5%	7.2%	4.0%	1.1%	5.2%
Wage share in GDP	34.4%	9.3%	5.7%	2.4%	7.1%
Employment rate	61.4%	-1.9%	-1.1%	-0.3%	-1.4%
Youth employment (15-19 years)	9.1%	-2.0%	-1.1%	-0.3%	-1.4%
Youth employment (20-24 years)	39.6%	-4.4%	-3.7%	-3.1%	-4.0%
Male employment 20-24 years	47%	-1.4%	-0.8%	-0.2%	-1.0%
Female employment 20-24 years	32%	-1.9%	-1.1%	-0.3%	-1.4%

Employment in Agriculture, phishing and forestry (thousands)	2003.5	-2.16%	-1.20%	-0.32%	-1.57%
Employment in Manufacturing industry (thousands)	1633.5	-0.80%	-0.44%	-0.12%	-0.58%
Employment in Mining Industry (thousands)	57.4	-4.76%	-2.63%	-0.71%	-3.46%

Source: authors' own calculations

*for this case the estimated levels of the inflation rates for the year 2018 are presented.

The impact of the minimum wage increase has been evaluated at macroeconomic level (on variables such as inflation rate, wages share in GDP, total and youth employment, detailed by economic activity, and also the real effective exchange rate and unit labour cost as indicators of country's competitiveness) and at microeconomic level as well (not only on indicators related to in-work poverty and wage distribution, number of employees at the minimum wage, but also on firms'profitability and turnover).

The impact assessment of the minimum wage adjustments upon poverty and income distributions, as well as upon the number of employees paid by the minimum wage and their distribution based on gender, age, occupation and economic activities relied mostly on micro-simulations. The micro-simulation analysis allowed the estimation of the effects of minimum wage adjustments. The results were extended to the total population from which the sample was drawn, but under specific methodological limitations of which one should be aware when interpreting the results.

The impact assessment based on the scenario analysis revealed that the higher the minimum wage adjustment is, the greater the total number of minimum wage earners becomes and also the lower the Gini index becomes. Moreover, the ratio between gross minimum wage and the median gross wage tends to follow an upward tendency once the minimum wage adjustment levels increase, while the in-work poverty rate turned out not to adjust in line with the minimum wage increase.

At macroeconomic level, however, the impact analysis has showed, in some cases, the atypical effects of the minimum wage increase, partially motivated by structural factors and labour market policies. However, as a caveat, we must mention that there may be issues related to data quality, availability, coverage and comparability in time, or adequacy to the topic, depending on the initial purpose of collecting a particular indicator. Changes in data collection or indicator calculation methodology could generate breaks in data series.

Moreover, because of such data limitations, the impact analysis conducted on firms' performance only captured the degree of sensitivity of the companies' profit level relative to the minimum wage, as well as the degree of sensitivity of the turnover at the company level relative to the minimum wage.

Limitations of the methodology used

Under these limitations, the current impact assessment analysis conducted in this study for illustrative purpose represents only a first sketch of what could be done as part of an impact assessment. The analysis of different scenarios does not aim to provide alternative options from which to select a fixed rule to be applied automatically thereafter. Rather, it provides an illustration of what the consequences would be if some specific normative criteria were to be applied (e.g., indexation to inflation, to average wage growth etc.). These, however, are purely *hypothetical* cases, developed for illustration on the mechanism functioning. The latter would not need to be restricted to the choice of one of specific scenario among the ones presented. Regarding the impact of minimum wage on firms' performances, because of data limitations we were only able to capture the degree of sensitivity of the companies' profit level relative to the minimum wage, as well as the degree of sensitivity of the turnover at the company level relative to the minimum wage. Therefore, these impact studies can be considered as an indicative for the many possibilities the future expert body involved in the mechanism can use as a starting point.

Moreover, as the impact evaluation of minimum wage at firm level pointed it out, the existing data should be complemented with in-depth research at company level, for the group of vulnerable companies (micro, small and medium sized companies in certain activity sectors) to a minimum wage increase. An important component in building an efficient mechanism for minimum wage setting is the correct evaluation of enterprise's reactive behaviour to minimum wage increase. In this respect, we propose that the decision on the minimum wage level should consider information on enterprise behaviour towards such a measure, derived from a company survey, to be conducted on yearly basis and to include at least the variables that were suggested in the questionnaire put forward.

I.
Analysis of best practices regarding the mechanism for establishing the national guaranteed gross minimum wage in other countries of the European Union and the OECD

1.1 Introduction

The minimum wage can be understood as "the minimum sum payable to a worker for work performed or services rendered, within a given period, whether calculated on the basis of time or output, which may not be reduced either by individual or collective agreement, which is guaranteed by law and which may be fixed in such a way as to cover the minimum needs of the worker and his or her family, in the light of national economic and social conditions"[2].

Recently, the minimum wage setting mechanisms has become of great importance on the political agenda in most European Union and OECD countries, as substantial increases in the minimum wage rates are solicited by the trade unions. In this sense, the entrance of Germany in 2015 in the group of European Union member states that apply a statutory minimum wage has triggered even more intense debates in other countries that so far rely entirely on collective agreements when fixing the minimum wage, such as Finland and Italy.

Moreover, in the European Union there has also been recently put on debate the question of a European coordination of minimum wage policies through a common market with freedom of capital, goods, labour and services. Given the current differences existing between the minimum wage levels or even the absence of a statutory minimum wages in some countries, according to Schulten (2008) a "European minimum wage policy would contribute to stop the ongoing precarization of work and the undermining of social standards". Even if a European minimum wage policy is unlikely to be implemented in the near future, some unions already seized this opportunity to develop their collective bargaining policy[3].

So far there are numerous methods that can be used to set the minimum wage rates all around the world, which have both merits and shortcomings. On the one hand, is the case of a government-set minimum wage mechanism, where the government has full control of the minimum wage rates, while at the opposite end of the spectrum is the system of minimum wage setting based entirely on collective bargaining. This is the case of the Nordic countries, Austria and until recently, Germany too. However, there are also a wide range of mechanisms in between. Some may focus on automatic indexation based on specific socio-economic criteria,

[2] ILO: General Survey of 1992, para.42.

[3] An example is the Doorn Initiative, which is actually a network of unions from Benelux and Germany that cooperate to develop a common collective bargaining rule and to monitor the national collective bargaining policy.

such is the case of Luxembourg, while other may rely especially on an expert body that could either set the rates or just provide recommendations to the government.

Finding the appropriate mechanism suitable for one country is a challenging request, as it has to take into consideration both the current socio-economic context, as well as the legislative country-specific particularities. However, analysing some of the best practices in the European Union and the OECD countries for establishing the national guaranteed gross minimum wage could shed some light and bring valuable insights in the process of designing a proper minimum wage setting mechanism for the Romanian case as well.

1.2 Minimum wage: aim and ILO standards

At the end of the XIX century New Zealand and Australia were the first countries that introduced a minimum wage. Its dynamic over the time has been imprinted by those of the industrial relations and social policies. Its early role consisted of preventing labour disputes and guarantying decent reward for workers most exposed to low payment. Today this is still valid, although unquestionable explicit relation with poverty alleviation, equitable earning distribution, employment level, social security and fiscal systems are reasons for attention given to minimum wage.

While the early settings of minimum wage gave voice to workers, in sectors fragmented by their nature (domestic workers, catering) with low power to defend themselves through collective bargaining, the ILO Convention no 131 (1970), formulated the economic, social policy and trade unions movement development context after the Second World War, stated clearly the national interest in it. It named the requirements of economic development, productivity and employment levels as criteria to be considered in minimum wage settings. Added to the recommendation of attention given to workers' and their family needs, the cost of living, the general level of wages and the social security benefits, the regulation underlines the two-fold sensitive role that minimum wage plays, of guarding fairness in society and economic development.

Such a complex role is not by far a simple decision, as it implies a mechanism, a fixing machinery as was stated in ILO Convention no. 26 (1928). The Convention no. 131 points out basic elements of such mechanism, like:

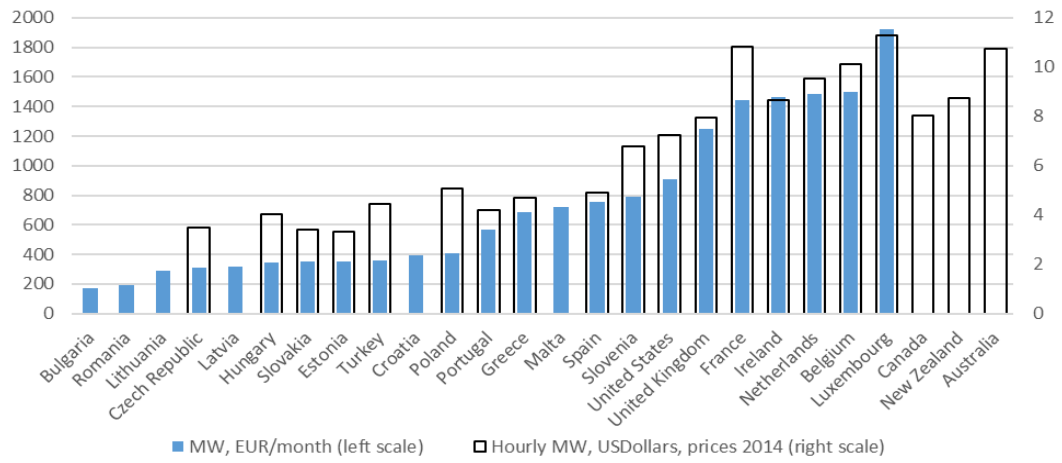
- full consultation of the social partners, workers' and employers' organizations, in the process of minimum wage fixing; this envisages more than a formal consultation, but clear steps to be taken to ensure that public authorities really take into account the arguments and recommendations put forward by the social partners, in the fixing minimum wage process.
- the request for freedom of collective bargaining, in case such collective agreements exist
- participation of persons "having recognised competence for representing the general interests of the country" appointed after consultation with social partners and

- periodical revision of the minimum wage to national conditions and requirements.

Regulations on human rights and labour relations or international common agreed policies have shaped the features of minimum wage setting (Eurofound, 2014; ILO, 2016). While the early forms of minimum wage regulation targeted only some groups or were seen as temporary measure (ILO, 2016), nowadays there is a clear tendency for large coverage of regulation with respect to a basic floor of workers' remuneration, in the virtue of social and human rights, permanent in their character, and a more explicit relation to social benefits and employment protection (EC, 2016). Among the most recent proposals for introducing a statutory minimum wage are Finland[4] and Italy[5]. Worries on increasing poverty and inequality worldwide around 1990 and recent economic crisis in 2008 were other moments which reinforced attention on minimum wage and strengthen its mechanism.

National context and internal changes imprint large differences in what concerns the complexity of consultation process, indicators or industries considered or share of workers covered in countries which regulate at bottom workers' remuneration. Among them 100 have statutory minimum wage, including 22 European countries (Dickens, 2015). Figures 1.1 and 1.2 depict some statistical differences of them.

Fig. 1.1 Minimum wage in the EU 28 and some OECD countries, 2014

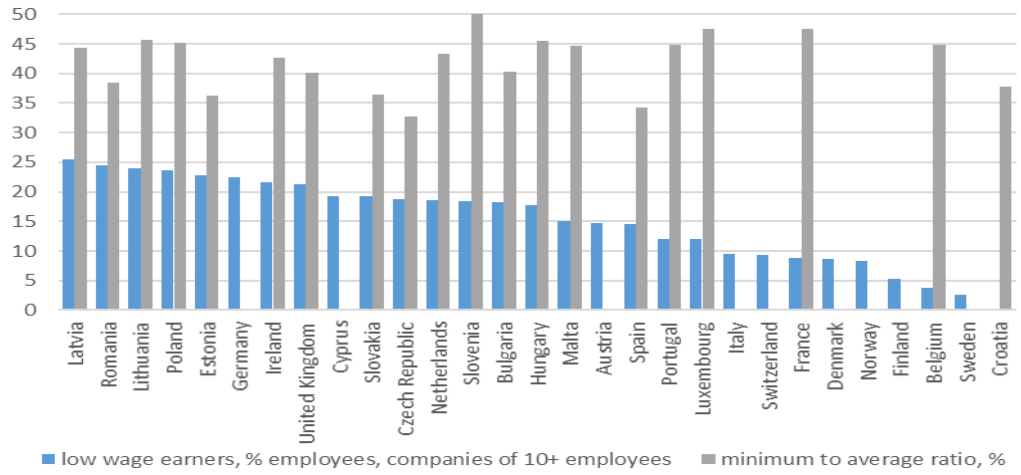


Source: stats.oecd.org (for the hourly minimum wage); Eurostat, tps00155 (for the monthly minimum wage);

[4] The proposal for a statutory minimum wage came from an employers' organisation representing SMEs, but was not involved in collective bargaining. However, it has not received wider support.

[5] In Italy, the proposal is currently under consultation with the social partners, but according to the new Jobs Act the introduction of a statutory minimum wages is possible.

Fig. 1.2 Low wage earners and minimum to average wage in the European countries, 2014



Source: Eurostat, earn_ses_pub1s, earn_mw_avgr2

Despite their diversity in mechanism and level, voices in favour of Minimum Wage Policy in the European area have arisen. This aims at coordinating the fight against poverty and inequality, by setting national minimums at 60% of the median wages. Positive economic outcomes are to be expected, such as a boost in demand, supporting growth and employment and also preventing a deflationary phenomenon (Schulten, 2014).

1.3 General overview of the minimum wage mechanisms in the European Union and some OECD countries

Various works on minimum wage (Starr, 1993; OECD, 1998; Eyraud and Saget, 2005; Eldring and Alsos, 2012; ILO, 2014; ILO, 2016) try to put order in the diversity of mechanisms appealed to setting the basic wage floor in different countries. Among the criteria used for structuring the mechanisms, one can find the number of actors involved and the nature of the process, the number of rates decided upon, as well as the criteria used for revision. The main differential of them lays on the extension and the role of the social dialog in what concerns the level of wage basic floor. Up to a limit derived from this, minimum wage can have single or multiple rates, addressing sectors or occupational groups. Less diversity is on other elements of the mechanism. Some characteristics of these elements will further on be described. Criteria considered for revision could also be diverse, but for the purpose of this paper a separate chapter will be dedicated to this issue.

1.3.1 Actors involved

Soundly with the ILO recommendation, nowadays a negotiation process is almost a rule in setting the wage floor. The negotiations could be bilateral (between employers' and employees' organisations) or tripartite (including the public authority or other consultative bodies). These could end in a statutory minimum wage, with single or multiple rates, or in rates specific to different sectors as agreed in collective agreements. The extreme cases are rare; just few countries rely exclusively on collective agreement, while even rarely the decision upon minimum wage pertains entirely to the public authority.

1.3.1.1 Collective agreement systems

In this system, the decision upon the basic floor for remuneration results in bilateral bargain, between employers' and employees' organisations. It assures the most direct involvement of social partners, the role of the public authority resuming to that of setting a proper environment for negotiation. The subject of the agreement is labour relations and not only the level of wages. A basic floor for the wage or a minimum and maximum level for wages by age or skills can be negotiated explicitly. Among countries committed to collective agreement in deciding the wage level we find Denmark, Sweden, Finland, Norway, Iceland, Italy, Austria, and Switzerland (and several other Asian and African countries) none of them having statutory minimum wage (Eyraud and Saget, 2005; Eldring and Alsos, 2012). Collective agreements are to be found in other countries too, differing in what concerns the extension of the decision and the role of the government.

Rarely collective agreement took place at only one level; it can be at sectoral or higher level (multi-employer bargaining), which set a frame for labour relation in their area and a company level negotiation (single employer bargaining). Lower levels of bargain can decide only for more favourable conditions for employees than did the decision above them. Despite their decreased and low extension in the last decades, Visser (2013) points out the usefulness of multi-employer bargaining during recession time, for homogeneous industries, for the labour intensive industries, or dominated by small and medium enterprises. The author notes also a decrease in unionisation in the last 3-4 decades, with the lowest slope in the Nordic countries (from around 75% in mid 90s to 65% in 2010) and the highest in the Eastern European ones (from around 40% to 15% in 2010).

The weakening of negotiation power has been counter-balanced by the extending agreement mechanism, procedure which makes the agreed decisions valid for the whole industry, professional category or even region, irrespective workers' and employers' affiliation. Finland or Norway appealed recently to such extension for some of their industries, while France, Portugal, Italy, the Netherland or Austria with trade union density below 30% end up throughout such mechanisms to a coverage rate (of the decision upon the basic wage floor) of over 80% (in 2010: Visser, 2013).

Particular cases are of Belgium and Greece, with coverage of 96%, respectively 65%, where public authority has extended the national agreed level between social partners, setting a statutory minimum for all sectors (Belgium), respectively to all private sectors (Greece) (OECD, 1998; Eyraud and Saget, 2005).

1.3.1.2 Minimum wage set by public authorities based on consultation with social partners

Among the countries having public authorities involved in decision upon the level of minimum wage, Eyraud and Saget (2005) distinguish between those of national/ regional rates and those of multiple sectoral/ occupational rate (just three in Europe: Cyprus, Malta, The Czech Republic-to some extend- but more others in Asia, Latin America or Africa).

In the dominant model, of public authority involvement based on consultation with social partners and national level of the basic floor, one can distinguish between two main procedures. On the one hand, the government can propose a minimum wage rate, followed by consultations with social partners or an expert body on its proposal (the case of "government decision following consultation"). On the other hand, the minimum wage rate can be determined by involving an expert body which recommends a rate to the government for its final decision ("government decision based on recommendation"), in which case the public authority has higher decision-making power.

In practice, however, the government power in decision-making depends on the power of the social partners in a country. For example, in Poland the minimum level is negotiated in a tripartite body, but if negotiations fail the government decides unilaterally upon the minimum wage level (Schulten, 2014). In Luxembourg there is no obligation of the government to consult social partners when fixing the minimum wage level. On the other hand, in the cases of Romania, Spain and Czech Republic the government fixes the minimum wage levels after following direct consultation with the social partners. Consultations may be carried out directly with the social partners (as in the Czech Republic) or it may involve an expert body or a committee designated by law to fulfil this role. In cases of France, Bulgaria, Hungary, Ireland, Latvia, Lithuania, Malta, the Netherlands, Portugal or United Kingdom the government fixes the minimum wage rates following advice and/or recommendation of expert bodies. One relevant such expert body is the National Committee on Collective Agreements in France, where committees' opinions are not binding on the government and the role of the social partners is, therefore, limited (Eyraud and Saget, 2005).

Nowadays, the expert body involvement becomes more and more frequent. According to the ILO database, in 2013 in 47% of countries the government sets the minimum wage following the advice and recommendation of an expert body, while 11% of them rely entirely on an expert body alone. (Dickens, 2015)

The Committees/ tripartite bodies are usually made up of 3 to 25 members (Starr, 1993; www.wageIndicator.org) constituted by employers' and employees' representatives, state authorities (Ministry of Labour, Ministry of Finance), representative of Official statistics, members of scientific community (having

assigned or not the right to vote), representatives of NGOs, other independent persons which can vote, be consulted or mediate.

The government`s responsibility on ensuring a proper, real social dialog stands in this case too. It consists of legal frame for social partners` involvement, the provision or access to relevant (up-dated and complete as much as possible) statistical information in due time for workers' and employers' organisations or members of the consultative bodies, in order to formulate their views on further developments; the mechanism based on an indexation formula is also a matter of consultation with social partners.

1.3.1.3 Main indexation mechanisms

A particular case of public authority involvement in deciding upon the minimum wage level is that of an approach based on a formula, which is used for adjusting the level of the minimum wage. Countries consider such rules in adjusting their minimum wage levels, but to different extents**.** Belgium, Luxembourg, Malta, Slovenia, France, the Netherlands and Spain are usually named within this context (Eurofound, 2014).

For instance, some countries look on price dynamic in order to activate the discussion or the mechanism of fixing minimum wage. The legislative provisions are especially related to the inflation rate (in the cases of Malta and Slovenia), while others to the consumer prices index (in the cases of France and USA), the general CPI, the urban consumption index, or the urban wage earners and clerical workers index (Bradley, 2016).

Malta, for instance, is subject to automatic indexation, as the minimum wage is annually increased according to the Cost of Living Allowance mechanism (COLA) which reflects the retail price index changes applied to a reference wage base. The mechanism takes into account the annual inflation rate, which leads to a nominal increase in wages that preserves at least the previous level of the real wage. However, the social partners are critical of the COLA mechanism based entirely on inflation and wish to focus on productivity levels too.

In **Slovenia** during 1995−2000, there was a backward looking indexation mechanism, based on past inflation. In 2001, a new forward-looking indexation mechanism was implemented, being further modified in 2004, after accession to the European Union. The new indexation formula for wages was based on projected inflation, projected inflation in selected EU member states, as well as projected dollar/euro exchange rate. However, the mechanism also included a safeguard to allow additional wage increase in the event actual inflation exceeded a certain level.

In **Luxembourg** the implemented minimum wage setting mechanism is similar to France, in the sense that it combines an automatic indexation criteria with the government`s involvement in the decision process. The automatic indexation consists in adjusting the minimum wage rate by the same proportion with the CPI, every time an increase or decrease by 2.5% is registered in the CPI as compared to the previous quarter. The main difference between the mechanisms of France and Luxembourg consists, however, in the fact that in Luxembourg there is no

obligation of the government to consult social partners when setting the minimum wages, while in France recommendations are provided to the government by an expert committee before fixing the rates. In this sense, several recommendations were specified by the EU to Luxembourg in order to revise the wage indexation system[6].

In **Belgium**, the minimum wage setting mechanism is made up of both an indexation formula and a social partners` decision power as compared to France where the government adjusts the wages based on the advices provided by an expert body.

In **the Netherlands,** the minimum wage is set twice a year, in line with the contractual wages in the year before. In this case, minimum wage adjustments are generally made without applying the criteria set out by law in case of a threat to employment. In practice, the indexation of the minimum wage takes part when the inactivity rate (expressed as the ratio between the number of persons receiving social benefits and the number of persons in paid employment) is higher than 82.6%. Similar provisions are also met in Slovenia's labour legislation, while the Governments of Bulgaria, Hungary, New Zealand and United Kingdom also indicate in their reports to take into consideration the employment level when fixing the minimum wage.

1.3.2. The number of rates and scope

Only exceptionally minimum wage is set as an unique level; separate rates can also be foreseen for youth or more rarely for region/ agriculture/ fishery/ textile industry, restaurants/catering, domestic workers, doormen, qualified-unqualified workers) and still considered as pertaining to a single rate model.

In the federal systems, where a country's state or region maintains a certain degree of autonomy (like in USA), the rate for the region is considered of "national" value. Except for these situations, rarely the central authority set rates that vary by regions (Canada, the Japan for its 47 regions among them), cases that fit the model of multiple rates.

A common direction in the EU and OECD states is setting a sub-minimum level for youth, usually as % of the statutory minimum wage, on the premise that they are less productive (has to get used with the process, has to be trained). The targeted age is between 15 and 24 years old (Belgium, France, the Netherlands, UK, Poland and USA). The need for training could make the apprentices, as well as those with short history within a qualification (beginners, irrespective their age, those re-entering after long term unemployed), subjects of lower payment, also (Portugal, Slovenia, Poland, Germany, Korea). The reduction applies only for a definite period of time (3 months to the end of apprenticeship) (OECD, 1998; ILO, 2014; EC, 2016). A particular case is Hungary, having set a minimum for the qualified workers and a lower one for the unqualified ones or for those not working

[6] http://www.eurofound.europa.eu/observatories/eurwork/articles/working-conditions-industrial-relationslaw-and-regulation/wage-setting-mechanisms-pay-q3-2014-eurwork-topical-update

in their specialisation (so that being unqualified for the work they are de facto performing)[7].

Japan and Australia have reduced rates for people with disabilities, as they have their wage decreased proportionally to the deficit in their work capacity. In some countries, in the virtues of non-discriminatory principle (UK, Romania), persons with disabilities are entitled to the general minimum wage rate, but various forms of state support are available to employers for encouraging their hiring.

Pertaining to the group of multiple rate systems the Cypriot Government sets statutory minimum wages only for certain occupations where workers are considered to be in a weak bargaining position, while the Czech Republic and Slovakia set multiple rates based on difficulty of the occupation (OECD, 1998; ILO, 2014; ILO, 2016).

The sectoral variation of minimum wage is based on the nature of work of the sector. The criteria could lead to occupational variation of the minimum wage. In USA and Canada workers in sectors receiving tips have a minimum rate lower than other workers (in US is less than one third; in Canada is reduced by 15% than the general rate; ILO, 2014). The Maltese public authorities set simultaneously a national minimum rate and separate rates at sector level (Eyraud and Saget, 2005).

Some exceptions from the binding minimum wage could arise in particular contexts in which the public authorities (or Work Councils, bi-partite bodies competent to judge the case) can exempt entrepreneurs from paying the minimum wage. These derive from the opening clause procedure applied to collective agreements; these allow for applying less favourable conditions to workers due to firm's financial situation and the risk for jobs losses and competitively issues (Visser, 2013). Few such examples are: the possibility of temporary exempting an enterprise for the obligation to pay the minimum for their workers for economic reasons (the Netherlands, Ireland, Luxemburg, Malta), exempting of an employer from the increase while maintaining the former rate of the minimum wage if its overall costs are going to rise with more than 10% (Poland); postponing the increase in the case the company operates in deficit for several months (Slovenia) (ILO, 2014; EC, 2016).

Setting more levels for minimum wage increases the difficulties of the process. In the case of regional difference it matters what happens at border where the rates change (labour force mobility, enterprises movement). The multiple occupational rates could be too rigid and might not take into consideration companies' ability to pay them. Moreover, multiple occupational rates focus mostly on wage policy objectives, rather than on most vulnerable sub-groups of employees.

[7] www.wageIndicator.org.

1.3.3 Other relevant elements for the minimum wage setting mechanisms

Wage concept

The subject of the regulation induces some differences, too. Bonuses, seniority bonuses, related family allowances, allowance for non-standard working time (night shift, in public holidays) or special working conditions (high temperature, underground, isolation, exposure to risks or hazardous substances), payment for the over-time worked, in kind benefits, gifts, tips or productivity and performance pay can be included or can be added to negotiated rate.

For instance, Hungary expressly refers to the basic wage, while Slovakia does not include supplement for working on public holidays, at night or in difficult working conditions. France, Slovakia, Romania do not include overtime payment, USA, Canada, France include tips in the minimum wage, UK does not (these come in addition to minimum wage), while Portugal includes the sales commissions and production bonuses due to their regular and permanent nature.

The issue of monetary/ non-monetary payment rises from the fact that employers could provide their employees with amounts for housing, food, transportation, health or education services, as well as benefits in kind linked to their work. In Mexico, Spain, Malta and Romania in kind remuneration is excluded, while USA, Luxembourg, France consider them part of wages (ILO, 2014; ILO, 2016).

Work duration

Minimum wage can be set hourly, weekly or monthly. When non-hourly wage is set there is reference to the corresponding expected hours to be worked per time unit (usually 8 hours/ day, 5 day/week). In the European and OECD member countries, the legal standard working duration is between 35 and 48 for 5, respectively 6 days per week. The attention given to working duration comes from the preoccupation for workers' health protection, from nowadays expectancies for balancing professional and personal/familial life, as well as worries on reduced productivity and work accidents due to fatigues (more in Lee et al., 2007). Thus, in some cases a maximum working duration per time unit is also mentioned. This is between 9 (Belgium, extendable to 11 under strict regulation and mutual consent) and 12 (Romania) hours per day. Usually, both weekly and daily maximum are explicitly mentioned (like in Turkey with a standard of 45/ 7.5 hours, which cannot exceed 66 hours per week and no more than 11 hours per day) (ILO, 2014; *www.wageIndicator.org*). The maximum per day within a week not stated could have practical implication, not hindering occasional peaks in *productive flows* while limiting the amount of overtime worked.

Frequency of activating the mechanism; adjustments

Pre-setting regular revision of the minimum wage rate is useful not only for employees, in order to avoid the erosion of their purchasing power due to inflation, but also for employers, who can anticipate possible rises in their labour costs. The

revision can end with or without a change in the rate, depending on the economic context.

Usually, the level of minimum wage is revised yearly, while less frequent are twice a year, over a 2-3 years period or under unclear conditions. Elements of the mechanism could have their own monitoring period, with different frequency than the wage itself. Such examples are the income tax and social security annually revised in Turkey (*www.wageIndicator.org*); decision availability of some institutions (Italy, Belgium) or collective agreements valid for 2-4 years period (with shortening tendency after 2008 crisis; Eurofound, 2014). Other examples are the nomination of the members of the expert group involved in decision upon the minimum wage valid for a period of five years in France (ILO, 2016) and the US example of federal minimum wage level which has changed only 5 times in 20 years, set at very low levels (Dickens, 2015).

As mentioned before, countries can combine the dialog upon the minimum wage with some automatic procedures for adjusting the rates. France increases the wages when inflation rate reaches 2%, Poland increases wages biannual when CPI is higher than 105%, Spain whenever the price forecast is not met in a year (*www.wageIndicator.org*). Some states in the USA schedule by law the increase of their minimum wage for a period of several years, in stages, or in relation to the federal rate, keeping it in some limits in relation to the latter. At the end of the scheduled period minimum wage stays at that limit until new law provision; the adjustment to inflation is a separate procedure in this case (Bradley, 2016; see also the indexation mechanisms presented in section 1.3.1.3).

Workers' needs; living wage

The social aim of minimum wage directs the attention of the decision makers toward the cost of living. Answering the question of how much is required for the workers' family to live at least a modest, decent, socially acceptable life immerses into the topic of poverty measurement. One living below the poverty level is considered as having insufficient resources, being, thus, poor. A wage aiming at covering the cost of living is referred to as living wage.

The measurement procedure is by far not simple. Despite the constant search for objectiveness in defining what the minimum consumption would be, in terms of quantities and structure (nutrition requirements, types of goods and services along with their prices), significant subjective assumptions are also involved. The consumption changes significantly with time and some of the goods that were once used can no longer be considered as basic needs today.

Large categories of consumption are usually considered when defining a living wage: for food, housing, health care, transportation, child care, education, taxes or others. It is noticeable that some depends on household size (food), some on age (health, child care) and some on locations (housing, transportation).

Due to the elaborated process of defining the minimum need and its debatable results, the link to the living wage is rarely used as a criterion for minimum wage setting (Anker, 2006; Anker, 2011; Luce, 2012). But, since the hope

for a decent life is a major trigger for people to seek employment, the decision makers should also consider the living wage as a possible minimum wage criterion.

In countries like UK, USA, Canada or New Zeeland[8], NGOs, institutes or universities supported the living wage implementation by providing cost of living computation at local/municipal level and campaigning the living wage. In USA (since early 90s), as the level corresponding to the living wage was higher than the poverty line, which was above the minimum hourly wage, the campaign supporters have turned their attention in fighting for a minimum wage rise up to at least the poverty level and focused their attention on local/ municipal level, where the community voice was expected to be more easily heard and implemented in wage bargaining (Luce, 2012). UK states clear distinction between the living wage and the minimum one: the last one is compulsory and lower than the first one, set at a level which does not menace employment. The living wage is agreed upon voluntarily by the employers. Its campaign (re-emerged in 2001) seemed fuelled by the high proportion of the low paid workers (around 21% in 2011[9]), aiming at improving the living standard of workers at the bottom of the earning distribution throughout work and not state income support schemes. One of the concerns of the living wage supporters is to cover the private sector as well, and to act in favour of the measures by helping the small enterprises to adapt their business to wages increases (Lawton and Pennycook, 2013).

Drawn on several methodologies for computing the cost of living Anker (2011) identified the following common features: several expenditure classes considered (in highly developed countries taxes explicitly included), several family types (the standard being that of four with two adults and two children, which ensures population replacement), adjustment to the number workers in the households and an amount for unforeseen family expenditures. Another observation refers to the high variation in housing, transportation and care costs between regions/ local rates, depending on the local specificity. Such cost of living computations are made available for public, both employers and employees knowing the amount reasonably expected in accordance to the local context. Anker itself (2006, 2011) proposed a practical procedure for living wage computation that is worldwide applicable, starting from a balanced nutritional low cost diet, but expressing the national consumption pattern. Based on Engel's law the non-food consumption is determined. This consumption per capita is scaled to households' size and equivalent full-time workers within them (see also section 1.5).

It is relevant to note that the cost of living is not related to employers' competitiveness, as it is a social/family concept. Thus, it is linked to social and employment policies, which promote implicitly a family model; more accent on work related benefits, well developed care services, favourable context for part-time,

[8] https://www.unison.org.uk/our-campaigns/the-living-wage/, http://www.livingwagecanada.ca/, http://www.livingwage.org.nz/the_living_wage_movement,

[9] For comparison, the ration of low wage earners vs total employees was in 2014, 24.4% in Romania and 21.3% in UK (Eurostat, earn_ses_pub1n)

temporary or flexible employment would favour increased employment and impact both the households' size and the number of workers within them.

Ultimately, from the workers' needs perspective it is relevant to also take into consideration the in-kind payment or other allowances paid by employers to their employees, food vouchers, transportation costs, child or health care services leisure or tax regime for the poorest deciles.

1.4 Case studies of minimum wage systems in the EU

The particular context of one country can influence the process of fixing the minimum wage. Its country`s history and openness towards social dialog, its technological and industrial development, inequality at regional or individual or opportunity for development in the country, the extend of dialog between enterprises and education and training institutions, the ties between minimum wage and social benefits, stability of nature of its political regime are among the factors that could influence the nature of minimum wage fixing mechanism and its level. Considering some of these factors we have a closer look on several countries. Hence, we propose a guiding context for observing minimum wage systems, analysing those with better social outcomes within similar pattern of economic dynamic and employment characteristics. Complementary indicators could be considered as they do express relevant or challenging features of minimum wage.

1.4.1 Methodology for observing good practices in minimum wage setting mechanisms

To better and objectively observe some good practices in establishing the minimum wage across Europe, the research team has decided upon using the hierarchical cluster method in order to see how European countries gather together, function of their economic context. The analysis was then followed by an *in cluster* statistical analysis of the indicators that capture the social background of each country.

The various economic and social indicators have been collected from Eurostat and OECD databanks for the following countries: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom.

In order to create a balanced design of the database, all indicators have been collected for 2013, although for some of them there were data available for 2014 and 2015.

In applying the planned methodology, the following steps have been carried out:

Step 1: The research team has identified the following indicators that best describe the economic and labour market context of each country:

- Self-employed as percentage of employed people;
- Part-time employment;
- Long-term unemployment (annual average);
- Gini coefficient of equalised disposable income before social transfers (pensions included in social transfers);
- Real labour productivity per person employed;
- Growth rate of real GDP per capita;
- Temporary contracts (% of total employment);
- Youth employment (%);
- Inactivity rate (% of total population).

Although considered as appropriate for the clusterisation purpose, the following indicators have been ruled out, due to missing data:

- Percentage of employed adults working at home by sex, age groups, number of children and age of youngest child;
- Labour Market Policy expenditure by type of action.

Based on the indicators mentioned above, the hierarchical clusterisation method implemented in SPSS has been applied in order to identify the European countries which have similar economic background. By opting out for Ward method, the following dendrogram was obtained.

As it can be gleaned from figure 1.3, four main clusters have been achieved:

Cluster 1: Germany, Austria, Luxembourg, Latvia, Denmark, Sweden and Estonia;

Cluster 2: Belgium, France, Slovenia, Ireland and Poland;

Cluster 3: Italy, Greece, Spain, Portugal, Bulgaria, Hungary, Romania and Croatia;

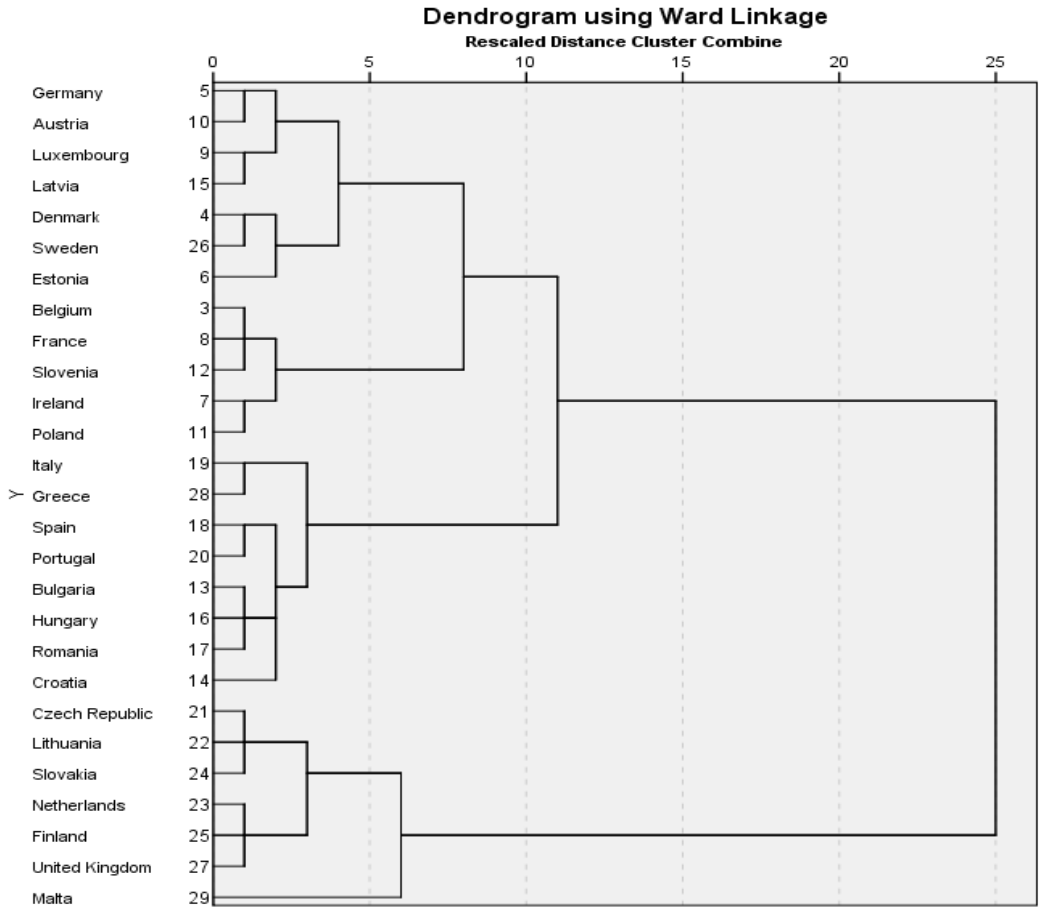
Cluster 4: Czech Republic, Lithuania, Slovakia, Netherlands, Finland, United Kingdom and Malta.

Romania is to be found in the same cluster with its neighbours and also former socialist countries: Bulgaria, Hungary and Croatia, along also with Italy, Greece, Spain and Portugal.

Step 2. For each identified cluster we have selected the countries that have minimum wage mechanisms implemented to treat as best practice, taking into account certain social aspects (that best describe the impact of social policy in those countries), as well as the degree of unionization that exist in those countries. The database of the socio-economic indicators used in the analysis is presented in Annex 1.

Although we cannot state that the levels of social indicators taken into consideration are entirely the effect of the minimum wage mechanism, the latter is a part of the social policy of a country, therefore the social indicators might shed some light on the countries for which we can state that the minimum wage mechanism has facilitated a more favourable social context, a better quality of life for the people that receive reduced salaries and a lower in work poverty rate.

Fig. 1.3 The dendrogram of European countries by using Ward Linkage



Source: authors own calculations

Based on the assumption that minimum wage may trigger a reduction in the risk of in-work poverty for low paid workers, several social aspects were considered to better reflect the low paid workers` standard of life.

The following indicators have been, therefore, analysed:

- Inability to afford a meal with meat, chicken, fish (or vegetarian equivalent) every second day;
- Arrears (mortgage or rent, utility bills or hire purchase);
- In-work at-risk-of-poverty rate by age and sex;
- Housing cost overburden rate.

However, we are aware of the methodological limitations of this study. This approach can only offer a static image of the socio-economic context of the countries considered in the analysis. Therefore, the cluster results, as well as the conclusions drawn from it, only refer to a specific moment in time and cannot be generalized over a longer time-frame.

Moreover, since each country actually has very specific socio-economic situations, it becomes quite obvious that each minimum wage setting mechanism has several country-specific characteristics that will make the comparisons between countries rather difficult.

Under these circumstances, our attempt will only focus on identifying several case studies belonging to specific country-categories, for which different mechanisms for minimum wage setting could bring some examples of best practices.

The authors are, however, aware that in terms of best practice, there is no such a thing of an example of minimum wage setting mechanism that can be universally applied in other countries. However, the selection of case studies will bring insights on country-specific situations where different models of minimum wage fixing can work effectively.

The specific results for each cluster, along with the main selected case studies are presented next.

1.4.2 The case of countries corresponding to the first cluster

Among the countries belonging to this cluster (Germany, Austria, Luxembourg, Latvia, Denmark, Sweden and Estonia) we can easily identify two main sub-groups, based on the degree of unionisation. Among the countries with very high level of trade union (around 67%) there are Sweden and Denmark, as compared to the cases of Luxembourg (32.8%), Austria (28.7%), Germany (18.1%) or even Estonia (only 5.7%).

In terms of the lowest inability to afford a meal with meat, chicken, fish (or vegetarian equivalent) every second day, arrears, in-work-risk-at-poverty, as well as housing cost overburden, Sweden is by far on top of this country group, followed by Luxembourg, Denmark and Austria.

In general, we notice that this first cluster captures in a considerable proportion the minimum wage mechanism known as "collective bargaining", mainly specific to the Nordic countries (Denmark, Sweden), but also to Austria and Germany which has a newly implemented statutory minimum wage. As compared to these countries, however, in Luxembourg there is no obligation of the government to consult social partners when fixing the minimum wage level.

Although none of the Nordic countries has a statutory minimum wage, when having a closer look at these cases, we notice that, several particularities do arise from their mechanisms for minimum wage setting. More precisely, in case of Denmark and Sweden the minimum wage rates are set based entirely on collective agreements, while Finland, Iceland and Norway apply also extension mechanisms in order to cover all industry level workers[10].

More precisely, in Denmark and Sweden, the collective agreements are compulsory only for those who have signed them. The system of collective

[10] http://www.ilo.org/global/docs/WCMS_460934/lang--en/index.htm

agreement covers approximately 89% of employees in Sweden and about 84% in Denmark. Virtually, all Swedish citizens belong to one of about 60 trade unions and 50 employers' organizations that negotiate wage rates for regular hourly work, salaries and also overtime. The minimum wage tends to hover around 60-70% of the average wage in Sweden. In Norway, EU enlargement in 2004 caused these practices to be supplemented by an extension of collectively agreed wage rates in industries that absorbed many migrant workers from the new member states with a coverage rate of only about 67%.

Finally, in both Finland and Iceland, coverage of collective agreements is also prevalent, of about 90% of workers. Finland extends all national collective agreements that have an industry coverage exceeding 50%. In Iceland negotiated wages apply to all employees who perform work of similar type.

In Austria, not every employee is entitled to a certain minimum income, since there is no general-purpose wage undercutting. In some sectors, however, there are collective agreements and, from time to time, minimum wage agreements which provide for a certain salary.

In late 2015, Austrian white-collar union GPA-djp started a campaign in which they demanded a monthly gross minimum wage of 1,700 EUR in all collective agreements to be implemented. This has been reached in the 2015 metalworking industry agreements.[11] The minimum wage per hour can vary depending on the industry. As a rule, however, the wage ceiling is at least 1500 euros gross.

Denmark, Finland and Sweden (where a minimum wage does not exist) did not have significant discussions about the issue and no relevant organisations proposed the introduction of a statutory minimum wage in 2015.

1.4.3. The case of countries corresponding to the second cluster

In the second cluster (consisting in Belgium, France, Slovenia, Ireland and Poland) there are only three countries that step forward in terms of low in-work-risk-at-poverty, as well as the other social factors that describe the quality of live for low paid workers. This is the case of Belgium, Ireland and France, which provide examples of minimum wage mechanisms that facilitate a more favourable social context as compared to the other cluster countries.

Out of them, Belgium presents special interests as it is the only country with very high trade union density (55%) of this cluster. At the opposite side is France, which despite of a long history of strong minimum wage system and pioneering in the European minimum wage policy (Schulten, 2014), has a trade union density reaching only 7.7%.

[11] http://www.eurofound.europa.eu/observatories/eurwork/articles/working-conditions-industrial-relations/statutory-minimum-wages-in-the-eu-2016

The case of Belgium

In Belgium, the National Labour Council has been determining the minimum wages since 1975. The minimum wages are put down in collective agreements that are mandatory. The level of the minimum wage has two rates, an increasing one for workers until they reach 22 years old and one that is applicable to all over 22.

Three parties are involved in setting up the minimum wages: the National Labour Council, employer organisations and trade unions. The increase in minimum wages is decided upon national level consultations and it is based on consumer price index. The social partners decide on a maximum increase of wages, known as wage norm.

Since December 2012, the average monthly minimum gross income has been[12]:

- for workers aged 18 and more: € 1,501.82;
- for workers aged 19 and a half, with six months' work experience: € 1,541.67;
- for workers 20 years, with 12 months' work experience: € 1,559.38.

The specificity of the Belgian's minimum wage scheme is "that it is the only one offering effective dual protection against low wages: it combines a national statutory minimum with high collective bargaining coverage and binding wage floors defined in sector agreements. While the French system also combines a national minimum with sector bargaining, collective agreements in France often fail to increase the minima above the national level (many collective agreements include wage floors below the SMIC)" (Garnero, 2014).

On the evolution of the Belgium mechanism of setting up a minimum wage we can distinguish the following periods:

- before crisis: the Belgian wage bargaining was rather suggestive on central level, with margins for negotiations on sectoral level;
- during crisis: there were not significant changes, but a shift towards tripartite and governmental level discussion were noticed;
- the years 2009-2010: The negotiations between employers and employees representatives on the inter-sectoral Agreement (IPA) were problematic and only fruitful thanks to the financial mediation of the government;
- the years 2011-2012: Negotiations on the IPA failed, as the wished-for agreement was disallowed by the members of the Federation of Liberal Trade Unions of Belgium and the Belgian General Federation of Labour, so the government decided to enforce the draft-IPA.
- the years 2013-2014: this period is the actual low point as there was not even a draft agreement and the government decided itself not to allow extra wage increases above the automatically wage indexation.[13]

The impact of the minimum wage is frequently measured by the "bite" of the minimum wage. Two indicators are frequently used to measure this "bite":

[12] http://www.wageindicator.org/main/salary/minimum-wage/belgium

[13] http://www.eurofound.europa.eu/observatories/eurwork/comparative-information/national-contributions/belgium/belgium-changes-to-wage-setting-mechanisms-in-the-context-of-the-crisis-and-the-eus-new-economic

- **The Kaitz index** which is defined as the ratio of the minimum wage to the average wage of the working population. The Kaitz index is thus a measure of the 'bite' of the minimum wage: small values indicate that the wage floor is a long way from the centre of the earnings distribution and its impact therefore potentially low; conversely, a high Kaitz index reveals that the minimum wage is close to the centre of the distribution 8 and that it potentially affects a larger number of employees.
- **The share of workers below and near the minimum wage** which is reflected by two indicators:
- The proportion of employment paid below the minimum wage (also an indicator of the non-coverage or non-compliance.
- The "spike" of employment paid exactly the minimum wage.
- *To conclude, we consider that Belgium may provide an example of good practice in terms of minimum wage setting mechanism, as it introduces some quantitative measures to capture the effect of the minimum wage mechanism. It also provides for different minimum wage rates function of the age of the workers. It is a mechanism that offers effective dual protection against low wages, as it combines a national statutory minimum with high collective bargaining coverage and binding wage levels defined in sector agreements.*

The case of France

In France there is a mixed minimum wage setting mechanism implemented, as the government adjusts the rates based on the recommendations of an expert committee, but automatic adjustments of the rates are also possible.

The minimum wage was first introduced in France in 1950. It was called SMIG –the "*guaranteed inter-professional national minimum wage*"[14]. Being indexed only with the Consumer Price Index (CPI), it could not keep pace with the average gross earnings being boosted by productivity gains. Since not even the sharp increase in SMIG set in 1968 could reverse this trend, SMIG was replaced in 1970 by SMIC—the inter-occupational minimum growth wage[15].

While SMIG was the guaranteed minimum income that helped workers meet the basic needs of their family, SMIC was designed as a dynamic impulse response to widen employees' participation in the benefits of growth and also to narrow wage inequalities. SMIC's rates are set annually by the government on the first day of January, after receiving recommendations from an expert body (Husson, 2012).

According to a decree[16], SMIC's adjustments are made based on the following aspects:

- The rise in the CPI (excluding the prices of tobacco) for urban households belonging to the lowest disposable income quintile;

[14] Salaire Minimum National Interprofessionnel Garanti

[15] Salaire Minimum Interprofessionnel de Croissance

[16]https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000027041943&fastPos=1&fastReqId=1813763297&categorieLien=id&oldAction=rechTexte

- Half of the average hourly wage growth (expressed in purchasing power) is then added to the result;
- Automatic adjustments are made in case inflation goes up by more than 2% within a year;
- The government's annual reviews are also relevant[17]

Although bound by the formula, the board may recommend increases higher than those implied by the CPI so far it has never been done so.

Wages in France are set at three main distinct levels: nationwide, across industries and also inside the company. At the national level, as already seen, the government sets the minimum wage according to the strictly established rules of the annual review, but on a discretionary basis. At the sector level, trade-union and employer organizations bargain every year on the so-called 'conventional minimum wage', i.e. the wage floor an employer cannot cross for a given set of qualifications.

Exceptional rates are also applied in France for the case of young workers, in the following manner:

- around 80%-90% of SMIC for workers under 18 and with less than six months work experience
- 80% of SMIC wage for workers under 16 working during the summer holiday
- 25%–78% of SMIC for apprentices

Based on the French minimum wage mechanism characteristics, we believe that the case of France can provide an example of good practice, in terms of fixing and setting the minimum wage rates. As noted, the French minimum wage mechanism implies annual indexation based on a fixed set of rules, mostly concerning the CPI level. Although Romania is now facing a temporary deflation process, the particularities of the French mechanism can still shed some light on the possibility of mixing a fix set of rules (based on different social and economic factors) with the involvement of an expert body.

The case of Slovenia

In Slovenia, a mixt minimum wage indexation mechanism is in place. According to the OECD, union density fell gradually in Slovenia during 2003-2010 as a result of structural changes required in the transition process and run-up to euro adoption (EIROnline 2010). During the transition, several high union density sectors (such as mining, textiles and leather) have undergone a severe downsizing process, while temporary workers were hired on fixed-term contracts having little incentive to join trade unions (EIROnline 2010).

Regarding the wage bargaining in Slovenia in the private sector, there are three levels of negotiations. First there is a general agreement at national level upon the wage indexation mechanism that will be binding for the entire private sector. Further on, there are sectoral and enterprise-level negotiations upon additional wage increases based on financial performance, productivity growth and other considerations. One particularity consists, however, in the fact that the high level

[17] the so-called 'coup de pouce'

agreement also includes escape clauses in order to allow enterprises in financial distress to defer specified wage increases under certain conditions (Banerjee et al., 2013).

Until 2005, the minimum wage rate was set within a framework of a tripartite agreement between the government, employers and unions. Since then, the government stopped the negotiations and has been setting the minimum wage alone, following consultations with employers and unions. Due to the Collective Agreement Act 2006 that allowed collective agreements to be negotiated on voluntary basis, collective bargaining at the sectoral level became dominant. However, it is worth mentioning that the prevailing practice of full coverage of general and sectoral agreements remained in effect for a three-year transitional period.

In 2010 a new change in the minimum wage mechanism occurred when the Minimum Wage Act replaced the Minimum Wage Act from 2006[18]. The new act allowed a two year transition period for employers to increase the minimum wage progressively in case the immediate increase in minimum wage would cause major company loss and endanger the company's existence. These exceptions were allowed upon the agreement with the trade unions or work councils. Since 2010 no major development regarding the minimum wage mechanism took place. After the transition period ended, the number of employees on minimum wage more than doubled, from 19.047 in 2009 to 48,625 in January 2013.

Since 2013 when the new Employment Relationship Act came into force, social partners are facing the difficult task to renegotiate collective agreements, where employers think the existing collective agreements are too demanding and trade unions try to keep the employee standard at similar grounds.

Although the Slovenian minimum wage mechanism suffered several major changes in the last decades and differs significantly from the Romanian minimum wage fixing procedures, ***the case of Slovenia does provide an example of good practice, mainly in terms of implementation of a minimum wage increase policy. As noted, the Slovenian government allowed a transition period every time a major increase of minimum wage occurred. The transition period consisted of a two to three year time window for employers to increase the minimum wage progressively in order to avoid major company loss or to endanger the company's existence.***

1.4.4 The case of countries corresponding to the third cluster

Considering the eight countries included in this cluster (Italy, Greece, Spain, Portugal, Bulgaria, Hungary, Romania and Croatia), out of them all, Italy is the only one characterized by a higher trade union density (37.3%), due to the increase

[18] http://www.eurofound.europa.eu/observatories/eurwork/comparative-information/national-contributions/slovenia/slovenia-changes-to-wage-setting-mechanisms-in-the-context-of-the-crisis-and-the-eus-new-economic

decision power of collective bargaining. However, there is no statutory minimum wage rate applicable in Italy yet, although attempts were recently made in this direction, but faced the trade unions criticisms.

On the other hand, when considering the social indicators regarding in-work-poverty and the quality of life of low paid workers, Portugal, Spain and Croatia are found among those with the more favourable social context. All of these countries have clear minimum wage setting mechanisms that rely on several socio-economic criteria, such as the poverty threshold for a single household and consumer price index evolution which can be considered good practice.

On the contrary, in Romania, Bulgaria and Hungary, for instance, there is no clear regulation or body of law specifying the mechanisms for the minimum wage determination based on specific socio-economic criteria. As a particularity of these countries, the minimum wage is determined by the government, after following consultations with social partners. In Bulgaria, for instance, the minimum wage is determined by the government following non-binding consultations with third party (the National Council for Tripartite Cooperation) which holds an advisory role in setting up the statutory minimum wage. In Hungary, the government sets up the minimum wage after consultations with National Economic and Social Council and social partners, but if no agreement is reached the government has the right to put its proposal forward.

Unlike Romania and Bulgaria, however, that have only one minimum wage determined on national level, in Hungary there are two types of minimum wages: a national minimum wage for employees without any profession (unskilled workers or employees who are skilled but work in a position which does not require certification or skills) and a guaranteed minimum wage for professional workers that is established in accordance with the level of education/vocational training required for a particular job or position. Minimum wage is revised January of every year.

Several similarities can also be noticed between the case of Romania and the one of Croatia. For instance, in Croatia the setting up mechanism also assumes that the Ministry of Labour has the duty to consult with the social partners and to suggest the level of the minimum wage to the government. Based on the minister's suggestion, the minimum wage is then determined by the government.

However, the main particularities consist in the fact that in Croatia there are specific references clearly defined for setting up and upgrading the level of the minimum wage. Such criteria refer to the poverty threshold for a single household and the consumer price index evolution which can be considered a good practice. Several other examples of good practices in minimum wage setting are also found in Portugal and Spain. These two cases will be, therefore, further on presented into more details.

The case of Portugal

In Portugal, minimum wage is set by the Permanent Commission for Social Dialogue, which is composed by the Prime Minister and four ministers, employer organizations and trade union confederations. The minimum wage is published in a

Decree. The law determines three minimum wages: a national one for Portugal, one for the Autonomous Region of Azores and one for the Autonomous Region of Madeira. Minimum wage is calculated monthly and it has one fixed component and according to the law it should be updated annually. Similarly to Spain, the changes in minimum wage take into considerations the needs of employees, the ever increasing cost of living and productivity growths, the prices and income policy.

The minimum wage in Portugal is currently 557 euros per month. To these 557 euros the workers will have to add the holiday subsidy and the Christmas subsidy, to which they also have the right by law.

In January 2017 the minimum wage increased by about 5% in mainland Portugal. This increase represents 27 euros. In the Azores, the minimum wage is 556.50 euros and in Madeira is 540.60 euros monthly. Despite the increase in 2017, the Portuguese minimum wage remains one of the lowest in Europe. The increase applies to workers receiving the minimum wage in Portugal. It is estimated that 20% of the active population receives minimum wage. The government expects the minimum wage to increase to € 580 in 2018 and € 600 in 2019.

What we believe to be of particular interest is the fact that although the minimum wage rates registered in Portugal are among the lowest in Europe, the social indicators do suggest a rather favourable context as compared to the other countries belonging to this cluster. Thus, we believe Portugal to provide an example of good practice in terms of minimum wage setting mechanism for the rest of the countries with similar economic backgrounds.

The case of Spain

In Spain, as an overall shape of the mechanism one can affirm that the minimum wage is set up by the government, after consultations with trade unions and employers organisations. The minimum wage, also known as SMI (*Salario Mínimo Interprofesional*) is the minimum imbursement received by the employee for a legal number of working hours in any sector or activity, without distinction of gender, age, fixed work, casual or temporary work or personal work within a household.

The minimum wage is fixed annually by the Government, by means of a Royal Decree, after consultation with the most representative trade union organizations and business associations, taking into account the consumer price index, national average productivity achieved, the increase of labour participation in the national income and the general economic condition. The minimum wage in Spain is determined at occupation level. The Royal Decree specially mentions rates for domestic service workers and temporary workers. Adjustments to the minimum wage are decided by the Government after consultation with employers and trade union representatives.

The minimum wage is established every December for the next year. Last December, the Government approved an 8% increase of the inter-professional minimum wage for 2017, from euro 655.2 to euro 707.6. The new level of the minimum wage is the result of an agreement between the executive and the Socialist

Party of Spanish Workers (in Spanish: PSOE – Partido Socialista Obrero Espanol). The trade unions have requested a minimum wage of euro 800 as they think that despite the recent increase, the amount is still insufficient.

The first benefit of the increase of the minimum wage is that workers who earn a minimum wage will see their purchasing power improving. It can also be positive in terms of productivity. It can even have a favourable effect on worker efficiency by reducing the turnover rate of workers and increasing their involvement within the company. The most cumbersome issue is to find the point of equilibrium that allows improving the standard of living of the workers who charge it without fomenting unemployment in the less favoured classes, who are trying to favour an increase of the minimum wage. The employer always warrants that the danger of this rise is that a contagion effect can occur in the collective bargaining of wages in labour agreements if unions push with rises that companies are not willing to grant.

We can consider the case of Spain as a good practice as it takes into consideration several economic indicators when setting the minimum wage rates, such as the national average productivity achieved, the increase of labour participation in the national income and the general economic condition.

1.4.5 The case of countries corresponding to the fourth cluster

In this last cluster (consisting in Czech Republic, Lithuania, Slovakia, Netherlands, Finland, United Kingdom and Malta, there is only one country with high trade union density. This is the case of the Nordic country - Finland, where actually no statutory minimum wage is applicable. Among the other countries belonging to this cluster, the Netherlands and United Kingdom are considered to have a minimum wage mechanism that has facilitated a rather more favourable social context. Therefore, the attention will focus on the particularities of the minimum wage setting mechanisms of these two countries.

The case of the Netherlands

In the Netherlands wages are set through collective agreement, but a minimum wage does exist for adults over 23 and separate rates for youth up to that age. The minimum wage rate is revised twice a year, in relation to the average negotiated wages in collective agreements. There is also a social benefit related indicator which activates the revision.

The first initiative of a minimum wage goes back in 1964, when social partners agreed upon a national level, meant to the household breadwinner, and a twice a year upgrading procedure. This was in line with the previous practice that of all outcomes of the negotiations had to be approved by Government appointed officials, interesting explicitly the corresponding income for unskilled full time breadwinner. The Law regulating minimum wage was issued just in 1969, to be applied to all workers above 24, irrespective men or women, or their position in the household, and only to those working at least one third of the normal working time.

Youth were particularly targeted in 1974, when after reducing the adult defining age from 23 to 24, differentiated rates were established by age down to 15 years old.

In early 70s a complementary revision procedure was set; to the biannual revision of the minimum to the wage dynamic, which in practice linked it to the average by a percentage, a four-year general revision was added. This moment also ends a period (after 1969) when minimum of social benefits had been explicitly linked to the minimum wage.

The current feature of the Dutch minimum wage mechanism was set in 1993, when the condition on weekly working duration was eliminated, minimum wage covering those in small part-time employment too, and that of no uprating the minimum wage if the national 'inactive-to-active ratio' exceeds 82.6 per cent was introduced. The *inactive* cover all those receiving social benefits, including old age public pension, while the *active* refer to all employed people, irrespective of their working hours.

While in theory, the mechanism separates the minimum wage dynamic of political intervention, in practice there were decisions of the Government to lower one or another of the rates or to froze them for several consecutive years (some time invoking the four-year special revision).

The precise "long tail" of rates for youth allows smoothen youth entrance on the labour market. The rate for people of 15 years old is only 30% of the minimum adult rate, reaching 52.5% at 19 years of age and going closer to the adult minimum by around 10% in each year after that (in 2008). The rationale behind these rates is also interesting, namely: the less work experience the youngsters have, the lower basic needs they have (living with parents, not providing for a family) and the necessity to prevent education drop out. So that, when the tertiary education comes to end in a sequential formal education (at 22 years of age) the minimum rate of the youth is 85% of the adult minimum rate.

The explicit link to the social benefits, gives coherence to social policy by placing minimum wage at its core. The counter effect is that of inducing general moderate increase of minimum wage, due to the induced effect on social expenditures.

The country is known for its very high employment rate, for which an important role plays the non-standard form of employment (part-/flexible time, definite time, temporary agency); full time employment represents only one quarter of employment[19]. But, while the employment has increased over the last decades, parallel to increase in women employment, the hours worked have not (extended country profile in Salverda, 2008).

The case of the Netherlands is of interest due to its high rates of employment rates, alongside to the lessons one could learn from the gradual increase in youth payment and the extension of the non-standard forms of employment and the explicit link to the social benefits.

[19] For comparison, Romania has youth employment rate among the lowest in Europe, and fix term or part-time contracts below 2% of its employees. (computation based on INS_Tempo data).

The case of UK

In the UK, the process began in 1997 when the Low Pay Commission (LPC) was set up to implement a minimum wage fixing system. After a two-year process, the first national minimum wage rate was set in 1999 without sectoral or regional distinctions. Although there is just a single national minimum wage rate set in UK, there are three distinct minimum wage rates according to workers' age (under 18 years old, between 18 and 21 years old, and adults over 21 years old).

The LPC is made up of nine commissioners: three employer representatives, three with a background in trade unions, two independent members of the academic community specialised in labour issues and a chair. The task of the LPC is to monitor the minimum wage implementation process and to deliver policy recommendations to the government (Low Pay Commission 2010). In order to do that, the commission conducts empirical research, studies written and oral evidence from interested parties and organizations and visits to employees and employers in the low-paid sectors across the country. The structure of the expert body adds higher credibility to the proposed minimum wage rate, making it a rather trustful recommendation for a government.

Minimum wage increases are made yearly by the government following the recommendations of the LPC, which evaluates the direct impact of the changing rates in the minimum wage.

According to Benassi (2011), the introduction of the minimum wage was estimated to affect approximately 2 million workers in 1999. By 2008, however, UK made up 4.3% of the labour market, recording less than 1.13 million minimum wage jobs (Low Pay Commission 2009). Different empirical studies have shown that low-paid workers have experienced higher wage increases after the introduction of the minimum wage. Moreover, a positive impact of the minimum wage upon the end of the income distribution is also to be expected in the UK (Butcher et al. 2009).

We conclude that the UK case offers a variety of good practices of minimum wage implementation, showing that overall the minimum wage is best implemented when a variety of methods are combined.

Drawing inspiration from the special particularities of the UK minimum wage mechanism and looking to the broader field of labour regulation, there are several suggestions for improvement in the minimum wage mechanism. In this sense, Germany and Ireland already took the UK's example of good practice and focused on forming an expert body similar to the UK LPC in their own countries.

For instance, in Germany, after the introduction of the first national minimum wage in 2015, a new minimum wage commission is under consideration to be formed so to assure a similarity to a certain extent to the UK model. The only difference will consist in the fact that the commission will only be made up of employer and employee representatives that do not have a formal position on the commission and do not vote on proposed changes to the minimum wage. In the case of an even split within the commission, the chair has the deciding vote.

A similar case is also to be found in Ireland, where until recently there was an industrial relations body called the Labour Court, which made recommendation

upon minimum wage levels to the government. However, in order to introduce more stability to the rate setting process, the Irish government recently set up a commission with a structure similar to that of the UK LPC.

1.5 Criteria for the minimum wage indexation mechanisms

In theory, regarding the main criteria for fixing minimum wages, according to ILO's Convention no. 131 there are several elements that are specifically recommended to be taken into consideration when setting minimum wages. In this sense, two main general perspectives are suggested to be considered in the process of minimum wage fixing, one referring to the economic factors and a second one focusing on the needs of workers and their families.

Social factors

The necessity to take into consideration the needs of workers and their families can be drawn on one of the key roles of minimum wages, consisting in ensuring an adequate social protection for all employed persons. Thus, aspects such as the general level of wages in one country, social security benefits, the cost of living and the relative living standards of other social groups are recommended to be taken into consideration.

Among these social factors, the most frequently used is the **cost of living**, which should guarantee workers a certain purchasing power. However, despite its relevance, there is often no clearly specified procedure to measure it. In this sense, for instance, Anker (2011) argues that it is important to take into consideration the household size, as well as the number of full time employees belonging to the household with minimum wage employees.

Therefore, it becomes important to characterize a typical low income household, as well as to define household size using adult equivalence scales that take into account the different consumption needs of household members based on their age.

The general formula for the minimum living wage is the following[20]:

$$\text{Minimum living wage} = \frac{(\text{Poverty line} * \text{Adult equivalents in the household})}{\text{Household members who work full time}}$$

Sometimes, however, periodical adjustments to the minimum wage rates based on the cost of living can be made by simply considering the consumer price index (CPI) or the inflation rate in the minimum wage indexation.

Several other social factors can be considered in the minimum wage setting mechanism, as well. For instance, the relation to poverty is debated, knowing that poverty usually affects those outside the formal/legal labour market. The risk of rising unemployment once the minimum wage increased keeps poverty in the monitoring list.

[20] Source: ILO. 2012. Social justice and growth: The role of Minimum wage

The indexation mechanisms could, however, act reversely too, as wages follow the price changes. Thus, the general level of wages in one country could become a plausible criterion for minimum wage setting (ILO, 2014).

Some relevant country specific factors concerning the general level of wages could be:

- The Kaitz index (the ratio between the minimum wage and the average wage), which according to ILO`s findings most countries using this methodology set the minimum wage ideally at 40% of the average wage
- The ratio between the minimum wage and the median wage, which according to ILO (2014) the minimum wage is ideally set at approximately 50-60% of the median wage
- Share of workers at minimum wage, as well as the share of those within the range of estimated increase
- Share of low paid workers
- Wage growth index

Economic factors

Regarding the **economic factors**, of particular interest are the requirements of economic development, productivity levels and high employment levels. In this sense, there are a significant number of countries in which the legislations provide for the general economic situation of the country to be taken into account in the determination of minimum wages. This is, for instance the case of Slovakia and Latvia.

In general, based on country cases evidence, the following economic factors can be considered as main economic criteria for minimum wage setting:

- Economic growth
- Labour market productivity
- Employment rates, with evidence on age subgroups (especially youth employment, due to the traditional view of minimum wage increase menacing youth employment and the worries about the long term scarring effect of the unemployment at young ages)
- Unemployment rates, with evidence on age subgroups (especially youth unemployment)
- Number of employees
- The financial capacity of enterprises
- Economic competitiveness

In practice, the **requirements of economic development** are taken into account for the determination of minimum wages in Portugal, while **productivity** is considered an important economic criterion in Spain.

In other countries, **economic competitiveness** plays a relevant role in minimum wage fixing. For instance, Latvia, takes into account the evolution of the minimum wages of the other Baltic States. In Belgium, on the other hand, each inter-occupational agreement must set a maximum limit of fluctuation in wage

costs, by taking into account forecasted wage costs in three neighbouring reference countries during a two years' time-window. In case no agreement is reached between the social partners, the Government can set this margin.

Also the **financial capacity of enterprises** can be considered a decisive criterion in fixing the minimum wage, as in the case of Hungary. In Bulgaria, however, according to the information provided by the Government, the budgetary capacity of the State (as an employer) is also taken into account due to the link between the public sector wages and the minimum wage.

1.6 Conclusions and recommendations for the case of Romania

General conclusions drawn from the analysis of best practices of minimum wage setting mechanisms indicate that there is no evidence in favour of a minimum wage setting regime that could work best in a country. This is because minimum wage policies highly depend on the context. Country specific legal regimes, as well as, the socio-economic context are of extreme importance when setting the minimum wage rates.

The level of minimum wage should, therefore, be tailored to the labour market specificity, as it can vary substantially from country to country, in terms of low-paid workers, formal and informal economy and labour market regulations.

Moreover, one must bear in mind that the effects of the minimum-wage regime on low-paid workers are hard to be distinguished among other factors that could also be correlated with the minimum wage policy, such as in-work benefit policies or union bargaining regimes.

The use of multiple minimum wage rates for different groups of workers is also context-specific. General merits appear, however, to be in favour of a relatively simple structure, as setting multiple minimum wage rates increases the difficulties of the process. Age differentiation might help targeting low paid workers and poorer people more precisely, but complex set of rates generally bring lower compliance.

Although the decisional process for setting the minimum wage rates may vary considerably from country to country, recently, there has been growing interest in **the use of an expert body to advise the government**. This trend can be seen as an indicator of success for this approach, especially as an expert body could make impact assessments and ex-ante analysis before making recommendations to the government on the minimum wage policy.

Recently, more and more countries have copied to a certain degree the UK model of minimum wage setting, which involves an expert body to advise the government, although the final decision is made by the government. In this manner, the expert body can assure a depoliticized process as it relies mainly on socio-economic criteria. Moreover, it could also ensure the representativeness of all the stakeholders involved in the setting policy, which can be a crucial policy implication when employers and employees have divergent opinions. The use of an expert body to advise the government is, thus, likely to have been the key feature in the success of the UK minimum wage mechanism.

The choice of the independent expert panel also plays an important role, as the expert panel should be able to conduct ex-ante and ex-post analysis and respond to economic shocks without causing higher unemployment rates. Even though the expert body may or may not have voting rights in the decision process, they should be able to make recommendations upon minimum wage rates under no political interference or hard constraints.

Moreover, the minimum wage setting mechanism should be based on objective socio-economic criteria. Regulations could, therefore, stipulate a specific annual wage increase based on the selected economic parameters' evolution, i.e. price level, the GDP/capita growth rate, etc. Thus, an increase of the minimum wage with the inflation rate would ensure preserving the purchasing power, while an increase of the minimum wage with the GDP/capita growth rate could consider the overall productivity dynamic.

Finally, considering the sensitivity around the minimum wage setting mechanism it becomes imperative that the social partners' involvement and the government's decision to be preceded by consultations/ negotiations with the social partners.

A general conclusion that can be drawn from the best practice analysis, an automated mechanism does not exist in the examined countries. As communality, negotiations results are key inputs into any mechanism that aim at setting up a minimum wage.

It also results that the proposed mechanism for Romania should take into consideration the following aspects:

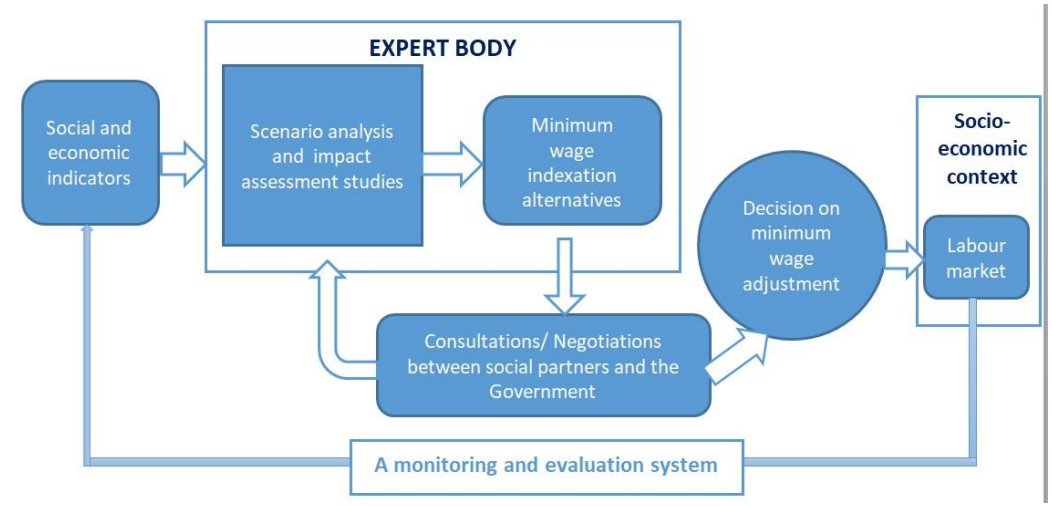
- a selection of the most appropriate quantitative measures both social and economic that reflect the country's background conditions;
- a combination of different methods;
- periodic indexation based on selective and objective criteria;
- periodic re-examination once the prevailing conditions of the moment of setting change, eventually triggered by a set of signal indicators/ composite index.
- the set-up of an expert committee that recommends minimum wage values as a result of statistical-econometric modelling and impact assessment of minimum wage increases on various socio-economic indicators;
- following the case of Slovenia in terms of implementation of the minimum wage policy, a transition period of a two to three year time window for employers to increase the minimum wage progressively in order to avoid major company loss or to endanger the company's existence (especially for the case of most vulnerable firms) might also be taken into consideration.

The main limitation of the study is related to data availability; as accurate and recent data with comprehensive coverage are required for evidence- based policy-making and evaluation.

In conclusion, we recommend the set-up of an expert body that using the social and economic indicators by means of advanced statistical and econometrical methods to provide minimum wage indexation alternatives. An impact assessment

should complete each proposal /scenario. The expert body proposals will support the negotiations between social partners and the government. Once the minimum wage rate is adopted, the same expert body should monitor the effects of the minimum wage and asses the real impact on the labour market and in the business environment. Having in mind the general principles that govern a cybernetics system and summing up the most relevant conclusions of the best practice analysis regarding the minimum wage mechanism, we suggest the following schema of the functionality of the minimum wage mechanism, as presented in figure 1.4.

Fig.1.4 A proposed schema for the functioning of the minimum wage mechanism



Source: authors' own contribution

II.
Designing the mechanism and the monitoring evaluation system for the proposed one

Setting the minimum wage is seen as a complex process, which considers both social and economic conditions within the country and involves various competencies and institutions.

In EU, there are several countries using such mechanisms, as summarised in the first chapter.

Starting with the analysis of other countries experiences and looking back to the minimum wage policy existing in Romania since 1990, we provide a recommendation for a sound institutional process of minimum wage setting, as ground for steadily reinforcing the economic consistency of the minimum wage dynamics.

2.1 Reasons for implementing a minimum wage setting mechanism in Romania. Economic and social determinants

Romania has a long history of statutory minimum wage. Minimum wage in our country was considered as part of the labour market regulation and of social policies, more or less correlated with economic performance or minimum consumption basket. The level of wages is also important because the share of wages in the total household income was in 2015 on average 55.7% and of 85.2% for employees' households.

From an economic point of view, the restructuring and cyclical evolutions, including the crisis period, profoundly affected the labour market capacity for efficient reforming and flexibility. Contrary to its initial and main mission, the minimum wage became more of an instrument for counteracting in-work poverty than an active one for supporting decent employment, increasing employability for graduates, discouraging external labour force mobility and stimulating acquiring skills and training for labour market (lifelong learning process supported by firms). In addition, economic restructuring, privatisation, the legislation on collective labour contracts (compulsory for firms with at least 21 employees[21]) and end of the national pay agreement (after 2010) have considerably adjusted the trade union membership rate (from 90% in 1990 to 44% in 2002 and around 20% in 2013) and the bargaining coverage rate (less than 25% as a share of total employment and around 35% of employees, respectively)[22].

[21] Law 130/1996, republished, art 3

[22] Visser, Hayter and Gammarano, (2015) Trends in collective bargaining coverage: stability, erosion or decline?, Labour relations and collective bargaining, 1,

Jobs remain the main instrument for avoiding or diminishing poverty. The current employment model generates a relatively high rate of in-work poverty, 1.9 times higher compared to the average share of EU-28 in 2014-2015[23] and the employees distribution on incomes is higher asymmetric than in other EU countries, concentrated below average wages. According to last estimations, around 1.3 million employees earn income around the minimum wage level[24].

In 1991, the minimum wage setting policy in Romania (Government Regulation 133 of February 1991) could have been summarized as "level of affordability" for employers and "minimum social protection level" for employees. The country's national minimum wage meant to reflect the dynamics and expectations of the transition period, without always fulfilling its initial goal. In the first two decades of transition, repeated modifications of the minimum wage proved the fragility and the low efficiency of the Romanian economy. During the period between 1991 and 1999, the minimum wage changed 25 times and another 12 times a decade later. Practically, there was a weak correlation with economic performance, or sometimes it was totally ignored. On the other hand, the ratio between the minimum and the average wage fell from 60 per cent in March 1991 to less than 20 per cent in 1996–1997 and January 2000, before minimum wage increases from 45 to 70 lei/month – 24.6 euro and 38.25 euro, respectively (1,83 Euro/Ron)[25].

The gross minimum wage level is established by Government Decision, after consultations with the trade unions and employers' organizations (Labour code, Law no. 53/2003, art 164(1)).

Until 1998, the negotiation of national level collective agreement gross minimum wage started from the legislated national minimum wage. Afterwards, wider flexibility was granted to companies in setting their own wage scales (wage-based and other wage supplements) as long as they guaranteed the payment of minimum wage for full-time equivalent work. The new Labour code (inforce in present, Law no. 53/2003 with subsequent amendments, republished) provided the compulsory hourly minimum wage level for individual contract negotiation[26].

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http://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---travail/documents/publication/wcms_409422.pdf

[23] In-work at-risk-of-poverty rate by working time - EU-SILC survey

[24] Research on the level of the statutory gross minimum wage in Romania, regarding the assessment of the economic and social impact of its enforcement, (Contract no. 41/07.10.2016 signed between the Romanian Ministry of Labour, Family, Social Protection and Elderly - MMFPSPV and the National Scientific Research Institute for Labour and Social Protection - INCSMPS), http://www.mmuncii.ro/j33/index.php/ro/minister/minister-rapoarte-studii

[25] For more details, see also: The Impact of the Crisis on Wages in South-East Europe, Verena Schmith, Daniel Vaugham-Whitehead (ed), Vasile V., Ch.: Romania: Restrictive wage policies alongside poor crisis management, ILO-Decent work technical support team and Country Office for CEE - Budapest ,p.221-254, 2011 ISBN 978-92-2-125784-4; 978-92-2-125785-1, http://www.ilo.org/wcmsp5/groups/public/---europe/---ro-geneva/---sro-budapest/documents/publication/wcms_172434.pdf)

[26] According to Labour code Article 164 (2), employers cannot negotiate the wage-base in individual labour contracts below the hourly gross minimum wage at the national level. http://www.ilo.org/dyn/travail/docs/1630/

Faced with the problems generated by the crisis, the Romanian economy proved to be very fragile and the effects were more severe than anticipated. The minimum wage evolution reflected in some respect not only the economic constrains but also the delayed economic recovery, as well as the very weak resilience of the labour market.

Few important aspects should be underlined with respect to the crisis's response to the minimum wage policy in Romania:

- giving up of the application of the Tripartite Agreement[27] on readjusting the minimum wage level up to 2014, which remains at 142 euros/month, i.e. approx. 30% of average;
- reforming social dialogue by reconsidering the level of negotiation only at company (with more than 21 employees), groups of companies and activity sectors (national level is no longer considered for collective labour agreement) and with no extension mechanism over the involved parties;
- The National Tripartite Council for Social Dialogue is providing the consultation framework for the statutory minimum wage setting[28];

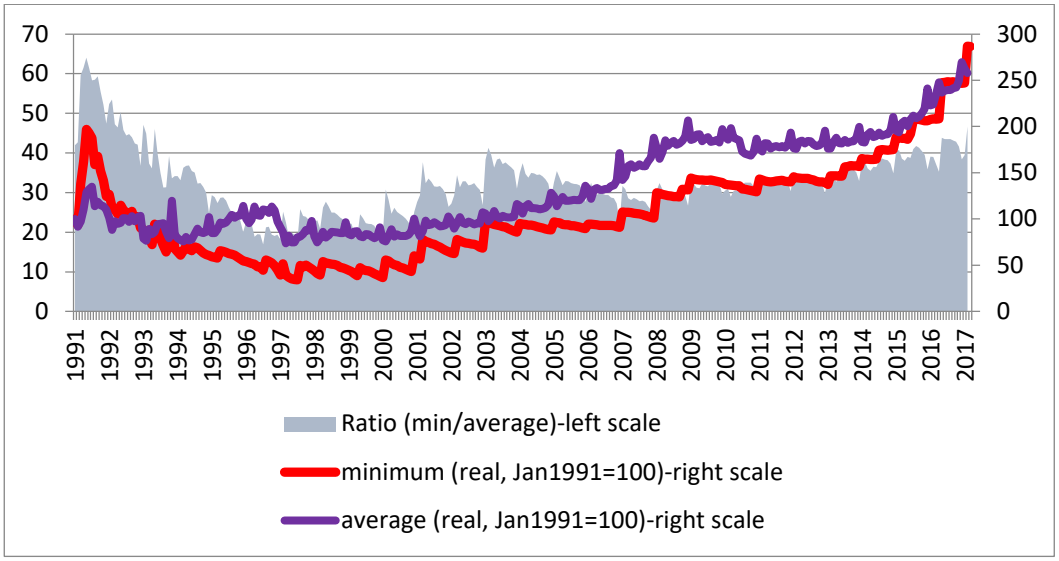
After 26 years of transition and successive reforms, minimum wage policy in Romania has not yet developed into an efficient government instrument for improving labour performance, by reducing informality or generating demand in the economy. It is also a weak instrument for preventing work precariousness, in-work poverty increase or reinforcing a reliable collective contract negotiation. The Romanian labour market is extremely fragile, with low flexibility and an inability to attract and employ the young graduates. To some extent, the minimum wage lost its economic function.

The ratio between minimum gross wage and average gross monthly earnings oscillated during the period between 1991 and 2017 over 60% and below 20%, with a steady increase after the crisis, up to 40%.

[27] In 2008, the framework of the Tripartite Agreement for granting a minimum wage was established with regard to increases in the gross minimum wage for the period 2008–2014. It provided for a gradual increase in the minimum wage, from 37 per cent of the average wage in 2010, to 40 per cent in 2011, 44 per cent in 2012, 47 per cent in 2013 and 50 per cent in 2014. This increase was subject to the achievement of key economic indicators on which the 2008 state budget was built, i.e. GDP growth, inflation target and labour productivity levels.

[28] The Law no.62/2011 on Social Dialogue

Fig. 2.1 Minimum gross wages, average gross monthly earnings (RON, right scale) and Kaitz index (%, left scale), Romania, 1991–2017 (February)



Source: based on Ministry of Labour data: http://www.mmuncii.ro/j33/index.php/ro/transparenta/statistici/date-statistice

According to ILO`s findings, the Kaitz index of 40% reached in the last years seems to include Romania among the countries with an "ideal ratio" between minimum and average wages. A decreasing ratio in the economic growth for the period 2003-2008, associated with an increasing one in post crisis period, characterized by postponed and slower recovery than expected, reflect a poor connection with both social and economic performance and a rather administrative approach. Also, from the social perspective, in Romania (as in Hungary[29]) it was argued that the minimum wage was not high enough to guarantee a minimum standard of living for workers. As it was mentioned in the best practices chapter, the minimum wage level in Romania is very low, i.e. in 2016 representing 15% of the Luxembourg level and over 30% than in Bulgaria. Starting with 2017, the 1st of February[30], the 16% increase of the minimum wages reduced the gap with Luxemburg from 7 times to 6.2 times but increased the gap with Bulgaria at 36%.

[29] https://www.eurofound.europa.eu/observatories/eurwork/articles/working-conditions-industrial-relations/statutory-minimum-wages-in-the-eu-2016
[30] 1450 lei/month, approx. 321 euro/month

Table 2.1 The minimum wage setting mechanism in the EU countries, according to decision level and parties involved, 2016

EU country	Statutory minimum wage	Determining mechanism	Social partners' implication	Final decision
Greece, Portugal, Slovenia, Spain, Croatia	Yes	Government	No	Government
Czech Republic, Poland, Slovakia,	Yes	Government	the social partners were not able to agree among themselves	Government
Bulgaria, Estonia, Hungary, Latvia, Lithuania, **Romania**	Yes	consultation of social partners	Yes, non-binding recommendation from social partners or tripartite bodies	Government
France	Yes	consultation from a group of experts	No	Government
Luxembourg, Malta, Netherland	Yes	Fixed rule	No	Government
Belgium,	Yes	Fixed rule and social partners	Yes	Government
Ireland, UK	Yes	expert committee recommendation	No	Government
Germany	Yes	social partners and expert committee	Yes	
Belgium	Yes	social partners	Yes	social partners agreement
Austria, Cyprus, Denmark, Finland, Italy, Sweden	No	No	No	No

Sources: authors, based on EurWORK Network of European correspondents, https://www.eurofound.europa.eu/observatories/eurwork/articles/working-conditions-industrial-relations/statutory-minimum-wages-in-the-eu-2016

As we analyse the last evolutions in EU labour market, the importance of minimum wage setting mechanism is increasing, as well the negotiation between social partners, even in well developed countries such as Germany, France and for the future in Finland and Italy.

The Minimum wage setting mechanism, related to decision making system and social partners' involvement include Romania among the countries with a relatively "soft" mechanism, based on consultations.

In summary, based on the historic minimum wage policy in Romania, considering the economic and social impact and also labour market indicators evolution, we consider that a minimum wage setting mechanism should inforce

another model of minimum wage dynamics, more oriented to the economic function of such factor, but keeping a necessary balance with social criteria such as in work poverty and youth employability. In this respect several aspects can be considered[31]:

- To provide alternative scenarios for impact analysis starting from main macro-economic indicators, such as: share of wages in GDP, employment rate, youth employment, inflation, real effective exchange rate, etc.;
- To consider a mix of policy measures related to minimum wage and labour cost, based on associative fiscal facilities for employers aimed at promoting employment in real economy, especially for youth;
- A more efficient mechanism for school to labour market transition – pre-employment of the students in the last years of education on part-time basis, internship programs etc.;
- Promoting wage packages for low wages (lunch tickets, gift vouchers, etc.);
- Enforcing a negotiation process before a minimum wage decision is made, based on minimum wage setting mechanism, rather than a simple consultation and a Government political decision;
- Because of the high incidence of in-work poverty risk in Romania, the consumption basket as complementary social indicator could be considered for minimum wage setting, and also a specially designed impact survey conducted in firms with employees payed at minimum level should be taken into consideration.

2.2 Minimum wage setting mechanism for Romania. Design and limits

A minimum wage setting mechanism for Romania has to consider the general trend of social dialogue subjects started several years ago and of the tripartite bodies role in industrial relation development and also to consider the peculiarities at national level from the economic and social perspective. Several general coordinates have been considered in the selection of indicators for both the scenario analysis and the impact assessment study:

- Providing an appropriate[32] level: at EU level the minimum wage issue has a new approach[33] – last years' evolution with important increases of the

[31] Such recommendations have been previously point out by experts, even for the crisis and post crisis period, but no consistent minimum wage policy changes had been implemented (see also: Vasile.V. (2009) - Minimum wage institution in the financial and economic crisis. policies and practices, Annales Universitatis Apulensis Series Oeconomica, 11(2), http://oeconomica.uab.ro/upload/lucrari/1120092/02.pdf)

[32] We should consider that Jean-Claude Juncker's points out referring on the minimum wage level: a) "There is a level of dignity we have to respect." and b) "companies to adopt a minimum wage to help counter "social dumping"", see more at: EU states should guarantee minimum income for citizens – Juncker, BUSINESS NEWS, Mon Jan 23, 2017 http://uk.reuters.com/article/uk-eu-labor-juncker-idUKKBN15729W

[33] More details in https://www.eurofound.europa.eu/sites/default/files/ef1703en.pdf

minimum wage level in several countries, mostly in NMS[34], but under 500 euros per month (Bulgaria, Romania, Hungary) or in the middle level group (Malta, Slovenia, Portugal, Spain);

- Settlement of an independent expert committee for implementing the minimum wage setting mechanism; in some EU countries, such independent bodies provide a non-binding recommendation, but support a more scientific approach in minimum wage determination (France, Germany, Ireland and the UK);
- Considering the most relevant objective criteria for minimum wage setting based on the international practices correlated to the national socio-economic context, as well as the social partners' recent debates on: the minimum wage national level and the general trend at EU level, the Kaitz index and the labour cost at the minimum wage level; the differentials in minimum wage between EU countries; the impact of minimum wage on competitiveness and employment, as well as employees' asymmetric distribution on incomes levels;
- Discussing about future social partners involvement in the new minimum wage setting mechanism: the social partners' proposal for 2017 is to promote negotiations between trade unions and employers for minimum wage adjustments in the National Tripartite Council for Social Dialogue, which means a higher implication in the minimum wage decision process as compared to its previous „consultation" role; a return to a more collaborative approach in minimum wage setting is also considered in other EU countries (Spain, Hungary etc.);
- The need for a transparent minimum wage setting mechanism based on objective criteria and social and economic impact assessment of the minimum wage adjustments. The impact assessment and the scenario analysis should be provided and made publicly available by an expert body made up of independent specialists in different domains related to minimum wage settings and impact assessment.

The general framework of a minimum wage setting mechanism for Romania is defined by the following components: a) institutional development, b) the process flow and c) management, monitoring and control. A transversal dimension is related to social partners' involvement and their increasing negotiation role based on economic and social fundaments, determined by the independent expert body.

A. Institutional development

The debates on the new minimum wage setting mechanism for Romania started last year and most opinions conducted to the settlement of **an independent body of experts** (expert committee) responsible with technical analysis of the minimum wage adjustments, based on several alternative scenarios and on economic and social impact evaluation, using a predetermined set of indicators and

[34] New member states

a special qualitative survey of firms with risks and vulnerabilities associated to minimum wage increases. So, the minimum wage setting mechanism design started from this core institutional component named „expert body" (thereafter EB).

The main responsibility of this EB will be to manage the whole process of minimum wage setting and to provide scenarios and estimated impact indicators as a base for tripartite consultations/negotiations. The consultation/negotiation process could be assisted by some of the EB experts for better interpretation of the results and for an appropriate substantiation of the decision amending the minimum wage (next statutory minimum wage level).

The EB is meant to be a permanent Committee, nominated for up to 5 years, including (5-7) specialists in labour market, social policies, macro and micro economic forecasting, microsimulations, statistics and data processing.

Committee's members **would be nominated on tripartite basis**, by the Ministry of Labour/Parliament, after consultations with social partners in The Tripartite Council for Social Dialogue. Half of them have to cover at least two consecutive mandates in order to ensure the continuity of the activity. The EB Committee has to function within a politically neutral existing institution (a research institution, an university or an independent body i.e. "Fiscal Council[35] or a "Social Observatory"[36] can be considered so to be financed from the state budget, on multi-annually basis, for all cost categories – tangible and intangible assets, consumables, wages, overhead, services etc.).

Legal frame for its functioning is a distinctive step which has to be accomplished. A legislative decision is needed for Committee setting (law, approved by the Parliament), assuming the minimum wage setting process as defined below, opening inter-institutional communication channels for experts members' access to the database.

As most of the necessary indicators for minimum wage setting mechanism and impact assessment are not to be found in a single, dedicated database, but managed by various public institutions (NIS, ANAF etc.), in order to have a permanent collaboration and a time saving cooperation, a complementary list of experts should be consider as thematic specialists able to provide the necessary statistical data and information for scenarios calculation and impact assessment (ex-

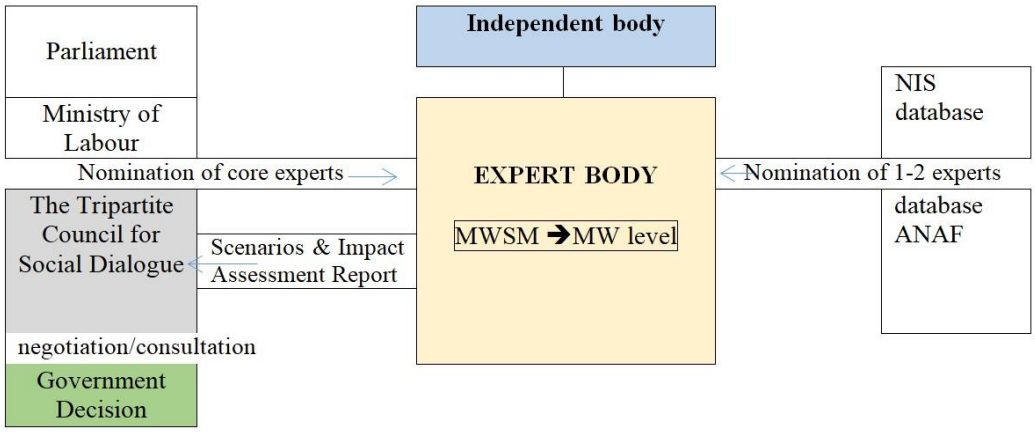
[35] Organised under the special Law 69/2010 republished in Official Bulletin Part I no. 330 /14th of May 2015, art 59 and 60. The Fiscal Council is tottaly independent, financed from the state budget. The Fiscal Council is setting its own budget, which is an annex to the budget of the Romanian Academy. For more details about the organisational structure, see full text of the Law 69/2010 at http://www.consiliulfiscal.ro/legea.htm

[36] Such institution was scheduled to be set up (Law 47/2006 on the national social assistance system, Article 28), but was never implemented. This body was foreseen as a public institution with legal personality, as a specialized body under the direct coordination of the Ministry of Labor, Social Solidarity and Family. The aim was to streamline the process of developing and implementing social policies at national level. Organization, operation and financing of Social Observatory was provided to be established by a special law, at the proposal of the Ministry of Labor, Social Solidarity and Family. Until 2011 when Law 69/2010 was abolished by Law 292/2011, The Social Observatory has not been established, finally giving up on the idea. For full text of the Law 47/2006 see: http://www.mmuncii.ro/pub/imagemanager/images/file/Legislatie/LEGI/L47-2006.pdf

ante and ex-post), i.e. 1-2 per institution. The nominated expert(s) will be responsible for extracting from the databases of the specific indicators used in the minimum wage setting mechanism. Providing the latest available data on the envisaged indicators is an important conditionality/restriction in generating accurate and updated scenarios for minimum wage adjustment. Experts from the above-mentioned public institutions are necessary for both cost reduction (technical - using the already existent infrastructure, expertise in handling specific datasets) and data anonymity purposes.

The core members of the EB should come from universities, research institutes or other public/private bodies, holding the expertise mentioned above and having a predefined contract, preferably part-time, having responsibility for the quality of the results provided for negotiations. The total number of the EB could not exceed 11 persons. Data confidentiality and property rights of the reports would be settled according to national legislation.

Fig. 2.2 Institutional framework of the minimum wage setting mechanism



Source: authors' own contribution

Note: MWSM is the abbreviation for minimum wage setting mechanism, while MW is the abbreviation for minimum wage.

B. The process flow

Periodicity. A predefined duration of the statutory minimum wage's validity will create a solid ground for companies in designing business plans and for the Government in budgeting. We suggest an annual base for minimum wage revision, in the last quarter of the year (see figure 2.3) and the new minimum wage level inforce starting with the beginning of each year. This timeframe will ensure the availability of previous year's indicators and will allow the designing of budgets for the next year, according to the new minimum wage level.

Fig. 2.3 Gantt diagram of minimum wage mechanism

	month 1				month2				month3			
	week1	week2	week3	week4	week5	week6	week7	week8	week9	week10	week11	week12
nomination of the expert body												
data extraction (relevant/ warning indicators provision)												
complementary indicators, if the case												
socio-economic indicators analysis												
impact measurement												
disemination and study of the results to/by tripartite by the Government and social partners												
negociation/ consultation and decision upon minimum wage												

Source: authors' own contribution

The experts' body activity may consist of, but not limited to:

a) **The core activity** for minimum wage setting mechanism implementation of annual update of indicators' levels, scenarios and ex-ante impact assessment.

More specifically, the activity consists of the analysis of the socio-economic context based on relevant selected indicators, in order to certify the validity of the scenarios in use. If the scenarios are considered appropriate for the socio-economic context, than the levels of the selected social and economic indicators are brought up to date and, based on their levels, the minimum wage adjustment scenarios are proposed for the next year. The indicators, as shall be detailed in the next section of the study, are either criteria for minimum wage setting (on which scenarios are designed) or impact assessment indicators (on which the impact of minimum wage adjustments in each scenario is estimated). If the development of a criteria indicator shows less than 1% annual change (i.e. warning threshold), than the scenario based on that certain indicator is not taken into consideration (i.e. is inactivated) for the next year and the impact assessment for the scenario is no longer estimated. If all the scenarios are inactivated for one year, the minimum wage setting mechanism is stopped and the minimum statutory wage remains at the previous level. In this case the EB is responsible for presenting to the social partners a short explanatory report in the proximate meeting of the National Tripartite Council for Social Dialogue. Otherwise, if at least one scenario is active, ex-ante impacts on selected socio-economic indicators are estimated and the results are object to negotiation/ consultation on minimum wage level.

The reason behind multiple scenarios is to better understand the potential impact of the minimum wage adjustment, by multiple dimension analyses, using objective criteria and based on positive externalities maximization. Thus, the analysis of different scenarios does not aim to provide alternative options from which to select a fixed rule, to be applied automatically thereafter.

b) **Complementary activity**: ex-post impact and gap calculation (ex-ante vs. ex-post for the previous year's estimations), and, if necessary, feed-back for small adjustments of the minimum wage setting mechanism for minimum efficiency of the minimum wage setting mechanism parameters, i.e. the level

of the warning threshold; such information will be included as a special section in the main report on minimum wage changing for the next year;

Regarding the selection of scenarios and the considered impact indicators, the complementary activity is considering periodical revision of some of these economic/social parameters, i.e. the revision of the consumption basket. Within this activity it is also possible to improve some of the scenarios or to include more detailed aspects/parameters, i.e. the opportunity of introducing sub-minima by some criteria or related to specific groups of employees.

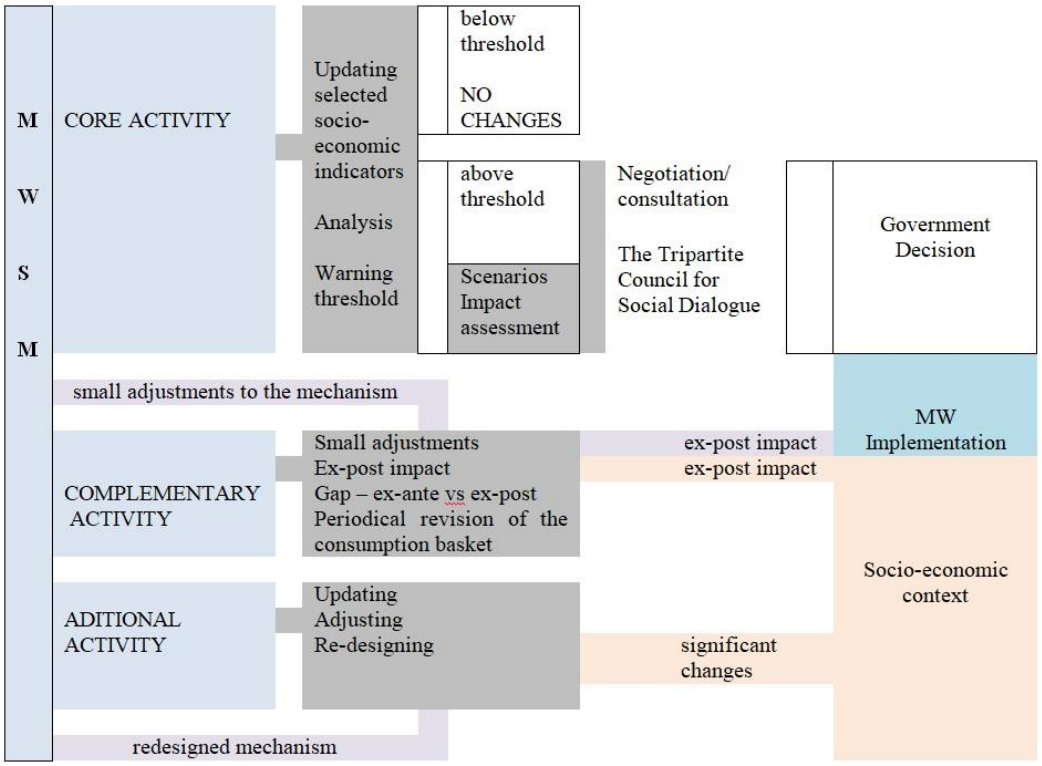
For the time being, one single level of minimum wage is considered suitable for Romania. However, **the possibility of introducing a sub-minimum wage for groups such as the youth** can be taken into consideration, but only if thorough impact assessment analysis is conducted in order to properly estimate its effects on the labour market. This component is of particular interest, especially as previous impact assessment studies of minimum wage in Romania suggested a negative effect upon young employment.

c) **Additional/occasional activity**: updating/adjusting or re-designing the minimum wage setting mechanism, if economic and social conditions have changed significantly. In this case, a special report will be presented in a separate meeting of the National Tripartite Council for Social Dialogue;

In case of one or more of the scenarios proves not to be appropriate any longer or others gain relevance (ex: crisis, notable change of some economic indicators, other context variable) the additional activity is activated, consisting of revising and defining adequate scenarios. The main concern is to determine the relevance of the mechanism in force, the economic and social consistency and to provide impact assessment.

If no particular context arises, the scenarios revision will be activated once every four years. The potential impact of new scenarios is further presented for negotiation/consultation process.

Fig. 2.4 Minimum wage setting mechanism



Source: authors' own contribution

Note: MWSM is the abbreviation for minimum wage setting mechanism, while MW is the abbreviation for minimum wage

The minimum wage level decided upon on tripartite basis would come into force from the January 1st, of the next year. The negotiation /consultation process should end with a decision upon a minimum wage level (the same or increased), but as well as the possible exemption situations (delaying of implementation with a certain time period, justified economically or socially; particular exemption for occupational categories or firms size or in financial difficulties etc.), with a special notification related to the exemption period.

C. The expert body management, monitoring and control

The EB activity is coordinated by a president and a vice-president monitoring all three types of activities mentioned before. Once per year, they will be responsible for the elaboration of the EB activity report, which will be made available on the EB webpage.

EB shall exercise its mandate under the law and shall not seek or receive instructions from public authorities or from any other institution or authority.

EB might request from any other institution or public authority (other than NIS and ANAF mentioned before) information, documents or relevant data to fulfil their duties and responsibilities. The proposed company survey will be conducted by NIS or other specialised institution, subcontracted (by public procurement), on yearly basis and the minimum basket's structure will be updated every four years, by NIS.

The control on EB activity is done by the authority that has nominated the experts, based on annual activity reports and consultation with the National Tripartite Council for Social Dialogue.

The mechanism is merely dedicated to provide a sound institutional process for minimum wage setting and impact assessment, in order to support a scientific background to the consultation or negotiation process between social partners and to legitimate the economic and social consistency of Government final decision for minimum wage setting. The minimum wage setting mechanism mainly will allow a real consultation with social partners based on scientific-evidence-based data. The dissemination of the expert body's reports would strengthen the credibility of policy decision to the business environment providing an illustration of what the consequences would be if some specific normative criteria were to be applied (e.g., indexation to inflation, to average wage growth etc.).

III.
Designing the criteria to adjust the minimum wage and the alternative scenarios to support the mechanism

Establishing an open and transparent minimum wage-fixing mechanism is a matter of extreme importance to the wage policy in Romania due to the number of employees who are affected, on one hand, and to the economic and social effects of this form of state intervention on the labour market, on the other. The section hereinafter discusses on indicators best practices section above and the theory put in relation to minimum wage changes, keeping in mind that in practice it is difficult to isolate the effects of one indicator from the influence of others. Statistical indicators are not meant to replace the social dialogue or negotiation, as mentioned in the previous section, they are intended rather to inform the Government and the social partners, on relevant, and systematic basis on the context the minimum wage is approached and its potential impact. They offer a transparent documented starting point for the negotiating process in accordance to different economic and social objectives the decision makers might have.

3.1 Methodological specifications

The section deals with the indicators used in the mechanism, both for the scenarios (the minimum wage setting mechanism) and for impact assessment. **The presentation focuses on the indicators de facto used in the scenarios and in the impact assessment,** but brief references are also made to other possible/ potential ones. The distinction between social and economic criteria is also considered, the description aiming at the same time to offer a closer image on Romania's context related to minimum wage.

Table 3.1 Indicators used and their role in the minimum wage setting mechanism

Criterion	Sub-criterion	Indicator	Function
Social criterion	**General level of wages**	Average gross wages	Criteria for minimum wage setting
		Ratio between gross minimum wage and median gross wage	Impact assessment
		Number of employees paid with minimum wage	Impact assessment
		Share of wages in GDP	Impact assessment
		Distribution of employees paid with minimum wage, by gender, age groups, occupation, NACE codes	Impact assessment

	Living standards	In-work poverty	Impact assessment
		Inequality of wages	Impact assessment
		Minimum expenditure basket	Criteria for minimum wage setting
Economic criterion	**General level of prices**	Consumer Prices Index/ Inflation rate	Criteria for minimum wage setting
	Employment	Employment rate (total, by age groups and gender)	Impact assessment
	Economic development/ productivity	GDP per capita (PPS)	Criteria for minimum wage setting
	Competitiveness	Real effective exchange rate (REER)	Impact assessment
		Unit labour cost	Impact assessment
	Economic activity of enterprises	Turnover, profitability	Impact assessment

Source: authors' own contribution

The time frame for this analysis is 2000-2016, considering that before 2000 the Romanian economic context was exposed to deep economic reforms, with high and fluctuant values of inflation rate and severe structural imbalances. Since 2000, Romania has developed on a more stable economic and social ground, despite the challenges arising from its accession to EU. The proposed scenarios are projected for 1 to 5 years-time period, depending on data (forecasted) availability.

As the gross minimum wage (GMW) was not constant during a calendar year, for the purpose of this analysis, the annual average gross minimum wage was considered. For example, for the first 4 months of 2016 the gross minimum wage was 1050 RON and starting May 1st 2016, its level was set at 1250 RON. Thus, the average value for 2016, used in the analysis, is 1183.33 RON.

One should bear in mind that there may be issues related to data quality, availability, coverage and comparability in time or adequacy to the topic, depending on the initial purpose of the institution gathering a particular indicator. Multiple sources for an indicator may be available, while some others, detailed, devoted to specific aspects could be made available upon request or can simply not be available at all. Changes in methodology could generate breaks or variation in data series. For both minimum wage setting criteria and impact assessment indicators, the present analysis made use of the most complete available time series. The list of indicators used, as well as potential ones is presented in Annex 2a-2b and includes information on availability, coverage, sources and disaggregation level.

3.2 Social criterion - needs of employees and their families

a. The general level of wages

Possible indicators for this category are:

- *The average gross salary or earnings* in real terms (adjusted with consumer price index-CPI)*, at national level and by NACE codes*
- *The ratio between the minimum wage and the average/median wage, at national level and by NACE codes*
- *Number of employees paid with minimum wage, at national level and by NACE codes*
- *Structure of employees paid with the minimum wage,* by NACE codes, age groups, gender and occupations.

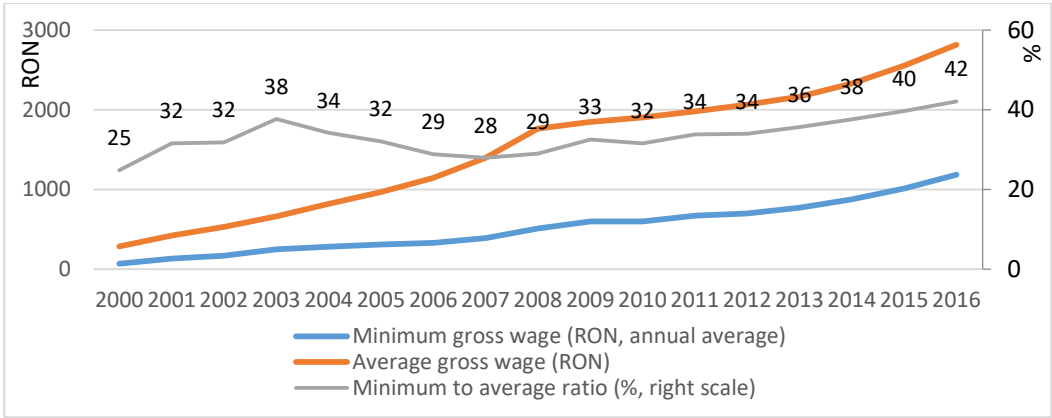
In practice, the general level of wages is often the dominant criterion in the decision of setting the minimum wage. For this reason, a more detailed examination of the available indicators on the level and evolution of wages is the first step in establishing or adjusting the minimum wage. In many countries, the periodic adjustment of the minimum wage is given by the general evolution of salaries (mean or median), aiming, most of the times, a constant ratio between the minimum wage and the average or median. The number of employees who are at the level and around the minimum wage is essential information in order to assess the impact of adjusting the minimum wage on the wage bill.

Data for all of these indicators are available through the surveys of National Institute of Statistics (NIS).

Minimum vs. average wage; the ratio

The evolution of these two indicators is clearly ascendant over the observed period, with no similar rates. Both before and after the economic crisis of 2008, the minimum wage registered a higher increase rate. In real terms, the average gross wage was 1.8 times higher in 2016 than in 2000, while the gross minimum wage was 3.7 times higher. After a significant increase in 2009, minimum wage has progressively recovered the distance to the average wage in the last five years.

Fig. 3.1 Wages dynamics, nominal values



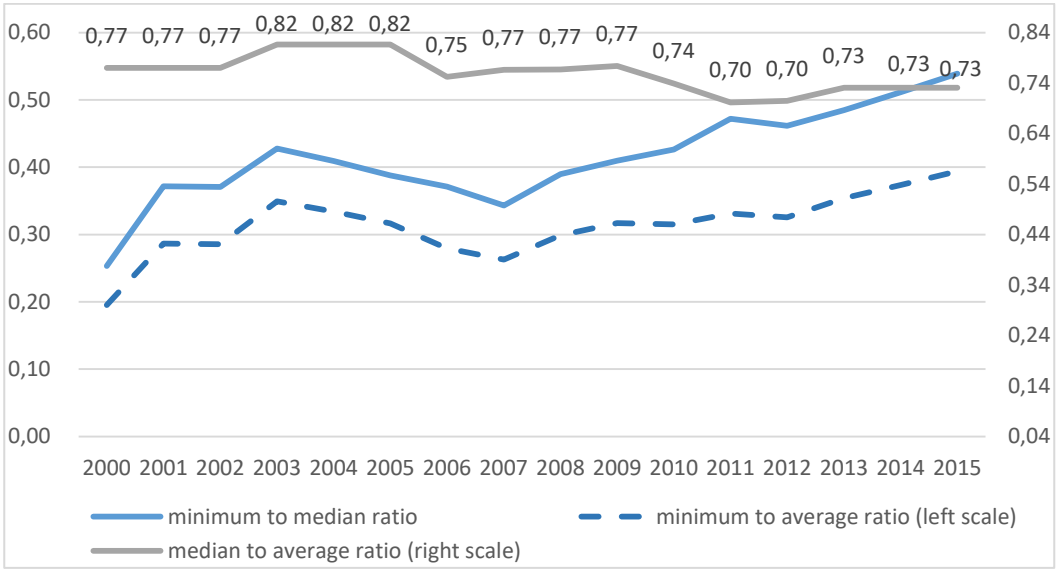
Source: authors' calculations after NIS

The average vs. median wage

Another important relation is between the minimum and the median wage. According to the OECD statistics (Figure 3.2), in Romania, the median wage represented 73% of the average in 2013 and after. This means that the wage distribution has a pronounced left asymmetry, with a high concentration of earners at the bottom half of the wage distribution. Just few countries in the European area (Greece, Portugal, Turkey and Bulgaria among them) have a more pronounced left asymmetry of the wage distribution. The European average ratio (except for the mentioned countries) is about 83%[37]. Generally, under these circumstances, when a distribution has a high degree of asymmetry, the median is a better indicator of the central trend than the average, which can be influenced by extreme values. Also, when a distribution has a high degree of inequality, then it is more appropriate to use the median as a measure of central tendency.

As the median is not influenced by extreme values, unlike the average, and better expresses the movements on the half of the wage earners primarily exposed to the dynamics of the minimum wage, adjusting the minimum wage should take into account both the average and median values of wages. Unfortunately, data on median values are less often available than on average. For instance, even the observed data used in the figure below refer to the full-time workers and not to the full-time equivalent workers, as the national average value is usually computed. In the case of low incidence of part-time contracts, as it is the case of Romania, the differences can be low, but relevant from the perspective of the mechanism's purpose. Beside this, changes can whenever occur (due to employment policies for youth and other vulnerable groups), thus the difference should be kept in mind.

Fig. 3.2 Average vs. median wage, ratio dynamics (values for full-time workers)



Source: authors' calculations based on OECD.Stat data

[37] According to Eurostat, earn_ses_monthly; OECD.stat

Due to the existing link between minimum and average wage, paying attention to what happens with the average distribution, we think it is appropriate for the present Romanian context to set a scenario departing from this relationship (Scenario 1). The impact of minimum wage changes on the median wage is relevant from the economic perspective at company level, because a high density of employees at the lower side of the wage distribution is conducive to lack of commitment from workers, non-involvement in professional development and low productivity.

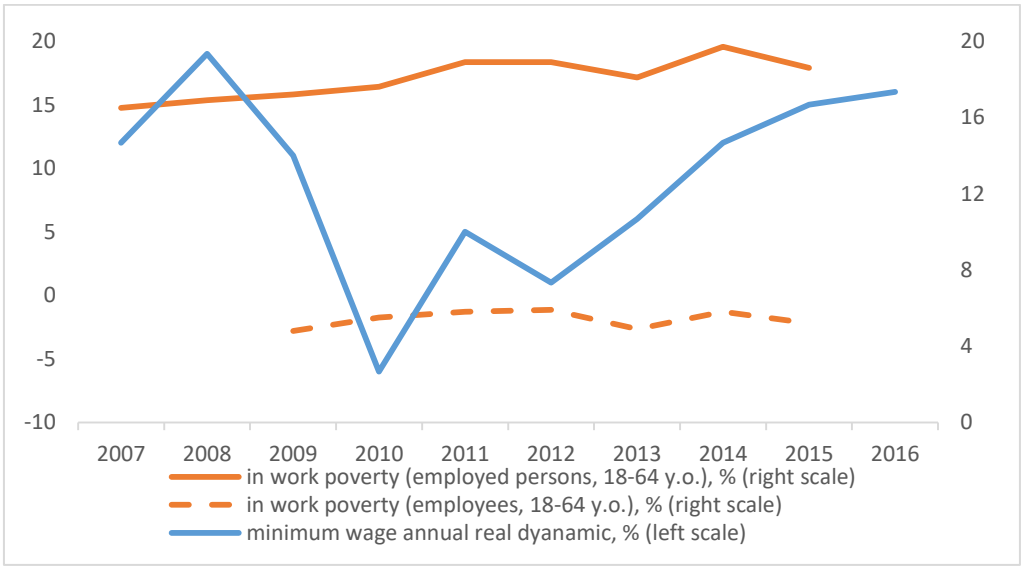
b. The standard of living

The main purpose of the minimum wage is to protect employees having very low salaries, guaranteeing them a basic, but decent living. The minimum wage is expected to influence the poverty rate, but the extension of the effect depends on the poverty profile of social categories and composition of households. Indicators from this category are mostly impact assessment indicators, among which:

- *In-work poverty and at-risk-of-poverty rate*
- *Employees incidence in poor population*
- *Indicators of wage inequality* (Gini index, quintile share ratio)
- *The average wage by deciles*
- *Average household expenditures, by social categories*
- *Minimum expenditure basket*

The data sources for these indicators are household surveys - Household Budget Survey and the EU-SILC Survey (European Union - Survey on Income and Living Conditions), conducted by NIS.

Fig. 3.3 Minimum wage vs. poverty dynamics



Source: authors' calculations based on NIS data (wage); Eurostat, ilc_iw01

Between the gross minimum wage dynamics and that of relative poverty seems to be a positive link, if any (fig. 3.3.). While the incidence of poverty among employees (at the 60% of median disposable equivalent income threshold) varies slowly around 5%, that of the self-employed (mainly) reaches figures over 50%, while the poverty figures for total employment are lying around 18%. Self-employment in Romania has a very particular character, being constituted almost entirely (over 94%) from self-employment without employees, extensively in the rural area in agricultural related occupations. This has been a constant buffer for people losing their jobs or for households with low income. Atomized to households' properties, the activity is not surprisingly low productive and exposed to climate and economic risks, so the poverty incidence is high. This group is not covered by the minimum wage. The analysis on the impact of the (total) in-work poverty keeps the focus on the employment structure and the need for economic development.

With 37.4% of the Romanian population at risk of poverty and social exclusion (Eurostat data, 2015), it is clear that a considerable number of families lack the conditions for a minimum standard of living, being unable to afford an adequate food supply, proper clothing, hygiene and health products, basic services or even shelter. The minimum expenditure basket is a standard below which no person or family should live in order to benefit of a decent living.

One of the proposed scenario (Scenario 4) is built on the value of a normative expenditure basket estimated for a typical Romanian family consisting of two active adults and two children (aged between 2 and 18 years old) (it is also a representative family for minimum wage earners)[38]. The composition and the cost of the minimum basket have been proposed by the Research Institute for Quality of Life (RIQL), an institution who has been concerned with the development and improvement of a methodology for minimum expenditure basket calculation[39] since more than 20 years now.

The basket includes at minimal levels both the resource requirements for current consumption: food, clothing, footwear, housing, services as well as the quantities and purchase prices of goods and services, plus the costs of education and professional training, individual affirmation and the social status (cultural services, postal services and telecommunications) to enable individual development and social participation. The estimations are normative, drawn from expert knowledge about basic requirements for decent living. Family composition, area of residence and the ownership of the dwelling are taken into consideration as well.

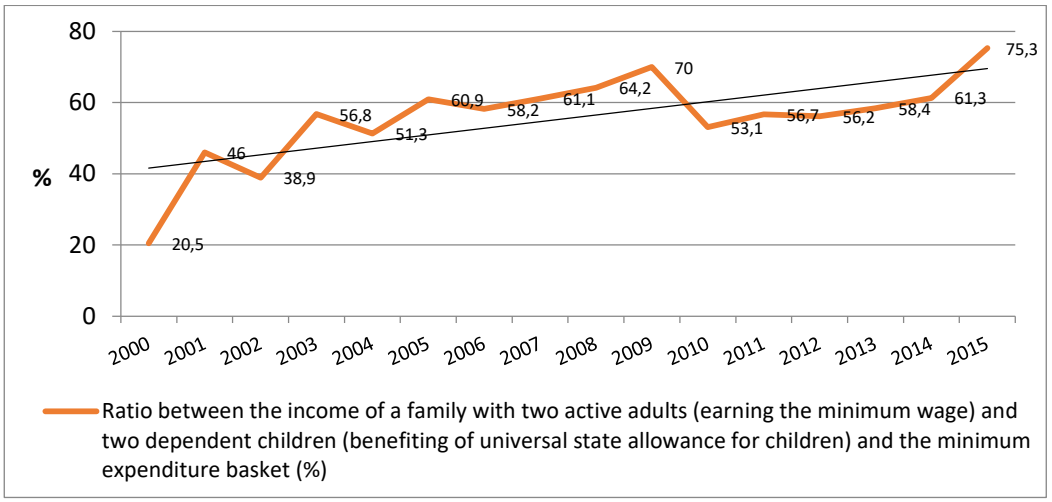
[38] Research on the level of the statutory gross minimum wage in Romania, regarding the assessment of the economic and social impact of its enforcement, (Contract no. 41/07.10.2016 signed between the Romanian Ministry of Labour, Family, Social Protection and Elderly - MMFPSPV and the National Scientific Research Institute for Labour and Social Protection - INCSMPS), http://www.mmuncii.ro/j33/index.php/ro/minister/minister-rapoarte-studii

[39] Mihăilescu, A. (2016). Quality of Life in Romanian Households, British Journal of Applied Science & Technology 14(6): 1-11

In the next figure (fig. 3.4.), one can see the ratio between the income level of a family with two active adults, employed and payed at the minimum wage level, and two children who benefit of the universal state allowance for children and the minimum expenditure basket estimated for this representative family type. It reveals that in 2015, for example, this ratio was around 75%, which means that with this certain level of income a family could not meet the minimum requirements for a decent living; however, the dynamics of the ratio shows a tendency of slight improvement.

As concerning the minimum expenditure basket calculation methodology, we mention that though complex, it has a certain degree of subjectivism arising from the expert judgement that it draws upon. The estimations are not taking into consideration the effective expenditure choices of the population and, moreover, another limitation concerns the structure of the minimum expenditure basket, which has not been updated for some time. However, in the case of Romania, the dynamics of the cost of a minimum basket could represent a very good tool for designing an alternative scenario on minimum wage setting, provided that it overcomes at least some of its limitations.

Fig. 3.4 Income vs. minimum expenditure basket (ratio)



Source: authors' calculations

In this respect, we propose that an updated methodology of the minimum expenditure basket to be developed, in order to combine normative methods based on expert judgement with inputs from the effective expenditure patterns of the population. The institution that would be most appropriate to have the responsibility of calculating the minimum expenditure basket is the National Institute of Statistics (NIS), which has a considerable expertise in this area, and also collects data on household expenditure on monthly basis through the Household Budget Survey and on prices of goods and services. Moreover, it would assure validity and reliability in this endeavour.

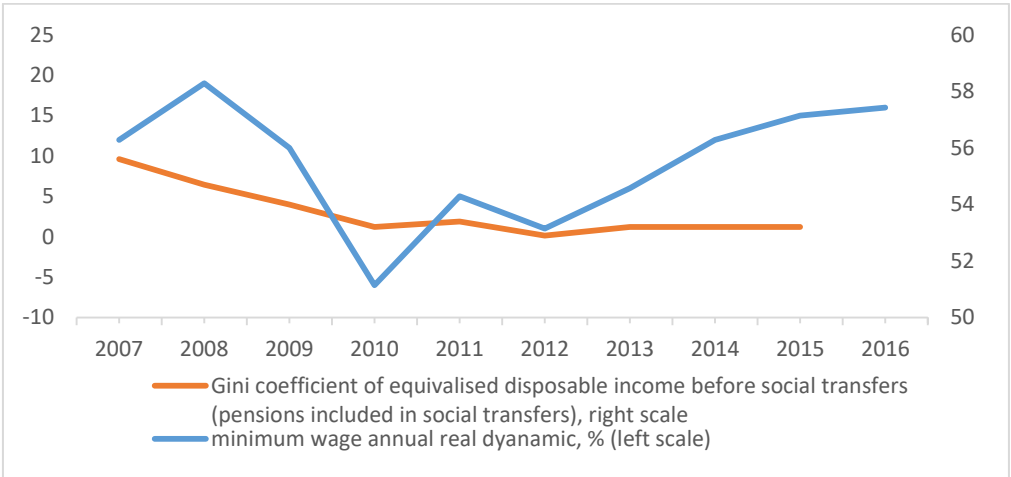
Following the Government Emergency Ordinance no. 217/2000, NIS has estimated on quarterly basis and following a normative method the monthly minimum expenditure basket for a medium sized household (2.804 persons), and the value of the estimated basket was approved for each quarter through Government Decision. This situation has lasted until the second quarter of 2003, when the above mentioned emergency ordinance has been abrogated and the minimum basket estimations devolved on the Ministry of Labour, Social Solidarity and Family. At that time, the minimum basket was regarded by the government and social partners as a very important indicator for minimum wage setting, of wage and social policy in general. Even so, in the years to come, the value of this indicator has not been taken into consideration in the minimum wage setting process.

In conclusion, the minimum expenditure basket as a criterion for minimum wage setting should meet the following conditions:

- The methodology of calculation should be a combination of normative methods with effective expenditure data to establish the structure of the basket.
- Regarding the frequency of calculation, the prices of goods and services shall be adjusted on yearly basis, while the structure should be updated every 4 years or whenever the data drawn from the Household Budget Survey show a considerable change in consumption patterns.
- The institution responsible for its calculation would be the National Institute of Statistics.

The number of low wage earners, paid with wages close to minimum wage (up to 105%) or with wages no greater than 2/3 of the median are important measures for monitoring the share of population which risks of falling into poverty once any unexpected event arises in their personal or family life. Their structure by NACE codes, age or gender, provides valuable inputs for measures to be taken as part of the social and fiscal policies, or social services to be developed.

Fig. 3.5 Minimum wage vs earnings inequality dynamics



Source: authors' calculations based on NIS data (wage); Eurostat, ilc_di12b

The earnings distribution seems to be sensitive to minimum wage dynamics, and its inequality has tended to decrease parallel to the accelerated increase of the ratio between minimum and average wage. Despite this, earnings inequality in Romania is still among the highest in Europe and less tempered by social transfers than most of the European countries, Romania ending in the top 5 countries by overall inequality[40]. This justifies the attention given on income and earnings inequality in analysing minimum wage increase impact.

As, the time series is short, this is one of the results that needs to be treated with caution. Limits with respect to the estimation of the number of low paid employees arise from under-declared/envelop payment of the workers, and also from undeclared work. Some alternative data sources can be considered, but each of them has its own limits. It is the case of the Labour Force Survey vs. the Survey on Labour Cost or the Structure of Earnings Survey, which relies on individual or company level; the difference in results is difficult to fully explain and consider in a projective analysis. Data availability for adequate length of time series in order to express detailed relationships between indicators is another major limitation. Implementing such a minimum wage adjusting mechanism would help at better understanding the specific dynamics of social indicators in Romania.

3.3. The economic criterion

The economic perspective on minimum wage arises from the labour costs entailed by its increase. It directly impacts the companies and the state as employer, as well as the macroeconomic equilibrium throughout its spread or indirect effects on companies' economic performance and individuals' propensity of consumption. Inflation, employment and resources for supporting the additional costs (economic capacity) are perspectives we put the minimum wage in relation with.

a. The general level of prices

Inflation is a widely used criterion for minimum wage adjustment, although the relationship between the minimum wage and inflation is far from simple. While, on the one hand, indeed, increasing the minimum wage with the inflation rate protects the purchasing power of vulnerable employees, the approach is likely to accelerate the inflationary spiral affecting the cost of labour and putting pressure on aggregate demand.

[40] Source: Eurostat, ilc_di12b, ilc_di12.

Fig. 3.6 Evolution of the inflation rate and nominal minimum wage growth

Source: authors' computation based on NIS data

To avoid this, some countries adjust the minimum wage in line with the expected inflation rate, not to that observed in the previous year for not transferring the inflation rate from one year to another. Others set the growth of the minimum wage to the previous inflation rate. We have treated inflation both as criteria indicator for minimum wage setting (Scenario 3), but as well as impact assessment indicator for minimum wage increase.

In figure 3.6, we note that there is a clear correlation between the inflation rate and the nominal growth of the minimum wage.

b. Employment

The link between minimum wages and **employment** is the issue mostly studied when discussing minimum wage impact. As it is an impact indicator, the increase in minimum wage is expected to affect negatively the level of contracted employment, as a strategy of employers to keep control on wage related costs. The relationship was controversial in recent times; studies on particular economic sectors have not revealed the existence of the relationship. Typically, the minimum wage level is more connected to youth unemployment, employers are not willing to pay more (or the same as for a person with work experience) for young employees. A recent study on Romania has revealed that both male and female employed population is expected to be affected by minimum wage increase, as well as the population between 35 and 44 years old[41]. As mentioned before, a notable increase

[41] Research on the level of the statutory gross minimum wage in Romania, regarding the assessment of the economic and social impact of its enforcement, (Contract no. 41/07.10.2016 signed between the Romanian Ministry of Labour, Family, Social Protection and Elderly - MMFPSPV and the National Scientific Research Institute for Labour and Social Protection - INCSMPS), http://www.mmuncii.ro/j33/index.php/ro/minister/minister-rapoarte-studii

in the minimum wage could lead to undeclared work increase, so that could change the employment structure.

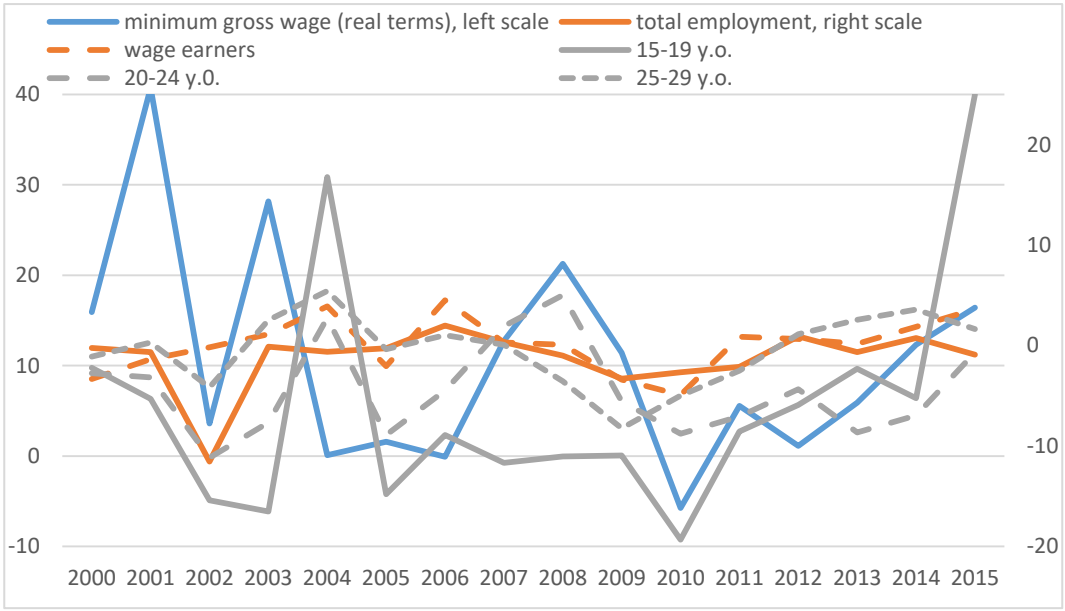
Indicators monitoring employment could be the following:

- Employment level/ rate by NACE, age group, gender, type of employment
- Contracted employment at aggregate level, but as well by NACE and age groups
- Costs of employment support schemes, particularly for youth

During the economic crisis, the slope of total employment decrease is less steep than of the wage (contracted) employment, while at the beginning of the economic re-launch, in early 2000, the last one increased systematically; self-employment has played a buffer role for population in economic constrained time. This brings into attention the employment structure and the migration opportunities of young people especially, which emphasize the influence that context plays on the indicators' tendency. The wage employment seems more clearly linked to minimum wage variations. Another observation is related to youth employment, sensitive to minimum wage dynamics up to 24 years of age, but clearly influenced by other factors.

When working with indicators expressing the full-time equivalent it is not worth monitoring the part-time or temporary employment, but they gain significance from the social policies point of view. These non-standard types of employment make youth entrance on the labour market smoother. The risk of remaining trapped in such forms is diminished by linking them strongly to education participation, which would be in the benefit of individuals, employers and finally of the state, due to higher employment rates. This is why employment rates by age groups are of primary importance, each having its own significance. Between 15-19 years of age, traditionally, there is a low interest of youth (and their parents) in labour market entrance, still valid in the case of school-leaving. In this last case, occasional high profitable jobs/ activities are envisaged. The 20-24 years group is still mainly to be found in tertiary education, but it is also the period of entering labour market for many young people (high school graduates or those looking for supplementary income in non-standard forms of employment). The consolidated employment of youth is better expressed by the age group of 25-29 years. Various employment supporting schemes could enhance youth employment and hide the impact of minimum wage. This is why the classic indicators of employment should be complemented with governmental expenditures on employment support (apprenticeship, training, for youth or vulnerable employment), and the way these are shared with the employers.

Fig. 3.7 Real minimum wage vs employment rate, annual variation, %



Source: authors' calculations based on NIS data

Old age groups or the low educated are of particular importance for employment due to the high potential risk for them to relay on social benefits for longer term in case of losing their jobs.

External migration has been a constant challenge for policymakers, youth as people from areas with high poverty rates and low economic dynamics choosing it as alternative for employment at low wages offered by the local market.

c. Economic capacity: macro-economic level

Indicators reflecting the economic capacity refer both the macroeconomic context and that of companies. Most of them can be considered as input indicators for the mechanism or setting criteria. Relevant indicators for the macro-economic context could be the following:

- *Gross domestic product (GDP)*, real values
- *Real Economic Growth*
- *Wage share in GDP/ GVA*
- *GDP per capita*
- *Export volume*
- *The Unit Labour Cost (ULC)*
- *Labour productivity per hour worked or per employee*
- *Real effective exchange rate (REER)*

The aggregate economic growth is, in principle, the precondition of minimum wage increase, ensuring increased resources for everyone. The analysis carried out on the relationship between real economic growth and the change of real minimum

wage shows no significant correlation between the two indicators for Romania over the observed period. A possible explanation may arise from the fact that in setting the minimum wage level have prevailed other criteria. A vulnerability of the indicator is the delay in the availability of its final data, estimates being provided with two quarters delay.

Fig. 3.8 Minimum gross wage vs. economic growth, real

Source: authors' calculations based on NIS data

Derived indicators, by computing GDP per capita or divided by the effort needed for producing it (hours worked or labour unit), bring information on the country's performance, both indicators expressing productivity. Other indicators, such as GDP per hour/ per employment, although they have values per NACE codes, they are usually available with higher delay.

Fig. 3.9 Real minimum wage vs. productivity indicators, annual variation, %

Source: authors' calculations based on NIS data; Eurostat, nama_10_lp_ulc/ nama_aux_gph

As an impact assessment indicator, is useful to monitor the share of workers' compensation in the economic output (GDP or GVA). Decreasing with output increases, wages share in total GDP has constantly been under the 40-60 ratio of labour vs capital.

Fig. 3.10 Wage share dynamic, %

Source: authors' calculations based on NIS data

Competitiveness indicators are considerably important when monitoring the impact of the minimum wage, bringing forward information on how the country's comparative advantage is affected in international relationships. An intuitive indicator is the level of exports. Unfortunately, the export structure by companies' size in Romania does not plead for using it in the mechanism: companies with large share of low wage earners in their staff participate marginally to international trade. An alternative indicator could be the real effective exchange rate (REER) or the more synthetic indicator of the unit labour cost (ULC).

Minimum wage adjustment should take into account **the ability of private companies to pay** the new increased wages given the fact that the employees paid at the minimum wage are found mostly in the private sector. Developments in the private sector, particularly in the micro, small and medium enterprises can trigger the minimum wage increase. Assessing the ability of private companies to afford the minimum wage is a complicated issue and should be handled differently depending on the size of companies, because in general micro, small and medium enterprises are the ones who are affected the most by the evolution of the minimum wage.

At companies' level, a minimum wage increase affects the output indicators and the profitability rate. Any changes in the wage bill will modify the total cost structure by increasing the share of the labour cost, if there are no other policy measures (i.e. partial exemptions / tax cuts or tax arrangements applicable to low wages).

Companies' capacity to absorb increases in the minimum wage is a decisive factor of wage policy and employment. Production factors' substitution is limited by technological requirements, as well as physical labour productivity growth. In addition, the competitiveness of companies is dependent on profit reinvestment opportunities, in order to maintain the profitability rate within certain limits. The impact of the minimum wage increase on the economic performance of firms is differentiated, small firms with an average wage located near minimum wage being mostly exposed. This is the motivation of the proposal presented in the minimum wage setting mechanism to consider a special statistical survey of 'vulnerable' firms, in areas of economic activity where, due to the specific nature of jobs, employment involves low skilled jobs with low pay.

Economic indicators at firm level are available in the Eurostat database, as shown in the table below, having the year 2013 as last available data (Table 3.2.). However, in order to estimate the impact of minimum wage increases on companies' activity, we need to focus on the group of "vulnerable" companies and to complement the existing information with the above-mentioned survey, as also proposed in the minimum wage setting mechanism.

Table 3.2 Annual enterprise statistics for total business economy in Romania, 2010-2013

Year	Fewer than 10 employees	From 10 to 19 employees	From 20 to 49 employees	From 50 to 249 employees	250 employees or more
	Number of enterprises by size class (total=100)				
2010	89.00	5.56	3.40	1.71	0.33
2011	87.05	6.59	3.98	2.00	0.38
2012	87.51	6.35	3.87	1.89	0.37
2013	87.87	6.29	3.67	1.82	0.35
	Number of persons employed (Total=100)				
2010	23.85	8.91	12.36	20.94	33.93
2011	22.41	9.42	12.87	21.74	33.55
2012	22.49	9.44	12.99	21.43	33.65
2013	23.26	9.57	12.61	21.11	33.46
	Value added at factor cost per person employed, on size class against total average (=100), in %				
2010	59.08	70.64	…	…	…
2011	57.46	66.75	74.81	…	…
2012	57.97	71.21	74.03	…	…
2013	60.42	71.08	72.93	92.25	150.87

Source: Eurostat, Total business economy; repair of computers, personal and household goods; except financial and insurance activities, Annual enterprise statistics by size class and NACE Rev. 2 activity (B-N_X_K)[eip_pop1], Last available data. Eurostat database on 2017, March 1-st

For a complete picture of the impact of minimum wage adjustment at micro level, we suggest the use of the available indicators at firm level - turnover, profits,

total labour cost - , and the calculation of derived indicators such as profitability rate (using a special extraction from national level databases with the NIS support). Indicators such as turnover, labour cost and profit are calculated and tracked at firm level through regular statistical reports (financial statements, namely the part concerning "profit and loss"). Such centralized statistical information detailed at the level of economic activities (NACE Rev.2, 4 digits) would allow for the highlighting of economic vulnerability of the most exposed companies to a risk of profitability's reduction as a result of minimum wage increase and the substantiation of complementary policies to support affected companies. It would also allow for a documented negotiation/consultation process between the social partners in selecting the scenario applied for minimum wage increase and the final decision on the gross minimum wage level.

3.4 Proposed scenarios

Based on context's particularities as discussed above, in what follows, we propose four possible scenarios regarding the evolution of the gross minimum wage in Romania. These can be changed over time, parallel to the dynamics of the Romanian socio-economic context and statistical evidence as well, by the expert body proposed as core actor within the minimum wage setting mechanism.

Scenario 1 - The minimum wage would be adjusted to the evolution of gross average wage, in order to maintain a constant ratio to average earnings, by the formula:

$$\Delta \text{Gross\_minimum\_wage}_t = \Delta Gross\_average\_wage_{t-1}$$

In 2017, the gross minimum wage is set to 1450 RON, starting February 1st, while for January the value is 1250 RON, so the annual average is 1433.33 RON. Data related to the evolution of average gross wage in the period 2017-2020 comes from the National Commission for Prognosis (CNP).

Table 3.3 Hypothesis for Scenario 1

	Year	Gross minimum wage (RON)	Gross minimum wage growth (%)	Average gross wage (RON) – CNP forecast (2017-2020)	Average gross wage growth (%)	Gross minimum wage to average gross wage ratio
Official historical/ predicted data	2015	1013		2555	9.75%	39.65%
	2016	1183	16.8%	2815	10.18%	42.02%
	2017	1433	21.1%	3131	**11.2%**	45.78%
Projections	2018	1594	**11.2%**	3418	9.17%	45.78%
	2019	1740	9.2%	3702	8.31%	45.78%
	2020	1885	8.3%	3977	7.43%	45.78%

Source: authors' own calculations on CNP and NIS data

Based on this backword-looking scenario hypothesis, for the year 2018 we will study the impact of an increase of the minimum wage of about **11.2%,** which is equal to the previous annual growth rate of the average gross wage.

Scenario 2 – The gross minimum wage would be adjusted to the evolution of GDP/capita:

$$\Delta \text{Gross\_minimum\_wage}_t = \Delta GDP\_capita(PPS)_{t-1}.$$

Using the IMF[42] forecast for Gross domestic product based on purchasing-power-parity (PPP) per capita, the evolution of Gross minimum wage can be described in the following table.

Table 3.4 Hypothesis for Scenario 2

	Year	Gross minimum wage (RON)	Gross minimum wage growth (%)	GDP/capita (PPP) -Current international dollar	GDP/ capita (PPP) growth (%)	Gross minimum wage to gross average wage ratio
Official historical/ predicted data	2015	1013		20872.2	5.27%	
	2016	1183	16.78%	22319.4	6.93%	42.02%
	2017	1433	21.13%	23709.4	**6.23%**	45.77%
Projections	2018	1522	**6.23%**	25123.0	5.96%	44.54%
	2019	1613	5.96%	26586.7	5.83%	43.57%
	2020	1707	5.83%	28100.3	5.69%	42.92%

Source: authors' own calculations on CNP and NIS data

Based on this backword-looking scenario hypothesis, for the year 2018 we will study the impact of an increase of the minimum wage of about **6.23%,** which is equal to the previous annual growth rate of the GDP per capita (PPP).

Scenario 3– The gross minimum wage would be adjusted to take into account the evolution of the inflation rate:

$$\Delta \text{Gross\_minimum\_wage}_t = Inflation\_rate_{t-1}.$$

As an illustration, considering CNP forecasts for the gross average wage and the inflation rate forecasted by the IMF, the evolution of the Gross minimum wage can be described in the table below.

[42] International Monetary Fund, World Economic Outlook Database, October 2016.

Table 3.5 Hypothesis for Scenario 3

	Year	Gross minimum wage (RON)	Gross minimum wage growth (%)	Inflation rate (%) - IMF forecasts	Gross minimum wage to gross average wage ratio
Official historical/ predicted data	2015	1013		-0.6%	39.65%
	2016	1183	16.78%	-0.5%	42.02%
	2017	1433	21.13%	**1.7%**	45.77%
Projections	2018	1457	**1.7%**	3.1%	42.63%
	2019	1502	3.1%	2.7%	40.58%
	2020	1543	2.7%	2.6%	38.80%

Source: authors' own calculations on IMF and NIS data

Based on this scenario hypothesis, for the year 2018 we will study the impact of an increase of the minimum wage of about **1.7%,** which is equal to the forecasted annual inflation rate for the previous year.

Scenario 4 – The gross minimum wage would be adjusted to take into account the evolution of the minimum expenditure basket, following the formula:

$$\Delta Gross\_minimum\_wage_t = \Delta Minimum\_expenditure\_basket_{t-1}$$

As the potential increase of the minimum basket level is quite low, as it depends mostly on the dynamic of prices in the context of negative inflation rates registered in 2015 and 2016, in the case of this scenario it is particularly difficult to build a solid and reliable hypothesis regarding the future dynamic of the minimum expenditure basket.

Moreover, since no forecasts of the level of this indicator are yet available for the year 2017, the only possible assumption could consist in correlating the dynamic of the minimum expenditure basket with the dynamic of prices. Under this assumption, however, the hypothesis will be identical to the one corresponding to scenario 3, meaning that for the year 2018 the minimum wage will increase with **1.7%,** which is equal to the forecasted annual inflation rate for the previous year.

In case of any other hypothesis that will assume an increase of the minimum expenditure basket of less than 1%, the impact assessment on socio-economic variables shall not be estimated. But, the scenario will be evaluated each year and will be activated whenever the annual growth rate would exceed 1%.

In this sense, we suggest that a renewed methodology of the minimum expenditure basket to be developed by the National Institute of Statistics (NIS), in order to combine normative methods based on expert judgement with inputs from the effective expenditure patterns of the population.

Table 3.6 Hypothesis for Scenario 4

	Year	Gross minimum wage (RON)	Gross minimum wage growth (%)	Minimum expenditure basket growth rate	Gross minimum wage to gross average wage ratio
Official historical/ predicted data	2015	1013		-0.012%*	39.65%
	2016	1183	16.78%	0.6%*	42.02%
	2017	1433	21.13%	**1.7%**	45.77%
Projections	2018	1457	**1.7%**		42.63%

*Data provided by RIQL.
Source: authors' own calculations on NIS, RIQL and IMF data.

To these four scenarios which are the guiding principle of this exercise, we have also added, for illustrative purposes, the scenario based on the Government program decision, which is in place for 2017-2020. Compared to the other scenarios based on well-defined normative criteria, however, the government program decision scenario represents an ex-post comparison of the already taken political decision with the other hypothetical scenarios.

Scenario 5 – The gross minimum wage will evolve according to the Government program for the period 2017-2020.

Table 3.7 Hypothesis for Scenario 5 – Ex-post government decisions/ intentions

	Year	Gross minimum wage (RON)	Gross minimum wage growth (%)	Average gross wage (RON) –CNP forecast	Gross minimum wage to average gross wage ratio
Official historical data	2017	1433.3	21.13%	3131	45.78%
Government decisions/ intentions	2018	1550	**8.14%**	3418	45.35%
	2019	1650	6.45%	3702	44.57%
	2020	1750	6.06%	3977	44.00%

Source: authors' own calculations on NIS data and the governmental program.

IV.
Measuring the ex-ante and ex-post economic and social effects of the minimum wage adjustment

The minimum wage setting mechanism should imply annual impact assessments of the socio-economic effects of the minimum wage adjustments. The impact assessment study should include both ex-ante and ex-post analysis based on the minimum wage increases.

As an illustration purpose of the impact assessment analysis, this section presents an ex-ante analysis of the socio-economic effects of the minimum wage adjustment, based on the alternative scenario analysis.

4.1 Impact assessment of minimum wage increases on poverty and income distribution

4.1.1 Introduction

The impact assessment of the minimum wage adjustments upon poverty and income distributions, as well as upon the number of employees paid by the minimum wage and their distribution based on gender, age, occupation and economic activities relies mostly on micro-simulations.

The micro-simulation analysis implies modelling the behaviour and the interactions of micro units (i.e. individuals/households), based on a set of rules that typically operate on a representative sample for the micro units. The intervention (in our case, the minimum wage adjustment) was simulated on a sample of micro units and the results were extended to the total population from which the sample was drawn, under specific limitations resulting from the sample design.

The advantage of micro-simulations over other ex-ante policy assessment techniques consists in the fact that the results are noticeable at household level, but aggregate results for the entire population, as well as, their distribution can also be estimated. The five alternative scenarios of minimum wage adjustments were tested in order to evaluate the effects on the population`s living standards. The interactions between the minimum wage level and the eligibility to receive means tested social benefits (such as social support to ensure the minimum guaranteed income, family support allowance, aid for heating, etc.) were also studied. The reason for that was that a minimum wage increase may not be reflected equally in the adjusted total income (and disposable income) of a family / household due to the means-tested social benefits that can potentiate the effects of the minimum wage increase on total family income. Thus, the minimum wage has been studied in a broader context of the household income.

The methodology will be presented in the next section, followed by the impact assessment analysis of the minimum wage adjustments upon the number of minimum wage earners and their distribution based on gender, age groups, occupations and economic sectors, the ratio between minimum wage and the median wage, the in-work poverty rate and wage inequalities. The main conclusions will be drawn in the last section.

4.1.2 Methodology for impact assessment

The impact assessment analysis was conducted entirely based on the EU-SILC (European Union Statistics on Income and Living Conditions) database, provided by Eurostat.

The EU-SILC micro-data used in the analysis were collected in 2014, having as reference point for the income values the year 2013. All monetary variables (income) were updated for the year 2017, using several updating factors detailed by source of income. The population`s characteristics were kept constant to the initial moment corresponding to year 2014, while the incomes were adjusted in line with the market evolution.

We must note that this survey is nationally representative at household level, while the sample consists of approximately 7,500 households. The data were collected through individual interviews at households` members who are at least 16 years old (approx. 17,300 individuals), but relevant information at household level were also collected. Among the variables of interest to our study we mention those related to individuals /households income detailed by main income sources and households` socio-demographic characteristics.

Regarding the identification of the minimum wage earners the process implied the following steps:

- Equivalised income at household level was computed, based on the OECD modified equivalence scale. Thus, all persons in the household have the same income equivalent.
- The selection of the employees was made based on the gross wage at full-time employment equivalent.
- The individual monthly gross wage was estimated as a ratio between the annual gross wage (as collected from the survey) and the number of months the individual has been employed during the reference year.
- For the year 2017 we assumed as minimum wage earners all employees gaining a monthly gross wage close to the level of the annual gross minimum wage of 1433 lei. The lower limit of the interval was set to 80% of 1433 lei, while the upper limit was set to 105% of 1433 lei. The choice for such an interval selection was made on the grounds to avoid certain exclusion errors derived from the calculation of the monthly gross equivalent wages, as well as from the fact that the analysis is made on gross wages rather than on the base salary.

Limitations

We accept as a limit to our study the fact that the starting database (though updated to 2017) refers to the year 2014, as the micro-simulation model used to estimate the minimum wage impact on households` total income (i.e. the EUROMOD model) could not be run on a more recent database. Our simulations made use of the EUROMOD tax-benefit microsimulation model (Sutherland and Figari, 2013), through which tax liabilities and social benefit entitlements can be estimated for the EU countries, based on EU-SILC data[43].

As a limitation, we must also mention the fact that since the EU-SILC database was designed to be representative at households level, not being a representative sample of employees, the number of employees is over-represented in the sample, while the gross earnings is under-valued.

One further limitation on our study consists in the fact that the EUROMOD model is based on several strong assumptions, such as no tax evasion (for Romania, except for the social contribution of self-employed in agricultural activities), all contributions and taxes due are paid accordingly and all social benefits are claimed immediately and received by any person/household that meets the eligibility conditions.

Given our purpose was an illustration of the impact assessment of minimum wage changes on socio-economic variables, we estimated the static, first-order effects of minimum wage changes on household disposable income and abstract from any behavioural changes following a minimum wage increase (i.e. labour market status changes).

4.1.3 Impact assessment of minimum wage increases based on scenario analysis

4.1.3.1. Effects on the total number of minimum wage earners

When analysing the effects of the alternative scenarios of minimum wage setting, we notice that the higher the minimum wage adjustment is, the greater the total number of minimum wage earners becomes.

The main results of the scenario analysis are summarized in the table below.

Table 4.1 Impact assessment on the total number of minimum wage earners

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 5
Number of employees paid by the minimum wage	1,289,696	1,877,310	1,656,293	1,444,692	1,736,506
Variation (%) from the initial situation		46%	28%	12%	35%

Source: authors' calculations based on EU-SILC data and EUROMOD model

[43] A detailed description of the tax-benefit system for Romania can be found in Stroe, Militaru, and Avram (2017). EUROMOD country report: Romania, 2013–2016. ISER

We notice that the effects of minimum wage adjustments are higher in case the first scenario is taken into consideration, for which the highest increase in minimum wage is forecasted (i.e. of 11.2%). More precisely, an increase of 11.2% of the annual minimum wage would lead to a 46% increase of the total number of minimum wage earners as compared to the initial situation, as compared to scenario 3, where the lower increase in the minimum wage is expected (i.e. 1.7%) and for which a 28% increase of the total number of minimum wage earners is predicted.

Please note, that the estimated results of the impact assessment are computed under the assumption that no spill-over effects on other wages are registered as a result of minimum wage increase and also under the limitations given by the database that were previously mentioned (underestimation of wage levels and overestimation of the number of employees). Therefore, the results should be treated with caution.

4.1.3.2 Effects on the ratio between gross minimum wage and the median gross wage

Based on the scenario analysis regarding the minimum wage adjustments, we notice that the ratio between gross minimum wage and the median gross wage tends to follow an upward tendency once the minimum wage adjustment levels increase.

The highest increase of the ratio between the gross minimum wage and the gross median wage is registered in the first case scenario. More precisely, an 11.2% increase of the minimum wage level will generate a rather similar effect (of 10%) on the ratio between minimum and median wages, while the 5th scenario only generates an 8% increase of the ratio. The lowest increase (of about 2%) is registered in the 3rd scenario, as the minimum wage rate is adjusted only with the inflation rate (meaning 1.7%).

The main results of the scenario analysis are summarized in the table below.

Table 4.2 Impact assessment on the ratio between gross minimum wage and the median gross wage

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 5
The ratio between gross minimum wage and the median gross wage (%)	79.9%	88.2%	84.6%	81.2%	86.0%
Variation (%) from the initial situation		10%	6%	2%	8%

Source: authors' calculations based on EU-SILC data and EUROMOD model

Again, one should bear in mind that as a result of wages underestimation, the median wage is underrated as well.

4.1.3.3 Effects on the distribution of employees paid with minimum wage by gender, age groups, occupations and economic sectors

When studying the effects of the minimum wage increase on the gender distribution of the minimum wage earners, based on the alternative scenarios we notice that the structure remains unchanged in case of the 5th scenario (when considering a 8.1% increase of the minimum wage rate).

Table 4.3 Impact assessment on the gender distribution of minimum wage earners

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 5
Male minimum wage earners (%)	52.6%	52.8%	52.1%	52.3%	52.6%
Variation (%) from the initial situation		0.4%	-1.0%	-0.6%	0.0%
Female minimum wage earners (%)	47.4%	47.2%	47.9%	47.7%	47.4%
Variation (%) from the initial situation		-0.4%	1.0%	0.6%	0.0%

Source: authors' calculations based on EU-SILC data and EUROMOD model

The most noticeable differences are registered in case of the 2nd scenario, when the minimum wage adjusts in line with the GDP per capita dynamic. In this case, a 1% shift from male minimum wage earners to females is estimated as compared to the initial situation, in which case males represented 52.6%.

Regarding the age group distribution of the minimum wage earners in the initial situation corresponding to year 2017 we notice that the age group 35-44 years old has the highest representation (around 33.7% of total minimum wage earners), followed by the 25-34 age group (with 27%) and the 45-54 age group (with 22.8%).

Table 4.4 Impact assessment on the age groups distribution of minimum wage earners

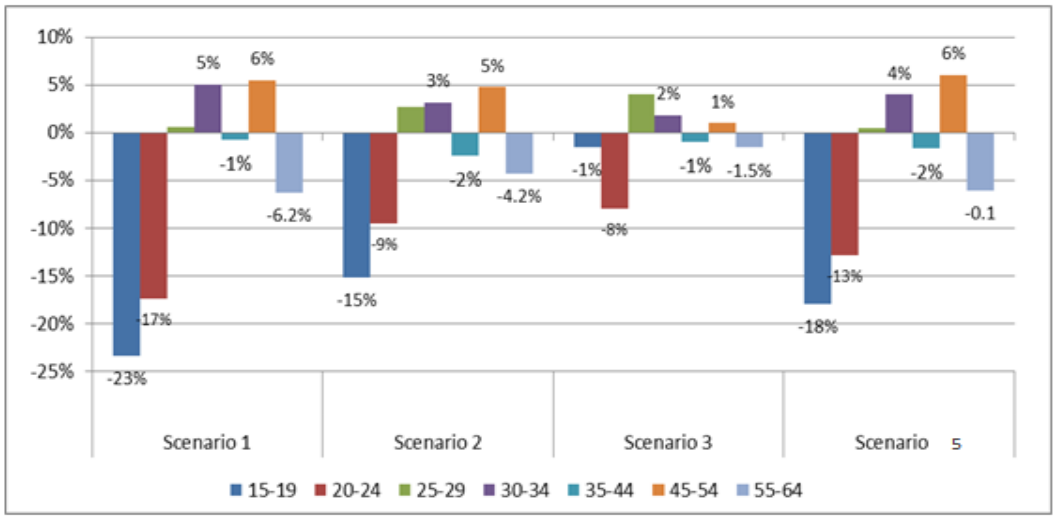
	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 5
15-19 age group	0.4	0.3	0.3	0.4	0.3
20-24 age group	6.6	5.5	6.0	6.1	5.8
25-29 age group	12.2	12.3	12.5	12.7	12.3
30-34 age group	14.8	15.6	15.3	15.1	15.4
35-44 age group	33.7	33.5	33.0	33.4	33.2
45-54 age group	22.8	24.0	23.9	23.0	24.2
55-64 age group	9.4	8.8	9.0	9.2	8.8

Source: authors' calculations based on EU-SILC data and EUROMOD model

According to the alternative scenarios, the effects of the minimum wage adjustments on the age structure of the minimum wage earners compared to the

initial situation are presented in fig. 4.1. Younger age groups have been split into smaller (5 years) intervals, in order to capture their possible heterogeneity in relation to minimum wage increase. We find that a minimum wage increase leads to higher shares of employees aged 30-34 years in the total number of employees paid at the minimum wage, also the 25-29 years and 45-54 years age groups increase their proportion in total.

Fig. 4.1 Effects of the minimum wage adjustments to the age groups distribution of minimum wage earners



Source: authors' calculations based on EU-SILC data and EUROMOD model

Regarding the distribution of the minimum wage earners based on their main occupations we notice that in the initial situation corresponding to year 2017 the best represented occupations correspond to *Service and sales workers* (around 29.9% of total minimum wage earners) and *Craft and trades workers* (29.9% share), followed by *Plant and machine operators* (15.6%) and *Elementary occupations* (7.6%).

Table 4.5 Impact assessment on the occupational distribution of minimum wage earners

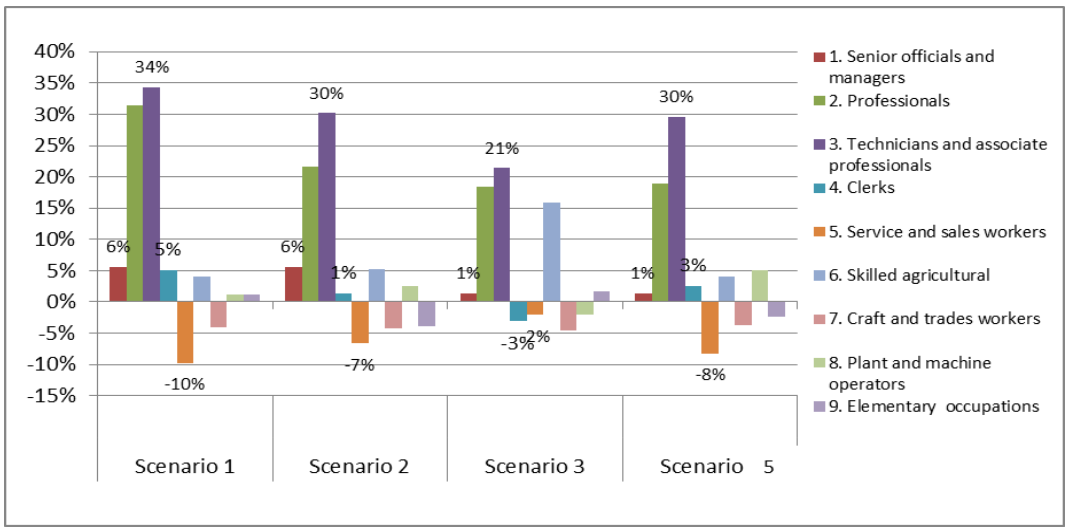
	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 5
0. Armed forces	0.2%	0.3%	0.4%	0.2%	0.4%
1. Senior officials and managers	0.7%	0.8%	0.8%	0.7%	0.7%
2. Professionals	3.4%	4.5%	4.2%	4.1%	4.1%
3. Technicians and associate professionals	6.7%	9.0%	8.8%	8.2%	8.7%
4. Clerks	4.3%	4.5%	4.4%	4.2%	4.4%
5. Service and sales workers	29.9%	27.0%	27.9%	29.3%	27.4%

6. Skilled agricultural	1.7%	1.8%	1.8%	2.0%	1.8%
7. Craft and trades workers	29.9%	28.7%	28.6%	28.5%	28.8%
8. Plant and machine operators	15.6%	15.8%	16.0%	15.3%	16.4%
9. Elementary occupations	7.5%	7.6%	7.3%	7.7%	7.4%

Source: authors' calculations based on EU-SILC data and EUROMOD model

When assessing the impact of minimum wage adjustments on the minimum wage earners` distribution based on their main occupations, according to the alternative scenarios we notice a slight shift from service and sales workers, and craft and trade workers to plant and machine operators. Other increases are also met for the case of the following occupations types: *Technicians and associate professionals* and *Professionals*.

Fig. 4.2 Effects of the minimum wage adjustments to the occupational distribution of minimum wage earners



Source: authors' calculations based on EU-SILC data and EUROMOD model

Regarding the distribution of the minimum wage earners based on main economic sectors we notice that, in the initial situation, corresponding to year 2017, the best represented economic sectors correspond to *Mining, manufacturing and utilities* (around 29.6% of total minimum wage earners) and *Wholesale and retail trade* (23.7% share of minimum wage earners), followed by *Constructions* (11.9%) and *Transport and communication* (7.1%).

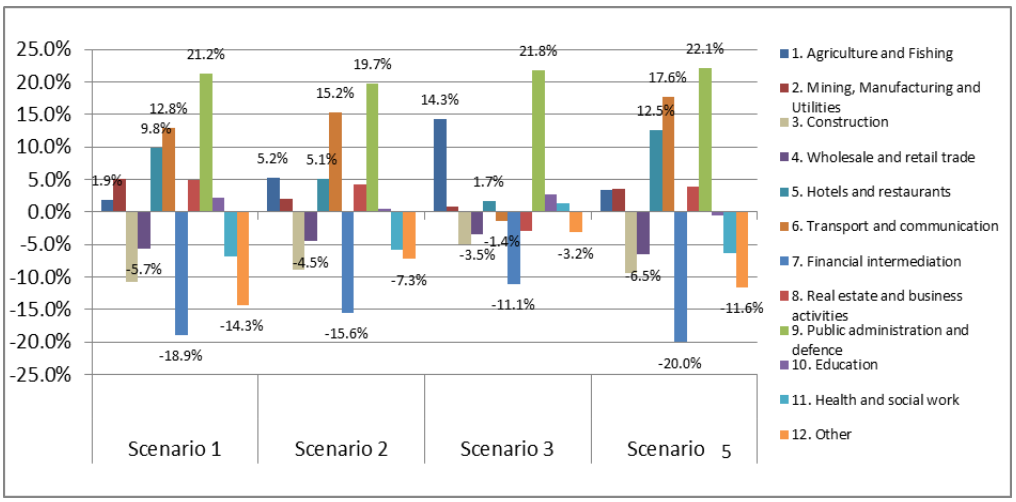
Table 4.6 Impact assessment on minimum wage earners` distribution on main economic sectors

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 5
1. Agriculture and Fishing	4.8%	4.9%	5.0%	5.5%	4.9%
2. Mining, Manufacturing and Utilities	29.6%	31.1%	30.2%	29.9%	30.7%
3. Construction	11.9%	10.6%	10.8%	11.3%	10.8%
4. Wholesale and retail trade	23.7%	22.3%	22.6%	22.9%	22.1%
5. Hotels and restaurants	3.0%	3.3%	3.1%	3.0%	3.3%
6. Transport and communication	7.1%	8.0%	8.2%	7.0%	8.3%
7. Financial intermediation	0.9%	0.7%	0.8%	0.8%	0.7%
8. Real estate and business activities	3.0%	3.2%	3.2%	2.9%	3.2%
9. Public administration and defence	3.3%	4.0%	4.0%	4.0%	4.0%
10. Education	3.8%	3.9%	3.8%	3.9%	3.8%
11. Health and social work	4.6%	4.3%	4.3%	4.6%	4.3%
12. Other	4.4%	3.8%	4.1%	4.3%	3.9%

Source: authors' calculations based on EU-SILC data and EUROMOD model

The scenario analysis of the minimum wage impact on the minimum wage earners` distribution based on the main economic sectors, highlighted several fluctuations in the initial distribution.

Fig. 4.3 Effects of the minimum wage adjustments to the distribution of minimum wage earners on main economic sectors



Source: authors' calculations based on EU-SILC data and EUROMOD model

More precisely, the share of employees paid by the minimum wage in the *Construction* or *other economic sectors*, generally in favour for the following economic sectors (where the highest increases in shares were noticed): *Public administration and defence*, *Transport and communication*, as well as *Hotels and restaurants*.

As a particularity registered for the 3rd scenario, when the minimum increases in line with the inflation rate, the share of minimum wage earners increases more noticeable in the *Agriculture and Fishing* sector, while in the *Health social work* sector there is an atypical but very modest increase of the share of minimum wage earners as compared to all the other scenarios, where decreases of these shares are to be expected.

4.1.3.4 Effects on in-work poverty rate

When analysing the effects of the alternative scenarios of minimum wage setting, we notice that the in-work poverty rate does not adjust in line with the minimum wage increase. This is mainly because minimum wage earners are not very well represented among the working poor, predominantly consisting of self-employed in agricultural activities. In this case, the highest reduction in the in-work poverty rate is registered based on the 5th scenario, when the minimum wage increases with 8.1%, according to the government program. The second best alternative would be an increase in the minimum wage by 11.2% corresponding to the 1st scenario, while the lowest effect is estimated in case the minimum wage is adjusted according to the inflation rate.

The main results of the scenario analysis are summarized in the table below.

Table 4.7 Impact assessment on the in-work-poverty rate

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 5
In-work poverty rate (%)	19.8%	19.7%	19.8%	19.7%	19.7%
Variation (%) from the initial situation		-0.45%	-0.24%	-0.42%	-0.48%

Source: authors' calculations based on EU-SILC data and EUROMOD model

4.1.3.5 Effects on wage inequalities

One common indicator of wage inequalities is the Gini index. Thus, when studying the impact of minimum wage on wage inequalities, the reference will be made for the Gini index dynamics. The main results of the scenario analysis are summarized in the table below.

Table 4.8 Impact assessment on wage inequalities

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 5
Gini index	0.2553	0.2458	0.2498	0.2538	0.2482
Variation (%) from the initial situation		-3.73%	-2.14%	-0.59%	-2.76%

Source: authors' calculations based on EU-SILC data and EUROMOD model

Based on the scenario analysis regarding the minimum wage adjustments, we notice that the higher the minimum wage adjustment is, the lower the Gini index becomes. Therefore, the highest reduction in the Gini index as compared to the initial situation is estimated in case the first scenario is considered followed by scenario 5 and scenario 2. A rather insignificant variation as compared to the initial situation is met in case the minimum wage is adjusted in line with the inflation rate.

4.1.4 Conclusions

The impact assessment of the minimum wage adjustments upon the number of minimum wage earners and their distribution based on gender, age groups, occupations and economic sectors, the ratio between minimum wage and the median wage, the in-work poverty rate and wage inequalities relied on micro-simulations. The results were extended to the total population from which the sample was drawn, but under specific methodological limitations of which one should be aware when interpreting the results.

The following conclusions were drawn from the scenario analysis:

- The higher the minimum wage adjustment is, the greater the total number of minimum wage earners becomes
- The ratio between gross minimum wage and the median gross wage tends to follow an upward tendency once the minimum wage adjustment levels increase
- Regarding the gender distribution of the minimum wage earners there was a general slight tendency shift from males to females in all scenarios, except for the 5th scenario, where the distribution remained unchanged.
- Regarding the age group distribution of the minimum wage earners, those of 35-44 years old are among the most numerous (33.7%), followed by the 25-34 age group (27%) and the 45-54 age group (22.8%). A minimum wage increase generally leads to higher shares of employees aged between 30 and 34, but also between 25-29 and 45-54 years, among the total number of minimum wage earners.
- The best represented occupations correspond to Service and sales workers (29.9%) and Craft and trades workers (29.9%), followed by Plant and machine operators (15.6%) and Elementary occupations (7.6%). The highest

changes were registered in the *Technicians and associate professionals* and *Professionals*.

- The best represented economic sectors correspond to Mining, manufacturing and utilities (29.6%) and Wholesale and retail trade (23.7%), followed by Constructions (11.9%) and Transport and communication (7.1%). The share of employees paid by the minimum wage in Construction and other economic sectors, generally in favour of the following economic sectors (where the highest increases in shares were noticed): Public administration and defence, Transport and communication, as well as Hotels and restaurants.
- The higher the minimum wage adjustment is, the lower the Gini index becomes.
- The in-work poverty rate does not adjust in line with the minimum wage increase. The highest reduction in the in-work poverty rate is registered based on the 5th scenario, the second best alternative would be the 1st scenario, while the lowest effect is estimated in case of the 3rd scenario.

4.2 Impact assessment of minimum wage increases on macroeconomic variables

4.2.1 Introduction

At macroeconomic level, the impact assessment of the minimum wage adjustments is studied upon the following main indicators: inflation rate, real effective exchange ratio (REER), unit labour cost, wage share (compensation of employees as share of GDP) and employment rate.

All these indicators reflect the incidence of a minimum wage increase upon the business environment, relative to:

- Labour cost increases and changes in the structure of total business cost;
- Alternative decisions for absorbing the increased level of the minimum wage: a) increasing the prices of goods/services with impact on inflation rate, or b) reducing profitability rate with impact on lower rate of profit re-investment, a cost competitiveness decreasing in relative terms (decreasing the gap between the country's unit labour cost and the average unit labour costs of its competitors);
- Value added structure changing by increasing wage share, but with no grounds in the economic efficiency at company level i.e. physical labour productivity growth;

The minimum wage increase impact estimation on such macroeconomic indicators is partially limited by some peculiarities of the Romanian economy, consisting in:

a) Firms structure according to their size – 90% are micro-firms (with 0-9 employees), and another 9% are small companies (10-49 employees), according to NIS data for the year 2015;

b) Export activity concentration – 3% of total intra-EU export is achieved by around 65% of companies with activities of intra-EU trade, which are not included in the nationwide statistically sample because are below the registration threshold (about 200 thousand euros annually- data for 2016);

c) Minimum wage is paid mainly in micro/small firms with lower profitability rates, and with reduced share of exports.

The methodology will be presented in the next section, followed by the impact assessment analysis of the minimum wage adjustments upon the inflation rate, real effective exchange ratio, unit labour cost, wage share and employment (detailed by age groups:15-19, 20-24 and 25-29 and on selected activities (NACE Rev2.) with high share of employment at minimum level). The main conclusions will be drawn in the last section.

The selection of age groups was carried out based on the following criteria:

- Young people are mostly employed at the minimum wage, their lack of experience being the most often argument cited by employers;
- After giving up of the single national collective labour agreement, the application of coefficients at minimum wage, depending on qualifications and level of education was not mandatory anymore for the companies (in practice today, many university graduates are employed at the minimum wage);
- The payroll at the minimum wage level is maintained even several years, especially in small firms, often associated with informal payments (low wage trap)

As for selection of the most relevant **vulnerable activities** in terms of average wages near the minimum wage, based on the INCSMPS preliminary study conducted in November 2016[44], we have included the following activities: agriculture, fishing and forestry, construction, HORECA, manufacturing industry, mining industry and trade.

4.2.2 Methodology for impact assessment

The impact assessment was carried out using the following annual data, covering the interval 2000-2017:

- Gross minimum wage index (2005=1), data from Ministry of Labour (2000-2017).
- Consumer Price Index (2005=1), NIS data (2000-2016).
- Compensation of employees, current prices (bn. RON), NIS data (2000-2015).

[44] Research on the level of the statutory gross minimum wage in Romania, regarding the assessment of the economic and social impact of its enforcement, (Contract no. 41/07.10.2016 signed between the Romanian Ministry of Labour, Family, Social Protection and Elderly - MMFPSPV and the National Scientific Research Institute for Labour and Social Protection - INCSMPS), http://www.mmuncii.ro/j33/index.php/ro/minister/minister-rapoarte-studii

- Gross Domestic Product (GDP), current prices (bn. RON), NIS data (2000-2015).
- Average number of employees (mill.), NIS data (2000-2015).
- Real effective exchange rate, Eurostat data (1999-2016).
- Nominal unit labour cost change (based on hours worked), Eurostat data (1999-2016).
- Forecasts, according to National Commission for Prognosis, for 2016-2020.

The methodology involves using, by case, two main econometric techniques: Vector Auto-Regressive (VAR) models and linear regression models.

In the case of VAR models, there is no reached consensus about using stationary or non-stationary variables (see Brooks, 2014). However, for our purpose, level-variables were used in order to capture the relationships between the variables; differentiating in this case may alter the information about the long-run relationships between the variables.

In case of linear regression models, the purpose was to capture the elasticities related to the impact variables insuring a decent statistical significance.

However, the results need to be regarded with caution due to the following issues:

- The sample used for analysis is rather medium sized, possibly causing low statistical power.
- As in the past years, the minimum wage in Romania was not set based on a proper correlation with the macroeconomic environment the correlation observed through these models may be solely the results of some hidden factors.

4.2.3 Impact assessment of minimum wage increases based on scenario analysis

4.2.3.1. Effects on inflation rate

Any changes in the production factors' prices generate total cost increase which, in some proportion, is transferred to CPI. So, „the snow ball effect" could create disequilibria both in production and consumption levels and structures. The share of incomes at minimum or around minimum wage level in total pay bill in Romania is significant and affects mostly micro/small firms, with a limited flexibility of goods/services price dynamics. Also, these firms are confronted with lower profitability rates than average. The absorption capacity of labour cost increase by reducing profitability is limited for micro/small firms, and this alternative is less used, rather by exception.

During the period 1999-2003 CPI increased over gross minimum wage dynamics, but, after 2007 was overpassed, with a significant gap increase.

Fig. 4.4 The evolution of CPI and gross minimum wage between 1999 and 2016

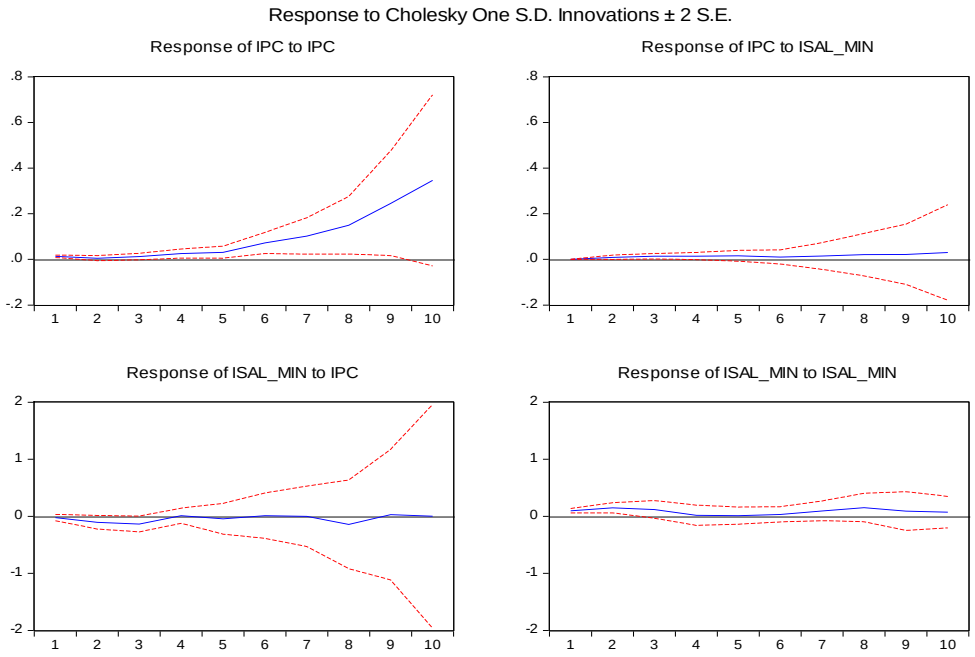
Source: authors' own calculations on Eurostat data

The relationship between the two lagged variables was tested by means of Vector Autoregresssion model (the output is shown in the Annex 3).

Some relevant conclusions that come out of the analysis consist of:

- There is a positive correlation between minimum wage and CPI, but on a relatively low intensity - an **increase by 1% in the minimum wage index determines an increase of approx. 0.09% in the CPI;**
- The impulse response function reveals that **the shock of a minimum wage increase is relatively quickly absorbed into the market**.

Fig. 4.5 The impulse-response function



Source: authors' own calculations on Eurostat data

By using the elasticities estimate on the VAR model, one can estimate the impact of gross minimum wage adjustment on the inflation rate.

Table 4.9 Impact assessment of the minimum wage increase on the Inflation Rate

	Gross minimum wage (RON)				**Inflation rate (%)**			
Year	**Scenario 1**	**Scenario 2**	**Scenario 3**	**Scenario 5**	**Scenario 1**	**Scenario 2**	**Scenario 3**	**Scenario 5**
2015	1013	1013	1013	1013				
2016	1183	1183	1183	1183				
2017	1433	1433	1433	1433				
2018	1594	1522	1457	1550	4.64%	2.56%	0.69%	3.37%
2019	1740	1613	1502	1650	4.10%	2.55%	1.26%	2.81%
2020	1885	1707	1543	1750	3.97%	2.57%	1.12%	2.74%

Source: authors' own calculations on Eurostat data

We notice that the effects of minimum wage adjustments, in different scenarios, on the inflation rate are the highest for 2018 in the 5th scenario and in 2019-2020 in the first scenario. Moreover, the lowest average impact on CPI is registered in the case of the third scenario.

Table 4.10 The intensity of minimum wage increase on inflation rate, in different scenarios

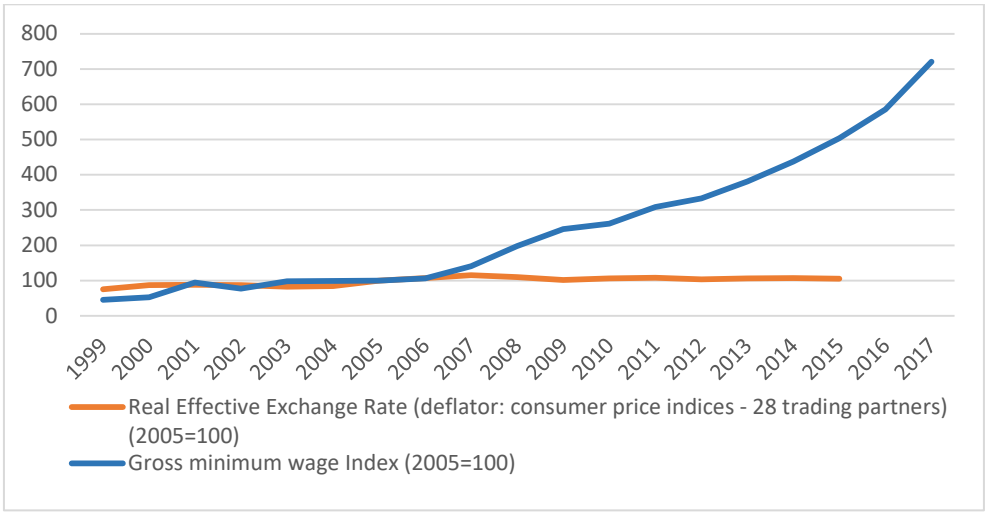
	Minimum wage increase (%)			**Inflation rate (%)**			**Inflation rate at 1% minimum wage increase**		
	2018	**2019**	**2020**	**2018**	**2019**	**2020**	**2018**	**2019**	**2020**
scenario 1	11.23	9.17	8.31	4.64	4.1	3.97	0.4132	0.4471	0.4777
scenario 2	6.23	5.96	5.83	2.56	2.55	2.57	0.4109	0.4279	0.4408
scenario 3	1.68	3.11	2.7	0.69	1.26	1.12	0.4107	0.4051	0.4148
scenario 5	8.14	6.45	6.06	3.37	2.81	2.74	0.4140	0.4357	0.4521

Source: authors' own calculations on Eurostat data

4.2.3.2. Effects on country's competitiveness

The effect of the minimum wage adjustments on the **real effective exchange ratio** provides an indication of how **cost competitiveness** would be affected by such changes. By using the data from Eurostat for Real effective exchange rate and the gross minimum wage index we can depict their evolution from 1999 to 2016 in the following graph.

Fig. 4.6 The evolution of real effective exchange rate and the gross minimum wage index between 1999 and 2016



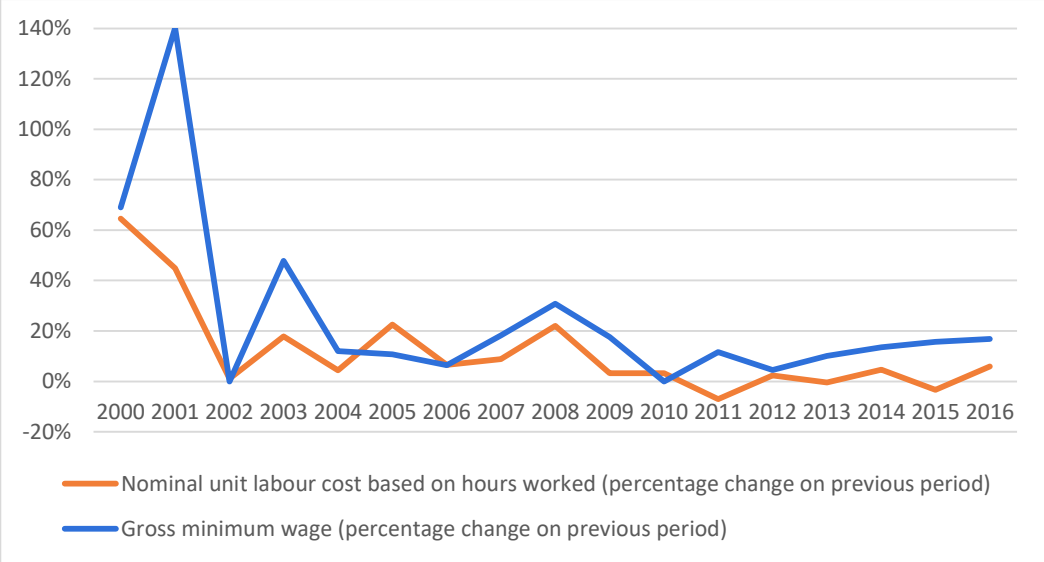
Source: authors' own calculations on Eurostat data

The relationship between the Minimum Wage Index (ISAL_MIN) and the Real Effective Exchange Rate (REER) as a proxy for competitiveness was tested by means of simple regression analysis. The Eviews Output is shown in Annex 3.

Contrary to what the literature review suggests, the slope is negative, which means that **the increase of the minimum wage decreases the real effective exchange rate**, probably due to the fact that the evolution of these two indicators have different underlying mechanisms. While REER is a result of the monetary policy, the changes in minimum wage are largely dependent of unions' impositions. We also have to consider Romania's peculiarities related to the distribution of minimum wage earners on firm size and activity domains and the competitiveness potential, i.e. export activity.

Further on, the effect of the minimum wage adjustments on the **nominal unit labour cost** provides an indication of how **cost competitiveness** would be affected by such changes. By using the data from Eurostat for Nominal unit labour cost change (based on hours worked) and the gross minimum wage change we can depict their evolution from 1999 to 2016 in the following graph.

Fig. 4.7 The evolution of Nominal unit labour cost change and the gross minimum wage change between 1999 and 2016



Source: authors' own calculations on Eurostat data

The relationship between the Gross Minimum Wage Change (DLOG(SAL_MIN)) and the Nominal unit labour cost based on hours worked (percentage change on previous period) (DULC_HOURS) as a proxy for competitiveness was tested by means of simple regression analysis. The Eviews Output is shown in Annex 3.

The slope of the model is positive, which means that **the increase of the minimum wage is positively correlated with the increase of the nominal unit labour cost.**

According to this model, a 1 p.p. increase of the minimum wage change is reflected in 0.64 p.p. increase of the nominal unit labour cost change.

By using this elasticity, one can estimate, for each scenario, the impact of the minimum wage on the nominal unit labour cost change.

The main results of the scenario analysis are summarized in the following table.

Table 4.11 Impact assessment on the nominal unit labour cost change

	Gross minimum wage (RON)				**Nominal unit labour cost based on worked hours (percentage change on previous period)**			
Year	**Scenario 1**	**Scenario 2**	**Scenario 3**	**Scenario 5**	**Scenario 1**	**Scenario 2**	**Scenario 3**	**Scenario 5**
2015	1013	1013	1013	1013	-3.30%	-3.30%	-3.30%	-3.30%
2016	1183	1183	1183	1183	5.90%	5.90%	5.90%	5.90%
2017	1433	1433	1433	1433	13.52%	13.52%	13.52%	13.52%
2018	1594	1522	1457	1550	7.19%	3.97%	1.07%	5.23%

2019	1740	1613	1502	1650	5.86%	3.83%	1.98%	4.13%
2020	1885	1707	1543	1750	5.33%	3.73%	1.75%	3.88%

Source: authors' own calculations on Eurostat data

The final results of the estimation show a different total impact on unit labour cost. More precisely, we note that Scenario 3 could be considered as the most favourable, as the nominal unit labour cost increases up to 2% for the period 2018-2020. In comparison, the other scenarios (1, 2 and 5) generate a higher increase for the whole period 2018-2020.

4.2.3.3 Effects on the wage share

In this case, the theoretical assumption is that any increase of the minimum wage should be reflected in a similar evolution of the wage share, but not with the same intensity, due to the differentiations of the wage policy at firm level.

In order to analyse the impact of the minimum wage on the wage share, the following Cobb-Douglas model was used:

$$COMP_t = A * GMW_t^{\alpha} L_t^{\beta} e^{\varepsilon_t},$$

where:

- $COMP_t$ represents the compensation of employees, during year *t,* in billion RON, current prices;
- GMW_t represents the average gross minimum wage during year *t*;
- L_t represents the average number of employees (millions);
- α, β are the elasticities associated to minimum wage and number of employees;

Actually, the above-presented Cobb-Douglas model is estimated as a multiple regression model in the logarithmic form below:

$$\log COMP_t = a + \alpha \log GMW_t + \beta \log L_t + \varepsilon_t .$$

The Eviews Output is shown in Annex 3.

Assuming the number of employees constant, a 1% increase of the minimum wage is reflected in 0.72% increase of the compensation of employees, in nominal terms.

By using this elasticity, one can estimate, for each scenario, in the first step, the nominal compensation of employees; in the second step, wage share as a percentage of GDP is estimated, using GDP forecasts of National Commission for Prognosis.

The main results of the scenario analysis are summarized in the following table.

Table 4.12 Impact assessment on the wage share

	Gross minimum wage (RON)				Wage share (% of GDP)			
Year	**Scenario 1**	**Scenario 2**	**Scenario 3**	**Scenario 5**	**Scenario 1**	**Scenario 2**	**Scenario 3**	**Scenario 5**
2015	1013	1013	1013	1013	32.23%	32.23%	32.23%	32.23%
2016	1183	1183	1183	1183	33.62%	33.62%	33.62%	33.62%
2017	1433	1433	1433	1433	34.35%	34.35%	34.35%	34.35%
2018	1594	1522	1457	1550	37.56%	36.30%	35.16%	36.79%
2019	1740	1613	1502	1650	40.28%	38.05%	36.10%	38.70%
2020	1885	1707	1543	1750	42.99%	39.84%	36.95%	40.60%

Source: authors' own calculations on Eurostat data

The final results of the estimation show a different total impact on wage share. More precisely, we note that Scenario 1 could be considered as the most favourable, as the total wage share increases with 3.2 percentage points in 2018 from the baseline. Based on the assumptions made, the impact of the minimum wage is positive in all scenarios for the whole period 2018-2020.

Finally, Scenario 3 turned out to be the most unfavourable from the wage share increase point of view, as the total wage share increases with just 0.8 percentage points in 2018.

4.2.3.4. Effects on employment

The employment pattern is different on age groups and level of wages. The jobs payed at minimum wage level are occupied by all age groups, being mainly related to the level of qualification than to specific age groups. But, as prevalence, mainly the youth could be more affected by the minimum wage, as we have detailed at the beginning of section 4.2.

We will present the impact on minimum wage increase on total employment and three youth employment age-groups.

4.2.3.4.1. The impact of a minimum wage increase on total employment

In order to estimate the effect of the minimum wage increase on total employment we have used the Vector Autoregression model. By using annual data between 2000 and 2015 we have modelled the total employment rate on minimum wage.

The summary output can be found in Annex 3. The results show that raising the minimum wage by 1% translates into a 0.14% decrease of the total employment rate.

Table 4.13 Impact assessment on the Employment Rate (total)

	Gross minimum wage (RON)					Employment rate total (%)			
Year	**Scenario 1**	**Scenario 2**	**Scenario 3**	**Scenario 5**	**Baselin**	**Scenario 1**	**Scenario 2**	**Scenario 3**	**Scenario 5**
2015	1013	1013	1013	1013	61.4%				
2016	1183	1183	1183	1183					
2017	1433	1433	1433	1433					
2018	1594	1522	1457	1550		60.21%	60.72%	61.21%	60.52%

Source: authors' own calculations on Eurostat data

In all scenarios, the employment rate is decreasing; the impact differentiation is related to the economic background of these evolutions and of labour market policy. In order to have a positive evolution of the employment rate (according to EU2020 national targets assumed) and also to promote decent wages or a higher living standard of the low payed workers, additional policy measures should be considered for absorbing the minimum wage increase: fiscal differentiation for low payed jobs, stimulus for employers to use young graduates, without work experiences, pre-contracts (before graduation) associated with hours of practice in the future workplace etc.

4.2.3.4.2. The impact of a minimum wage increase on youth employment

The employment pattern of youth is very different from other age groups, due to the activity profile based mainly on acquiring skills and competences in the educational system. The employed status could be considered only as complementary activity. Also the employment model is mainly based on part-time or temporary employment and the mobility from one job to another is high. For this reasons, we have analysed the impact of minimum wage increase on different age groups of the youth population: 15-19, 20-24 and 25-29 years old.

- **The effects of minimum wage increase on youth employment, 15-19 years old segment**

In order to estimate the effect of the minimum wage increase on youth employment we have used the regression analysis. By using annual data between 2000 and 2015 we have regressed the youth employment rate on minimum wage. The summary output can be found in Annex 3.

Increasing the minimum wage by 1% translates into a decrease of 0.37% in the employment rate for the 15-19 years old segment.

Table 4.14 Impact assessment on the Employment Rate 15-19 years (total)

	Gross minimum wage (RON)					**Employment rate 15-19** years **(%)**			
Year	**Scenario 1**	**Scenario 2**	**Scenario 3**	**Scenario 5**	**Baseline**	**Scenario 1**	**Scenario 2**	**Scenario 3**	**Scenario 5**
2015	1013	1013	1013	1013	9.10%				
2016	1183	1183	1183	1183					
2017	1433	1433	1433	1433					
2018	1594	1522	1457	1550		8.92%	9.00%	9.07%	8.97%

Source: authors' own calculations on Eurostat data

- **The effects of a minimum wage increase on youth employment, 20-24 years old segment**

In order to estimate the effect of the minimum wage increase on youth employment we have used the regression analysis. By using annual data between 2000 and 2015 we have regressed the youth employment rate on minimum wage.

Increasing the minimum wage by 1% translates into a decrease of 0.15% in the employment rate for the 20-24 years old segment. The summary output can be found in Annex 3.

Table 4.15 Impact assessment on the Employment Rate (20-24 years)

	Gross minimum wage (RON)					**Employment rate 20-24** years **(%)**			
Year	**Scenario 1**	**Scenario 2**	**Scenario 3**	**Scenario 5**	**Baseline**	**Scenario 1**	**Scenario 2**	**Scenario 3**	**Scenario 5**
2015	1013	1013	1013	1013	39.6%				
2016	1183	1183	1183	1183					
2017	1433	1433	1433	1433					
2018	1594	1522	1457	1550		37.86%	38.13%	38.38%	38.02%

Source: authors' own calculations on Eurostat data

Further on, we have analysed the impact of the minimum wage increase on youth employment for each gender, also by means of regression analysis. By using annual data between 2000 and 2015 we have regressed the male youth employment rate on minimum wage.

Increasing the minimum wage by 1% translates into a decrease of 0.13% in the employment rate of men aged between 20 and 24 years old. The summary output can be found in Annex 3.

Table 4.16 Impact assessment on the Employment Rate Males (20-24 years)

	Gross minimum wage (RON)					Employment rate males 20-24 (%)			
Year	**Scenario 1**	**Scenario 2**	**Scenario 3**	**Scenario 5**	**Baseline**	**Scenario 1**	**Scenario 2**	**Scenario 3**	**Scenario 5**
2015	1013	1013	1013	1013	47%				
2016	1183	1183	1183	1183					
2017	1433	1433	1433	1433					
2018	1594	1522	1457	1550		46.35%	46.63%	46.90%	46.52%

Source: authors' own calculations on Eurostat data

Moreover we have analysed the impact of the minimum wage increase on female youth employment, also by means of regression analysis.

By using annual data between 2000 and 2015 we have regressed the female youth employment rate on minimum wage. The summary output can be found in Annex 3.

Increasing the minimum wage by 1% translates into a decrease of 0.18% of female employment rate of 20 to 24 years old.

Table 4.17 Impact assessment on the Employment Rate Females (20-24 years)

	Gross minimum wage (RON)					Employment rate females 20-24 (%)			
Year	**Scenario 1**	**Scenario 2**	**Scenario 3**	**Scenario 5**	**Baseline**	**Scenario 1**	**Scenario 2**	**Scenario 3**	**Scenario 5**
2015	1013	1013	1013	1013	32%				
2016	1183	1183	1183	1183					
2017	1433	1433	1433	1433					
2018	1594	1522	1457	1550		31.38%	31.65%	31.90%	31.54%

Source: authors' own calculations on Eurostat data

The minimum wage increase impact by gender is higher for women mainly because of their professions and activity profile. Generally, the jobs selected by women are less work intensive and the wages are relatively lower.

- **The effects of minimum wage on youth employment, 25-29 years old segment**

By using annual data between 2000 and 2015 we have regressed the youth employment rate for the 25-29 years old segment on minimum wage.

Based on available data and the econometric models used, we could not find a strong evidence of a correlation between the minimum wage and youth employment rate for 25-29 years (see output table in Annex 3).

Even so, the vulnerability of this age group is, on average, higher than the previous one for at least the following reasons:

- Staying in employment at the minimum wage level is mostly due to the low level of education or qualification or, could also be linked with the acceptance of dual payment, with long term effects on social protection rights;
- Reflects the labour market low potential to create sustainability in employment -dissatisfaction at job is frequently associated with labour mobility/emigration (from one job to another, experiencing different activities, and ending by becoming discouraged in seeking employment at minimum wage, long term unemployed or inactive);
- The cost and duration of the lifelong learning for (re)qualification are higher for employer or social protection system (training programs provided by National Employment Agency), and is associated with a low rate of re-employment;
- There is a higher risk for leaving labour market associated with social effects;
- Have a high risk to become unemployed or long-term unemployed.

In our opinion, it is highly important for this age-group to have a more detailed picture about the employment profile and to analyse the main causes of the minimum wage employment persistence.

4.2.3.4.3. The impact of increasing minimum wage on employment by NACE groups

In order to estimate the effect of the minimum wage increase on employment by NACE groups we have used a classical regression model in order to estimate the elasticity of employment relative to minimum wage. By using annual data between 2000 and 2015 and taking into account the NACE revision from REV1 to REV2, we have considered the following NACE sectors:

- Agriculture, fishing and forestry
- Construction
- HORECA
- Manufacturing industry
- Mining Industry
- Trade

As a result of the estimation, only for few sectors a significant correlation was found between employment and gross minimum wage (see Table 4.18).

Table 4.18 Elasticities by economic activity

Sector	Elasticity	Probt
Agriculture, fishing and forestry	-0.193	<.0001
Manufacturing industry	-0.071	0.005
Mining Industry	-0.423	<.0001

Source: authors' own calculations on Eurostat data

The most vulnerable sector seems to be the **mining industry**, where increasing the minimum wage by 1% translates into an employment decrease of 0.42%.

Table 4.19 Impact assessment on Employment, by economic activity

	Gross minimum wage (RON)				Employment change compared to 2015 (%)				
Year	**Scenario 1**	**Scenario 2**	**Scenario 3**	**Scenario 5**		**Scenario 1**	**Scenario 2**	**Scenario 3**	**Scenario 5**
2015	1013	1013	1013	1013					
2016	1183	1183	1183	1183					
2017	1433	1433	1433	1433					
2018	1594	1522	1457	1550	Agriculture, phishing and forestry	-2.16%	-1.20%	-0.32%	-1.57%
					Manufacturing industry	-0.80%	-0.44%	-0.12%	-0.58%
					Mining Industry	-4.76%	-2.63%	-0.71%	-3.46%

Source: authors' own calculations on Eurostat data

According to these estimates, the most vulnerable sector is the mining industry, under all scenarios. The most conservative scenario in terms of employment is the 3rd scenario.

4.2.4 Conclusions

The scenarios presented and the macro-level impact analysis have revealed undoubtedly the diverse effects and, in some cases, the importance of the minimum wage increase on some macroeconomic variables. The impact is very important to be estimated mainly in a less competitive economy as in the case of Romania, where the relative advantage of low wages (for businesses) could also generate adverse and increasing effects on individual behaviour: reduce incentives for education or acquiring better qualification, propensity to migration for higher wages, weak interest for productivity increase etc.

The impact analysis has showed, in some cases, the atypical effects of the minimum wage increase, partially motivated by the economic structure (by activities and size class of enterprises) and partially generated by labour market policies and social dialogue efficacy (or lack thereof at a significant number of companies - micro and small).

From the minimum wage setting mechanism's perspective, based on objective criteria, deeply rooted in the economic development, capable of generating active social protection (through employment and decent income), the following concluding remarks have emerged:

a) The minimum wage increase effects' calculation should be conducted and monitored at every stage of the minimum wage settlement, for every alternative scenarios and supported by scientifically sound analysis

b) The necessity and real value added of the involvement of a team of experts in the whole process of minimum wage setting mechanism, mostly in complex scenarios' selection and impact analysis. The labour market policies based on sound economic criteria and tailored to national peculiarities/conditions would in the end generate sustainable effects on wage levels, employment attractiveness on the national market and lower propensity for emigration pushed by the wage gap;

c) The macroeconomic impact analysis is important and necessary, but it must be complemented by an in-depth research on the most affected business segment(s) (so called "vulnerable activities") at minimum wage increase (those small/ micro firms) in order to capture the incidence of factors and changes (qualitative survey in firms);

d) Based on the macroeconomic impact results we could conclude that the selected scenarios, at least for the first period of minimum wage setting mechanism implementation (2018-2020 estimates) prove to be the best alternative to consider, but this does not preclude the potential direct and complementary relevance and efficacy of the process of negotiation / consultation with the social partners. Finally, the minimum wage increase remains a political decision, but it is desirable to be well substantiated by the social and economic criteria, providing the right balance between them and mutually accepted by social partners.

4.3 Impact assessment of minimum wage increases on firms' performances

4.3.1 Introduction

The impact assessment of the minimum wage adjustments on firms' performances is of high interest in the minimum wage decision making process, especially as in the private sector the effects of a minimum wage adjustment are rather unpredictable and difficult to estimate based on the available official databases in Romania.

Although several official databases in Romania provide datasets at firm level for private companies, not a single database can contribute in identifying a complete image of the correlations between firms and the minimum wage earners. Among those databases, such as the registration of active employment contracts (the General Registry of Employees- REVISAL), insured persons (the National House of Public Pensions) and of the basic salary of employees of companies counting over 10 employees (NIS), ANAF (National Agency of Financial Administration) provides the most relevant datasets about the activity of the enterprises. Based on it, various companies' profiling can be extracted, such as size, number of employees, juridical form, economical sector, as well as key financial indicators (turnover, productivity, profit, debt, etc.).

In order to analyse the correlation between the minimum wage and firms' performances (turnover and profit), we used the ANAF datasets that were available for the period 2011-2015. The companies were selected according to the following criteria:

- Companies with at least one employee;
- Companies with personnel costs different from zero;
- Companies with turnover strictly greater than zero.

4.3.2 Methodology for impact assessment

We have opted for a regression model on panel data, where there is temporal variation and variation in companies. According to the literature, the regression model on panel data can have the following specifications:

- Fixed effects model (FE):

$$y_{it} = (\alpha + u_i) + X_{it}^{'}\beta + \nu_{it}$$

where y_{it} is the dependent variable, X_{it} is the explanatory variables matrix, $\nu_{it} \sim IID(0, \sigma_\nu^2)$.

- Random effects model *(RE)*:

$$y_{it} = \alpha + X_{it}^{'}\beta + (u_i + \nu_{it})$$

where y_{it} is the dependent variable, X_{it} is the explanatory variables matrix, $\nu_{it} \sim IID(0, \sigma_\nu^2)$.

In the fixed effects model, the intercept is variable over time, while in the random effects model, the intercept is constant. Also, the error variance is constant in the fixed effects model, as long as in the other case it is variable over time.

Discrimination between the two model alternatives can be done by using the Haussman test, which in our case led to the idea of using a random effects model.

Limitations

As a major limitation to the impact assessment analysis at companies' level, we mention the lack of more recent datasets or of longer data series (2011-2015). This fact brings up a true challenge in the implementation of the scenario analysis.

Another limitation consists in the fact that there is no clear image of the number of employees paid by the minimum wage within each company and no investigation was conducted in order to outline how companies might react to changing in the minimum wage.

The lack of more recent datasets or of any available forecasts at firms' level, leads therefore to the impossibility to illustrate the scenario analysis at firms' level.

Therefore, the impact studies should only be perceived as an indicative for the many possibilities the future expert body involved in the minimum wage mechanism could use as a starting point.

Most of these limitations can, however, be eventually overcome by the expert body once more data will be readily available.

4.3.3 Impact assessment of minimum wage increases based on scenario analysis

4.3.3.1. Effects on companies' turnover

The econometric model has the following general form:

$$\log(Turnover)_{it} = \alpha + \beta \log(GMW)_{it} + (u_i + \nu_{it}).$$

The purpose of this model is to capture the degree of sensitivity of the turnover at the company level relative to the minimum wage. The model was estimated at NACE division level 2 digits by excluding the large companies.

Only the following NACE classes have statistically significant coefficients.

Table 4.20 Impact assessment on companies' turnover by NACE classes

caen_2_digit	NACE_Rev__2	Effect	Estimate	Probt
5	Mining of coal and lignite	ln_sal_minim	-5.0022	1.6943
18	Printing and reproduction of recorded media	ln_sal_minim	-0.2569	0.1468
19	Manufacture of coke and refined petroleum products	ln_sal_minim	-2.6893	1.2189
38	Collection, treatment and disposal activities of waste; materials recovery activities	ln_sal_minim	-0.8254	0.3946

Source: authors' own calculations on ANAF data

4.3.3.2. Effects on the companies' profitability

The econometric model has the following general form:

$$Profit\_Rate_{it} = \alpha + \beta\left(\frac{Min\_wage}{Average\_wage}\right)_{it} + (u_i + \nu_{it}).$$

The purpose of this model is to capture the degree of sensitivity of the companies' profit level relative to the minimum wage. The model was estimated at NACE division level 2 digits by excluding the large companies.

Table 4.21 Impact assessment on companies' profitability by NACE classes

caen_2_digit	NACE_Rev__2	Effect	Estimate	StdErr	Probt
17	Manufacture of paper and paper products	ratio	-0.5426	0.01943	<.0001
81	Landscape activities and services for buildings	ratio	-0.07929	0.006268	<.0001
27	Manufacture of electrical equipment	ratio	-1.1217	0.1086	<.0001
64	Financial intermediation, except insurance and pension funding	ratio	-1.4395	0.2324	<.0001
31	Manufacture of furniture	ratio	-0.2936	0.0522	<.0001
15	Tanning and dressing of leather: manufacture of luggage, handbags, saddlery and harness; dressing and dyeing of fur	ratio	-0.2721	0.09838	0.0057
56	Restaurants and other food service activities	ratio	-0.07431	0.02937	0.0114
45	Wholesale and retail trade and repair of motor vehicles and motorcycles	ratio	-0.04171	0.01875	0.0261
58	Publishing activities	ratio	-0.03699	0.01729	0.0324
14	Manufacture of wearing apparel	ratio	-0.04495	0.02113	0.0334
94	Activities of membership organizations	ratio	-0.03252	0.0157	0.0405

Source: authors' own calculations on ANAF data

An impact for each scenario would not make sense under these circumstances, but we would like to emphasize that these classes are vulnerable if the wage distribution flattens.

Conclusions

As a major limitation of the current impact study presented in this section, we should stress out the following challenges, which can be eventually overcome by the expert body when more data will be readily available.

On the one hand, building panel data models on such short data series (2011-2015) and with less recent data available is rather challenging, especially in terms of impact assessment and scenario analysis. On the other hand, the ANAF database does not offer any information concerning the number of employees paid by the minimum wage within each company and no investigation was so far conducted in order to outline how companies might react to changing in the minimum wage.

Under these limitations, however, we were able to capture the degree of sensitivity of the companies' profit level relative to the minimum wage, as well as

the degree of sensitivity of the turnover at the company level relative to the minimum wage. Therefore, these impact studies can be considered as an indicative for the many possibilities the future expert body involved in the mechanism can use as a starting point.

4.3.4 Projecting a survey to investigate the reactive behaviour and the capability of micro, small and medium sized enterprises to integrate the increased labour cost

4.3.4.1 Short inventory of statistical and administrative databases related to employers

Romania is collecting a consistent set of descriptive data regarding private companies, mostly ingathered exhaustively, in mandatory terms.

The most relevant data bank on the activity of enterprises is collected and administrated by ANAF (National Agency of Financial Administration), based on which various companies' profiling can be extracted, by combining descriptive indicators (size, number of employees, juridical form, economical sector etc.) with key financial indicators (turnover, productivity, profit, debt etc.). ANAF data, if accessible, can provide significant information on cost-effectiveness, productivity, reinvestment of profits etc., most of these indicators highlighting the vulnerability of companies from particular economic sectors. Unfortunately, this database does not provide information regarding the number of employees paid by each company with minimum wage, but it gives the possibility to establish the vulnerability degree of the enterprises, by comparing the company's average wage with the minimum wage.

Another database related to entrepreneurial activity is administrated by the National Trade Register Office (ONRC). Although limited compared with the ANAF databases, it provides minimal information required for an analysis of firms' profile and vulnerabilities: NACE codes, status (active or suspended), turnover, profit, debt, number of employees, annual wage bill, county of registered office. The structure of the database allows for regional analyses, making possible a diagnosis of the vulnerabilities that are persisting in some particular local markets.

Both databases, however, record no information regarding the profile of employees. Data on the profile of Romanian employees are recorded primarily by REVISAL (General Record of Employees), the administrative database managed by the Labour Inspection. REVISAL collects specific data about employment contracts of employees in the private sector (type of contracts, working hours, and wage) and about employees as such: occupation, years of work experience, age, gender, education.

Deficiencies in building databanks by interlinking all administrative data sources on employers and employees hinders the possibility to profiling enterprises based on the characteristics of their employees. The most appropriate for this task is the database from the Structure of Earnings Survey (SES), a large enterprise survey which provides detailed information on the relationships between the level of remuneration and individual characteristics of employees (sex, age, occupation,

length of service, highest educational level attained, etc.) and those of their employer (economic activity, size and location of the enterprise). The survey is carried out on a four year basis by the National Institute of Statistics (NIS). Other surveys that contribute to the evaluation and monitoring of the degree of entrepreneurial vulnerability to the increase of labour costs, also managed by the NIS, are the following: Labour Cost Survey, Job Vacancy Survey, Investment survey and Short-term Indicators (focused on measures of productivity and profitability at company level). However, except for SES, these databases do not record individual information on employees; yet, the main limitation of SES is that it does not cover microenterprises at all, even though this category of enterprises is the largest (as number in total enterprises) and has the most considerable concentration of employees paid at the minimum wage level[45].

Another limitation of both administrative and statistical databases is that they fail to provide information about the entrepreneurial behaviour and reaction to changes in their environment. The pressure of the economic, social, and legislative framework in which these companies operate has determined the enterprises to develop their own strategies to cope with difficulties. As a consequence, the picture depicted by the factual indicators collected on mandatory basis in administrative databases, does not often offer conclusive information about the activity of the entrepreneurial environment.

Enterprises often develop adapting, camouflage and even avoiding (not necessarily illicit) strategies to regulation frames, exploiting opportunities to minimize labour costs. By using only official data provided formally by the enterprises, we cannot estimate with precision the topography of the real vulnerabilities, the regional and sectorial distribution of the enterprises that are likely to collapse and implicitly the effects they can produce in the economy and on the labour market. Therefore, it is necessary to link the information from administrative sources with complementary information regarding the entrepreneurial behaviour in specific situations.

4.3.4.2 Projecting a Survey for evaluation and monitoring enterprises profile, vulnerability and behaviour related to minimum wage adjustment. Justification

An important component in building an efficient mechanism for minimum wage setting is the correct evaluation of the way in which enterprises assimilate the measures to increase the minimum wage level. The success of such a task depends on the predictability of the effects produced by the entrepreneurial behaviour. Without conducting a thorough and systematic research on the background of this reaction, the consequences cannot be anticipated, but only ascertained post factum, after they would have produced their effects.

[45] Research on the level of the statutory gross minimum wage in Romania, regarding the assessment of the economic and social impact of its enforcement, (Contract no. 41/07.10.2016 signed between the Romanian Ministry of Labour, Family, Social Protection and Elderly - MMFPSPV and the National Scientific Research Institute for Labour and Social Protection - INCSMPS), http://www.mmuncii.ro/j33/index.php/ro/minister/minister-rapoarte-studii

At this moment, there is no data source regarding the entrepreneurial behaviour that can provide systematic and pertinent information, useful for an analysis regarding the effects induced by an increase of the minimum wage. Data provided by the institutional platform of gathering data in mandatory regime depicts a static view of the entrepreneurial state and activity dominated by financial-accounting parameters, lacking the capacity to grasp the volitional component of the entrepreneurial entities, the ways in which they react by making their own decisions in response to the governmental measures, affecting themselves the economic process and labour market dynamics. In the absence of a correlation between enterprise profile and reactive patterns, the analysis of the minimum wage from the perspective of the employees remains a vulnerable dimension, exposed to an inadequate and simplistic interpretation due to a limited knowledge and research background.

In order to overcome these limitations, we have opted to project an adequate data-collecting instrument consisting of a representative sociological survey conducted in private companies, from the classes of microenterprises and small and medium sized enterprises, characterized as vulnerable to the effects triggered by an increase of the minimum wage. The collected data could offer valuable information regarding the reactivity background of enterprises by economic sectors, as well as about the possibilities and ways of enhancing sustainability of certain economic activities.

The specific difficulties of private companies from vulnerable economic sectors could be the object of compensatory measurements through public policies decided and assumed by the government and be managed without stopping or delaying the increase of the minimum wage.

4.3.4.3 Methodological specifications

Research objective - The purpose of this research is to provide, in a repetitive and systematized manner, information collected ex-post a minimum wage increase regarding the behaviour of the enterprises in the sectors previously identified as being vulnerable[46] regarding the capacity and the means to assimilate the labour cost increase.

The research method consists in a sociological survey.

The instrument for data collection is a structured questionnaire, organized on three dimensions:

A. a descriptive dimension focusing on the profile of the enterprises, in terms of size, economic sector, financial information, employee profile, etc.;

B. a second dimension evaluating the enterprises vulnerabilities to labour cost increase. (The enterprises are not only vulnerable to diminishing the wage bill as a result of minimum wage increase, but also from the perspective of reducing investment funds for development or to decreasing of the

[46] Idem 45.

available funds for unanticipated expenses, certain sectors strongly depending on these reserves).

C. a third dimension regarding the behavioural profile linked with the increase of the minimum wage.

The questionnaire is designed to be applied face to face to the manager or legal administrator of the enterprise.

The research universe covers the segment of private enterprises: microenterprises and small and medium sized enterprises in the sectors vulnerable to the increase of the minimum wage.

Research structure - Depending on their size (numbers of employees and the level of turnover) the enterprises can encounter different types of difficulties and vulnerabilities, developing strategies and reaction patterns with distinct effects on their business plan or labour force. To ascertain the reaction patterns according to their profile and their difficulties, the research will investigate simultaneously through dedicated samples two categories of vulnerable enterprises:

1. Microenterprises (with minimum two employees);[47]
2. SMEs (small and medium enterprises).[48]

Representativeness - The level of representativeness of the data is national, focusing on the vulnerable areas of the economy.

Sampling - For the SME sample, given the high territorial disparity in terms of market and economic development, accurate conclusions claim a randomization **sampling method**, proportionally stratified, strata being defined after the size of the enterprise, the sector of activity and the territorial distribution (county level) to identify complex regional profiles

Regarding the microenterprise sample, the recommended sampling method is randomization with probability proportional to size to enhance the probability to include in the sample the enterprises with a higher number of employees whose economic impact on the dynamic work force is greater. The segment of micro-enterprises being much unexplored, a sample of this type would allow to capture the general and sub-specific reactive profile related to the minimum wage adjustment, territorial disparities being not as significant in this case, as they are for SME's.

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[47] Legally, the segment of micro-enterprises cover all companies with 1-9 employees under a determined income level. Companies with one employee are a subcategory of micro-enterprises with a miscellaneous and very tricky profile (some of these enterprises are not even companies of their own, but extensions of bigger companies, created for ease the costs). Mostly, the companies with one employee, are unfortunately unreliable in terms of sustainability. To avoid the risk of bias in our results, we opt for excluding from survey the companies with one employee, and focus instead on micro-enterprises with a higher survival rate and more significant in relation to employment.

[48] The research conducted by INCSMPS in November 2016 regarding the "Impact of the minimum wage on the juridical entities" showed a massive concentration of vulnerable firms to the effects of a minimum wage increase in the microenterprises and small enterprises area. In addition, the study underlined significant accumulations of vulnerabilities in the category of middle enterprises in some sectors of economic activity justifying thus the extension of research to the companies in this size-class

The samples size depends on the extension of the segment of enterprises from each category, from the sectors vulnerable to the increase of the minimum wage. An approximate size of the samples cannot be estimated at this time.

Moreover all diligences should be carried in order to ensure a representative sample.

Implementation - The survey is projected to be implemented annually, ex-post minimum wage adjustment. It is recommended to be implemented after 6 to 9 month from the minimum wage adjustment.

A proposed questionnaire for data collection can be found in Annex 4.

4.4 Summary of the impact assessment results

According to scenarios' assumptions, the minimum wage would increase in 2018 with rates starting with 1.7% (the inflation rate) and up to 11.2% (corresponding to the average wage growth rate).

The impact of the minimum wage increase has been evaluated at macroeconomic level (on variables such as inflation rate, wages share in GDP, total and youth employment detailed by economic activity, and also the real effective exchange rate and unit labour cost as indicators of country's competitiveness) and at microeconomic level as well (on indicators related to in-work poverty and wage distribution, number of employees at the minimum wage, but also on firms' profitability and turnover).

The main results of the overall impact assessment for the year 2018, based on the various scenarios considered, are summarised in the following table:

Table 4.22 Summary of the overall impact assessment results based on scenario analysis

	Baseline	SCENARIO 1 (Gross average wage)	SCENARIO 2 (GDP per capita)	SCENARIO 3 (Inflation rate)	SCENARIO 5 (Government program)
			Percentage change on baseline (%)		
Number of employees paid by the minimum wage	1289696	46.0%	28.0%	12.0%	35.0%
The ratio between gross minimum wage and the median gross wage	79.9%	10%	6%	2%	8%
In-work poverty rate	19.8%	-0.45%	-0.24%	-0.42%	-0.48%
Gini index	25.5%	-3.7%	-2.1%	-0.6%	-2.8%
Inflation rate*		4.6%	2.6%	0.7%	3.4%
Unit labour cost	13.5%	7.2%	4.0%	1.1%	5.2%
Wage share in GDP	34.4%	9.3%	5.7%	2.4%	7.1%

Employment rate	61.4%	-1.9%	-1.1%	-0.3%	-1.4%
Youth employment (15-19 years)	9.1%	-2.0%	-1.1%	-0.3%	-1.4%
Youth employment (20-24 years)	39.6%	-4.4%	-3.7%	-3.1%	-4.0%
Male employment 20-24 years	47%	-1.4%	-0.8%	-0.2%	-1.0%
Female employment 20-24 years	32%	-1.9%	-1.1%	-0.3%	-1.4%
Employment in Agriculture, phishing and forestry (thousands)	2003.5	-2.16%	-1.20%	-0.32%	-1.57%
Employment in Manufacturing industry (thousands)	1633.5	-0.80%	-0.44%	-0.12%	-0.58%
Employment in Mining Industry (thousands)	57.4	-4.76%	-2.63%	-0.71%	-3.46%

Source: authors' own calculations

*for this case the estimated levels of the inflation rates for the year 2018 are presented.

Not in all situations the results have confirmed the theoretical, expected relationship in the data, which could be partially explained by structural factors and labour market policies.

However, as a caveat we must mention that there may be issues related to data quality, availability, coverage and comparability in time, or adequacy to the topic, depending on the initial purpose of collecting a particular indicator. Changes in data collection or indicator calculation methodology could generate breaks in data series.

Moreover, because of such data limitations, the impact analysis conducted at firms' level only captured the degree of sensitivity of the companies' profit level relative to the minimum wage, as well as the degree of sensitivity of the turnover at the company level relative to the minimum wage.

Under these limitations, the current impact assessment analysis conducted in this study for illustrative purpose represents only a first sketch of what could be done as part of an impact assessment. The analysis of different scenarios does not aim to provide alternative options from which to select a fixed rule to be applied automatically thereafter. Rather, it provides an illustration of what the consequences would be if some specific normative criteria were to be applied (e.g., indexation to inflation, to average wage growth etc.). These, however, are purely *hypothetical* cases, developed for illustration purposes to inform and guide the actual decision on what the minimum wage increase should be. The latter would not need to be restricted to the choice of one of specific scenario among the ones presented.

Moreover, as the impact evaluation of minimum wage at firm level pointed it out, the existing data should be complemented with in-depth research at company

level, for the group of vulnerable companies (micro, small and medium sized companies in certain activity sectors) to a minimum wage increase. An important component in building an efficient mechanism for minimum wage setting is the correct evaluation of enterprise's reactive behaviour to minimum wage increase. In this respect, we propose that the decision on the minimum wage level should consider information on enterprise behaviour towards such a measure, derived from a company survey, to be conducted on yearly basis and to include at least the variables that were suggested in the questionnaire put forward.

V.
Conclusions

The main purpose of this exercise consisted in providing a recommendation for a sound institutional process of minimum wage setting in Romania. The design of a transparent mechanism for minimum wage setting based on objective criteria, in order to set the grounds for evidence based dialog and decision making is a matter of extreme importance to the wage policy in Romania due to the number of employees who are affected, on one hand, and to the economic and social effects of this form of state intervention on the labour market, on the other. As a country particularity, in Romania the wage distribution is highly asymmetrical at the bottom, with more than one quarter of the employees (1.3 million persons) being paid at the minimum wage level.

The analysis of best practices regarding such mechanisms implemented in other EU or OECD countries has been the starting point of our undertaking. The general conclusions drawn from the analysis have indicated that there is no evidence in favour of a minimum wage setting regime that could work best in a country. This is because minimum wage policies highly depend on the context. Country specific legal regimes, as well as the socio-economic context are of extreme importance when setting the minimum wage level.

However, following other countries' practices, the proposed mechanism for Romania has two main characteristic features: it is documented and transparent, both providing for sound social dialog and socio-economic development. The core of the proposed mechanism is an independent expert body, having the responsibility of elaborating annually alternative minimum wage adjustment scenarios based on the development of selected socio-economic indicators (i.e. criteria for minimum wage setting) and of assessing the social and economic impact of such changes (ex-ante and ex-post analysis). The expert body should be made up of specialists in social and economic policies, in macro and micro economic modelling and in data processing, nominated on tripartite basis. Impact assessment results shall set up the bases for consultations or negotiations between the Government and social partners for establishing the minimum wage level for the following year. The decision of choosing among alternative scenarios with different implications at different levels rests with the Government depending on its goals or priorities, but only after reaching an agreement with the social partners. Details on the legal framework, membership, budgeting, monitoring and control of the expert body have been discussed in the description of the mechanism.

The activity of the expert body would start from the systematization of relevant data and construction of datasets with social and economic indicators best adapted to the minimum wage issue. The list of socio-economic indicators, as well as scenarios and impact assessment methods and parameters could be subject for

revision at least once every four years or whenever the socio-economic context or the calculated gap between ex-post and ex-ante impact assessment impose it.

As an illustration of the functioning of such mechanism, herein we have drawn up a list of indicators with relevance in minimum wage setting and selected four of them as being potential criteria for alternative scenarios on minimum wage indexation: average wage growth rate, GDP per capita growth rate, inflation rate and the growth rate of the cost of a minimum consumption basket. To these four scenarios which are the guiding principle of this exercise, we have also added, for illustrative purposes, the scenario based on the Government program decision, which is in place for 2017-2020. Compared to the other scenarios based on well-defined normative criteria, however, the government program decision scenario represents an ex-post comparison of the already taken political decision with the other hypothetical scenarios.

The mechanism should entail annual impact assessments of the socio-economic effects of the minimum wage adjustments. In this purpose, scenarios assuming above 1 per cent positive annual change are proposed to be taken into consideration. According to scenarios' assumptions, the minimum wage would increase in 2018 with rates starting with 1.7% (inflation rate) and up to 11.2% (corresponding to the growth rate of the average wage).

The impact of minimum wage increases has been evaluated at macroeconomic level (on variables such as inflation rate, wages share in GDP, total and youth employment detailed by economic activity, and also the real effective exchange rate and unit labour cost as indicators of country's competitiveness) and at microeconomic level as well (on indicators related to in-work poverty and wage distribution, number of employees at the minimum wage, but also on firms' profitability and turnover).

Not in all situations the results have confirmed the theoretical, expected relationship in the data, which could be partially explained by structural factors and labour market policies. However, as a caveat we must mention that there may be issues related to data quality, availability, coverage and comparability in time, or adequacy to the topic, depending on the initial purpose of collecting a particular indicator. Changes in data collection or indicator calculation methodology could generate breaks in data series. Also, as the impact evaluation of minimum wage at firm level pointed it out, the existing data should be complemented with in-depth research at company level, for the group of vulnerable companies (micro, small and medium sized companies in certain activity sectors) to a minimum wage increase. An important component in building an efficient mechanism for minimum wage setting is the correct evaluation of enterprise's reactive behaviour to minimum wage increase. In this respect, we propose that the decision on the minimum wage level should consider information on enterprise behaviour towards such a measure, derived from a company survey, to be conducted on yearly basis and to include at least the variables that were suggested in the questionnaire put forward.

As a limitation, the authors are aware that in the current exercise there are several other dimensions for the impact assessment that were left aside and that

could further on be explored and developed. Among those, we could include: the spill-over effects of minimum wage growth to the overall wage distribution, possible changes in the number of hours worked (e.g. increase in part-time), as well as the possible consequences for undeclared/under-declared work. Overall, developing a framework for documented minimum wage indexation, despite of being a complex and demanding task, once achieved, even if not in itself sufficient, could assist in establishing social and economic policy in Romania on sound foundations. Although there is room for further improvement, we consider that our undertaking is a very good starting point for a more predictable minimum wage policy.

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Annex 1. Socio-economic indicators for the European Union countries – year 2013

	SOCIAL INDICATORS					ECONOMIC INDICATORS								
Country	Inability to afford a meal with meat, chicken, fish every second day	Arrears	In-work at-risk-of-poverty rate	Housing cost overburden rate	Trade Union density	Self-employed (% of employed)	Part-time employment	Long-term unemployment (annual average)	Gini coefficient of equalised disposable income before social transfers	Real labour productivity per person employed	Real GDP per capita growth rate	Temporary contracts (% of total employment)	Youth employment (%)	Inactivity rate (% of total pop)
Denmark	2.8	6.8	5.4	17.9	66.8	8.8	26.6	44.4	56.4	1	0.2	8.1	67.7	21.875
Germany	8.4	5.1	8.6	16.4	18.1	10.6	8.9	44.5	48.0	-0.1	1.8	12.0	71.2	22.35
Estonia	9.5	12.5	7.7	7.2	5.7	8.9	23.5	59.9	54.5	0.2	0.8	3.2	62.9	24.9
Latvia	23.3	22.4	9.1	11.4		10.7	8.4	42.9	53.2	0.6	4.6	3.8	62.2	26
Luxembourg	2.4	5.2	11.2	5.6	32.8*	8.4	6.4	48.6	53.0	2.3	2.4	6.4	57.5	30.15
Austria	8.3	7.0	7.9	7.2	27.8	11.3	7.1	42.5	47.7	-0.2	1.5	8.1	74.5	24.5
Sweden	1.5	6.0	7.1	7.9	67.7	10.4	25.6	36.1	54.5	0.3	1.3	14.7	67.9	18.9
Belgium	4.6	6.5	4.4	9.6	55.1	14.1	2.5	57.3	49.1	0.3	1.4	6.9	57.9	32.45
Ireland	4.2	22.5	4.5	4.9	29.6	16.3	8.4	67.1	61.6	-1.4	-2.5	8.3	59.7	30.175
France	7.1	9.1	7.8	5.2	7.7	10.8	5.4	63.6	49.3	0.3	-0.8	13.6	60.9	28.875
Poland	13.3	15.1	10.8	10.3	12.7*	18.5	11.1	56.4	55.9	1.5	-0.6	21.1	58.1	33.025
Slovenia	9.7	21.2	7.1	6	21.2	12.0	4.5	70.2	41.3	0	1.4	13.8	56.2	29.475
Bulgaria	51.1	36.1	7.2	14.3		11.4	5.8	43.4	44.1	1.3	-0.5	4.9	48.5	31.6
Greece	13.8	45.3	13.0	36.9	21.51	32.1	15.7	49.7	49.3	-0.6	-1.3	6.5	36.7	32.525
Spain	3.5	11.9	10.6	10.3	16.9	17.2	18.1	40.2	50.0	0.9	0.1	19.1	44.6	25.7
Croatia	14.0	31.4	6.2	8.4		16.2	17.6	56.4	49.4	1.7	-2.2	12.1	44.8	36.3
Italy	13.9	14.2	11.2	8.9	37.3	23.2	11.9	38.3	45.1	0.1	-5.7	10.1	41.0	36.65
Hungary	34.0	26.7	7.0	14.3	10.5	10.9	14.2	45.7	43.8	1	3.6	9.7	52.2	35.3
Portugal	3.3	11.8	10.4	8.3	18.9*	19.9	9.0	45.2	53.2	1.8	3.9	17.6	52.9	26.95
Romania	23.0	31.5	18.1	16.9		21.0	9.3	51.0	44.1	4.4	-1.2	1.0	53.8	35.1
Czech Republic	13.1	5.4	4.1	11.7	12.7	16.9	24.7	25.5	51.4	-0.8	0.5	7.5	59.1	27.1
Lithuania	19.0	13.8	9.2	8.2		10.6	18.7	30.4	49.5	2.1	1.6	2.4	58.4	27.6
Netherlands	2.8	5.0	4.5	15.7	17.8	15.5	26.0	24.6	47.0	1	-0.5	17.0	75.3	20.625
Slovakia	23.7	8.1	5.8	8.3	13.3	15.5	14.0	20.6	46.5	2.3	-1.2	5.8	51.9	30.15
Finland	3.2	11.2	3.8	4.9	69.0	13.0	24.7	17.7	53.4	0	0.4	13.4	66.9	24.85

United Kingdom	8.7	3.9	8.2	7.9	25.8	14.1	20.8	18.2	40.7	0.7	3.4	5.2	70.7	23.575
Malta	14.9	12.2	5.9	2.6		13.8	49.8	34.9	44.9	0.8	-0.5	6.5	76.0	35
Cyprus	7.9	33.6	9.0	3.3		15.7	7.5	48.4	50.8		4	14.7	58.3	26.425

*the values correspond to year 2012, as no data was available for year 2013.

Source: Eurostat and OECD database

Annex 2a. Potential indicators for minimum wage setting criteria

Criteria	Sub-criteria	Indicator	Years of availability	Computing frequency	Source / aggregation level	Definitions/comments
S	General level of wages	Average gross wages	1991 (2000)	annual	NIS - Survey on labour cost (1991 -2007 by NACE Rev. 1; since 2008 NACE Rev.2 since 2008); CNP; national/ NACE codes/ regions / public - private ownership data for forecast	Money and in kind payments paid to employees (including basic wage and various allowances); annual amounts of payments for the employees/ (average number of monthly employees *12); part -time employees counted proportionally to their contract
S	General level of wages	Average gross wages	2000	monthly	NIS - monthly survey on wage earnings; by NACE Rev 2	Wage = the ration between wage fund and the average daily employees. Since January 2017 the sample of firms covers those of at least 4 employees
S	General level of wages	Minimum to average wage ratio	1991	annual and monthly	NIS (sources for the average and minimum wage)	
S	Living standard	Consumption basket	2000	annual (for prices)	RIQL computation; NIS (HBS, EU-SILC)	Last officially computed basket was calculated according to GO 217/2000. Now there is no official update level of the minimum consumption basket. The present scenario took into consideration a consumption basket calculated by researchers in the RIQL. The structure of consumption basket should be updated every 4 years or whenever the data drawn from the Household Budget Survey shows a considerable change in consumption pattern. Special extraction needed.
E	General level of prices	Inflation rate/ consumer price index	1990	annual and monthly data	NIS, The consumer price survey	Available for food, non-food, services, and at aggregate level but not by geographic area or size of localities. Slow dynamic of the indicator; deflationary phenomenon in the last years.
E	Economic	GDP growth	1996	annual and	NIS, National Accounts;	Chain linked

	development			quarterly	NACE, regions	
E	Productivity	GDP/ capita	1996	annual	NIS, National Accounts; regions/ Eurostat	In PPS (EUROSTAT); alternatively, is computed in national currency using total population (NIS)
E	Productivity	Labour productivity per hour worked, or per labour unit	1995-2015	annual	NIS National Accounts/ Eurostat	Computed as real output (deflated GDP measured in chain-linked volumes, reference year 2010) per unit of labour input (the total number of hours worked) (Eurostat). For NIS data the labour unit is the employed population

Note: S stands for social criteria, while E stands for Economic criteria.

Annex 2b. Potential indicators for impact assessment of minimum wage increase

Criteria	Sub-criteria	Indicator	Years of availability	Computing frequency	Source / aggregation level	Definitions/comments
S	General level of wages	Median wage	2009	annual	Eurostat: EU-SILC	A more pronounced asymmetry (right skewed) than in developed European countries; both the ratio to mean and to the median should be monitored. Special extraction involved
S	General level of wages	Inequality of earnings/wages	2007	annual	Eurostat: EU-SILC	Gini of disposable income before social transfers
S	Living standard	In work -poverty	2009	annual	Eurostat: EU-SILC Survey; by type of employment; employees of 18-64 y.o.;	At the threshold of 60% of median disposable equivalent income
S	Living standard	Share of employees in poverty	2007	annual	Eurostat: EU-SILC	Special extraction
S	Living standard	Employees paid with minimum wage	1995	annual	ANAF -D112; national/ NACE codes/ age/ gender/ occupation; NIS - Survey on earnings structure; NTRO	Derived from D112' registrations on employees ID: special extraction. Data from NIS and NTRO identifies firms having the average wage (within the firm) at or around minimum wage: this expresses rather the type of companies/ sectors exposed to minimum wage.
E	General level of prices	Inflation rate/ consumer price index	1990	annual and monthly data	NIS, The consumer price survey	Available for food, non-food, services, and at aggregate level but not by geographic area or size of localities. Slow dynamic of the indicator; deflationary phenomenon in the last years.
E	Competitiveness	Real effective exchange rate	1994; 2005=100	annual	Eurostat	Put country's currency in relation to the basket of trade partners or competitors on the market. It is weighted by the trade balance and is adjusted o inflation. - 28 trading partners

E	Competitiveness	Unit labour cost	1995	annual	Eurostat - DG ECFIN	Relates labour cost to productivity. The relative unit labour cost (ULC) series measures the trading position of an individual country relative to its partners and as such offers an indication about changes in its competitive position. Data expressed as 1 year % change; a decrease of the index is regarded as an improvement of country's competitive position relative to their trading partners in the euro area.
E	Competitiveness	Export variation	1994 (2007)	annual; index	NIS - ANAF (up to 2006), Intra and extra STAT	Statistical evidence only for high level of export figures, which excludes small size companies; due to inadequate coverage was not considered in the scenarios. It was replaced by GDP/ capita (PPS). Exports on firms' size available only since 2013.
E	Competitiveness	Competitiveness index	2006	annual	World Economic Forum	Not considered in the present scenarios, due to its short time series.
E	Employment	Employment rate	1996	annual and quarterly	NIS -LFS	Employment ILO definition for population of 15 y.o and over.
E	Employment	Youth employment rate (20-24 y.o.)	1996	annual and quarterly	NIS -LFS; age groups/ gender	Computed as employed persons / total population of the same group
E	Employment	Employment rate by sectors	1996	annual and quarterly	NIS Labour Force Balance Sheet by NACE Rev.2 (4 digits)	Mainly in the exposed sectors to low wage dominance (construction; retail trade and car repair; transport and storage; hotel and restaurants; agriculture and fishery)
E	Employment	Employment by occupation	1996 (2011)	annual and quarterly	NIS AMIGO, total, gender, age groups	Chain-linked or annual variation; unqualified workers, workers in retail, in agriculture and fishery, craftsmen
E	General level of wages	Share of wages in GDP	1995	annual	NIS- National Accounts (SEC 2010)/ ANAF by NACE Rev.2 sectors (up to 4 digits)	Control for at least constant rate of wage share; computation by sector level for the most vulnerable sectors
E	Profitability	Turnover, profitability	1998	annual	ANAF -Ministry of Finance (Annual Balance Sheet; up to 4 digits)	Derived information from firms' account registration. Special extraction.

Note: S stands for social criteria, while E stands for Economic criteria.

Annex 3. Output estimations for macroeconomic impact assessment

3.1 The estimation output of the VAR model – CPI-MW

Vector Autoregression Estimates
Sample (adjusted): 2004 2016
Included observations: 13 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	IPC	ISAL_MIN
IPC(-1)	0.542968	-5.574096
	(0.33410)	(2.54465)
	[1.62515]	[-2.19052]
IPC(-2)	1.371200	3.125398
	(0.64438)	(4.90782)
	[2.12794]	[0.63682]
IPC(-3)	1.320185	15.20654
	(0.63030)	(4.80062)
	[2.09452]	[3.16762]
IPC(-4)	-1.895018	-10.77505
	(0.68622)	(5.22647)
	[-2.76155]	[-2.06163]
ISAL_MIN(-1)	0.092120	1.510517
	(0.04494)	(0.34227)
	[2.04990]	[4.41322]
ISAL_MIN(-2)	-0.049935	-0.559028
	(0.04829)	(0.36781)
	[-1.03402]	[-1.51988]
ISAL_MIN(-3)	-0.091642	-0.315640
	(0.03855)	(0.29364)
	[-2.37699]	[-1.07493]
ISAL_MIN(-4)	-0.051988	-0.032356
	(0.02474)	(0.18841)
	[-2.10156]	[-0.17173]
C	-0.386521	-1.625859
	(0.16651)	(1.26821)
	[-2.32130]	[-1.28202]
R-squared	0.998867	0.998674
Adj. R-squared	0.996602	0.996023
Sum sq. resids	0.000696	0.040346
S.E. equation	0.013186	0.100431
F-statistic	440.8762	376.6247
Log likelihood	45.48661	19.09273

Akaike AIC	-5.613325	-1.552728
Schwarz SC	-5.222206	-1.161609
Mean dependent	1.306922	2.846154
S.D. dependent	0.226193	1.592449

Determinant resid covariance (dof adj.)	1.67E-06
Determinant resid covariance	1.58E-07
Log likelihood	64.89705
Akaike information criterion	-7.214931
Schwarz criterion	-6.432693

3.2. The correlation between minimum wage Index (ISAL_MIN) and the Real Effective Exchange Rate (REER) - proxy for competitiveness

The following general form of the model was tested: $REER = \alpha + \beta * ISAL\_MIN + \varepsilon$
The Eviews Output is shown below:

Dependent Variable: REER
Method: Least Squares
Date: 02/19/17 Time: 09:42
Sample (adjusted): 2000 2015
Included observations: 16 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.879822	0.028455	30.91955	0.0000
ISAL_MIN	-0.111508	0.036797	-3.030386	0.0097
@TREND	0.047961	0.011003	4.358819	0.0008

R-squared	0.723157	Mean dependent var	1.000000
Adjusted R-squared	0.680565	S.D. dependent var	0.105451
S.E. of regression	0.059600	Akaike info criterion	-2.634975
Sum squared resid	0.046177	Schwarz criterion	-2.490115
Log likelihood	24.07980	Hannan-Quinn criter.	-2.627557
F-statistic	16.97899	Durbin-Watson stat	1.030277
Prob(F-statistic)	0.000237		

The explicit form of the regression model is: $REER = 0.8798 - 0.1115 * ISAL\_MIN$.

All coefficients are statistically significant and the model is valid, with a coefficient of determination R^2 =72, 31%.

3.3. The correlation between minimum wage and the nominal unit labour cost change

Dependent Variable: DULC_HOURS
Method: Least Squares
Date: 04/10/17 Time: 10:59
Sample (adjusted): 2001 2016
Included observations: 16 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.029013	0.031630	-0.917267	0.3745
DLOG(SAL_MIN)	0.648638	0.136828	4.740543	0.0003

R-squared	0.616152	Mean dependent var	0.085375
Adjusted R-squared	0.588734	S.D. dependent var	0.127552
S.E. of regression	0.081799	Akaike info criterion	-2.052636
Sum squared resid	0.093675	Schwarz criterion	-1.956062
Log likelihood	18.42108	Hannan-Quinn criter.	-2.047690
F-statistic	22.47274	Durbin-Watson stat	2.070111
Prob(F-statistic)	0.000316		

3.4 The correlation between minimum wage and wage share

Dependent Variable: LOG(WAGES)
Method: Least Squares
Sample (adjusted): 2000 2017
Included observations: 18 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.533222	1.050255	-3.364157	0.0043
LOG(NR_SAL)	2.587133	0.698318	3.704807	0.0021
LOG(SAL_MIN)	0.722291	0.033903	21.30490	0.0000

R-squared	0.974172	Mean dependent var	4.919227
Adjusted R-squared	0.970728	S.D. dependent var	0.624176
S.E. of regression	0.106790	Akaike info criterion	-1.484894
Sum squared resid	0.171061	Schwarz criterion	-1.336499
Log likelihood	16.36405	Hannan-Quinn criter.	-1.464433
F-statistic	282.8835	Durbin-Watson stat	0.824138
Prob(F-statistic)	0.000000		

3.5. The estimation output of the VAR model with total employment and minimum wage

Vector Autoregression Estimates
Date: 02/22/17 Time: 10:29
Sample (adjusted): 2004 2015
Included observations: 12 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	LOG(TOT_RO)	LOG(SAL_MIN)
LOG(TOT_RO(-1))	0.409372	21.33890
	(1.11572)	(10.0914)
	[0.36691]	[2.11456]
LOG(TOT_RO(-2))	0.059943	-8.012699
	(0.41659)	(3.76793)
	[0.14389]	[-2.12655]
LOG(TOT_RO(-3))	-0.300812	-3.272226
	(0.24780)	(2.24130)
	[-1.21392]	[-1.45997]
LOG(TOT_RO(-4))	-0.074683	6.573022
	(0.38465)	(3.47904)
	[-0.19416]	[1.88932]
LOG(SAL_MIN(-1))	0.052269	0.627637
	(0.03599)	(0.32552)
	[1.45235]	[1.92813]
LOG(SAL_MIN(-2))	-0.145049	-0.697514
	(0.04020)	(0.36363)
	[-3.60783]	[-1.91817]
LOG(SAL_MIN(-3))	0.089016	2.962710
	(0.16271)	(1.47171)
	[0.54707]	[2.01311]
LOG(SAL_MIN(-4))	-0.001642	-1.735816
	(0.10910)	(0.98682)
	[-0.01505]	[-1.75900]
C	-0.414626	7.408367
	(0.36966)	(3.34348)
	[-1.12164]	[2.21577]
R-squared	0.961573	0.994642
Adj. R-squared	0.859101	0.980353
Sum sq. resids	0.000130	0.010618
S.E. equation	0.006577	0.059491
F-statistic	9.383768	69.61108
Log likelihood	51.57984	25.15362
Akaike AIC	-7.096641	-2.692270
Schwarz SC	-6.732961	-2.328590
Mean dependent	-0.500466	6.297092
S.D. dependent	0.017523	0.424431

Determinant resid covariance (dof adj.)	4.11E-08
Determinant resid covariance	2.57E-09
Log likelihood	84.62271
Akaike information criterion	-11.10379
Schwarz criterion	-10.37643

3.6. The impact of a minimum wage increase on 15-19 age group employment

The summary output can be found below:

Dependent Variable: LOG(RO_15_19)
Method: Least Squares
Sample (adjusted): 2000 2015
Included observations: 16 after adjustments
HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 3.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.034846	0.175973	-0.198021	0.8459
LOG(SAL_MIN)	-0.371588	0.031760	-11.69994	0.0000

R-squared	0.905118	Mean dependent var	-2.249619
Adjusted R-squared	0.898341	S.D. dependent var	0.290065
S.E. of regression	0.092484	Akaike info criterion	-1.807088
Sum squared resid	0.119747	Schwarz criterion	-1.710515
Log likelihood	16.45671	Hannan-Quinn criter.	-1.802143
F-statistic	133.5523	Durbin-Watson stat	1.657769
Prob(F-statistic)	0.000000		

3.7. The impact of a minimum wage increase on 20-24 age group employment

The summary output can be found below:

Dependent Variable: LOG(RO_20_24)
Method: Least Squares
Sample (adjusted): 2000 2015
Included observations: 16 after adjustments
HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 3.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.023659	0.101601	0.232859	0.8192
LOG(SAL_MIN)	-0.148730	0.018474	-8.050696	0.0000

R-squared	0.801814	Mean dependent var	-0.862816
Adjusted R-squared	0.787658	S.D. dependent var	0.123353
S.E. of regression	0.056842	Akaike info criterion	-2.780627
Sum squared resid	0.045234	Schwarz criterion	-2.684054
Log likelihood	24.24502	Hannan-Quinn criter.	-2.775682
F-statistic	56.64064	Durbin-Watson stat	1.264003
Prob(F-statistic)	0.000003		

3.8. The impact of a minimum wage increase on male 20-24 age group employment

The summary output can be found below:

Dependent Variable: LOG(RO_20_24_M)
Method: Least Squares
Sample (adjusted): 2000 2015
Included observations: 16 after adjustments
HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 3.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.051923	0.101794	0.510078	0.6179
LOG(SAL_MIN)	-0.129796	0.019091	-6.798792	0.0000

R-squared	0.750099	Mean dependent var	-0.721698
Adjusted R-squared	0.732249	S.D. dependent var	0.111298
S.E. of regression	0.057591	Akaike info criterion	-2.754439
Sum squared resid	0.046434	Schwarz criterion	-2.657865
Log likelihood	24.03551	Hannan-Quinn criter.	-2.749493
F-statistic	42.02219	Durbin-Watson stat	1.113308
Prob(F-statistic)	0.000014		

3.9. The impact of a minimum wage increase on female 20-24 age group employment

The summary output can be found below:

Dependent Variable: LOG(RO_20_24_F)
Method: Least Squares
Sample (adjusted): 2000 2015
Included observations: 16 after adjustments
HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 3.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.056282	0.110550	0.509108	0.6186
LOG(SAL_MIN)	-0.182563	0.018992	-9.612612	0.0000

R-squared	0.851539	Mean dependent var	-1.031845
Adjusted R-squared	0.840935	S.D. dependent var	0.146925
S.E. of regression	0.058598	Akaike info criterion	-2.719763
Sum squared resid	0.048072	Schwarz criterion	-2.623189
Log likelihood	23.75810	Hannan-Quinn criter.	-2.714818
F-statistic	80.30117	Durbin-Watson stat	1.432498
Prob(F-statistic)	0.000000		

3.10. The impact of a minimum wage increase on 25-29 age group employment

The summary output can be found below:

Dependent Variable: LOG(RO_25_29)
Method: Least Squares
Sample (adjusted): 2000 2015
Included observations: 16 after adjustments
HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 3.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.257747	0.055758	-4.622608	0.0004
LOG(SAL_MIN)	-0.009901	0.009427	-1.050263	0.3114

R-squared	0.050025	Mean dependent var	-0.316762
Adjusted R-squared	-0.017830	S.D. dependent var	0.032876
S.E. of regression	0.033168	Akaike info criterion	-3.857990
Sum squared resid	0.015402	Schwarz criterion	-3.761416
Log likelihood	32.86392	Hannan-Quinn criter.	-3.853044
F-statistic	0.737234	Durbin-Watson stat	0.684125
Prob(F-statistic)	0.405010		

Annex 4. Questionnaire

Questionnaire

ENTERPRISE PROFILING

P1. County of registered office_____

P2. Main activity (NACE Rev.2 code – 4 digits):_____

P3. Did the company have a continuous activity during the previous fiscal year?

Yes (1)	No (0)

P4. The activity of the company is: 1. seasonal 2. Permanent

P5. How many years of activity does your company have?

<3 Years	3-5 years	>5years
0	1	2

P6. The turnover of the company in the previous fiscal year was: _____

P7. At the end of the previous financial year, your company has achieved:

Profit=Debt	Profit	Debt
0	1	2

EMPLOYEES

S1. Number of employees at the end of the previous fiscal year:_____

S2. Number of employees at the moment of the investigation: _____

S3. The maximum number of employees during the previous fiscal year:_____

Employees No.	**1**	**2-9**	**10-49**	**50-249**
Code	0	1	2	3

S4. How many employees are paid at minimum wage in your company:_____

S5. Usually, for how long do the employees paid at minimum wage stay in the company?

Duration	< 3 month	3-11 month	1-2 years	2-5 years	5-10 years	>10 years
Code	0	1	2	3	4	5

S6. Which of the following categories of employees are paid with the minimum wage within your company?

		Yes (1)	No (0)
1	Employees under 25 years old		
2	Employees with no work experience		
3	Employees with low or medium level of education (high school maximum)		
4	Qualified employees		
5	Senior employees in the enterprise		
6	Shareholders or owners		
7	Relatives of the shareholders or of the owners		

COMPANY'S VULNERABILITY TO WAGE INCREASE COSTS

V1. Does your company have a capital stock for unexpected costs/expenses?

Yes (1)	No (0)

V2. The current activity of your company depends on investments in:

Code		Yes	No
1	Technological equipment (machinery, work equipment etc.)	1	0
2	Specialized computer software;	1	0
3	Rents for special locations (warehouses, production facilities etc.)	1	0

V3. Usually, from the overall costs of the enterprise, labour costs represent approximately:

Percent	**< 25%**	**25-50 %**	**50-75%**	**> 75%**
Code	0	1	2	3

MINIMUM WAGE ADJUSTMENT

M1. On a scale from 1 to 10 (where 1 is the minimum and 10 maximum), rate how much has minimum wage adjustment affected the functioning of your company? _____

M2. Due to higher minimum wage:

Code		Raised (2)	Decreased (1)	Did not change (0)
1	The debt of the company			
2	The profit of the company			
3	Labour productivity in the company			
4	Demand for jobs in the company			
5	Investments of the company			

M3. Following the increase in the minimum wage have you proceeded in one of following manners? (*multiple answer***)**

Code		Yes (1)	No (0)
1	I kept the original wage bill		
2	I reduced the number of employees		
3	I reduced the working hours of employees		
4	I reduced / eliminated the facilities for employees (bonuses, meal vouchers, gift vouchers etc.)		
5	I changed the contractual arrangements with the employees (from employment contract to services contract with a self-employed person, etc.)		
6	I increased the minimum wages without any other actions and measures relating to the employees		
7	I increased the wages of other employees as well, who were not paid at the minimum wage		
8	Another measure. Name it _____ _____		

M4. Following the minimum wage adjustment, have you asked for further information or support in your business from an employer confederation?
1. No 2. Yes

E1. Which from the following issues do you think is affecting your company's development the most? (Please select three, in order of importance.)

		Hierarchic score
A.	Lack of capital	
B.	Lack of market	
C.	High taxation level	
D.	Poor employee qualifications	
E.	Unfair competition	
F.	Bureaucratic regulations	
G.	The minimum wage level	
H.	Lack of know-how	
I.	Another problem, namely _____ _____	

E2. If the minimum wage adjustment would cause hardship to your business, would you exit the sector of activity of your company?

1. Absolutely No 2. Probably No 3. Probably Yes 4. Absolutely Yes

Only for the subjects who responded 3 or 4:

E2.A Would you restart your business in the same sector or what sector of activity would you choose?_____

E2.B Would you be willing to change the sector of activity of your company if the incentives were conditioned of keeping the existing employees?

1. Yes 2. Only if the company does not bear the costs of retraining; 3. No

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