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The dynamism of the new economy: Non-standard employment and access to social security in EU-28

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Sonja Avlijaš *

Abstract

This paper examines the prevalence of non-standard workers in EU-28, rules for accessing social security, and these workers' risk of not being able to access it. It focuses on temporary and part-time workers, and the self-employed, and offers a particularly detailed analysis of their access to unemployment benefits. It focuses on eligibility, adequacy (net income replacement rates) and identifies those workers which are at the greatest risk of either not receiving benefits or receiving low benefits. It offers a special overview of foreign non-standard workers, who may be particularly vulnerable due to the absence of citizenship in the host country. The paper also analyses access to maternity and sickness benefits for these three groups of workers, as well as their access to pensions. Its key contribution is in bringing together the different dimensions of disadvantage that non-standard workers face vis-à-vis access to social protection. This allows us to comprehensively assess the adaptation of national social security systems across EU-28 to the changing world of work over the past 10 years. The paper shows that there is a lot of variation between the Member States, both in the structure of their social security systems, as well as the prevalence of non-standard work. Most notably, the paper concludes that: i) access to unemployment benefits is the most challenging component of welfare state provision for people in non-standard employment; ii) policy reforms vis-à-vis access to social benefits have improved the status of non-standard workers in several countries, while they have worsened it in others, particularly in Bulgaria, Ireland and Latvia; iii) some Eastern European countries can offer lessons to other Member States due to their experiences with labour market challenges during transition and the subsequent adaptations of their social security systems to greater labour market flexibility. The paper also implies that a country's policy towards non-standard work cannot be examined in isolation from its labour market conditions, as well as its growth model, and that uniform policy solutions for non-standard work cannot be applied across EU-28.

Keywords: non-standard workers, new economy, social security, unemployment benefit, maternity benefit, sickness benefit, income replacement

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The dynamism of the new economy: Non-standard employment and access to social security in EU-28

1. Introduction

Non-standard employment has been growing across the EU as the industrial era ended and the expansion of employment in the service economy started taking place over the past 30 years. Job loss in industry has been taking place both due to the displacement of industrial production to parts of the world with cheaper labour, and automation of industrial work. At the same time, growing employment in the service economy has come hand in hand with the expansion of information and communication technology (ICT) and the onset of the so-called digital era. According to Eurofund (2015), this new era of expanded employment, mostly in services, has been characterised by an increase in the more flexible work arrangements, such as employee and job sharing arrangements, casual work, ICT-based mobile work, voucher-based work and collaborative employment.

Standard economic theory suggests that services are less productive than manufacturing, and that wages in the service economy are necessarily lower than wages in manufacturing. This is because a traditional service worker cannot service more than one client at once without decreasing the overall quality of their work, while technological progress in industry can substantially increase a worker's output and thus their wages. Emergence of the ICT and knowledge-based economic model has

changed this traditional perspective on the potential of the service economy. The 'utopian vision' that has emerged around these new developments is that growing educational attainment which has been taking place across the EU, along with an increase in flexible, ICT-based, work arrangements can increase the productivity of service work, and thus lead to better quality jobs and higher wages.

Yet, and especially since the 2008 economic crisis, this de-standardisation of employment relations away from typical wage work has resulted in growing social resistance because of the social costs that such employment forms entail in practice. Some of the main issues that have emerged along with the growth of non-standard jobs are: low pay, periodic income insecurity due to the intermittent nature of these new work arrangements, as well as other forms of precariousness, such as poor access to social benefits and protection from accidents at work, and to housing due to absence of regular income.

According to the EU Labour Force Survey, which is the basis for this paper, 12.1% of EU-28 employees in 2016 worked on temporary contracts, 19.5% were in part-time work, and 14% self-employed. There are, however, important variations between the Member States, so that the share of temporary in total employment varies between almost non-existent in some countries (Romania and Lithuania), and goes up to 22% in others (Spain and Poland) (Figure 1). Part-time employment is also almost non-existent in countries such as Bulgaria and Hungary, while it goes up to 50% of total employment in the Netherlands (Figure 2). Finally, self-employment is as low as 8% of total employment in Sweden and Denmark, while it goes up to 30% of total employment in Greece (Figure 3).

Furthermore, alternative surveys indicate that official EU statistics underestimate the size and the scope of non-standard employment, since they do not account for those who resort to casual work to supplement their incomes. For example, Manyika et al. (2016) indicate that in Spain, 15% of the population are deemed independent earners according to official statistics, while McKinsey's own survey estimates them to be at

25%. Similarly, in the UK, the official statistics point to a figure of about 14% of the population, while the McKinsey survey that Manyika et al. (2016) administered reached an estimate of 26%. Whichever the source of the data, it appears evident that non-standard work is a significant and growing phenomenon in the context of EU labour markets.

In this context, two things are becoming evident. **First, adequate and responsive welfare states are necessary in the Member States,** if the EU is to ensure a successful transition towards the more flexible ICT and knowledge-based economic model and away from the traditional employer-to-employee relationship which characterised the industrial era. In other words, adequate provision of social benefits to those in non-standard employment should be viewed as an essential input which would underpin and encourage this new knowledge-based model of growth by boosting the productivity of the labour force, rather than a cost that would burden and stall it. At the same time, as shown in this paper, each Member State has its own challenges related to labour market restructuring, and different welfare state structures.

Second, it is essential to understand that not all non-standard work can be associated with the rise of the knowledge economy, since much of it still affects the least educated and the most vulnerable parts of the population, who turn to self-employment and other unstable work arrangements as last-resort employment strategies. In fact, as Fernandez-Macias (2012) shows, a number of EU countries have experienced a polarisation of their labour market between 1995 and 2007, which is reflected in an increase in both low quality and high quality jobs and the hollowing out of the middle quality jobs. He identifies this trend in the Netherlands, France, Germany, Belgium and the United Kingdom. On the other hand, countries such as Finland, Luxemburg, Denmark, Sweden and Ireland have seen an overall upgrading of the labour market towards better paid jobs, while countries such as Italy, Spain, Portugal, Greece and Austria have seen mid-upgrading, defined as the opposite of polarisation — both top

pay and bottom pay jobs have started converging towards the middle.¹ Although Fernandez-Macias (2012) does not focus on non-standard employment only, his findings have significant implications for this paper, since we can expect that access to social security benefits for those in non-standard employment would be of particular concern for countries which have seen an increase in job polarisation, i.e. a rise in the low paying jobs, whereas this issue would be of lesser concern in countries which have experienced job upgrading, such as Finland and Denmark. Eurofund (2015) findings also support these insights, by showing significant variations in the main reasons for self-employment across the Member States. In the more developed countries, high shares of the self-employed are in this status due to personal preferences (e.g. 86% in Sweden, 81% in Denmark, 77% in the UK), while their share is significantly lower in the less developed countries (e.g. 48% in Greece, 45% in Portugal, 38% in Hungary), while they are more likely to have no other alternatives for work (p.23).

While non-standard forms of employment can lower entry barriers to the labour market and facilitate more adequate working arrangements in the context of the new knowledge-based economy, access to social security and protection of workers in these forms of employment across the EU is less than certain and clear. Understanding whether and in what format social security is accessible to those in non-standard employment is therefore the key concern of this paper. As an illustration of the prevalence of this issue, Forde et al. (2017) estimate, based on 50 interviews with expert stakeholders in the platform economy across eight EU countries (Bulgaria, Denmark, France, Germany, Italy, Poland, Spain, UK), as well as an original survey of 1,200 platform economy workers, that 22.6% of those working in the platform economy² do not have any access to healthcare, while 47% do not have access to sickness benefits,

¹ Eastern European Member States are not included in this analysis.

² An original survey was developed and distributed to 1,200 platform workers across four established online platforms: Amazon Mechanical Turk (AMT), Clickworker; CrowdFlower; and Microworkers.

60.6% to disability, 69.5% to pregnancy related benefits, and 63.1% to unemployment benefits.

Driven by such concerns, this paper analyses the extent to which people in non-standard employment across the Member States are eligible for, and adequately covered by, social security benefits. Since data availability determines the categories of employment that can be analysed, we define non-standard employment as consisting of part-time jobs, fixed-term or temporary contracts,³ and self-employment.⁴ Within the category of self-employment, a distinction is made between own-account workers and the self-employed with employees, while the structure of this employment category is also analysed along the lines of gender, economic sector and level of education.

Specifically, the aim of this paper is to identify differences in the eligibility for and adequacy of social security benefits for non-standard workers among the Member States, as well as to estimate the shares of workers who are at risk of not being (adequately) covered by them. We primarily focus on unemployment benefits (UB), maternity and sickness benefits, and pensions.⁵ Nevertheless, the analysis of income replacement adequacy also takes into account additional social security benefits that an individual is eligible for in case of unemployment.

The paper combines different data and triangulates them to produce the most policy relevant assessment of access to benefits for those in non-standard employment in EU-28. We rely on the following sources: the European Union Labour Force Survey (EU LFS), Mutual Information System on Social Protection (MISSOC) database, European Social Policy Network (ESPN) 2016/17 country reports, the ESPN 2017 synthetic report

³ including contract with a temporary employment agency

⁴ This definition has been taken over from the Social Situation Monitor (SSM) Research note 8/2015 to ensure comparability between the studies.

⁵ Following the approach from the SSM Research note 8/2015, to ensure comparability between the studies.

on all Member States (Spasova et al, 2017), and the OECD Tax and Benefits Calculator. In the analysis of structure of non-standard employment over time, 2002 is used as the start year, since earlier LFS data is not available for Croatia. 2016 is the last year for which the data on employment is available. The analysis of policy reforms over time focuses on the period between 2007 and 2017, as determined by data availability.

While the paper is not directly concerned with platform workers, but with a broader category of non-standard workers (temporary, part-time and the self-employed) for whom official statistical data are available in all 28 EU Member States, platform work is part of non-standard employment. Therefore, the analysis of social security systems that this paper offers can have useful insights on the adequacy of social security systems for all categories in non-standard employment, and whether and how they have evolved over time.

The paper adheres to the following structure. The next section briefly discusses the structure of temporary and part-time employment, and self-employment in 2016 and reflects on how trends have changed since 2002. Section 3 analyses eligibility for unemployment benefits, first of temporary and part-time employees, and then of the self-employed. Section 4 presents net income replacement rates in case of unemployment, while Section 5 examines the different categories of workers at risk of not receiving UB. Section 6 focuses on maternity and sickness benefits, as well as pensions, while Section 6 offers some concluding remarks.

2. Prevalence of non-standard employment in EU-28

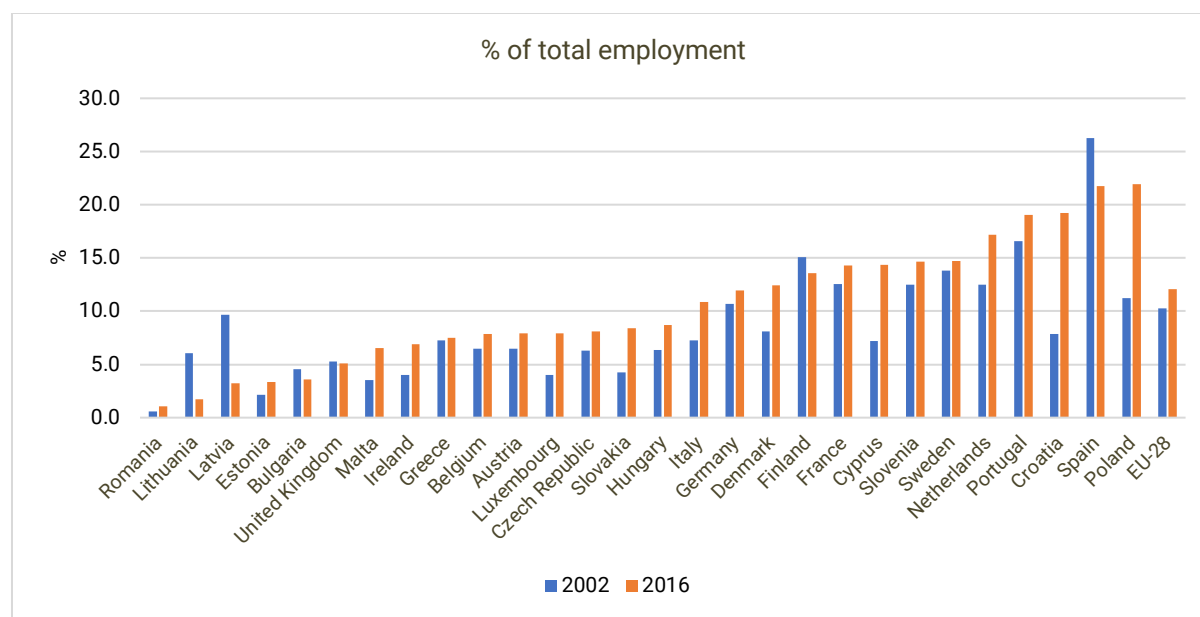
This section shows data on the prevalence of temporary and part-time work in 2016 in comparison to 2002, as well as prevalence of self-employment for the same period of observation. A separate analysis of the three groups of non-standard workers can help us to throw light on the specific sources of risk based on which an individual is not able to access (adequate) social benefits. In other words, we can examine the specific vulnerabilities related to social security that stem from being part of a specific

category of workers. These sources of risk can then be combined to gain a fuller picture on the share of employees who are exposed to more than one type of risk when accessing benefits (e.g. a temporary part-time worker, or a part-time self-employed).

2.1 Temporary and part-time workers

Figure 1 shows changes in the share of temporary employees in total employment across the Member States between 2002 and 2016. Its prevalence has grown in most countries during the period of observation. We see the most significant increases in temporary employment in Croatia and Poland, where this category of workers has increased by approximately 12 percentage points (pp) over the 14 years. At 21.9% of total employment in 2016, Poland also has the highest incidence of temporary employment in the EU, closely followed by Spain, Croatia and Portugal. These four countries also had the highest incidence of foreigners among temporary employees in 2016 (see Table 13), which may be linked to the fact that they are important tourist destinations with substantial seasonal variation in employment levels (Poland, on the other hand, is the biggest agricultural employer in the EU, which is also a highly seasonal sector). A very similar cross-country distribution emerges when we look at temporary employment in 2016 by gender (see Figure A1 in the Appendix). This indicates that temporary employment is not a discriminatory strategy that is limited to specific sectors of the economy (e.g. to the more female-labour intensive sectors), but that it is a strategy which employers in some countries use across the board to cope with either higher labour market restrictions for permanent workers or greater demand for flexible employment in the digital era.

Figure 1. Temporary employment in EU-28, 2002 vs 2016



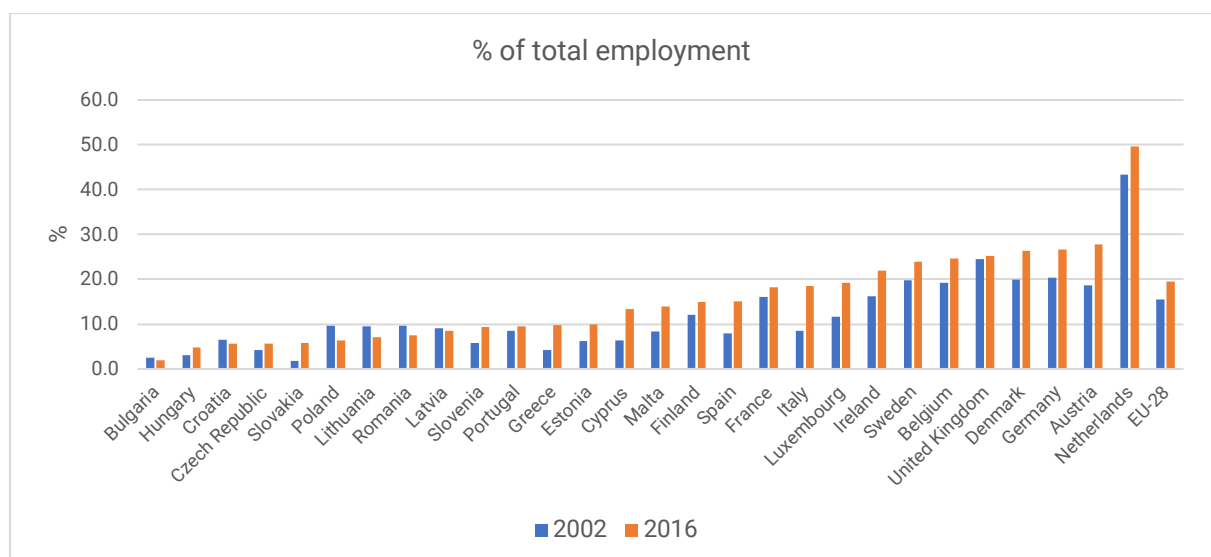
Source: Own calculations from LFS data, Eurostat.

Note: All the data refers to the working age population (15-64).

Some Member States which have low incidence of temporary employment also have least restrictions on the protection of permanent workers against individual dismissal, according to the 2013 *OECD Indicators on Employment Protection Legislation*. These are countries such as the United Kingdom, Hungary, Ireland, Estonia and Slovakia. This indicates that in certain contexts the prevalence of temporary employment contracts may be linked to the flexibility of firing and hiring practices in a country. Countries with more rigid labour market legislation for permanent workers may have a greater need for temporary work contracts. It is thus important to keep in mind that permanent workers in countries with very flexible labour markets may be in as high of a risk of loss of employment as individuals on temporary contracts in some of the countries with the more rigid labour markets. Examining social security coverage for *all* workers in countries with high labour market flexibility may therefore be as important as understanding the coverage of temporary workers in some of the less flexible labour markets in the EU. In other words, distinction between non-standard and standard employment in these countries may be less pertinent.

While around 20% of the labour force in EU-28 works part-time, there are substantial variations between the Member States, as such employment practices are also linked to the structure of a country's labour market. All 10 Eastern European Member States have a very low incidence of part-time employment, for example. This indicates that a desire for a secure job is prevalent in the region, while part-time work represents an individual employment strategy for those with a disability or in retirement. On the other hand, part-time work, especially among women, in continental Western European countries, is often used as a means of balancing work and family responsibilities. This is reflected in a much higher incidence of part-time work among women in Western Europe than among men (see Figure A2 in the Appendix). This is most notably the case in the Netherlands, where 49.7% of all employment in 2016 was part-time (Figure 2), while 76.4% of all employed women worked part-time (Figure A2 in the Appendix). United Kingdom also had a high prevalence of female part-time work (40.8% in 2016), most likely due to very expensive child care services coupled by a highly flexible labour market.

Figure 2. Part-time employment in EU-28, 2002 vs 2016



Source: Own calculations from LFS data, Eurostat.

Note: All the data refers to the working age population (15-64).

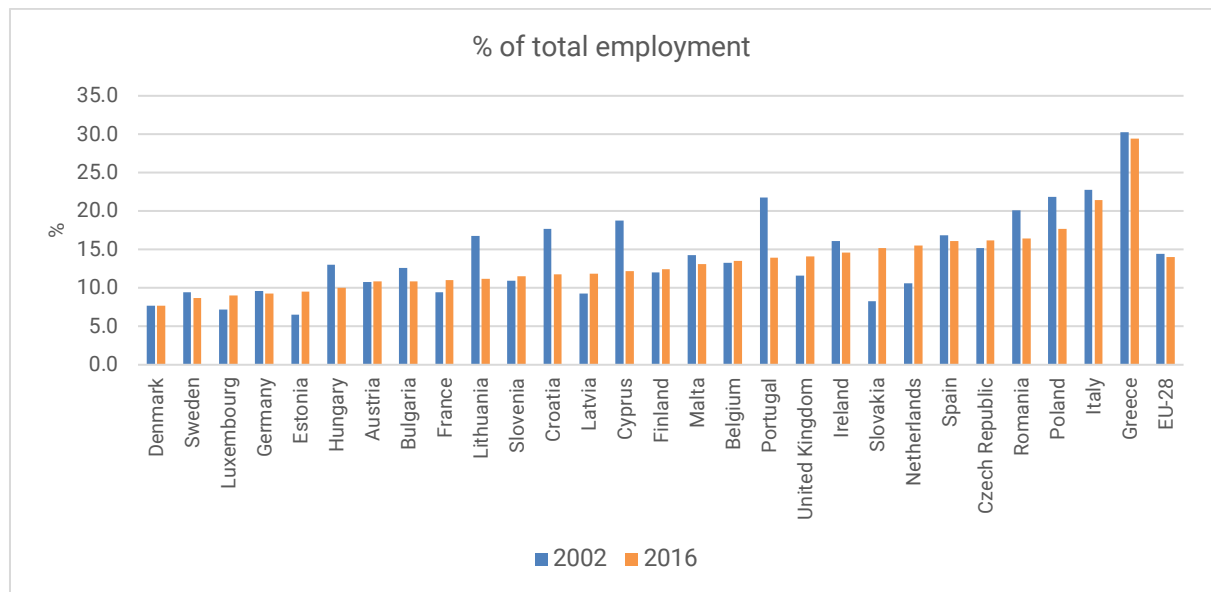
2.2 Self-employed workers

A more ambiguous picture emerges when we look at the changes in self-employment trends between 2002 and 2016. In most Member States, the share of self-employment in total employment has either remained stagnant or decreased over time and it is therefore not a new phenomenon. We see the most significant decreases in Lithuania, Croatia, Cyprus and Portugal. This trend could be associated with a reduction of self-employment in subsistence agriculture, as technology improves in the countryside and growing numbers of people move into urban areas. A notable expansion of self-employment has taken place only in Slovakia and The Netherlands (6.9pp and 4.9pp respectively), along with a growing share of own-account workers in this employment cohort (see Tables 9 and 11). Moreover, the self-employment status contains a lot of variation, since this category includes precarious farm work (common in Croatia, Romania and Poland), low skill own-account workers which are often shop keepers (common in the Czech Republic, Cyprus, Italy, Slovakia and the United Kingdom) as well as the self-employed with tertiary education which are likely selling knowledge based services (common in Luxemburg, Estonia and Ireland).

While we do not see significant increases in self-employment during the observed period, the analysis of specific risk groups among the self-employed (e.g. those working in agriculture, or those without tertiary education) in section 3.5 indicates that the self-employment category has seen significant churning in several Member States. Characteristics of the self-employed were very different in 2002 and 2016. Estonia represents an interesting case in this respect, as its overall share of self-employment in total employment has increased by only 3pp between 2002 and 2016, but the country has seen significant changes in the socio-economic structure of its self-employed population. Farm work has dropped by more than 15pp, while those with tertiary education in self-employment have grown by over 15pp, and those in self-employment with employees have also grown by 13pp (see Table 7). It therefore appears that self-employment in Estonia in 2002 was a more precarious employment category than this was the case in 2016. This is not surprising as Estonia has been at

the forefront of the ICT revolution and has invested substantial resources towards activation of new entrepreneurs. In such countries, we can expect to see further growth of 'higher quality' (defined by higher skills and higher wages) self-employment in the years to come, while some of the other countries may continue to struggle with self-employment as a last-resort employment strategy.

Figure 3. Self-employment in EU-28, 2002 vs 2016



Source: Own calculations from LFS data, Eurostat.

Note: All the data refers to the working age population (15-64).

3. Unemployment benefits (UB)

3.1 Eligibility of temporary and part-time workers

While temporary and part-time workers are equally eligible for the contributions-based UB as the permanent and full-time workers in all Member States, they are in practice less likely to fulfil the eligibility criteria. It may be more challenging for temporary workers to meet the minimum period of contributions payment requirement, since their contracts may not last long enough. In addition, some Member States also have requirements on the total amount of annual contributions or the total

number of hours worked (Poland, Cyprus, Denmark, Finland, Sweden and the UK), which may be more difficult to fulfil for part-time workers.

While obligatory contributions payment periods vary among the countries, the most common requirement is 12 months of contributions in the 2-3 years prior to the incidence of unemployment (see Table 2 below). The two countries with the highest contributions requirement of 24 months are Slovakia and the United Kingdom, but they also have certain advantages in place for the more precarious workers. Slovakia has a less stringent contributions requirement for temporary workers, for whom they require 24 months of contributions during the last four instead of the last three years. In the UK, those who become unemployed but do not fulfil the eligibility requirements for the UB are eligible for a means-tested⁶ non-contributions based UB (i.e. the Jobseekers Allowance – JSA), which offers the same net income replacement rate as the contributions based UB⁷. In fact, only 14% of all claimants in the UK receive JSA based on their contributions, while the rest receive it based on their low income (Bradshaw and Bennett, 2017). Table 4 offers a succinct overview of all these UB eligibility criteria.

Exceptions which facilitate access to UB for the disadvantaged groups in case of unemployment are in place in several countries. In the Czech Republic, the 12-months requirement can also be completed by substitute periods of employment (e.g. personal care of a child). Slovenia has a lower requirement of 6 instead of 9 months of contributions for persons younger than 30 years, Belgium adjusts the compulsory contributions period according to age, while Austria requires only 6 months in previous 12 months for those under 25. It is also possible in Austria to claim Unemployment assistance (*Notstandshilfe*), once the right to Unemployment benefit (*Arbeitslosengeld*) has been exhausted. In Portugal, a person can claim a means-tested Unemployment assistance after 180 days of employment in the 12 months

⁶ One's savings, as well as partners' earnings are taken into consideration.

⁷ The only difference is that those who have paid contributions do not have to get means tested.

preceding commencement of unemployment, in case they do not fulfil the criterion of 12 months in the previous 24 months required for Unemployment insurance. In Lithuania, those who have been dismissed for no fault of their own or because of circumstances beyond their control or the employer going bankrupt, and those who have completed the compulsory initial or alternative military service, or have been released from it, can qualify for UB without fulfilling the 12-months criterion. France also has a special flat rate Unemployment assistance (*régime de solidarité*) for those who do not qualify for the regular benefit, while Italy has special means-tested eligibility criteria for those aged above 55 years with dependent children who do not qualify for UB. Finally, Nordic EU Member States (Finland, Sweden, Denmark) have minimum income schemes for those who do not fulfil the eligibility criteria for UB, so their relatively long contributions requirements do not represent a practical impediment for non-standard workers. These different criteria are also summarised in Table 4 below, along with an overview of net income replacement rates.

Finally, some Member States have restrictions on minimum amounts of contributions or hours of work required during the period of compulsory contributions payment. This may be an impediment for part-time workers, who are less likely to fulfil those criteria. Poland requires that monthly earnings are equal to or greater than the national minimum wage to qualify for UB. Cyprus also requires a minimum which is equal to at least 26 times the weekly Basic Insurable Earnings, while Denmark requires a minimum number of hours corresponding to full-time employment during one year. Finland requires at least 18 hours per week, while Sweden requires at least 80 hours of work per month. Finally, in the UK one is required to pay contributions at least 50 minimum weekly contributions⁸ for that year to qualify for the contributions-based UB.

⁸ This requirement is, however, very low at £113 per week for 2017/18, or around 1/5th of the average weekly salary.

3.2 Eligibility of self-employed workers

In several Member States, UB eligibility is substantially more problematic for the self-employed workers than for those on non-standard contracts with an employer. In Table 1, countries are grouped according to the type of unemployment insurance that is available to the self-employed. Nine countries do not have any scheme for the self-employed, while only eight countries have compulsory insurance for the self-employed, although their contributions criteria may differ from those for employees.

Table 1.

Countries by type of unemployment insurance for the self-employed

Compulsory insurance (8 countries): Czech Republic, Croatia, Finland, Hungary, Luxemburg, Portugal, Slovenia, Sweden	Partial insurance (7 countries): Denmark, Estonia, Greece, Ireland, Lithuania, Poland, United Kingdom
Voluntary opt-in (4 countries): Austria, Slovakia, Spain, Romania	No insurance (9 countries): Belgium, Bulgaria, Cyprus, France, Germany, Italy, Latvia, Malta, Netherlands

Source: Based on MISSOC database (1 January 2017 version) and ESPN 2016/17 country reports.

The differences between the four groups of countries are discussed in greater detail below.

Compulsory insurance: Czech Republic, Croatia, Finland, Hungary, Luxemburg, Portugal, Slovenia and Sweden.

Eligibility conditions for the self-employed are stricter in some countries than for employees. Finland requires at least 15 months of entrepreneurship during the last 48 months, instead of 6 months in the previous 28 months, which is the country's requirement for employees. In Luxemburg, the self-employed are also covered by compulsory insurance, but at minimum of 24 months of contributions is required, in comparison to four in case of regular employment. In Portugal, 48 months of contributions are required, in comparison to 12 for employees. The self-employed in

the Czech Republic, Croatia, Hungary and Slovenia have compulsory unemployment insurance coverage under the same conditions as those in employment. The self-employed Finland and Sweden can also opt into additional voluntary insurance schemes.

Partial insurance: Denmark, Estonia, Greece, Ireland, Lithuania, Poland and UK

There is a voluntary opt-in scheme in Denmark, but the self-employed are also guaranteed minimum resources through other social assistance schemes. In Estonia, self-employed persons are not covered by the unemployment insurance scheme, but they may be entitled to the state unemployment allowance scheme. In this scheme, the qualification period for the entitlement is the same for the self-employed and employees (180 days of employment or equalised activity within the 12 months preceding unemployment). In Greece, the state provides an allowance for a period from three to nine months to the self-employed and liberal professionals who interrupt their activities under certain conditions, while farmers are not covered by this scheme.⁹ In Ireland, the self-employed are not in general covered for unemployment benefits, but they have compulsory insurance for all other social benefits. These income-tested benefits are then available to the self-employed in these circumstances are granted according to the regulations of the general social assistance system. In Lithuania since January 2017, the owners of individual enterprises, members of small partnerships, and partners of general partnerships are eligible to unemployment benefits. In order to receive unemployment benefits, the insured must be registered at the local Labour Exchange Office as unemployed and have paid social insurance contributions at least 18 months in the last 36 months. In Poland, the self-employed persons have the right

⁹ While we group Greece in the group of countries with partial insurance coverage for the self-employed (because farmers are excluded from this scheme), it is worth noting that, according to Matsaganis et al (2016), one of the eligibility requirements is to have paid any social contributions owed, which *de facto* excludes most of those concerned (p.15). Nevertheless, the self-employed are also eligible for a new means-tested financial assistance benefit addressing extreme poverty (the so called 'Social Solidarity Income') which was launched nationwide in February 2017 (Theodoroulakis, Sakellis & Ziomas, 2017).

Non-standard employment and social security

to a flat rate benefit, provided that they have worked for at least 365 days in the last 18 months. The self-employed in the UK do not qualify for the contributions based UB, but they can qualify for the non-contributions based one. The additional barrier is that claimants must be available for employed earner's employment, and that only being available for self-employed work is not enough.

Voluntary opt-in: Austria, Slovakia, Spain and Romania

The self-employed in Austria can opt into voluntary unemployment insurance schemes, but more importantly, they can keep their entitlement to UB, which they earned previously as non self-employed, for at least five years when certain conditions are fulfilled and even for the duration of their self-employed activity, even without being a member of a voluntary unemployment insurance. In Spain, the self-employed are entitled to the out-of-work benefit (*Prestación por cese de actividad*) only if they opted for the coverage of occupational contingencies. Romania only offers voluntary unemployment insurance for the self-employed, while its social security system is rather weak when it comes to the availability of other income-tested benefits. As we will see in the analysis of at risk workers below, given that many of the self-employed in Romania are agricultural workers with low education and low income, who are less likely to pay voluntary contributions, this is one of the more problematic contexts in EU-28 when it comes to the access to UB for the self-employed. In Slovakia, UB is granted only in case of non-performance of the self-employed activity and previous voluntary insurance.

No insurance: Belgium, Bulgaria, Cyprus, France, Germany, Italy, Latvia, Malta and Netherlands

No unemployment protection system exists for the self-employed in these 10 countries, but there is a non-contributory type of social assistance benefit for those on low income in all of them. In Belgium financial aid can be received for a period of up to 12 months, which consists of a monthly allowance equal to the monthly amount of the minimum pension, either at the single rate (if the beneficiary has no dependants)

or the household rate (if the beneficiary has at least one dependant). The self-employed person should have lost all professional income and they should not be able to claim a replacement income. In Bulgaria, all categories of workers are eligible for social benefits if they meet a means-test. In Cyprus, social assistance is provided through a non-contributory top-up benefit that provides minimum income protection to all citizens with income below a certain threshold. In France no unemployment insurance system exists for farmers, craftsmen, self-employed in commercial or industrial branches or for liberal professions, but everyone is eligible for a means-tested flat unemployment assistance benefit (*regime de solidarité*). In Germany, persons who have been compulsorily insured against unemployment as employees for at least 12 months during the 24 months preceding the self-employed activity or persons who have received unemployment allowances before becoming self-employed, may benefit from optional continued insurance. While there is no unemployment insurance for self-employed farmers, craftsmen, retailers, artists and publicists, if there is no sufficient income and no disposable assets, these groups are in principle entitled to the standard allowance granted to jobseekers (*Arbeitslosengeld II*), a universal allowance granted to the gainfully employed to secure their subsistence.

In Italy, a means-tested benefit exists, which specifically targets low-income households where at least one of three categories is present: one child less than 18 years of age; a disabled child; or a pregnant woman. In Latvia, a means tested 50EUR per month flat benefit can be paid by local municipalities to all those eligible for them irrespective of employment status and type of employment. In Malta a self-employed person is entitled to social assistance if he/she satisfies the capital/income means test. In the Netherlands, self-employed persons who are (temporarily) facing financial difficulties can temporarily receive a benefit to supplement their income (*Bijstand voor zelfstandigen, Bbz*).

3.3 UB reforms 2007-2017

Cyprus, Denmark, Romania and Malta are the only four countries that have not implemented any reforms vis-à-vis access to UB, maternity and sickness benefits between July 2007 and January 2017 (as detailed in Table A3 in the Appendix). In addition, Estonia and Germany saw only minor interventions in terms of access to sickness benefits, by introducing a four weeks qualifying period for them (there was no qualification requirement in 2007).

Furthermore, most of the reforms over the past 10 years were focused on the UB (Table A3 in the Appendix). While some countries improved benefits access by introducing laxer eligibility criteria and/or higher income replacement rates, others made it more difficult for those in non-standard employment. Several countries – Belgium, France, Italy, Luxemburg, The Netherlands, Poland, Portugal, Slovakia, Slovenia and Spain – introduced reforms which have improved access to and/or adequacy of benefits for non-standard workers. In addition, in Belgium minimum old-age pension for the self-employed has become equal to that of employees since August 2016.

On the other hand, Bulgaria, Ireland, Latvia, United Kingdom, and to a large extent Greece and Hungary, have made access to UB (and other benefits) more difficult. The negative policy reform trends are particularly relevant for Bulgaria, Hungary, Latvia and the United Kingdom, since these countries also have substantial shares of non-standard workers in their workforce. The UK hardened access to the non-means tested UB over the past 10 years, which has had an adverse effect on the relatively better-off non-standard employees (those with savings above £16,000) (Spasova et al. 2017, p.63). While most of the UB reforms in Hungary have been geared towards increasing contributions requirements and reducing benefits duration and rates, the country partially integrated farmers into the social security system, which is a positive development. Finally, Lithuania only reformed their eligibility policy in July 2017, when the requirement was reduced from 18 months in the last three years to 12 months in the last two years.

4. Income replacement rates in case of unemployment

In this section, we use the *OECD Tax and Benefit Calculator* to analyse net income replacement rates for those who find themselves in unemployment. We use the following three wage levels to examine the progressivity of the social security system in each Member State: at 50% of the average wage, at 69% of the average wage and at 100% of the average wage. Income replacement rates for four categories of beneficiaries are analysed: single individuals without children, single individuals with two children, married couples without children, and married couples with two children. An additional assumption in the last two scenarios is that the spouse does not work. Therefore, we focus on assessing the income replacement adequacy for those in the most precarious circumstances. The rates offered by the *OECD Calculator* refer to net income replacement during the first month of unemployment, and apart from the UB, it includes additional benefits (social assistance, family benefits, housing benefits) that a person would become eligible for in case of unemployment. The duration of benefits is not considered.

While the net income replacement rate in the first month of unemployment tells us how effective a country's social security system is in bridging temporary spells of unemployment, the duration of UB varies by country, and some of the initially more generous systems may have shorter duration of coverage, in line with the notion of 'flexicurity' where generosity of the system is ensured while also motivating the person to find new work as soon as possible. Benefits duration is therefore most commonly linked to the nature of the labour market in a specific country. Those countries with more flexible and active labour markets will have a stronger incentive to offer high benefits of short duration because those in unemployment would be able to find new work relatively soon. The opposite trade-off is in place in those countries with the more stagnant labour market, where the longer duration of benefits, even when they are minimal in terms of income replacement, may be more protective for those who are experiencing unemployment.

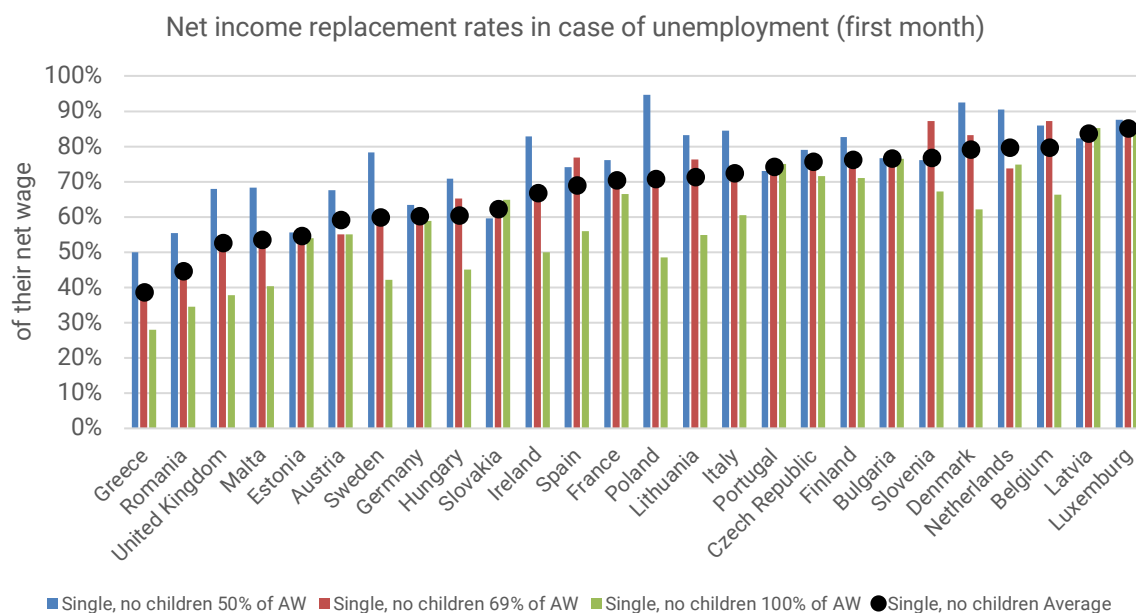
Figures 4 and 5 summarise the results of the analysis from the *OECD Calculator*. Detailed results for all four categories of the unemployed, along with the list of specific benefits they are eligible for at different levels of previous earnings are presented in Table A4 in the Appendix. This data is not available for Croatia and Cyprus. While net income replacement rates are shown for 2014 (for the reasons of data availability for all countries), the rates have remained the same in 2015 for all countries for which data are available, except for Lithuania which had an important reform between 2014 and 2015, leading to substantial increases in net income replacement rates for the unemployed. The data for Lithuania are thus shown for both years in Table A4, while only 2015 data are shown in the figures below. Finally, according to the MISSOC database (1 January 2017 version), no other country has reformed its unemployment benefits between 2014 and January 2017, so the data from the *OECD Calculator* can be treated as up-to-date.

Figure 4 shows that Greece and Romania have the most residual social security systems for childless single individuals among the EU-28. Their average replacement rates for the three wage levels (the black dots) are below 50% of the previous earnings, while those who lose employment with an average wage get only 28% and 34.5% respectively of their net income replaced during the first month of unemployment. Next in line are the United Kingdom and Malta, where those receiving an average wage get only 37.7% and 40.4% of their income replaced. Sweden, Hungary and Poland also have net income replacement rates for childless single individuals on average wage which are below 50%.

Figure 4 additionally shows that Latvia and Luxemburg offer the most generous net income replacement rates which are above 80% of one's previous earnings independent of the wage level. While these two systems are generous, they are not progressive.

Figure 4.

Net income replacement for single individuals without children, 2014



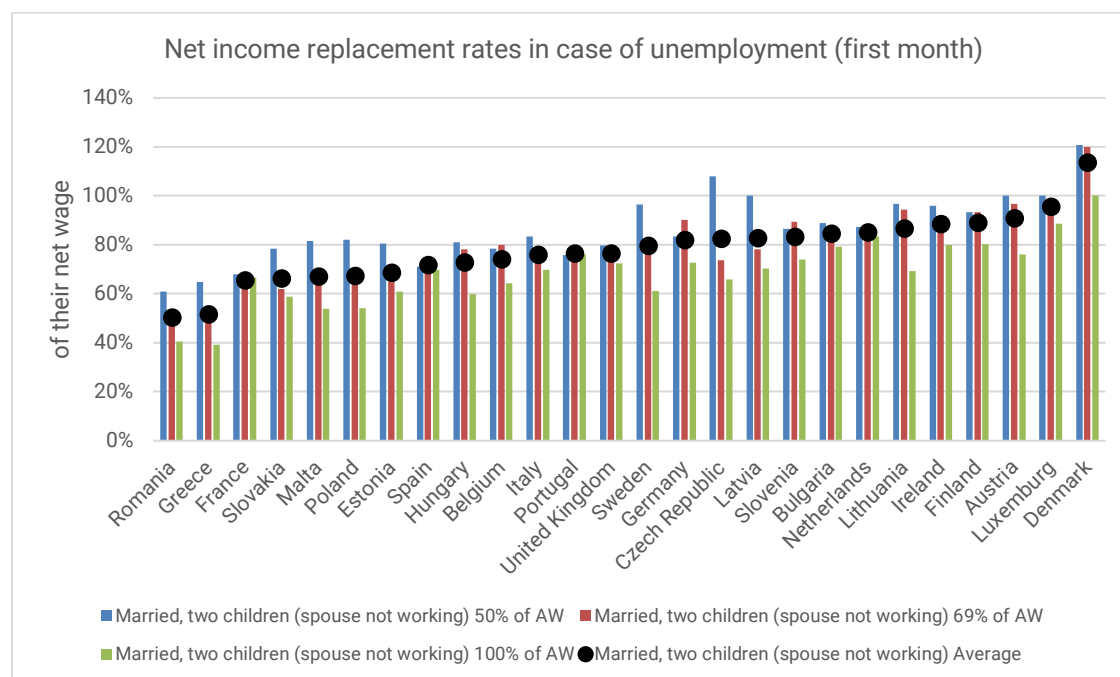
Source: Own calculations from OECD Tax and Benefit Calculator.

Note: Data for Lithuania is for 2015.

A substantially more generous picture emerges in most Member States when we analyse net income replacement rates for married individuals with dependent children and an unemployed spouse (Figure 5). This is because most households with such characteristics become eligible for additional social assistance benefits such as the family benefits (as shown in Table A4 in the Appendix). The social protection systems are in most cases as or even more generous to single individuals with children. Nevertheless, Romania and Greece remain at the bottom of the rankings. Their average replacement rates for the three wage levels (the black dots) are at 50.6% and 51.8% of the person's previous earnings respectively, while those earning an average wage get only 40.4% and 39.3% of their income replaced. Luxemburg and Denmark have the most generous systems, with an average net income replacement rates for the three wage levels of 95.7% and 113.6% respectively. Austria and the UK, in particular, are substantially more generous to persons with children than to those without.

Figure 5.

Net income replacement for married individuals with two children, 2014



Source: Own calculations from OECD Tax and Benefit Calculator.

Note: Data for Lithuania is for 2015.

While there are no available data to separately analyse net income replacement rates for the self-employed, we can expect them to generally have lower contributions' bases for social security benefits than regular workers. The most vulnerable are the self-employed in Belgium, Bulgaria, France, Netherlands, Italy and Latvia (no data on Cyprus), because in these countries the UB is the only source of income replacing benefits in case of unemployment (see Table A4 in the Appendix), and no UB scheme for the self-employed does not exist in them. Austria, Spain and Romania are the second most vulnerable group of countries, because unemployment insurance for the self-employed is voluntary there, while the UB is the only source of benefits for the unemployed. Finally, Estonia, Greece and Lithuania provide only partial unemployment insurance to the self-employed, while the UB is the only source of benefits in case of unemployment. The rest of the countries either do not rely on UB as the only source of benefits for the unemployed on low income (e.g. there is also a

housing allowance), and/or they offer at least partial insurance for the self-employed (see Table A4 in the Appendix).

5. Workers at risk of not accessing UB

5.1 Temporary and part-time workers

Table 2 estimates the percentage of temporary employees who are at risk of not being eligible for UB at the end of their current contract. The limitation of these estimates is that they are based on the duration of the workers' current contracts, as the EU-LFS does not contain the entire work history of individuals. The table shows us that five countries had more than 10% of their workforce at risk in 2016, while in 16 countries more than 50% of temporary workers did not fulfil the contract duration eligibility criterion.

Table 2.
Temporary workers at risk of not receiving UB

COUNTRY	Contract duration (eligibility criterion)	Share of temporary workers at risk (2016/17 rules, 2016 data)	Share of at risk temporary workers in total employment, 2016
Austria	0 to 12 months	48.8%	3.9%
Belgium	0 to 12 months	83.8%	6.6%
Bulgaria*	0 to 6 months (0 to 12 months)	59.8% (82.3%)	2.2% (3.0%)
Croatia*	0 to 6 months (0 to 12 months)	59.8% (79.5%)	11.5% (13.8%)
Cyprus	0 to 6 months	26.9%	3.9%
Czech Republic	0 to 12 months	58.8%	4.8%
Denmark	0 to 12 months	49.2%	6.1%
Estonia	0 to 12 months	78.2%	2.6%
Finland	0 to 6 months	51.6%	7.0%
France	0 to 3 months	29.5%	4.2%
Germany	0 to 12 months	44.1%	5.3%
Greece	0 to 3 months	13.9%	1.0%
Hungary	0 to 12 months	91.8%	8.0%
Ireland	0 to 12 months	28.1%	1.9%
Italy	0 to 12 months	76.1%	8.3%

Non-standard employment and social security

Latvia*	0 to 6 months (0 to 12 months)	59.9% (75.5%)	1.9% (2.4%)
Lithuania	0 to 12 months	71.7%	1.2%
Luxemburg	0 to 3 months	17.0%	1.4%
Malta	0 to 6 months	35.8%	2.3%
Netherlands	0 to 6 months	9.6%	1.6%
Poland	0 to 12 months	57.9%	12.7%
Portugal	0 to 12 months	76.7%	14.6%
Romania	0 to 12 months	84.9%	0.9%
Slovakia**	0 to 24 months	97.9%	8.2%
Slovenia*	0 to 6 months (0 to 12 months)	47.3% (78.5%)	6.9% (11.5%)
Spain	0 to 12 months	47.5%	10.3%
Sweden	0 to 6 months	38.3%	5.6%
United Kingdom***	0 to 24 months	90.1%	4.6%
EU-28		45.9% (46.4%)	5.5% (5.6%)

Source: Own calculations from LFS data, Eurostat.

Note: *9 months are needed, but data exist only for contracts 0-6 months, or 0-12 months. **24 months in the past 4 years is the precise contributions criterion, but this data is not available ***Those who do not fulfil the contributions criteria are still eligible for the same amount of JSA, subject to a means-test.

Table 3 summarises the results from Table 2 and identifies Croatia, Poland, Portugal and Slovenia as the four countries where temporary workers whose contracts are shorter than the required minimum are the most numerous. Groups 2 and 3 (orange and yellow) contain 13 countries which also have a substantial number of temporary workers who are at risk of not receiving the benefits. In the 11 green countries, the share of employees who are at risk is not substantial.

Table 3.

Summary table: Temporary employees at risk of not receiving UB, 2016

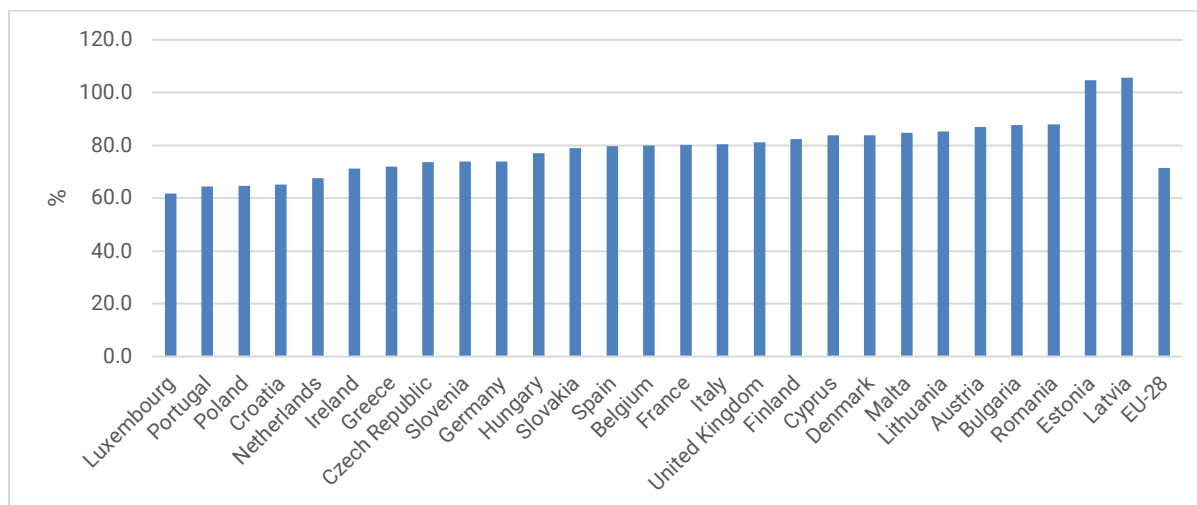
Group 1 (4 countries): Croatia, Poland, Portugal, Slovenia Share of temporary workers at risk > 50% Share of at risk temporary workers in total employment > 10%	Group 2 (12 countries): Belgium, Bulgaria, Czech Republic, Estonia, Finland, Hungary, Italy, Latvia, Lithuania, Romania, Slovakia, United Kingdom Share of temporary workers at risk > 50% Share of at risk temporary workers in total employment < 10%
Group 3 (1 country): Spain Share of temporary workers at risk < 50% Share of at risk temporary workers in total employment > 10%	Group 4 (11 countries): Austria, Cyprus, Denmark, France, Germany, Greece, Ireland, Luxemburg, Malta, Netherlands, Sweden Share of temporary workers at risk < 50% Share of at risk temporary workers in total employment < 10%

The adequacy of the UB that temporary workers would be entitled to receive is also an important concern.

Figure 6 shows that the average wage for temporary employees is significantly lower than the average wage for permanent employees in most Member States. This further increases the vulnerability of temporary workers, because apart from facing a higher risk of being ineligible for the UB, they are also much more likely to receive lower benefits. The lowest average wages of temporary vis-à-vis permanent workers in 2014 (the last available year) were found in Luxemburg, Portugal, Poland, Croatia and The Netherlands where they amounted to less than 70% of the average wage for permanent employees.

Figure 6.

Average wage for temporary employees, 2014

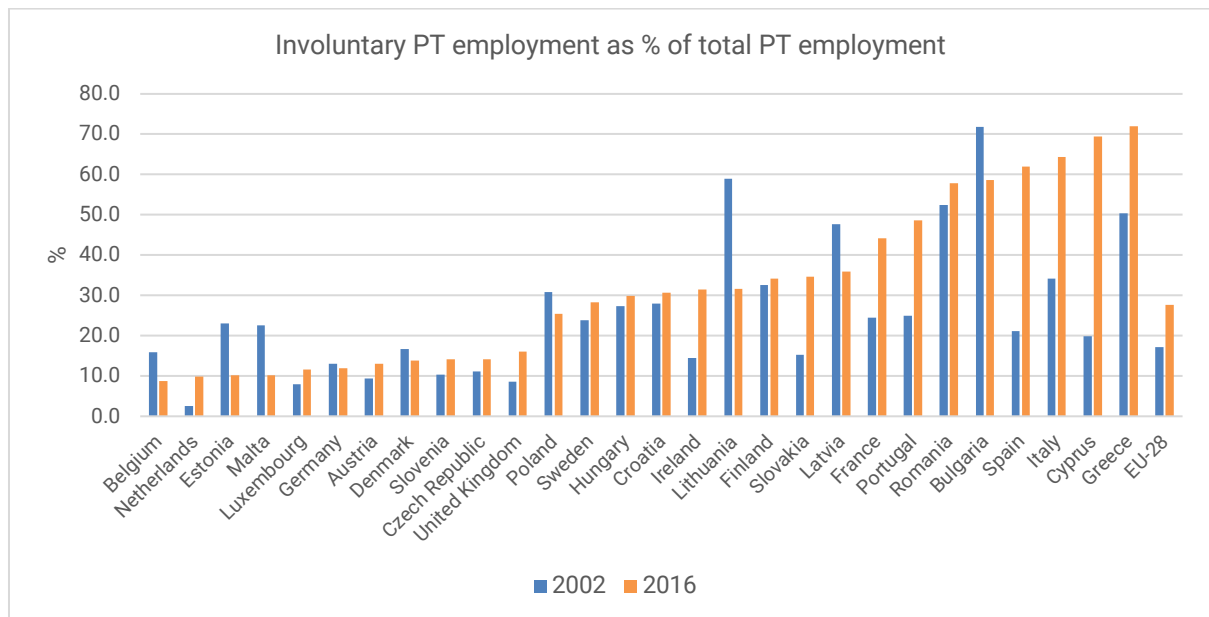


Source: Own calculations from Eurostat data (no data is available for Sweden).

Note: Based on earnings for limited duration contracts (except apprentices and trainees) vs. unlimited duration contracts in companies with more than 10 employees in the following sectors: industry, construction and services (except public administration, defence, compulsory social security).

Part-time workers are not affected by the above eligibility criteria unless their contracts are temporary (we do not have this data for 2016). Nevertheless, in Denmark, Cyprus, Poland, Slovakia, Finland, Sweden and the United Kingdom, there are requirements on the numbers of hours or annual amounts to be paid to become eligible for the UB. This may particularly affect part-time workers. This is not as much of a concern in the UK even though 25.2% of employees were in part-time employment in 2016, because a means-tested non-contributory UB also exists, which offers the same flat amount as the contributions based UB. It is also not a very salient issue in Denmark, Finland and Sweden, where part-time employment makes up 26.4%, 14.9% and 23.9% of total employment respectively, because of universal access to other benefits in these countries. It is, however, a more salient concern for Cyprus, Poland and Slovakia. In these three countries 13.4%, 6.4% and 5.8% of the total employed respectively worked on part-time contracts in 2016, and are thus at risk of not being eligible for the UB (Figure 2). These trends are even more pronounced for women, whose part-time employment shares in 2016 in the three countries were 15.6%, 9.7% and 7.9% respectively (Figure A2 in the Appendix).

Figure 7.
Involuntary part-time employment in EU-28, 2002 vs 2016



Source: LFS data, Eurostat.

Adequacy of income replacement rates is more important for people who work part-time than the issue of eligibility, especially if they are single and childless. To throw further light on this issue, we make a distinction between voluntary part-time employment (often due to the desire to reconcile family and professional life), and involuntary part-time employment. The underlining assumption of this analysis is that the lower the share of involuntary part-time employment in a country, the less vulnerable the part-time workers are. Figure 7 indicates a particularly high incidence of involuntary part-time employment in Greece, Cyprus, Italy and Spain. In these four countries, the share of involuntary part-time employment in total part-time employment has increased drastically between 2002 and 2016, and between 60-70% of all part-time employment in 2016 was involuntary (Figure 7). The shares of part-time employment in total employment in the four countries in 2016 were 9.8%, 13.4%, 18.5% and 15.1% respectively (Figure 2). The fact that most of it is involuntary is not negligible. An additional issue for part-time employees in Greece are the exceptionally low net income replacement rates that they may face. Romania, Bulgaria, Portugal and France also face high shares of involuntary part-time employees, although Bulgaria

and Romania have a rather low share of part-time employees in total employment (Figure 2). On the other side of the spectrum we have Netherlands, where part-time employment is very frequent, but most of it is voluntary, and performed by women (Table A2 in the Appendix). Net income replacement rates for unemployed individuals are also among the highest in the EU.

Table 4 shows a Gantt chart with an overview of eligibility criteria, average income replacement rates and the share of at-risk workers in the workforce. This allows us to bring together all issues related to UB eligibility and adequacy across the Member States and analyse which countries face the greatest number of compounded challenges. The more green boxes the country has, the less of an issue with eligibility and adequacy of social benefits for non-standard workers, and vice versa (see legend below the table for interpretation of each row). While the table shows a plethora of different scenarios across EU-28, it also highlights the following countries as those facing the highest number of compounded challenges: Estonia, Hungary, Poland, Romania, Slovakia and the United Kingdom. They are followed by Belgium, Bulgaria, Germany, Greece, Spain, Italy, Portugal and Slovenia.

Romania stands out as the worst performer among EU-28 in terms of UB access for non-standard workers. It has the lowest income replacement rates in the EU, a high share of non-standard workers and relatively strict eligibility criteria. Estonia, Hungary and Slovakia have the same pattern of challenges when it comes to accessing UB: strict eligibility criteria, low income replacement rates and a substantial number of at-risk workers. Poland is performing substantially better when it comes to eligibility and even income replacement rates than these three Eastern European Member states, but it has one of the highest shares of non-standard workers in EU-28. Finally, the United Kingdom has a substantial share on non-standard workers, low income replacement rates for single individuals and strict eligibility criteria for the contributions-based UB. Nevertheless, the UK offers a means-tested UB to all unemployed, regardless of their contributions record which guarantees a certain (albeit low) income protection those at the lower end of the income distribution.

Table 4.
Summary of all UB access criteria for employees in EU-28, 2017

Workers	A	Green	Red	Red	Green	Red	Green	Green	Red	Green	Yellow	Red	Green	Red	Red	Green	Green	Green	Red	Red	Green	Red	Red	Red				
	B	Green	Orange	Yellow	White	Yellow	Green	Yellow	Orange	Red	Orange	Green	Orange	White	Red	Green	Yellow	Yellow	Green	Orange	Green	Orange	Yellow	Red	Yellow	Yellow	Orange	Yellow
Income replacement	C	Red	Yellow	Yellow	White	Yellow	Orange	Red	Yellow	Yellow	Yellow	White	Red	Green	Yellow	Yellow	Green	Yellow	Yellow	Yellow	Yellow	Red	Red	Yellow	Orange	Orange		
	D	Green	Yellow	Yellow	Green	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Green	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	
Eligibility	E	Green	Green	Yellow	Green	Yellow	Green	Green	Green	Green	Yellow	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	
	F	Orange	Yellow	Green	Orange	Orange	Red	Red	Green	Orange	Green	Green	Yellow	Orange	Orange	Orange	Yellow	Orange	Green	Green	Orange	Orange	Green	Yellow	Red	Red		
	COUNTRY	A	B	B	C	C	D	D	E	E	E	F	F	H	H	I	I	L	L	L	M	N	P	P	R	S	S	S
	T	E	G	Y	Z	K	E	E	L	S	I	R	R	U	E	T	V	T	U	T	L	L	T	O	E	I	K	K

Note: White boxes represent missing data points.

Legend:

A – At-risk workers: red - >50% of temporary workers at risk & temp. workers >10% of total employment; orange - >50% of temporary workers at risk & temp. workers <10% of total employment; yellow - <50% of temporary workers at risk & temp. workers >10% of total employment; green - <50% of temporary workers at risk & temp. workers <10% of total employment.

B - Average net income replacement, married with two children: red - below 65%; orange - between 65-75%; yellow - between 75-85%; green - above 85%

C - Average net income replacement, childless single: red - below 50% of earnings; orange - between 50-65%; yellow - between 65-80%; green - above 80%

D - Exceptions for vulnerable groups: yellow - no; green – yes

E - Limitations on min. salary / min. hours: yellow - no; green – yes

F - Contributions payment requirement: green - below 9m; yellow - 9m; orange - 12m; red - above 12m

Moreover, according to the data presented in Table A4 in the Appendix, the UB is the only source of income replacement for childless, single, low wage individuals in the following 14 Member States: Austria, Belgium, Estonia, France, Greece, Italy, Latvia, Netherlands, Portugal, Slovakia, Spain, Bulgaria, Lithuania and Romania. Those who are not eligible to UB in these countries, whether because of temporary or part-time work, or because of self-employment, are therefore particularly vulnerable. In fact, among these 14 countries, only France, Greece and the Netherlands have short contributions payment duration requirements (green boxes under category E in Table

4), while in the rest of the countries, the eligibility criteria are strict enough to exclude a substantial portion of those in non-standard employment.

5.2 Self-employed workers

Method of calculating the share of self-employed at risk of inadequate social benefits provision

While UB eligibility is an important concern for those in self-employment, it is also important to note that all Member States offer means-tested social and/or unemployment assistance for those on low income who do not fulfil eligibility criteria for receiving contributory benefits, such as the UB. Benefits adequacy is therefore the most important concern for the self-employed. Due to the structure of the tax systems, the self-employed have an incentive to pay contributions on low wages (and report additional earnings, if they have them, as profit) even in those systems where unemployment insurance is compulsory. Therefore, they can be eligible for contributions-based benefits, but these may end up being as low as the non-contributory minimum income benefits that they would have received in case of poverty. To reflect this reality, this paper identifies those sub-groups of the self-employed who are more likely to pay contributions on low wages and as a result have a low insurance basis. In other words, depending on the type of unemployment insurance system offered to the self-employed in each country, our at-risk analysis identifies those who are either: i) at risk of receiving minimum non-contributory means-tested benefits; OR ii) at risk of receiving very low contributory benefits. The Paper identifies four categories of the self-employed who are more exposed to this risk than an average non-standard employee: i) agricultural self-employed workers; ii) female own-account self-employed workers without tertiary education (i.e. vulnerable women); iii) self-employed workers without tertiary education; and iv) own-account self-employed workers who do not have any employees. Farm workers usually pay minimum contributions to the system, if at all, and are thus a particularly vulnerable group of the self-employed. Educational attainment can act as a proxy for voluntary vs involuntary self-employment, as it can be tied to higher and lower wages, while women receive lower average wages than men, and especially at lower skill levels.

Analysis of the self-employed workers at risk presented in this section is split by the four groups of countries defined in the previous section: those with compulsory unemployment insurance for the self-employed, those with partial insurance, those with a voluntary opt-in insurance, and those without unemployment insurance for the self-employed. This is done so that we can differentiate between the different risks that the self-employed face vis-à-vis their access to UB (e.g. eligibility, adequacy) in countries which have different rules for insuring the self-employed against unemployment. The four categories of self-employed at risk (farmers, vulnerable women, those without tertiary education, and own-account workers) are shown for 2016, along with the changes in the share of each of these groups in total self-employment since 2002. The share of self-employment in total employment is also shown in the same tables, to indicate the size of this category of workers in each Member State.

Table 5.

Countries with compulsory unemployment insurance for the self-employed

COUNTRY	Groups at risk of receiving low benefits (% of total self-employed)								% of self-employed in total employment	
	Farmers		Vulnerable women*		Without tertiary education		Own-account workers		2016	Δ2002-2016
	2016	Δ2002-2016	2016	Δ2002-2016	2016	Δ2002-2016	2016	Δ2002-2016		
Czech Republic	4.4	0.4	20.3	3	75.3	-7.5	81.4	7.9	16.2	1
Croatia	31.1	-9.7	15.3	-5.5	76.8	-10.2	56.5	-11.8	11.8	-5.8
Finland	16.3	-13.5	14.5	-3.7	65.8	-8.3	68.6	1.5	12.4	0.4
Hungary	14.3	-2.7	13.4	-3	67.5	-13.5	52.3	-7.7	10	-3
Luxembourg	6.4	-11.4	13.7	10	43.6	-24.5	57.7	28.1	9	1.8
Portugal	17.1	-9.9	19.9	-11.3	77.9	-17	67.6	-3.4	13.9	-7.8
Slovenia	15.1	-15	11.6	-3.5	69.8	-17.2	68.2	1.1	11.5	0.6
Sweden	9.8	-2.6	11.7	-2	67.6	-11.4	59.9	-1.2	8.7	-0.8
EU-28	14.4	-8.7	14.4	-2.3	65.3	-12.3	71.5	5.7	14	-0.4

Source: Own calculations from LFS data, Eurostat.

Footnote: *Vulnerable women are own-account female workers without tertiary education.

Table 5 shows the share of the self-employed belonging to the four groups in the eight countries which have compulsory unemployment insurance for the self-employed. While all self-employed workers in these countries are eligible for the UB, these four specific categories are likely to receive lower benefits due to the lower than average contributions that they likely to have accumulated over time.

The category of farmers has fallen in all countries but in the Czech Republic since 2002, with the highest drops taking place in Finland and Slovenia. At 31.1%, Croatia has the highest share of farmers among the self-employed within this group of countries. The share of vulnerable women has particularly increased in Luxemburg since 2002 (by 10pp) and to a smaller extent in the Czech Republic (3pp). Portugal, Croatia and the Czech Republic have the highest shares of those without tertiary education in self-employment. The Czech Republic has the highest share of own-account workers (without employees) among the self-employed – 81.4% in 2016, while their share is the lowest in Hungary (52.3%). Finally, the highest share of self-employed workers in total employment in this group of countries can be found in the Czech Republic and Portugal (16.2% and 13.9% respectively).

Table 6 shows average net income replacement rates for the three wage categories that were shown in Figures 4 and 5 in section 3.2 of the Note (average replacement for 50, 69 and 100% of the average wage). Hungary and Sweden have the lowest net income replacement rates in the first month of unemployment for single childless individuals in this group of eight countries. When it comes to couples with two children where the spouse is also unemployed, Hungary, Portugal and Sweden have the lowest net income replacement rates. In addition, Finland, Luxemburg and Portugal (highlighted in red) have longer contributions payment requirements for the self-employed than for employees, while those highlighted in green have the same requirements as for the employed.

Table 6.

Benefits adequacy in countries with compulsory unemployment insurance

COUNTRY	Average net income replacement (% of wage, 2014)	
	Single, no children	Married, two children
Czech Republic	75.8	82.5
Croatia	<i>no data</i>	<i>no data</i>
Finland	76.3	89.0
Hungary	60.4	73.0
Luxemburg	85.1	95.8
Portugal	74.3	76.7
Slovenia	76.8	83.3
Sweden	59.9	79.7

Source: Own calculations from OECD Tax and Benefits Calculator.

Note: Red – those with longer contribution payment periods for the self-employed. Green – those with the same length of contribution payment periods.

Table 7 shows the seven countries which have partial unemployment insurance for the self-employed. Poland, Greece and Lithuania have the highest shares of farmers among the self-employed in this group of countries (38.9%, 30.0% and 27.9% respectively). However, this category of self-employed workers has dropped in all seven countries since 2002, and particularly in Lithuania, followed by Poland. Vulnerable women have the highest share among the self-employed in Lithuania (20.8%), followed by Poland (18.6%) and Greece (18.5%). Own-account workers are the most common in the UK (83.9%), as well as in Lithuania (79.2%) and Poland (78.4%). Finally, Greece, Poland, Ireland and the UK have the highest shares of self-employment in total employment among the seven countries.

Furthermore, according to Matsaganis et al (2016), most self-employed workers in Greece would be de facto excluded from receiving the UB because of the requirement to pay all contributions they owe previously. Therefore, 29.5% of all employees in Greece, which is the share of self-employed in total employment, are at risk of not receiving the benefit. In Ireland, Poland and the UK, the self-employed are only entitled to a flat rate UB (conditional upon having worked for 12 months in Poland,

and means-tested in Ireland and the UK), which means that those belonging to the sub-categories of the self-employed shown in Table 7 are not at a higher risk of receiving low benefits than an average self-employed.

Table 7.

Countries with partial unemployment insurance for the self-employed

COUNTRY	Groups at risk of receiving low or no benefits (% of total self-employed)								% of self-employed in total employment	
	Farmers		Vulnerable women*		Without tertiary education		Own-account workers			
	2016	Δ2002-2016	2016	Δ2002-2016	2016	Δ2002-2016	2016	Δ2002-2016	2016	Δ2002-2016
Denmark	8.8	-7.8	11.5	4.8	64.4	-9.3	57.3	9.8	7.7	0
Estonia	10.5	-15.9	11.7	-11.2	57	-15.5	58.2	-13	9.5	3
Greece	30	-0.9	18.5	0.2	73.6	-11	75.4	-0.1	29.5	-0.8
Ireland	21.2	-6.5	5.5	-0.7	59	-17.5	69.8	5.4	14.6	-1.5
Lithuania	27.9	-36.8	20.8	-11	64.5	-23.9	79.2	-7.9	11.1	-5.7
Poland	38.9	-17.4	18.6	-11.4	73	-18.4	78.4	-4.4	17.7	-4.1
United Kingdom	3	-2	13.2	-0.2	57.4	-6.8	83.9	9.7	14.1	2.5
EU-28	14.4	-8.7	14.4	-2.3	65.3	-12.3	71.5	5.7	14	-0.4

Source: Own calculations from LFS data, Eurostat.

Footnote: *Vulnerable women are own-account female workers without tertiary education.

Table 8.

Benefits adequacy in countries with partial unemployment insurance

COUNTRY	Average net income replacement (% of wage, 2014)	
	Single, no children	Married, two children
Denmark	79.2	113.6
Estonia	54.7	68.8
Greece	38.6	51.8
Ireland	66.8	88.6
Lithuania*	71.4	86.8
Poland	70.9	67.6
United Kingdom	52.6	76.7

Source: Own calculations from OECD Tax and Benefits Calculator.

*Data for Lithuania refers to 2015, as there was a substantial increase in benefits between 2014 and 2015. Data for the other countries remained unchanged between the two years.

According to Table 8, Greece has by far the most residual income replacement rates in this group of countries, as well as among EU-28 more generally. Average income replacement in the first month of unemployment for single childless individuals is only 38.6%, while it goes up to 51.8% for couples with two children where the spouse is also unemployed. The UK and Estonia also have rather low net income replacement rates for single individuals, 54.7% and 52.6% respectively. Poland is the only country in this group where income replacement for couples with children is slightly lower than income replacement for singles, while Denmark has the most generous system of the seven countries (and the most generous in EU-28 for couples with children).

At-risk self-employed in the four countries with voluntary-opt in unemployment insurance are shown in Table 9. These groups are at a particular risk of not opting into the insurance scheme because of their low earnings. They are also at risk of receiving very low benefits if they opt into the scheme, which may disincentivise them further from opting into the system. Romania by far has the highest share of farmers in the self-employed. In 2016, their share was 65.1%, although their share has dropped by almost 14 percentage points since 2002. The second largest population of farmers can be found in Austria – 21.8% of all self-employed belonged to this category in 2016.

Vulnerable women, persons without tertiary education, and own-account workers made up the highest shares of the self-employed in Romania and Slovakia. Finally, self-employment was the most common in Romania and Spain, where it respectively constituted 16.5% and 16.1% of total employment in 2016.

Table 9.

Countries with voluntary-opt in unemployment insurance for the self-employed

COUNTRY	Groups at risk of receiving low or no benefits (% of total self-employed)								% of self-employed in total employment	
	Farmers		Vulnerable women*		Without tertiary education		Own-account workers			
	2016	Δ2002-2016	2016	Δ2002-2016	2016	Δ2002-2016	2016	Δ2002-2016	2016	Δ2002-2016
Austria	21.8	-9.5	14.9	-3.8	55.2	-16.7	58.7	6.5	10.8	0
Romania	65.1	-13.7	23.1	-5.7	94.1	-1.4	93.6	1.1	16.5	-3.6
Slovakia	3.7	-1.6	17.9	4.1	75.7	-6.2	79.4	7.4	15.2	6.9
Spain	16	6.8	13.7	-1.8	63	-15.9	70.3	0.4	16.1	-0.8
EU-28	14.4	-8.7	14.4	-2.3	65.3	-12.3	71.5	5.7	14	-0.4

Source: Own calculations from LFS data, Eurostat.

Footnote: *Vulnerable women are own-account female workers without tertiary education.

Concerning adequacy of social benefits, Romania (along with Greece which has partial unemployment insurance) is the most residual welfare state in EU-28. Average income replacement in the first month of unemployment for single childless individuals is only 44.7%, while it goes up to 50.6% for couples with two children. Austria and Slovakia also have rather low replacement rates for single individuals, and Slovakia and Spain are not much more generous to those with children than to those without (Table 10)

Table 10.

Benefits adequacy in countries with voluntary unemployment insurance

COUNTRY	Average net income replacement (% of wage, 2014)	
	Single, no children	Married, two children
Austria	59.2	90.9
Romania	44.7	50.6
Slovakia	62.3	66.3
Spain	69.0	71.9

Source: Own calculations from OECD Tax and Benefits Calculator.

Finally, in the ten countries without unemployment insurance for the self-employed, all the self-employed individuals are at risk of not receiving the UB (and receiving only a basic means-tested social assistance benefit). However, the structure of the self-employed is still shown in Table 11, to highlight the most vulnerable population categories of the self-employed.

Latvia and Bulgaria had the highest shares of farmers among the self-employed in 2016 (25.6% and 22.4% respectively), although these shares have dropped substantially since 2002. Vulnerable women made up the highest share of the self-employed in Latvia (17.1%), and Bulgaria (15.8%) in 2016. While the share of self-employed without education has dropped in all 10 countries since 2002, their highest share in 2016 could be found in Malta (83.9%) and Italy (74.8%). Own-account workers are the most common in Cyprus, where they constituted 85.8% of the self-employed in 2016, followed by the Netherlands (74.3%). Finally, self-employment as a share of total employment 2016 was the most common in Italy (21.5%) and the Netherlands (15.5%).

Table 12 shows that Malta has the lowest net income replacement rates for single childless individuals (53.4%), along with Germany (60.3%). Malta and France have the lowest net income replacement rates for those with children and a non-working spouse (67.2% and 65.7% respectively). The most generous system among the ten countries for single individuals is that of Latvia (83.8%), while Bulgaria is the most generous for couples with children (84.7%).

Table 11.

Countries with no unemployment insurance for the self-employed

COUNTRY	Groups at risk of receiving minimum or no benefits (% of total self-employed)								% of self-employed in total employment	
	Farmers		Vulnerable women*		Without tertiary education		Own-account workers			
	2016	Δ2002-2016	2016	Δ2002-2016	2016	Δ2002-2016	2016	Δ2002-2016	2016	Δ2002-2016
Belgium	5.5	-0.9	9.1	-5.4	51.8	-9.3	69.8	-0.4	13.5	0.2
Bulgaria	22.4	-14.9	15.8	-7	68	-10	67.8	-5.6	10.8	-1.8
Cyprus	9.8	-2.2	14.2	1.5	59.3	-11.9	85.8	15.7	12.2	-6.6
France	14.1	-9.1	9.7	-1	55.9	-15.5	62.2	4.6	11	1.5
Germany	4.7	-3.7	12	1	52.4	-3	55.1	4.9	9.3	-0.3
Italy	6.6	-2.6	13.7	3.6	74.8	-10.1	71.6	23.6	21.5	-1.3
Latvia	25.6	-25.2	17.1	-10	66.3	-16	65.5	-1.2	11.8	2.5
Malta	5.6	-2.9	9.7	2.1	83.9	-2.4	65.7	-5.4	13.1	-1.2
Netherlands	7	-4.3	15.9	-1.8	57.9	-12.7	74.3	7.3	15.5	4.9
EU-28	14.4	-8.7	14.4	-2.3	65.3	-12.3	71.5	5.7	14	-0.4

Source: Own calculations from LFS data, Eurostat.

Footnote: *Vulnerable women are own-account female workers without tertiary education.

Table 12.

Benefits adequacy in countries with no unemployment insurance

COUNTRY	Average net income replacement (% of wage, 2014)	
	Single, no children	Married, two children
Belgium	79.8	74.2
Bulgaria	76.6	84.7
Cyprus	<i>no data</i>	<i>no data</i>
France	70.5	65.7
Germany	60.3	82.0
Italy	72.4	76.1
Latvia	83.8	82.9
Malta	53.4	67.2
Netherlands	79.7	85.3

Source: Own calculations from OECD Tax and Benefits Calculator.

5.3 Special groups of at-risk workers

5.3.1 Foreign workers

Foreign workers are those individuals from other EU and non-EU countries who do not hold citizenship of the country where they are working. This is an especially vulnerable category of employees, because those without permanent residence¹⁰ in their country of operations may not be able to qualify for access to means-tested benefits. This means that those who fail to ensure social protection benefits through their work status may be at a particular risk of ineligibility for social protection.

¹⁰ The data does not allow us to distinguish those with permanent residency from other foreigners.

Table 13. Foreign employees with temporary and part-time contracts

COUNTRY	% of foreigners among temporary workers		COUNTRY	% of foreigners among part-time workers	
	2006	2016		2006	2016
Bulgaria	0	0	Bulgaria	0	0
Lithuania	0	0	Croatia	0	0
Romania	0	0	Lithuania	0	0
Slovakia	0	0	Hungary	0	0
Latvia	0	3.4	Poland	0	0
Estonia	3.7	4.0	Romania	0	0
Ireland	10.1	8.1	Slovakia	0	0
United Kingdom	12.7	9.3	Czech Republic	5.0	5.9
Malta	0	9.8	Slovenia	0	8.2
Luxembourg	6.1	10.2	Latvia	0	8.3
Austria	9.7	11.4	Estonia	3.2	9.3
Hungary	18.4	12.5	Cyprus	5.3	12.7
Czech Republic	23.8	15.9	Malta	15.8	15.0
Belgium	13.8	16.0	Portugal	7.6	15.9
Italy	15.3	17.9	Luxembourg	15.9	16.5
Germany	17.5	20.0	Finland	16.7	18.1
Finland	26.3	20.2	Greece	7.6	18.9
Greece	17.2	20.8	Ireland	11.6	21.1
Denmark	13.2	21.8	Spain	15.1	21.3
France	19.1	23.6	United Kingdom	20.2	21.3
Netherlands	27.6	26.1	Belgium	21.1	24.2
Slovenia	32.2	32.1	France	22.5	25.6
Sweden	23.5	32.6	Sweden	24.9	27.0
Cyprus	45.8	35.3	Denmark	26.5	27.6
Spain	60.0	38.4	Italy	18.6	28.2
Portugal	49.3	39.1	Germany	28.6	28.9
Croatia	0	43.6	Austria	21.4	30.3
Poland	38.0	52.9	Netherlands	38.5	42.7
EU-28	25.5	19.7	EU-28	20.8	25.1

Source: Own calculations from LFS data, Eurostat.

Legend:

Left side of the table: Red = above 12 months of contributions; Orange = 12 months of contributions; Yellow = 9 months of contributions; Green = below 9 months of contributions.

Right side of the table: Red = requirements on amount earned / hours worked; Green = no requirements on amount earned / hours worked.

Table 13 shows the shares of foreigners in all temporary and part-time contracts in EU-28. The earliest available data point for all 28 countries is 2006, while 2016 is the last available year. The table is split into two separate parts, because UB eligibility challenges are different for those on temporary vs those on part-time contracts. Those on temporary contracts face the challenge of having a long enough contributions record to become eligible for the benefit (the longer the contributions requirement the closer to red the colour of the country on the left side of the table is). On the other hand, those in part-time employment are mostly at risk in countries which have limitations on the minimum annual amounts earned and/or hours worked (these countries are marked in red in the right side of the table).

The share of foreigners in temporary employment in 2016 was particularly high in Poland and Croatia (52.9% and 43.6% respectively), followed by Portugal and Spain (39.1% and 38.4% respectively). The share of foreigners among part-time workers on the other hand in 2016 was the highest in the Netherlands (42.7%), Austria (30.3%), Germany (28.9%) and Italy (28.2%).

Table 14 shows the share of self-employed who are not citizens of the country where they operate. The earliest available year for this data is 2006, while 2016 is the last available year. The highest share of foreigners in total self-employment in 2016 could be observed in Luxemburg (50.4%), Cyprus (14.2%), Belgium (12.3%) and the United Kingdom (12.2%). These were the countries in which self-employed foreigners also made up the highest share of total employees (4.5% in Luxemburg, and 1.7% in Cyprus, Belgium and the UK).

Furthermore, self-employed foreigners face the highest risk of ineligibility for UB in countries where there is no insurance mechanism for the self-employed (highlighted in red in Table 14), because they are also at a higher risk of not being eligible for non-contributory social benefits, depending on their precise immigration status in the country of residence (many countries have a permanent residence requirement for the means-tested benefits). While their numbers have increased in almost all countries

between 2006 and 2016, this sub-group of the self-employed face the highest risk of non-eligibility for unemployment assistance in Cyprus, Belgium and Latvia.

Finally, foreign workers (on all contracts, including the self-employed) made up above 10% of total employment in 2016 in the following Member States: Luxemburg (52%), Cyprus (19.8%), Ireland (15.9%), Austria (14.6%), Estonia (13.7%), Latvia (12.2%), United Kingdom (11.2%), Germany (10.8%), Spain (10.8%), Italy (10.7%) and Belgium (10.4%) (see Table A5 in the Appendix for data on all EU Member States). Their employment status and subsequent eligibility for social security benefits should be of policy concern in these 11 countries.

Table 14.
Self-employed without citizenship

COUNTRY	% of foreigners among self-employed		% of self-employed foreigners in total employment	
	2006	2016	2006	2016
Bulgaria	0.0	0.0	0.0	0.0
Croatia	0.0	0.0	0.0	0.0
Lithuania	0.0	0.0	0.0	0.0
Romania	0.0	0.0	0.0	0.0
Slovakia	0.0	0.0	0.0	0.0
Poland	0.2	0.3	0.0	0.0
Hungary	1.5	0.8	0.2	0.1
Greece	2.0	2.1	0.6	0.6
Portugal	1.3	2.6	0.2	0.4
Slovenia	0.0	2.7	0.0	0.3
Czech Republic	1.7	2.8	0.3	0.4
Finland	1.9	3.1	0.2	0.4
Netherlands	3.9	4.3	0.4	0.7
Malta	0.0	5.6	0.0	0.7
Sweden	4.3	6.1	0.4	0.5
Italy	3.4	6.3	0.8	1.4
France	4.7	6.7	0.5	0.7
Denmark	3.3	8.1	0.3	0.6
Spain	6.1	9.6	1.0	1.5
Ireland	5.6	10.3	0.8	1.5

Latvia	0.0	10.9	0.0	1.3
Austria	6.5	10.9	0.7	1.2
Estonia	12.7	11.5	1.0	1.1
Germany	8.9	11.9	1.0	1.1
United Kingdom	6.6	12.2	0.8	1.7
Belgium	8.5	12.3	1.1	1.7
Cyprus	8.3	14.2	1.5	1.7
Luxembourg	33.1	50.4	2.5	4.5
EU-28	4.3	6.9	0.6	1.0

Source: Own calculations from LFS data, Eurostat.

Legend: Red = no unemployment insurance; Orange = voluntary opt-in; Yellow = partial unemployment insurance; Green = compulsory unemployment insurance.

5.3.2 Contributing family workers

Contributing family workers, who are most commonly found in agricultural households and hold the status of unpaid household/farm labour, are particularly vulnerable as they are not eligible for work related benefits in any Member State. They are most commonly found in Romania, where they constituted 7.8% of total employment in 2016, as well as in Greece and Poland, where their shares in total employment were 3.8% and 2.6% respectively.

Table 15.

Contributing family members, percentage of total employment

COUNTRY	2002	2016
Estonia	0.0	0.0
Malta	0.0	0.0
Slovakia	0.0	0.1
Sweden	0.3	0.1
United Kingdom	0.3	0.2
Hungary	0.6	0.3
Germany	1.0	0.3
Finland	0.4	0.3
France	1.0	0.4
Netherlands	0.6	0.4
Spain	1.7	0.5
Czech Republic	0.6	0.5
Portugal	1.7	0.5
Denmark	0.7	0.6
Bulgaria	1.6	0.6
Ireland	0.9	0.6
Belgium	1.8	0.7
Luxembourg	0.5	0.8
Latvia	3.8	0.8
Lithuania	3.5	0.8
Cyprus	2.7	0.9
Austria	2.3	0.9
Croatia	4.1	1.2
Italy	3.9	1.3
Slovenia	3.4	1.9
Poland	5.2	2.6
Greece	7.6	3.8
Romania	14.5	7.8
EU-28	2.3	1.0

Source: Own calculations from LFS data, Eurostat.

6. Maternity, sickness and old-age benefits

6.1 Eligibility and income replacement

Access to maternity and sickness benefits is generally easier for those in non-standard employment than access to UB. Eligibility criteria for these two benefits in the systems where insurance is compulsory for all categories of workers are substantially lower than for UB in all Member States. The only exception is Cyprus, which has a rather low but identical contributions payment requirement for access to all social security benefits (26 weeks). A summary of access criteria to the two benefits for the self-employed in EU-28 is presented in Table 16, while Table A6 in the Appendix summarises the differences in eligibility criteria for the two benefits between the self-employed and employees.

6.1.1 Maternity benefit

Earnings related insurance in case of maternity is compulsory for employees in all Member States and for the self-employed in most Member States (green boxes in column 1, Table 16). Three countries have only partial coverage (yellow boxes in column 1, Table 16) – in Spain, maternity insurance is voluntary for farmers, in Portugal the self-employed are eligible for a smaller number of benefits than employees, and in the UK, those who do not fulfil the contributions criteria can qualify for the means-tested benefit. Insurance for maternity benefits is voluntary (orange boxes in column 1, Table 16) for the self-employed in Bulgaria, Germany and Poland. However, even though maternity insurance is voluntary for the self-employed in Poland, because there are no minimum contributions requirements, a woman can insure herself once she finds out that she is pregnant, and she would still qualify for the benefit. In the other two countries which offer voluntary maternity insurance for the self-employed, Bulgaria and Germany, the conditions are more stringent. In Bulgaria, a self-employed woman is required to have contributed for 12 consecutive months, while in Germany, the system is too expensive for the low income self-employed.

Minimum contributions requirements are particularly lenient for the maternity benefits in most Member States, both for employees and for the self-employed workers. While column 1 in Table 16 summarises the eligibility criteria for maternity benefits for the self-employed workers, these criteria are less stringent for employees than for the self-employed in the case of Bulgaria, Denmark, France, and Ireland, while they are the same for both categories of workers in other countries (Table A6 in the Appendix).

In the following seven countries, there is no minimum contributions requirement to qualify for the maternity benefit for employees, nor for the self-employed: Austria, Croatia, Estonia, Italy, Latvia, Malta, Netherlands, Poland and Slovenia. Romania also has a very low minimum insurance requirement of 1 month in the past year for both employees and for the self-employed, while Germany has a 4 week contributions requirement for employees, while the insurance scheme is voluntary for the self-employed. However, in Croatia and Poland, benefits are lower if the person has paid contributions for less than a year. Although there is a relatively high contributions payment requirement in Sweden, the country offers parental leave benefits at three different levels: earnings-related compensation, flat-rate basic benefit, and minimum benefit, so all mothers are *de facto* covered by one of the benefits. Countries with the more substantial contributions payment requirements for the maternity benefit are: Bulgaria, the Czech Republic, France, Hungary, Ireland, Lithuania and Slovakia, while Spain requires 180 days of contributions over the last 7 years, and thus favour the older cohorts of workers. Non-standard workers may be at a greater risk of not receiving the maternity benefits in these Member States than in others.

An additional barrier for the take up of the maternity benefit is that most countries require the self-employed women to either remain inactive for the period of duration of the benefit, or to hire a replacement. For example, in Austria, a woman becomes eligible for the benefit only in case she hires a full-time work replacement, while there is an explicit inactivity requirement in place in Hungary. As Kalliomaa-Puha and Kangas (2017) note: “The problem with maternity and paternity leaves, especially for

the self-employed, is therefore not the compensation, but the impossibility of taking leave. Many young entrepreneurs work alone or in a small company and find it difficult, if not impossible, to hire a substitute. If one is absent for long, the clients will look elsewhere. Also, the permanent costs of a company continue during maternity and paternity leaves.” (p.10)

Finally, as Table 17 indicates, the Czech Republic, Cyprus, Germany, Hungary and Slovakia have the lowest income replacement rates from maternity benefits (around 70% of average earnings). On the other side of the spectrum, a 100% income replacement rate is in place in Austria, Croatia, Denmark, Estonia, Lithuania, Luxemburg, Poland, Slovenia and Spain for those receiving maternity benefits. Ireland, Malta and the UK offer flat rate maternity benefits for all workers.

Table 16.

Social benefits eligibility of the self-employed workers

COUNTRY	Maternity	Sickness	Old age pensions
Austria	Only if work replacement is needed. Eligibility not linked to contributions record. Duration of benefit: 8 weeks before and after confinement.	Additional voluntary contributions-based insurance also exists. Eligibility not linked to contributions record.	
Belgium	Contributions requirement: 6 months. Leave extended from 8 to 12 weeks in January 2017.	Contributions requirement: 6 months	Since August 2016 minimum old-age pension for the self-employed has become equal to that of employees.
Bulgaria	12 consecutive months. Duration of benefit: 410 days.	12 consecutive months. Net income replacement rate: 90%	Strongly favours uninterrupted careers.
Croatia	No minimum contributions requirement. Duration of benefit: 6 months.	No minimum contributions payment requirement.	Additional contributions can be paid retrospectively.
Cyprus	Contributions requirement: 26 consecutive weeks. Duration of benefit: 18 weeks.	Contributions requirement: 26 consecutive weeks.	Compulsory minimum income contributions prescribed.

Czech Republic	Contributions requirement: 180 days in the previous year + at least 270 calendar days during the last two years. Duration of benefit: 28 weeks.	Contributions requirement: 3 months	
Denmark	Stricter eligibility criteria than for employees: 6 months with 18.5hrs weekly over the past year. Previous record as employee may be used to supplement this requirement. Duration of benefit: 18 weeks + 32 weeks parental leave.	Stricter eligibility criteria than for employees: 6 months with 18.5hrs weekly over the past year. Previous record as employee may be used to supplement this requirement. A generous minimum benefit is in place.	Universal old age pension available to all citizens.
Estonia	No contributions duration requirement. Duration of benefit: 435 days.	No contributions duration requirement.	
Finland	Contributions requirement: 180 days immediately before. Duration of benefit: 105 days.	Universal access, but those in precarious employment may receive a lower benefit.	Universal old age pension available to all citizens.
France	Stricter eligibility criteria than for employees: one year. Duration of benefit: 16 weeks.	Stricter eligibility criteria than for employees: one year. No sickness insurance cash benefits scheme for liberal professions.	
Germany	Voluntary system in place which is expensive for those on low income. Duration of benefit: 14 months.	Voluntary system in place which is expensive for those on low income.	
Greece	Contributions requirement: 200 days during the last 2 years (benefit equalised for all self-employed and employed women as of July 2017). Duration of benefit: 119 days.	Exceptionally, lawyers have partial coverage.	
Hungary	Assumption of inactivity. Contributions requirement: at least 365 days over a two-year period. Duration of benefit: 24 weeks.	No minimum contributions requirement.	
Ireland	Stricter eligibility criteria than for employees: one year. Duration of benefits: 26 weeks.	Sickness benefits are only available through the means-tested social assistance system.	

Italy	No minimum contributions requirement. Duration of benefit: 5 months. Alternative provisions through associations in place. Duration of benefit: 5 months.	Some 'professional funds' exist through associations.	
Latvia	No minimum contributions requirement. Duration of benefit: 112 days.	No minimum contributions requirement. Not covered if income below minimum wage.	
Lithuania	Contributions requirement: 12 months over the last 24 months. Duration of benefit: 126 days.	Contributions requirement: 3 months during the 12 months, or 6 months during the preceding 24 months.	
Luxemburg	Contributions requirement: 6 months over the last 12 months. Duration of benefit: 16 weeks.	No minimum contributions requirement.	
Malta	No minimum contributions requirement. Duration of benefit: 18 weeks.	At least 50 paid weekly contributions, of which 20 in the past two years	
Netherlands	Up to a minimum wage unless they have voluntary sickness insurance. Duration of benefit: 16 weeks.	No state-run scheme exists.	Universal old age pension available to all citizens.
Poland	No minimum contributions period required. Same duration of benefits as for employees. Duration of benefit: 20 weeks.	Minimum of 90 days of insurance coverage required.	
Portugal	Contributions requirement: 6 months. The following benefits, which are granted to employed persons, are not provided: child care benefit and benefit for the care of grandchildren. Duration of benefit: 120 or 150 days.	Contributions requirement: 6 months	
Romania	Contributions requirement: 1 month in the previous year. Duration of benefit: 126 days.	Contributions requirement: 1 month in the previous year	Coverage threshold requirement: monthly average net income exceeding 35% of average gross earnings.

Slovakia	Contributions requirement: 270 days during the past two years. A lower parental benefit exists for those who do not fulfil these conditions. Duration of benefit: 34 weeks.	No minimum contributions requirement (270 days for voluntary insurance).	
Slovenia	No minimum contributions requirement. Duration of benefit: 105 days.	No minimum contributions requirement.	
Spain	Contributions requirement: 180 days of contributions over the seven years or 360 days over the whole working life. A flat-rate non-contributory tax-financed maternity allowance also exists. Insurance is voluntary for farmers and compulsory for all others. Duration of benefit: 16 weeks.	Contributions requirement: 180 days over the previous five years. Voluntary for farmers, compulsory for others.	
Sweden	Contributions requirement: yearly income at least 8,634 EUR for a continuous period of 240 days prior to birth of the child. Lower benefit available for those who do not fulfil these criteria. Duration of benefit: 480 days.	No minimum contributions requirement.	Universal old age pension available to all citizens.
United Kingdom	Requires 26 weeks' continuous service with an employer and average weekly earnings of at least the amount of low earnings limit, which disqualifies the self-employed and number of those on part-time contracts. Duration of benefit: 39 weeks.		Individuals, including the self-employed or part-time workers, without an adequate contribution record for the state pension and without substantial other income or capital may claim Pension Credit, a means-tested, tax-financed benefit.

Source: MISSOC database (1 January 2017 version) and ESPN country reports 2016/17.

6.1.2 Sickness benefit

Sickness insurance is compulsory in a significant number of Member States (green boxes in column 2, Table 16). Three countries have only partial coverage (yellow boxes in column 2, Table 16) – France does not have a sickness insurance system for the liberal professions, in Ireland sickness benefits are only available through the means-

tested social assistance system, and in Spain sickness insurance is voluntary for farmers. Sickness insurance for the self-employed is voluntary (orange boxes in column 2, Table 16) in Bulgaria, Czech Republic, Germany, the Netherlands, Poland and the UK. The sickness insurance does not exist for the self-employed in the case of Greece and Italy (red boxes in column 2, Table 16).

In the following nine countries, there is no minimum contributions requirement to qualify for the sickness benefit for employees, nor for the self-employed: Austria, Estonia, Finland, Hungary, Latvia, Luxemburg, Slovakia, Slovenia and Sweden. In addition, the following four countries do not have a minimum contributions requirement for employees: the Czech Republic, France, Italy and the Netherlands, while their contributions requirements for the self-employed can be seen in column 2 of Table 16 (and Table A6 in the Appendix). In addition, the requirement is very low in the case of employees in Denmark (72 hours), Germany (4 weeks), Poland (30 days) and Romania (1 month, also valid for the self-employed). Countries with the more substantial contributions payment requirements for the sickness benefit are: Belgium, Bulgaria, Croatia, Cyprus, Greece, Ireland, Lithuania, Malta, Portugal and the UK, while Spain requires 180 days of contributions over the last 5 years, and thus favour the older cohorts of workers.

Finally, Table 17 shows that income replacement rates of the sickness benefit are the lowest, i.e. between 50-60% of the previous earnings, in the Czech Republic, France, Greece, Hungary, Italy, Slovakia and Spain, while they are at 100% of the previous earnings in Austria, Belgium, Denmark, Luxemburg, Poland, Slovenia and Sweden. Ireland, Malta and the UK offer flat rate sickness benefits for all workers.

Table 17.

Income replacement rates for all workers: maternity and sickness

COUNTRY	Income replacement from maternity (parental) benefit	Income replacement from sickness benefit
Austria	100%	100% initially, then 50%
Belgium	82%	100% initially, then gradual reduction
Bulgaria	90%	70% (80% if longer)
Croatia	100% (50% if contributions below 12 months)	70%
Cyprus	72%	
Czech Republic	70%	60%
Denmark	100%	100%
Estonia	100%	70%
Finland	90% initially, then 70%	70%
France	Maximum: €84.90 per day Minimum: €9.27 per day (linked to earnings)	50% (66.7% with children)
Germany	67%	70%
Greece	50% plus a child benefit of 10% of the above amount, for each child with a maximum of 40%.	50%
Hungary	70%	60%
Ireland	€230 per week	€188 per week
Italy	80%	50% initially (66.7% if longer)
Latvia	80%	80%
Lithuania	100%	80%
Luxemburg	100%	100%
Malta	€90.27 per week	Single parent (or spouse not working): €20.68 per day; single person: €13.64 per day
Netherlands	100%	70%
Poland	100% if contributions paid for 12 months, otherwise progressively lower	100%
Portugal	80%	55% (higher if longer)
Romania	85%	75%
Slovakia	70%	55%
Slovenia	100%	100%

Spain	100%	60% (75% if longer)
Sweden	80% (but there are different categories of benefits)	97%
United Kingdom	€169 per week or 90% of her average weekly earnings if this is less than €169	First 13 weeks: under 25 years of age €70 per week; over 25 years of age €89 per week; from 14 th week: €124 per week for those capable of work-related activity or €132 for those requiring support

Source: MISSOC database (1 January 2017 version) and ESPN country reports 2016/17.

6.2 Workers at risk of not accessing maternity or sickness benefits

6.2.1 Maternity benefit

Women in temporary employment have relatively easy access to the maternity benefit in 23 out of 28 Member States. Even in the countries which have requirements on the duration of contributions payments which are up to six months, when a woman learns about her pregnancy, she has enough time to raise her contributions to improve her average insured wage on the eve of delivery. This is not a possibility, due to a contributions payment requirement that is longer than six months for employees only in Hungary, Lithuania and Slovakia. The share of women aged 15-49 in total temporary employment in these three countries are 36.4%, 21.7% and 39.3% respectively (Table A7 in the Appendix). Sweden also has a long contributions requirement, but women who do not fulfil it are not at risk, because they can rely on other, non-contributory, bases of eligibility for the maternity benefit.

When it comes to the self-employed women of childbearing age, they are not at risk in 21 out of 28 Member States, because there are either no requirements on the duration of contributions payment, or their requirement on contributions is below six months (see Table 16).

Yet, self-employed women of childbearing age are at a risk of not receiving maternity benefits in Bulgaria due to both the voluntary nature of maternity insurance and a long

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contributions requirement within this scheme, as well as in Germany, due to the voluntary insurance for the self-employed. In Bulgaria, women of childbearing age constituted 20.7% of total self-employment in 2016 (2.6% of total employment), and in Germany this figure was 18.1% (or 1.7% of total employment). None of the self-employed women are at risk in Poland, although maternity insurance is voluntary, because they have enough time to opt in once they stay pregnant and still build a contributions record. Nevertheless, self-employed women of childbearing age constituted 21.9% of total self-employment in Poland in 2016, i.e. 3.9% of the country's total employment.

In Hungary, Lithuania and Slovakia, the shares of self-employed women aged 15-49 in total employment in 2016 were 20.3%, 24.5% and 20.6% respectively, and they can all be considered at risk of not fulfilling the contributions payment criteria (Table A7 in the Appendix).

The Czech Republic and France have contributions requirements which are longer than six months for the self-employed only, so all women of childbearing age who work as self-employed are at risk. In the Czech Republic, the share of women aged 15-49 in total self-employment was 21.6% in 2016, while in France it was 20.9% (Table A7 in the Appendix).

Finally, according to Bradshaw and Bennett (2017), the consequence of the UK system of partial maternity coverage is such that those currently taking the shortest paid maternity leaves are low earners, part-time workers and self-employed people. They also point out that an independent review of self-employment published in 2016 recommended extending full maternity provisions to the self-employed (p.15). This put at risk almost 20.9% of all self-employed individuals in the UK in 2016, who were women aged 15-49, and 53.1% of all part-time employees, who were women of childbearing age (Table A7 in the Appendix).

6.2.2 Sickness benefit

When it comes to the sickness benefit, temporary and part-time workers are not more exposed to risk than standard workers in the following countries: Austria, Czech Republic, Estonia, Finland, France, Hungary, Italy, Latvia, Luxemburg, Netherlands, Slovakia, Slovenia and Sweden. In Denmark, a minimum working period of 74 hours during the 8 weeks immediately preceding the sickness is required, which is a very low threshold which should not affect non-standard employees more than the standard ones. Germany, Poland and Romania also only require a month of contributions payment to qualify. In 2016, there were no temporary workers with a contract below one month in Germany or in Romania, while only 2.1% of all temporary workers in Poland had a contract below one month.

In the rest of the countries, some of the temporary workers are at greater risk of not receiving the sickness benefit, because of the longer contributions payment requirements (see Table A6 in the Appendix for detailed criteria). Based on these contributions criteria, the share of temporary workers at risk in 2016 was 54.5% in Belgium, 63.8% in Bulgaria, 26.9% in Cyprus, between 59.8% and 79.5% in Croatia,¹¹ 37.5% in Greece, 19.1% in Ireland, 9.5% in Lithuania, 35.8% in Malta, 40.8% in Portugal and 12.7% in the UK. In Ireland, sickness benefits are available to the self-employed through the means-tested social assistance system, so the most vulnerable of them would be covered. Finally, in Spain, the contributions requirement is very lenient - one is required to pay 180 days of contributions over the past five years to qualify for the sickness benefit. It is therefore not possible to calculate the precise share of temporary workers who are at risk, but 21.8% of all workers in Spain were temporary in 2016, and 32.7% of them were on contracts which lasted up to 6 months.

¹¹ A more precise estimate cannot be offered because data on contracts is split by “up to 6 months” and “between 7-12 months” categories, while Croatia requires 9 months of contributions. Therefore, the lower threshold represents the share of temporary workers who have contracts lasting up to 6 months, while the upper threshold is the share of temporary workers who have contracts up to 12 months.

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Part-time workers are also not at risk since none of the countries constrain eligibility with the amount paid or hours work. Nevertheless, all workers with lower contributions would receive a lower benefit because the benefit is tied to one's earnings, except in Ireland, Malta and the UK, where a flat rate amount is available to all workers (see Table 17).

Furthermore, none of the self-employed face any risk of accessing the sickness benefits in Austria, Estonia, Finland, Hungary, Latvia, Luxemburg, Slovakia, Slovenia and Sweden, as they are covered by compulsory insurance and there are no minimum contributions requirements. The contributions duration requirement is also very low in Romania – only one month. On the other hand, all of them are at risk in Greece in Italy, where insurance coverage in case of sickness does not exist for them. The self-employed made up 9.3% and 10.8% of total employment in 2016 in the two countries.

Sickness insurance is voluntary in Bulgaria, Czech Republic, Germany, the Netherlands, Poland and the UK. In these countries, farmers, women, those without tertiary education and own-account workers are at a higher risk of not opting into the sickness insurance scheme (the precise shares of these categories in self-employment can be found in Tables 5, 7 and 11 in section 3.5). Moreover, in Bulgaria, the Czech Republic and Poland, the contributions payment duration criteria are longer for the self-employed than for employees, even though the insurance is voluntary (see Table A6 in the Appendix).

In the rest of the Member States (Belgium, Croatia, Cyprus, Denmark, France, Lithuania, Malta, Portugal and Spain) sickness insurance is compulsory for all self-employed, but there are contributions payment duration criteria that they need to fulfil to qualify. Moreover, in Denmark and France these criteria are stricter for the self-employed than for employees (see Table 16 and Table A6 in the Appendix for details).

6.3 Old-age pensions

Pensions insurance is compulsory for all categories of workers in all Member States. Nevertheless, pensions are based on relatively long contribution requirements, so all non-standard workers are more likely to receive lower, and possibly minimal pensions, particularly those that belong to the risk categories within self-employment that were identified in section 3.5 (farmers, women, those without tertiary education and own-account workers). In addition, those without citizenship are a particularly vulnerable group (see Table 13 and Table 14 for the size of this population sub-group), because they may not qualify for the minimum pensions that many of the states provide for those who do not have an adequate contributions record.

There are also variations among Member States in how they add up their contributions towards pensions. For example, Bulgaria strongly favours uninterrupted careers, while Croatia allows for additional contributions to be paid retrospectively (this was likely introduced to adjust for the consequences of labour market disruptions during and after the 1990s war). Romania has a coverage threshold requirement for pensions, so that a person cannot be insured unless a monthly average net income exceeds 35% of average gross earnings. Non-standard workers are thus particularly vulnerable in Bulgaria and Romania. On the other side of the spectrum, four Member States have universal access to people's pensions for all citizens, regardless of their employment history. These are Denmark, Finland, the Netherlands and Sweden.

Finally, old age pension access for the self-employed has improved in Belgium, Greece and the United Kingdom between 2007 and 2017. Greece also saw a reform of its pension system, which unified contributions rules for employees and the self-employed,¹² and the UK introduced a single-tier state pension to the self-employed as of 2017 (Spasova et al. 2017, p.63).

¹²The 'self-employed' contributions are now calculated as a percentage of their net taxable income of the previous year, to be paid in 12 monthly instalments (Spasova et al. 2017, p. 63).

7. Concluding remarks

This paper analyses access to social security benefits for non-standard workers in EU-28. It first provides an overview of the general trends in non-standard employment between 2002 and 2016, focusing on temporary and part-time workers, and the self-employed. Most Member States have seen an increase in temporary and part-time work since 2002. Self-employment has remained stagnant in many countries, but there has been a lot of churning within this category, so that the structure of self-employment has evolved away from agriculture and towards higher education. Nevertheless, there is strong variation across EU-28, so that some countries have high incidence of temporary and/or part-time work, while in others self-employment is much more common. The paper also indicates that non-standard work reflects a wider structure of each country's labour market. For example, Croatia, Portugal and Spain are shown to have some of the largest shares of temporary workers in EU-28, but also the largest shares of foreigners within this cohort. This trend is likely linked to their large tourism sectors (and agriculture in Poland) which rely on seasonal employment of both foreign and domestic workforce.

Next, the paper shows that access to unemployment benefits (UB) is the most challenging component of welfare state provision for people in non-standard employment, and especially for the self-employed. This is mostly due to stricter eligibility criteria for UB than for other benefits, i.e. the longer duration of contributions payment requirements. In comparison, maternity and sickness benefits, as well as pensions, have much more lenient eligibility criteria, so non-standard workers in many Member States are not facing significant risks vis-à-vis access to them, although they may be facing problems with lower income replacement rates. This is not a surprising finding given that UB is relevant for the entire population of workers and thus represent a high fiscal burden for the countries, while extending targeted benefits to certain population sub-groups, such as mothers, are usually more politically rational and salient strategies to obtain votes from them.

The paper also finds that access to maternity and particularly to sickness benefits is still challenging in some countries, especially for the self-employed. These countries are most notably Bulgaria, Germany, Greece and Italy. When it comes to unemployment benefits, some of the countries are significantly stricter than others, but many of the countries who have strict criteria also offer advantages to specific vulnerable populations, such as workers aged above 55 with dependent children, in the case of Italy, or to those who lost their jobs due to bankruptcy of the enterprise in Lithuania. The Paper identifies Croatia, Poland, Portugal and Slovenia as having the highest share of temporary workers at risk of not having access to unemployment benefits, while the picture is more complex for the self-employed because there are multiple sources of risk that they face, while combinations of these risks vary across the countries.

Policy reforms in access to the three types of benefits that have taken place between 2007 and 2017 are also examined. While some Member States have not reformed access to benefits during the period of observation, we see positive changes in several countries, including most prominently in Belgium, Italy, Lithuania, Portugal, Slovenia and Spain. The paper, however, warns that some countries have also made access to benefits for non-standard workers more difficult over the past 10 years. Most notably, conditions for benefits access have uniformly worsened in Bulgaria, Ireland and Latvia.

While Eastern European countries have some of the most vulnerable structures of the labour market in EU-28, there may be some lessons that they can offer to those countries with the more rigid criteria for accessing benefits. Since these countries faced a lot of labour market issues during to their transitions to capitalism, they had to adjust their social security systems to become more responsive to the increasing flexibilisation of their labour force. For example, it is worth noting the solution that Poland implemented to improve access to maternity benefits, where 12-months contributions are required to receive a 100% income replacement rate, but for contributions of a shorter duration, there is a gradual reduction of the income

replacement rate for each month of contributions that is missing. Croatia offers another example when it comes to pensions, because they allow for additional contributions to be paid retrospectively.

More generally, this data driven paper shows a diversity of national welfare state reform strategies, as countries adapt to the new era of growth and the changing working conditions that have come along with it. The data presented in the paper indicate that a country's policy towards flexible working, and whether to make it more or less difficult by reforming social benefits and programmes, cannot be examined in isolation from the country's labour market conditions, as well as its growth model. For example, supporting greater labour market flexibility in the Scandinavian context appears to be a sustainable political and economic strategy, because these countries also invest in human capital so there are certain institutional complementarities between the welfare state and the high skill driven economic policies that these countries pursue (see Amable 2003 for a discussion of institutional complementarities between the welfare state and the rest of the economy). On the other hand, the implications of flexible working arrangements are very different in the Italian context, where investment in education is very low and where the structure of the economy does not demand high skill work (Capussela 2018). In such circumstances, encouraging flexible working arrangements may lead to greater precarisation of the workforce. This paper therefore implies that there cannot be policy prescriptions that all EU countries should uniformly adhere to, without taking into account their national economic context.

The position that this paper puts forward is in line with recent political economy research on growth strategies by Avlijas et al (forthcoming), which shows that welfare state reforms over the past 30 years have been driven by the European countries' attempts to adapt their economies to the new era of growth. Along those lines, the paper encourages other researchers to examine why cross-national diversity in welfare state adaptations to flexible work exist in EU-28 and to identify its drivers. Is this diversity "purely" the result of lack of political will in some countries and its presence

in others? Are there more structural economic reasons why some countries are more able to adapt their welfare state to the growth of non-standard employment than others? How does a country's political economy and its institutional context make it less or more likely for a country to reform their social security system? These and similar questions should be pursued in future research.

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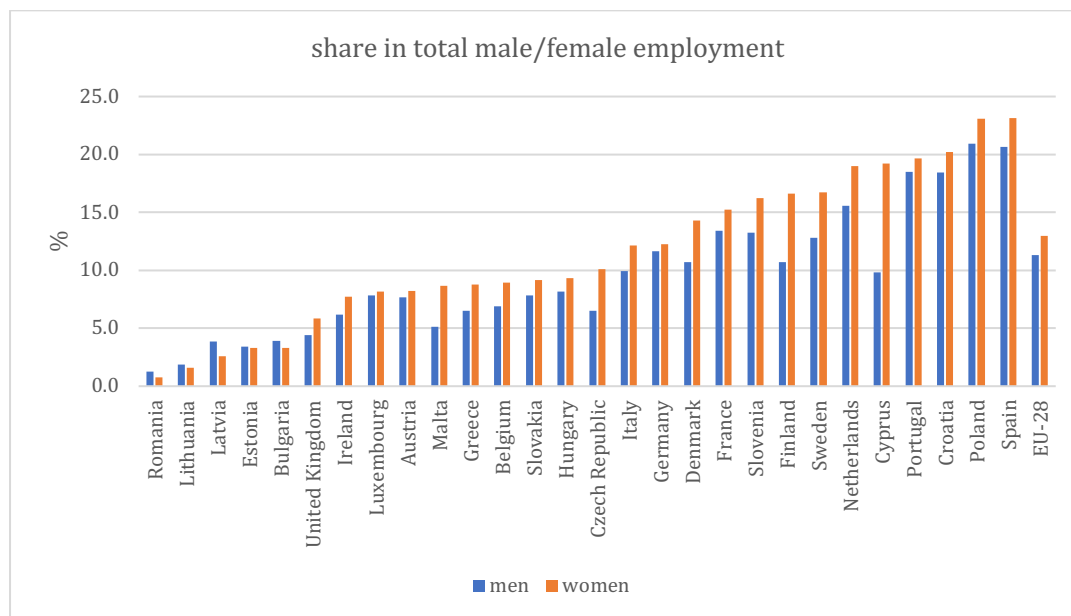
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Appendix

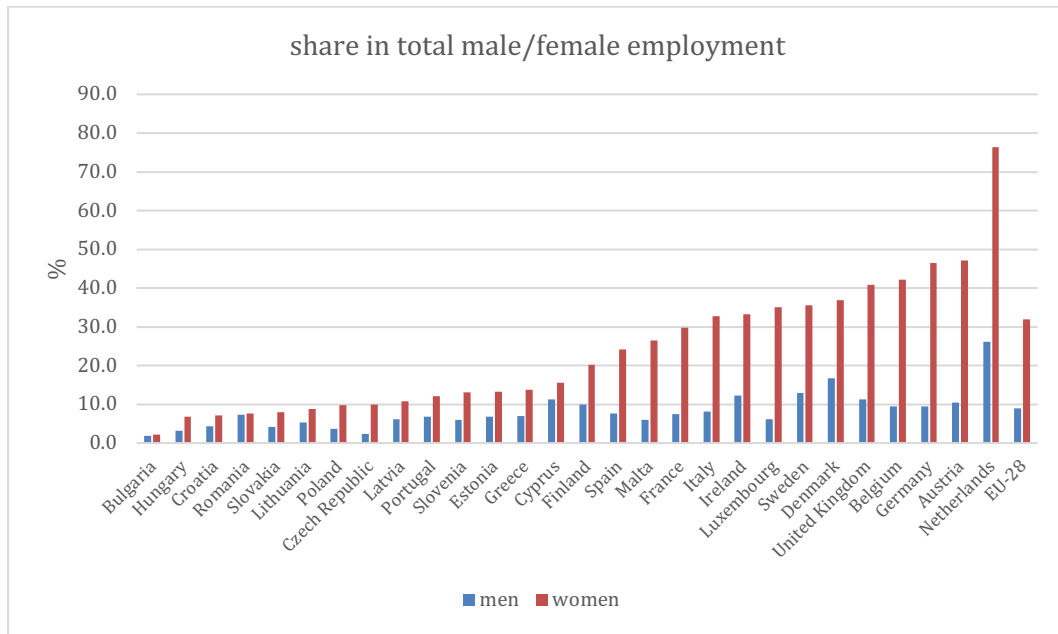
Figure A1. Temporary employment by gender in EU-28, 2016



Source: Own calculations from LFS data, Eurostat.

Note: All the data refers to the working age population (15-64).

Figure A2. Part-time employment by gender in EU-28, 2016



Source: LFS data, Eurostat.

Note: All the data refers to the working age population (15-64).

Table A3. Policy reforms July 2007 – January 2017

COUNTRY	Unemployment benefit		Maternity benefit		Sickness benefit	
	employees	self-employed	employees	self-employed	employees	self-employed
Austria	no change	voluntary scheme introduced	no change	no change	no change	no change
Belgium	contributions requirement reduced from 312 working days in 18m to 21m	no change	contributions requirement reduced from 6m to 120 days	lump sum for entire period reduced to weekly flat rate (min. 3 wks, max. 12 wks); women assisting the self-employed also became eligible	contributions requirement reduced from 6m to 120 days	no change
Bulgaria	basis for benefit changed from average earnings in the past 9m to the past 24m	no change	contributions requirement increased from 6m to 12m	contributions requirement increased from 6m to 12m	no change	no change
Cyprus	no change	no change	no change	no change	no change	no change
Czech Republic	contributions requirement changed from 12m in 3 to 12m in 2 yrs; special provision introduced: 12m can be completed by substitute periods of employment (e.g. personal care of a child); replacement rate increased for the initial period of unemployment	no change	no change	introduced additional 180 days of contributions requirement	no change	no change
Denmark	no change	no change	no change	no change	no change	no change
Estonia	no change	no change	no change	no change	added qualifying period of 14 days for the newly employed	no change

Finland	significant relaxation of eligibility criteria	no change	introduced qualifying conditions	no change	no change	no change
France	significant relaxation of eligibility criteria	no change	min. hrs requirement reduced	min. hrs requirement reduced	min. hrs requirement reduced	min. hours requirement reduced
Germany	no change	no change	no change	no change	introduced 4 wks qualifying period	no change
Greece	switched from an earnings-based to flat-rate benefit	an allowance introduced, but not ministerially approved	no change	no change	no change	no change
Hungary	contributions requirement increased; job-seeker assistance removed; duration of benefits significantly reduced; maximum reduced from 120% of min. wage to 100%	farmers partially integrated into the system	contributions requirement increased from 6m to 1yr	farmers partially integrated into the system	no change	farmers partially integrated into the system
Ireland	contributions requirement increased from 39 to 104 wks; benefit duration reduced from 390 days to max. 9m	no change	no change	no change	weekly contributions requirement increased from 52 to 104 wks	no change
Italy	substantially reduced contributions requirement; reduced benefit ceiling; increased income replacement rate from 50 to 75%; introduced special measure for NEETs	introduced paternity benefit for self-employed in case of single parent	no change	no change	no change	no change
Latvia	increased contributions requirement from 9m in 12m, to 12m in 16m	no change	no change	no change	no change	no change
Lithuania	contributions requirement reduced from	owners of individual enterprises,	contributions requirement increased	became compulsory	no change	became compulsory

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	18m in 3yrs to 12m in 30m; increased generosity of benefits over time; switched from flat-rate to earnings related benefit	members of small partnerships, and partners of general partnerships became eligible	from 3m in 12m or 6m in 24m to 12m in 24m			
Luxembourg	no change	contributions requirement reduced from 5 to 2 yrs	no change	no change	no change	no change
Malta	no change	no change	no change	no change	no change	no change
Netherlands	income replacement increased from 70 to 75%; gradual reduction and restructuration of benefits duration	no change	no change	no change	no change	introduced a voluntary non-state insurance for sickness
Poland	removed the means test	no change	no change	no change	no change	qualifying period reduced from 180 to 90 days
Portugal	contributions requirement reduced from 450 to 360 days; duration of benefits increasingly tied to contributions over time and age	became compulsory	no change	became compulsory	no change	became compulsory
Romania	no change	no change	no change	no change	no change	no change
Slovakia	contributions requirement reduced from 3 to 2 yrs; rate reduced for top earners	no change	no change	no change	no change	no change
Slovenia*	contributions requirement reduced from 12m to 9m; added exceptions for youth	became compulsory	no change	no change	no change	no change
Spain**	reduced income replacement rates	introduced voluntary insurance	contributions requirement reduced from 180	no change	no change	no change

			days in 5 yrs, to in 7 yrs			
Sweden	no change	basic compulsory scheme introduced; a more favourable earnings basis introduced	no change	no change	no change	no change
United Kingdom	introduced a qualifying period for contributions based JSA	no change	no change	no change	no change	no change

Sources: MISSOC database (data for Croatia is missing, as it only joined the EU in 2014) and ESPN 2016/17 country reports.

Notes: * Data for the self-employed available only since 2010 ** Data for the self-employed available only since 2008.

Legend: red – conditions worsened, yellow – ambiguous direction of reform; green – conditions improved

Table A4. Net income replacement rates in the first month following job loss, 2014

COUNTRY	Single, no children			Single, two children			Married, no children (spouse not working)			Married, two children (spouse not working)		
	% of average wage			% of average wage			% of average wage			% of average wage		
	50	69	100	50	69	100	50	69	100	50	69	100
Austria	67.60	55.00	55.00	99.90	82.70	65.10	90.00	70.50	56.30	100.00	96.70	76.10
	UB Housing Benefits + UB	UB	UB	UB; Social Assistance Benefits; Housing Benefits; Family Benefits + Income Tax	UB; Social Assistance Benefits; Housing Benefits; Family Benefits + Income Tax	UB; Family Benefits + Income Tax	UB; Social Assistance Benefits; Housing Benefits	UB; Social Assistance Benefits; Housing Benefits	UB	UB; Social Assistance Benefits; Housing Benefits; Family Benefits + Income Tax	UB; Social Assistance Benefits; Housing Benefits; Family Benefits + Income Tax	UB; Social Assistance Benefits; Housing Benefits; Family Benefits + Income Tax
Belgium	85.90	87.10	66.30	82.40	92.40	74.10	75.20	81.00	62.50	78.40	80.10	64.20
	UB	UB	UB	UB + Family Benefits	UB + Family Benefits	UB + Family Benefits	UB	UB	UB	UB; Family Benefits + Income Tax	UB + Family Benefits	UB + Family Benefits
Czech Republic	79.10	76.90	71.50	78.70	76.30	72.00	78.70	76.10	69.10	107.90	73.80	65.90
	UB Housing Benefits + UB	UB Housing Benefits	UB Housing Benefits	UB; Housing Benefits + Family Benefits	UB; Housing Benefits + Family Benefits	UB; Housing Benefits + Family Benefits	UB Housing Benefits + UB	UB Housing Benefits	UB Housing Benefits	UB; Social Assistance Benefits; Housing Benefits + Family Benefits	UB; Housing Benefits + Family Benefits	UB; Housing Benefits + Family Benefits
Denmark	92.40	83.20	62.10	94.40	90.00	76.20	142.40	123.30	93.30	120.90	120.00	100.00
	UB; Housing Benefits; Social Assistance Benefits; Social Contributions + Income Tax	UB; Housing Benefits; Income Tax	UB; Housing Benefits; Income Tax	UB; Housing Benefits; Family Benefits + Income Tax	UB; Housing Benefits; Family Benefits + Income Tax	UB; Housing Benefits; Family Benefits + Income Tax	UB; Housing Benefits; Social Assistance Benefits + Income Tax	UB; Housing Benefits; Social Assistance Benefits + Income Tax	UB; Housing Benefits; Social Assistance Benefits + Income Tax	UB; Housing Benefits; Social Assistance Benefits + Income Tax	UB; Housing Benefits; Social Assistance Benefits + Income Tax	UB; Housing Benefits; Social Assistance Benefits + Income Tax
Estonia	55.50	54.60	53.90	71.40	64.70	59.30	60.00	56.90	55.50	80.50	65.00	61.00
	UB Income Tax + UB	UB Income Tax	UB Income Tax	UB; Housing Benefits + Family Benefits	UB; Family Benefits + Income Tax	UB; Family Benefits + Income Tax	UB Housing Benefits + UB	UB Income Tax + UB	UB Income Tax	UB; Social Assistance Benefits; Housing Benefits + Family Benefits	UB; Housing Benefits + Family Benefits	UB + Family Benefits
Finland	82.70	75.20	71.00	91.40	91.20	82.00	90.70	85.10	71.90	93.40	93.40	80.30
	UB; Housing Benefits + Income Tax	UB; Housing Benefits + Income Tax	UB Income Tax	UB; Housing Benefits + Family Benefits + Income Tax	UB; Housing Benefits + Family Benefits + Income Tax	UB; Family Benefits + Income Tax	UB; Housing Benefits; Social Assistance Benefits + Income Tax	UB; Housing Benefits; Social Assistance Benefits + Income Tax	UB Income Tax	UB; Housing Benefits; Social Assistance Benefits + Income Tax	UB; Housing Benefits; Social Assistance Benefits + Income Tax	UB; Housing Benefits; Social Assistance Benefits + Income Tax
France	76.20	68.70	66.50	84.50	70.90	69.60	62.40	60.30	65.90	68.00	62.60	66.60
	UB + Social Contributions + Income Tax	UB; Social Contributions + Income Tax	UB; Social Contributions + Income Tax	UB; Housing Benefits + Family Benefits + Social Contributions + Income Tax	UB; Family Benefits + Social Contributions + Income Tax	UB; Family Benefits + Social Contributions + Income Tax	UB + Social Contributions + Income Tax	UB; Social Contributions + Income Tax	UB; Social Contributions + Income Tax	UB; Housing Benefits; Social Assistance Benefits + Income Tax	UB; Family Benefits; Social Contributions + Income Tax	UB; Family Benefits; Social Contributions + Income Tax
Germany	63.40	58.80	58.80	89.60	86.10	71.10	79.80	61.30	58.80	83.30	90.10	72.60
	UB Housing Benefits + UB	UB	UB	UB; Housing Benefits + Family Benefits	UB; Housing Benefits + Family Benefits	UB + Family Benefits	UB Housing Benefits + UB	UB	UB	UB; Housing Benefits + Family Benefits	UB; Housing Benefits + Family Benefits	UB; Housing Benefits + Family Benefits

Greece	50.00	37.90	28.00	75.40	59.60	45.10	50.00	39.00	28.60	64.90	51.10	39.30
	UB	UB	UB	UB + Family Benefits	UB + Family Benefits	UB + Family Benefits	UB	UB	UB	UB + Family Benefits	UB + Family Benefits	UB + Family Benefits
Hungary	70.80	65.30	45.10	82.50	76.70	59.30	70.80	66.80	47.10	81.10	78.10	59.90
	UB; Social Assistance Benefits; Social Contribution ns + Income Tax	UB; Social Contribution ns + Income Tax	UB; Social Contribution ns + Income Tax	UB; Housing Benefits + Family Benefits	UB; Housing Benefits + Family Benefits	UB; Housing Benefits + Family Benefits	UB; Housing Benefits; Social Contribution ns + Income Tax	UB; Housing Benefits; Social Contribution ns + Income Tax	UB; Housing Benefits; Social Contribution ns + Income Tax	UB; Housing Benefits; Family Benefits + Social Contribution ns	UB; Housing Benefits; Family Benefits + Social Contribution ns	UB; Housing Benefits; Family Benefits + Social Contribution ns
Ireland	82.90	67.40	50.00	66.70	69.20	63.00	127.80	97.70	72.50	96.00	89.60	80.10
	UB Housing Benefits	+ UB Housing Benefits	+ UB Housing Benefits	+ Housing Benefits	+ Housing Benefits	+ Housing Benefits	UB Housing Benefits	+ UB Housing Benefits	+ UB Housing Benefits	+ UB; Housing Benefits	+ UB; Housing Benefits	+ UB; Housing Benefits
Italy	84.50	72.30	60.50	83.50	77.50	71.80	85.10	77.70	63.80	83.50	74.90	69.80
	UB Income Tax	+ UB Income Tax	+ UB Income Tax	+ UB + Family Benefits	+ UB + Family Benefits	+ UB + Family Benefits	UB + Family Benefits (for family without children)	UB + Family Benefits (for family without children)	UB; Family Benefits (for family without children) + Income Tax	UB + Family Benefits	UB + Family Benefits	UB + Family Benefits
Latvia	82.30	83.90	85.20	78.00	77.30	79.60	71.80	75.70	79.20	100.00	78.20	70.40
	UB	UB	UB	UB + Family Benefits	UB + Family Benefits	UB + Family Benefits	UB	UB	UB	UB; Housing Benefits + Family Benefits	UB; Housing Benefits + Family Benefits	UB + Family Benefits
Luxemburg	87.60	83.00	84.80	98.10	95.70	92.90	100.60	93.70	82.30	100.20	98.50	88.60
	UB; Social Assistance Benefits; Social Contribution ns + Income Tax	UB; Social Contribution ns + Income Tax	UB; Social Contribution ns + Income Tax	UB; Housing Benefits; Social Assistance Benefits + ns	UB; Social Assistance Benefits + ns	UB; Family Benefits; Social Contribution ns + Income Tax	UB; Housing Benefits; Social Contribution ns + Income Tax	UB; Housing Benefits; Social Contribution ns + Income Tax	UB; Social Contribution ns + Income Tax	UB; Housing Benefits; Social Assistance Benefits; Social Contribution ns + Income Tax	UB; Housing Benefits; Social Assistance Benefits; Social Contribution ns + Income Tax	UB; Family Benefits; Social Contribution ns + Income Tax
Netherlands	90.50	73.80	74.90	69.70	70.80	71.90	88.80	84.30	75.10	87.30	85.30	83.30
	UB; Social Contribution ns + Income Tax	UB; Social Contribution ns + Income Tax	UB; Social Contribution ns + Income Tax	UB; Housing Benefits; Social Contribution ns + Income Tax	UB; Housing Benefits; Social Contribution ns + Income Tax	UB; Housing Benefits; Social Contribution ns + Income Tax	UB; Housing Benefits; Social Contribution ns + Income Tax	UB; Housing Benefits; Social Contribution ns + Income Tax	UB; Social Contribution ns + Income Tax	UB; Housing Benefits; Social Assistance Benefits; Social Contribution ns + Income Tax	UB; Housing Benefits; Social Assistance Benefits; Social Contribution ns + Income Tax	UB; Housing Benefits; Social Contribution ns + Income Tax
Poland	94.60	69.50	48.50	84.70	86.70	68.40	77.70	71.80	50.50	82.10	66.40	54.20
	UB; Housing Benefits + Income Tax	UB; Housing Benefits + Income Tax	UB; Housing Benefits + Income Tax	UB; Housing Benefits + Family Benefits	UB; Housing Benefits + Family Benefits	UB; Housing Benefits + Family Benefits	UB; Housing Benefits + Income Tax	UB; Housing Benefits + Income Tax	UB; Housing Benefits + Income Tax	UB; Housing Benefits + Family Benefits	UB; Housing Benefits + Family Benefits	UB; Housing Benefits + Family Benefits
Portugal	73.00	75.00	75.00	76.30	78.60	76.50	73.00	75.00	75.00	75.80	78.00	76.20
	UB	UB	UB	UB + Family Benefits	UB + Family Benefits	UB + Family Benefits	UB	UB	UB	UB + Family Benefits	UB + Family Benefits	UB + Family Benefits
Slovakia	59.50	62.40	64.90	71.60	71.60	92.00	69.00	57.70	59.50	78.30	61.90	58.70
	UB	UB	UB	UB + Family Benefits	UB + Family Benefits	UB + Family Benefits	UB; Housing Benefits + Social Assistance Benefits	UB	UB	UB; Housing Benefits; Social Assistance Benefits + Family Benefits	UB; Housing Benefits; Social Assistance Benefits + Family Benefits	UB + Family Benefits

Non-standard employment and social security

Slovenia	76.10	87.20	67.20	93.10	88.00	79.60	82.90	84.00	69.40	86.40	89.50	73.90
	UB; Housing Benefits + Social Contributions	UB; Social Contributions + Income Tax	UB; Social Contributions + Income Tax	UB; Housing Benefits + Family Social Contributions	UB; Housing Benefits + Family Social Contributions	UB; Housing Benefits + Family Social Contributions	UB; Housing Benefits + Social Contributions	UB; Housing Benefits + Social Contributions	UB; Housing Benefits + Social Contributions	UB; Assistance Benefits + Housing Benefits + Family Social Contributions	UB; Housing Benefits + Family Social Contributions	UB; Housing Benefits + Family Social Contributions
Spain	74.20	76.90	55.90	71.10	76.60	70.00	70.20	75.50	55.70	71.10	74.70	69.90
	UB + Social Contributions	UB; Social Contributions + Income Tax	UB; Social Contributions + Income Tax	UB; Family Social Contributions	UB; Family Social Contributions	UB; Social Contributions + Income Tax	UB + Social Contributions	UB + Social Contributions	UB + Social Contributions	UB; Family Social Contributions	UB; Family Social Contributions	UB + Social Contributions
Sweden	78.30	59.30	42.20	86.50	76.60	61.80	96.50	72.10	51.30	96.50	81.30	61.20
	UB; Housing Benefits; Social Assistance Benefits; Social Contributions + Income Tax	UB; Social Contributions + Income Tax	UB; Social Contributions + Income Tax	UB; Housing Benefits; Family Social Contributions + Income Tax	UB; Housing Benefits; Family Social Contributions + Income Tax	UB; Housing Benefits; Family Social Contributions + Income Tax	UB; Housing Benefits; Social Assistance Benefits; Social Contributions + Income Tax	UB; Housing Benefits; Social Assistance Benefits; Social Contributions + Income Tax	UB; Housing Benefits; Social Assistance Benefits; Social Contributions + Income Tax	UB; Housing Benefits; Social Assistance Benefits; Social Contributions + Income Tax	UB; Housing Benefits; Social Assistance Benefits; Social Contributions + Income Tax	UB; Housing Benefits; Social Assistance Benefits; Social Contributions + Income Tax
United Kingdom	68.00	52.10	37.70	74.00	72.20	65.00	74.90	63.20	45.70	79.70	77.80	72.50
	UB Housing Benefits	+ UB Housing Benefits	+ UB Housing Benefits	UB; Housing Benefits + Family Benefits	UB; Housing Benefits + Family Benefits	UB; Housing Benefits + Family Benefits	UB Housing Benefits	+ UB Housing Benefits	+ UB Housing Benefits	UB; Housing Benefits + Family Benefits	UB; Housing Benefits + Family Benefits	UB; Housing Benefits + Family Benefits
Bulgaria	76.60	76.60	76.50	86.60	84.80	83.00	76.60	76.60	76.50	88.80	85.90	79.30
	UB	UB	UB	UB + Family Benefits	UB + Family Benefits	UB + Family Benefits	UB	UB	UB	UB; Social Assistance Benefits + Family Benefits	UB; Social Assistance Benefits + Family Benefits	UB + Family Benefits
Croatia	No data											
Cyprus	No data											
Lithuania 2014	67.30	50.50	35.90	75.80	66.40	51.00	71.90	54.00	38.40	94.70	90.70	68.70
	UB	UB	UB	UB + Family Benefits	UB + Family Benefits	UB + Family Benefits	UB + Social Assistance Benefits	UB + Social Assistance Benefits	UB + Social Assistance Benefits	UB; Social Assistance Benefits + Family Benefits	UB; Social Assistance Benefits + Family Benefits	UB; Social Assistance Benefits + Family Benefits
Lithuania 2015	83.20	76.30	54.80	85.20	84.60	65.30	83.20	76.30	54.80	96.80	94.30	69.30
	UB	UB	UB	UB + Family Benefits	UB + Family Benefits	UB + Family Benefits	UB	UB	UB	UB; Family Social Assistance Benefits	UB; Family Social Assistance Benefits	UB; Family Social Assistance Benefits
Malta	68.30	52.20	40.40	81.00	65.80	53.60	80.50	62.60	49.50	81.50	66.30	53.90
	UB; Housing Benefits + Social Assistance Benefits	UB; Housing Benefits + Social Assistance Benefits	UB; Housing Benefits + Social Assistance Benefits	UB; Housing Benefits + Family Benefits	UB; Housing Benefits + Family Benefits	UB; Housing Benefits + Family Benefits	UB Housing Benefits	+ UB Housing Benefits	+ UB Housing Benefits	UB; Housing Benefits + Family Benefits	UB; Housing Benefits + Family Benefits	UB; Housing Benefits + Family Benefits
Romania	55.40	44.10	34.50	63.30	52.40	44.40	54.50	43.70	34.40	60.90	50.40	40.40
	UB	UB	UB	UB + Family Benefits	UB + Family Benefits	UB + Family Benefits	UB	UB	UB	UB + Family Benefits	UB + Family Benefits	UB + Family Benefits

Source: Own calculations from OECD Tax and Benefit Calculator.

Table A5. Share of foreigners in total employment

COUNTRY	% of foreigners in total employment	
	2006	2016
Romania	0.2	0.0
Croatia	0.2	0.2
Bulgaria	0.2	0.2
Slovakia	0.2	0.3
Poland	0.2	0.3
Lithuania	0.7	0.5
Hungary	0.7	0.6
Czech Republic	1.0	2.1
Portugal	3.5	2.4
Finland	1.4	3.1
Malta	2.8	3.8
Netherlands	3.3	4.1
Slovenia	0.4	4.2
France	4.7	5.6
Sweden	4.2	6.0
Greece	6.8	6.3
Denmark	3.2	8.7
Belgium	7.5	10.4
Italy	5.8	10.7
Spain	12.1	10.8
Germany	8.3	10.8
United Kingdom	6.6	11.2
Latvia	0.9	12.2
Estonia	16.9	13.7
Austria	9.6	14.6
Ireland	13.0	15.9
Cyprus	13.8	19.8
Luxembourg	44.7	52.0
EU-28	5.7	7.7

Source: Own calculations from LFS data, Eurostat.

Table A6. Summary of eligibility criteria for maternity and sickness benefits

COUNTRY	Maternity benefit		Sickness benefit	
	for self-employed	for employees	for self-employed	for employees
Austria	none	none	none	none
Belgium	6 months	120 days	6 months	120 days
Bulgaria	12 months	12 months	12 months	6 months
Croatia	none for low flat-rate benefit 12 months for earnings based	none for low flat-rate benefit 12 months for earnings based	9 months of consecutive insurance or 12 with interruptions during the last two years. If condition is not fulfilled, there is a minimum sickness benefit	9 months of consecutive insurance or 12 with interruptions during the last two years. If condition is not fulfilled, there is a minimum sickness benefit
Cyprus	26 weeks	26 weeks	26 weeks	26 weeks
Czech Republic	6 months + 270 days in last 2 years	270 days in last 2 years	3 months (voluntary)	none
Denmark	6 months + minimum hours	120 hours in 13 weeks	6 months + minimum hours	74 hours during the 8 weeks immediately preceding the sickness
Estonia	none	none	none	none
Finland	180 days	180 days	none	none
France	for leave up to 6 months: 3-6 months of insurance with min. salary/hours for leave longer than 6 months: 12 months of insurance with min. salary/hours + registered with the health insurance scheme for min 1 year	for leave up to 6 months: 3-6 months of insurance with min. salary/hours for leave longer than 6 months: 12 months of insurance with min. salary/hours + registered with the health insurance scheme for min 1 year	for leave up to 6 months: 3-6 months of insurance with min. salary/hours for leave longer than 6 months: 12 months of insurance with min. salary/hours + registered with the health insurance scheme for min 1 year	for leave up to 6 months: 3-6 months of insurance with min. salary/hours for leave longer than 6 months: 12 months of insurance with min. salary/hours + registered with the health insurance scheme for min 1 year
Germany	voluntary	none	no coverage	4 weeks
Greece	200 days of work resulting in contributions during the last 2 years	200 days of work resulting in contributions during the last 2 years	no coverage	120 days of work during the previous year or the 12 first months of the 15 months preceding the illness
Hungary	1 year	1 year	none	none
Ireland	52 weeks	39 weeks	means tested only	104 weekly contributions
Italy	none	none	no coverage	none
Latvia	none	none	none	none
Lithuania	12 months	12 months	3 months	3 months during the last 12 months or at least 6 months during the last 24 months
Luxemburg	6 months	6 months	none	none

			(6 months of insurance in case of cessation of the labour contract)	
Malta	none	none	at least 50 paid weekly contributions of which 20 in the preceding two years	at least 50 paid weekly contributions of which 20 in the preceding two years
Netherlands	none	none	voluntary	none
Poland	none but benefit grows with longer record (voluntary)	none	3 months (voluntary)	30 days
Portugal	6 months	6 months	6 months	6 months
Romania	1 month	1 month	1 month	1 month
Slovakia	270 days	270 days	none (270 days for voluntary insurance)	none
Slovenia	none	none	none	none
Spain	180 days over 7 years	180 days over 7 years	180 days over 5 years	180 days over 5 years
Sweden	240 days + minimum annual income	240 consecutive days before confinement	none	none
United Kingdom	26 weeks	26 weeks	voluntary	26 weeks or means-tested

Source: MISSOC database (1 January 2017 version) and ESPN country reports 2016/17.

Table A7. Women aged 15-49 in non-standard employment, 2016

COUNTRY	Women aged 15-49 in non-standard employment		
	% of total self-employment	% of total part-time workers	% of total temporary workers
Austria	21.0	59.2	45.3
Belgium	21.6	53.0	47.2
Bulgaria	20.7	33.2	31.5
Croatia	19.6	41.4	44.1
Cyprus	23.3	43.2	55.6
Czech Republic	21.6	55.3	44.9
Denmark	17.8	49.9	47.5
Estonia	22.7	46.5	40.3
Finland	19.7	49.5	50.8
France	20.9	53.0	43.2
Germany	18.1	50.5	42.8
Greece*	18.8	45.7	43.2
Hungary	20.3	40.3	36.4
Ireland	14.0	49.5	45.0
Italy	21.3	55.1	40.3
Latvia	23.9	40.4	30.3
Lithuania	24.5	38.0	21.7
Luxembourg	27.4	60.2	42.2
Malta	12.1	56.8	43.9
Netherlands**	22.5	51.0	46.7
Poland	21.9	47.4	40.9
Portugal	21.3	41.1	44.8
Romania	16.7	27.5	21.9
Slovakia	20.6	42.9	39.3
Slovenia	21.4	50.3	47.0
Spain	21.3	55.4	41.7
Sweden	16.6	51.8	47.7
United Kingdom	20.9	53.1	42.8
EU-28	20.4	51.7	42.7

Source: Own calculations from LFS data, Eurostat.

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