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Accompanying the document

Consultation document

**Second phase consultation of Social Partners under 154 TFEU on a possible action
addressing the challenges related to fair minimum wages**

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1. INTRODUCTION

The EU has been particularly hit by the Covid-19 outbreak, with negative effects on Member States' economies, businesses, and the income of workers and their families. As the EU prepares for recovery from this unprecedented crisis, our objectives of promoting socially fair transitions towards climate-neutral and digital economies are more important than ever.

Ensuring that all workers in the EU earn a decent living is essential for recovery as well as for building fair and resilient economies and minimum wages have an important role to play: when set at adequate levels, they help vulnerable workers to build up a financial buffer during good times and limit the fall in income during bad times, thus helping them to face economic downturns. Yet in recent decades, low wages have not kept up with other wages in many Member States, thus affecting income inequality, in-work poverty, and the capacity of low-wage earners to cope with economic distress.¹ Also many workers in the EU are not protected by adequate minimum wages, either because the minimum wage floors applying to them are not adequate, or because they are not covered by minimum wages at all.

In her Political Guidelines², President von der Leyen underlined the ambition to ensure that all workers in the Union are protected by a fair minimum wage allowing for a decent living wherever they work, supporting the implementation of Principle 6 on Wages of the European Pillar of Social Rights.

In line with Article 154 TFEU, the Commission is carrying out a two-stage consultation of social partners. During the first-stage consultation, carried out between 14 January and 25 February 2020, social partners were consulted on the need and possible direction of EU action. In the second stage, social partners are consulted on the possible instrument and content of the envisaged proposal.

This analytical document, prepared by the Commission services, accompanies the consultation document³ of the second stage, approved by the College, which contains a summary of the replies of social partners to the first stage consultation. After this introduction, the document explains why minimum wages are important, how they are set, and analyses who are the minimum wage earners (Section 2). Then, it identifies the problems that need to be addressed to ensure that workers are protected by adequate minimum wages (Section 3), and the EU competence and added value of action at EU level to tackle these problems (Section 4). After describing the objectives of EU action (Section 5), it presents the available policy options (Section 6) and their likely impacts (Section 7).

This document focuses on all EU Member States throughout the analysis. However, in some cases, data is not always available or is not complete due to the variety of

¹ In statistical terms, a low-wage is defined as a wage lower than two thirds of the national median wage.

² “A Union that strives for more. My agenda for Europe.” Political Guidelines for the next European Commission 2019-2024.

³ C(2020)3570

institutional features in Member States. For instance, Section 2 analyses the characteristics of minimum wage earners. However, while it is possible to identify these workers in the data of countries with a statutory national minimum wage, this is not possible in countries which rely on collective bargaining to set minimum wage floors due to the multiplicity of such collectively agreed minima and because these are not collected systematically. For this reason, for comparability, the characteristics of low-wage workers were analysed for these countries as a proxy group. Similarly, Section 4 compares the adequacy of minimum wages across all countries. In this case statutory national minimum wages are compared with a sample of collectively agreed minimum wage floors collected by Eurofound.⁴

2. WHY MINIMUM WAGES MATTER AND HOW ARE THEY SET?

2.1. Minimum wages protect low-wage earners

Minimum wages protect workers with low wages and low bargaining power. They can help the pay of low-wage earners and support domestic demand. Adequate minimum wages, set in a way to safeguard access to employment and competitiveness, reduce wage inequality at the lower end of the wage distribution, ameliorate in-work (and thus overall) poverty and help low wages keep up with productivity developments. Since more women than men earn wages at or around the minimum wage improvements in the adequacy of the minimum wage also support gender equality. Moreover, adequate minimum wages strengthen the incentives to work and can notably promote the participation of women in the labour market. This leads to higher contributions to the social protection systems and contribute over time to more adequate pensions.

Evidence shows that minimum wages help reduce wage inequality, through two effects. Through an immediate effect, the wages of workers who would otherwise earn less than the minimum wage are raised to the minimum wage, improving their purchasing power. In addition, minimum wages also have “spill-over effects” on higher wages, further reducing wage inequality. European Commission analysis shows that, across EU Member States between 2006 and 2014, minimum wage increases significantly affected the wages of the lowest fifth of the wage distribution.⁵ Research indicates that minimum wages reduce wage inequality both across EU Member States and in the US.⁶

Minimum wage increases also improve the situation of the families of low-wage earners and contribute to reducing in-work poverty. The effects of the minimum wage on income inequality and poverty are related to the composition of families.

⁴ Eurofound, 2019, “Minimum wages in 2019: Annual review”, Figure 3.

⁵ European Commission (2018): “Labour market and wage developments in Europe, Annual Review 2018”, Directorate-General for Employment, Social Affairs and Inclusion, pp. 134-135.

⁶ For evidence on EU Member States, see, Pereira, M.R. and A. Galego (2019): “Diverging trends of wage inequality in Europe”, *Oxford Economic Papers*, 2019, 1-25. For recent evidence on the U.S., see Autor, D. H., Manning, A., & Smith, C. L. (2016), “The contribution of the minimum wage to US wage inequality over three decades: A reassessment”, *American Economic Journal* 8(1): 58–99.

Whereas families with at least one low-wage earner can expect to benefit from an increase in the minimum wage, some poor families that include unemployed, inactive or self-employed adults do not benefit from the income protection provided by minimum wage policies.⁷ Nevertheless, minimum wage policy, combined with the effect of tax and benefits systems, may have an impact on poverty and in particular on in-work poverty.⁸ In particular, previous analysis by the European Commission has found that a 10% increase in the minimum wage would reduce aggregate poverty in almost all Member States.⁹ Recent academic research confirms the redistributive effect of minimum wages, taking into account second-round macro-economic effects, including on consumer prices.¹⁰ Finally, minimum wages may also contribute to a better safety and security of workers, notably insofar as an adequate minimum wage would avoid situations where workers have to cumulate several jobs or work extensive hours to make ends meet.

2.2. Who are the minimum wage earners?

This section presents the demographic profile of minimum wage workers. The focus is on the personal and household characteristics of those paid at the minimum wage, their gender, level of education, contract type, working time pattern, as well as the type of household they live in. The next section looks at the distribution of workers across regions (by degree of urbanisation), sectors and the size of the firm they work for. In Member States without a statutory national minimum wage (i.e., Austria, Cyprus, Denmark, Finland, Italy and Sweden), it is not possible to identify workers who earn the collectively agreed minimum-wage floors. This is because of the multiplicity of such minima and a lack of systematic data collection about them. For these countries, the share and characteristics of low-wage workers (those who earn less than 67% of the median wage in the same country) has been calculated as a proxy.

One in six workers are low-wage earners in the EU, earning less than two thirds of the median wage. Their share is above 20% in 10 Member States (See Section 3.1.1, Graph 16). Many of these workers earn the minimum wage: their share is estimated at levels that vary from below 5% (e.g. in Belgium and Malta) to around 20% (in Portugal and Romania) among countries with a statutory national minimum wage (see Graph 1).

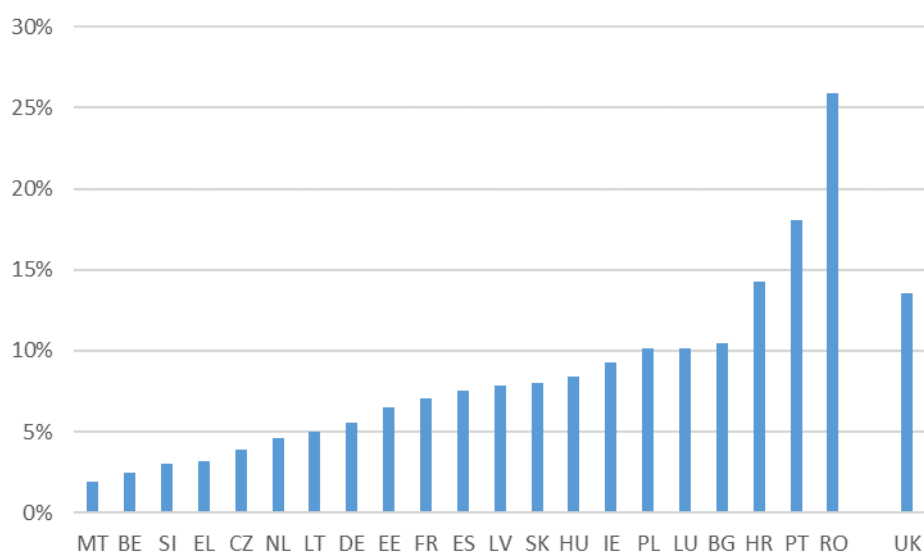
⁷ For an overview of this issue, see Brown, C. (1999): “Minimum wages, employment and the distribution of income”, in: Ashenfelter O. and D. Card (eds.): *Handbook of Labor Economics*, Volume 3, Chapter 32.

⁸ Peña-Casas, R., D. Ghailani, S. Spasova and B. Vanhercke (2019): “*In-work poverty in Europe: A study of national policies*”, European Social Policy Network.

⁹ European Commission (2016): “*Labour market and wage developments in Europe: Annual Review 2016*”, Directorate-General for Employment, Social Affairs and Inclusion, Section II.1.4.

¹⁰ See, for instance on simulations included in Harasztosi and Lindner (2019): “Who pays for the minimum wage?” *American Economic Review*, Vol. 109(8): 2693–2727.

Graph 1: Share of workers with wages at or around the statutory minimum wage, 2017



Note: Share of workers with wages between 80% and 105% of the statutory minimum wage. In Member States without a statutory national minimum wage (i.e., Austria, Cyprus, Denmark, Finland, Italy and Sweden), it is not possible to identify workers who earn the collectively agreed minimum-wage floors.

Source: European Commission based on EU-SILC 2017 for the Member States with a statutory minimum wage.

The “typical” minimum wage earner is older than 25 years, female, has upper secondary education and is living in a couple in most Member States. Although young workers have a higher likelihood to earn the minimum wage than other age groups (Graph 2(a)), they do not represent the majority of the minimum wage earners (Graph 3(a)), since young workers represent a relatively small share of workers overall. There are substantial differences across Member States regarding the profile of the “typical” minimum wage earner in terms of age. While in Romania and Bulgaria, hardly any minimum wage earner is younger than 25 years old, the share of young workers is higher in the Netherlands and Malta, close to one in four.

The majority of minimum wage earners are women. In all Member States, women have a higher probability to earn the minimum wage than men (Graph 2(a)). This gender gap varies across Member States: being a woman doubles the likelihood of being a minimum wage earner in Czechia, Germany, France, Croatia, Netherlands, and Slovakia but has a limited effect in Bulgaria, Estonia or Lithuania (not shown). Accordingly, women represent the majority of minimum wage earners in all Member States, their share exceeding 70% in Czechia, Germany, Malta, the Netherlands, Slovakia (Graph 3(b)).

The majority of minimum-wage earners are medium-skilled in most countries (Graph 3(c)). This is despite the fact that low-skilled workers have a higher chance of earning the minimum wage (Graph 2). But, as in the case of young workers, the share of low-skilled workers is relatively low in the overall workforce of most countries. The patterns are not uniform across countries: the majority of minimum wage earners is low-qualified in Portugal, Luxembourg and Malta. In turn, there is a relatively high share

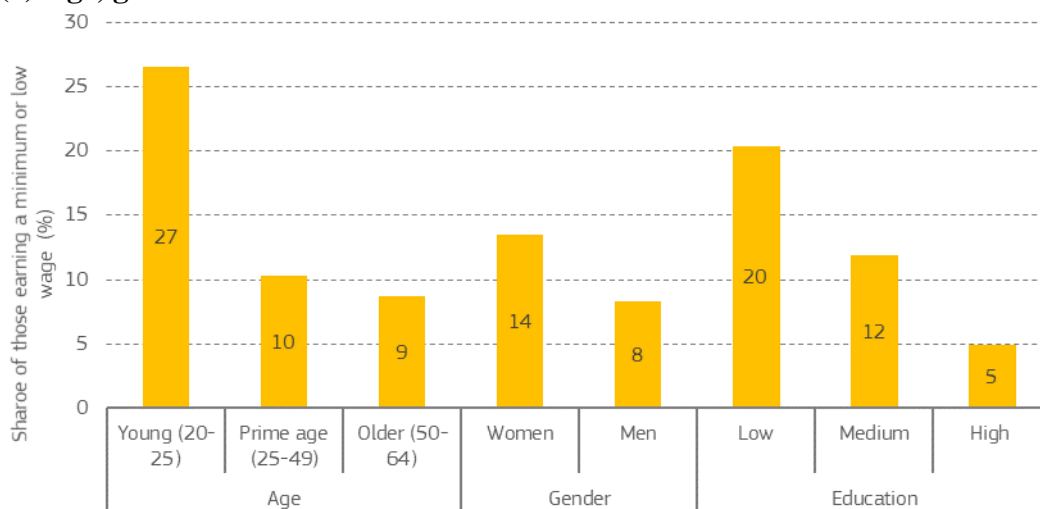
(more than 25%) of high-skilled workers among minimum wage earners in Ireland, Greece, Spain, and Slovenia.

Temporary and part-time work increases the likelihood of being a minimum wage worker, but in most countries the majority of minimum-wage earners work in standard jobs. Having a temporary contract triples the chance of being a minimum wage worker on average across the EU. Similarly, the probability of a part-time worker to earn the minimum wage is about double that of a full-time worker (Graph 2(b)). But, since the share of temporary and part-time workers is not very high in most countries, their share among minimum wage earners is moderate in most countries (Graph 3(e) and (f)). There are exceptions, however: temporary workers are the majority of minimum-wage earners in Greece and Spain, while part-time workers constitute the majority in Belgium, Germany and the Netherlands.

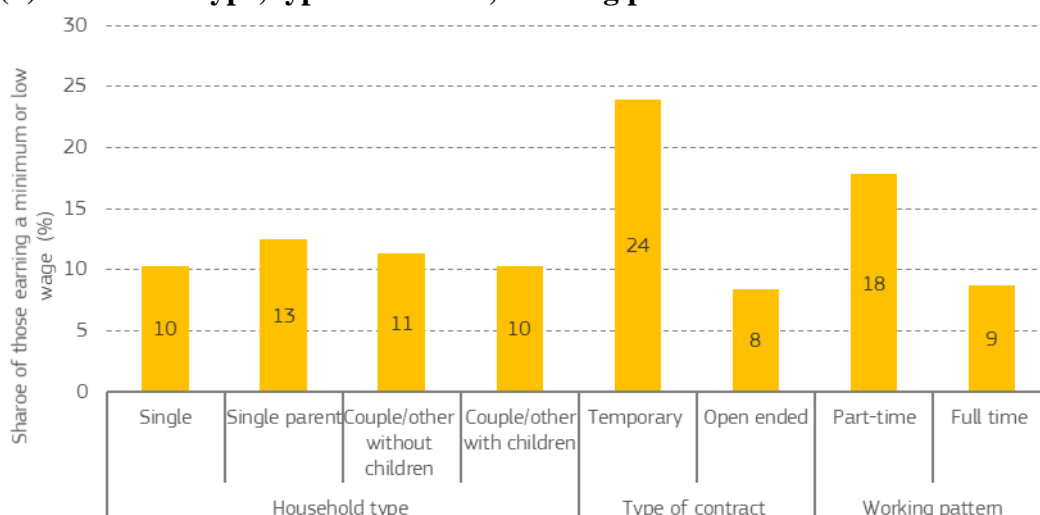
While in some countries single parents have the highest probability of being minimum-wage earners, the large majority of minimum-wage earners are living in households with two or more adults. Single parents have a slightly higher probability of being minimum-wage earners than adults living in other household types (Graph 2(b)). Nevertheless, most minimum-wage earners live in households with at least two adults, including a similar share of couples with and without children (Graph 3(d)).

Graph 2: The probability of being a minimum wage earner, by major individual and job characteristics in the EU, in per cent, 2017

(a) Age, gender and educational attainment



(b) Household type, type of contract, working pattern

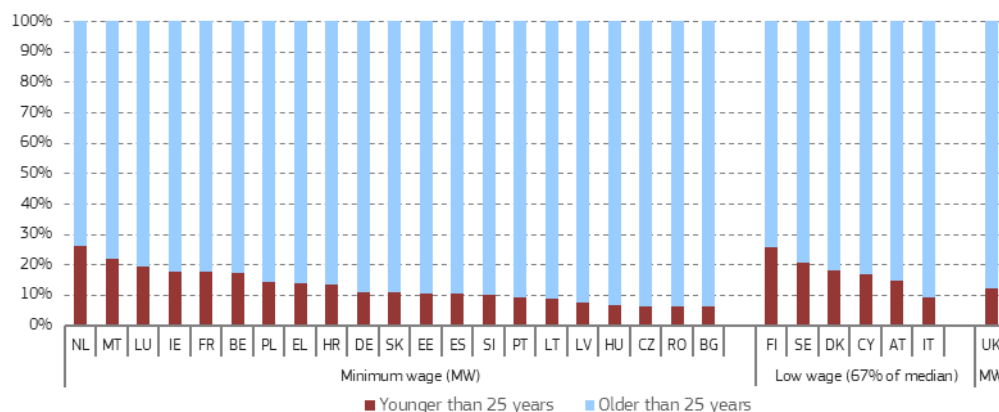


Note: The graphs display the weighted average across Member States. For the Member States with a statutory national minimum wage, workers with wages between 80% and 105% of the minimum wage were considered. For the other Member States, low-wage workers (less than 67% of the median wage) were considered.

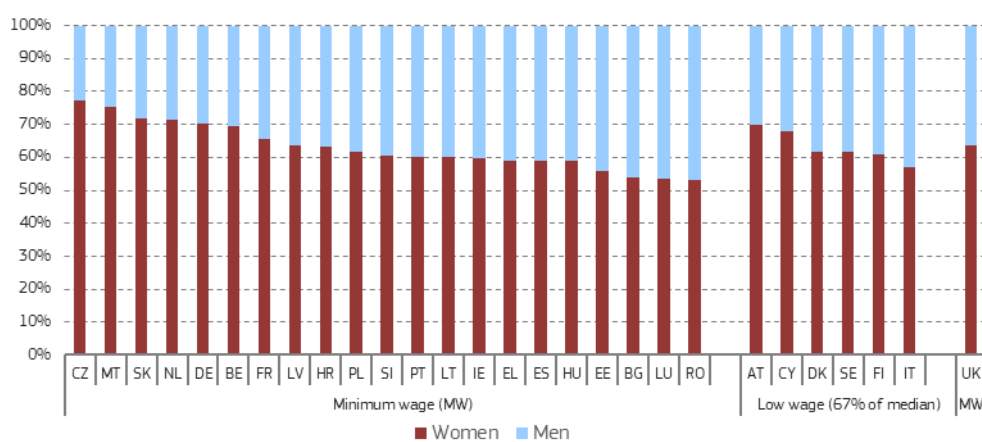
Source: European Commission calculations based on EU-SILC 2017.

Graph 3: Characteristics of minimum wage earners by Member State (% of the MW earners), 2017

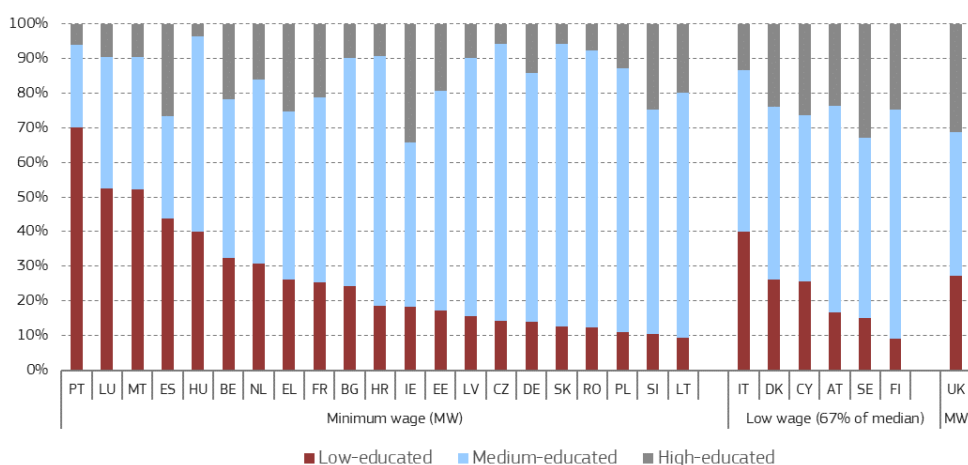
(a) Age



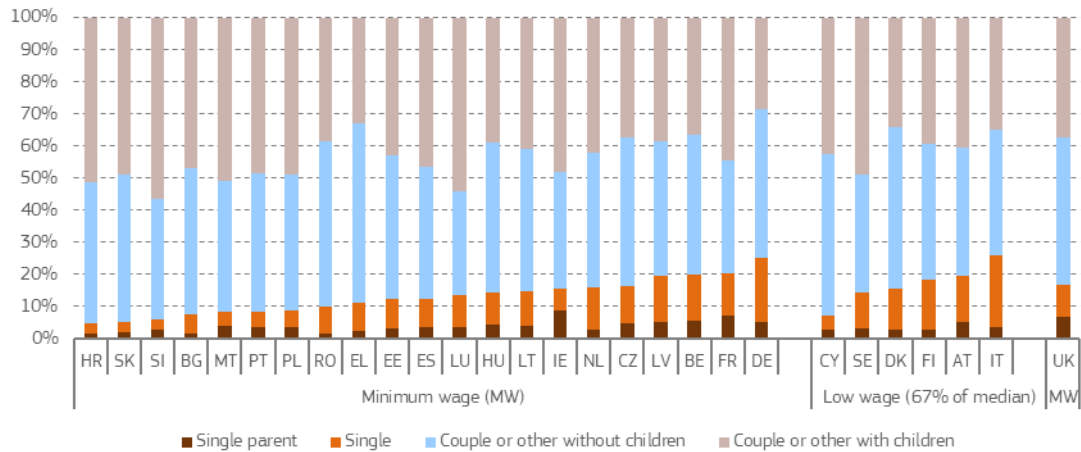
(b) Gender



(c) Education level



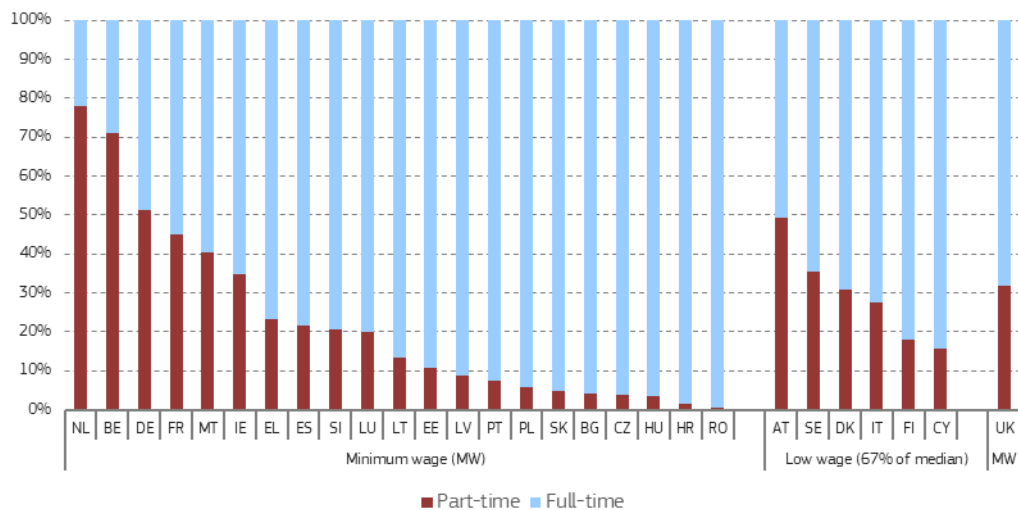
(d) Household type



(e) Type of contract



(f) Working pattern



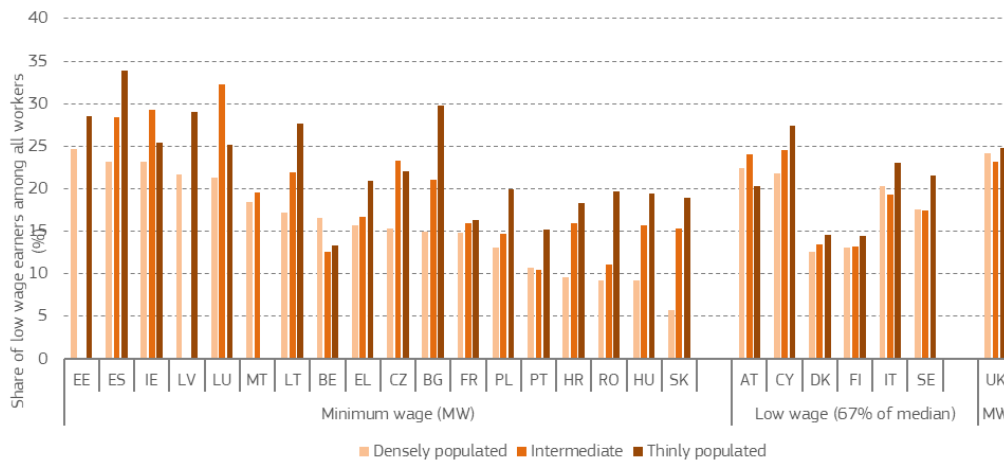
Note: For the Member States with a statutory national minimum wage, workers with wages between 80% and 105% of the minimum wage were considered. For the other Member States, low-wage workers (less than 67% of the median wage) were considered.

Source: European Commission calculations based on EU-SILC 2017.

2.3. Where do minimum-wage earners live and what kind of sectors and firms do they work for?

Workers in less densely populated areas have a somewhat higher chance of being minimum-wage earners. On average across all Member States for which data are available, 14% of the employees living in thinly populated areas earn the minimum wage, while there is a lower share of minimum wage earners in intermediate (13%) and densely populated areas (11%). This is linked, among other things, to regional differences in the characteristics of workers as well as the location of various economic sectors (for instance, agriculture in rural areas and finance in dense ones). There are, however, significant differences between Member States (Graph 4). While in many countries the share of minimum wage earners is higher in less densely populated areas, the distribution is more even in others, e.g., Belgium, Czechia, and France. In other Member States, the share of minimum wage earners was highest in regions with an intermediate population density (rather than low density; e.g., in Austria, Ireland and Luxembourg).

Graph 4: The share of minimum wage earners among all workers, by regions of high, intermediate and low density, 2017

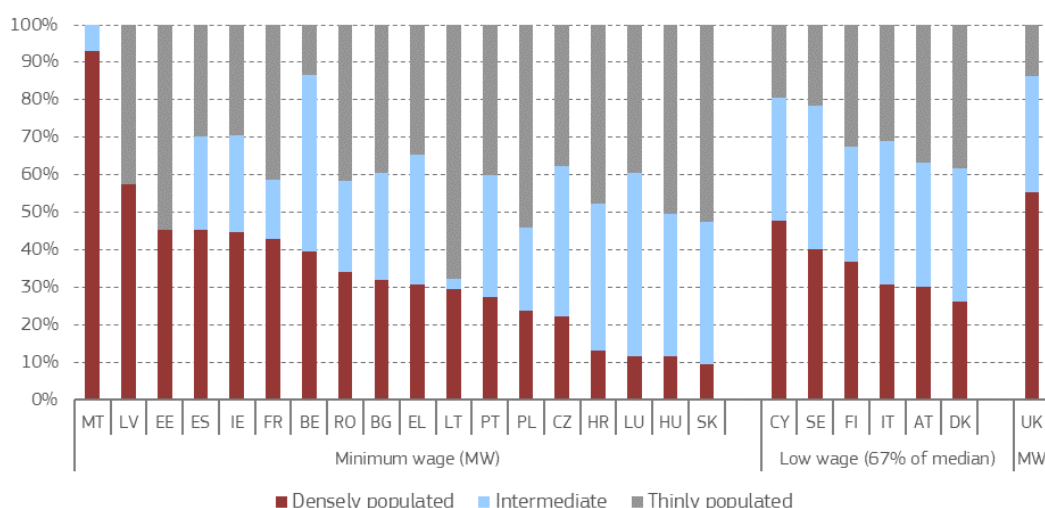


Note: For the Member States with a statutory national minimum wage, workers with wages between 80% and 105% of the minimum wage were considered. For the other Member States, low-wage workers (less than 67% of the median wage) were considered.

Source: European Commission calculations based on EU-SILC 2017. The classification of regions has been done based on the degree of urbanisation variable DEGURBA in the database.

At the same time, depending on the regional distribution of the population, the regional distribution of minimum wage workers varies across countries. While in some Member States, the majority of minimum wage earners live in densely populated areas (Malta and Latvia), in others the majority lives in thinly populated areas (e.g., in Estonia, Hungary, Lithuania, Poland, and Slovakia; see Graph 5). Regions of intermediate population density have an important weight in Belgium, Luxembourg, but also in Czechia, Hungary and Slovakia. These patterns are the result of the regional distribution of the overall population and the probabilities reported in the previous graph.

Graph 5: Distribution of minimum wage earners across regions of high, intermediate and low density, 2017

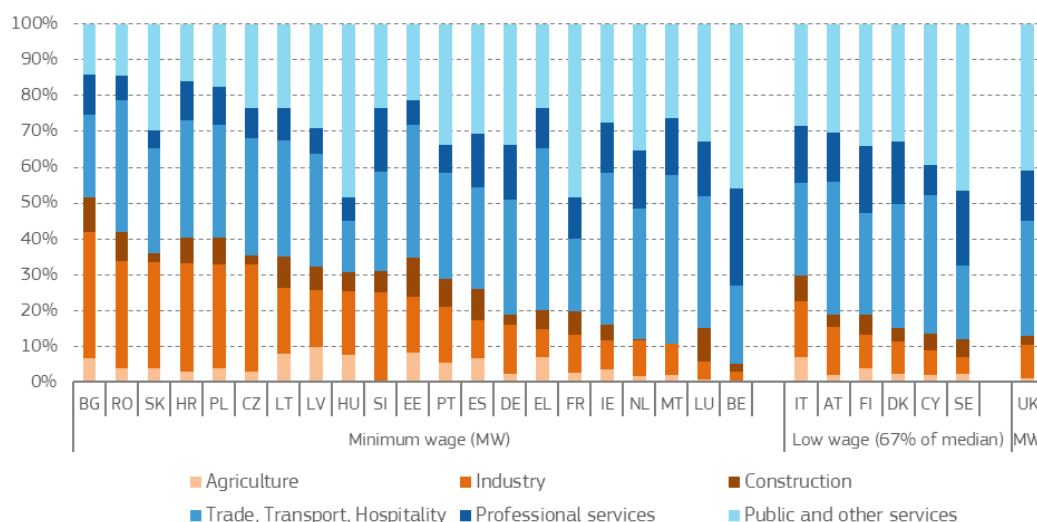


Note: For the Member States with a statutory national minimum wage, workers with wages between 80% and 105% of the minimum wage were considered. For the other Member States, low-wage workers (less than 67% of the median wage) were considered.

Source: European Commission calculations based on EU-SILC 2017. The classification of regions has been done based on the degree of urbanisation variable DEGURBA in the database.

In virtually all countries, the majority of minimum wage earners works in the services sectors (Graph 6). Industry and agriculture sectors employ a relatively small share of minimum wage earners in most countries, but this share is higher in some Central and Eastern European Member States. Industry accounts for a low share of minimum wage earners in some Member States (less than 10% in Belgium and Luxembourg), while its weight exceeds 30% in some Central and Eastern European Member States (such as Bulgaria, Czechia, Croatia, Slovakia, Poland, and Romania). The share of agriculture is less than 10% in all Member States. It is highest (above 7%) in Estonia, Hungary, Latvia, and Lithuania. This is because of the low share of agriculture in overall employment, but workers in this sector have a high probability of earning the minimum wage (see Graph 7(a)).

Graph 6: Distribution of minimum wage earners by sector (% of the MW earners), 2017



Note: For the Member States with a statutory national minimum wage, workers with wages between 80% and 105% of the minimum wage were considered. For the other Member States, low-wage workers (less than 67% of the median wage) were considered. Employees are divided into six groups related to their sector of employment: Agriculture (NACE Rev. 2 sector code: A), Industry (B-E), Construction (F), Trade, Transport and Hospitality services (G-I), Professional services (J-N) and Public and other services (O-U).

Source: European Commission calculations based on EU-SILC 2017.

The food and accommodation (or hospitality) sector, a sector particularly affected by the Covid-19 pandemic, has a high share of minimum-wage earners. The share of minimum-wage earners is higher in services than in industry (see Graph 7(a)), but it is particularly high in the food and accommodation sector, about twice as high as in services in general (see Graph 7(b)). There is a great variety across countries, partly reflecting differences in the share of minimum-wage earners at large. The share is highest (above one in four) in Croatia, France, Luxembourg, Portugal and Romania among countries with a statutory national minimum wage. In all countries without a statutory national minimum wage, the share of low-wage earners in the food and accommodation sector is one in three.

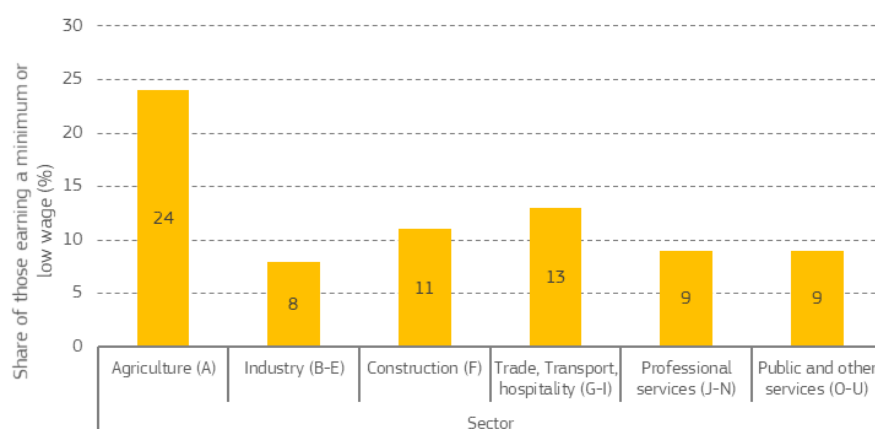
In a majority of Member States, workers in health and social services are less likely to earn the minimum wage than the average worker, but more likely than other workers in the public sector. The working conditions and pay of healthcare workers have received much attention in the context of the discussions about labour mobility in the EU,¹¹ and even more so during the Covid-19 pandemic. In most Member States, the share of minimum-wage earners in the human health and social work sector is low (less than or close to 5%). But there are Member States where this share is high: it is above 15% in Luxembourg, Portugal and Romania (Graph 7(c)). And while in a majority of Member States healthcare workers are less likely to be minimum wage earners than the average worker, the opposite is the case in particular in France, Luxembourg and Portugal. At the same time, in most Member States, healthcare workers are more likely to

¹¹ See, e.g., Center for Policy Studies (CEPS), 2019: "EU mobile workers. A challenge to public finances?" Contribution prepared at the request of the Romanian Presidency of the Council of the European Union, presented at the informal ECOFIN meeting in Bucharest, 5-6 April, 2019.

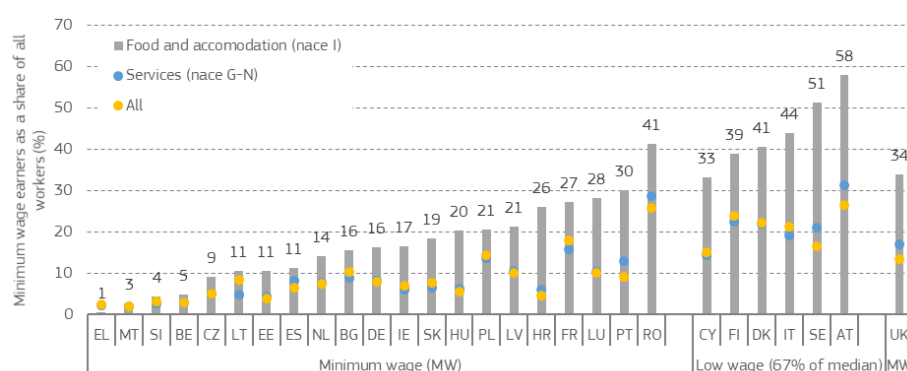
be minimum wage earners than workers in the public sector in general, except in Estonia and Hungary.

Graph 7: The share of minimum wage earners by sector, 2017

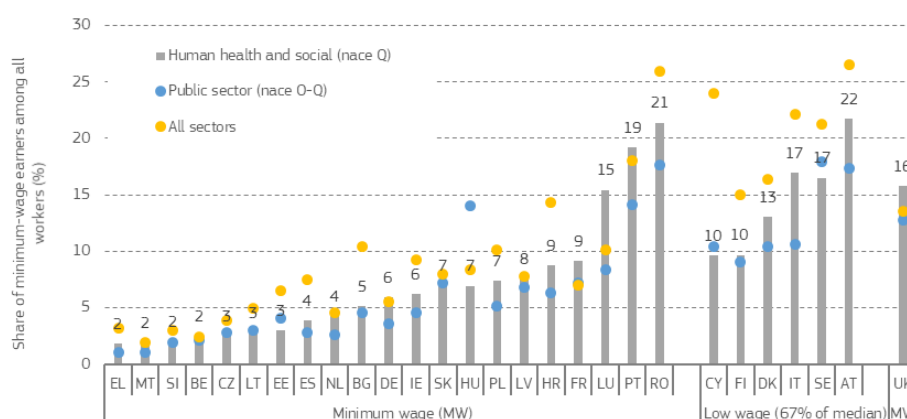
(a) By broad sectors of the economy



(b) The food and accommodation sector among other services sectors



(c) The public sector and the human health and social work sector

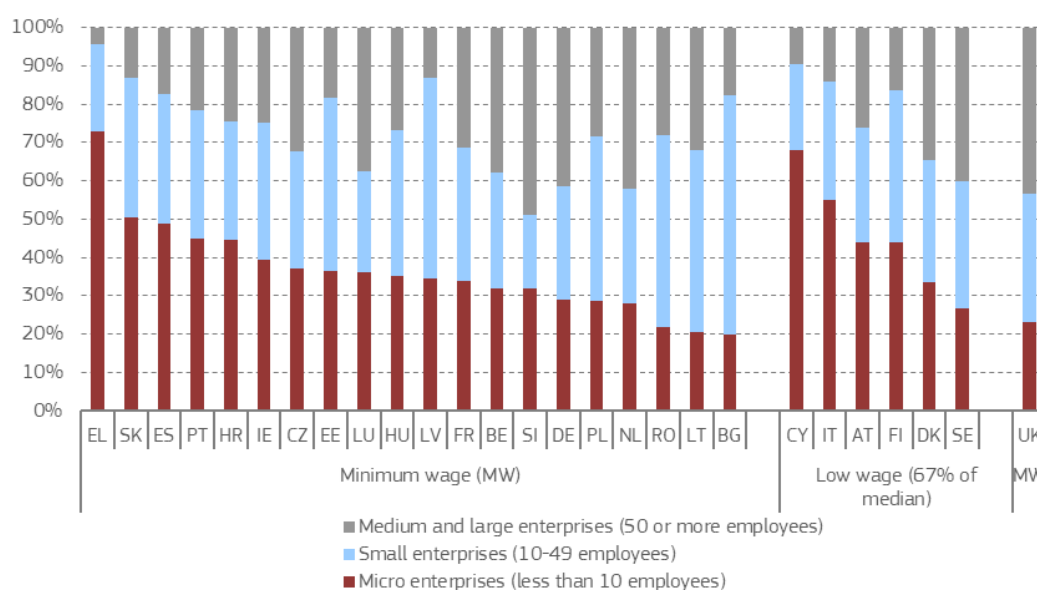


Note: For the Member States with a statutory national minimum wage, workers with wages between 80% and 105% of the minimum wage were considered. For the other Member States, low-wage workers (less than 67% of the median wage) were considered.

Source: European Commission calculations based on EU-SILC 2017.

Micro and small enterprises employ a majority of minimum-wage earners but there is a variety of patterns across the EU. Firms with less than 50 workers employ more than 80% of minimum wage earners in Bulgaria, Estonia, Greece, Latvia, Slovakia and Spain (as well as in Cyprus, Finland and Italy, in the case of low-wage earners) while their weight is below 60% in Germany, the Netherlands and Slovenia (see Graph 8). There is also a variety of patterns related to the relative weight of micro and small enterprises. Micro enterprises employ a majority of minimum-wage earners in Greece and Slovakia (as well as Cyprus, and Italy in the case of low-wage earners). In contrast, their weight is only about 20% in Bulgaria, Lithuania and Romania.

Graph 8: The distribution of minimum wage earners, by firm size (%), 2017



Note: Minimum wage earners are those whose observed full-time equivalent gross monthly wage ranges between 80% and 105% of the monthly minimum wage.

Source: European Commission calculations based on EU-SILC 2017.

2.4. Minimum wages are set through collective agreements or legislative provisions

All Member States in the EU have minimum wages, set through collective agreements (also called ‘collectively agreed minimum wages’ or ‘collectively agreed wage floors’) or legislative provisions (‘statutory minimum wages’). Statutory minimum wages applying universally in a country are also called ‘statutory national minimum wages’. Statutory minimum wages applying only to some occupations (as opposed to universally) exist in Cyprus. This section provides an overview of existing institutional settings.

Minimum wages set through collective agreements

In six Member States (Austria, Cyprus, Denmark, Finland, Italy, and Sweden) minimum wages are set by the social partners in collective bargaining agreements. Usually, these agreements are concluded at the sectoral level. In Cyprus, collectively agreed minimum wage floors for certain occupations coexist with statutory minimum wages set for other occupations.

In general, these Member States have a comprehensive collective bargaining system, with high membership of both unions and employers associations. As a result, a large proportion of workers are covered by collective agreements. National traditions of collective bargaining vary considerably. In Denmark and Sweden, firms with collective agreements are obliged by law to apply the agreement to all workers, regardless of union membership. In Austria, employers hold a mandatory membership at the relevant employers' association; they are thus obliged to implement bargaining outcomes. In Finland, there are extension mechanisms that allow collective bargaining agreements signed by members of employers' associations to apply also to non-member companies within a sector. Although formal extension mechanisms do not exist in Italy, case law and practice have systematically extended coverage to non-unionised workers. Annex 1.1 provides more detail on the existing systems in countries relying on collective bargaining to set minimum wage floors.

Collectively agreed wage floors are generally the outcome of bi-partite negotiations by social partners. Since they can be agreed at various levels (national, sectoral, firm or regional level), the number of co-existing agreements can be high. In turn, individual agreements can, and often do, provide for quite complex pay schedules differentiated by occupation, age, seniority, region and other dimensions.

Minimum wages set through legislative provisions

In the EU, 21 Member States have a statutory national minimum wage, a wage floor set by law applying to all sectors of the economy. There is a considerable variety across countries in the mechanism to set these. Differences concern, among other things, the actors involved and the level of government discretion in the decision-making process. In general, the minimum wage setting systems in the EU are either institutionalised (with a formal obligation to consult with relevant stakeholders), rule-based (indexation) or non-institutionalised (the government determines unilaterally the adjustment of the statutory minimum wage). The social partners are associated to different extents and with different modalities. Independent experts also play a role in a number of countries. Table 1 provides a summary of various minimum-wage setting systems, while Annex 1.2 provides an overview by country.

Table 1: The role of the government, social partners and other actors in statutory minimum wage setting systems

Statutory minimum wage						Minimum wage setting relying on collective bargaining
Institutionalised decisions				Automatic Indexation	Non-institutionalised decisions	
Gov't following the recommendation of MW specialised body	Gov't following bilateral/tripartite non-binding consultations process	Gov't following a tripartite decision making process	Gov't extends collective agreements by legislation			
DE EL IE FR*	BG ES HR HU LV MT*	PT SI* RO LT PL SK	BE* EE	BE FR LU MT NL SI	CZ	AT CY DK FI IT SE

Note: * For discretionary changes.

Sources: Relevant national legislation; ILO Working Conditions Laws Database / Minimum wage fixing database

In 6 of the 21 countries (Belgium, France, Luxembourg, Malta, Netherlands and Slovenia), formal indexation rules drive minimum wage updates on the basis of price and wage developments or a combination of both. In all these cases, there is also the possibility for discretionary changes on top of those linked to indexation. In 3 Member States (Belgium, Malta and Slovenia), the law specifies a formal obligation to consult social partners on such discretionary changes. In France, the law entitles social partners to present their recommendations to the government and these are published as an annex to the annual report of the Minimum Wage Expert Committee. In Luxembourg and the Netherlands, there is no legislative clause for social partner consultation. However, in both Member States, social partners provide non-binding views to the government on the minimum wage in practice.

In some Member States, the process of minimum wage setting is led by a minimum wage specialised body. In these countries (Germany, Greece, and Ireland), an independent specialised body makes recommendations to the government on the annual minimum wage adjustment. In Greece and Ireland the government can deviate from the recommendation but if it does, it has to justify the decision. In others, the minimum wage setting system takes place in a structured tripartite or bipartite setting. Lithuania, Poland and Slovakia have structured tripartite systems in which if an agreement is reached through the consultation process then this is binding for all the parties.

In many Member States, the government makes a decision about minimum wage updates after an institutionalised process of consultations mostly with social partners. These are systems with well-defined decision making processes and specific roles for the main actors. Specifically, in the majority of the Member States (Bulgaria, Spain, Croatia, Hungary, Latvia, Malta, Portugal, Slovenia and Romania) the government sets the minimum wage following an institutionalised bipartite or tripartite consultation process, defined by law. In all of these Member States the social partners provide non-binding recommendations; the government can set the minimum wage unilaterally. In Slovakia, Lithuania and Poland, negotiations between social partners or tri-partite deals have priority over government intervention. However, the government sets the minimum wage unilaterally when it is not possible to reach an agreement. In Belgium and Estonia, changes to the minimum wage are decided bilaterally between the social partners through collective bargaining; the agreement is then extended into legislation by the government. In Czechia, the adjustments of the minimum wage are decided by the government without specific rules or institutionalised consultation process defined by law. However, in practice social partners express views and non-binding recommendations through a tripartite committee.

3. WHAT IS THE PROBLEM THAT NEEDS TO BE ADDRESSED?

Many workers are currently not protected by adequate minimum wages in the EU. In some cases, minimum wage floors cannot be considered as adequate. In others, there are gaps in the coverage of minimum wages. The rest of this section lays out various aspects of this problem and discusses its drivers and consequences. In particular, Section 3.1 elaborates on the problem to be addressed while Sections 3.2 and 3.3 discuss in details external and internal drivers respectively. Internal drivers refer to factors influencing the problem that are directly related to minimum wage setting systems and are thus to be tackled by the initiative. External drivers, in turn, refer to factors influencing the problems that are not directly related to minimum wage setting. These factors are thus not tackled by the initiative. They include megatrends (e.g., globalisation and technological and demographic changes) and policy areas other than minimum wage setting (e.g., taxes and benefits). Consequences are discussed in Section 3.4 while a diagrammatic summary of the relationships between the problem, its drivers, and its consequences (the “problem tree”) is presented in Section 3.5.

3.1. Many workers are not protected by adequate minimum wages

3.1.1. *Insufficient adequacy*

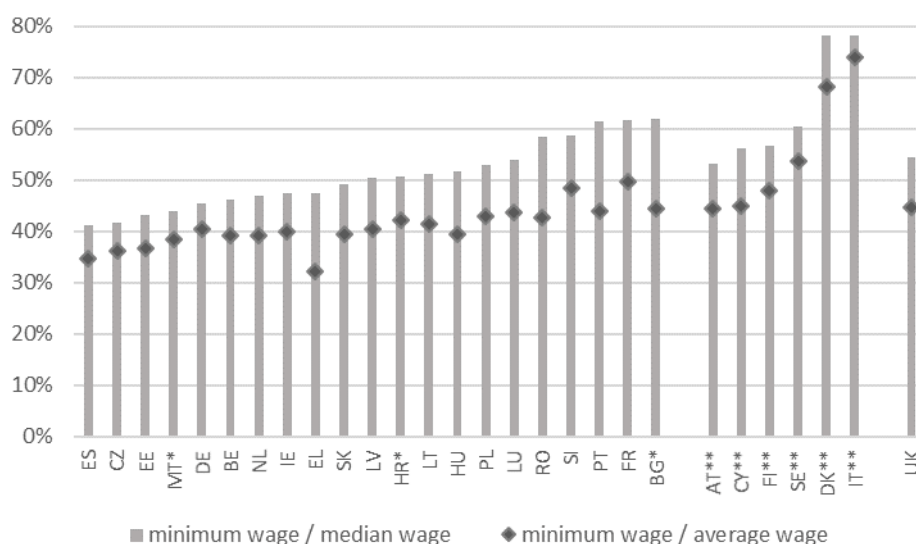
Minimum wages can be considered as adequate when they are fair vis-à-vis the wages of other workers in the country and when they provide a decent standard of living, taking into account general economic conditions in the country. Various indicators aim to measure these aspects of minimum wage adequacy. Some adequacy indicators compare gross minimum wages to the gross median wage¹² or average wage. They allow to assess whether a minimum wage is fair compared to the wages of other workers in the same country and thus are also informative about the effect of minimum wages on wage inequality. Other indicators assess the take-home pay of minimum-wage earners against a reference income. These indicators allow a closer look at what minimum-wage earners can afford. The reference income can be relative to the income of other groups in society, or an absolute measure of a decent living standard. The advantages and disadvantages of various indicators, as well as some associated data issues, are summarised in Annex 2.

The adequacy of statutory minimum wages has improved in several countries in recent years, but it remains low in some. This is true based on all the main indicators, both those focusing on gross minimum wages as compared to other wages and those focusing on the net income of minimum wage earners. Without prejudice to what the targeted adequacy level should be, thresholds referred to in the wider policy debate generally range between 40% of the national average wage and 60% of the national median or average wage. Irrespective of which threshold might be selected within this

¹² The median wage is the wage earned by the person in the middle of the wage distribution. Exactly one half of people earn less than this person. The median wage is usually estimated based on earnings (or income) surveys, on the distribution of monthly earnings of full-time workers.

range, there are always some countries in which the current minimum wage would fall short of the threshold. The minimum wage was below 50% of the median wage in ten EU countries with a statutory minimum wage in 2018, while it was below 45% of the median wage in four. In 2018, the highest wage floors as compared to the median wage were observed in some of the countries with collective bargaining systems (Denmark and Italy close to 80%)¹³ while in other countries minimum wages mostly ranged between 40% and 60% (Graph 9). Other countries with higher minimum wages compared to the median wage included Bulgaria, France and Portugal, while lower minimum wages were observed in Czechia, Estonia and Spain. Comparisons to the average wage are somewhat lower, as the average wage exceeds the median wage since it is affected by very high earnings. In 2018, there were ten Member States where the minimum wage was below 40% of the average wage (Graph 9).

Graph 9: Minimum wages, expressed as a percentage of the gross median and average wage of full-time workers, 2018



Notes: * For BG, HR and MT, OECD Tax-Benefit data are used for the median and average wage. + For AT, CY, DK, FI, IT and SE, information on collectively agreed wage floors was taken from Eurofound (2019): Minimum wages in 2019 - Annual review, while information on median and average wages was taken from the OECD Tax-Benefit model.

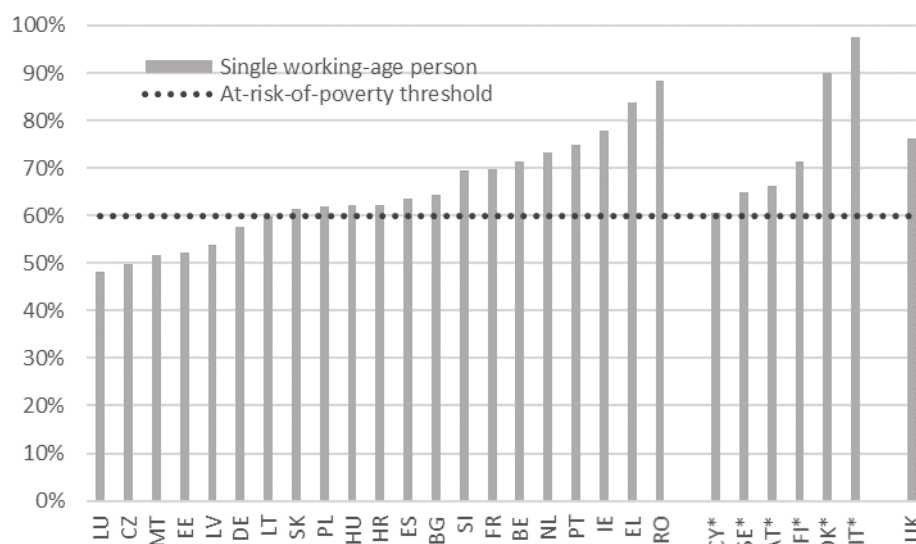
Source: OECD Stats and Commission calculations based on OECD TaxBen and Eurofound data.

In 2018, the statutory minimum wage did not provide sufficient income for a single minimum-wage earner to reach the at-risk-of-poverty threshold in six Member States. Comparing the take-home pay of minimum-wage earners to income levels is informative of whether minimum wages protect against poverty and contribute to supporting a decent living. One possibility is comparing the net income of minimum-wage earners to 60% of median household income, which is the at-risk-of-poverty threshold in the EU. Countries where minimum wage was not sufficient to help a single

¹³ Data on collectively agreed minimum wage floors are based on information collected in the Eurofound, 2019, “Minimum wages in 2019: Annual review”, Figure 3. These wage floors have been identified by national experts as the “lowest rates of pay within the largest collective agreements”.

worker avoid the risk of poverty include Czechia, Estonia, Malta, Germany with comparatively low minimum-to-median wage ratios, but also Latvia and Luxembourg with relatively higher ratios (Graph 10). Compared to average wages, Member States relying on collective bargaining for setting minimum wages tend to have higher minimum wages than countries with statutory minimum wages.

Graph 10: Net income of single minimum-wage earners working full-time, relative to the at-risk-of poverty threshold, 2018

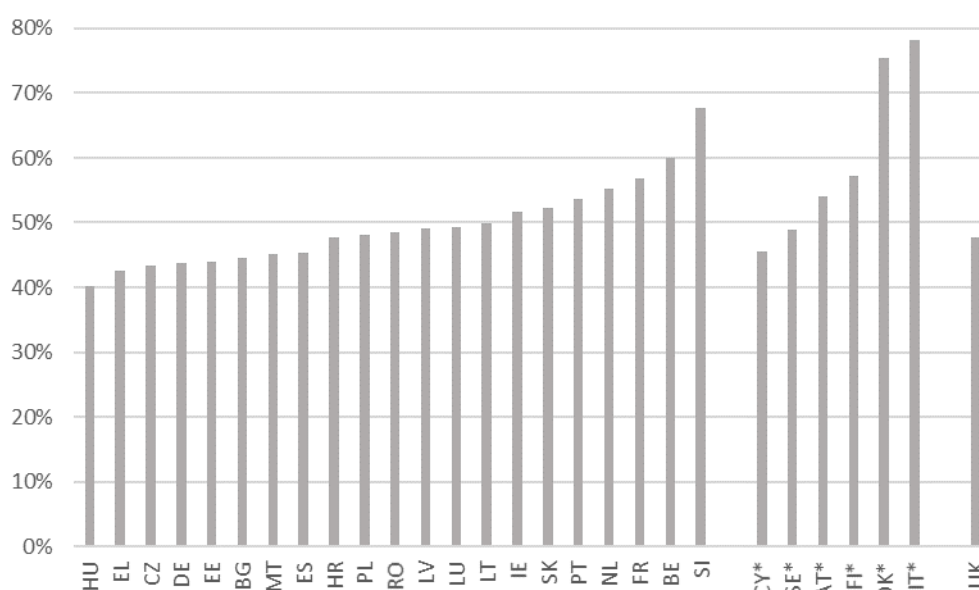


Note: The household types considered in this graph are not entitled to social assistance and housing benefits.

Source: European Commission calculations based on OECD TaxBen model. Comparable minimum wage floors for Member States without statutory minimum wages (marked by *) were taken from Eurofound (2019): Minimum wages in 2019 – Annual Report.

Minimum wages also fall short of the standard of decent living defined by the Council of Europe in a number of countries. The Council of Europe’s 1961 European Social Charter (ESC) established the human right of all workers “to a fair remuneration sufficient for a decent standard of living for themselves and their families”. Its European Committee of Social Rights – which monitors compliance with ESC provisions by the states that are party to the charter proposed that wages should be at least 60% of national average net earnings, with a secondary target of 50%. While minimum wages in most cases fall short of 60% of the net average wage, they are close to or above 50% in many Member States. In 2018, minimum wages were lowest as a ratio of the net average wage (below 45%) in Czechia, Estonia, Germany, Greece and Hungary (Graph 11).

Graph 11: Net minimum wage over net average wage, single childless person not entitled to social assistance and housing benefits, 2018



Source: European Commission calculations based on OECD TaxBen model. Comparable minimum wage floors for Member States without statutory minimum wages (marked by *) were taken from Eurofound (2019): Minimum wages in 2019 – Annual Report.

It would be possible to compare minimum wages to a basket of goods representing a reference living standard, but no EU-wide approach has yet been agreed. One of the reasons may be that such an approach, aiming at defining an EU concept of a “living wage”, raises difficult methodological questions, including the comparability of the relevant basket of goods across Member States.¹⁴ At the same time, there is ongoing research to develop a common methodology to construct high-quality comparable reference budgets in all EU Member States.¹⁵

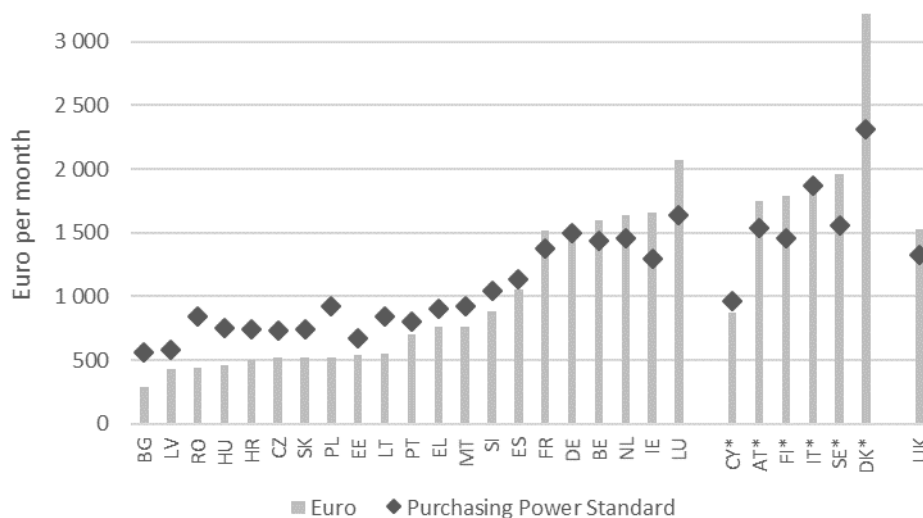
There are wide differences between the purchasing power of minimum wages across Member States. In 2019, statutory minimum wages in the EU ranged from EUR 286 in Bulgaria to EUR 2071 in Luxembourg. Taking into account the differences in price levels between Member States (a comparison in “Purchasing Power Standard”), the difference between the lowest and highest statutory minimum wages is about one to three (Graph 12). Collectively agreed wage floors in low-paid occupations in countries relying on collective bargaining are comparatively high when compared to statutory minimum wages in other countries.¹⁶

¹⁴ For a more detailed discussion, see, e.g., Eurofound (2018): “Concept and practice of a living wage”, Publications Office of the European Union, Luxembourg.

¹⁵ More information on a project on reference budgets, supported by the European Commission, can be found under: <https://ec.europa.eu/social/main.jsp?catId=1092&intPageId=2312&langId=en>.

¹⁶ When controlling for the level of economic development, Boeri (2012) finds that collective bargaining involves a 12-13 percentage points higher ratio of the minimum wage to the average wage. See Boeri, Tito: “Setting the minimum wage”, *Labour Economics*, Vol. 19 (3), June 2012, Pages 281-290.

Graph 12: Minimum wage levels, gross monthly figures, expressed in euro and Purchasing Power Standard (PPS), 2019



Notes: * For AT, CY, DK, FI, IT and SE, information on comparable collectively agreed wage floors was taken from Eurofound (2019): “Minimum wages in 2019 - Annual review”, Figure 3, while information on PPS was taken from the European Commission's AMECO database.

Source: Eurostat [monthly minimum wages; earn_mw_cur], Eurofound and AMECO.

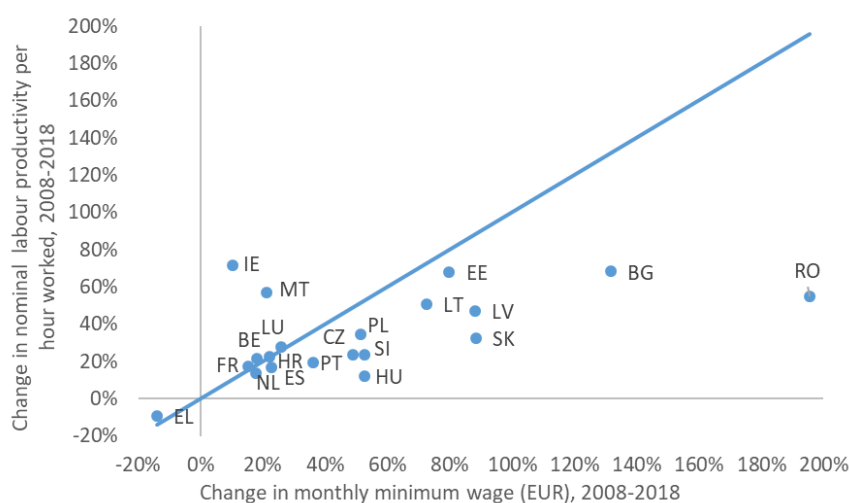
Disparities have narrowed significantly in the last decades, but they still remain substantial. General wage growth has been faster in low-wage countries (especially in Eastern European Member States) than in high-wage countries.¹⁷ Moreover, the statutory minimum wage has increased faster in low-wage countries, even as compared to other wages or compared to productivity growth. This is illustrated by Graph 13, which plots the change in labour productivity against the change in the monthly minimum wage between 2008 and 2018. In only two countries (Ireland and Malta) did the minimum wage significantly lag behind labour productivity.¹⁸ In a few other countries (Belgium, Croatia, France, Greece, Luxembourg), the minimum wage lagged behind productivity growth to a small degree. In the other Member States, the minimum wage grew faster than productivity, especially in Eastern European Member States. The minimum wage tripled in Romania in euro terms, more than doubled in Bulgaria, and almost doubled in Slovakia and Latvia, showing a significantly faster growth than GDP per hour worked. Developments in the previous decade (1999-2008) show a more varied picture, but overall they also contributed to a convergence in wages and in particular minimum wages (See Graph 14). Between 1999 and 2008, the minimum wage grew significantly ahead of productivity growth in Bulgaria, Czechia, Estonia, Hungary and Slovakia, but behind productivity growth in Latvia, Lithuania and Poland. Meanwhile, the minimum wage significantly lagged behind productivity in some Western European Member States, in particular in the Netherlands, but also in Belgium, France, and Portugal. Despite this

¹⁷ Longer-term trends in wage convergence have been analysed by the European Commission (2018): “Labour market and wage developments in Europe: Annual Review 2018”, Directorate-General for Employment, Social Affairs and Inclusion, Chapter II.2.

¹⁸ Part of the gap in the case of Ireland can be explained by the upward revision of the GDP in 2015. See also the year-by-year developments of labour productivity and minimum wages in Annex 3.

trend towards convergence in the last two decades, a large gap remains between the lowest and the highest nominal minimum wages in the EU (see also Graph 12).¹⁹

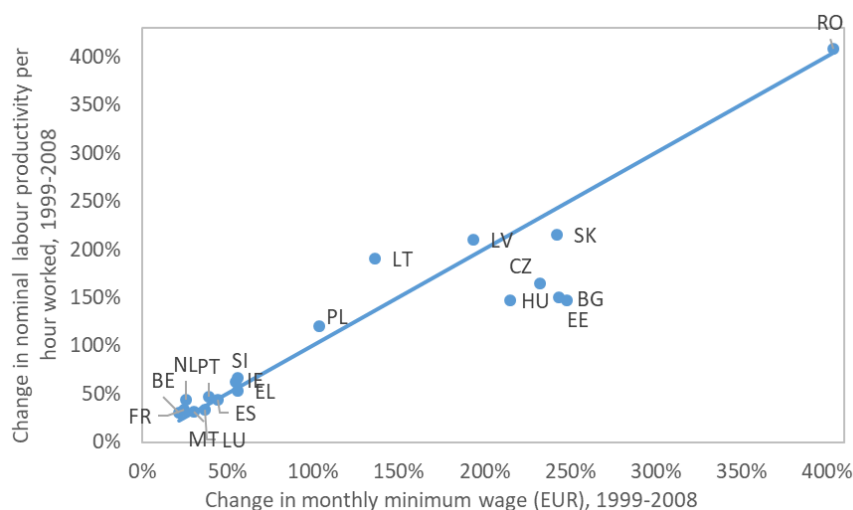
Graph 13: Changes in labour productivity and changes in the minimum wage, both in current euro, 2008-2018



Notes: Ireland is a statistical outlier, partly because its GDP was revised upwards in 2015.

Source: Monthly minimum wage in euro: Eurostat; GDP per hours worked in current prices, expressed in euro: AMECO database of the European Commission.

Graph 14: Changes in labour productivity and changes in the minimum wage, both in current euro, 1999-2008



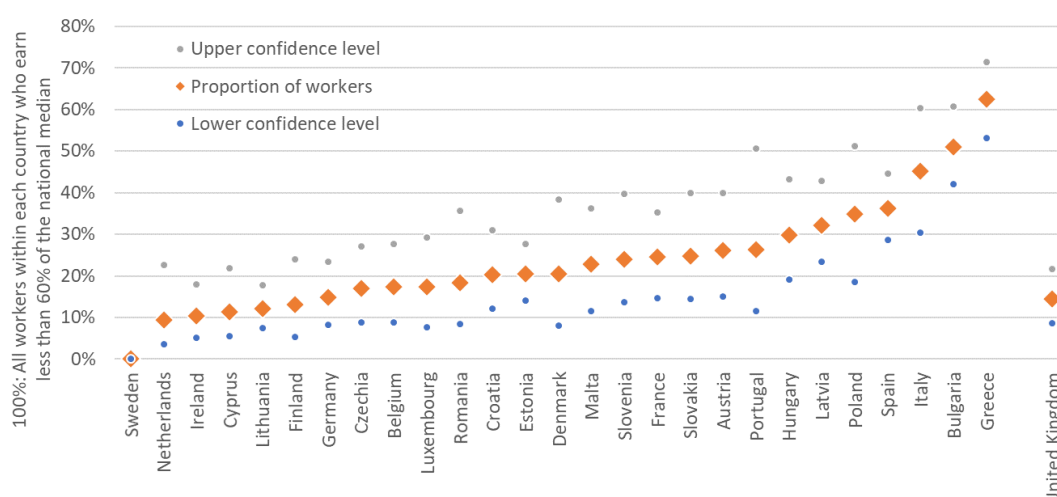
Source: Monthly minimum wage in euro: Eurostat; GDP per hours worked in current prices, in euro: AMECO database of the European Commission.

There is a wide difference across countries in the proportion of low-wage earners who report that they find it difficult to ‘make ends meet’.²⁰ The proportion ranges

¹⁹ The ratio between the purchasing power of the lowest and highest minimum wage in the EU has narrowed from roughly one-to-six in 2010 to one-to-three in 2019. See Eurofound: Minimum wages in 2019: Annual review, p. 8.

from 0% in Sweden and about 10% in the Netherlands and Ireland to proportions near or above 50% in Greece, Bulgaria and Italy (Graph 15). Overall, the proportion tends to be higher in countries where GDP per capita, wages, and minimum wages are lower, but there is no perfect correlation. Countries with a high ratio of the minimum to the median wage tend to have lower shares of low earners reporting difficulties, but the effect is intermediated by the tax and benefit system and demographic factors.

Graph 15: Proportion of low-earning workers who find it difficult to make ends meet, 2015



Note: Responses to the survey question ‘Thinking of your household’s total monthly income, is your household able to make ends meet ...?’ The graph shows the sum of those answering ‘with difficulty’ and ‘with great difficulty’. The estimated proportion of workers in each country lies with a likelihood of 95 per cent between the lower and upper confidence level.

Source: Eurofound based on European Working Conditions Survey, 2015. See Aumayr-Pintar, C.: “Fears and hopes around future minimum wages”; Link: eurofound.link/ef20039.

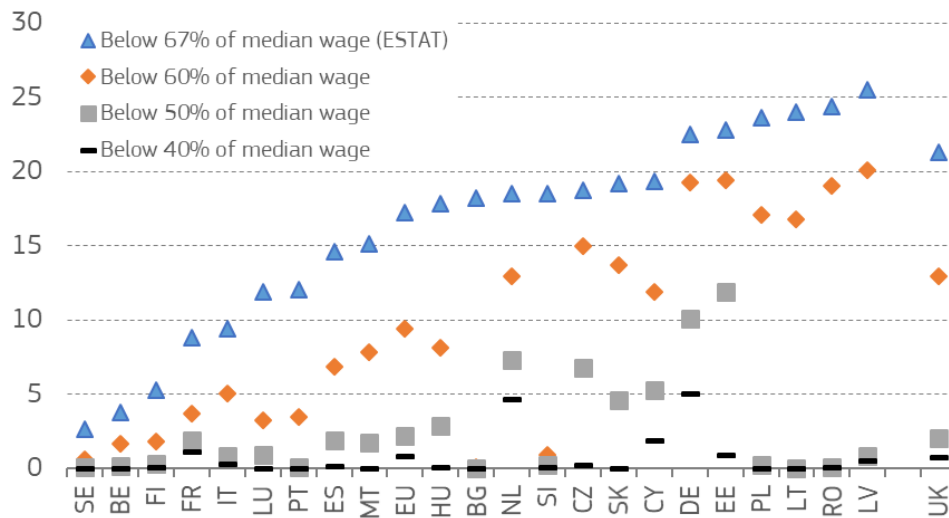
The adequacy of minimum wages should be considered in a broader economic context. General economic conditions (such as unemployment rates, productivity and general wage growth dynamics) are relevant, both in the short and the long term, for assessing the appropriate adjustments in the minimum wage. More generally, minimum wage levels need to be set to safeguard access to employment, taking into account the level of economic development of the country.

Insufficient adequacy of minimum wages affects a large number of workers. The share of minimum-wage earners in the EU is estimated at levels that vary from below 5% (e.g. in Belgium and Malta) to around 20% (in Portugal and Romania) (see Graph 1 in Section 2.2). But minimum wages support the wages of workers also slightly above the minimum wage. This means that the group of affected workers is broader. It is estimated that about one in six workers are low-wage earners in the EU, earning less than two

²⁰ Eurofound estimations based on European Working Conditions Survey, 2015. See Aumayr-Pintar, C.: “Fears and hopes around future minimum wages”; Link: eurofound.link/ef20039. Low earners are defined here as full-time workers earning less than 60% of the national median wage.

thirds of the median wage (Graph 16).²¹ In addition, a significant share of workers earns less than 60% (or 50%), of the median wage.

Graph 16: Share of low-wage workers: various thresholds, 2014



Note: The calculations are based on the gross hourly earnings. The Structure of Earnings Survey includes firms with 10 or more employees.

Source: Eurostat (share of workers below 67% of median, [earn_ses_pub1s]) and European Commission calculations based on EU-Structure of Earnings Survey 2014 (rest of the indicators).

3.1.2. Gaps in coverage

Gaps in minimum wage coverage exist in a number of EU countries. In many Member States, specific groups of workers are not protected by minimum wage floors. The drivers of these gaps in coverage differ across countries. In some cases, workers are not protected by adequate minimum wages because existing minima are not complied with (see Section 3.3.5). In Member States with a statutory national minimum wage gaps in coverage arise from specific provisions in the minimum wage legislation which allow for exemptions or variations for specific groups of workers.²² Exemptions and variations often apply to young workers, or those in education or training (e.g. apprentices) who may still lack job experience, but other groups workers are also concerned in national legislation (see Section 3.3.3).

In Member States without a statutory national minimum wage gaps arise because specific groups of workers are not covered by collective agreements. There are substantial differences from Member State to Member State (see Section 3.3.1). Given data issues (see Box 1 in Section 3.3.1), information is limited about the workers not covered by collective agreements. Some of these workers may be excluded from the

²¹ Latest data based on the 2014 wave of the Structure of Earnings Survey. This survey of firms is conducted every four years in the EU, including firms with 10 employees or more. Other sources of information (e.g. the SILC survey) are more up-to-date but involve more reporting error. They confirm a high share of low earners in the EU in more recent years.

²² “Exemptions” mean that the law exempts some groups from the application of minimum wage rules, while “variations” mean that a specific minimum wage floor applies to specific groups, for instance a lower minimum wage applies to young workers (sometimes referred to as “sub-minima”).

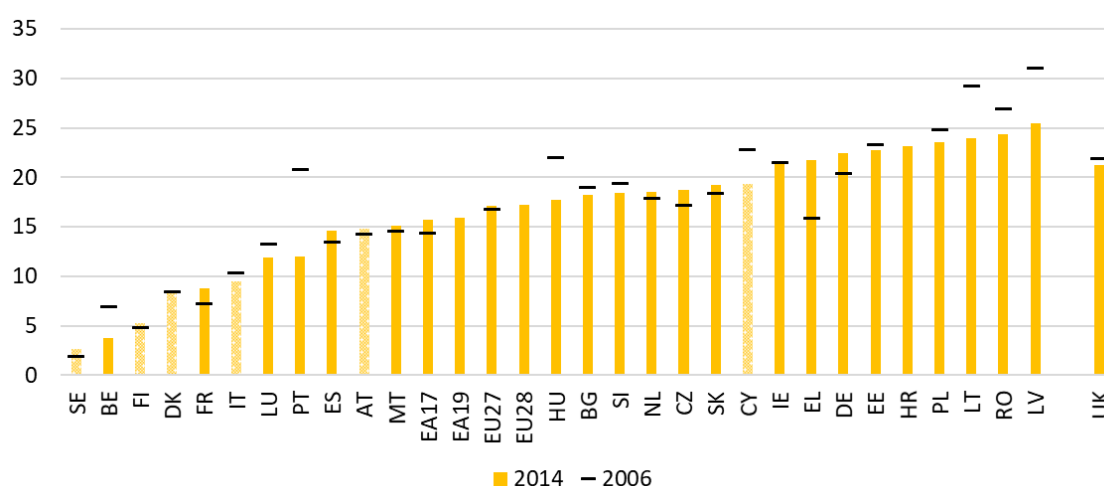
protection of minimum wages. Existing information suggests that the share of low-wage workers is significantly higher among the non-covered in Cyprus, similar to those covered in Austria, Denmark and Finland, while information is not available for Italy and Sweden.²³

3.2. External drivers of the problem

The protection of minimum wages matters because the share of low-wage workers is sizeable and increasing. About one in six workers are low-wage earners in the EU and their share has increased in recent years (from 16.7% in 2006 to 17.2% in 2014).²⁴ Their share is lowest in Sweden, Belgium and Finland, while is highest in Latvia, Romania and Lithuania (Graph 17). Overall, the share of low-wage earners is relatively low in the Member States that do not have a statutory minimum wage (Sweden, Finland, Denmark, Italy and Austria), except for Cyprus.

The share of low-wage earners increased in the EU in the past decade, with a considerable variation across countries. Between 2006 and 2014, the share of low-wage earners increased in half of the countries. It increased by more than one percentage point in Czechia, France, Germany, Greece, and Spain, and with that, in the euro area as a whole. In percentage terms, it also increased significantly in Finland and Sweden, albeit from very low levels. In contrast, in some Member States including most Eastern European countries, the share of low-wage earners declined. The decline was the largest in the countries in which the level was the highest, such as Lithuania, Romania and Latvia.

Graph 17: Share of low wage earners, 2006-2014



Note: Low-wage earners are defined as those employees (excluding apprentices) who earn two thirds or less of the national median gross hourly earnings. Data in the Structure of Earnings Survey includes firms with ten or more employees.

Source: Structure of Earning Survey [earn_ses_pub1s].

²³ Data extraction from the 2014 wave of the Structure of Earnings Survey, provided by Eurostat.

²⁴ The definition of low wages is hourly wages less or equal to 67% of the median hourly wage. The source of the data is Eurostat, Structure of Earnings Survey [earn_ses_pub1s].

The proportion of low-wage workers is influenced by changes in the structure of the economy and demographic factors related to skills. The introduction of new technologies is raising the demand for skills. In addition, increased automation and robotisation could substitute for workers in performing routine tasks, while they can complement workers in performing non-routine tasks demanding flexibility, creativity and complex problem-solving capabilities.²⁵ Several studies have shown that task-based technological change has significantly contributed to job polarisation in the EU: a decline of employment in medium-paid (or medium-skilled) occupations and a simultaneous increase of low- and high-paid (or skilled) occupations.²⁶ This change in the structure of demand for labour towards high-skilled tasks or occupation has brought about an increase in wage inequality. The share of the low-wage sector also depends on the level and distribution of skills in the economy.²⁷ Recent developments in wage inequality in the EU were also influenced by minimum wage policies.²⁸

The increase in the number of non-standard (atypical) workers has also resulted in an increase of wage inequality. The proportion of permanent full-time employment (also called “standard” employment) has declined from 62% to 59% in the EU-28 over the period 2002-2016, with most of the decline occurring before 2010. The effect of an increasing reliance of “non-standard” employment on wage inequality pays out mainly through two channels. First, temporary and part-time workers work fewer hours. Second, they also earn lower hourly wages. On average across the EU, employees on open-ended contracts earn 13% more compared to employees with similar characteristics, but working on temporary contracts.²⁹ The gap is found to be larger for low-wage earners.

Minimum wages interact with other policies, including taxes and benefits, to affect the living standards of minimum wage earners. In particular, personal income taxes and social security contributions can significantly reduce the take-home pay of minimum wage earners. Evidence show that over the last decade (2008-2018) such policies played a significant role in mitigating income inequality and the at-risk-of-poverty rate.³⁰ The total tax burden at the minimum wage level has an impact on both providing adequate income support to minimum wage workers and their families, and avoiding a too high burden on employers, which can result in job losses. The sum of personal income taxes

²⁵ Autor, D. H. , Levy, F. and R.J. Murnane (2003) “The Skill Content of Recent Technological Change: An Empirical Exploration” *The Quarterly Journal of Economics* 118(4): 1279–1333.

²⁶ See for a review Sebastian, R. and F. Biagi (2018), “The Routine Biased Technical Change hypothesis: A critical review”, JRC Technical Reports, Publications Office of the European Union, Luxembourg.

²⁷ For a recent analysis of the relationship between job polarisation and skills mismatches in the EU, see European Commission (2018): “Labour market and wage developments in Europe: Annual Review 2019”, Directorate-General for Employment, Social Affairs and Inclusion.

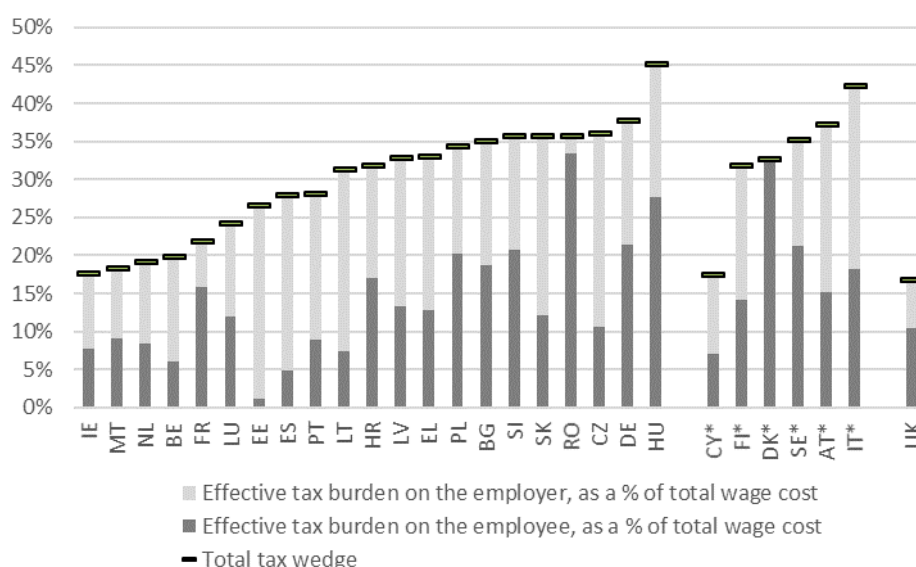
²⁸ See, for a detailed analysis, Pereira, J.M.R. and Galego, A. (2019) “Diverging trends of wage inequality in Europe”, *Oxford Economic Papers*, 2019, 1-25. For a more detailed discussion of the effects of minimum wages on wage inequality, see Section 3.1.

²⁹ European Commission (2017): “Labour Market and Wage Development in Europe – Annual review 2017”, Directorate-General for Employment, Social Affairs and Inclusion; available at: <https://op.europa.eu/en/publication-detail/-/publication/2df2eaca-b3b0-11e7-837e-01aa75ed71a1/language-en>

³⁰ European Commission (2019): “Labour Market and Wage Development in Europe – Annual review 2019”, Directorate-General for Employment, Social Affairs and Inclusion; available at: <https://op.europa.eu/en/publication-detail/-/publication/439aaf5c-0435-11ea-8c1f-01aa75ed71a1/language-en/format-PDF/source-119740004>

and social security contributions (by employees and employers) payable at the minimum wage ranges from below 20% of the total wage cost in Ireland, Malta, the Netherlands and Belgium to 45% in Hungary (this ratio is called the tax wedge, see Graph 18). There is variation in the EU in terms of how employers and employees share the tax burden: Romania is the country with the highest tax burden on employees and the lowest on employers, while Estonia has the exactly opposite pattern, having the lowest burden on employees and the highest on employers.

Graph 18: Tax wedge at the minimum wage and its components, 2018



Notes: * For AT, CY, DK, FI, IT and SE, information on comparable collectively agreed wage floors was taken from Eurofound (2019): “Minimum wages in 2019 - Annual review”, Figure 3. Total wage cost is evaluated for a single worker with no children.

Source: Commission calculations based on OECD TaxBen data.

3.3. Internal drivers of the problem

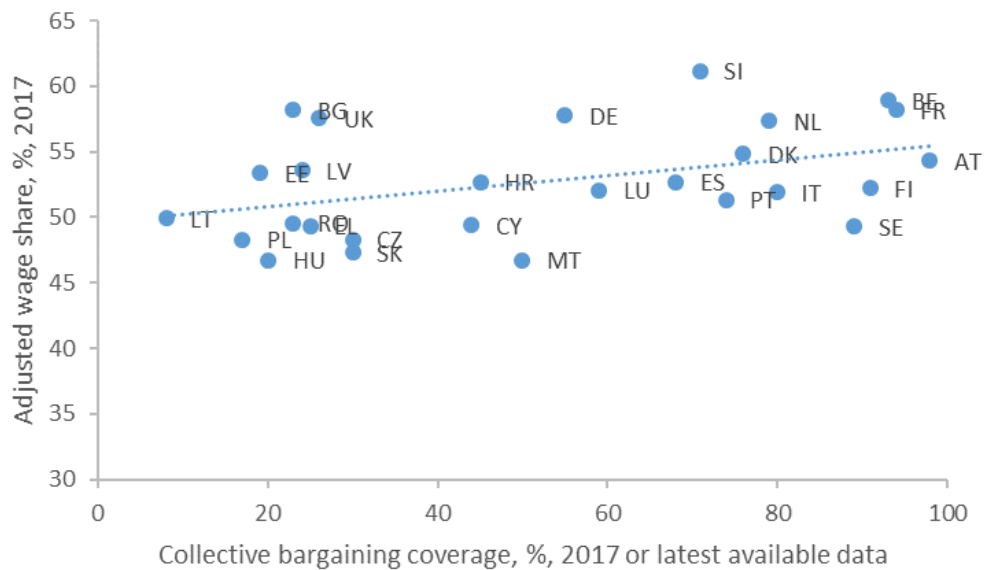
3.3.1. Declining trend in collective bargaining

Collective bargaining affects the adequacy and coverage of minimum wage floors in various ways. In the countries where minimum wage floors are set through collective bargaining, the share of protected workers is directly determined by the share of workers covered by collective bargaining agreements (“collective bargaining coverage”).³¹ In Member States with statutory minimum wages, collective bargaining has also an effect on minimum wage levels. In some Member States (such as Germany and the Netherlands), minimum wage updates are directly linked to the dynamics of collectively agreed minimum wages. In others, the effect of collective bargaining on minimum wages is more indirect, i.e., through its effect on general wage developments. In particular, decreases in collective bargaining coverage have been found to have a negative, although

³¹ Measurement issues related to collective bargaining coverage are discussed in Box 1.

transitory, effect on wage growth.³² Correspondingly, high collective bargaining coverage is associated with a somewhat higher share of income going to labour (Graph 19).

Graph 19: Collective bargaining coverage and the wage share



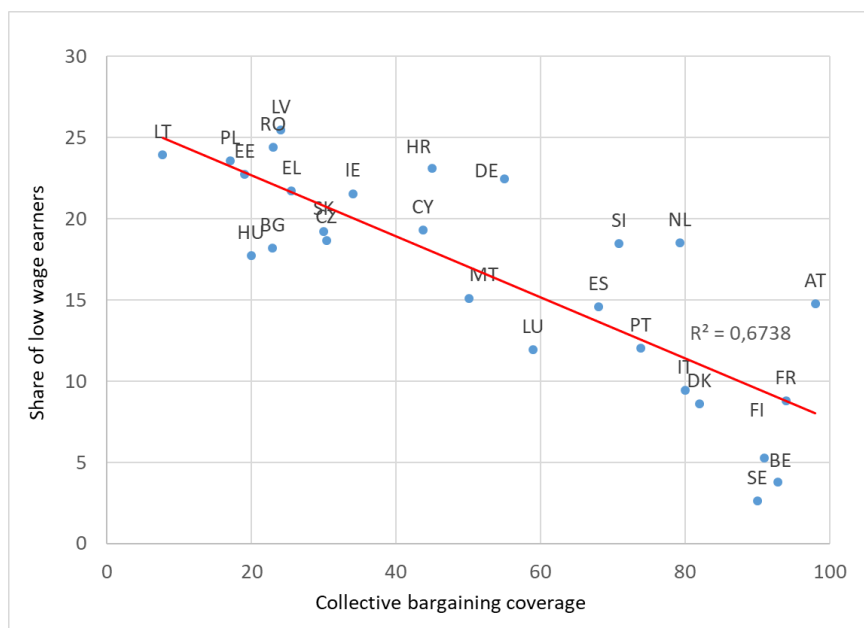
Note: Ireland is not included in the graph as its adjusted wage share is an outlier.

Source: Collective bargaining coverage: ICTWSS database, Version 6.1, University of Amsterdam. Variable AdjCov (# 111). Adjusted wage share: AMECO database of the European Commission.

Countries with a higher collective bargaining coverage tend to have lower wage inequality and a lower proportion of low-paid workers. Collective bargaining sets the terms of employment and working conditions of a large share of workers. OECD analysis suggests that sectoral and multi-level collective bargaining systems are associated with lower wage inequality, by around 20-25 percent.³³ This effect seems to be strongest where the density of union and employers' associations is high and where bargaining is centralised or coordinated. Wage compression effects are greater where collective bargaining agreements are extended to workers who are not union members. As a result, high collective bargaining coverage is associated by lower shares of low-wage workers (Graph 20).

³² See European Commission (2018): "Labour market and wage developments in Europe, Annual Review 2018" Directorate-General for Employment, Social Affairs and Inclusion, (Chapter II.1).

Graph 20: Collective bargaining coverage and the share of low-wage workers

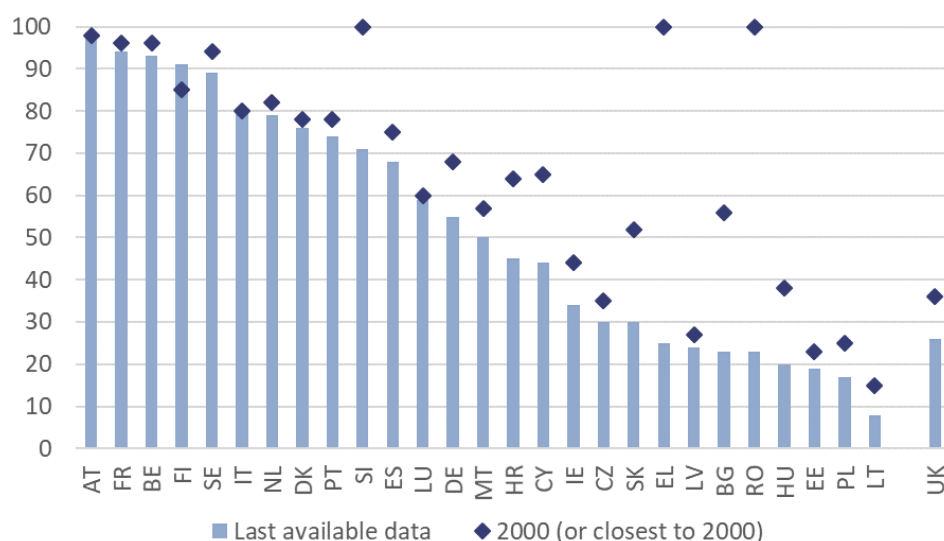


Source: Collective bargaining coverage: ICTWSS database, Version 6.1, University of Amsterdam. Variable AdjCov (# 111). Share of low-wage workers: Eurostat, Structure of Earnings Survey.

Collective bargaining coverage shows a decreasing trend in many countries in recent years. It fell from an estimated EU average of about 66% in 2000 to about 56% in 2018 with particularly strong declines in Central and Eastern Europe (Graph 21). In Member States which rely on collective bargaining to set minimum wage floors coverage has not declined on average, although a significant decrease can be seen in Cyprus. The overall negative trend of collective bargaining coverage in the EU is driven by the structural shifts in the economy towards less-unionised sectors, notably services, and by a sharp decline in trade union membership related to the increase of non-standard forms of work.

These trends have resulted in increasing differences between Member States in terms of collective bargaining coverage. In most of the countries where minimum wages are set through collective bargaining the level of coverage is generally very high. It is estimated to be 98% in Austria, about 90% in Finland and Sweden, and about 80% in Denmark and Italy, while it is 45% in Cyprus. Among the countries with a statutory national minimum wage, the coverage of collective bargaining is very diverse, ranging from less than 20% in Estonia, Lithuania and Poland to above 80% in Belgium, France and the Netherlands (Graph 21). Coverage is high in those Member States where bargaining takes place at national or industry level. Key to attaining high coverage are well-organized social partners with a broad support base and strong representativeness. Unless they are objected by social partners, administrative extensions (or functional equivalents) of the minimum wage floors collectively agreed can also raise coverage. They are most effective if they successfully incentivise social partners to take part in the negotiations and leave sufficient flexibility to firms to adapt to economic shocks or particular circumstances.

Graph 21: Collective bargaining coverage in the EU, 2000-2018



Notes: Observations closest to 2000 include 1997 (FR), 2001 (LV), 2002 (BG, LT, MT), 2003 (EE). Latest available data are: 2011 (DK); 2013 (SE); 2014 (LV); 2015 (FR, PL, SK); 2016 (CY, FI, BE, BG, CZ, EL, MT, PT, RO, SI); 2017 (DE, ES, HR, HU, IE, LT, LU, NL, UK); 2018 (AT, IT)

Source: ICTWSS database, Version 6.1, University of Amsterdam. Variable AdjCov (# 111). Definition: employees covered by valid collective (wage) bargaining agreements as a proportion of all wage and salary earners in employment with the right to bargaining, expressed as percentage, adjusted for the possibility that some sectors or occupations are excluded from the right to bargain.

Some of the countries where coverage has significantly declined have chosen to introduce a statutory minimum wage. This includes Germany in 2015 (where collective bargaining coverage had decreased from 68% in 2000 to 58% in 2014) and Ireland in 2000. In these two Member States, trends in collective bargaining coverage were not significantly affected by the newly introduced statutory minimum wage. In Germany, in the years since its introduction, the minimum wage has had a differential effect on collective bargaining in various sectors.³⁴ First, it has had a strong impact on wages in sectors with low wages and low collective agreement coverage. Second, it has served as a point of reference for the collective bargaining partners in sectors with low wages but with collective agreement coverage (i.e. the national minimum wage has an increasing effect on collectively agreed wages). Finally, minimum wages do not seem to have had a significant effect in sectors with agreed wages above the minimum wage level where collective bargaining coverage is in the medium or high range. While the overall declining trend in collective bargaining continued after the introduction of the minimum wage, first evidence found no statistically significant impact of the minimum wage on collective bargaining coverage.³⁵

³⁴ These conclusions are based on Dingeldey, Irene (2019): Wechselwirkungen zwischen Mindestlohn und Tariflohn: Verschiedene Typen im Branchenvergleich. In: *Arbeit. Zeitschrift für Arbeitsforschung, Arbeitsgestaltung und Arbeitspolitik*, Vol. 28(1), pp. 55-72.

³⁵ Bellmann, L., Bossler, M., Gerner, H.-D., & Hübler, O. (2018): "Collective bargaining coverage, works councils and the new German minimum wage." *Economic and Industrial Democracy*.

Public procurement rules and practices can play a role in supporting collective bargaining. Article 18(2) of the Public Procurement Directive 2014/24/EU provides that Member States shall take appropriate measures to ensure that in the performance of public contracts, employers acting as contractors for the public administration comply with applicable obligations in the fields of social and labour law established by national or EU social and labour rules, applicable collective agreements and/or international law. One way to achieve this is to introduce in tender documents the requirement to comply with obligations set by collective agreements. Such obligations must always be applied also in accordance with EU rules on posted workers. Complying with this provision therefore ensures that EU, national and international labour obligations are met in the execution of public contracts and that obligations stemming from collective agreements are applied as relevant. However, limited information is currently available regarding the application and enforcement of this provision.

Box 1: The share of workers protected by minimum wages in countries relying on collective bargaining to set them: what do we know?

Collective bargaining coverage is generally used as an indicator of the share of workers protected by minimum wage floors in Member States without a statutory minimum wage. The primary sources of this information is the ICTWSS database of the University of Amsterdam,³⁶ which is also the main source of OECD data. This database uses various national and comparative sources, survey data and historical estimates. Comprehensive (administrative) data is not available. One limitation of this type of information is that is that not all collective agreements set minimum wage floors.

Often, information on collective bargaining coverage relies on company surveys. In some cases, various surveys may result in slightly different estimates. For instance, the estimate of collective bargaining coverage of 45% in Cyprus corresponds to the latest data from the 2014 EU Structure of Earnings Survey (for industry, construction and services, excluding public administration). With a different methodology and a smaller sample size, the European Company Survey 2013 by Eurofound estimates a coverage rate of 61%. For Italy, company surveys focusing on firms employing ten or more employees in the private sector, yield higher estimates than the 80% coverage rate found in the primary data sources.³⁷ Still, as about 95% of Italian enterprises are small companies with 9 employees or less,³⁸ these surveys are thought to overestimate the economy-wide coverage.

³⁶ For a description of the latest version of the database, see Visser, J. (2019). ICTWSS Database. version 6.1. Amsterdam: Amsterdam Institute for Advanced Labour Studies (AIAS), University of Amsterdam. November 2019.

³⁷ E.g., EU Structure of Earnings Survey, Eurofound's European Company Survey 2013, as well as a 2016 survey by the National Institute of Statistics and the tripartite National Economic and Labour Council [CNEL, ISTAT (2016). Progetto CNEL-ISTAT sul tema "Produttività, struttura e performance delle imprese esportatrici, mercato del lavoro e contrattazione integrativa" – Report intermedio, link (last consultation on 2 September 2019), p. 105-106.]

³⁸ ISTAT (2018). Annuario Statistico Italiano 2018, vol. 14 – Imprese, <https://www.istat.it/it/files/2018/12/C14.pdf> (last consultation on 2 September 2019), p. 488.

In general, various surveys have different advantages and disadvantages. An important source of information, the EU Structure of Earnings Survey is a large survey of companies, comparable across Member States, conducted every four years. However, it excludes companies employing less than 10 workers, a segment which is very important in many Member States: it represents more than 90% of companies employing more than 10% of workers in manufacturing, almost 50% of employment in construction and more than 30% in accommodation and food services.³⁹ Small companies are also less likely to be covered by collective agreements.

3.3.2. *Insufficiently clear frameworks to set statutory minimum wages*

Member States differ in the way their frameworks achieve high adequacy. Some Member States may opt for an explicit target for adequacy, while others maintain a high adequacy by setting the criteria to be used in annual updates of the minimum wage.

Some Member States (Czechia, Croatia, Estonia, Lithuania and Poland), have targets for minimum wage levels, either by law or practice. In Czechia and Estonia, the target is set at 40% of the average wage, in Lithuania between 45% and 50%, and in Poland at 50% of the average wage. The target is included in the legislation in Poland while it was part of bipartite or tripartite agreements in the other countries. In the case of Czechia and Estonia, the adequacy of the minimum wage remains among the lowest in the EU despite the setting of a target (Section 3.1). This is both due to comparatively low targets and the fact that they were not achieved by 2018.

In some Member States, a clear and stable framework ensures that minimum wages maintain their value. This is in particular the case in Member States that use automatic indexation to update minimum wages (Belgium, France, Luxembourg, Malta, the Netherlands, Slovenia). In these countries, the law specifies concrete formulas guiding minimum wage updates, in some cases depending on specific conditions. It has been shown that clear and stable systems for minimum wage updating were associated with more adequate minimum wages.⁴⁰ At the same time, some flexibility may be needed to preserve the capacity of the systems to swiftly respond to changes in socio-economic conditions. Indeed, automatic indexation is, in some cases, applied with flexibility under adverse economic circumstances. In Belgium and the Netherlands, the government has the discretionary power not to apply automatic minimum wage increase under specific circumstances. Specifically, in the Netherlands the government can choose not to apply the automatic increase if this is considered harmful to employment, whereas in Belgium the government can choose to ignore the inflation indexation in order to preserve national competitiveness.

In many other Member States statutory minimum-wage setting is not always based on clear and stable criteria. In some cases, the minimum wage legislation only makes a

³⁹ Eurostat, Structural business statistics overview, URL: https://ec.europa.eu/eurostat/statistics-explained/index.php/Structural_business_statistics_overview#Size_class_analysis

⁴⁰ See European Commission (2016): Labour market and wage developments in Europe: Annual Review 2016, Directorate-General for Employment, Social Affairs and Inclusion, Chapter II.1.

general reference to the need for minimum wage setting to take into account “broad economic conditions” (Lithuania), or a list of variables or factors (including among others exchange rates, hours worked, tax burden, household expenditure) is defined (e.g. in Germany, Ireland, Greece, Spain, Croatia, Hungary, Latvia, Poland, Portugal, Slovakia). In all these cases, no indication is provided on the way in which these variables should be used or on their interaction. For example, while in many Member States there is a reference to the need for taking into account wage developments (e.g. in Germany, Czechia, Croatia, Ireland, Greece, Latvia, Malta, the Netherlands, Poland, Slovakia), only in three Member States the legislation makes a direct link with the outcome of collective bargaining (Germany, the Netherlands, Malta) while in two others (Poland, Slovakia) the law defines specific criteria (targets) on the basis of wage developments.

In two Member States (Bulgaria and Romania), no criteria have been established to guide minimum wage changes. In Bulgaria, increases in the minimum wage follow the government’s medium-term budgetary projections, however, no explanations are provided on the underlying quantitative mechanism. Thus, there is no mechanism for regularly updating the minimum wage in line with a set of criteria (poverty line developments, inflation or general wage increases). In Romania, minimum wage updates are not based on a clear mechanism or a set of stable criteria. This has resulted in an alternation of minimum wage freezes in some years and substantial increases in others, negatively affecting the business environment. Over the last years (2014-2019), both countries have received Country-Specific Recommendations which called for the need for more transparent minimum wage-setting mechanisms based on objective criteria for determining annual minima (such as job creation and competitiveness), as well as guidelines for minimum wage updating.

Periods of unpredictable minimum wage developments have been observed also when the minimum wage is set to follow the broad economic conditions. For example, between 2000 and 2002, Hungary increased its statutory minimum wage by about 60% in real terms. As a percentage of the median wage, it increased from 36% in 2000 to 57% in 2002. This was followed by a freeze in 2003 and smaller increases in the following years, resulting in a ratio to the median wage of 46% in 2005.

Statutory minimum wage updates do not always follow a reasonable frequency or regularity. In most Member States (Germany, Greece, France, Croatia, Latvia, Lithuania, Malta, Netherlands, Poland, Slovenia and Slovakia), both the regularity and timeliness of the updates are defined by law. In others even if this is not the case, an established practice exists either for the regularity of the updates (Belgium, Czechia, Estonia and Ireland), and/or their timeliness (Belgium, Estonia, Spain, Hungary, Luxembourg and Portugal). Nevertheless, in some Member States the regularity and timeliness of the updates is neither defined in legislation nor established through a regular practice. This is the case in Bulgaria and Romania where in recent years minimum wage increases occurred on every year or twice a year but in a rather irregular manner. In Ireland, while in past years minimum wage updates varied both in regularity and timing, there seems to be a stabilisation of both elements, and now there is an annual

update at the beginning of the year since 2016. Finally, in Germany, the Minimum Wage Commission takes a decision only every second year about updates of the minimum wage, which may have contributed to the erosion of the value of the minimum wage since its introduction in 2015.⁴¹

3.3.3. *Exemptions and variations*

The coverage of minimum wages is affected by exemptions. In many Member States with a statutory national minimum wage exemptions from the minimum wage legislation exist for specific groups of workers. In the majority of these cases, the justification for the exemption is related either to their up- or re-skilling or to their integration in the labour market. This is particularly relevant to the cases where the exemptions refer to (young) workers in education or training (Belgium, Czechia, Germany, Spain, Ireland) and participants in active labour market policies (Belgium, Germany, Croatia). There are also often exemptions for relatives employed in small family businesses (Belgium, Ireland) and people performing voluntary work (Germany, Spain). In other cases, specific groups of workers are not covered by the minimum wage law because separate laws or provisions cover the pay of those affected. Examples of such cases include people in the public service (Belgium, Czechia, Estonia, Spain, Lithuania, Latvia, and the Netherlands) and apprentices (Czechia, Germany, and Ireland). In addition to these cases, a number of country-specific exemptions exist. These include workers employed for less than 1 month (e.g. seasonal labour in agriculture and horticulture) and peer-to-peer workers (e.g. people providing services to the local community or work for recognised digital platforms) and people with local employment contracts in Belgium; home-workers (“Heimarbeiter⁴²”) and people with disabilities in specific “employee-like relationships” (e.g. in dedicated workshops) in Germany; micro-employers (solo self-employed) in Croatia, sales representatives in France, people performing non-commercial activities and prison work in Ireland and people providing certain care services in Poland. Furthermore in Spain, regional exemptions are set for the autonomous cities of Ceuta and Melilla. For an overview of exemptions from statutory national minimum wages across Member States, see Annex 1.3.

In many Member States with statutory minimum wages, reduced rates (so-called “variations”) apply to specific groups of workers. In general, the possibility of hiring at rates below the standard minimum wage can be justified to prevent the loss of employment of those groups whose productive capacity is below that of the average minimum wage earner. For example, in many Member States (Belgium, Ireland, Luxembourg, Malta, and the Netherlands) there are purely age-based variations. In some other Member States (Belgium, Greece, Spain, France, and Portugal) variations can be

⁴¹ While in 2015 the minimum wage was about 48% of the median and 43% of the average wage, by 2018 it had decreased to 46% of the median and 40% of the average wage. Germany is currently reviewing its minimum-wage setting in view of the experience gained with the introduction of a statutory minimum wage. Cf. Country Report Germany 2020 (SWD(2020) 504 final), p 39-40; and OECD Statistics.

⁴² Workers carrying out a paid work in the location they choose (e.g. home) which results in a product or a service specified by and owned by the employer

observed that are either education-based and/or experience-based. These types of variations can be viewed either as a means for labour market integration or for (further) skill development. At the same time, some countries choose not to apply such age-based variations in order to ensure equal treatment and encourage the matching of pay with competency rather than age. For an overview of variations in statutory minimum wages across Member States, see Annex 1.3.

In Member States with collectively agreed minimum wages, reduced rates for specific groups can also be found in collective agreements. For instance, in Italy, collective agreements can stipulate rates below common minima for apprentices whereas interns and paid volunteers of the civil service (which may include non-profit organisations and public administration) are paid on the basis of a monthly allowance. In Denmark, Sweden and Finland minimum rates are differentiated along several dimensions, usually by experience and occupation and, to a lesser extent, age and region. Differentiation by occupation often distinguishes between low- and higher-skilled jobs, but differentiation could also exist within these two categories. Variations in rates can also be found for apprentices and trainees. For example, in Sweden, many agreements differentiate minimum wages by at least one worker characteristic. In Finland, a differentiation of rates by region is found in the collective agreement for retail, with slightly higher rates in areas with higher costs of living.

3.3.4. Insufficient involvement of social partners in statutory minimum wage setting

The involvement of social partners in the minimum wage-setting process varies considerably across EU Member States. While social partners play a central role in collective bargaining systems, considerable differences exist in their role for adjusting statutory minimum wages and in their influence in the decision-making process. The way social partners are involved in minimum wage setting is greatly influenced by the basic institutional setup, for instance the role of specialised minimum wage committees or the possible role of automatic indexation and the degree of government discretion. Finding a precise and valid taxonomy of the actual involvement and influence of social partners in minimum wage policy is not easy. For example, in some cases requirements on consultation may be formal with consulted actors risking not having real influence on the minimum wage adjustment.

Social partners often play only an advisory role in systems where the minimum wage setting is led by expert bodies. As described in section 2.2, in some Member States (Germany, Greece, Ireland, France⁴³), an independent specialised body makes recommendations to the government on the annual minimum wage adjustment. In most of these cases, the involvement of the social partners is limited to an advisable or consultation role. In Germany in contrast, social partners play a crucial role in minimum wage setting which has a strong bargaining component. This is due to the bilateral nature of the committee. The committee proposes updates to the level of the minimum wage, which the government can adopt or reject but from which it cannot deviate.

⁴³ For discretionary changes.

The role of social partners in the decision making process is variable in Member States with automatic indexation. As discussed in section 2.2, in all the Member States with automatic indexation (Belgium, France, Malta, Luxembourg, the Netherlands and Slovenia), it is also possible to make discretionary changes to the minimum wage on top of what is due to indexation. In four of these countries (Belgium, France, Malta and Slovenia) the law specifies a formal obligation to consult the social partners on such discretionary changes. In France, the law entitles social partners to present their recommendations to the government and these are published as an annex to the annual report of the Minimum Wage Expert Committee. In Luxembourg and the Netherlands, there is no legislative clause for social partner consultation. However, in both Member States, social partners provide non-binding views to the government on the minimum wage in practice.

Social partner consultation often lacks a structured tripartite or bipartite setting, thus it leads to non-binding recommendations. As described in section 2.2, in the majority of Member States, an institutionalised bipartite or tripartite consultation process is either defined by law or established in practice. However, in most of these cases (Bulgaria, Spain, Croatia, Hungary, Latvia, Malta¹¹, Portugal, Slovenia¹¹ and Romania), the requirement to consult social partners does not specify the institutionalised setting but instead the approach is left to government. This process often leads to non-binding recommendations, with an unknown influence on the final decision-making. Only in a few Member States (Lithuania, Poland, Slovakia) is a structured tripartite system in place, in which, if an agreement is reached through the consultation process, it becomes binding for all the parties. However, even in these cases, in practice over recent years, it was not possible to reach such an agreement; thus the government has been setting the minimum wage unilaterally. To limit the government's discretion in such cases, a recent reform in Slovakia foresees that in the absence of a tripartite agreement, the amount of the monthly minimum wage for the next calendar year must be set at 60% of the average monthly nominal wage.

In some Member States, the involvement of social partners is insufficient or not institutionalised at all. Czechia is the only Member State where adjustments of the minimum wage are decided by the government without specific rules, as there is no institutionalised consultation process defined by law. In practice, social partners express views and non-binding recommendations through a tripartite committee; however, the government has the discretion to set the minimum wage unilaterally in any case.

In a number of Member States there are challenges related to the involvement of social partners in the policy process in general. Such challenges have been identified in the framework of the European Semester, the annual cycle of economic policy coordination in the EU. In particular, in 2019, Hungary, Poland and Romania received Country-Specific Recommendations calling for the need to strengthen social dialogue in general. In May 2020, the European Commission proposed recommendations to the same countries noting a deterioration of the situation of social dialogue in Hungary and Poland, in the context of measures taken during the Covid-19 pandemic.⁴⁴

3.3.5. Issues in compliance, enforcement and monitoring

Gaps in coverage and adequacy may also emerge if rules related to existing minimum wage floors are not complied with. For some of the countries with a statutory national minimum wage, evidence suggests that there might be workers who, even if legally covered, receive in practice remuneration below the minimum wage due to a non-respect of existing rules. Some of the evidence is provided by the institutions in charge of enforcing minimum wage rules, such as labour inspectorates or customs offices. For instance, labour inspection in Ireland found that 409 of the 4,747 employers (9%) inspected in 2017 were in breach of minimum wage legislation; In Slovakia, the 682 cases of non-compliance in the same year amounted to 5.4% of the 12,544 breaches of labour law.⁴⁵

Compliance may also be an issue in some countries relying on collective bargaining to set minimum wage floors. For instance, it has been estimated that, in Italy, more than 10% of workers are paid below the wage floor established by their reference collective agreement and that such underpayment implies an average shortfall of 20-23% of the reference minimum wage.⁴⁶

In some cases, increasing minimum wage levels may lead to a higher risk of non-compliance, including undeclared work, although other types of interactions are also possible. The risk of undeclared work may be particularly significant in some sectors and occupations (e.g. domestic work).⁴⁷ However, minimum-wage regulations may also interact with other forms of non-compliance, for instance tax evasion in the form of “envelope wages”. This practice entails officially reporting the minimum wage while complementing pay with informal payments (envelope wages). While this may increase the net income of some workers, it reduces their future (e.g. pension)

⁴⁴ Proposals published in the ‘Spring package’ of the European Semester on 20.05.2020, ULR: https://ec.europa.eu/commission/presscorner/detail/en/ip_20_901,

⁴⁵ For a more detailed survey of recent evidence on non-compliance see Eurofound (2019): “Minimum wages in 2019: Annual review”. The other main source evidence is based on survey data. However, in surveys it is usually difficult to distinguish non-compliance from measurement errors and exemptions and variations based on the existing rules. Notably, measurement error in wages and working hours can stem from the inaccuracies of self-reporting, which many surveys are based on.

⁴⁶ See: Garnero, A. (2018): “The dog that barks doesn’t bite: Coverage and compliance of sectoral minimum wages in Italy”, IZA Journal of Labor Policy, Vol. 7, No. 1.

⁴⁷ See, e.g. ILO (2016): Minimum wage policy Guide, especially p. 89. International Labour Organisation, Geneva.

entitlements. There is evidence that, in a context of income underreporting for tax evasion purposes, envelope wages are reduced when minimum wages are increased.⁴⁸ Fighting tax evasion has been the stated aim of some minimum wage increases in the past,⁴⁹ even though the trade-off with the risks of outright undeclared work have also been recognised.⁵⁰

Moreover, there is a lack of comprehensive information on collectively agreed wage floors and their coverage in concerned Member States. As Box 1 above explains, existing information on collective bargaining coverage is based on a variety of sources, but information is incomplete. More precise information could be useful, also in the Member States relying on collective bargaining to set minimum wage floors, for governments and in particular social partners to be able to have a thorough assessment of the situation of low-wage workers.

3.4. What are the consequences?

3.4.1. For workers

Insufficient protection by adequate minimum wages has negative consequences for workers. Adequate wages are an important component of fair working conditions. As minimum wages reduce wage inequality and in-work poverty (see Section 2.1), gaps in adequacy and coverage of minimum wages hamper these improvements. In particular, driven by a number of economic and demographic factors, but also affected by minimum wages, in-work poverty increased from 8.3% in 2007 to 9.4% in 2018 in the EU (Graph 22).⁵¹ At the Member State level, in-work poverty has been on the rise in all but seven EU Member States (i.e. Croatia,⁵² Finland, Greece, Ireland, Latvia, Poland, and Romania) showing that, increasingly, work does not always protect against poverty.

⁴⁸ See, e.g., Tonin, Mirco (2011), “Minimum wage and tax evasion: Theory and evidence.” *Journal of Public Economics*, vol. 95, no 11-12, p. 1635-1651.

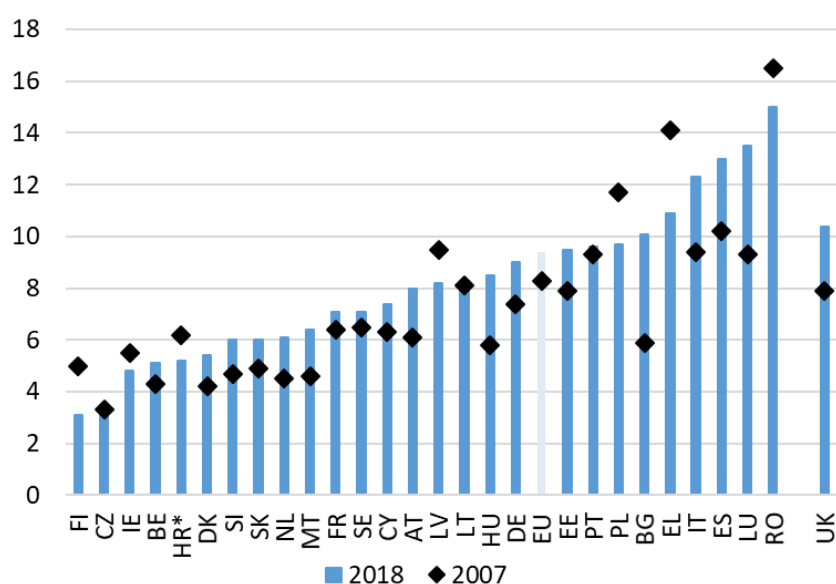
⁴⁹ This is reported, for instance, by Harasztosi and Lindner (2019) related to Hungary, the country analysed by Tonin (2011, see previous footnote). See Harasztosi, Peter, and Attila Lindner. 2019. “Who Pays for the Minimum Wage?” *American Economic Review*, 109 (8): 2693-2727.

⁵⁰ European Commission (2007): “Stepping up the fight against undeclared work”, COM(2007)628, Brussels; and Williams, Colin C. (2010), “Tackling undeclared work in southeast Europe: lessons from a 2007 Eurobarometer survey”, *Southeast European and Black Sea Studies*, 10:2, 123-145.

⁵¹ This average refers to the 27 Member States of the EU between 2007 and 2013. In the average of the current 27 Member States of the EU as of 2020, in-work poverty increased from 8.5% in 2010 (earliest available data) to 9.3% in 2018.

⁵² For Croatia the comparison is made between 2010 and 2018 for reasons of data availability.

Graph 22: In-work poverty in the EU, 2007 and 2018 (%)



Notes: Employed persons, aged 18-64. For Croatia, the first observation is from 2010 instead of 2007.

Source: Eurostat, in-work at-risk-of-poverty rate by age and sex - EU-SILC survey [ilc_iw01].

Moreover, major gaps in minimum wage adequacy or coverage may lead to labour market segmentation and weak work incentives. Labour market segmentation is a concern especially if low-wage workers are not able to move quickly to higher-paying jobs (i.e. if earnings mobility is low) and the incidence of informal employment, including due to the lack of enforcement of regulations, is high. In addition, a low adequacy of minimum wages means that work does not pay, as compared being unemployed or inactive. In this case, people out of work will not have sufficient incentives to take up work, which may have negative consequences for them as well as for firms and the wider economy.

The lack of a clear framework for minimum wage setting, and an insufficient involvement of social partners, may harm workers in multiple ways. A low frequency of updates and an unclear framework may result in periods of non-adjustment alternating with large increases in the minimum wage. In addition, a too limited involvement of social partners increases the risk that relevant information is not taken into account. As a result, the minimum wage may not keep pace with developments in prices, wages or productivity for several years. European Commission analysis suggests that less clear and stable frameworks for statutory minimum wage setting and a less close involvement of social partners in the process are associated with overall lower levels of the minimum wage relative to the median.⁵³ Less predictable minimum wage increases also appear to have a more significant negative employment effect.⁵⁴

⁵³ European Commission (2016): “Labour Market and Wage Developments in Europe 2016”, Directorate-General for Employment, Social Affairs and Inclusion, p. 81.

⁵⁴ European Commission (2016): “Labour Market and Wage Developments in Europe 2016”, Directorate-General for Employment, Social Affairs and Inclusion, p. 94.

3.4.2. For businesses, economy and society

For firms, inadequate minimum wages may reduce the pool of workers from which recruitment can be made. Inadequate minimum wages may lead to reduced work incentives. This is because unemployed or inactive people may not look for a job if the income attainable in work is not high enough. In addition, low minimum wages may contribute to an increased turnover of staff and reduced staff engagement.⁵⁵ At the same time, the level of minimum wages needs to take into account potential effects on competitiveness.

Unpredictable minimum wage developments can have negative consequences for firms and for the economy. Systems characterised by an insufficient involvement of social partners and an insufficiently clear framework to set statutory minimum wages result in unpredictable changes in the minimum wage. Under such circumstances, minimum wage setting is not based on a full set of information, reflecting all relevant economic and sectoral conditions, nor sufficiently articulated with collective bargaining processes. This results in less frequent but larger increases in the minimum wage with more significant effects on the decisions of firms. Evidence suggests that in such systems, minimum wage increases are also more correlated to the political cycle.⁵⁶ Such developments may have a negative effect on the business environment for firms and thus, on the long run, for investment, productivity, and growth.

Low wages and minimum wages may trigger labour mobility flows between Member States, which raise concerns for sending countries. The free movement of workers has been one of the founding principles of the EU. Labour mobility can be instrumental in promoting labour market adjustment and support the deepening of the single market. Large wage differentials (between regions and between countries) can promote outward mobility from poorer regions, particularly among young individuals, exacerbating ongoing demographic trends of ageing and population decline. Minimum wages can counteract these trends by supporting general wage developments and earnings, in particular of young workers. At the same time, outward labour mobility may trigger an increase in the wages in the sending country of the non-mobile workers with similar skills to the mobile workers and raise average wages in the short term.⁵⁷

⁵⁵ For instance, past research on increased minimum wages for young workers has suggested that workers affected by minimum wage increases have an increased probability to stay at their jobs. This effect was counterbalanced by a reduced rate of accessions to new jobs by affected workers. See: Portugal P. and A. R. Cardoso (2006): “Disentangling the Minimum Wage Puzzle: An Analysis of Worker Accessions and Separations”, *Journal of the European Economic Association*, Vol. 4(5), pp. 988-1013. More generally, theories of “efficiency wages” suggest that engagement and productivity of individual workers can increase if they are paid more than the market-clearing wage. As another channel for increased individual productivity, it has been suggested that firms may invest more in their workers if they have to pay an increased minimum wage.

⁵⁶ European Commission (2016): “Labour Market and Wage Developments in Europe 2016”, Directorate-General for Employment, Social Affairs and Inclusion, Chapter II.1.

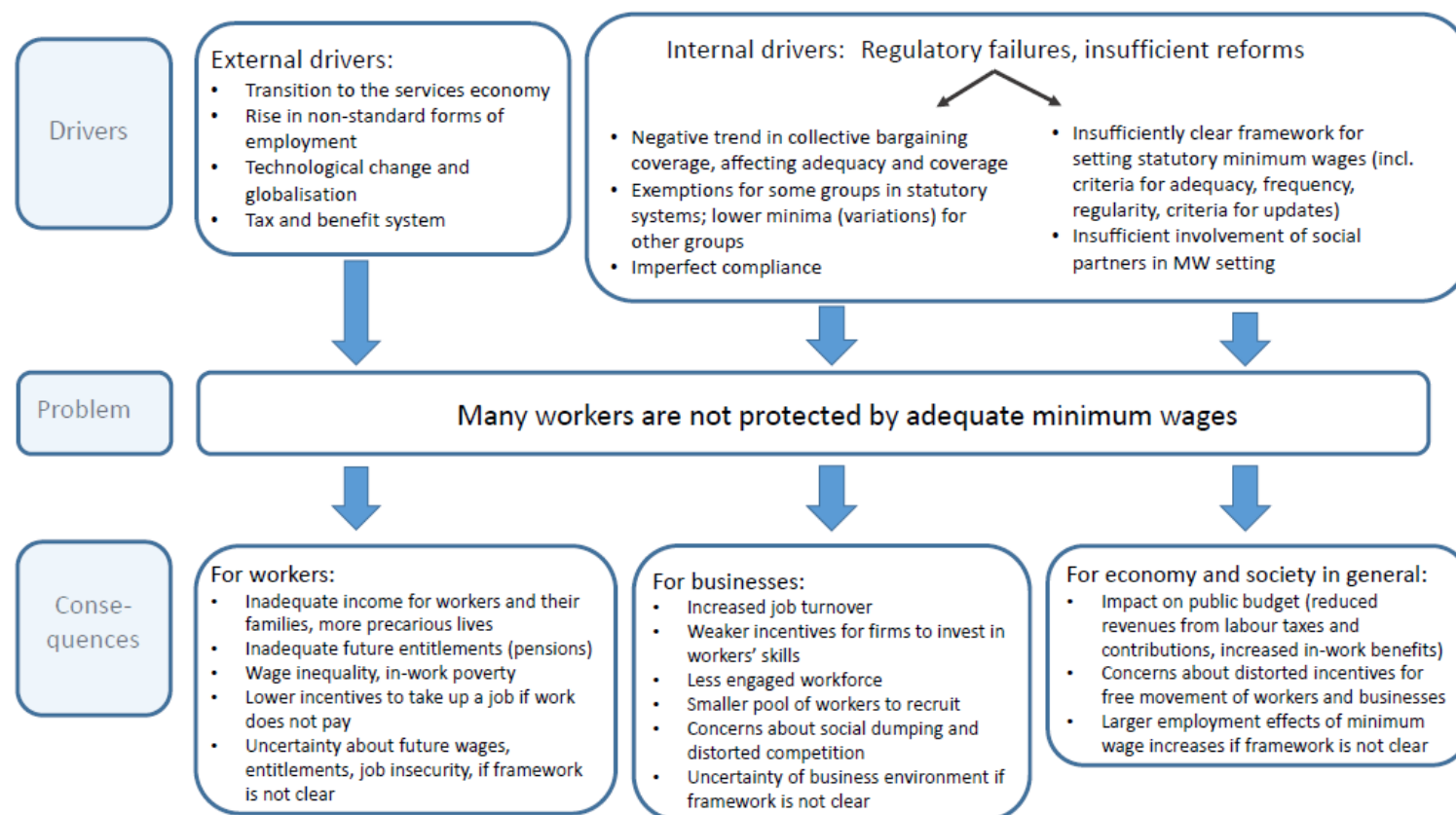
⁵⁷ On the possible negative effects of structurally large mobility flows on sending countries, see, e.g., Center for Policy Studies (CEPS), 2019: “EU mobile workers. A challenge to public finances?” Contribution prepared at the request of the Romanian Presidency of the Council of the European Union, presented at the informal ECOFIN meeting in Bucharest, 5-6 April, 2019.

Inadequate minimum wages may contribute to the gender pay gap. Given their over-representation among minimum wage workers, women are mostly affected by inadequate minimum wage policies. Moreover, since national minimum wage policies tend to compress the bottom of the wage distribution, where women are over-represented, inadequate minimum wage policy could also lead to higher gender pay gap among low paid working women.⁵⁸

⁵⁸ A recent study on the introduction of the minimum wage in Ireland and the UK found a large reduction of the gender wage gap at the bottom of the distribution in Ireland while there is hardly any change in the UK. A counter-factual simulation suggests that these contrasted results between the two countries may be due to the degree of non-compliance with the UK national minimum wage legislation. See: Bargain, O., K. Doorley and P. van Kerm (2018), “Minimum wages and gender gap in pay: New evidence for the UK and Ireland” IZA Discussion Paper Series.

3.5. Problem tree

Graph 23: A diagrammatic presentation of the problem



4. EU COMPETENCE AND EU ADDED VALUE

4.1. Foundations of the right to act

According to Article 3 TEU, the Union aims at promoting the well-being of its people and works in particular for the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy, aiming at full employment and social progress.

Title X ‘Social Policy’ contains the legal bases at the disposal of the Union for pursuing these objectives, commensurate with the competences conferred upon it by the Treaties (Article 5(2) TEU). The use of these competences is governed by the principles of subsidiarity and proportionality (Article 5(3) and 5(4) TEU).

In Title X TFEU, Article 153(1) has a wide personal and material scope, providing the legal basis for the EU “to support and complement the activities of the Member States” in a number of fields both inside and outside the labour market. The objective is to improve working conditions, social security and social protection, workers' health and safety, information and consultation of workers, and the integration of persons excluded from the labour market.

Over the years the European Union has built a floor of rights for workers, encompassing both individual rights (information about working conditions; health and safety; working time; discrimination and abuse of non-standard employment; equal treatment at workplace; posting of workers), and collective right (European Works Councils; information and consultation in relation to company changes, collective redundancies, transfers of undertakings).

Similarly, Article 153 is the appropriate legal basis for an EU initiative on fair minimum wages. Insofar as wages, including minimum wages, are a key component of working conditions, the initiative could be based on Article 153 (1) (b) TFEU on ‘working conditions’.⁵⁹

Article 153 TFEU (5) nevertheless contains limitations to the EU competence. This paragraph establishes that ‘the provisions of this Article shall not apply to pay’. Article 153(5) has been interpreted by the Court of Justice of the European Union (CJEU) in such a way that the exclusion on ‘pay’ “*must be construed as covering measures - such as the equivalence of all or some of the constituent parts of pay and/or the level of pay in the Member States, or the setting of a minimum guaranteed wage - that amount to direct interference by EU law in the determination of pay within the European Union*”. “*It cannot, however, be extended to any question involving any sort of link with pay; otherwise some of the areas referred to in Article 153(1) TFEU would be deprived of much of their substance.*”⁶⁰ In line with this interpretation, recent initiatives using Article

⁵⁹ Art 153.1 TFEU states that: “1. With a view to achieving the objectives of Article 151, the Union shall support and complement the activities of the Member States in the following fields: (...) (b) working conditions; (...)”.

⁶⁰ See Case C-268/06, Impact, point 124-125; Case C-307/05, Del Cerro Alonso, point 41.

153 TFEU as legal basis (e.g. the 2019 Directive on work-life balance for parents and carers and the 2019 Directive on transparent and predictable working conditions) already touch indirectly on different aspects of pay, whereby remuneration is regarded as part of working conditions, as referred to in Article 153 (1) (b).⁶¹

It follows that in view of Article 153(5) TFEU and constant case law of the ECJ any EU action in the field of minimum wages would not seek to harmonise the level of minimum wages across the EU, nor would it seek to establish a uniform mechanism for setting minimum wages.⁶² The future instrument would not establish the level of pay, which falls within the contractual freedom of the social partners at a national level and within the relevant competence of Member States. Minimum wages would continue to be set through collective agreements or legislative provisions, according to the traditions and specificities of each country and in full respect of national competencies and social partners' contractual freedom.

4.2. Necessity and EU added value

Member States are confronted with common challenges, linked to the structural trends reshaping their labour markets. These include job polarisation driven by technological change and increasingly integrated global value chains, as well as an increasing share of non-standard and precarious work driven by the growing weight of the service sector in the economy, as well as the emergence of new forms of work organisation and business models. While these new forms of work bring opportunities for businesses and individuals, in many cases, non-standard workers may earn lower hourly wages than full-time permanent employees. In addition, they may also work shorter hours. This results in an increased risk of in-work poverty. Traditional collective bargaining structures, which contributed to a more equal wage distribution in the past, are also eroding, in part due to the economic shift from manufacturing industries towards services.

About one in six workers in the EU earns a low wage and this share has increased, as has in-work poverty. While strong average wage growth in Central and Eastern Europe in recent decades has overall reduced the differences in the level of wages across countries, in many Member States the purchasing power of low wages has not kept up with other wages.

While the adequacy of statutory minimum wages has improved in several countries in recent years, it appears insufficient in several others. This contributes to precarious working conditions, wage inequality and in-work poverty. Gaps in minimum wage coverage, including due to non-compliance, also contribute to precarious working conditions and inadequate workers' protection. Furthermore, the effectiveness of statutory minimum wage setting mechanisms, notably as concerns the involvement of

⁶¹ E.g. for the purpose of Directive 1999/70/EC on fixed-term work, of Directive 97/81 on part-time work or of Directive 2008/104/EC on temporary agency work.

⁶² See e.g. Case C-268/06, Impact, point 123-124.

social partners and the existence of clear guiding frameworks, is insufficient in some countries (see Section 3).

EU action on fair minimum wages would improve the fairness of the EU labour market, promote economic and social progress and cohesion, help reduce the gender pay gap, and contribute to upward social convergence. These objectives are clearly set in the EU Treaties and reflected in the European Pillar of Social Rights. By supporting the process of upward convergence in the field of minimum wages while taking into account economic conditions, EU action would contribute to paving the way for better working conditions in the Union and to improving the business environment. Such a framework would send a clear signal to citizens about the role played by the EU for protecting their working conditions and living standards, against the background of current and future challenges, while demonstrating awareness of the firms' needs, notably SMEs'.

EU action on minimum wages can provide the necessary momentum for reforming minimum wage setting mechanisms. While the EU already issued policy guidance on minimum wage policies to selected Member States within the European Semester, an EU framework on minimum wages would provide targeted and effective leverage to reach the objective of ensuring fair minimum wages, thus contributing to fair working conditions in the EU. A common, coordinated framework at EU level would reinforce trust among both Member States and social partners. Without it, individual countries may be little inclined to improve their minimum wage settings because of the perception that this could negatively affect their external cost competitiveness.

EU action would also contribute to ensuring a better level playing field in the Single Market. Coordinated EU action can help address large differences in the coverage and adequacy of minimum wages that are not justified by underlying economic conditions. Workers and businesses must have the assurance that the Single Market protects and empowers them. They need to be confident that competition is based on innovation and productivity and that adequate social standards are promoted. A common framework would thus increase public trust in the fundamentals of the Single Market.

EU action would bring particular value added in Member States where many workers are not (at all or adequately) covered by minimum wages. In these Member States, EU action leading to reinforced national minimum wage setting frameworks would help increase the purchasing power of low-wage earners, strengthen incentives to work, and contribute to stimulating domestic demand, with due attention to employment and competitiveness. This may in turn lead to higher productivity and growth.

In line with the proportionality and subsidiarity principles, EU action would not exceed what is necessary to achieve its objectives and would respect the competence of Member States and social partners with respect to wage setting.

5. OBJECTIVES: WHAT IS TO BE ACHIEVED?

On 14 January 2020, the Commission adopted a Communication on a Strong Social Europe for Just Transitions to deliver on the objectives of the European Pillar of Social Rights. Principle 6 of the Pillar on Wages (the implementation of which is a shared responsibility of Member States and EU institutions) states that “(a.) *Workers have the right to fair wages that provide for a decent standard of living. (b.) Adequate minimum wages shall be ensured, in a way that provide for the satisfaction of the needs of the worker and his/ her family in the light of national economic and social conditions, whilst safeguarding access to employment and incentives to seek work. In-work poverty shall be prevented. (c.) All wages shall be set in a transparent and predictable way according to national practices and respecting the autonomy of the social partners*”.

As shown in this document, common challenges exist in relation to minimum wage protection in the EU. Yet, adequate wages are an important component of fair working conditions. Minimum wages, in particular, ensure adequate protection for low-wage workers. Since more women than men earn wages at or around the minimum wage, minimum wages set at adequate level also support gender equality. Moreover, adequate minimum wages enhance the incentives to work, thus also leading to higher investment and higher contributions to social protection systems. By contrast, gaps in minimum wage adequacy or coverage weaken work incentives and contribute to labour market segmentation. As minimum wages tend to reduce wage inequality and in-work poverty, gaps in minimum wage adequacy and coverage hamper these improvements.

In light of these challenges, the initiative would have the **general objective to ensure that all workers in the Union are protected by fair minimum wages allowing for a decent living wherever they work.**

All Member States would be required to achieve the objectives of the initiative. They could do so through different means, in full respect of national competencies and social partners’ contractual freedom. More specifically, it would aim at ensuring that:

- **Minimum wages are set by the national legislator and/or social partners at adequate levels:** by supporting their labour income, this initiative would help to ensure decent living standards for workers across the EU. It would help reduce wage inequality and in-work poverty. Since more women than men earn wages at or around the minimum wage, minimum wages set at adequate level would also support gender equality and help reduce the gender pay gap. Moreover, adequate minimum wages contribute to enhancing the incentives to work, thus also leading to increased labour market participation, and hence stronger growth and higher contributions to social protection systems.

Minimum wages protect all workers: the initiative would help ensure that all workers can benefit from the protection provided by minimum wages. Specific groups of workers, in particular vulnerable workers, would be adequately protected.

The initiative would aim at achieving these objectives, while safeguarding access to employment and taking into account the effects on job creation and competitiveness, including for SMEs.

In order to reach these general objectives, **the specific objectives of the EU initiative** would be to ensure that:

1. **Well-functioning collective bargaining in wage-setting is in place**, as it can ensure that all workers, particularly the most vulnerable ones, are protected by adequate minimum wage floors, both in the systems where minimum wages are only determined by collective agreements and in those where they are set by law. Well-functioning collective bargaining implies that all types of employers and employees are duly represented and ensures that wage conditions are consistent with workers' and employers' needs and are responsive to changing economic circumstances. By shaping general wage developments, collective bargaining also influences developments in statutory minimum wages where they exist. The structure and functioning of collective bargaining thus play a key role for achieving fair minimum wages.
2. **The national legislator and/or the social partners provide for national frameworks allowing for statutory minimum wages to be set and regularly updated according to clear and stable criteria**, leading to adequate minimum wages. The use of such criteria, referring to adequacy goals and reflecting economic and social conditions in a country as well as guiding the adjustment of minimum wages at regular intervals, allows workers to rely steadily on an adequate income from work. A clear and stable framework to set statutory minimum wages also contributes to a stable economic environment, which in turn is conducive to good working conditions. At the same time, minimum wage setting systems must provide sufficient flexibility to account for changing economic conditions and adjustment needs.
3. **Social partners are effectively involved in statutory minimum wage setting to support minimum wage adequacy**. A timely and effective involvement of the social partners in statutory minimum wage setting and updating, fully taking into account the views of economic actors, is key for minimum wage developments to achieve adequacy goals, to keep up with price, wage and productivity developments and account for socio-economic developments. Taking into account their views, guided by the above-mentioned criteria, can have positive effects on the rights and entitlements of employees and on the investment decisions of firms. An effective involvement of social partners in minimum wage setting also allows for an informed and inclusive decision-making process.
4. **The national legislator and/or the social partners limit minimum wage variations and exemptions so as not to unduly harm minimum wage adequacy or preclude certain groups from benefiting from minimum wage protection**. In many Member States, exemptions exist for specific groups of workers. Reduced minimum wage rates also apply to specific groups of workers

in many Member States, e.g. in the case of sub-minimum wages for youth.. These are clear limitations to minimum wage adequacy and coverage, in particular wherever they are used in a disproportionate or unjustified manner. These exemptions and variations should be removed or their use should be justified, proportionate, and limited in time..

5. **Effective compliance with national minimum wage frameworks and monitoring mechanisms are in place.** Well-established mechanisms and procedures to ensure proper implementation of minimum wage rules and frameworks, as well as reliable data collection and monitoring, are key to ensure an effective protection of concerned workers on the ground. This is an important component of the strengthening of minimum-wage systems as, in some cases, increasing minimum wage levels may lead to a higher risk of non-compliance, including undeclared work (see section 3.3.5 above).

The initiative would thus contribute to the Treaty-based goals of promoting employment and improved living and working conditions (Article 151 TFEU), and to the implementation of European Pillar of Social Rights, notably of the principles on wages (Principle 6), on social dialogue and involvement of workers (Principle 8), as well as on gender equality (Principle 2). It would also address the rights set out in the Charter of Fundamental Rights of the EU in relation to workers' right to fair and just working conditions (Article 31).

As a result, the initiative would also foster upward social convergence and help overcome existing disparities among EU countries, thus also contributing to a better level playing field for businesses within a Single Market and reducing the pressure for competition based on social standards.

6. WHAT ARE THE AVAILABLE POLICY OPTIONS?

6.1. Baseline against which the options are assessed

In the baseline scenario, minimum wage policies would evolve without a common policy framework at the EU level. Wage policies (including those related to minimum wages) are subject to multilateral surveillance within the European Semester, the annual cycle of economic policy coordination in the EU. In addition, in September 2019 the European Commission presented to Member States a draft discussion paper on benchmarking minimum wages. This work stream follows up the Commission Communication on “Establishing a European Pillar of Social Rights”, from April 2017, which indicated that benchmarking and the exchange of best practice would be conducted for a number of policies in the employment and social area, including minimum wages. The analytical framework proposes indicators to monitor outcomes, policy performance and policy levers related to minimum wage policies, but does not establish quantitative thresholds for good performance.

The analysis is based on the assumption of stability of institutions and policies in Member States. This means that, in the baseline scenario, the coverage of minimum wages is assumed to follow a trajectory of stability. As laid out in Section 3, drivers of minimum-wage coverage differ across groups of Member States. In particular, minimum-wage coverage is largely driven by the existence of possible exemptions as well as enforcement in Member States with a statutory minimum wage. In these Member States, the assumption of institutional stability implies the stability of minimum-wage coverage. In turn, minimum-wage coverage is driven by collective bargaining in Member States without a statutory minimum wage. While collective bargaining coverage followed a downward trend on average in the EU in the last decades, this trend was not observed in Member States without a statutory minimum wage (see Section 3.3.1 for detail). The assumption of continued stability of collective bargaining coverage is therefore reasonable.⁶³

Similarly, in the baseline scenario, minimum wage levels are assumed to develop in a way to remain stable as compared to other wages in the same country. This is in line with the assumption of no policy change along the baseline. In particular, simulations to assess the impacts of hypothetical policy changes (in Section 7 below) take the latest available comparable data as baseline (in most cases reflecting the situation in 2018). This assumption is prudent despite the fact that, in certain countries, the minimum wage may have increased or decreased as compared to other wages in recent years. This assumption of unchanged policies is nevertheless consistent with a

⁶³ As part of the assumption of stability of institutions, the analysis also does not pre-judge any discussions in Member States about institutional reforms. For instance, in Cyprus, the government declared its intention to introduce a statutory national minimum wage when the labour market reaches conditions of full employment (unemployment rate below 5%). In Italy, there has been a political debate about the possibility of introducing a statutory minimum wage, among other possible reforms.

gradual continuation of minimum-wage convergence across Member States, in euro or purchasing power standard, driven by the expected continuation of the trend of wage convergence, especially between Eastern and Western European Member States.⁶⁴

6.2. Possible avenues for EU action

The initiative can be based on Article 153 (1) (b) TFEU on working conditions. Wages, including minimum wages, are a key component of working conditions. However, in relation to this legal basis, the initiative must respect the limitations imposed by Article 153(5) TFEU, which forbids the EU to intervene directly on the level of pay, so as not to interfere with the competence of Member States and the autonomy of social partners in this field.

As a result, the initiative would leave Member States the freedom to keep their current minimum wage system. It would also not include any provisions aimed at imposing an obligation to provide for a statutory minimum wage in Member States with collectively bargained minimum wages, nor at imposing administrative extensions on collectively agreed minimum wages. EU action on minimum wages would fully respect Member States' competence and collective bargaining traditions, and will not interfere with social partners' autonomy and freedom to negotiate.

Both binding (e.g. Directive) and non-binding instruments (e.g. Council Recommendation) are possible under Article 153 TFEU, to address the challenges of fair minimum wages.

The sub-section below presents the main elements of an EU initiative on fair minimum wages, and possible legal instruments at play.

⁶⁴ On the past development of the gap between minimum wages in the EU, see Section 3.1.1. Trends in wage convergence have been analysed by the European Commission (2018): "Labour market and wage developments in Europe: Annual Review 2018", Directorate-General for Employment, Social Affairs and Inclusion, especially Chapter II.2.

6.2.1. Policy options

This subsection provides an overview of the measures that could be considered for addressing the problem and meeting the objectives outlined above. These measures can be combined and are not mutually exclusive, unless otherwise specified. Any possible measure would be applied differently depending on the minimum wage setting system, in full respect of national competencies and social partners' contractual freedom.

The initiative would be addressed to all Member States. It would cover all those qualifying as workers according to EU and national law, regardless of the type of contract or form of employment relationship with their employer, and including those in the public sector.

The initiative would be built around the stated general objective of achieving fair minimum wages for all workers in the EU and would provide for specific policy actions to support it. In line with the results of the first stage of social partners' consultation, collective bargaining has been identified as the best means to achieve the general aim of the initiative, provided its coverage is high enough to ensure that the agreed wage floors effectively protect vulnerable workers. To this end, a number of provisions would aim at supporting and promoting collective bargaining on wage setting. Other provisions would aim at ensuring that in countries with statutory minimum wages, these are set in such a way to support fair working conditions, through their capacity to deliver on adequate minimum wages, regularly updated according to stable criteria and in consultation with the social partners, while preserving employment and competitiveness. Third, elements are provided so as to aim at the elimination or limitation of exemptions and/or variations. Finally, provisions to ensure compliance with and monitoring of national minimum wage frameworks are included.

The impacts of these policy options are analysed in Section 7.

Table 2: Overview of policy options

Policy field	Policy options
Collective bargaining	<ul style="list-style-type: none">• Call on all Member States to take measures, in cooperation with social partners, to promote collective bargaining with a view to supporting fair minimum wages;• Call on Member States where wages are set exclusively through collective bargaining to take action to ensure that all workers are covered. This can be achieved for example if all workers potentially can be covered by a collective agreement and/or indirectly benefit from the pay levels established by collective agreements;• Provide specific guidance to promote collective bargaining in all Member States, especially where it is less developed, including a non-exhaustive list of possible actions;• Provide for mapping in all Member States the implementation of the social clause contained in the

	Public Procurement Directive 2014/24/EU. ⁶⁵ Such a mapping would focus on aspects of the clause related to minimum wages and collective bargaining.
National frameworks to set and update statutory minimum wages	<ul style="list-style-type: none"> • Call on Member States to provide for statutory minimum wages setting mechanisms to be guided by clear and stable criteria; • Call on Member States to provide for updates of statutory minimum wages being conducted at reasonably frequent and regular intervals; • Specify a number of elements to be taken into account for statutory minimum wage setting and updating, such as the cost of living and the level and distribution of wages, together with other economic and social conditions; • Define a set of indicators to guide the assessment of minimum wage adequacy, while considering economic conditions, such as: (1) the gross median wage, (2) the gross average wage; (3) the net median wage; (4) the net average wage; or (5) a criterion to ensure decent living standards, in particular by defining a reference basket of goods (so-called living-wage approach);⁶⁶ • Set non-binding reference values for the above adequacy criteria to guide the assessment of minimum wage adequacy. Non-binding reference values could be developed for those criteria, reflecting high (intermediate) current minimum wages in the EU. Various approaches are possible, such as: (a) comparing the gross minimum wage to thresholds such as 60% (50%) of the median wage, or 50% (40%) of the average wage; (b) comparing the net minimum wage to 60% (50%) of the net average wage or 70% (60%) of net median wage. • Alternatively, using an indicator framework or the development of national definitions of adequacy, accounting for the interplay with tax-benefit systems and the broader wage setting system.
Involvement of social partners in statutory minimum wage setting	<ul style="list-style-type: none"> • Call on Member States to involve social partners in an effective and timely manner when setting and updating statutory minimum wages; • Define specific options for relevant institutional aspects of social partner involvement (e.g. existence of regular, formal consultation mechanisms, of specialised minimum wage committees, attributing to social partners a decision-making role, etc.).
Involvement of	<ul style="list-style-type: none"> • Call on Member States to associate independent experts

⁶⁵ Art 18 of Directive 2014/24/EU requires Member States to take measures to ensure that employers acting as contractor for the public administration comply with applicable obligations in the fields of social and labour law established by national or EU social and labour rules, applicable collective agreements and/or international law.

⁶⁶ Criteria defined in terms of gross wages should be compared to the gross minimum wage, while criteria defined in net terms should be compared to the net minimum wage (i.e., the net income of a single minimum wage earner working full time).

independent experts in statutory minimum wage setting	with statutory minimum wage setting and updating.
Exemptions and variations	<ul style="list-style-type: none"> • Provide elements so as to aim at the elimination of exemptions and/or variations in the countries where they exist. (Alternatively) define criteria and conditions for allowing exemptions and/or variations, so as to limit them to a minimum. In particular, it could be required that exemptions and/or variations to be non-discriminatory, proportionate, limited in time, and duly justified.
Compliance and monitoring	<ul style="list-style-type: none"> • Call on all Member States to ensure effective implementation and compliance with national minimum wage frameworks, and give the social partners a key role in that respect. • Call on all Member States to reinforce existing data collection tools and monitoring frameworks on minimum wage adequacy and coverage.

6.2.2. EU legal basis and instruments

The initiative would be based on Article 153 (1) (b) TFEU on working conditions. It would respect the limitations imposed by Article 153(5) TFEU, which forbids the EU to intervene directly on the level of pay, so as not to interfere with the competence of Member States and autonomy of social partners in this field.

Both binding and non-binding instruments are possible under this Article. The EU instruments under consideration are as follows.

EU Directive

Article 153 (2) TFEU provides the possibility of adopting a **Directive in the area of ‘working conditions’** involving minimum requirements for implementation by Member States.⁶⁷

In line with Article 288 TFEU, a Directive would give certainty about the obligatory requirements to be applied by Member States. To this end, the proposal would contain a set of minimum requirements and procedural obligations to be necessarily complied with. The Directive would leave room for Member States to decide on the way to implement them, and would not take away the freedom of Member States and social partners to set the level of minimum wages.

A Member State could entrust social partners, at their joint request, with the implementation of the Directive, in line with Article 153(3) TFEU. In this case, the

⁶⁷ Art 153(2) (b) also states that “Such directives shall avoid imposing administrative, financial and legal constraints in a way which would hold back the creation and development of small and medium-sized undertakings”.

Member State would need to ensure that social partners introduce the necessary measures by the transposition date that would be indicated in the Directive. The Directive would foresee a framework for monitoring its implementation.

Council Recommendation

A **Council Recommendation** may be proposed, inviting Member States to set the conditions for ensuring fair minimum wages. A Recommendation would provide for policy guidance and a common policy framework at EU level, while not setting specific obligatory requirements. As in the case of a Directive, it would not take away the freedom of Member States and social partners to set the level of minimum wages. The common set of principles and criteria contained in the Recommendation would therefore provide a basis for action by all Member States with a view to achieving fair minimum wages across the EU.

Envisaged tools for monitoring implementation of this non-binding instrument might include the use of benchmarking, even if no reference values are set, the exchange of good practices, and joint work with Member States and social partners on the development of appropriate statistical and monitoring tools. A dedicated benchmarking framework, integrated in the European Semester, could be a privileged tool for the operationalisation of some elements of the initiative.

7. WHAT ARE THE IMPACTS OF THE POLICY OPTIONS?

7.1. Social impacts

7.1.1. General social impacts

In general, options improving minimum wage adequacy improve wage inequality and in-work poverty. This is underpinned by past studies and assessment (See Section 2.1). Most of the beneficiaries of improved minimum wage adequacy are women, adult workers, medium-skilled workers and workers living in households with more than one adults (see Section 2.2). Young workers, low-qualified workers and single parents are an important minority among the beneficiaries, as they are over-represented among minimum-wage workers as compared to their share in the workforce (see Section 2.2).

The possible avenues of action for the initiative can contribute to more adequate minimum wages in a number of ways. Strengthened collective bargaining can contribute to increased wage levels, and lower wage inequality, which means that collective bargaining supports especially wages in the lower half of the wage distribution (see Section 3.3.1). A clear and stable framework for setting statutory minimum wages, including the effective involvement of social partners, allows minimum wage developments to keep up with prices and general wage developments, taking into account all the information available (see Section 3.4.1). Limiting exemptions, variations, and improving compliance strengthen the rights and increase the wages of workers affected.

Taking into account the adequacy of minimum wages is an important element of national frameworks to set statutory minimum wages. Various indicators (criteria) of minimum wage adequacy come with different advantages and disadvantages. Annex 2 summarises these advantages and disadvantages, as well as data issues.

If Member States increased their minimum wages to 50% of the gross median wage, it would affect some Member States (Belgium, Czechia, Germany, Greece, Estonia, Ireland, Malta, the Netherlands, Slovakia and Spain) while others already have minimum wages above this level. In the concerned Member States, this increase would reduce both wage inequality and in-work poverty according to a microsimulation exercise conducted with the Euromod model (for more details, see Box 2). Wage inequality at the lower end of the distribution would decline in particular in those countries where the adequacy of the minimum wage is low relative to the median wage. According to these simulations, higher thresholds would have larger social impacts and have an impact on more countries. If Member States set their minimum wages to reach a reference value for minimum wages at 40% of average wages, this would affect broadly the same group of countries as a minimum wage based on 50% of the median wage.⁶⁸ The precise effects on each country would differ somewhat, since the difference between the median wage and the average wage is not the same across all countries.

⁶⁸ In 2018, according to OECD data, the countries with statutory minimum wages below 50% of the median wage were: Belgium, Czechia, Estonia, Germany, Greece, Ireland, the Netherlands, Malta, Slovakia, and Spain. The group of countries with minimum wages below 40% of the average wage included also Hungary and excluded Germany, both countries with minimum wages close to the threshold. See also Graph 9 in Section 3.1.

If thresholds are defined by the net income of minimum wage earners a different set of countries would be affected. Setting the minimum wage at the level to make sure that a single full-time worker who earns the minimum wage is not at risk of poverty (i.e., his or her income reaches 60% of median net equivalised income) would have an impact on Czechia, Malta, Germany, Estonia, Latvia and Luxembourg. When the minimum wage is set at the level that the net minimum wage reaches 50% of the net average wage (for single childless workers), the set of countries affected include the countries above, but also Bulgaria, Croatia, Greece, Hungary, Romania, Poland, and Spain.

The set of countries affected by various types of criteria of adequacy depends on aspects of earnings inequality and on tax and benefits policy. In particular, on the one hand, aspects of earnings inequality influence the difference between the average and median wage, since top earnings count towards the average wage but not the median. On the other hand, tax-benefit policy has an impact on indicators such as the net minimum wage as a ratio of the net average wage. For instance, in-work benefits affect the take-home pay of minimum wage earners.

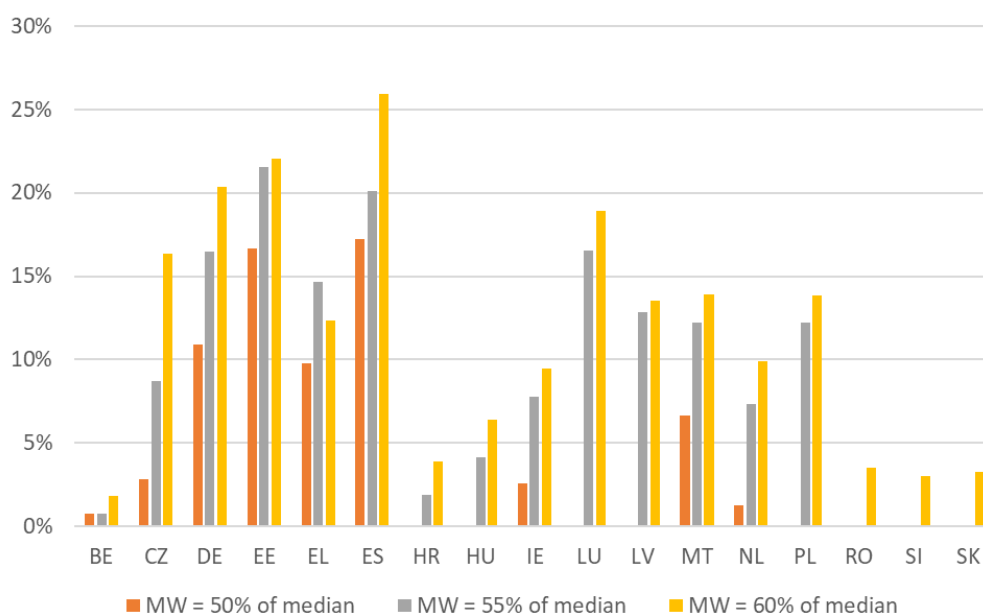
Box 2: Results from a microsimulation exercise to assess social impacts of some hypothetical scenarios

To estimate the magnitude of social impacts of increasing minimum wage adequacy, a microsimulation exercise has been conducted using the Euromod model.⁶⁹ The hypothetical scenarios simulated correspond to situations in which Member States with statutory minimum wages below a certain threshold raise it to this level.

The following results show, as an example, the estimated effects of hypothetical scenarios in which Member States increase their minimum wages to 50%, 55% or 60% of the median wage. In the 50% scenario, wage inequalities at the bottom of the wage distribution would most significantly decrease in Germany, Estonia and Spain (by more than 10%; see Graph 24). The results for in-work poverty broadly reflect those for wage inequality, with biggest impacts in Germany, Estonia and Spain (Graph 25). It would increase the wage income of those affected especially in countries like Germany and Estonia (by more than 20%). Higher thresholds have larger social impacts and affect more countries.

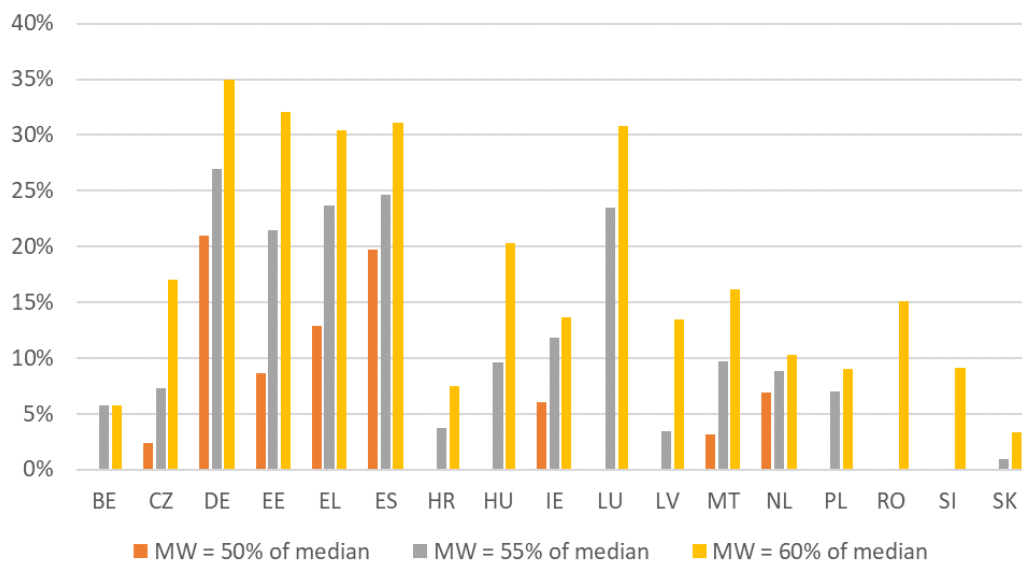
⁶⁹ For a description of the methodology, see Annex 4.

Graph 24: Reduction in wage inequality in simulated hypothetical minimum-wage scenarios, D5/D1 indicator (%)



Notes: European Commission (JRC) calculations based on simulations with the Euromod microsimulation model. Countries sorted alphabetically. Countries with minimum wages above 60% of the median wage were excluded. The D5/D1 indicator is calculated as the gross wage earned by the median earner (D5) divided by the gross wage of the worker who earns more than 10% of all workers (D1).

Graph 25: Reduction in in-work poverty in simulated hypothetical minimum-wage scenarios (%)



Notes: European Commission (JRC) calculations based on simulations with the Euromod microsimulation model. Countries sorted alphabetically. Countries with minimum wages above 60% of the median wage were excluded.

Most beneficiaries of improved minimum wage policies are women, adult workers, the medium skilled, working in standard jobs. In addition, as Section 2.2 presents, most minimum-wage earners live in households with multiple adults, work in the services industry, and in micro or small enterprises. Young workers, low-skilled workers, and lone parents constitute a relatively small share of the labour force, which makes them a minority among minimum-wage earners, even though they have a higher propensity to earn the minimum wage than other groups. In a similar vein, although workers in thinly populated regions have a higher propensity to earn the minimum wage than workers in other regions, these differences are not large. Where the majority of minimum wage earners reside depends largely on the distribution of the labour force in the given country across thinly and densely populated regions.

7.1.2. Impacts on incentives to work

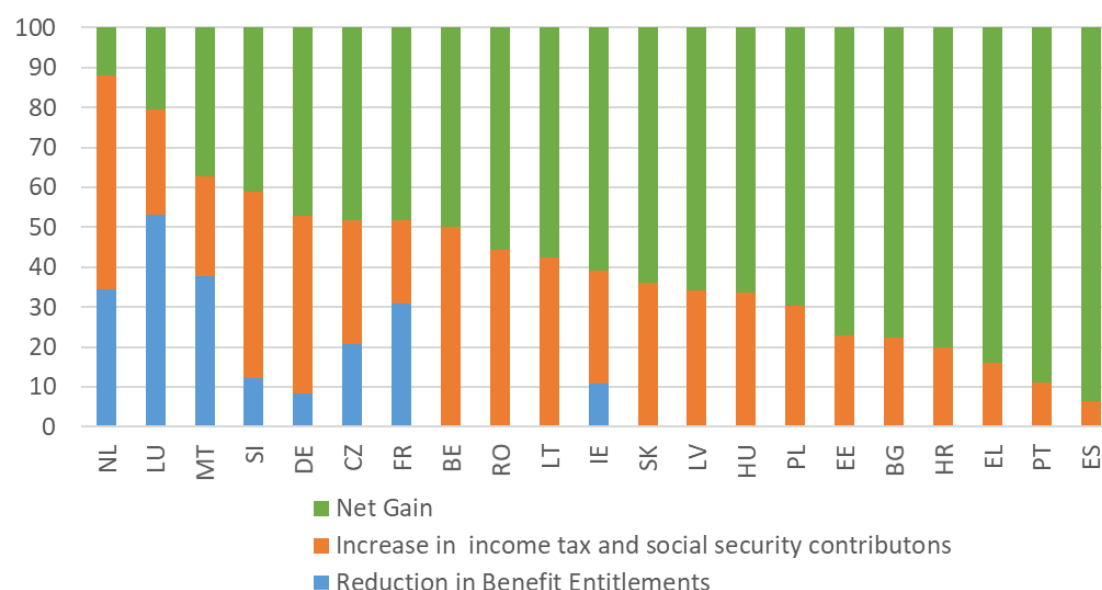
More adequate minimum wages improve incentives to work by increasing the take-home pay with an unchanged out-of-work income. The strength of this effect depends on the taxes and benefits applying to minimum-wage earners. The improvements in work incentives are weaker (or in extreme cases non-existent) if the increased income from work is partly lost due to higher taxes or benefits withdrawn (including unemployment benefits or last resort benefits such as minimum income schemes). In this case, taking up a job at the minimum wage raises income to a small extent relative to being out of work, which results in weak incentives to work. Therefore, the income gain from a certain increase in the minimum wage is likely to be the highest when taxes and benefits paid by minimum wage earners is low or when benefits are not withdrawn (including because minimum wage earners are not entitled to benefits at all).

Simulations show that, in all Member States, work incentives would improve when minimum wages are increased.⁷⁰ When the gross minimum wage is increased, this increases the net income of minimum wage earners, but it also increases the taxes they pay and may reduce the benefits they are entitled to. In a majority of Member States with a statutory minimum wage, the worker keeps 50% or more of a hypothetical minimum wage increase (Graph 26). In some countries where benefits have an important role in supplementing the income of low-earning workers the net gains from a hypothetical minimum wage increase is lower (below 30% in Luxembourg, and the Netherlands. In contrast, the net gain is highest in systems where taxes and benefits paid by minimum wage earners is low, and when benefits are not withdrawn (often because minimum wage earners are not entitled to benefits at all). The progressivity of the personal income tax system has a similar effect: lower progressivity at the minimum wage implies a higher net gain, from a hypothetical minimum wage increase, and vice versa. In particular, the

⁷⁰ Ad-hoc simulations done by the OECD, and based on the TaxBEN model show the impact of a 10% increase in the minimum wage on net family incomes among four household types: single working-age person, single working-age parent with a child, childless working-age couple and working-age couple with two children. For more details on the model, see: <http://www.oecd.org/els/soc/OECD-Tax-benefit-model-Overview.pdf>.

net gain is above 70% in Bulgaria, Croatia, Estonia, Greece, Hungary, Malta, Portugal, and Spain.

Graph 26: Net income gains as a share of net household income by components in the case of a 10% increase of the statutory minimum wage, 2019



Source: OECD simulations for the European Commission, based on the OECD TaxBen model.

7.2. Economic impacts

7.2.1. Impacts on economic activity, employment and consumption

Options improving minimum wage adequacy

Academic studies since the 1990s suggest that moderate minimum wage increases, while they contribute to reducing wage inequality, have a relatively low impact on employment. The effect of the minimum wage on the labour market has long been debated by academics and policy makers. The consensus among academics until the early 1990s was that in a fully competitive labour market minimum wages are detrimental to employment and GDP. This view was challenged when a series of studies applied novel and more credible theoretical models and empirical methods.⁷¹ These new studies often found that minimum wages do not destroy jobs and in some cases even that they can increase employment.⁷² Although almost three decades have passed since this “new minimum wage research” emerged, consensus on the right model of the labour market has so far not been reached.⁷³ More recent evidence suggests that moderate levels of

⁷¹ Card D. and A. B. Kruger (1995), “*Myth and Measurement: The New Economics of the Minimum Wage*”, Princeton University Press.

⁷² Card, D. and Krueger, A.B., ‘Minimum Wages and Employment: A Case Study of the New Jersey and Pennsylvania Fast Food Industries’, *American Economic Review*, No 84(4), 1994, pp. 772-793.

⁷³ Neumark, D., Salas, J. I., & Wascher, W. (2014), ‘Revisiting the minimum wage—Employment debate: Throwing out the baby with the bathwater?’, ILR Review No 67(3_suppl) 2014, pp. 608-648.; Allegretto,

minimum wage increases have only a relatively low impact on the affected workers.⁷⁴ The more benign scenario appears to correspond to Germany's experience (see Box 3) with introducing a statutory minimum wage, i.e. a reduction of wage inequality without strong negative effects on total employment and economic activity. On the other hand, the implications of minimum-wage introductions or increases that are more substantial remain unclear. More specifically, there are currently no insights as to whether there is a threshold up to which the minimum wage can be increased without causing a loss in employment,⁷⁵ while high unemployment may constrain possibilities to raise the minimum wage in the short term.⁷⁶

S., Dube, A., Reich, M., & Zipperer, B., 'Credible research designs for minimum wage studies: A response to Neumark, Salas, and Wascher', *ILR Review* No 70(3), 2017, 559-592.

⁷⁴ See, e.g., European Commission (2016): "Labour market and wage developments in Europe: Annual Review 2016", Directorate-General for Employment, Social Affairs and Inclusion; as well as Belman, D., & Wolfson, P. J., *15 years of research on US employment and the minimum wage*. Tuck School of Business Working Paper, 2016; and Dube, A. (2019): "Impacts of minimum wages: review of the international evidence", Report prepared for the UK Low-Pay Commission.

⁷⁵ Reich, M., Allegretto, S., & Godoey, A., *Seattle's Minimum Wage Experience 2015-16*, 2017; Jardim, E., & Van Inwegen, E., *Payroll, revenue, and labor demand effects of the minimum wage*, W.E. Upjohn Institute for Employment Research, Kalamazoo, 2019.

⁷⁶ See e.g. Dolton and Rosazza-Bondibene (2012): "*The international experience of minimum wages in an economic downturn*" Economic Policy, and Addison, Blackburn, Cotti (2013): "*Minimum wage increases in a recessionary environment*", Labour Economics

Box 3: The impacts of the introduction of the statutory minimum wage in Germany in 2015 – a survey of first assessments

In 2015, a statutory minimum wage was introduced in Germany. This event offered a rare opportunity to evaluate the effects of a new minimum wage policy on workers, firms and an economy.⁷⁷

Hourly wages of employees earning less than the 2015 minimum wage increased by 14 percent on average between 2014 and 2016. This increase affected around 15% of the German workforce.⁷⁸ This, however, was not translated into an effect on monthly gross wages, possibly due to a lowering of contractually agreed working hours.

At the macro level, employment developed positively after the introduction of the minimum wage, increasing more in 2016 and 2017 than in 2014. Regular jobs were not affected by the minimum wage introduction, but a substantial decline in marginal part-time employment (so-called ‘Minijobs’) could be observed.⁷⁹

No negative effects for businesses could be observed in terms of overall company profits, increased competition or market exits.⁸⁰ At the level of firms directly affected by the minimum wage, however, labour costs increased on average by 6 percent more than the labour costs of non-affected firms.⁸¹ Reactions of employers have included increasing qualification and proficiency requirements, reducing working hours, increasing work intensity and increasing prices. There does not seem to have been an impact on productivity.⁸²

Options affecting coverage, exemptions and variations, and enforcement

Limiting exemptions or variations, increased coverage and improved compliance increase the wages of workers affected. For this reason, their impacts may be similar in nature to those of increased minimum wages in general: while the wages of those affected are increased, wage costs for firms are increased as well. However, since these changes are targeted to some groups, their magnitude and thus their impacts are smaller as well.

The most often used exemptions or variations are targeted to young workers or in particular to those in education or training. (For a description of existing exemptions and limitations in Member States, see Section 3.4.2.) Limiting these exemptions or variations increases the wages of affected workers, while at the same time increasing the

⁷⁷ For an overview of findings, see: Bruttel, O., ‘The effects of the new statutory minimum wage in Germany: a first assessment of the evidence.’ *Journal for Labour Market Research*, 53(1), 10, 2019.

⁷⁸ Dustmann, C., Lindner, A., Schönberg, U., Umkehrer, M., & Vom Berge, P., *Reallocation Effects of the Minimum Wage: Evidence From Germany*, *Mimeo*, 2019.

⁷⁹ See Bruttel (2019), cited above.

⁸⁰ Mindestlohnkommission, ‘Zweiter Bericht zu den Auswirkungen des gesetzlichen Mindestlohns’, 2018.

⁸¹ Bossler, M., Gürtzgen, N., Lochner, B., Betzl, U., Feist, L., Wegmann, J., ‘Auswirkungen des gesetzlichen Mindestlohns auf Betriebe und Unternehmen’, *IAB-Forschungsbericht*, No. 4/2018, Institut für Arbeitsmarkt und Berufsforschung (IAB), Nürnberg, 2018.

⁸² See Bruttel (2019), cited above, and the references therein.

wage costs of firms employing them. As a result, employment of young workers may be negatively affected. Box 4 summarises recent findings of youth minimum wages.

Box 4: Evidence of the impact of youth minimum wages on youth employment

Cross-country evidence has been presented in the academic literature to suggest that sub-minimum wages for young workers have some effect in increasing youth employment. Using a sample of 17 OECD countries for the period 1975-2000, Neumark and Wascher (2004) find that the apparent disemployment effects of minimum wages are smaller in the countries that have a sub-minimum wage for young workers.⁸³

Recent studies of policy episodes in specific EU Member States countries find a variety of results but, in contrast to the cross-country evidence, most do not support significantly negative employment effects of youth minimum wages.⁸⁴ Studies focusing on one particular country have typically exploited reform episodes or differences in rules applying to workers with a small age difference (so-called “discontinuities” in policy design).

Sharp increases in the youth minimum wage in the late 1980s Portugal were found not to have negative employment effects by Portugal and Cardoso (2006).⁸⁵ The study finds that, after the minimum wage increase, teenagers were more likely to stay on their jobs than before. This was compensated by a reduction in newly created jobs for young workers.

More recently, in Belgium, the European Commission (2017) and Lopez-Novella (2018) estimated the effect of the gradual elimination of youth sub-minima for those between 18 and 20 years old.⁸⁶ Despite the significant increase in the youth minimum wage, they find no significant impact on youth employment (European Commission) and only a limited effect on labour flows (Lopez-Novella, 2018): like in the case of Portugal previously, young workers were more likely to stay in their jobs after the minimum wage increase, while the hiring of new young workers slowed down.

⁸³ Neumark D. and W. Wascher (2004), “Minimum wages, labor market institutions and youth employment: a cross-national analysis”, *Industrial Labor Relations Review* 57: 223–248. More recently, Marimpi and Koning (2018) find support for these findings based on cross-national data from 30 OECD countries for the time period 2000–2014. See: Marimpi, M. and P. Koning (2018), “Youth minimum wages and youth employment”, *IZA Journal of Labor Policy* 7(5).

⁸⁴ See also the summary by Boeri, T. and J. van Ours (2013): “The Economics of Imperfect Labour Markets”, second edition, pp. 52-56, Princeton University Press.

⁸⁵ P. Portugal, A.R. Cardoso (2006): “Disentangling the Minimum Wage Puzzle: An Analysis of Worker Accessions and Separations”, *Journal of the European Economic Association*, Vol. 4, No. 5 (Sep., 2006), pp. 988-1013.

⁸⁶ European Commission (2017), “Labour market and wage developments in Europe: Annual review 2017”, DG Employment, Social Affairs and Inclusion: <https://op.europa.eu/en/publication-detail/-/publication/2df2eaca-b3b0-11e7-837e-01aa75ed71a1/language-en>; Lopez-Novella, M. (2018), “Removing youth sub-minimum wage rates in Belgium: did it affect youth employment? Federal Planning Bureau Working Paper 04-18, Federal Planning Bureau, Brussel.

In the Netherlands, Van der Werff and co-authors have estimated the impact of the 2017 increase in the sub-minimum wage of young workers between 18 and 22 years old.⁸⁷ They find only a very small effect on employment (0.3 to 0.4 pps), which they relate to the fact that employers are partially compensated for the increase in the wage costs. The increase in the number of hours worked per week is more significant (between 0.2% and 1.2%) as well as the increase in the average wage (2% to 3%), although it remains smaller than the increase in the minimum wage.

Economic impacts related to the mechanism setting statutory minimum wages

A clear minimum wage setting mechanism can lead to better outcomes for workers, firms and the economy.⁸⁸ Regular and frequent updates of the minimum wage, based on stable criteria, prevent an erosion of its value and ensure a minimum wage policy consistent with its main objective and with the need of safeguarding employment and competitiveness. A clear policy framework eliminates uncertainties and volatility and is understandable by workers and firms. It will enable employers to anticipate and plan ahead. It makes minimum wage changes relatively predictable and allows for gradual increases every year, avoiding large jumps unjustified by underlying economic fundamentals. Incremental adjustments of the minimum wage can generate good results in terms of rising wages in the lower part of the wage distribution, with little or no effect on employment and competitiveness.

A clear framework for minimum wage setting allows also for more accountability by the policy makers. With regular and frequent minimum wage updates, the value of the minimum wage is less at the mercy of the whims of the political cycle. Moreover, being gradual, these increases are less likely to have negative impact on employment, in particular for low-wage groups. In contrast, the lack of an adequate mechanism may lead to greater instability and uncertainty for low-paying firms, and to unfairness regarding those on or near minimum wages.

The involvement of social partners is a key element of setting statutory minimum wages. It may provide relevant information for the process of updating the minimum wages, thereby contributing to fulfill the objective of the minimum wage policy, while preserving employment and competitiveness. Reduced uncertainty may also positively affect the business environment and firms' competitiveness, and thereby ultimately have positive effects for the macro-economic performance.

⁸⁷ Van der Werff, S., Zwetsloot, J. and B. ter Weel (2018), "Verkenning effecten aanpassing minimum(jeugd)loon: De invloed van de verhoging van het wettelijk minimumloon voor 18- tot en met 22-jarigen op de werkgelegenheid en bbl-instroom", SEO Economisch Onderzoek, Amsterdam.

⁸⁸ European Commission (2016): "Labour Market and Wage Developments in Europe 2016", Directorate-General for Employment, Social Affairs and Inclusion.

7.2.2. Sectoral economic impacts and impacts on competitiveness

Various sectors are likely to be affected differently by changes in minimum wage policy. This is due to two reasons. First, sectors differ in their propensity to employ workers at the minimum wage (or low wages more generally). Second, sectors differ in the extent to which they are able to transmit higher wage costs into their prices.

The effect of minimum wages on firms active in sectors that are sensitive to domestic demand are expected to be dampened for two reasons. First, their main competitors are also affected by the same policy change, so it is more likely that this increase in labour costs will be passed on to the consumers. Second, the minimum wage increase raises the purchasing power of low-wage workers, which may increase the output demand.

Agriculture and industry employ a relatively small share of minimum wage earners in most countries, although the patterns are not uniform across Member States. In particular, this share is higher in some Central and Eastern European Member States (see Section 2.3 for details). This suggests that minimum wage policy has a limited impact on external economic competitiveness, but it may have some impact in a limited number of Member States where the share of minimum wage earners is high and many of them are employed in agriculture and industry. In these cases, the minimum-wage setting framework can take this into account as part of the relevant economic circumstances when informing the setting and update of the statutory minimum wage.

Fair minimum wages and sound minimum wage setting mechanisms could also help macroeconomic stability, in particular within the Economic and Monetary Union. They can contribute to ensuring a better alignment between productivity growth and wages, and notably reduce the risk of excessively low wage growth in countries with large and persistent current account surpluses, while avoiding excessive wage growth in those countries where large current account deficits or external debt may put at risk the broad economic situation. This could ensure that economic and social convergence go hand in hand.

7.2.3. Impacts on SMEs

Minimum-wage policy affects small and medium-sized firms more than other firms. SMEs comprise three different categories of enterprises, namely micro-enterprises (less than 10 employees), small enterprises (between 10 and 49 employees) and medium-sized enterprises (between 50 and 250 employees).⁸⁹ In 2016, SMEs represented 99 % of all enterprises in the EU. They accounted for around two-thirds of total employment in the EU, ranging from 47 % in the United Kingdom to 85 % in Malta. Micro and small enterprises employ a majority of minimum-wage earners although the patterns are not

⁸⁹ Commission Recommendation of 6 May 2003 concerning the definition of micro, small, and medium-sized enterprises. (2003/361/EC), *Official Journal of the European Union*, L 124/36, 20 May 2003.

uniform across the EU (see Section 2.3 for details). This is partly because, generally, larger firms tend to pay higher wages.

Many small firms are active in sectors which are sensitive to domestic demand, which may reverse possible negative effects of minimum wage policies on them. This is suggested by the academic literature on restaurants, which suggests that, in most cases, enterprises in this sector may benefit from minimum wage increases.⁹⁰

The 2015 introduction of the minimum wage in Germany has not reduced employment, but appears to have shifted employment from smaller to larger firms. A recent study suggests that the introduction of the minimum wage increased the exit rate of small, low-paying firms, while larger, higher-paying and potentially more productive firms increased employment.⁹¹ The findings suggest that, for firms with less than 50 workers, a 1% increase in wages (as induced by the minimum wage increase) is associated with employment decreasing by 0.2% to 0.4%. The results suggest that some of the workers of smaller firms moved to better-paying jobs, in some cases offered by larger companies.

A minimum wage increase is likely to have a greater impact on companies that export; it is therefore less likely that it would affect small firms more than larger ones. This is suggested by a recent study of an episode of a large and persistent minimum wage increase in Hungary between 2000 and 2002.⁹² The study finds that highly exposed firms in Hungary responded to the minimum wage by displacing some workers, although this effect is counterbalanced by a large wage gain for low-wage earners. The paper also finds that in Hungary larger firms displaced more workers than smaller firms (see Figure 6 in the paper). The employment responses at firms with more than 50 employees are two times larger than the average response. The negative responses at the large firms are mainly driven by the fact that larger firms are more likely to serve export markets, where increased labour costs are harder to pass on into prices. Furthermore, many large firms had a relatively low profitability ratio around the year 2000.

This suggests that the impact of minimum wages on SMEs depend on the broader economic context, including their sectoral specialisation. This implies that national frameworks and policies need to take into account the broader context, including the situation and sectoral specialisation of SMEs. A clear and stable framework setting

⁹⁰ See, e.g. Card, David and Alan B. Krueger. 1994. "Minimum Wages and Employment: A Case Study of the New Jersey and Pennsylvania Fast Food Industries," *American Economic Review*, 84(4): 772-793; Dube, Arindrajit, Suresh Naidu, and Michael Reich. 2007. "The economic effects of a citywide minimum wage," *ILR Review*, 60(4): 522-543; Hirsch, Barry T, Bruce E Kaufman, and Tetyana Zelenska. 2015. "Minimum wage channels of adjustment," *Industrial Relations: A Journal of Economy and Society*, 54(2): 199-239; Katz, Lawrence F and Alan B. Krueger. 1992. "The effect of the minimum wage on the fast-food industry," *ILR Review*, 46(1): 6-21.

⁹¹ Dustmann, Christian, Attila Lindner, Uta Schönberg, Matthias Umkehrer, and Philipp vom Berge. 2019. "Reallocation Effects of the Minimum Wage: Evidence From Germany", CREAM Discussion Paper 07/20, University College London.

⁹² A Lindner, P Harasztosi (2019): "Who Pays for the Minimum Wage?" *American Economic Review*, vol. 109, no. 8, August 2019, pp. 2693-2727.

statutory minimum wages would help SMEs to anticipate developments in the minimum wage and mitigate any negative impacts.

7.2.4. Impacts on public budgets

Minimum wages affect public budgets in a number of ways. As direct costs, higher minimum wages may increase the public sector wage bill, due to possible links of public sector pay scales to the minimum wage, to spill-over effects on the (public) wage distribution or in case a share of public sector employees earn the minimum wage. Higher minimum wages may also increase the cost of some public procurements.⁹³ This effect is, however, likely more than counterbalanced by indirect effects on public revenues.

An increase in the minimum wage rises revenues from labour taxes and contributions. This effect is indirect but larger in most cases than any negative effect on the public sector wage bill, since only few public employees earn wages close to the minimum wage. For instance, a recent study for the Netherlands estimates that increased revenues from labour taxes and benefits exceed direct costs related to the public wage bill by a factor of between 4 and 5.⁹⁴ Minimum wages also may have an effect on the expenditure on social benefits and on other tax revenues in a way that may vary across countries. In some countries, increased wages may imply a reduced expenditure on benefits aiming to support working families (e.g., in-work benefits, for instance in Ireland). On the other hand, benefits expenditure may increase in countries (e.g. in the Netherlands, Lithuania) where some social benefits are automatically linked to the minimum wage.

Further impacts may accrue through taxes on corporations and consumption, as well as second-round effects. Depending on the extent to which corporations are able to pass through increased labour costs into prices, revenue from corporate income taxes may be negatively affected by minimum wage increases. In turn, higher household income may increase consumption and revenues from consumption taxes. Finally, second-round effects also play a role, in particular possible negative employment effects. In the case of very large increases in the minimum wage, significant negative employment effects may materialise. In this case, public finances are negatively affected by lower revenues and higher spending on unemployment and other benefits.

According to analysis done with the Euromod microsimulation model, minimum wage increases have a small but positive effect on public budgets.⁹⁵ In scenarios in which Member States raise their minimum wages to 50%, 55% or 60% of the median wage, these fiscal effects are estimated to be positive driven by increases in tax revenues and reduction of benefit expenditure (Graph 27). Possible second-round effects are not

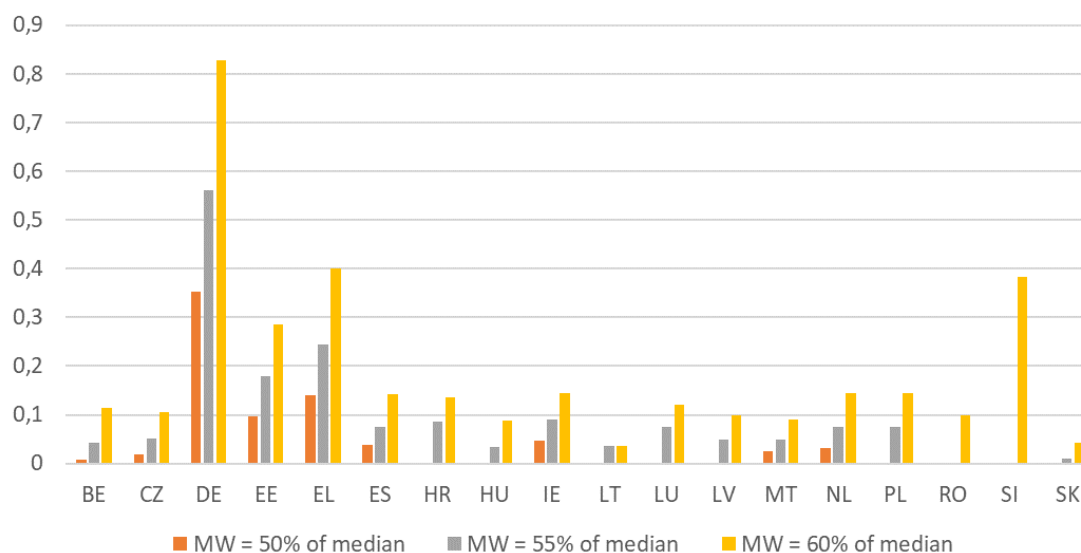
⁹³ See, for an explanation of these effects in the case of the US: Congressional Budget Office (2019): “The Effects on Employment and Family Income of Increasing the Federal Minimum Wage”.

⁹⁴ K. Zandvliet, E. de Vleeschouwer, R. van Oostenbrugge, R. Rey (2019): “Budgettaire effecten van verhogen van het minimumloon”, SEOR BV, Rotterdam.

⁹⁵ For a description of the methodology, see Annex 4.

taken into account in the simulations, nor are impacts on company taxation. The magnitude of these effects is small, smaller or close to 0.1% of GDP, except in a few cases. Effects are somewhat larger in the case of higher hypothetical scenarios in Estonia, Germany, and Greece. Results may be sensitive to modelling assumptions.⁹⁶

Graph 27: Impact of hypothetical minimum-wage scenarios on public budgets, change in fiscal balance as % of GDP



Notes: European Commission (JRC) calculations based on simulations with the Euromod microsimulation model. Positive numbers reflect improvements in the public fiscal balance. Countries sorted alphabetically. Countries with minimum wages above 60% of the median wage were excluded.

7.3. Other impacts

Fundamental rights. All options should reinforce the application of Article 31 (‘Fair and just working conditions’) of the EU Charter of Fundamental Rights. As discussed under social impacts, improvements in minimum wage systems are expected to improve gender equality.

Administrative burden. The initiative is expected to have limited effects on administrative burden since it aims to strengthen institutions and procedures that are already in place. It may slightly increase administrative work related to the setting of statutory minimum wages in some Member States, with the aim to better involve social partners in the decision-making and to reduce the uncertainty about minimum wage changes for workers and firms. It may also increase administrative work related to monitoring and collecting information on minimum wage levels and coverage, as well as to ensuring compliance.

⁹⁶ For instance, these simulations find that increases in the minimum wage have a positive effect on the fiscal position in the Netherlands, while Zandvliet et al. (2019; see reference in the previous footnote), find that increased benefits expenditure, linked to the increase in minimum wages, would outweigh positive effects from tax revenue and would result in a negative overall effect on the public budget balance.

ANNEX 1: AN OVERVIEW OF MINIMUM WAGE SETTING SYSTEMS

A1.1. Minimum wage setting systems in Member States with collectively agreed minimum wages

In **Austria**, minimum levels of pay are set as part of social partners' collective bargaining agreements (CBAs) at the sectoral/industry level. Wage floors stipulated by collective agreements are legally binding for all companies in a given sector or industry as, by law, employers hold a mandatory membership at the relevant employers' association (WKO). In the public sector, de facto bargaining forms the basis for legal acts updating wages by common practice. The Federal Conciliation Office can also set legal wage floors for some groups not covered by CBAs. Moreover, social partners at the peak level have in recent years set framework agreements on raising wage floors across all sectors while pay-related bargaining between local trade unions and individual companies is confined to fringe benefits, incentives, etc. in most cases.

Cyprus has a mixed wage-setting system that combines collective bargaining with a statutory minimum wage for a few occupations. In the industrial relations system, collective bargaining levels alternate between industry/sector and company level. However, collective agreements are not legally binding and terms regulating pay and working conditions are only considered "gentlemen's agreements". By contrast, wage floors for selected occupations with "unreasonably low" salaries are regulated by ministerial decree, which had been introduced and was updated following non-binding social partner consultations until 2012. Since then, the complementary regulation of specific wage floors has remained unchanged.

In **Italy**, minimum levels of pay are set by two-tier collective agreements at the sectoral and company/territorial levels, regulated by civil law. While no legal extension of collective agreements exists, case law based on the Italian Constitution and current practices have led companies to apply collective agreements to non-unionised workers too. Wage setting occurs primarily at the multi-employer sectoral level, commonly between the most representative trade union organisations and employers' associations while pay-related bargaining at the company or territorial level is commonly confined to marginal issues, such as benefits and incentives.

In **Denmark**, wage floors are based on collective bargaining conducted voluntarily by the social partners with no legal extension mechanism for non-covered workers in place. Collective agreements that include wage floors have a legally binding force for both workers and companies. There are three wage setting systems: In the "standard-wage system", sectoral CBAs in the public and parts of the private sector determine wage levels with strict constraints on local bargaining. Other sectoral CBAs in the private sector allow workplace-level negotiations, either setting a wage floor for young/inexperienced workers and requiring individual supplements ("minimal wage system") or without wage floors and only serving as safety net to local negotiations ("minimum wage system").

In **Finland**, collectively agreed sectoral wage floor are encompassing thanks to a legal “erga omnes” clause set by the government. This extension mechanism extends CBAs from employer associations’ members, who directly implement the agreements signed by their respective confederations, to non-member companies within the same sector. In the few sectors without erga omnes applicability, law still requires wages to be “usual and reasonable”, which can be based on social partners’ recommendations.

In **Sweden**, two-tier collective bargaining sets wage floors primarily at the industry/sectoral level, leaving company-level discretion to varying degrees in practice. Industry/sectoral CBAs apply with binding force to both unionised and non-unionised workers of all member companies/organisations of a signatory employers’ association. There is no legal extension mechanism for non-covered workers in place, but unaffiliated employers can agree with company-level trade unions to abide by a sectoral CBA, which is observed in practice. The state’s function is to provide the legal basis for wage setting, assigning social partners broad rights, to play a consultative role through the National Mediation Office and to enforce CBAs.

A1.2. Summary of statutory national minimum wage setting systems

MS	Update mechanism		Frequency of updates	Timeliness of updates	SP Involvement
BE	Automatic indexation (prices), by law	<u>Automatic indexation</u> : if pivot index + 2 % over last base level, Δ MW based on the health index <u>Discretionary change</u> based on labour costs (wage norm)	within the framework of CAB: <u>Automatic indexation</u> : continuous through the year <u>Discretionary changes</u> : Bi-annual	In practice: entry into force (July)	SPs negotiate MW in binding collective bargaining agreements (still Gov discretion to adapt rules)
BG	Not specified by law	<u>Target</u> (in practice): MW level based on a fixed target level from Mid-Term Budget Forecast by the Ministry of Finance	Not specified	Not specified	SPs consulted in National Council for Tripartite Cooperation on non-binding basis
CZ	Variables by law and in practice plus targets in practice	<u>Variables</u> : wages and consumer price developments by law plus labour market developments in practice <u>Targets</u> : MW = 40% of average wages	Annual, in practice	Entry into force (January) by law	No involvement of SPs foreseen by law, unilateral decision by Gov possible
DE	Variables, by law	Wages and incomes (collective agreements), broad economic situation (competition, employment)	Bi-annual, by law	Start of the process (June) and entry into force (usually January), by law	SPs represented in MW Expert Body (MWC) making binding recommendation (still Gov discretion to implement)
EE	Variables and criteria, in practice	<u>Variables</u> : Δ MW = 2 * Δ labour productivity <u>Target</u> (lower limit): 40% of the projected national average wage; <u>Criteria</u> (upper limit): Δ MW2 * projected Δ real GDP growth	Annual, in practice	In practice: entry into force (January)	SPs negotiate MW in binding collective bargaining agreements (still discretion to increase)
IE	Variables, by law	Broad economic situation (e.g. employment, competitiveness), prices (cost of living), wages and incomes (changes in earnings)	Annual, in practice	Detailed calendar, by law	SPs represented in MW Expert Body (LPC) making non-binding recommendation (justification of deviation required)
EL	Variables, by law	Broad economic situation (e.g. employment, competitiveness), prices, wages and incomes	Annual, by law	Detailed calendar, by law	SPs express views to MW Expert Body (KEPE) making non-binding recommendation
ES	Variables, by law	Broad economic situation (e.g. productivity), prices (CPI), wages and incomes (e.g. labour share)	Annual, by law	In practice: entry into force (January)	SPs are directly consulted by Gov on no-binding basis
FR	Automatic indexation (prices and wages), by law	<u>Automatic indexation</u> : if CPI growth >2% since last MW update, Δ MW = 1/2 of Δ average hourly wage in pp; <u>Criteria</u> : MW growth (in PP) cannot be <50% of average wage growth (in PP) <u>Discretionary change</u> based on expert opinion and social partners agreement	Annual, by law (automatic indexation + discretionary change)	Entry into force (January), by law	SPs express views to MW Expert Body (GoE) making non-binding recommendation (justification for deviation required, discretion to increase)
HR	Variables and criteria, by law	<u>Variables</u> : Broad economic conditions (e.g. unemployment and employment), prices (inflation), wages and incomes <u>Target</u> : MW level cannot be lower than previous year	Annual, by law	Detailed calendar, by law	SPs consulted directly by Gov on non-binding basis
LV	Variables, by law	Broad economic and labour market situation (e.g. labour productivity, unemployment), prices (e.g. labour costs), wages and incomes (e.g. labour income)	Annual, by law	Detailed calendar, by law	SPs consulted in National Tripartite Cooperation Council on non-binding basis

MS	Update mechanism		Frequency of updates	Timeliness of updates	SP Involvement
LT	Variables by law plus targets in practice	<u>Variables</u> : Broad economic situation <u>Targets</u> : MW= 45-50% of average wages	Annual, by law	Start of the process (June) and entry into force (usually January), by law	SPs make binding recommendations in Tripartite Council, but unilateral Gov decision if no agreement
LU	Automatic indexation (prices), by practice plus discretionary changes, by law	<u>Automatic indexation</u> : if CPI + or -2.5% over last 6m <u>Discretionary change</u> based on economic conditions and wage developments	In practice: Automatic indexation every 6m By law: Discretionary changes: Bi-annual	Start of process (Gov report to Chamber of Deputies every 2 years), by law	No involvement of SPs foreseen by law, unilateral decision by Gov
HU	Variables, by law	Broad economic and labour market situation	Annual, by law	In practice: start of the process (second half of the year)	SPs consulted in National Economic and Social Council on non-binding basis
MT	Automatic indexation (prices) plus discretionary changes, by law	<u>Automatic indexation</u> : Cost of Living Allowance (retail price index) <u>Discretionary change</u> : broad economic situation (e.g. productivity), prices (labour costs), wages and incomes (e.g. collective agreements)	Annual, by law	Entry into force (January), by law	SPs consulted in tripartite Employment Relations Board on non-binding basis
NL	Automatic indexation (wages) plus discretionary changes, by law	<u>Automatic indexation</u> : 50% of wage growth (collectively bargained) + Δ predicted wage growth <u>Discretionary change</u> : broad economic situation (employment, social security costs)	Twice per year (Jan & July), by law	Entry into force (Jan & July), by law	No involvement of SPs foreseen by law, unilateral Gov decision (discretion to adapt indexation rules)
PL	Variables and target, by law	<u>Variable</u> : Broad economic and labour market situation (e.g. labour productivity), prices, wages and incomes <u>Target level</u> : MW = not less than 50% of average wages <u>Target change</u> : if MW < 50% of average wages, Δ MW= at least 2/3 of the forecasted nominal GDP growth	Annual (if inflation below 5%) or twice a year (Jan & July), by law	Detailed calendar, by law	SPs negotiate binding recommendation in tripartite Social Dialogue Council, but unilateral Gov decision if no agreement
PT	Variables, by law	Broad economic situation (productivity), prices (cost of living), wages and incomes (income and price policy)	Annual, by law	In practice: Entry into force (January)	SPs consulted in tripartite Permanent Commission for Social Concertation on non-binding basis
RO	Not specified by law	Not specified	Not specified	Not specified	SPs consulted in National Tripartite Council for Social Dialogue on non-binding basis
SI	Automatic indexation (prices) plus discretionary changes, by law	<u>Automatic indexation</u> : to costs of living; Criteria: min +20 % / max +40% [+taxes and social security] <u>Discretionary change</u> : Broad economic and labour market situation (e.g. economic growth, employment), prices, wages and incomes	Annual, by law (automatic indexation + discretionary change)	Entry into force (January), by law	SPs consulted directly by Gov on non-binding basis
SK	Variables and criteria, by law	<u>Variables</u> : Broad economic and labour market situation (e.g. employment), prices, wages and incomes <u>Criteria</u> : MW growth by at least by the year-on-year growth index of average nominal wages	Annual, by law	Detailed calendar, by law	SPs negotiate binding recommendations in tripartite Economic and Social Council (+ bilaterally), but unilateral Gov decision if no agreement

A1.3. Summary of exemptions from and variations in statutory national minimum wages

MS	Exemptions		Variations	
BE	Education/training related	Students in part-time learning schemes. Young people in dual training with a contract other than an employment contract.	Education/experience based	Student contracts (variations by age): 94% for 20 years old; 88% for 19 years old; 82% for 18 years old; 76% for 17 years old; 70% for 16 years old and below.
	Labour Market related	Employment embedded in a re-employment programme (local employment contract for long-term unemployed and regional re-employment programs).	Young people	76 % for 17 years old; 70 % for 16 years old and below.
	Public Sector	Civil Servants (pay covered by royal decree).		
	Family business	Workers, under supervision of guardian, in family business where normally relatives work.		
	Other	Workers employed for less than 1 month (e.g. seasonal labour in agriculture and horticulture). Peer-to-peer work (services to the local community and work for recognized digital platforms, local employment contracts).	Other	Workers in flexi-jobs (in catering and accommodation and retail firms): paid an hourly rate below the MW (9.27 EUR vs 9,68 EUR).
BG	NA	NA	NA	NA
CZ	Education/training related	Internships on a voluntary basis. Apprenticeships not based on a work contract.	NA	NA
	Public Sector	Civil servants whose pay is based on "tariff tables".		
DE	Education/training related	Interns in specific types of internships: (1) mandatory internships as part of secondary or tertiary education, such as vocational training or higher education; (2) short-term internships (< 3 months); (3) introductory training for "orientation". Young people under 18 years of age without a vocational certificate. Apprentices (governed by separate law).	NA	NA
	Labour Market related	Young people (below 25 years old) participating in subsidized work-based training programmes. Previous long-term unemployed (12+months unemployed) during the first six months after getting back to work).		
	Voluntary work	Forms of work are understood as serving the common good. Quasi volunteers (mini jobs).		
	Other	Some "employee-like relationships" for people with disabilities (e.g. in dedicated workshops). Home-workers (e.g. tele-working).		
EE	Public Sector	Civil servants (pay not regulated by Employment Contracts Act).	NA	NA
IE	Education/training related	People taking part in a statutory apprenticeship (except hairdressing apprentices).	Young people	76 % for 17 years old; 70 % for 16 year olds and below.
	Family business	Workers who are close relatives of the employer.		
	Other	Non-commercial activity or work by prisoners .		
EL	NA	NA	Education/experience based	Apprentices: (1) vocational higher education : 80 % of the national craftsmen minimum wage; (2) post-secondary, non-tertiary programmes 75% of the national craftsmen minimum wage,(3) hotels and other firms in tourism: 60 % for the duration of the season.
			Seasonal and domestic workers	Live-in domestic workers can be legally paid below the minimum wage (on the grounds that they receive food and lodging from their employer).
			Other	Variations between employees (skilled workers) and craftsmen (unskilled workers).

MS	Exemptions		Variations	
ES	Education/training related	Internships on "non-labour" contracts.	Education/experience based	Apprentices: 75 % during the first year of the contract and 85 % for the second and the third year for apprenticeships where a CBA does not exist.
	Public Sector	Civil servants (public official are excluded from the statute of workers).	Seasonal and domestic workers	Temporary/seasonal workers (max. 120 days) and domestic workers: Daily/Hourly rates, respectively, set below the general MW level.
	Voluntary work	Work carried out in friendship, benevolence or good neighbourliness .	People with disabilities	Persons with disabilities working on "low performance contracts": minimum 75% of the MW.
	Other	Regional exemptions are set for the autonomous cities of Ceuta and Melilla Commercial or mercantile agents (governed by commercial law).		
FR	Other	Sales representatives: their working time cannot be controlled. Other provisions apply.	Education/experience based	Experienced-based: if less than 6 months experience in a sector: 80% for 15 or 16 yrs old; 90% for 17 yrs old. Apprentices: (1) initial education (contract d'apprentissage), 25%-78% (depending on age and experience); (2) continuous training "contrat de professionalization" and less than 26 years old, 55%-85% (depending on age and experience).
			Other	Mayotte overseas department: specific (lower) MW rate applies (EUR 7.57 per hour vs EUR 10.03 in FR).
	Labour Market related	Participants in the ALMPs measure "Traineeship for work without employment (SOR)" (no employment contract).	Other	By way of derogation, a collective agreement may set a minimum wage below the one stipulated by the government decree. These wages cannot be below 95 % of the prescribed minimum wage.
	Other	Micro-employers (Solo self-employed, who are the sole employee).		
LV	Public Sector	Employees of State and local government authorities (covered by a separate law).	NA	NA
LT	Public Sector	Civil servants (remuneration is regulated by separate laws).	NA	NA
LU	NA	NA	Young people	70% for under 18 years old; 80% for 18 years old 90% for 19 years old.
HU	NA	NA	Other	Workers in the Public Works Scheme (59.1% of MW).
MT	NA	NA	Young people	95% for below 17 years old; 96% for 17 years old.
NL	Public Sector	Certain civil servants (military, police, judiciary).	Young people	30-40% for 15-17 years old; 50% for 18 years old; 60% for 19 years old; 80% for 20 years old.
PL	Other	People providing certain care services (foster / family home activities and family assistance home, home care services, during leisure activities or excursions).	NA	NA
PT	NA	NA	Education/experience based	Apprentices, trainees or workers in training (length of variation depends on qualification): 80% for up to 1 year.
			People with disabilities	50 - 90 % depending on coefficient of capacity to work.
RO	NA	NA	NA	NA
SI	NA	NA	NA	NA
SK	NA	NA	NA	NA

ANNEX 2: INDICATORS OF MINIMUM WAGE ADEQUACY

Table A2.1: Indicators of minimum wage adequacy: advantages, disadvantages and data issues

Indicator	Advantages	Disadvantages	Data issues
The gross minimum wage as a ratio to the gross median wage	<p>Widely used indicator to compare minimum wages across countries. It is preferred by some analysts (including the OECD) to the average wage. In addition, one social partner organisation (ETUC) included it as part of its preferred framework to monitor the adequacy of minimum wages.</p> <p>As opposed to the average wage, the median wage is not affected by top incomes. For this reason this is a more direct indicator of wage inequality (and wage compression) in the bottom half of the wage distribution which may be driven by other factors than inequality at the top. For this reason, this indicator may also be more directly linked with possible effects on employment and competitiveness than others.</p> <p>Is not affected by the tax and benefit system.</p>	<p>Does not take into account wage inequality in the top half of the wage distribution. Therefore, policy based on this indicator (as opposed to the comparison with the average wage) may allow the minimum wage to lag behind aggregate wage developments when wage inequality at the top increases.</p> <p>Does not take into account the take-home pay of minimum wage earners.</p>	<p>Eurostat data on this ratio are incomplete, while OECD Statistics does not include all EU Member States.</p> <p>The median wage can be estimated from earnings surveys. The Structure of Earnings Survey, commonly used for this purpose, excludes firms with fewer than 10 employees and is conducted every four years. A common definition needs to clarify whether the median is calculated for monthly or hourly wages, of all or only full-time workers, and over which sectors.</p>

<p>The gross minimum wage as a ratio to the gross average wage</p>	<p>Widely used indicator to compare minimum wages across countries.</p> <p>In four Member States (Czechia, Estonia, Lithuania and Poland), targets have been formulated in terms of the average wage.</p> <p>Since the average takes into account wage developments of all workers, it may provide a stronger protection of low-wage earners than comparing minimum wages to the median, especially in countries with high (or increasing) wage inequality.</p> <p>Is not affected by taxes and benefits.</p>	<p>As it is affected by wage developments at the top, it may be less sensitive an indicator of possible effects on employment and competitiveness than the comparison to the median wage.</p> <p>Does not take into account the take-home pay of minimum wage earners.</p>	<p>Eurostat data on this ratio are slightly incomplete, while OECD Statistics does not include all EU Member States.</p> <p>The average wage can be estimated in a number of ways, including from National Accounts data or from earnings surveys. For a common definition, this basic approach needs to be decided; If the common definition is based on survey data, the same data issues apply as in the case of the comparison of the median.</p>
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<p>The net minimum wage⁹⁷ as a ratio to net median household income</p>	<p>Takes into account the take-home pay of workers.</p> <p>Has a clear link with preventing in-work poverty (for single workers).</p>	<p>The indicator is significantly affected by labour taxation and (especially in-work) benefits.</p> <p>Does not allow to assess whether other household types are protected against in-work poverty (e.g. single parents).</p> <p>Avoiding in-work poverty is seen by some stakeholders as not ambitious.</p>	<p>Calculating this indicator relies on commonly agreed tax-benefit models (e.g. the OECD tax-benefit model or Euromod).</p>
<p>The net minimum wage as a ratio to the net average wage</p>	<p>Is used by the Council of Europe to monitor the right to a “fair remuneration sufficient for a decent standard of living”.</p> <p>Takes into account the take-home pay of workers.</p>	<p>The indicator is significantly affected by labour taxation and (especially in-work) benefits.</p> <p>The focus on the single worker means that the situation of other workers in other situations is disregarded.</p>	

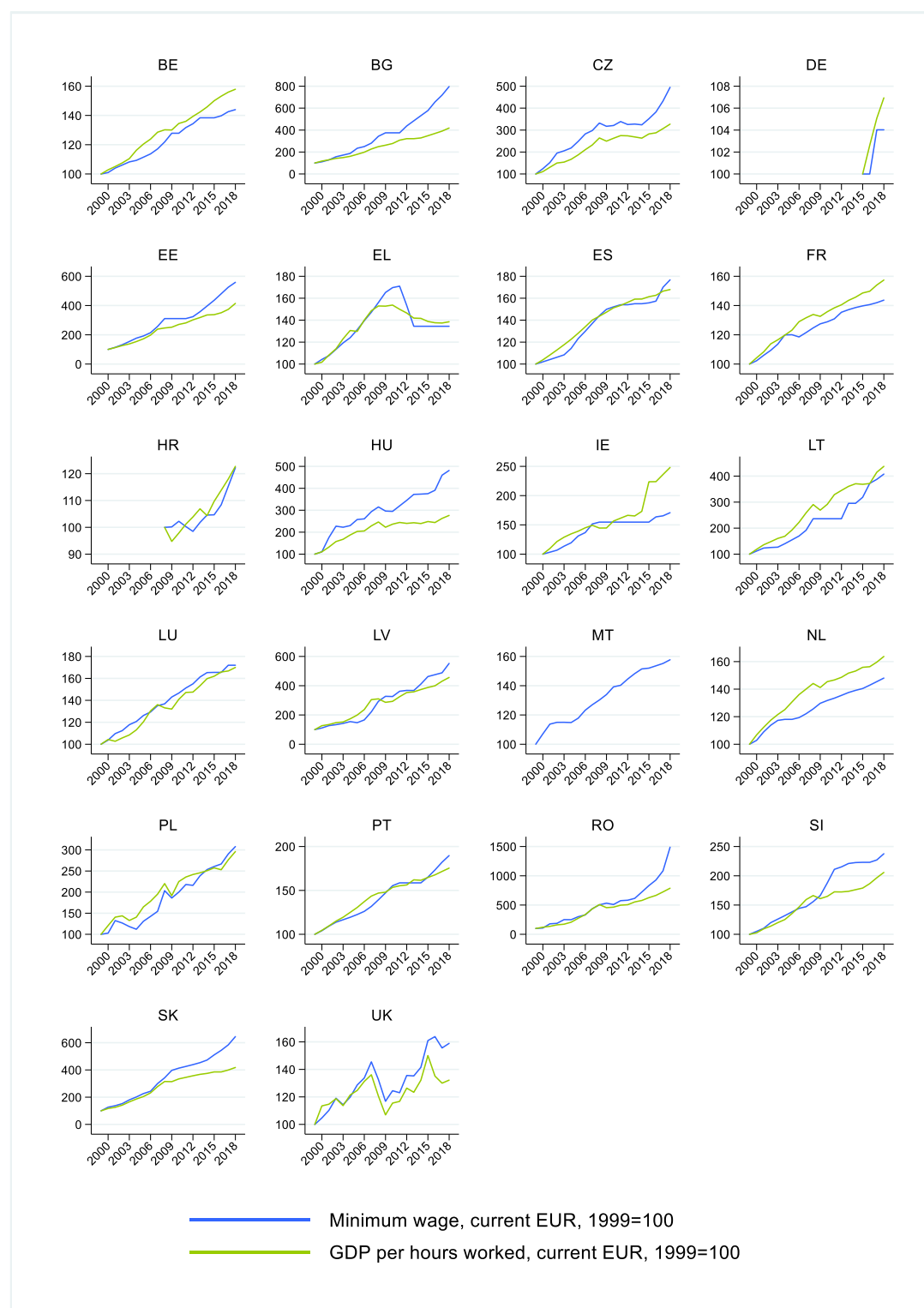
⁹⁷ The “net minimum wage” is statistically more precisely defined as the net income of a single full-time worker, without children, earning the minimum wage.

<p>A common definition of a “living wage”</p>	<p>May support a stronger convergence of minimum wages in nominal terms than other indicators.</p> <p>Takes into account take-home pay of workers.</p>	<p>Has not been developed for the EU, for significant data issues.</p> <p>A socially acceptable minimum decent living standard in one country may be above or below what is socially acceptable in another country.</p> <p>Since the living wage is about net income, the indicator would significantly be affected by labour taxation and (especially in-work) benefits.</p> <p>May not sufficiently take into account the level of development of each economy. A “living wage” which is meaningful in higher-wage countries would likely be translated to a very high wage in lower-wage countries, despite the lower prices in these countries. Thus, this approach would likely not safeguard “access to employment” in some low-wage Member States.</p>	<p>Any definition would need to be based on a typical household type, or a mix of these.</p> <p>Defining a common concept for a living wage requires a common (or nearly common) basket of goods necessary for a decent living in various countries. This has not been done to date and may be challenging due to the differences across countries in terms of needs (including climate, customs, etc.) .</p>
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National definitions of a decent wage or living wage	<p>Would take into account take-home pay of workers.</p> <p>May allow to take into account national specificities and the level of economic development.</p>	<p>National definitions would be different, not fully comparable.</p> <p>Since the living wage is about net income, the indicator would significantly be affected by labour taxation and (especially in-work) benefits.</p>	Would require work to define these at the national level.
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ANNEX 3: STATUTORY MINIMUM WAGES AND LABOUR PRODUCTIVITY, 1999-2018

Graph A3.1: Statutory minimum wages and labour productivity in EU Member States, 1999-2018, 1999=100



Note: Both variables expressed as index numbers: 1999 = 100, except for Estonia and Ireland (2000=100), Croatia (2008=100) and Germany (2015=100). Both indices were created based on variables expressed in current euro.

Source: European Commission calculations based on Eurostat and AMECO data.

ANNEX 4: METHODOLOGY OF SIMULATIONS PRESENTED

Results presented in Box 2 have been obtained by microsimulation analysis using the Euromod model. Euromod is a unique microsimulation model for the European Union that allows to: assess the distributional, inequality and poverty effects of real or hypothetical reforms in a comparative way across EU countries.

Euromod allows to account for the interactions between minimum wages and the tax-benefit system. For each individual in the data, tax liabilities and social benefit entitlements are simulated according to the laws of each country. Disposable income is calculated by adding benefits and detracting taxes from gross income of each individual. The tax-benefit systems simulated in this research refers to those in place as of 30 June 2019, while the underlying data come from EU-SILC 2017 (reference income of 2016). In some countries, data are enriched by country-specific data sources. Wages (and all other monetary variables) are uprated to account for changes between the date of input data (2017) and 2019. EU-SILC is representative for the national population.

For computational reasons, the assignment of hypothetical minimum wages is done on an hourly basis. For that, observed wages and hypothetical minimum wages (HMW) are converted to hourly levels. To this end, monthly HMW are divided by the average number of weeks in a calendar month and the median hours of work by full-time workers (which differ by country). Furthermore, to obtain gross hourly wages based on observed data, yearly earnings of employees are divided by the number of months and hours of work. To simulate the hypothetical scenarios, hourly earnings thus computed are increased to the HMW when they are lower than the hourly HMW. The income of all non-employees, or employees identified as outliers, remains unchanged.

Possible measurement error in working hours is addressed by an outlier detection technique. The working time considered in the calculation of observed hourly wages contains two elements: weekly working hours and months worked per year. These two elements are measured in EU-SILC based on a different time period: the number of months in work are reported for the year preceding the survey (which is the income reference year; in this case 2016) while weekly working hours refer to regular working hours reported in the week the survey was taken (in this case, in 2017). This may cause a measurement error in calculating hourly wages if individuals change the amount of working hours from one year to the other. In general, the presence of measurement error in the calculation of hourly wages increases the variance of the wage distribution and therefore the incidence of low wages. As a consequence, the data might overestimate the presence of low-wage earners, which in turn can lead to an overestimation of the potential effect of a minimum wage policy. For this reason, to identify the outliers among hourly wages, we use the inter-quantile range technique.

In some cases, information about the actual working time needs to be corrected or imputed because of data issues. For some individuals, there is information on earnings and months of work but not on working hours. For this missing information, we impute

the working hours by using information on gender-specific median hours and workers' history of full-time and part-time employment.⁹⁸ In addition, following EU's Working Time Directive, we cap the working time for which a HMW is assigned to 48 hours per week.

⁹⁸ This methodology has been proposed by Brandolini, A., Rosolia, A. and Torrini, R. (2010), 'The distribution of employees' labour earnings in the European union: Data, concepts and first results', in Atkinson, A. B. and Marlier, E. (eds.), *Income and Living conditions in Europe*, Eurostat Statistical Books, Publications Office of the European Union, Luxembourg.