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Overtime work: A review of literature and initial empirical analysis

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1. Introduction

Taking a theoretical and empirical perspective, this report analyses and assesses the incidence and rational for overtime work with a special focus on the European situation[1]. There are strong reasons to believe that the incidence of overtime work is dependent upon interrelated economic, societal and institutional factors. The type of industrial relations systems and the regulatory framework, particularly as regards the level at which working time is determined (national, industry or company level) are constitutive elements of national working time regimes. Over and above an analysis of the regulatory framework, which is crucial for understanding the cross-country disparities in the distribution of working time and the incidence of long working hours, other economic and societal factors may shape and affect the incidence of overtime and excessive hours. For example, the shape of wage distribution and the size of overtime premiums (and/or time off in lieu) may affect both the demand and supply of overtime. Parallel to studies analysing the role of the institutional set-up in explaining cross-country diversity in the incidence of overtime, a growing number of empirical studies have focused on the individual and societal consequences of excessive working hours on health and well-being[2]. In this context, overwhelming empirical evidence has begun to demonstrate shown that persistent exposure to long working hours has detrimental effect on workers' safety, health and work-life balance. To illustrate: the risk of accidents is not only proportional to the number of hours worked, but rises at an exponential rate above a certain hour-threshold. While health and safety is an important issue, the use of overtime is also an important element of companies' flexibility strategies. Employers are sometimes facing unforeseen variations in demand and overtime might be an efficient tool to cope with short run variations of output across the business cycle. The additional income for employees constitutes also a central dimension and for some workers overtime might be a substantive source of additional revenue. For workers with very low wages, overtime may be a structural necessity to make ends meet.

To date, much of the existing literature on overtime is found in distinct academic fields, focusing on specific aspects of overtime work. In this report, we review some evidence mainly from labour economics, industrial relations and sociology, to provide an inter-disciplinary overview on how overtime issues are addressed by different academic disciplines. Furthermore, one value added of our study is that the empirical part of this report is based on an analysis of overtime in different national contexts. Working conditions in general, and overtime in particular, are crucially dependent of the prevailing institutional set-up at the national and supranational level. The behaviour of governments, employers and trade-union organisations is also important for understanding a country's working time regime. Analysing the incidence of overtime work within the context of distinct national employment regimes and industrial relations systems constitutes therefore a suitable approach to enhance our understanding of overtime practice.

This report is structured as follows: chapter two presents the usual definitions of overtime that are often adopted for statistical purposes and reviews existing regulation at the supranational level that could affect the incidence of overtime. A review of both theoretical and empirical literature on overtime is provided in Chapter three. Chapter four develops some methodological considerations and presents the criteria used for selecting our sample of countries. Chapter five presents an overview of the national institutional frameworks for overtime practice. Taking a gender and life course perspective, in Chapter seven a detailed analysis of the national working

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[1] Due to data limitation our analysis will mainly focus on dependent employees in a selected number of EU Member States with contrasted employment and working time regimes (Denmark, Germany, Romania Spain and the UK). As an illustration of a developing economy the situation in Turkey regarding overtime will also be analysed in this report.

[2] For one thorough review, see Deloitte consulting report on behalf of the European Commission from December 2010 and Bannai & Tamakoshi (2014) for a recent survey of the epidemiological consequences of long working hours.

time regimes (duration and distribution of working time) and the incidence of overtime in our six selected countries is provided. Using standard econometric methods an analysis of the socio-economic factors affecting the likelihood of working overtime as well as the supply of overtime hours is provided in Chapter eight. Chapter nine summarizes the main findings and provides some concluding remarks.

2. Definitions of overtime

2.1 *The role of working time thresholds and compensation in defining overtime*

In working time literature, a key distinction is usually made between the concept of *overtime* and *excess* in working hours. Working hours beyond a pre-defined threshold that gives rise to the payment of an overtime premium or time off in lieu is commonly considered as overtime work, whilst working hours above standard/normal hours without wage and/or time compensation is usually called *excess hours*. Against this background the definition of overtime is crucially dependent upon a country's regulatory framework stating the prevailing legal norm on working time and the hours-threshold where overtime starts. The definition and measurement of overtime hours might therefore differ extensively across countries, making cross-country comparisons regarding the incidence of overtime work problematic. Hence, in order to assess the role and incidence of overtime it is crucial to first specify the definitions of overtime work used by international institutions (the EU, the OECD or the ILO) and also to analyse the regulatory framework at the country level. Table 1 displays the current statistical definitions of these institutions and contrasts them with those in some empirical papers. The ILO definition of overtime is widespread and commonly adopted. It will be presented together with the standard statistical definitions, adopted by OECD and Eurostat, the statistical office of the European Union. These will be contrasted against two definitions collected from research literature and one collected from a study by the European Foundation for the Improvement of Working Life and Working Conditions (Eurofound). The table contains also some information about the rules applying to explicit hours-thresholds where overtime starts as well as the explicit rules regarding overtime premium/compensation. As shown by Table 1 there is no universal definition and common rules regarding the hours-threshold at which overtime starts, making it difficult to compare the incidence of overtime across countries with different regulatory frameworks. This makes it also difficult to study the individual consequences of overtime hours in an international or even national perspective, since thresholds can vary both between and within countries.

At the supranational or national level, the hours-threshold commonly adopted is a maximum standard working time ("normal hours") above which overtime occurs, and a maximum total working time which usually (but not necessarily) includes overtime. An illustration of the later is the European Union's Working Time Directive from 1993, revised in 2003 that sets maximum total weekly hours including overtime to 48 hours of work on average, over a 17-week period (see below section 2.2). A Eurofound study (2003) takes definitions one step further by distinguishing overtime hours from two other separate categories of *additional working hours*, namely:

- **Overtime** are hours beyond the point where some compensatory payment or time off in lieu begins ;
- **Extra hours** are hours beyond maximum standard working time but below the point where compensatory payment or time off in lieu begins;
- **Excess work** [or extended hours] are hours beyond usual working time, including extra hours and overtime if applicable, that are neither counted nor paid /nor compensated with time off in lieu.

Table 1: Overview on statistical definitions with commentaries

Content	Definitions by central international institutions				Some research definitions	
Origin	OECD (2001)	Eurostat (2017)	ILO (1962 & 2004)	Eurofound study on overtime, 2003	Trejo (1993, p.260)	Kuroda Yamamoto (2012, p. 252)
Definition	[Overtime is...] "time worked in addition to hours worked during normal periods of work, and which are generally paid at higher than normal rates"	"Overtime hours are the number of hours actually worked by an employee in excess of his or her contractual hours of work[a]. Paid overtime hours are the number of hours actually worked by an employee in excess of his or her contractual or normal daily or weekly hours of work for which the employee is entitled to compensation, in pay, kind or compensatory leave"	[Overtime hours are...] "all working hours in excess of the normal hours, unless they are taken into account in fixing numeration in accordance to custom." [For practical purposes the ILO also discerns over working time thresholds, e.g. contractual, usual and statutory working time, and whether overtime give rise to pay compensation or not].	"Overtime hours are those worked above a certain threshold of working time, which attracts enhanced compensation for the worker, either in the form of an increased rate of pay or time off in lieu"	"I adopt the conventional definition of overtime as weekly hours of work past 40 [hours]"	"Japan´s Labour Standards Act requires employers to pay a minimum overtime premium of 25% to employers working beyond the statutory works hours of 40 hours a week or eight hours a day"
Comments	The OECD definition includes a condition of threshold ("in addition to hours worked during normal periods of work") but gives no universal condition for compensation.	Eurostat provides a condition of threshold ("in excess of [...] contractual or normal [...] hours") no condition of compensation.	The general ILO definition introduce a condition of threshold ("excess of the normal hours") but makes no distinction between paid and unpaid overtime.	The Eurofound study does include a condition of threshold (flexible though: "above a certain threshold") and makes a clear distinction that overtime hours are hours that are compensated for.	Trejo provides a universal condition of threshold (40 hours) but no condition of compensation.	Kuroda & Yamamoto uses the Japanese Labour Standard Acts definition of overtime, including a universal condition of both threshold and compensation.
Rules of hours-threshold	Yes	Yes	Yes	Yes	Yes	Yes
Rules of wage/ premium compensation	No	No	No	Yes	No	Yes

[a] According to Eurostat, contractual hours of work are the hours the employee is expected to work in the reference week as predetermined (by order of preference) by an individual contract between the employer and the employee, by convention at the enterprise level, by collective agreement or by legislation.

Actual working hours including additional hours are given as average over some reference period, usually ranging from four and up till twelve months. Summarizing findings so far, *Figure 1* below displays the hours-thresholds and the three categories of additional hours.

Figure 1: Regulation of working time and overtime work
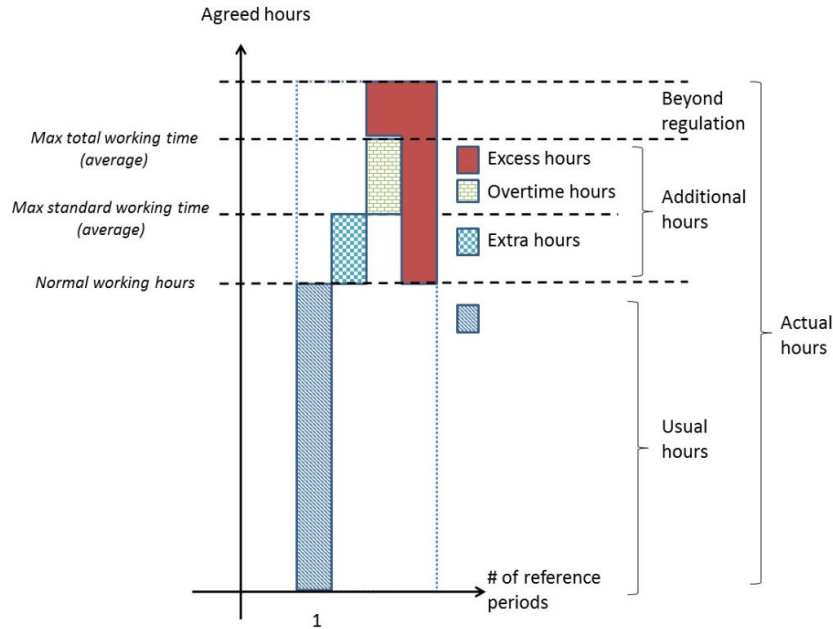
Note that the thresholds of working time are based on a statutory (e.g. legal) maximum amount of working hours. Depending on industrial relations systems social partners may via collective agreements lower this maximum[3]. Note also that the addition of excess hours may result in actual working hours that exceed the maximum total working time, since excess hours are (per definition) often uncontrolled for and hence not monitored. Based on *Figure 1* it is possible to derive the following relations:

- Maximum standard working hours (per day or week) = Normal hours + Extra hours
- Maximum total working hours (per day or week) = Normal hours + Extra hours + Overtime
- Actual working hours (per day or week) = Usual hours + Additional hours

A study aimed at analysing the main characteristics of overtime must first identify the current threshold of working time and distinguish between overtime hours and other additional hours. A pre-requisite is to identify some sort of standard or normal working time. At the supranational level the EU Working Time Directive can help us to determine some common standards regarding working time among EU Member States and thus constitute a starting point for analysing overtime in Europe.

2.2   *Overtime: The role of the European Working Time Directive*

The 23rd of November 2003, the *European Parliament and the Council* adopted, the *Working Time Directive* under Article 137(2) of the European Treaty (2003/88/EC), the aim of which was to harmonise and regulate working time practices among EU Member States and to protect workers´ health and safety. The Directive requires that Member States take measures necessary

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[3] In some cases, the maximum standard working time is set by collective agreements at the inter-professional level or industry level see section 2.3 for details

to ensure that some minimum work standards are respected. According to the Directive every worker is entitled to an upper limit on weekly working time, special protection for night work, a minimum daily rest, and to paid annual leave of at least four weeks. More specifically the Directive states that weekly working hours should not exceed on average 48 hours for each seven-day period *including overtime* (Directive 2003/88/EC, Article 6b) over a three-month reference period. Regarding breaks and rest periods, the Directive stipulates a minimum daily rest period of 11 consecutive hours in every 24-hours period, a minimum weekly rest period of 24 uninterrupted hours for each seven-day period, in addition to the 11 hours' daily rest and a rest break during working hours if the worker is on duty for longer than 6 hours.

Some aspects of the Directive are noteworthy. Firstly, the Directive defines maximum weekly hours, standards and thresholds as averages over a given period. This is a common way of setting up a scheme (Eurofound, 2003). The Directive provides the option for Member States to opt-out from the 48-hour weekly working time limit (European Commission, 2017a), on the condition that general principles regarding workers' safety and health are respected and that there is an explicit agreement in writing between the employee and the employer. Not all Member States allow the use of this opt-out option and the conditions under which it can be used vary significantly from country to country (see Eurofound, 2015). Eighteen Member States make use of the opt-out regarding the 48-hour weekly working time limit. Five EU Member States allow the opt-out, irrespective of the sector of activity or occupation (*Bulgaria, Croatia, Cyprus, Estonia, Malta* and the *United Kingdom*). In other countries the use of the opt-out is restricted to certain sectors or for certain occupations (*Belgium, the Czech Republic, France, Germany, Hungary, Latvia, the Netherlands, Austria, Poland, Slovakia, Slovenia* and *Spain*)[4].

According to the European Commission (2017a), only the *United Kingdom* had carried out an evaluation of the effects of the requirements and derogations of the Directive. This evaluation found that between 1997 and 2013 the reduction in the share of employees working above the 48-hours limit can mainly be ascribed to a common international trend towards reduced working hours. However, the findings suggest that the introduction of the Working Time Directive has had some additional effects in reducing the number of long working hours.

According to the same report from the Commission, the large majority of workers in the EU are subject to working time regulations and dispositions that respect EU legislation. In many cases also rules at the national level afford greater protection than the minimum standards required under the Directive and working time limits are far below the 48 hours maximum weekly working time. The compliance of Member State legislation with the Directive's requirements is according to the Commission also improving. However, the report shows also that trade unions are concerned that the "opt-out" options undermines the Directive's aim of protecting workers' safety and health, whereas employer organizations express concerns regarding the prevalence of stricter national laws compared to the Working Time Directive (European Commission, 2017a).

Since its adoption the Working Time Directive has triggered some controversy. The background for this controversy/antagonism is that employers strive for more working time flexibility while trade unions endeavour to safeguard and protect workers' health and safety in the face of increasing competitive pressures. In the period of 2004-2009 the EU tried to revise the Directive but failed to reach an agreement (MEMO/11/789). In 2009 a second attempt was launched, based on a 2-stage consultation with workers and employer's representatives. In 2011 the social partners started a negotiation round but this broke down by the end of 2012. More recently the European Commission launched a new attempt to revise the Directive, this time in

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[4]According to the EC report (2017a), 10 out of the 18 Member states allowing for opt-out of the Directive have an explicit maximum limitation on working hours above the weekly 48 hours limit.

the form of a detailed impact assessment. This revision exercise ended in the publication in 2017 of a Communicative Interpretation.[5]

2.3   *Working time and overtime regulations – A European perspective*

As already mentioned, working time regulations vary across EU member states. At the Member State level, we usually distinguish four levels of regulation: at the national level (statutory law or inter-professional agreements) at the industry level through collective agreements (industry agreements), at the company level through decentralized negotiations (company collective agreements) and at the individual level through agreement or arrangements between the employer and employee (see Anxo & O'Reilly, 2000 and Anxo et al., 2013, 2017). Even though a combination of these levels of regulation may coexist, one of the levels tends to predominate leading to different working time regimes in the EU. These distinct forms of regulation influence the duration of working time and the shape of the working time distribution, in particular the incidence of overtime and proportion of employees working long and excessive hours (see Anxo et al, 2017). Table 2 below summarizes the main types of working time regimes in Europe.

Table 2: Main institutional levels of regulation of working time in EU Member States

Level of Regulation/Working time regime	State dominant working time regimes (*Statutory Legislation*)	State dominant regulation but with some derogations via *collective agreements*	Negotiated Working Time Regimes (Collective agreements mainly at the industry level)	Employer/Market Based Working Time Regime (*Decentralised/ company / employment contract)*
Member States	Bulgaria, Estonia, Latvia, Lithuania, Hungary, Poland, Romania and Slovenia	Croatia*, Czech Republic**, France*, Greece*, Ireland** Malta** Portugal* and Slovakia*	Austria, Belgium, Denmark, Finland Germany, Italy, Cyprus, the Netherlands Spain and Sweden	United Kingdom

*State dominated regulation but with possible Derogation/deviation via collective agreement at the industry level (More favourable clause)

** State dominated regulation but with possible derogation/deviations via collective agreement at the company level (more favourable clause)

In spite of cross-country variations in the mode of regulation of working time, statutory regulation on working time usually defines a legal norm for working time and two hours-thresholds (Eurofound, 2003):

- Firstly, a standard /normal working time acting as a ´statutory norm´ or ´maximum´ standard working time above which overtime begins and also stipulating the corresponding compensation in terms of overtime premium or time off in lieu.
- Secondly, an explicit maximum of overtime hours and/or total daily or weekly working hours including overtime that cannot be exceeded.

Regarding working time regimes that mainly regulate working time via collective agreements, the two sides of industry usually agree on a normal/standard working time that is generally below the statutory norm. Often collective agreements define the level of compensation, e.g. overtime premium and / or time off in lieu. Hours in excess of the negotiated standard working time but below the statutory norm are generally not considered as overtime hours, and not subject to overtime compensation in the form of extra pay or time off in lieu. Overtime starts

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[5] http://eur-lex.europa.eu/legal-content/FR/TXT/?uri=uriserv:OJ.C_.2017.165.01.0001.01.FRA&toc=OJ:C:2017:165:TOC

usually above the statutory norm, which work as a threshold. Sometimes collective agreements may lower or raise the threshold at which overtime begins and for some countries even modify the statutory norm regarding the maximum volume of overtime (i.e. move the maximum number of overtime hours up or down).

In regimes with a weak regulation of working time and/or a decentralised working time setting (like the *United Kingdom* for example), overtime is hardly regulated and overtime (threshold, volume and compensation) is negotiated at the company or individually agreed between employer and employee throughout the employment contract. The decentralised level of regulation of working time and the possibility to opt-out from the EU-Directive imply that there is no general norm/standard regarding overtime.

Looking at the broad picture, under the last two decades we can see at the EU level a general tendency towards a decentralisation of the regulation of working time and overtime at the industry and company level and a general tendency towards larger autonomy of the social partners to depart from the statutory norm (See Anxo et. al. 2013, 2017).

3.   Literature review

3.1   *The supply and demand of overtime hours: A theoretical perspective*

According to standard labour market theory, the number overtime hours is the outcome of both demand and supply factors.

3.1.1 The supply of overtime

Standard labour supply theory states that the number of working hours supplied by a worker is dependent on an exogenously given hourly wage rate and non-labour income. The individual is assumed to maximise utility given a time and budget constraints. At the optimum, the number of hours worked is given at the point where the individual indifference curve is tangent to the budget constraint. According to standard comparative static analysis a change in the marginal hourly wage rate give rise to two opposite effects: *an income* and *a substitution effect*. The *income effect* implies that as wage increases the worker's potential income grows and the worker can afford more leisure, i.e. the worker is willing to supply fewer working hours. The substitutions effect works in the opposite direction. As hourly wage rises, the opportunity cost of leisure (i.e. the price of leisure goes up), making the worker willing to supply more hours. Whether the income effect or substitution effect dominates is an empirical question. The worker supply hours when his/her actual wage is above his/her *reservation wage*. At low hourly wages the substitution effect dominates and a rise of hourly wage increases the supply of hours. For higher wage the income effect may dominate, making an individual in front of a wage increase to supply less hours. Hence, the labour supply curve is said to be "backward bending". In other words, for low paid worker an increase in the hourly wage rate (for example, an increase of overtime premium) may induce the worker to work more hours (overtime). For highly paid workers an increase of hourly wage may lead to a reduction of working hours. Empirical evidence show however that low-wage workers and high wage workers tend to have long work hours and that the actual distribution of working hours is strongly affected by the institutional set up, wage setting and cultural norms. To illustrate, in countries with large wage dispersion and with low minimum wages, workers have strong incentives to work long hours to get a decent monthly wage. By the same token countries with low marginal tax and high return to human capital, high paid workers have strong incentive to supply long hours.

Standard labour market theory of overtime and overtime premiums goes back to Perlman (1966). Standard neoclassical theory assumes that workers are free to choose the bundle of working and leisure hours that maximize their utility. A more realistic assumption however, is

that workers face external constraint/ regulation (e.g. a standard number of working hours), perhaps due to industry-wide agreements or statutory legislation. Against this background, workers might accept to work more hours than preferred (an implicit form of overtime), since the alternative of not working at all would make the worker even worse off. Such a worker can be said to be 'overemployed' (Hart, 2004). In this context, it is possible for the employer to raise hourly wage above a certain hour-threshold, i.e. introducing an overtime premium. The premium makes it possible for the overemployed worker to reach a higher utility level by working more hours than the contracted, i.e. explicit overtime, and thus encourages employees to work longer working time. In dealing with the potential problems of overemployed workers, paying an overtime premium should be a more efficient way for firms to increase working hours than raising the standard wage, since it creates a relatively large substitution effect at relatively lower marginal cost.

Some argue that overtime premium reflects a worker´s opportunity cost of supplying labour. Labour demand is often rising in times of improved macroeconomic conditions and during periods of economic growth job opportunities for workers improve. As outside job opportunities and earnings improve, the opportunity cost of supplying overtime hours goes up and firms should be forced to compensate workers accordingly (Hart, 2004). Others consider overtime premium as a device for firms to contract away supply-side uncertainties, or a way of increasing workers' effort (Hart, 2004).

Summarizing, the worker's supply of overtime hours is dependent on the standard/normal working time and the size of the overtime premium. According to this theory the introduction of a working time limit may imply overemployed workers, with low morale and low productivity/effort as a negative potential consequence. One way of dealing with such negative consequences is to pay an overtime premium for hours above the standard working time. But what if the standardized working time and the a exogenously fixed overtime premium lead firms to reduce overtime hours since they are not willing to pay the premium? We need now to look at the demand side.

3.1.2 The demand of overtime

Labour economics have since the 1970s tried to explain the variation of working time and employment level across the business cycles, i.e. how firms adapt to demand variation, either through a variation of the number of employees (*External numerical flexibility* via lay-offs and hiring) or by a variation of working hours (*Internal numerical flexibility*). Already in the early 1970s Azariadis (1975) noted that overtime is more common in industries with low labour turn-over due to a tendency of under-staffing within these industries. The reason for under-staffing was mainly to reduce layoffs costs in times of economic downturn. According to Azariadis, firms are willing to pay a wage premium for this under-staffing if it creates long-term attachments and workers prefer a better overall job security even if this security implies a higher demand of overtime hours.

According to standard labour demand theory the existence of hiring and dismissal costs (*transaction costs*) affect the demand of labour and thus also the demand of overtime hours. From the company side, these costs are related to search cost and output loss when trying to fill a vacancy and by dismissal cost when laying off workers (severance pay, advance notice etc.). The magnitude of these transaction costs is dependent upon institutional features such as the strength of employment protection regulation and the related cost of dismissal. In countries with high transaction costs we may expect that the adjustment of employment across the business cycle takes the form of internal numerical flexibility (a variation of working time across the business cycle, i.e. overtime and short-time working). On the contrary, in countries with weak employment protection the adjustment takes mainly the form of a variation of the number of employees, i.e. external numerical flexibility. The intuition here is that – due to these transaction costs – at the start of an economic recession, a company's first response is to decrease employees' working hours (*labour hoarding*) and then as demand continues to fall, start to lay

off people. Similarly, at peaks, a company has a strong incentive to first lengthen working hours of available employees and then later, if the expansionary phase continues, start hiring additional workers. The variation of hours i.e. the use of overtime and short time working are related to these transaction costs but also to the size of overtime premium and/or time off in lieu. The transaction costs theory has good empirical support implying that overtime is a leading indicator for GDP, especially for troughs, since cutting overtime hours often constitutes a ´first line of defence´ for firms in times of a falling demand or alternatively mere expectations of a falling demand (Hart 2004).

Figure 2: Overemployed worker, underemployed worker & standard wage compensation
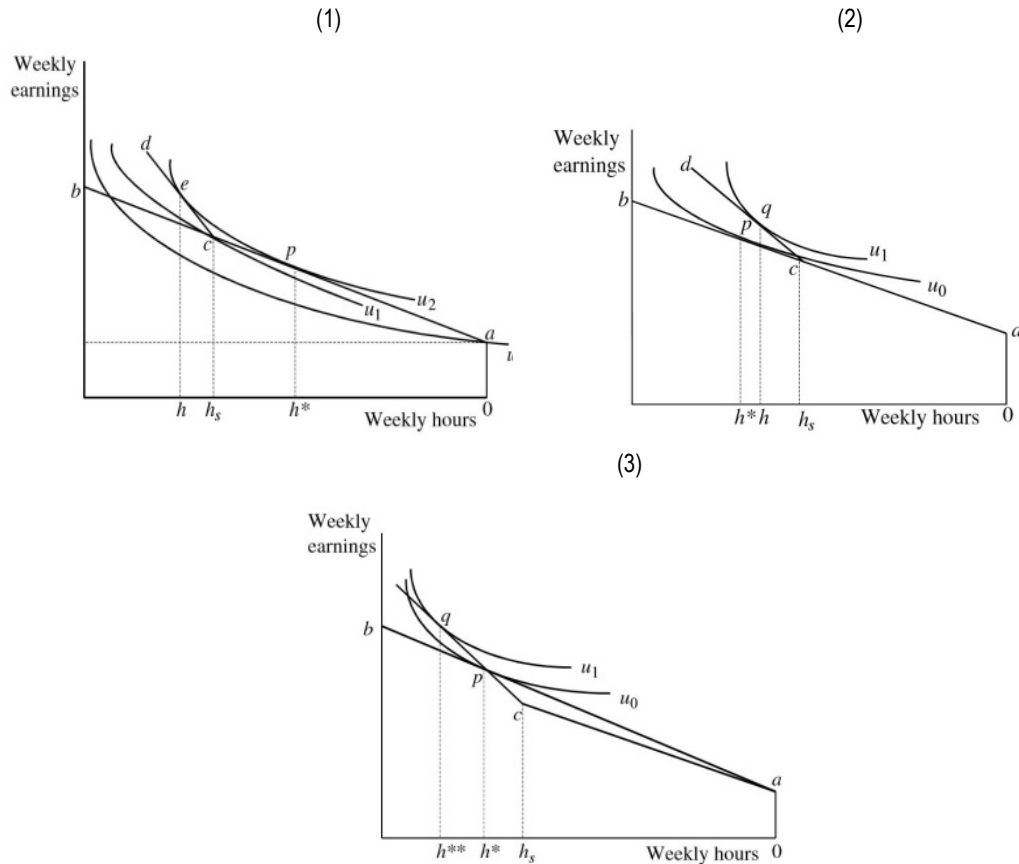
Curves u_x reflect the worker's different utility levels and point "a" corresponds to non-labour income. For (1) and (2), h* is preferred number of hours of work at given wage rate, hs are hours given by the standardized workday constraint and h are actual hours. In (3), the preferred hours h* can be purchased at the same cost as h* in 2, since standard wage is adjusted in accordance to line a-c, hs are the point where overtime premium kicks in to offset the standard wage loss and h** reflects the fact that the worker once again finds herself underemployed.

Source: Hart (2004)

The overtime premium is sometimes used as a policy instrument for reducing the demand of overtime hours, since an increase in the premium will make it relatively cheaper for employers to hire additional workers instead of lengthening working time via an increase of overtime. However, the net effect remains somewhat unclear, since an increase in the overtime premium will not only create a substitution effect but also a scale effect, as the marginal cost of production goes up (see Trejo 1991 and Hart 2004). Like in the case of overemployed workers, standardized working time agreements might create "underemployed" workers. Furthermore, a

regulation on overtime premiums, might comfort the feeling of employees to be underemployed if the employer is not willing to pay the premium and instead reduce working time. In this case, the outcome might be lower work morale, lower productivity/effort and intensified job search efforts. Even though a regulation of working time and overtime premiums could on an aggregated level be motivated (increase employment via work sharing), this policy solution might nonetheless be sup-optimal at the microeconomic level (Hart, 2004). In this context employers and workers might therefore search for other arrangements/agreements. One arrangement might be that the employer and the underemployed worker agree to lower standard hourly wage (for "normal hours). The lower standard hourly wage is then compensated by the overtime premium in a way that offset the workers wage loss for normal hours.[6]

In other words, the main point here is that a regulation of working time and overtime premium can be *neutralized* by a reduction in standard hourly wage (for "normal hours").

Is there empirical evidence that confirm that an increase in overtime premium leads to work sharing? Research findings are ambiguous. Trejo (1991) analysed whether the Fair Labour Standards (FLS) act, that is regulating the U.S. labour market since 1938, fulfils its objective '*to increase employment by spreading the amount of available work*'. The FLS act regulated weekly working hours and introduced an overtime premium of one and a half times the standard hourly wage. The basic argument is that overtime premium should discourage firms to use overtime hours, because it generates a higher marginal cost for additional overtime hours relative to the marginal cost of hiring an additional worker. The underlying assumption is however, that hourly wages are exogenously given (at market wage rate) and that supply of labour is infinitely inelastic. Trejo calls this a *Fixed-Wage model*. An alternative possibility is, as mentioned above, that firms and workers determine jointly weekly working time and wage (i.e. determined endogenously via a contract). Firms are indifferent regarding the allocation between standard hours and overtime hours as long as the allocation produces the same weekly rents. Similarly, workers are indifferent to the allocation of standard hours and overtime hours as long as they receive the weekly earnings. Firms and workers can then come to agreements regarding weekly hours and weekly earnings. The possibility to affect standard hourly wage can thus neutralize an overtime pay regulation. Trejo calls this the *Fixed-Job model* (first suggested by Lewis 1969). Trejo tested the Fixed-Wage model and the Fixed-Job model using U.S. data and concludes that neither of the models fits the observed data. There is support for some but not complete adjustments of standard wage rates to the overtime pay regulation.

Similarly, Kuroda and Yamamoto (2012) tested if a *Fixed-Job* model or a *Fixed-Wage* model is most relevant to describe the developments in the Japanese labour market. Japan´s *Labour standards act* requires firms to pay 25 per cent overtime premium for work hours above the standard hours. However, the act also permits exemptions and does not prescribe specific conditions to exempt a specific work task from the regulation and many white-collar jobs are not covered by the overtime pay regulation. This provides a possibility for firms to exert some cost control by constraining non-covered employees to work longer hours, since it can be done at no marginal cost. The lack of clear criteria regarding the overtime regulation led to many law suits against firms. Kuroda and Yamamoto used these law suits to identify workers who are either exempted or covered by the overtime pay regulation, to study if standard hourly wages and working hours relate to overtime premiums or not. Non-covered employees were used as the treatment group while covered employees constituted the control group. Kuroda and Yamamoto´s results are ambiguous. For the period of 2004-2007, in times of relatively good economic conditions, the average treatment effect is zero and thus in support of a Fixed-job model. However, during the period of severe recession 2008-2010 the average treatment effect showed relatively longer hours for employees non-covered by the overtime regulations, in support of the Fixed-wage model. Kuroda and Yamamoto conclude that the results are sensitive

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[6] As Hart (2004) points out, this solution is only partial since the worker most likely finds herself underemployed again but now on a higher utility level.

to the economic situation and that the Fixed-wage model with sticky prices prevails during economic downturn, especially for workers with weak bargaining power.

Table 3: Theoretical effects of a regulatory attempt to dampen the demand for overtime hours by a raise in the overtime premium

	Short run	Middle / Long run
Hourly wages and overtime premium assumed to be "fixed" and exogenously given	Permanent reduction of overtime	Job creation/employment increase via work sharing
Wage conditions relaxed (not exogenously given) but overtime premium still fixed" and exogenously given	Temporary reduction of overtime work	Long run adjustments though a reduction of standard hourly wage that lead to an increase of overtime

In summary, the effect of using the regulation of overtime premium as an instrument to favour job-creation/sharing of work remains uncertain and depends mainly whether hourly wages are fixed and exogenously given, or if the firms may affect the hourly wage. Table 3 above summarize the findings

3.2 Overtime: Empirical studies

3.2.1 Incidence of overtime

There is surprisingly little research on the incidence of overtime. Golden and Wiens-Tuers (2005) provide an empirical analysis of mandatory overtime based on a US household survey conducted in 2002. They find that mandatory overtime is more common among men, foreign born and individuals with lower level of education, while marital status does not affect mandatory overtime. Industries with a high incidence of mandatory overtime are farming and fishing, public administration, manufacturing and blue-collar jobs. Job characteristics associated with a higher incidence of mandatory overtime work are inflexible work schedules, seniority and bonus compensation. Finally, respondents reporting mandatory overtime indicate that they have difficulties of finding/moving to another job compared to respondents that report non-mandatory overtime. Bauer and Zimmerman (1999) study data for German workers 1984-1997 and find that the share of low-skilled workers that does not work overtime is higher than the corresponding share of high-skilled workers. Furthermore, over the period, they found an increase of unpaid overtime. High-skilled workers are found to report relatively more unpaid overtime than low-skilled workers. Bell and Hart (1999) analysing the British labour market found that low-paid workers work more overtime than high-paid workers. The negative impact of low hourly wage on weekly earnings is partly offset by a rise in overtime hours, overtime hours tending to reduce income differentials. Industries covered and uncovered by collective agreement are found to have about the same incidence and distribution of overtime hours, quite in opposite of what one might expect. This finding is in stark contrast to the situation in the US labour market, where union density is found to clearly reduce the incidence of overtime. In a study analysing the situation in the Canadian labour market, Friesen (2001) found that collective agreed overtime premium acts as a constraint inducing workers to take up secondary jobs, i.e. moonlighting. Regarding the level of overtime premium in the United Kingdom, Bell and Hart (1999) found that the premium is more or less constant at 1.4 times the straight hourly wage and does not depend on the number of overtime hours. In a later study from 2003, Bell and Hart (2003) suggest that the premium is mostly a matter of norms and established practices. Jobs with below-market wages are found to be compensated by above-market-level overtime premiums, suggesting a dynamic in line with the Fixed-Job model for the British labour market. The review of literature suggests that the demand of overtime cannot be reduced only to firms'

strategy for coping with short-term fluctuations in demand, but is affected by the prevailing regulation of working time, overtime premium, agreement between workers and employers and wage setting mechanism.

3.2.2 Empirical evidence on the individual consequences of overtime and long hours

To our best knowledge, very few empirical studies have tried to assess the individual consequences of overtime hours. A majority of studies have analysed the consequences of long working hours on job quality, well-being and health. Reviewing the relationship between working time and health and safety a Deloitte (2010) report found that the risk of accident/injuries is not only proportional to the number of working hours, but increases disproportionally beyond the 7th, the 8th and the 9th hour worked per day. The risk of accident is doubled between the 8th to the 12th hour of a work. Similarly, the risk of accident-based injuries or illness is found to double between 40 and 65 work hours per week. A German study covering 1100 German workers in the automotive industry found that a rise in overtime hours increased sickness absenteeism and accident/injuries. Furthermore, safety may also decrease with long working hours. For example, the nurses working more than 12.5 hours per day have been found to be 3.3 times higher than for individuals working below 8.5 hours per day. The risk of errors among nurses working more than 40 hours per week was found to be 1.96 times higher than for nurses working below 40 hours per week. Regarding work-life balance, some 26 out of 30 studies report that long and excessive working hours is associated a reduction of job satisfaction well-being and increase work-life balance problems (see also Anxo et.al 2017).

Bannai and Tamakoshi (2014) provide a thorough and systematic review of epidemiologic research on the potential detrimental impact of long working hours. The survey includes only studies with a control group of employees working around 40 hours per week or eight hours per day and a treatment group where employees work more than 40 hours per week on average. Furthermore, they exclude study including atypical work (shift-work, night work), since atypical work is associated with its own specific health risks. In order to assess the causal effect on long working hours on health the authors review only studies looking at death or disease and exclude all risks that could be related to job-specific characteristics. The authors conclude that long working hours is associated with higher anxiety, sleep disorder, depressive state and coronary heart disease (CHD). For mortality, diabetes, metabolic syndrome, and other mental state disorder they did not find evidence of a causal relation.

4. Methodological considerations: Selection of countries

The choice of the six countries analysed in this report, namely *Denmark, Germany, Romania, Spain, Turkey* and the *United Kingdom* has principally been guided by the fact that they represent distinct and contrasted forms of welfare state capitalism (see Amable, 2003) as well as distinct employment and working time regimes. To illustrate: The *United Kingdom* represents the archetype of liberal market-based capitalism with high competition in the product market, low state intervention, weak social protection and weak regulation on the labour market and very decentralised wage bargaining system and working time setting. *Denmark* on the other hand represents a good illustration of the Nordic form of welfare state capitalisms, the archetype of flex-security and negotiated flexibility where negations between social partners are crucial for the regulation of the labour market. *Germany* is the archetype of so called continental conservative welfare states capitalism (see Esping Andersen (1990), and Amable, 2003) with relatively high degree of employment-based social protection and employment protection, limited numerical external flexibility, and bargaining system mainly at the industry level regarding wage and working time settings. *Spain* belongs to the so called South European form of Capitalism, with moderate social protection, but with relatively high involvement of the state regulation of the labour market, in particular regarding employment protection and binding statutory minimum wage and a relatively high centralisation of wage and working time

bargaining. *Romania* belongs to the post-communist European countries. Bohle and Greskovits (2012) suggest that after the collapse of the Soviet Union, the post-communist countries have established three variants of capitalisms, a neoliberal capitalism, an embedded neoliberal or neo-corporatist capitalism[7]. According to Bohle and Greskovits (2012) Romania appears to be a good illustration of neo-corporatist capitalisms, with residual and limited welfare but with, as far as labour market is concerned, a state-dominated regulation of labour market and working time. The choice of *Turkey* has been mainly motivated by the fact that this country can be considered as a developing country not being member of the EU and therefore not subject to EU regulation on working time. Furthermore, the choice of the six countries has been motivated by the fact that they represent distinct types of working time regimes making it possible to explore the potential link between the actual regulatory frameworks and the duration and distribution of working time (see section 2.3 above). There are strong reasons to believe that industrial relations system, in particular regarding the settings of wage and working time, shape the working time distribution and the incidence of overtime and long hours.

Table 4: Criteria's for the selection of countries: Form of welfare state capitalism, working time regimes, level of regulation and key actors

Country:	Denmark	Germany	Romania	Spain	Turkey	UK
Type of welfare states capitalism:	Nordic welfare state capitalism	Continental-conservative welfare capitalism	Post-communist economy	South European Capitalism	Developing economy	Liberal market-based capitalism
Working time regime:	Negotiated Working Time Regime	Negotiated Working Time Regime	State Dominant Working Time Regime	State Dominant Working Time Regime	State Dominant Working Time Regime	Market-Based Working Time Regime
Level of regulation:	Industry level via collective agreements	Mixed of national regulation and Industry collective agreement	Statutory legislation/national regulation	Mixed of national regulation and Industry collective agreement	Statutory legislation	Company
Key actors:	Social partners	Social partners	State	State and Social partners	State	Employer – Employee

As shown by Table 4, our selected countries represent distinct types of welfare state capitalism, different employment regimes and level of regulation of working time. *Denmark* and may be to a lesser extent *Germany* constitute the ideal-type of a negotiated working time regimes where the social partners are the main actors regarding the regulation of the labours market in general and working time in particular. *Romania, Spain* and *Turkey* represent a regime where the State is the main actor concerning the regulation of working time even though in some case (*Spain and Romania*) the statutory regulation might be modified via collective agreements. Last but not least the *United Kingdom* is the archetype of a liberal market capitalism with weak intervention of the state in the labour market and working time essentially regulated through market mechanism and agreements at the company level.

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[7] According to Bohle and Greskovits (2012), the post-communist *neoliberal capitalism* is characterized by a relatively high level of government accountability, market efficiency and macroeconomic coordination, but a relatively low level of democratic representation, corporatism and welfare protection. *Embedded neoliberal capitalism* share most of these traits but show a medium level of corporatism, welfare protection and macroeconomic conditions. *Neo-corporatist capitalism* is characterized by a relatively high level of government accountability, democratic representation, corporatism, welfare protection but relatively low level of market efficiency and market coordination.

5. Institutional frameworks and regulations in the six selected countries

This section describes the regulations of working time and overtime in our six selected countries.

5.1 *Denmark*

In Denmark working time is mainly regulated via collective agreements and in case of lack of collective agreements via statutory regulation (work environment law and/or EU Working Time Directive) and individual employment contracts. Since 1990 a standard work week of 37 hours has been the norm. Following the EU Working Time Directive the weekly working including overtime time cannot exceed 48 hours.[8] The Danish state refrains from intervening in the regulation of working conditions, but the work environment law *Arbejdsmiljøloven* (LBK no 1084:19/09/2017) states in its article 50 that working hours shall be organized to allow for a minimum of 11 consecutive hours of rest each 24-hours period, following the disposition of the EU Working Time Directive.

The prevailing *Industrial agreement 2017-2020* (2017) is a good illustration of the role of social partners and collective agreements regarding working time regulations. This agreement concluded between the Danish employer organization *Dansk Industri*, and the Danish union for industry workers, *Centralorganisation af Industriansatte,* covers 11 000 firms employing about one million workers. The clause 13:1 of this agreement defines overtime as *"work carried out outside the daily working hours determined for each individual employee"*. The agreements states that working time shall be based on an average working time of 37 hours per week (clause 9:1). Any hours in excess of the 37 may be accumulated and taken as full days off, within six months (clause 9:2). Clause 13:3 state that a maximum of 5 hours systematic overtime (mandatory overtime) per calendar week and 1 hour per work day, is allowed. The agreement sets up also specific wage premium for different overtime hours in relation to the normal working hours, e.g. first clock hour after normal hours, second clock hour after normal hours etc. (clause 13:7). The worker shall be compensated for overtime with a corresponding amount of time off in lieu accumulated into full days.

5.2 *Germany*

In Germany working time is generally regulated via collective agreements. The German *Working Time Act (ArbZG Arbeitszeitgesetz)* provides the general framework however. For example, article 3 states that a normal working day may not exceed eight hours, but may be extended up to a maximum of ten hours if the average over three months is eight hours per day. Article 7 states a number of deviating provisions for collective agreements to re-negotiate article 3 depending on work characteristics, even for work above eight hours per day without compensation (7:2a). However, article 7:6 also states that weekly working time may not exceed an average of 48 hours per week within a period of 12 months. Overtime work is not mentioned at all.

The role of social partners and collective agreement is well illustrated by the 2016-2017 collective agreement between IG-Metall industrial and the NRW (North Rhein-Westphalia) employers (steel industry, automotive industry, electrical engineering, woodworking etc.) covering around 3 million of workers. According to this agreement the normal weekly working time is 35 hours with the possibility to extend to 40 hours for 18 per cent / 30 per cent / 50 per cent of the workforce depending on job characteristics. The agreement allows also for the conclusion of company agreements making it possible to work a maximum 10 hours per day or

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[8] https://workplacedenmark.dk/en/working-conditions/pay-and-working-hours 2017-11-15

60 hours per week Monday to Saturday, conditional to compensations are provided in accordance. Overtime premiums range from 25 per cent for the first two daily hours of overtime and reach 150 per cent for some bank holidays. Another illustration of the role of the social partners is the collective agreement for public service sector 2017 *Tarifvertrag für den öffentlichen Dienst TVöD* negotiated between the Federal Republic of Germany and a number of trade unions. The agreement applies to approx. 2.14 million public servants working at the regional and municipal level and 147 000 workers at the federal level. Clause 6:1 states a maximum standard working time of 38.5 - 40 hours per week depending on the region. Clause 6:6 allows the possibility for local working time agreements up to 45 hours per week. Overtime is defined as the number of hours worked in excess of the maximum standard work hours and overtime compensation takes mainly the form of time off in lieu.

5.3   *Romania*

In Romania working time is generally regulated by law. The *Romanian Labour Code* (Law number 40/2011) stipulates the maximum length of working time which may not exceed 48 hours including overtime (article 114:1). In following sub-clauses, a standard reference period (used for calculation of the average working time) of three calendar months is defined, and also the possibility for branch collective agreements to re-negotiate this reference period from three and up to a maximum of 12 months. The normal length of working time is eight hours per day and 40 hours per week (article 112). Article 120 specifically concerns overtime: All hours in excess of the normal length of weekly working time are to be considered as overtime. Article 122 states that overtime is to be compensated by time off in lieu within 30 days, or if not possible (article 123), be compensated in accordance to collective agreement or individual agreements, with an overtime premium of no less than 75 per cent of normal hourly wage. The law could be modified through collective agreement. However, the regulation of working time via collective agreements has been under the last decade weakened. From 2011, according to a new legislation, collective bargaining is only mandatory at company level and for firm with 21 or more employees (Law no. 62/2011 on social dialogue; SDL).

5.4   *Spain*

In Spain working time is also mainly regulated by law, but some aspects such as ´the length of working day´ is left for negotiation between social partners (the working day shall be the one agreed upon in collective agreements or is this is not possible, firm and worker representatives). The Spanish *Statute of Worker Rights* stipulates that the maximum duration of working time is 40 hours per week on average on an annual basis (article 34:1). Concerning overtime work, all hours of work above the maximum duration of the ordinary working day is to be considered as overtime hours. These hours are to be compensated in accordance to the disposition stated in collective agreements or if such agreement does not exist via individual employment contracts. If no agreement on overtime premium and/or time off in lieu exists, the rule is time off in lieu by a rate of hour by hour (article 35:1). Furthermore, overtime hours shall be voluntary (article 35:4) and the number of overtime hours may not exceed 80 hours a year (article 35:2). To illustrate: *The collective agreement for VIPS group of companies* applies for 9 200 workers in the food service and retail sector was concluded between the VIPS group of companies and three separate trade unions[9]. Clause 19 states that the maximum annual effective working time is 1800 hours. The distribution of these hours shall be in accordance to article 34.2 of the *Statute of Worker Rights* and respect the law in terms of minimum daily and weekly rest periods. Clause 21 states that overtime is to be considered each and every hour in extent of the maximum duration of a quarterly planned work day, and is to be compensated either by a 75 per cent hourly premium or alternatively by time off in lieu at the rate of hour by hour.

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[9] Group of Companies of the Federation of Independent Trade Workers (FETICO), the Federation of Services for Mobility and Consumption of UGT and the CCOO Federation of Services.

5.5   *Turkey*

In Turkey working time is essentially regulated by law. The *Labour act of Turkey* (Law no. 4857*)* stipulates that the maximum weekly working time is 45 hours (article 63). The distribution of the working time can be defined by parties, but maximum daily working time must not exceed 11 hours and the average weekly working time over 2 months must not exceed the maximum weekly working time. Furthermore, collective agreements can increase this balancing period to four months. Article 41 states that overtime is work which exceeds 45 hours a week. Working hours above 45 should not to be considered as overtime, provided that average working time over the reference period does not exceed the maximum weekly working time. The premium for overtime hours is one and a half times the normal hourly rate. If weekly working time in contract is set below 45 hours, work that exceeds the average weekly working time and last up to 45 hours is to be considered not as overtime but as extra hours, bearing a wage premium of one and a quarter times the normal hourly rate. Furthermore, overtime pay may be exchanged for time off in lieu, overtime requires the employee´s consent and maximum total overtime work is 270 hours per year.

5.6   *United Kingdom*

In the United Kingdom, working time is generally regulated in the employment contracts. To illustrate, article 4 of *The Working Time Regulations 1998* (SI 1998/1833), which is the legislator framework for working time, states that a worker´s working time including overtime, shall not exceed 48 hours for seven days for any reference period (article 4:3 states a standard reference period of 17 weeks and article 23 states that collective agreement can modify the reference but cannot exceed 52 weeks). However, article 5 states that he 48 limits shall not apply if a worker has agreed with his employer in writing. *The Employment Rights Act 1996* (United Kingdom act of Parliament c18) mentions overtime in article 234 and state that if an employee is entitled to overtime pay when employed for more than a fixed number of hours in a period, these fixed number of hours are generally to be seen as the ´normal working hours´. The normal hours are thus the hours fixed by contract. There is no requirement for employers to pay for overtime as long as employees´ average wage does not fall below the minimum wage (United Kingdom Government webpage *Overtime: your rights*).

Table 5. Summary of institutional frameworks in our six selected countries (based on desk research and interviews)

Institutional practice	Allowance for opt-out from the EU Working Time Directive 48hrs/week [Yes/No]:	Threshold for maximum standard working time [hours]:	Threshold for maximum total working time [hours]:	Is overtime included in the maximum total working time? [Yes /No]:	Actual regulation of overtime [hours per reference period]:	Practice for regulation of overtime:	Actual regulation of overtime premium	Practice for regulation of overtime premium:
Denmark	No	Standard work week of 37 hours	48	Yes	Implicitly max 11 hours per week* (48h minus 37h)	Collective agreements allowing for local agreements	Time off in lieu, premium pay according to agreements often at fixed rates	Collectively and locally agreed
Germany	Yes, but only for specific sectors and occupations	35, up to 40 hours for a specific % of the workforce	60	Yes	Implicitly max 12 hours per week* (60h minus 48h) as long as the average working time over 12 months is 48h	Collective agreements allowing for local agreements	Time off in lieu, premium pay according to agreements often at step-wise rates	Collectively and locally agreed
Romania	No	40	48	Yes (All hours between 40 and 48 hours are overtime hours)	No maximum amount	Statutory legislation	Time off in lieu or premium pay starting at a minimum of 1,75	Statutory legislation posts minimum requirement
Spain	Yes, but only for specific sectors and occupations	40	40	No (All hours above 40 are overtime hours)	80 hours per year	Statutory legislation	Time off in lieu at rate hour by hour, premium pay according to agreements	Collectively and locally agreed
Turkey	n/a	45	n/a	No (All hours above 45 are overtime hours)	270 hours per year	Statutory legislation	1,5 times the normal hourly wage as standard or corresponding time off in lieu	Statutory legislation
UK	Yes	None	48 is norm but possibility of individual opt-out	No	No maximum amount	Individual contracts	None	Individual contract

* possible mix of overtime hour and extra hours

6.   Data

6.1   Data description and methodological considerations

In order to assess the incidence of overtime in our six selected countries we use the last wave of the European Working Conditions Survey conducted in 2015 (Eurofound, 2016). Since the early 1990s, the European Foundation for the Improvement of Living and Working Conditions has conducted every five years a survey focusing on working conditions across Europe. The current 6th wave of the European Working Conditions Survey (EWCS) provides data for 35 European countries: 28 EU Member States, the five EU candidate countries as well as Norway, Switzerland and Turkey. In the present study, we restrict the statistical analysis to the above mentioned six countries. After the imposition of some restrictions, such as for example the introduction of an above limit regarding usual weekly working hours (maximum of 90 hours a week[10]) our sample contains 8950 valid observations.

6.2   Data limitation and estimations techniques

The European Working Conditions Survey presents some drawbacks. Besides some usual drawbacks related to the cross-sectional nature of the dataset, the EWCS sample is for obvious reasons restricted to working women and men, thus disregarding individuals outside the labour force (e.g. housewives, early retirees, individuals on long term sickness or work impairing disabilities etc.). In other words, it is important to be aware of the fact that the EWCS is not a representative sample of the active population but restrains the population to economically active individuals (wage earners at work). Working hours and working time arrangement in the EWCS are self-reported, which applies for most individual-level surveys. To the extent that individuals may over- or under-estimate for example their actual working hours this might produce measurement errors and bias in the estimation of the marginal effects. Such issues are also present when data are collected by other means, such as employer-level surveys or personnel records such as time use studies. Since there is no presumption as to the size or direction of the bias produced by self-reporting it is difficult to assess the impact of this potential measurement error on our results. As usual the reader should handle the results of econometric analysis with care.

In addition to a standard descriptive and comparative analysis of our core dependent variables (proportion of wage-earners working overtime and number of weekly overtime hours) and in order to control for potential structural differences and compositional effects across our six countries, we estimate a set of regressions, using standard econometric techniques. Since our two core dependent variables are either dichotomous (one discrete choice to work (paid) overtime work or not) or continuous (weekly overtime hours) we used adapted and standard econometric methods such as a Logit regression technique in the first case and a Tobit regression approach in the second case. Since in the Logit, the estimated coefficients have no natural interpretation, we report marginal effects evaluated at sample means.

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[10] A 90-hours upper limit corresponds to around 13 hours of daily working time on a 7 days' basis (15 hours and 18 hours on respectively 6 and 5 days basis). Less than 0,6 per cent of the respondents in the sample reported that their usual weekly working time exceeded 90 hours a week. A sensitive analysis using a maximum weekly hour of 120 hours does not change the results of our estimations.

7. Working time regimes and incidence of overtime and excess hours in the six selected countries

7.1 Duration of working time

As shown by Table A1 in Appendix A at the end of this report, the cross-country disparities in weekly working time is large among our selected countries, the hourly gap among dependent employees amounted to 14 hours in 2015. The longest weekly working time was found in *Turkey* (46,3 hours) and in *Romania* (40,8 hours). In the same period, *Germany* (32,8 hours) closely followed by *Denmark* (33,8 hours) displayed the shortest average weekly working time.

Figure 3: Average weekly working time by gender and country, wage earners, hours per week
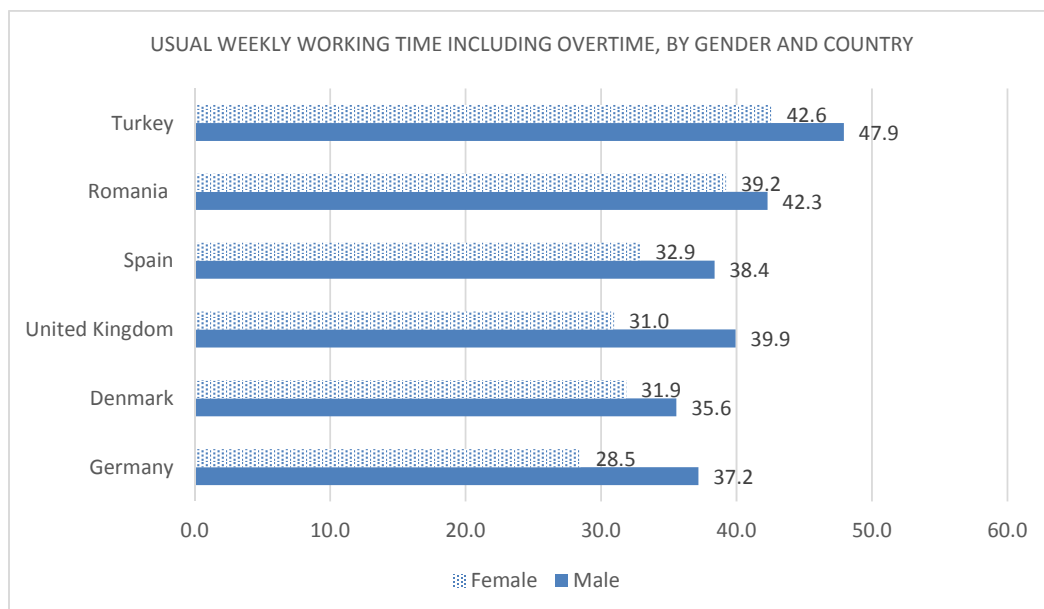
Source: EWCS 2016 and own calculations

Figure 3 displays the average weekly working time by gender among our six countries. As shown by the Figure, the average weekly working time in 2015 was significantly longer in *Turkey* for both men and women (respectively 42,6 and 47,9 hours) and in *Romania* (42,3 and 39,2 hours). The shortest average usual weekly working time for men is found in *Denmark* (35,6 hours) followed by *Germany* (37,2 hours). Among female employees the shortest weekly working time is found in Germany (28,5 hours) and the *United Kingdom* (31,0 hours). Interesting to note is that the gender gap in weekly working time is the lowest in *Romania* (3,1 hours) and the largest in *UK* (8,9 hours)[11].

Looking at the development of weekly working time during the last three decades, the average weekly working time for female and male employees in our six countries as well as in EU15 has been decreasing (See Figure B2 in the appendix). Between 1991-2015 the proportion of employees working more than 48 hours per week had steadily decreased in EU Member States from 19 per cent in 1991 to 11 per cent in 2015 (see Eurofound 2007 and Anxo et al, 2017).

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[11] The gender gap in weekly working time for the European Union as a whole remains important, with employed men in the EU-28 working on average 39,2 hours and women 32,7 hours per week.

7.2   *Working time distribution among wage earners*

Since average weekly working time might conceal large national differences in the distribution of working time we divide working time into five categories, thereby considering various forms of part-time work (short and long part-time), various definitions of full-time work and normal working time, as well as extremely long working hours (>=48 hours a week[12]).

Figure 4: Working time distribution in the European Union as a whole (upper panel) and in Turkey (lower panel), wage earners (percentage)

DISTRIBUTION OF WEEKLY USUAL WORKING TIME, WAGE EARNERS, EU28, 2015

DISTRIBUTION OF WEEKLY USUAL WORKING TIME, TURKEY, 2015
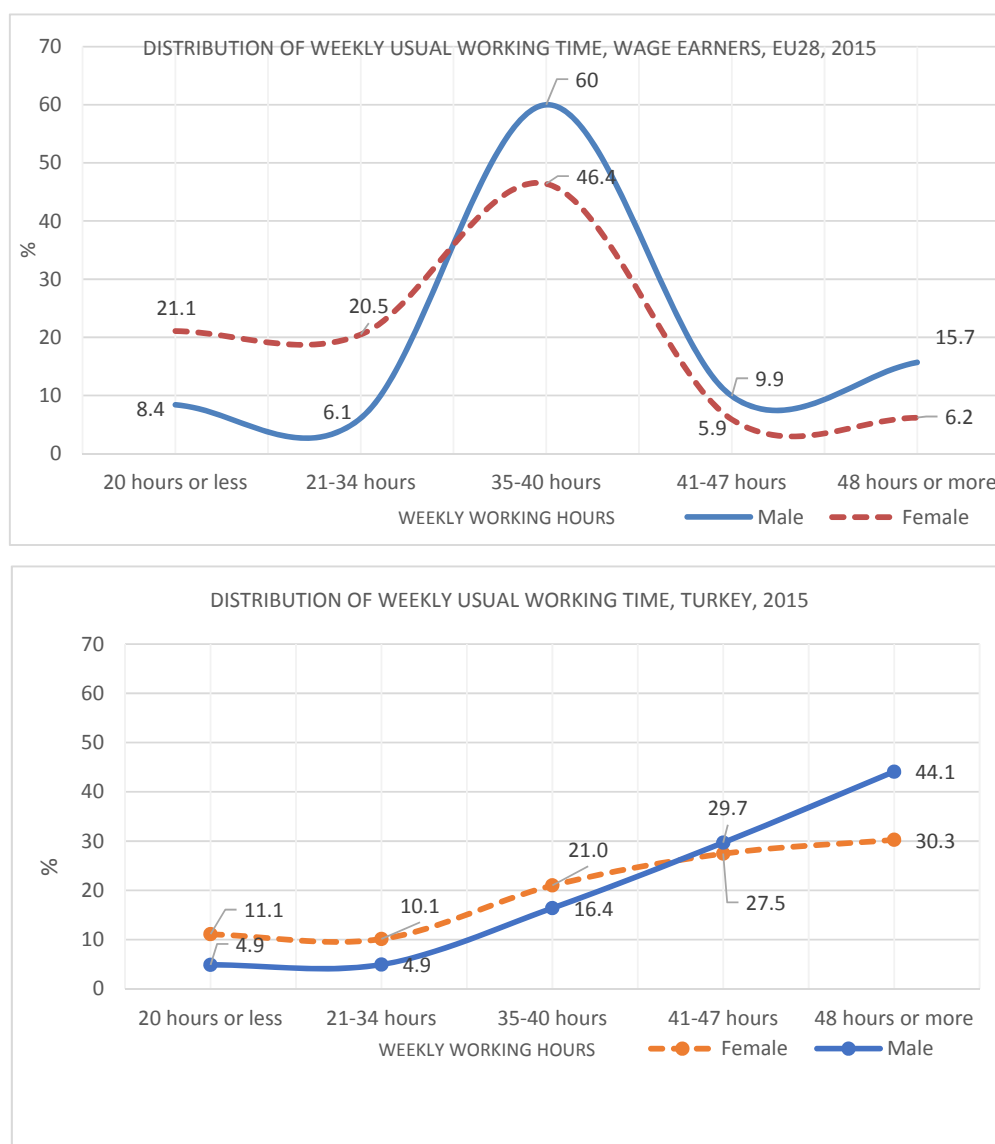
Source: EWCS 2016, and own calculations

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[12] The choice of a 48 hours' upper limit is related to the above described EU-Working Time Directive that requires EU countries to guarantee the following right for dependent employees: a limit of weekly working time, which must not exceed 48 hours on average over a three-month reference period including any overtime, but as mentioned previously the possibility to opt-out.

Figure 4 above compares the distribution of usual weekly working time in the *European Union* as a whole (EU28) and in our non-EU Member State *Turkey*. As shown by Figure 3 upper panel a significant proportion of female and male wage earners in the European Union are concentrated around the 35-40-hours norm (respectively 46,4 per cent and 60,0 per cent). As also expected the dispersion of working time is higher among women compared to men. Around 21 per cent of female wage earners work on average less than 20 hours per week compared to only 8,4 per cent of men. The share of wage earners working very long hours (>= 48 hours), i.e. above the limit stipulated by the EU Working Time Directive, is notably high with a significant higher incidence of long working hours among male employees (15,7 per cent compared to 6,2 per cent among female employees).

The difference between the EU and Turkey is striking. First the dispersion of working time is much higher compared to the EU-Member States with a much higher incidence of employees working above 48 hours: around 45 per cent compared to around 14 per cent in Europe. It should also be noted that the gender polarisation of working time is much lower in Turkey compared to the EU, the share of part-timers among female employees being much lower in Turkey compared to the EU.
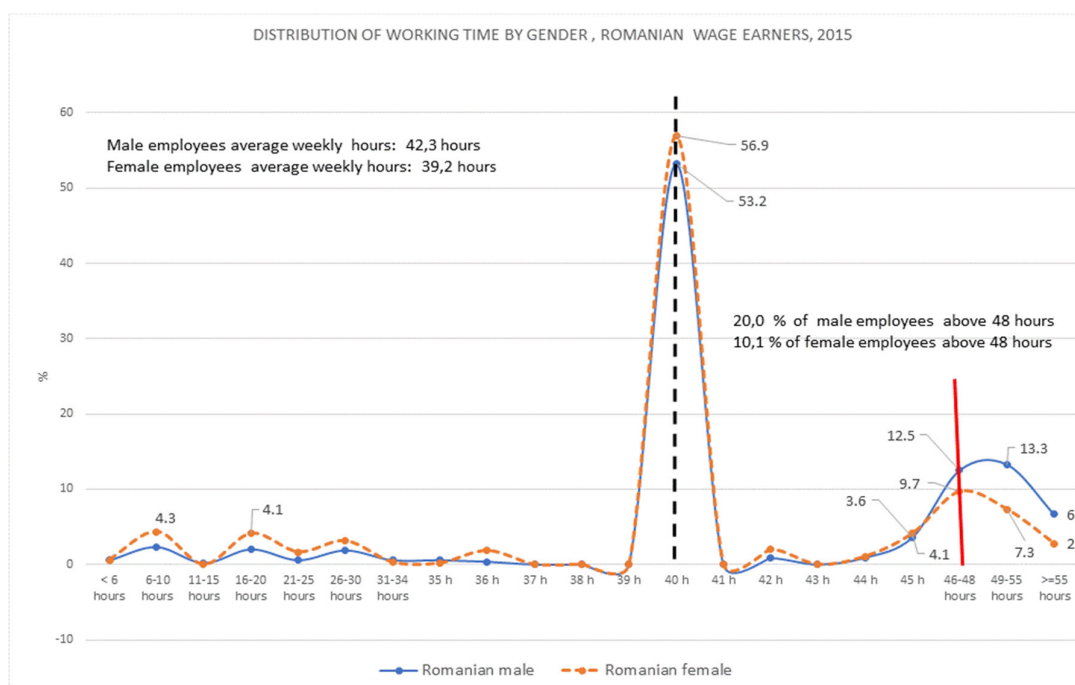
Figure 5a-5c display the gender distribution of working time for wage earners in our sample of six countries (see also Figure B1 in appendix B). Now we make use of a more detailed hours-interval for full-time employees (i.e. 35 hours and longer, the right side of the distribution) to be better able to identify and visualise the difference regarding standard weekly working time (the weekly norms), the share of individual working longer than the working time norm (paid and unpaid overtime) and also the cross-country disparities in the proportion of individuals working excessive hours (above the EU Working Time Directive, 48 hours).

There are strong reasons to believe that the shape of the working distribution is closely related to the mode of regulation of working time. As stressed in Anxo & O'Reilly (2000) and Anxo et al. (2017) we may distinguish between three ideal-types of working time regulation: Centralised, regulation at the industry level and decentralised at the company level. Our six countries constitute a good illustration of these three ideal-types of regulation: Centralised (*Romania* and *Spain*), Industry level (*Denmark* and *Germany*) and decentralised (*United Kingdom* and partly *Turkey*). Figures 4a-4c reflect the impact of the mode of regulation of working time on the distribution of working time.

Countries with a very centralised mode of regulation (Statutory law or centralised and coordinated bargaining system) generally display a higher concentration of employees around the standard/statutory working time and a lower dispersion of working time.

Spain and *Romania* are a good illustration (see Figure 5a below) of the centralised type of working time regulation with a concentration of employees around the 40-hours statutory norm (Dot lines in the diagram). The major differences between these two countries are firstly the higher gender polarisation of working time in Spain with a higher share of women working part-time and secondly the significant higher proportion of employees working above the statutory norm in Romania (37,7 per cent for men and 27 per cent for women) and Spain (21,8 per cent for men and 10.7 per cent for women), See also Tables A3 and A4 in appendix A. It should be noted that the share of male employees working above the EU Working Time Directive (The red line) is high in both countries, 20 per cent in Romania and 15 per cent in Spain.

DISTRIBUTION OF WORKING TIME BY GENDER , SPANISH WAGE EARNERS, 2015

Male employees average weekly hours: 38,4 hours
Female employees averageweekly hours: 32,9 hours

12 % of male employees above 48 h
6 % of female employees above 48 h

DISTRIBUTION OF WORKING TIME BY GENDER , ROMANIAN WAGE EARNERS, 2015

Male employees average weekly hours: 42,3 hours
Female employees average weekly hours: 39,2 hours

20,0 % of male employees above 48 hours
10,1 % of female employees above 48 hours
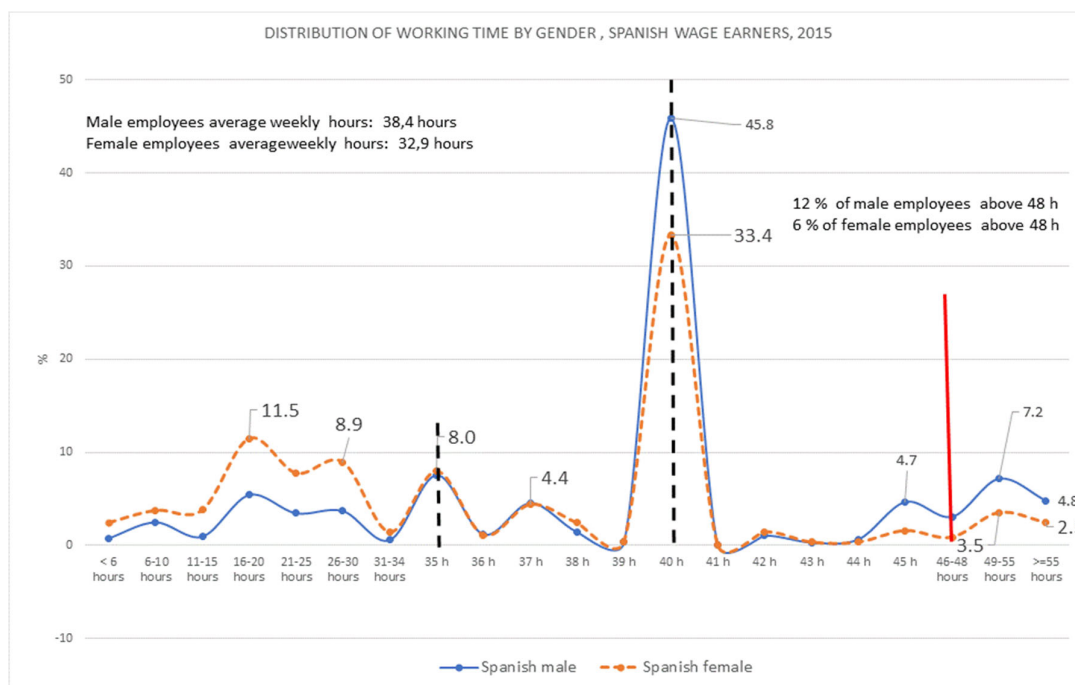
Dot line: Legal weekly working time norm(s) Red Line: EU 48 hours directive
Source: EWCS 2016 and own calculations

Figure 5b: Distribution of weekly working time by gender, wage earners, Denmark (upper panel), Germany (lower panel), 2015 (percentage)
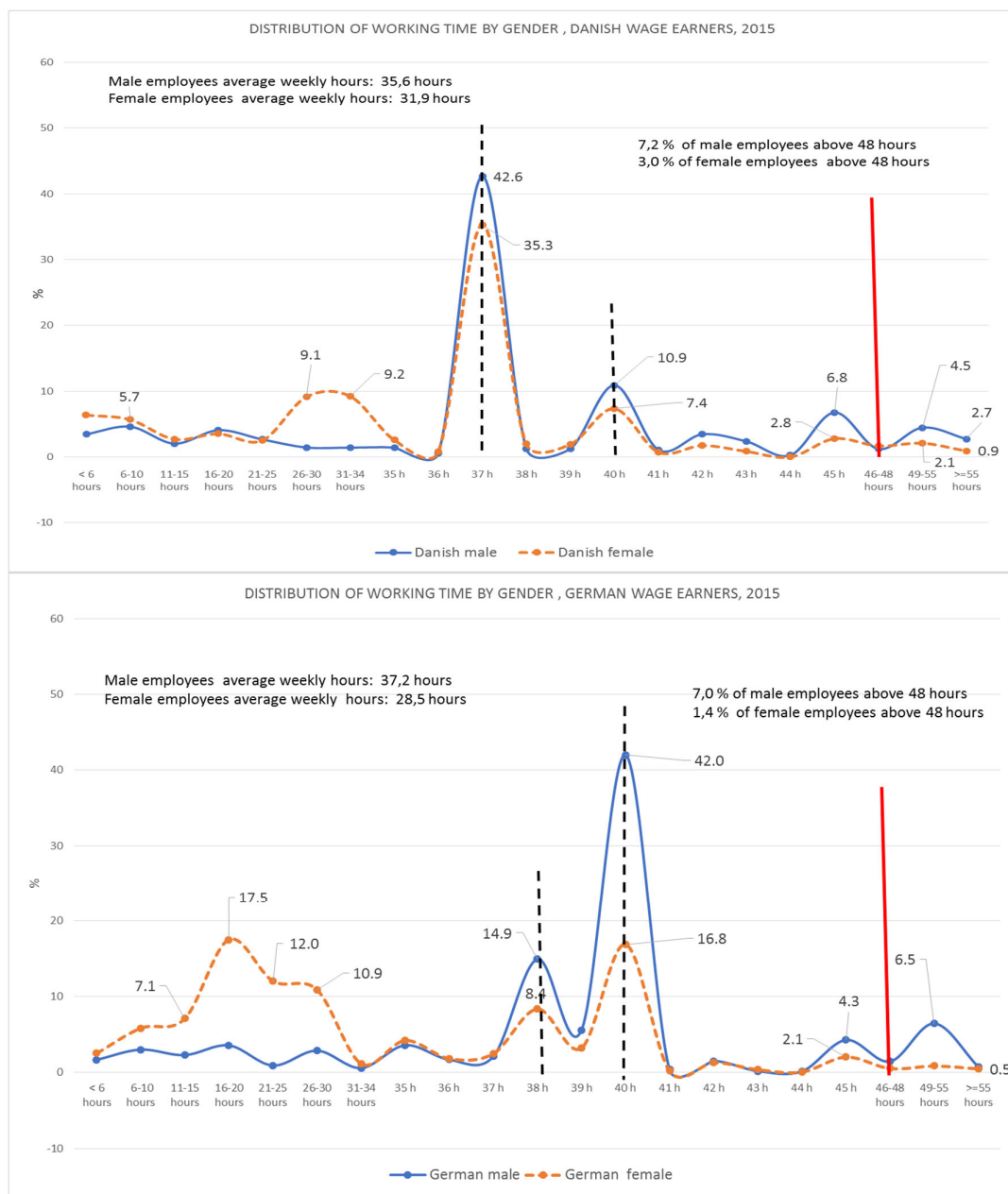
Dot line: Legal weekly working time norm(s). Red Line: EU 48 hours directive.
Source: EWCS 2016 and own calculations

Countries with a regulation of working time mainly based on collective agreements at the industry level such as Denmark and Germany exhibit a larger distribution of working time and a pluri-modal shape, with two tops at 37 and 40 hours in *Denmark* and 38 and 40 hours in Germany (see Figure 5b, above). Compared to *Spain* and *Romania*, the proportion of employees working above the standard hourly norms is lower as well as the share of employees working above the EU Working Time Directive. This is surely related to the specificity of industrial relation system with more balanced power-relation between the two sides of industry and a less unequal and compressed wage distribution (see below).

Figure 5c: Distribution of weekly working time by gender, wage earners, Turkey (upper panel), United Kingdom (lower panel), 2015 (percentage)

DISTRIBUTION OF WORKING TIME BY GENDER , TURKISH WAGE EARNERS, 2015

Male employees average weekly hours: 47,9 hours
Female employees average weekly hours: 42,6 hours

44,1 % of male employees above 48 hours
30,2 % of female employees above 48 hours

DISTRIBUTION OF WORKING TIME BY GENDER BRITISH WAGE EARNERS, 2015

Male employees average weekly hours: 39,9 h
Female employees average weekly hours: 31,0 h

24,0 % of male employees above 48 hours
3,0 % of female employees above 48 hours

Dot line: Legal weekly working time norm(s). Red Line: EU 48 hours directive
Source: EWCS 2016 and own calculations

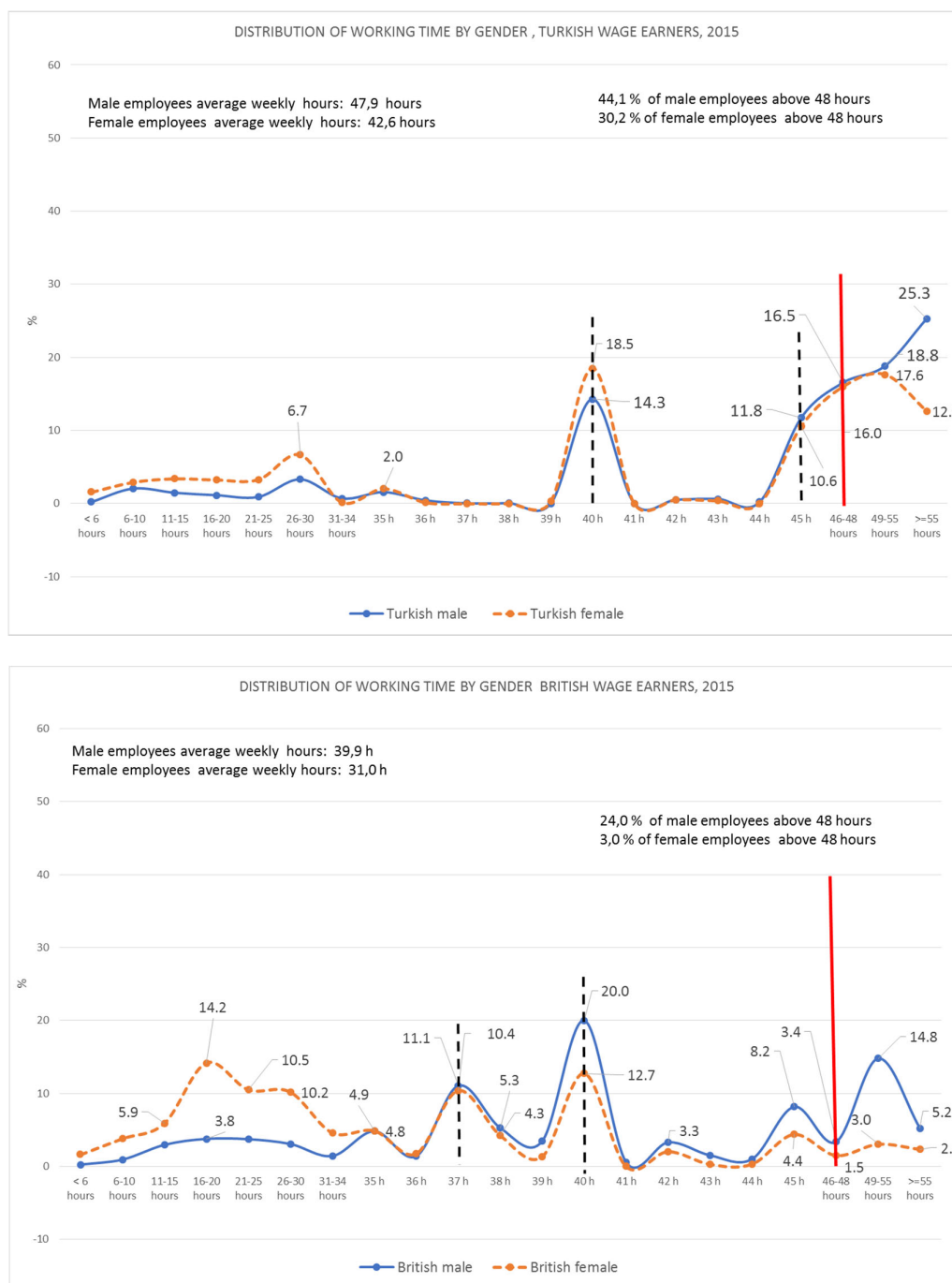At the other extreme, countries with weak regulated labour market or countries where working time is essentially determined by market forces at the company level display the largest dispersion of working time and a high incidence of long working hours. The *United Kingdom* is the ideal-type of a market-based regulation of working time with a large dispersion of working time and also a higher gender polarisation. In some sector, in particular the British

public sector some working time regulation prevails with two tops 37 and 40 hours but the concentration around the 35-40 hours significantly less pronounced than in the other countries.

As mentioned in section 5, working time is mainly regulated by law in Turkey. The law states that normal working time ought to be 45 hours a week. As shown by Figure 5c the proportion of employees working 45 hours is low around 15 per cent whilst the proportion of employees working more that the statutory norm reaches 53 per cent. This implies that the enforcement of the law is weak and that employers may easily circumvent the legal 45-hours limit.

The prevalence of long working hours is not only a reflection of the way working time is regulated. Obviously other socio-economic factors might impact on this incidence such as the wage distribution and the proportion of low-paid wage earners. The scatter diagram below displays the relationship between the incidence of long working hours and the share of low-paid workers in the EU. As shown by Figure 6 the correlation between the extent of low-paid is clearly positive with a correlation of 70 per cent implying that countries with a high share of low-paid workers have also a large proportion of employees working excessive hours.

Figure 6: Share of low-paid employees and long working hours (share of employees working more than 45 hours) in the EU, 2015
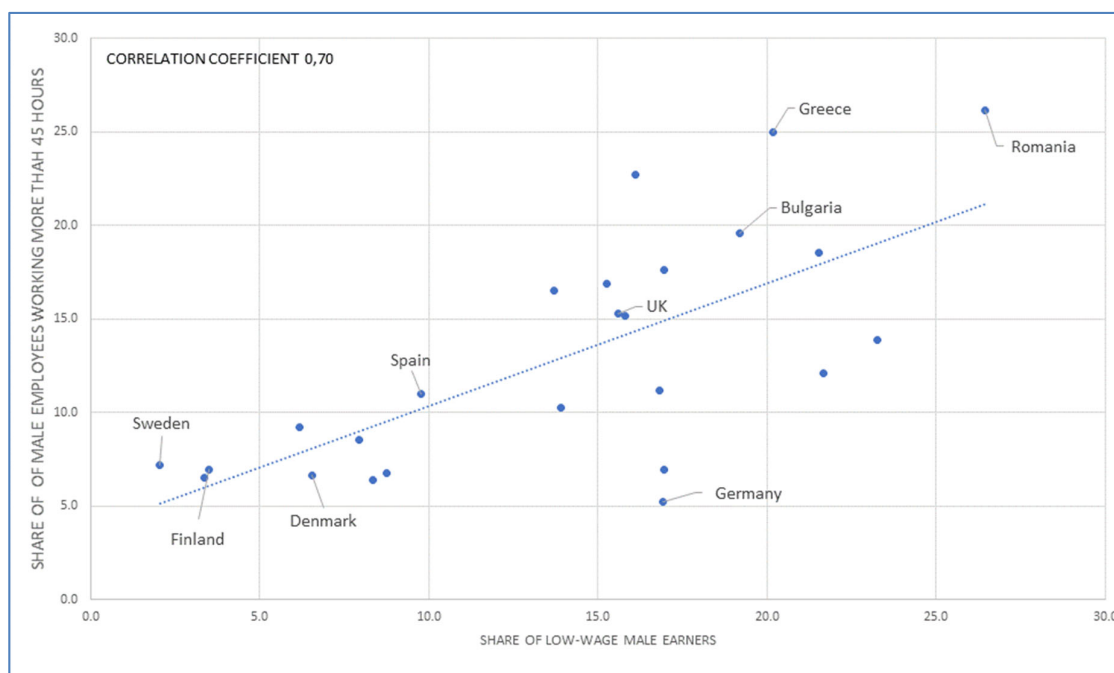
Source: Eurostat (2017a) for the share of low-paid workers, EWCS (2016) for working time and own calculations.

7.3   Overtime in the six selected countries

Table 6 below shows the incidence of overtime (paid and unpaid overtime) by gender in our six countries as well as the average weekly overtime hours in our six countries. The estimation of the share of workers working overtime as well as the average number of overtime hours is based on country's specific regulation regarding working hours and overtime work. The share of employees with paid-overtime is based on a specific question from the European Working Conditions Survey (EWCS; 2016 question Q101c):

Thinking about your earnings from your main job, what do they include? Extra payments for additional hours of work/overtime?

Table 6: Estimated share of dependent employees working overtime (paid and unpaid) by gender and country (percentage)

Country	Men	Women	All
Germany	36,8	11,6	24,0
Denmark	40,1	25,1	32,7
Spain	36,6	17,5	26,8
Romania	38,1	28,6	33,3
Turkey	66,8	45,9	60,5
United Kingdom	38,1	15,7	26,2

Estimation based on country regulatory framework for determining the hours threshold where overtime (paid and unpaid) begins.

Source: EWCS 2016; own calculations

As shown by Table 6 the proportion of employees working overtime (paid and unpaid) is significantly higher in *Turkey* followed by *Romania* and *Denmark*. The lowest incidence of employees working overtime is found in *Germany* and *United Kingdom*. However, it should be recalled that the share of employees working long hours as well as the average weekly working time is significantly longer in *Turkey*, *Romania* and the *UK*. In other words, an analysis of the consequences of overtime work on say health or well-being should take into consideration at which hours-threshold overtime starts and the average working time and not only at the share of employees working overtime.

Table 7: Share of full-time wage earners reporting paid overtime by gender and country wage earners (percentage)

Country	Men	Women	All
Germany	33,7	11,2	22,2
Denmark	38,8	18,9	29,2
Spain	22,3	9,0	15,7
Romania	37,8	18,8	28,4
Turkey	28,5	18,4	25,5
United Kingdom	36,3	12,9	24,8

EWCS 2015: Question q101c: Thinking about your earnings from your main job, what do they include? Extra payments for additional hours of work/overtime

Source: EWCS 2016 and own calculations

In all countries, the proportion of female employees working overtime is lower. The gender gap in the incidence of overtime is the lowest in *Romania* and *Denmark* whilst the largest gap is found in *Germany* and the *United Kingdom*. Obviously, the magnitude of the gender gap in the incidence of overtime across country is related to the prevailing gender polarisation of working time and the share of female employees working full-time.

The ranking of country is modified when we consider the incidence of paid overtime (see Table 7). *Denmark* exhibits the highest share of employees reporting paid overtime followed by *Romania* and *Turkey*. The lowest share of paid overtime is found in *Spain* and *Germany*. It is also worth noting that the gap between actual and paid overtime is the highest in *Turkey* (35 percentage points) and *Spain* (11 percentage points), whilst the discrepancy between actual and paid overtime is low in the remaining countries (between 1 and 5 percentage points). Like for actual overtime the share of female employees reporting paid overtime is significantly lower than their male counterparts.

Table 8: Estimated average weekly overtime hours (paid and unpaid) by gender and country, dependent employees, in hours per week as well as average weekly overtime hours given that the employee is working overtime

Country	Men		Women		All	
	All	Given participation	All	Given participation	All	Given participation
Germany	1,3	8,2	0,4	6,3	0,8	7,7
Denmark	2,1	5,9	1,1	4,7	1,6	5,5
Spain	2,4	10,8	1,2	11,6	1,8	11,0
Romania	4,0	10,7	2,3	8,7	3,2	9,9
Turkey	6,3	10,3	4,1	8,9	5,6	10,0
United Kingdom	3,7	9,6	1,3	9,4	2,5	9,6

Source: EWCS 2016 and own calculations

Table 8 reports the estimated average number of overtime hours by country and gender. We furthermore distinguish between the average of overtime hours for all employees and the average overtime hours conditional to the fact that the employee is working overtime. First, looking at the overall average overtime hours for all employees, we found again that *Turkey* displays the highest average weekly overtime hours with almost 6 hours. For the other countries, the average number of overtime hours ranges between less than 1 hour (*Germany*) to 3,2 hours (*Romania*). Like for the incidence of overtime, the average number of overtime hours is in all countries lower among female employees. As expected the average weekly number of overtime hours for employees conditional that they work overtime is significantly higher ranging from around 10-11 hours a week in *Spain* and *Romania* to around 6-8 hours in *Germany* and *Denmark.* Worth also noticing is that the highest number of overtime hours given participation is found in *Romania and Spain* for male employees and in *Spain* for female employees. Looking at the distribution of overtime hours, given participation (see Figures B6-B8), in Appendix B), Spain has the largest variance of overtime hours given participation and appears to have with Romania the distribution the most positively skewed, that is with the longest tail on the right side of the distribution (See Table A6a in Appendix A, in particular the skewness coefficient)

7.4   *Overtime: A life course perspective*

Taking a gender and life course perspective, this section analyses the variation of the number of overtime hours in different life phases. But before mapping the profile of overtime hours across the life course some methodological considerations are provided.

7.4.1 Stylized household life course typologies

There are strong reasons to believe that the time spent on paid work, the type and incidence of various forms of working time arrangements, overtime work as well as working time preferences and needs vary across the life course. In order to reflect this life cycle component of working time we use in the present report a variant of the family lifecycle approach (see Anxo et al. 2006, 2011, 2013, 2017).

Whereas the traditional family life cycle approach implies a uniform sequence of household forms, the sequencing of life stages appears to be more diversified in contemporary societies. Our typology does not assume that everyone moves through a uniform sequence of household formations across their life course. Rather we select a range of household categories coinciding with widely experienced transitions and phases in the life course as a basis for comparative analysis, as detailed in Box 1.

Box 1: Stylised household life-course typology

Single and childless young people

1. Single persons (under 46 years), living on their own, without children

Childless couple households

2. Younger cohabiting couples (woman under 46 years), without children

Couples households with resident children

3. The age of the youngest child is used to indicate the nature of parental responsibilities across the life course, from the time intensive pre-school period through to the different needs and demands of children as they grow up and become more independent.
4. Cohabiting couples with youngest children (age of children is under 7 years)
5. Cohabiting couples with young children (age of children 7-12 years)
6. Cohabiting couples with teenage children (age of children 13-18 years)

Older couples without children living at home

7. Midlife "empty nest" couples without resident children (woman aged 46-59 years)
8. Older cohabiting couples without resident children (woman aged 60 years or older)

Older singles

9. Single persons (aged 50 years or older), without resident children

Source: Anxo et.al 2006, 2011, 2013 and 2017.

These are young, single adults without children who have left the parental home (category 1), union formation (cohabiting couples without children, category 2), parenting in two-parent households (by differentiating couples according to the age of children, categories 3-5), midlife "empty nest" couple households (middle-aged couples without resident children, category 7), older couples (category 9) or singles (category 8) without resident children in the transitional period to retirement. In order to also tackle "modern" family styles, we do not distinguish between married or unmarried couples. One consequence of our choice regarding our stylised life course is that important and in some countries growing household categories are de facto excluded, for example, lone parents. However, our typology covers 75 per cent of all households found in our sample of EU Member States at a given point of time (2015).

Although our approach is not longitudinal, the analysis might serve as a heuristic device to identify country differences in the time devoted to market work and overtime across different life stages in our sample of countries. This approach also makes it possible to identify at which phases in the life course, long working hours and overtime are more prevalent or limited[13].

7.4.2 Variation of overtime hours across the life course

Our stylized household typology makes it possible to perform a cross-country comparison of overtime hours during different life phases. Figures 7a-7c displays the variation of overtime hours in our six countries.

Some interesting patterns can be identified. In all six countries, the time spend on overtime does increase for male employees during the parenting phase.

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[13] The reader should bear in mind the usual drawbacks associated with cross-sectional analysis; in particular, the difficulties of disentangling age, cohort and period effects or more generally to identify causal effects.

Figure 7a: Weekly overtime hours across the life course, wage earners, Denmark (upper panel) and Germany (lower panel), 2015 (percentage)
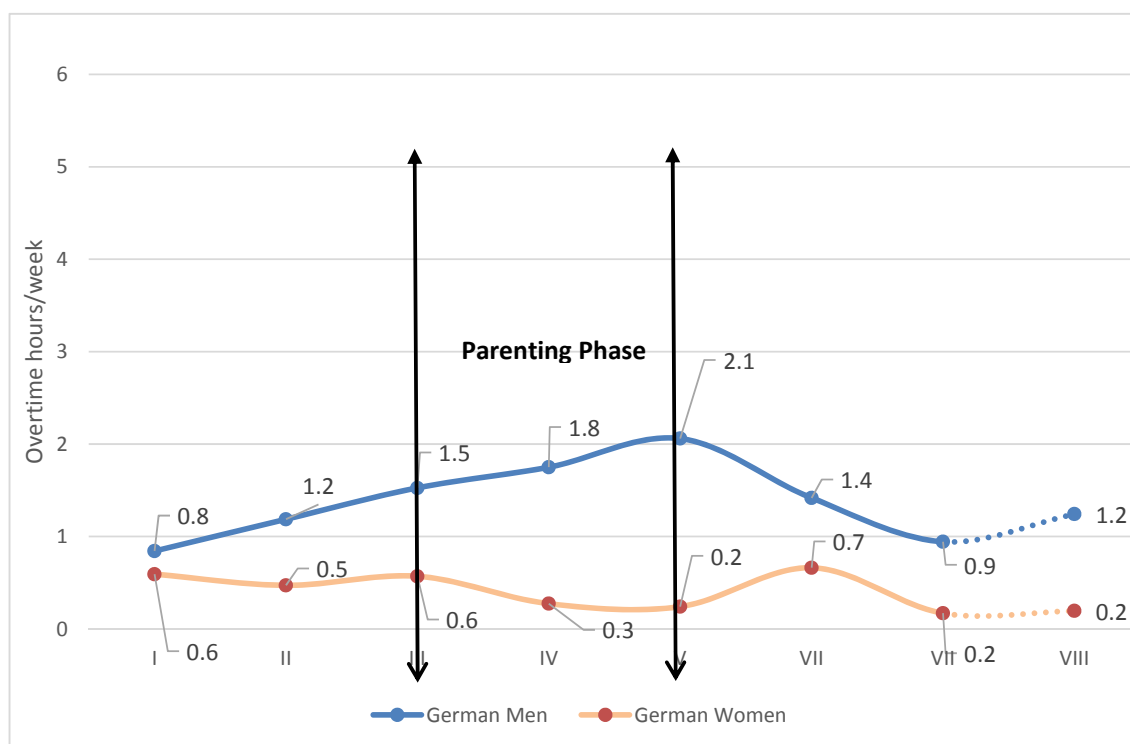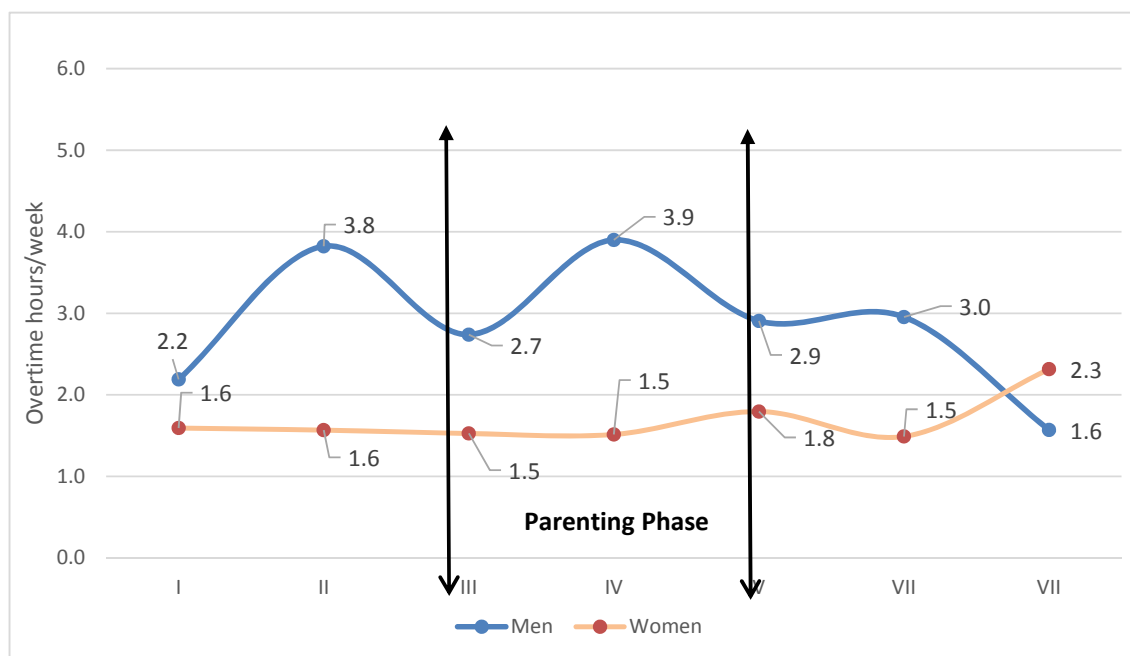
I. Single persons (under 46 years), without children, II Younger cohabiting couples (woman under 46 years), without children, III Cohabiting couples with youngest children under 7 years, IV Cohabiting couple with young children between 7-12 years, V Cohabiting couple with teenage children between 13-18 years, VI. Midlife 'empty nest' couples without resident children, VII Older cohabiting couples without resident children, VIII Single persons (aged 50 years or older), without resident children.

Source: EWCS 2016; own calculations

The increase in the number of overtime hours is particularly marked among British and Romanian fathers. Conversely, in all countries, with the notable exception of Romanian and Turkish employed mothers, the number of overtime hours decline or remain stable during the parenting phase, particularly for mothers with pre-school children.

Figure 7b: Weekly overtime hours across the life course, wage earners, Spain (upper panel), Romania (lower panel), 2015 (percentage)
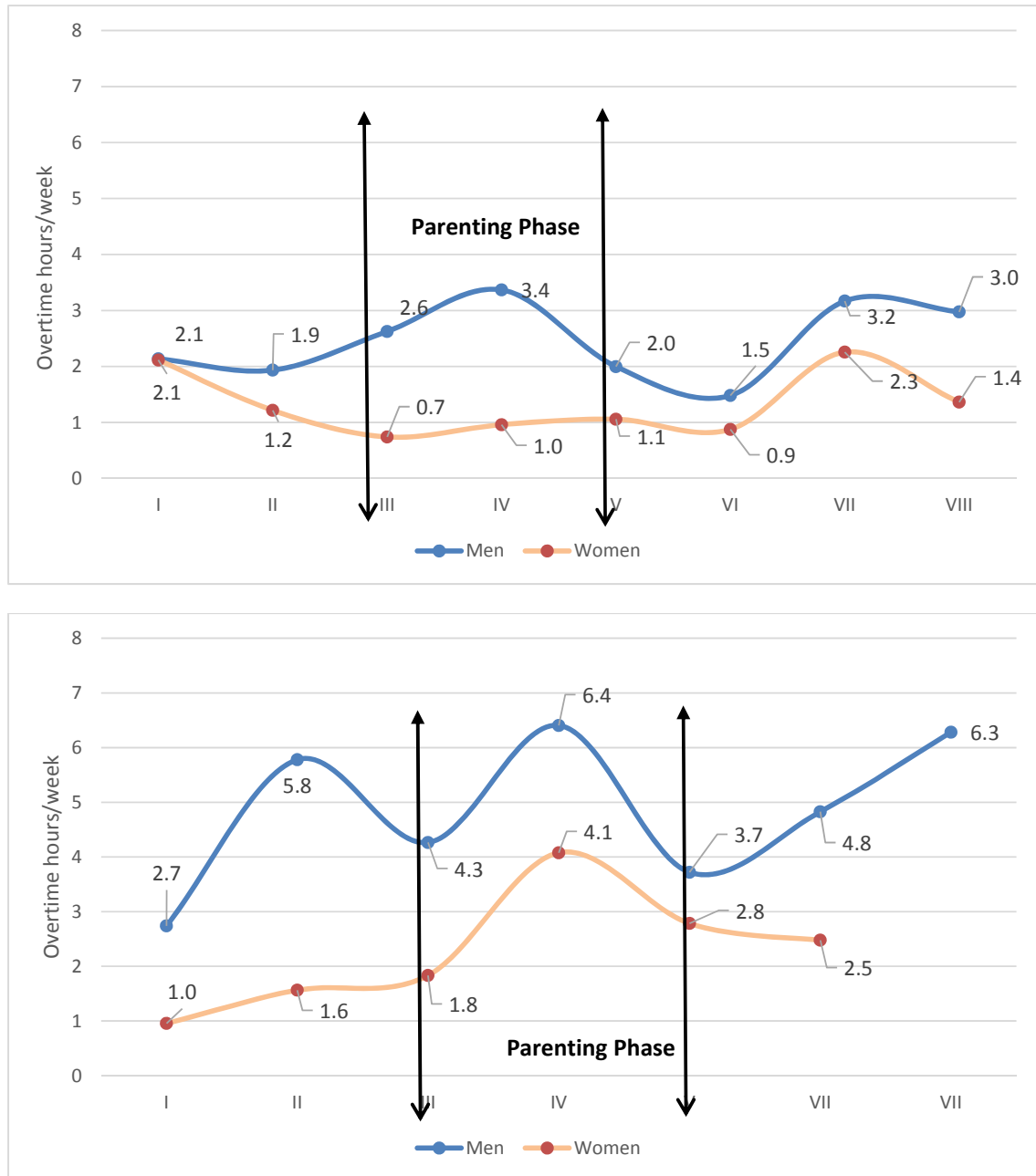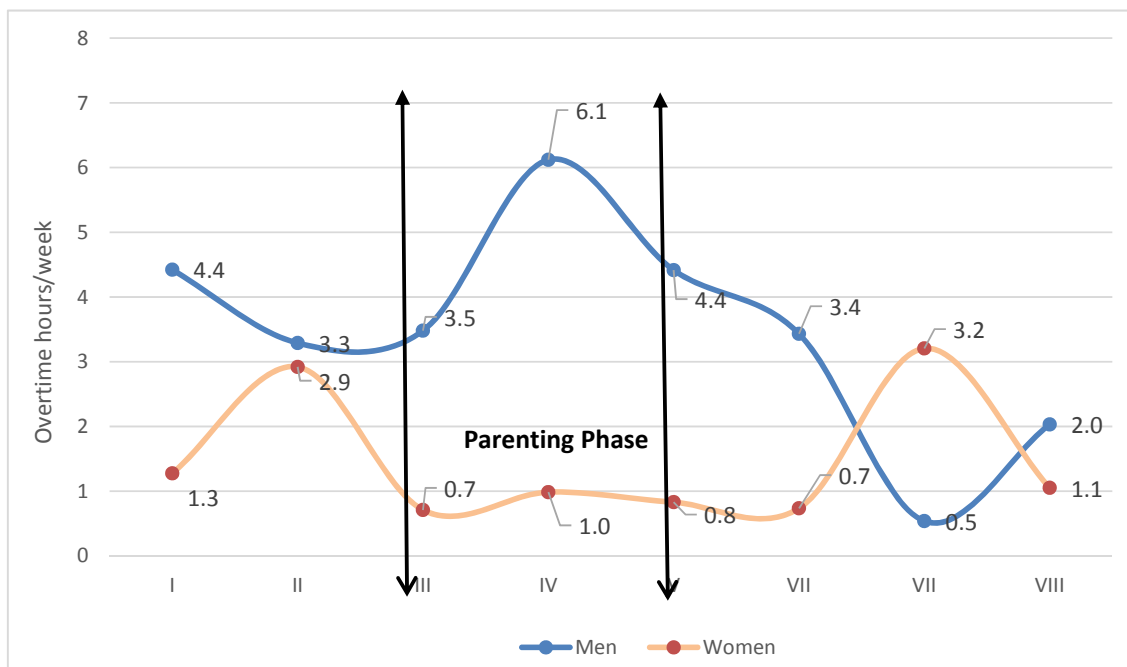

I. Single persons (under 46 years), without children, II Younger cohabiting couples (woman under 46 years), without children, III Cohabiting couples with youngest children under 7 years, IV Cohabiting couple with young children between 7-12 years, V Cohabiting couple with teenage children between 13-18 years, VI. Midlife 'empty nest' couples without resident children, VII Older cohabiting couples without resident children, VIII Single persons (aged 50 years or older), without resident children.
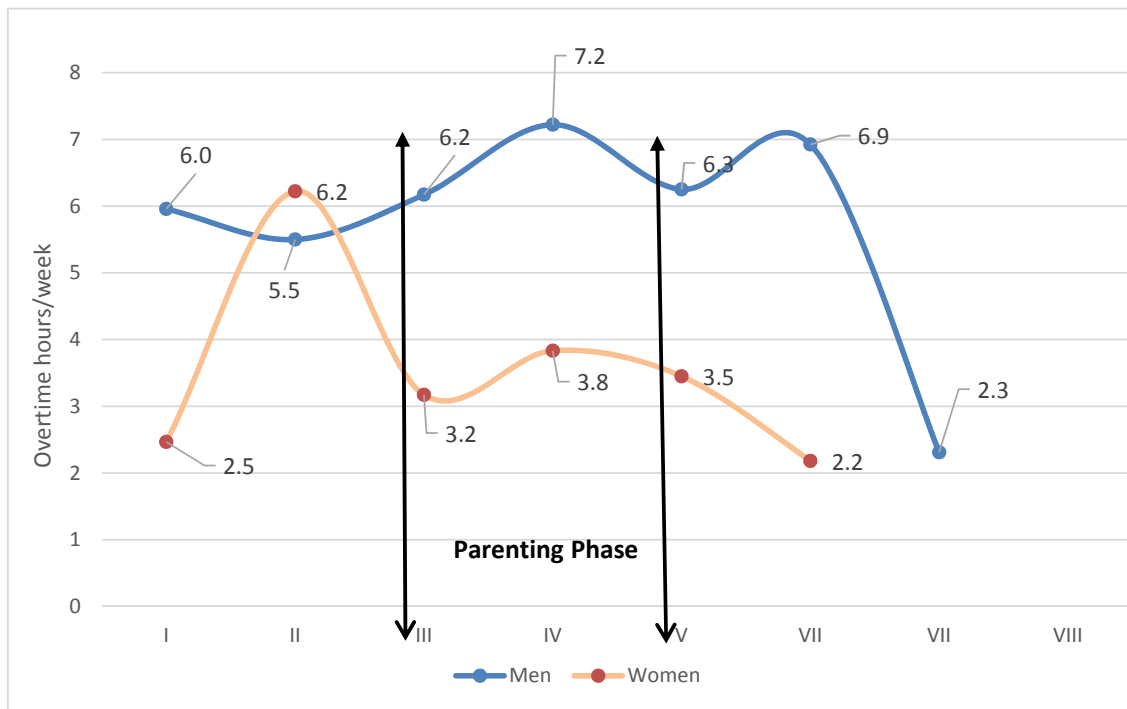
Source: EWCS 2016; own calculations

Figure 7c: weekly overtime hours across the life course, wage earners, Turkey (upper panel), United Kingdom (lower panel), 2015 (percentage)

I. Single persons (under 46 years), without children, II Younger cohabiting couples (woman under 46 years), without children, III Cohabiting couples with youngest children under 7 years, IV Cohabiting couple with young children between 7-12 years, V Cohabiting couple with teenage children between 13-18 years, VI. Midlife 'empty nest' couples without resident children, VII Older cohabiting couples without resident children, VIII Single persons (aged 50 years or older), without resident children.

Source: EWCS 2016; own calculations

No clear common patterns can be found for the other life phases. To illustrate the number of overtime hours, decline for older cohabiting male employees in the UK while it increases for Romanian for older cohabiting male employees.

To sum up: As shown by previous developments, the proportion of employees working overtime varies notably in our six countries. We found that overtime was significantly higher in *Turkey*, followed by *Romania and Denmark*. Contrasting with *Denmark* it should however be stressed that in the case of *Turkey* and *Romania* overtime is clearly associated with long and excessive working time. Not surprisingly, in all countries the share of employees reporting paid overtime is lower than the proportion of employees working overtime, the gap between actual and paid being highest in *Turkey* and *Spain*. *Turkey* displays also the longest average overtime hours with almost 6 hours per week followed by Romania with 3 hours per week. We found that the average number of overtime hours conditional that the employee is working overtime is the lowest in *Germany* and *Denmark* (5-6 hours per week) and oscillate between 10 and 11 hours per week in the remaining countries. Taking a life course perspective, we have shown that both the incidence and the supply of overtime hours is lower among female employees. We found a notable increase of overtime hours during the parenting phase for male employees, the increase of the number of overtime hours being particularly marked among *British* and *Romanian* fathers. Conversely, in all countries, with the notable exception of *Romanian* and *Turkish* employed mothers, the number of overtime hours declines or remains stable during the parenting phase, particularly for mothers with pre-school children.

8. Overtime: An econometric approach

8.1 Factor affecting the likelihood to work overtime or to report paid overtime

In order to control for potential structural differences and compositional effects across countries, we estimate a set of regressions using standard econometric techniques (Logit and Tobit). The main objective of this section is to assess the extent to which usual socio-economic variables such as age, gender, skill level, industries, institutional sector affects the likelihood to work overtime/paid overtime and the duration of overtime hours. Two set of estimation was conducted: In a first step an estimation for the six countries as a whole (pooled data) and separate estimations for men and women were performed. In a second step using the same set of independent socio-economic variables we estimated separate estimations for each country. A detailed presentation of the results can be found in the Appendix C at the end of the report (See Tables C1-to C7 u in appendix C).

As before actual overtime is defined as the hours performed above the legal hours-threshold. As an alternative measure of overtime, we use as mentioned above, reported paid overtime based on a question where the respondents were asked whether overtime premium was a part of their monthly labour income. Our two first dependent variables are therefore binary and equal to one if the employee worked overtime or reported paid overtime and zero otherwise. As independent variable, we use the respondent's age, gender (reference category male), skill-level (reference a category *medium-skilled employee*) industries (based on Nace10, reference category manufacturing industry), sector (public sector), company sized (reference category *medium-sized establishment*) the type of employment contract (reference category *Open ended contract*), if the employee worked shift, night or week-end work or are frequently on-call and finally the country (reference category *Germany*).

Table 9 summarizes the results of our estimation by reporting only the sign of control variables that are statistically significant, i.e. that increases or decreases the probability to work overtime or to report paid overtime (see Table C1 and C2 for detailed results for the marginal effects).

Table 9: Logit regression pooled data, dependent variable: Actual overtime and paid overtime. All employees

Variables	Actual overtime (paid and unpaid)	Paid overtime
Women	-	-
Age	+	+
Low skill	ns	+
High skill	+	ns
Construction	ns	-
Whole sale & retail	ns	-
Transport	ns	-
Financial services	ns	-
Administration	-	-
Education	-	-
Health	-	-
Other services	-	-
Public sector	-	-
Small establish.	ns	-
Large establish. (>=250)	ns	+
Fixed-term contract	-	-
Weekend work	+	ns
Night work	+	+
Shift work	-	+
Frequent on-call	+	+
Denmark	-	-
Spain	ns	-
Romania	+	-
Turkey	+	-
United Kingdom	+	-

Source: EWCS 2016; own calculations

As shown by Table 9 female employees are *ceteris paribus* less likely to work overtime or to report paid overtime compared to their male counterpart. The impact of gender is strong since to be a female employee reduces the likelihood to work overtime or report paid overtime by 53 and 63 per cent respectively. The likelihood to work overtime or report paid overtime is increasing by age but at a declining rate. Everything else been equal to be high-skilled increases the likelihood to work overtime. By contrast, the likelihood to report paid overtime is higher among low-skilled workers compared to medium skill workers. On possible explanation is that high-skilled workers, particularly those with managerial functions, are more prone to work longer and above the statutory or agreed working time norm without wage compensation. While in some industries (e.g. construction, whole sale & retail, transport, financial service) the likelihood of employees to work overtime does not differ from employees working in manufacturing industry, in all other industries this probability is lower. Compared to employees working in manufacturing industries, employees in all industries are less likely to report paid overtime. The same is true for employee in the public sector that are less prone to work overtime or report paid overtime compared to employees in the private sector. The likelihood to work overtime or report paid overtime is also lower among employees with a fixed-term contract. To work during the week-end, at night or be frequently on-call is positively correlated with overtime while we found a negative correlation with shift-work. The same is true for paid overtime with the exception of shift-work that is positively correlated with paid overtime. Last but not least, compared to employees working in *Germany* the likelihood to work overtime is *ceteris paribus* higher in all countries except in *Spain* that do not differ significantly from *Germany*. Worth noting also is that compared to employees working in *Germany* the likelihood to report paid overtime is *ceteris paribus* lower in all remaining countries. The above reported results are not changed significantly when we look at male and female employees separately.

In most case the sign of the coefficients is the same with only rare exception. For example, the likelihood for British female employees to work overtime does not differ significantly from their *German* counterparts. *British, Spanish,* and *Turkish* female employees have the same likelihood to report paid overtime as their *German* counterparts, while for male employees this likelihood is lower in all other countries.

8.2   *Factors affecting the duration of overtime*

For analysing the impact of socio-economic factors on the number of overtime hours we use a standard Tobit taking into account of the fact that some individual does not work overtime. Since in the standard Tobit, like in the case of Logit, the estimated coefficients have no natural interpretation, we report marginal effects evaluated at sample means. A detailed presentation of the results of estimations can be found in Appendix C Table C3-C6.

As shown by Table 10, everything else been equal, female wage earners work on average 0,8 hours less overtime hours compared to their male counterparts (*First row second column*). The average duration of overtime increases by age but at a decreasing and attain a maximum at around 44 years old (44 and 43 years old respectively among male and female employees). Compared to medium-skilled workers (the reference category), low-skilled workers work on average 0,2 hour less overtime (*4ᵗʰ Row, second column*). By contrast high-skilled workers work on average 0,7 hours more overtime hours compared to medium-skilled workers (*5ᵗʰ Row, second column*). Worth noting, we found no statistically significant differences in the length of overtime between low-skilled and medium-skilled employees.

Compared to manufacturing industry the duration of overtime is shorter in all industries except in construction (for male employees). The duration of overtime is also independent of the size of the company. The number of overtime hours is also slightly lower among employees on fixed-term contract (mainly among male employees). Employees working during the week-end, at night, or on frequent on-call have *ceteris paribus* longer overtime (an increase with respectively 1,3 and 0,6 hour). We found an opposite effect for shift-workers (a decrease of the supply of overtime hours with 0,8 hour).

Compared to *Germany* (the reference category) the duration of weekly overtime, given participation is *ceteris paribus*, 6,6 hours longer in Turkey, 3,9 hours longer in Romania, 3 hours longer in *Denmark*, 2,4 hours longer in the UK and 1,1 hour longer in Spain (See the last five rows second column). We found the same country pattern independently of gender, but the cross-country differences among male employees are more pronounced.

We performed the same set of estimations for all employees in each of our 6 countries (see Table C4 in appendix C) for a detailed presentation of the results. In the following we focus on a limited number of significant control variables.

Table 10: Tobit regression pooled data, dependent variable, weekly overtime hours, all wage earners all countries. Marginal effect estimated at sample means, given participation (Overtime hours>0)

Variables	All	Men	Women
Women	-0.877***	-	-
Age	0.168***	0.260***	0.0857***
Age square	-0.00192***	-0.00296***	-0.000989***
Low skill	-0.242***	0.0350	-0.431***
High skill	0.739***	1.054***	0.414***
Construction	0.302*	0.583*	-0.177
Whole sale & retail	0.0309	0.283	-0.190
Transport	0.243	0.297	0.109
Financial services	-0.527***	-0.483	-0.475***
Public admin & defence	-0.895***	-0.991***	-0.640***
Education	-0.719***	-1.150***	-0.491***
Health	-0.832***	-1.047***	-0.711***
Other services	-0.489***	-0.249	-0.522***
Public sector	-0.739***	-1.317***	-0.323***
Small establish.	0.0674	0.246	-0.0184
Large establish. (>=250)	-0.0479	-0.148	0.0470
Fixed-term contract	-0.192*	-0.405***	0.0205
Weekend work	1.337***	1.378***	1.276***
Night work	1.293***	1.688***	0.891***
Shift work	-0.802***	-1.093***	-0.526***
Frequent on-call	0.570***	0.986***	0.222
Denmark	2.985***	3.378***	2.447***
Spain	1.097***	1.395***	0.842***
Romania	3.850***	4.477***	3.139***
Turkey	6.560***	7.269***	6.066***
United Kingdom	2.428***	3.274***	1.580***
Number of Observations	8,324	4,351	3,973

*, ** and *** statistically significant at 10 per cent, 5 per cent and 1 per cent level

Interpretation. Source: EWCS 2016 and own calculations.

Table 11: Tobit regression by country, dependent variable, weekly overtime hours, all employees by country, marginal effect estimated at sample means, given participation (Overtime hours>0)

Variables	Denmark	Germany	Spain	Romania	Turkey	United Kingdom
Women	-0.903***	-0.427***	-0.770***	-1.543***	-1.165***	-1.512***
Low skill	-1.103***	-0.277***	ns	-0.909*	0.937*	ns
High skill	1.322***	0.836***	ns	ns	ns	1.453***
Public sector	ns	ns	-0.887***	-1.331**	-3.105***	ns
Fixed-term contract	ns	-0.320***	ns	1.990**	ns	-0.791***
Weekend work	0.975***	ns	1.310***	2.712***	1.089**	1.772***
Night work	1.431***	0.719**	0.919***	ns	2.067***	1.744***

*, ** and *** statistically significant at 10 per cent, 5 per cent and 1 per cent level

Source: EWCS 2016 and own calculations

Some interesting cross-country differences are worth noticing. As shown by Table 11 the gender gap in the weekly supply of overtime hours is higher in countries like *Turkey, Romania* and the *UK* compared to *Germany* or *Spain*. While in *Denmark, Germany, Romania* and the *UK* the weekly supply of overtime hours is higher among high-skilled workers we found an opposite relation in *Turkey* where the number overtime hours is *ceteris paribus* higher among low-skilled workers (+0,9 hour). The number of overtime hours is lower in the public sector but only in *Spain. Romania* and *Turkey*. In all countries except *Germany* overtime hours is higher among employees working on week-end, particularly in Romania (+2,7 hours) and in the *U*K (+1,7 hours). Except in *Romania,* night workers have longer overtime hours, particularly in *Turkey* (+2,1 hours) and in the *UK*.

In order to analyse the variation of overtime duration across the life course we use the same life phases as described previously and use the same set of control variables as in the previous regressions. In Table 12 below we report only on the impact of the various life phase on the duration of overtime and focus on male and female employees respectively.

Table 12: Tobit regression, dependent variable, weekly overtime hours, all wage earners pooled data, Introduction of life phases, marginal effect estimated at sample means, given participation (Overtime hours>0)

Life phases	Men	Women
Young singles on their own	-0.704**	ns
Couples with pre-school children	ns	-0.343**
Couples with children 7-12 years	0.828**	ns
Couples with children 13-18	0.514*	ns
Couple empty nest 46-59 years	ns	ns
Older Couple	-1.106***	ns
Older singles	-0.575*	ns

*, ** and *** statistically significant at 10 per cent, 5 per cent and 1 per cent level

Source: EWCS 2016 and own calculations

Everything else been equal fathers with children aged 7-12 years and fathers with resident teenagers increase their overtime hours with respectively 0,8 hours and 0,5 hours compared to cohabiting/married men without children (*reference category*). By contrast, mothers of pre-school children reduce *ceteris paribus* their supply of overtime hours with 0,3 hours. A possible explanation is that fathers when children are young increase their supply of overtime hours in

order to compensate for the decrease of mothers' labour supply[14] and the related reduction of female labour income.

To sum up: the results of our estimations reveal that female employees are *ceteris paribus* significantly less likely to work overtime compared to their male counterparts and have shorter overtime hours. We found also that the average duration of overtime increases by age but at a decreasing rate and reaches a maximum at around 44 years old. The skill level affects also the incidence of overtime: high-skilled workers are more prone to work overtime and work longer hours. Regarding paid overtime, low-skilled employees have however a higher probability to report paid overtime (particularly in *Turkey*). Confirming previous empirical evidence, we found that the incidence of overtime is more frequent in manufacturing industries, construction, retail, transport and financial service industries. The same is true for employees working in the private sector that are *ceteris paribus* more prone to work overtime compared to employees in the public sector. The size of the company/workplace does not affect the duration of overtime. We found also that the likelihood to work overtime varies according to the type of employment and working time arrangements. We found that the incidence of overtime is higher among employees on open-ended contract. Atypical working time arrangements such as week-end and night work are also positively correlated with the frequency and the duration of overtime. Last but not least, in comparison to *Germany* the likelihood to work overtime is *ceteris paribus* higher in all the other countries except *Spain*. Compared to *Germany* the duration of weekly overtime, given participation, is also *ceteris paribus* longer in *Turkey* (6,6 hours longer), in Romania *(*3,9 hours longer*)*, in Denmark (3 hours longer) and the *UK* (2,4 hours longer). We found also that the supply of overtime hours varies across the life course, in particular during the parenting period. Our econometric analysis confirms that fathers increase their supply of overtime hours during the parenting phase. A possible explanation is that fathers of young children increase their supply of overtime hours in order to compensate for the decrease of mothers' labour supply and the related reduction of mothers' labour income.

9. Concluding remarks

As shown by previous developments, the incidence of overtime work is crucially dependent on societal and institutional frameworks. We have shown that the type of industrial relations system and the regulatory framework, particularly regarding the level at which working time is regulated, are central for explaining cross-country differences in working time regimes. Even though an analysis of the regulatory framework is crucial for understanding the cross-country disparities in the distribution of working time and the incidence of long working hours, other societal and economic factors may shape and affect the incidence of overtime and excessive hours. In particular we have shown that the shape of the wage distribution and the size of the overtime premium (and/or time off in lieu) may affect both the demand and supply of overtime. Actually, we found a strong positive correlation between the incidence of low-paid jobs and excessive working hours. Even though long working hours and a high incidence of (paid) overtime may be a way to reduce wage dispersion/differentials and increase low-paid workers labour earnings, this positive effect has to be balanced against the potential negative externalities related to the higher risks of illness, injuries and accidents. More generally, long average weekly working time and a higher incidence of overtime are more prevalent in countries where the balance of power between the two sides of industry is more uneven and in favour of capital. Furthermore, there are strong reasons to think that when statutory regulations are limited/weak and working time and overtime are set at a decentralised level (i.e. mainly determined at company level and via market forces), the incidence of both long working hours and overtime is relatively higher. Low presence of trade unions at the workplace level coupled with weak control/monitoring from public authorities regarding the enforcement of statutory regulations are also elements that can explain the incidence of long working hours. Another

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[14] Either via a reduction of working time or a temporary withdrawal from the labour force.

important aspect regards country differences in the definition of overtime. While in some countries like *Denmark* and *Germany* overtime starts at a low level of working time (between 35 and 39 hours a week) in other countries, like *Turkey* paid and unpaid overtime starts at much higher working time level (45 hours). In other words, the potential detrimental consequences of overtime on health and safety appear to be crucially linked to the level at which overtime starts, i.e., the higher the hour-threshold, the higher the health and safety risk.

The review of literature has shown that overtime compensation has a "Janus face". On one side, high overtime premium creates economic incentives for employees to supply overtime hours while on the other side high overtime compensation and strict regulation reduce employers' demand for overtime. More globally, we have seen that the demand of overtime is very sensitive to the business cycle. According to standard labour economics, the existence of hiring and dismissal costs (transaction costs) affect the demand for labour and thus also the demand for overtime hours. The magnitude of these transaction costs is often related to specific institutional features such as the strength of employment protection and the related costs of dismissal. In countries with high transaction costs the adjustment of employment across the business cycle takes to a larger extent the form of internal numerical flexibility (a variation of working time across the business cycle, i.e. overtime and short-time working). On the contrary, in countries with weak employment protection the adjustment takes mainly the form of a variation of the number of employees, i.e. external numerical flexibility with lower variation of working time and lower use of overtime and short-time working.

Surprisingly little empirical research on the incidence of overtime has been carried out. To our best knowledge our study is the first attempt to analyse from an international perspective the variation in the use of overtime. Standard descriptive statistics shows that *Turkey* displays the highest average weekly overtime hours with almost 6 hours per week. For the other countries, the average ranges between less than 1 hour (*Germany*) to 3,2 hours (*Romania*). Among male employees who work overtime, the highest number of overtime hours was found in *Spain* and *Romania* (around 11 hours), *Turkey* and the *UK* (around 10 hours).

Using standard econometric technics on individual data, the results of our estimations reveal that female employees are *ceteris paribus* significantly less likely to work overtime compared to their male counterparts and have shorter overtime hours. The average duration of overtime increases by age but at a decreasing rate and reaches a maximum at around 44 years old. The skill level affects also the incidence of overtime: high-skilled workers are more prone to work overtime and work longer hours. However, we found a reverse effect for paid overtime, low-skilled workers having a higher likelihood to report paid overtime (particularly in *Turkey*). The incidence of overtime is also more prevalent in some industries like manufacturing, construction, retail, transport and financial service industries. The same is true for employees working in the private sector that are *ceteris paribus* more prone to work overtime or report paid overtime compared to employees working in the public sector. Employees in manufacturing industries are however more likely to report paid overtime. The likelihood to work overtime is also lower among employees on fixed-term contracts. Week-end and night work are also positively correlated with the frequency of overtime and the duration of overtime. Last but not least, in comparison to *Germany* the likelihood to work overtime is *ceteris paribus* higher in all the other countries except *Spain*. Compared to *Germany* the duration of weekly overtime, given participation, is also *ceteris paribus* longer in *Turkey* (6,6 hours longer), in Romania *(3,9 hours longer)*, in Denmark (3 hours longer) and the *UK* (2,4 hours longer). We found also that the supply of overtime hours varies across the life course, in particular during the parenting period. The increase in the number of overtime hours is particularly marked among *British* and *Romanian* fathers. Conversely, in all countries, with the notable exception of *Romanian* and *Turkish* employed mothers, the number of overtime hours declines or remains stable during the parenting phase, particularly for mothers with pre-school children. This pattern is also confirmed by our econometric analysis. A possible explanation is that fathers when children are young increase their supply of overtime hours in order to compensate for the decrease of mothers' labour supply and the related reduction of mothers' labour income.

In a recent publication, we have shown (see Anxo et al., 2017) that long working hours and/or atypical work in EU28 are negatively correlated with work-life balance, job satisfaction and well-being. Furthermore, we have shown that a preference for a reduction of working time is, everything else been equal, positively correlated with long working hours. In other words, employees with long and excessive working hours have a stronger preference for working shorter hours. Against this background and taking into consideration the detrimental consequences of long working hours on health and safety, a policy favouring an increase of hourly wage for low-paid workers coupled with a reduction of working time by reducing overtime hours may appear to be a good policy instrument for improving the well-being of citizens and beneficial for the society as a whole. This is particularly true in countries with a high share of excessive working hours and low-paid workers.

References

Amable, B. 2003. *The Diversity of Modern Capitalism,* Oxford: Oxford University Press.

Anxo, D. and O'Reilly, J. 2000. "Working time regimes and transitions in comparative perspective", in O'Reilly, J., Cebrién, I. and Lallement, M. (eds.), *Working time changes: Social integration through transitional labour markets*, Cheltenham, UK: Edward Elgar Publishing, Chapter 3, pp. 61-92.

—, Franz, C. and Kummerling, A. 2013. "Working time distribution and preferences across the life course: A European perspective", *Economia & Lavoro*, No. 2, pp. 77-105.

—, Boulin J-Y., Cabrita J. and Vermeylen G. 2017. *Working Time Patterns for Sustainable Work*, Luxembourg: Publications Office of the European Union.

Azariadis, C. 1975. "Implicit Contracts and Underemployment Equilibria", *Journal of Political Economy*, Vol. 83, No. 6, pp. 1183-1202.

Bannai, A. and Tamakoshi, A. 2014. "The association between long working hours and health: A systematic review of epidemiological evidence", *Scandinavian Journal of Work, Environment and Health,* Vol. 40, No. 1, pp. 5-18, doi:10.5271/sjweh.3388.

Bauer, T. and Zimmermann, K. 1999. "Overtime Work and Overtime Compensation in Germany", *Scottish Journal of Political Economy*, Vol. 46, No. 4, pp. 419-36.

Bell, D. and Hart, R. 1999. *Overtime working in an unregulated labour market*. IZA Discussion paper series, No. 44.

Bohle, D. and Greskovits, B. 2012. *Capitalist Diversity on Europe's Periphery,* Cornell studies in political economy, Ithaca, NY, USA: Cornell University Press.

Deloitte Consulting. 2010. "Annex 1 - Study on health and safety aspects of working time", in *Study to support an Impact Assessment on further action at European level regarding Directive 2003/88/EC and the evolution of working time organization,* Report on behalf of the European Commission.

Esping-Andersen, G. 1990. *The Three Worlds of Welfare Capitalism*, Cambridge: Polity Press.

Eurofound. 2007. *Fifteen years of working conditions in the EU: charting the trends*. https://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/ef0685en.pdf, EF0685 [accessed 2017-09-14].

—. 2010. *Comparative analysis of working time in the European Union*. https://www.eurofound.europa.eu/ef/sites/default/files/ef_files/docs/ewco/tn0803046s/tn0803046s.pdf [accessed 2017-09-13].

—. 2016. *Sixth European Working Conditions Survey (EWCS),* Luxembourg: Publications Office of the European Union.

—. 2017. *Developments in working time 2015-2016*, Luxembourg: Publications Office of the European Union.

Eurofound, EurWork Observatory. 2003. *Overtime in Europe*, https://www.eurofound.europa.eu/observatories/eurwork/comparative-information/overtime-in-europe [accessed 2017-09-07].

—. 2015. *Romania: Amendments to law on social dialogue proposed in parliament,* https://www.eurofound.europa.eu/observatories/eurwork/articles/industrial-relations-law-and-regulation/romania-amendments-to-law-on-social-dialogue-proposed-in-parliament [accessed 2017-11-28].

European Commission. 2011. *Review of the Working Time Directive*, MEMO/11/789, European Commission Press Release Database, http://europa.eu/rapid/press-release_MEMO-11-789_en.htm, [accessed 2017-09-07].

—. 2017a. *Report on the implementation by Member States of Directive 2003/88/EC concerning certain aspects of the organisation of working time,* COM/2017/0254 final, 26th of April 2017.

—. 2017b. *Working Conditions – Working Time Directive*, http://ec.europa.eu/social/main.jsp?catId=706&langId=en&intPageId=205 [accessed 2017-09-07].

European Parliament. 2003. Directive 2003/88/EC of the European Parliament and of the Council of 4 November 2003 concerning certain aspects of the organization of working time ("Working Time Directive")*, Official Journal L 299, 18/11/2003, pp.0009 – 0019. https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32003L0088:EN:HTML

Eurostat. 1999. *Labour Force Survey - Methods and Definitions*, Luxembourg: Office for Official publications of the European Communities, ISBN 92-828-6891-5.

—. 2017a. *Labour Force Survey database* [accessed in September 2017].

—. 2017b. *EU Labour Force Survey database user guide, Annex: Explanatory notes*, European Commission, https://ec.europa.eu/eurostat/documents/1978984/6037342/EULFS-Database-UserGuide.pdf, Luxembourg.

Friesen, J. 2001. "Overtime pay regulation and weekly hours of work in Canada", *Labour Economics*, Vol. 8, No. 6, pp. 691-720.

Golden, L. and Wiens-Tuers, B. 2005. "Mandatory Overtime Work in the United States: Who, Where, and What*?", Labour Studies Journal*, Vol. 30, No. 1, pp. 1-25.

Hall, G. 1996. "Overtime, effort, and the propagation of business cycle shocks", *Journal of Monetary Economics,* Vol. 38, No.1, pp. 139-160, Elsevier.

Hart, R. 2004. *The Economics of Overtime Working*. Cambridge: Cambridge University Press.

—. and Ma, Y. 2010. "Wage-hours contracts, overtime working and premium pay", *Labour Economics,* Vol. 17, No. 1, pp. 170-179.

ILO. 1962. Reduction of Hours and Work Recommendation, 1962 (No. 116).

—. 2004. *Overtime,* Information Sheet No.WT-2, Conditions of Work and Employment Programme, http://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---travail/documents/publication/wcms_170708.pdf [accessed 2017-09-04].

—. 2013. *The Impact of Legislative Reforms on Industrial Relations in Romania*. http://www.ilo.org/wcmsp5/groups/public/---europe/---ro-geneva/---sro-budapest/documents/publication/wcms_219711.pdf [accessed 2017-11-21].

Kuroda, S. and Yamamoto, I. 2012. "Impact of overtime regulations on wages and work hours", *Journal of the Japanese and International Economies*, Vol. 26, No. 2, pp. 249-262, Elsevier.

Mumford, K. and Dowrick, S. 1994. "Wage bargaining with Endogenous Profits, Overtime Working and Heterogeneous Labour", *The Review of Economics and Statistics*, Vol. 76, No. 2, pp. 329-336, The MIT Press.

OECD. 1998. "Working hours: latest trends and policy initiatives", Chapter 5 in *Employment Outlook 1998*. Paris.

—. 2001. "Overtime - ILO", in *Glossary of statistical terms*, https://stats.oecd.org/glossary/detail.asp?ID=3085, [accessed 2017-11-10].

Perlman, R. 1966. "Observations on Overtime and Moonlighting", *Southern Economic Journal*, 33(2): 237-244.

Trejo, S. 1991. "The Effects of Overtime Pay Regulation on Worker Compensation", *The American Economic Review*, Vol. 81, No. 4, pp. 719-740.

Uluitu, A. Gabriel. 2016. *Latest amendments to law no 62/2011 on social dialogue enacted by law no 1/2016*, CKS 2016 e-book (10th International Conference "Challenges of the Knowledge Society", Bucharest, 20-21 May), pp. 286-290.

Legal acts and collective agreements

Denmark

- Collective agreement between Dansk Industri and Centralorganisation af Industriansatte, *Industriens Overenskomst 2014-2017,* July 2017.

- Collective agreement between Dansk Industri and FAOD (The Danish Union of Architects and Designers) and JA academic agronomists, *The collective agreement for architects 2015-2017,* June 2015.

- *Pay and working hours*, https://workplacedenmark.dk/en/working-conditions/pay-and-working-hours [accessed 2017-11-15].

- LBK no 1084:19/09/2017, *Arbejdsmiljøloven*, 19th of September 2017.

Germany

- Collective agreement between IG Metall and industrial companies in NRW (North Rhein-Westphalia) 2016-2017, https://metall.nrw/fileadmin/_migrated/content_uploads/wages_schedule_2016_2017_01.pdf [accessed 2017-11-15].

- Collective agreement for public service sector 2016 between der Bundesrepublik Deutschland and Public service sector employer organization VKA, Tarifvertrag für den öffentlichen Dienst (TVöD), 24th of November 2016.

- German Working Time Act (ArbZG Arbeitszeitgesetz), https://www.gesetze-im-internet.de/arbzg/BJNR117100994.html.

Romania

- Law 40/2011, Romanian Labour Code. http://www.ilo.org/dyn/travail/docs/1630/ [accessed 2017-11-15].

Spain

- Spanish Statute of Worker Rights (Ley del Estatuto de los Trabajadores), http://www.ilo.org/dyn/natlex/docs/WEBTEXT/37817/64929/S94ESP01.htm [accessed 2017-11-15].

- Collective agreement for VIPS group of companies 2015-2018, III Convenio colectivo del grupo VIPS, https://www.ccoo-servicios.es/archivos/vips/IIICONVENIOGRUPOVIPSw.pdf [accessed 2017-11-15].

Turkey

- Law No. 4857, http://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---ilo_aids/documents/legaldocument/wcms_127496.pdf [accessed 2017-11-15].

United Kingdom

- United Kingdom act of Parliament c 18, The Employment Rights Act 1996.

- Overtime: your rights, https://www.gov.uk/overtime-your-rights [accessed 2017-11-15].

- The Working Time Regulations 1998, SI 1998/1833.

Appendix A: Descriptive Statistics

Table A1: Usual weekly working time by sex and country, wage earners, hours per week

Country	Men	Women	All
Germany	37,2	28,5	32,8
Denmark	35,6	31,9	33,8
Spain	38,4	32,9	35,7
Romania	42,3	39,2	40,8
Turkey	47,9	42,6	46,3
United Kingdom	39,9	31,0	35,5

n.a: Not available

Source: EWCS 2016; own calculations

Table A2: Distribution of working hours by country, male wage earners (percentage)

Country	20 hours or less	21-34 hours	35-40 hours	41-48 hours	> 48 hours
Germany	10,5	4,4	69,9	8,0	7,2
Denmark	14,2	5,5	58,0	15,1	7,2
Spain	9,6	7,7	60,9	9,8	12,0
Romania	5,1	3,0	54,2	17,8	19,9
United Kingdom	4,9	4,9	16,4	29,7	44,1
Turkey	7,9	8,2	46,0	17,9	20,0

Source: EWCS 2016; own calculations

Table A3: Distribution of working hours by country, female wage earners (percentage)

Country	20 hours or less	21-34 hours	35-40 hours	41-48 hours	> 48 hours
Germany	33,0	24,1	37,0	4,6	1,4
Denmark	18,3	20,9	49,9	7,9	3,0
Spain	21,5	18,1	49,7	4,7	6,0
Romania	9,1	5,1	58,9	16,9	10,1
United Kingdom	11,1	10,1	21,0	27,5	30,3
Turkey	25,4	25,3	35,3	8,5	5,4

Source: EWCS 2016; own calculations

Table A4: Estimated share of wage earners working overtime (paid and unpaid) by gender and country wage earners (percentage)

Country	Men	Women	All
Germany	36,8	11,6	24,0
Denmark	40,1	25,1	32,7
Spain	36,6	17,5	26,8
Romania	38,1	28,6	33,3
Turkey	66,8	45,9	60,5
United Kingdom	38,1	15,7	26,2

Estimation based on country regulatory framework for determining the hours threshold where overtime (paid and unpaid) begins.

Source: EWCS 2016; own calculations

Table A5: Share of full-time wage earners reporting paid overtime by gender and country wage earners (percentage)

Country	Men	Women	All
Germany	33,7	11,2	22,2
Denmark	38,8	18,9	29,2
Spain	22,3	9,0	15,7
Romania	37,8	18,8	28,4
Turkey	28,5	18,4	25,5
United Kingdom	36,3	12,9	24,8

EWCS 2015: Question q101c: Thinking about your earnings from your main job, what do they include? Extra payments for additional hours of work/overtime

Source: EWCS 2016 and own calculations

Table A6: Estimated average weekly overtime hours (paid and unpaid) by gender and country wage earners, in hours per week

Country	Men	Women	All
Germany	1,3	0,4	0,8
Denmark	2,1	1,1	1,6
Spain	2,4	1,2	1,8
Romania	4,0	2,3	3,2
Turkey	6,3	4,1	5,6
United Kingdom	3,7	1,3	2,5

Estimation based on country regulatory framework for determining the hours threshold where overtime (paid and unpaid) begins.

Source: EWCS 2016; own calculations

Table A6a: Descriptive statistics, average weekly overtime hours, given participation (overtime hours>0), by country, wage earners, in hours per week

	Germany	Denmark	Spain	Romania	Turkey	United Kingdom
Mean	7,7	5,5	11,0	9,9	10,0	9,6
Median	5,0	3,0	10,0	8,0	9,0	8,0
Maximum	30,0	32,0	50,0	44,0	45,0	44,0
Std, Dev,	5,0	5,7	8,3	5,5	7,7	6,9
Variance	24,7	33,0	68,6	30,7	58,9	47,3
Skewness	1,3	1,6	1,9	1,9	1,6	1,6

Source: EWCS 2016; own calculations

Table A7: Share of employees working overtime by gender country and life phases, male wage earners (percentage)

Country	I	II	III	IV	V	VI	VII	VIII
Germany	32,3	31,0	50,7	32,3	38,6	34,9	15,6	29,7
Denmark	26,1	37,9	46,3	42,1	41,7	47,5	23,6	26,1
Spain	19,9	26,1	22,4	40,1	23,2	13,8	28,3	19,9
Romania	56,8	23,8	38,7	39,0	38,2	40,9	62,8	n.a
United Kingdom	22,0	28,9	23,3	41,7	34,3	24,4	16,5	n.a
Turkey	33,1	41,7	30,5	30,6	42,6	41,5	17,1	n.a

n.a: Not available

I. Single persons (under 46 years), without children, II Younger cohabiting couples (woman under 46 years), without children, III Cohabiting couples with youngest children under 7 years, IV Cohabiting couple with young children between 7-12 years, V Cohabiting couple with teenage children between 13-18 years, VI. Midlife 'empty nest' couples without resident children, VII Older cohabiting couples without resident children, VIII Single persons (aged 50 years or older), without resident children.
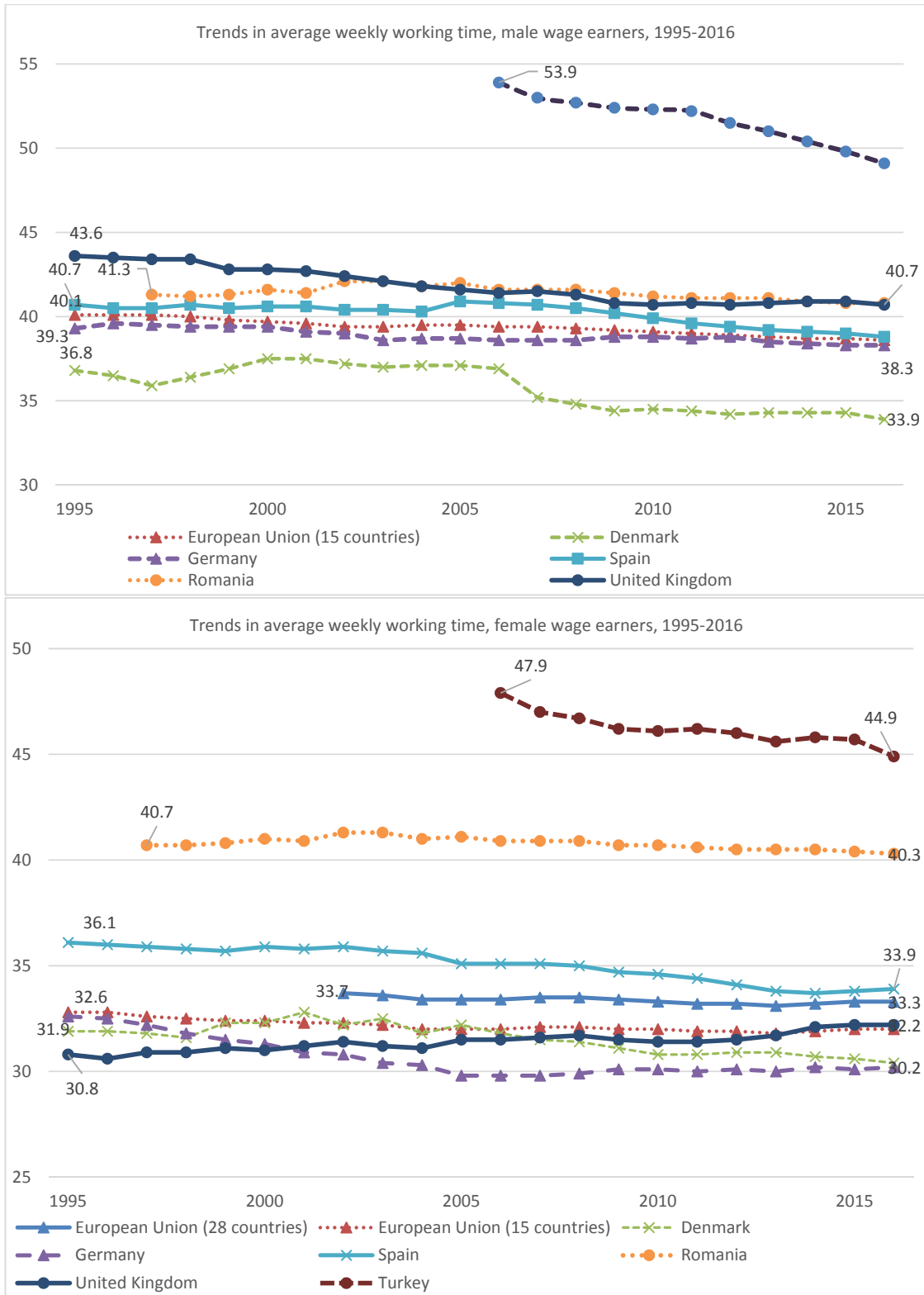
Source: EWCS 2016; own calculations

Table A8: Share of employees working overtime by gender country and life phases, female wage earners (percentage)

Country	I	II	III	IV	V	VI	VII	VIII
Germany	18,6	20,0	7,4	4,7	6,9	12,9	8,2	11,7
Denmark	11,6	8,1	18,5	19,2	17,6	29,4	9,9	n.a
Spain	10,0	9,0	6,9	7,8	9,8	6,7	12,8	8,7
Romania	6,9	9,2	28,0	22,4	21,9	14,3	53,3	n.a
United Kingdom	17,9	26,6	22,8	26,2	6,5	5,1	3,0	n.a
Turkey	13,3	20,1	5,1	7,0	14,7	10,7	4,2	n.a

n.a: Not available

I. Single persons (under 46 years), without children, II Younger cohabiting couples (woman under 46 years), without children, III Cohabiting couples with youngest children under 7 years, IV Cohabiting couple with young children between 7-12 years, V Cohabiting couple with teenage children between 13-18 years, VI. Midlife 'empty nest' couples without resident children, VII Older cohabiting couples without resident children, VIII Single persons (aged 50 years or older), without resident children.

Source: EWCS 2016; own calculations

Table A9: Average weekly working time by sex country and life phases, male wage earners, hours per week

Country	I	II	III	IV	V	VI	VII	VIII
Germany	35,6	39,1	39,9	39,2	39,6	37,8	26,3	36,6
Denmark	31,2	35,2	38,9	40,9	39,0	38,8	30,5	35,5
Spain	35,3	39,5	40,1	40,8	39,0	38,7	39,1	40,2
Romania	41,9	44,8	42,5	46,3	42,3	44,3	46,3	38,4
United Kingdom	40,4	41,3	39,8	44,1	41,6	40,5	30,0	38,7
Turkey	46,1	46,8	48,5	49,5	49,0	48,8	47,3	45,8

I. Single persons (under 46 years), without children, II Younger cohabiting couples (woman under 46 years), without children, III Cohabiting couples with youngest children under 7 years, IV Cohabiting couple with young children between 7-12 years, V Cohabiting couple with teenage children between 13-18 years, VI. Midlife 'empty nest' couples without resident children, VII Older cohabiting couples without resident children, VIII Single persons (aged 50 years or older), without resident children.

Source: EWCS 2016; own calculations

Table A10: Average weekly working time by sex country and life phases, female wage earners, hours per week

Country	I	II	III	IV	V	VI	VII	VIII
Germany	33,4	34,4	24,2	25,4	25,5	29,4	22,5	30,1
Denmark	27,7	27,3	36,4	36,5	34,6	34,8	35,5	31,9
Spain	34,9	35,0	32,9	31,6	32,9	31,8	34,8	36,6
Romania	35,9	38,7	39,6	39,9	39,3	42,4	34,9	39,2
United Kingdom	32,6	38,2	28,1	26,7	30,7	31,5	28,3	33,2
Turkey	43,5	47,1	41,0	41,9	41,3	39,0	n.a	n.a

n.a: Not available

I. Single persons (under 46 years), without children, II Younger cohabiting couples (woman under 46 years), without children, III Cohabiting couples with youngest children under 7 years, IV Cohabiting couple with young children between 7-12 years, V Cohabiting couple with teenage children between 13-18 years, VI. Midlife 'empty nest' couples without resident children, VII Older cohabiting couples without resident children, VIII Single persons (aged 50 years or older), without resident children.

Source: EWCS 2016; own calculations

Appendix B: Diagrams

Figure B1: Distribution of weekly working time by country, wage earners, 2015 (percentage)
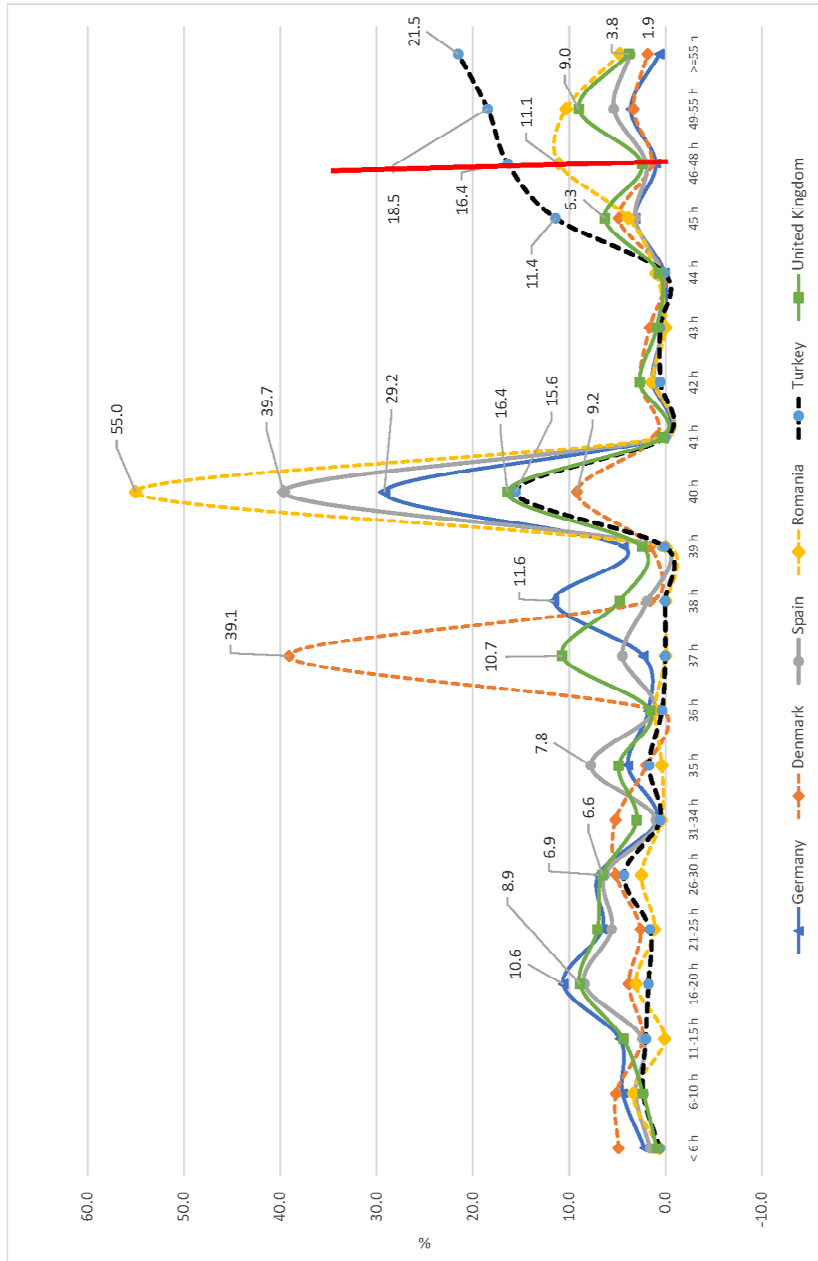
Red vertical line. 48 hours EU directive

Source: EWCS 2016 and own calculations

Figure B2: Trends in average weekly working time by gender and country, hours per week

Trends in average weekly working time, male wage earners, 1995-2016

Legend:
- ······▲······ European Union (15 countries)
- – –▲– – Germany
- ·····●····· Romania
- – –✕– – Denmark
- ──■── Spain
- ──●── United Kingdom

Trends in average weekly working time, female wage earners, 1995-2016

Legend:
- ──▲── European Union (28 countries)
- ······▲······ European Union (15 countries)
- – –✕– – Denmark
- – –▲– – Germany
- ──✕── Spain
- ·····●····· Romania
- ──●── United Kingdom
- – –●– – Turkey

Source: Eurostat: Labour Force Survey, accessed November 2017.

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Figure B3: Proportion of wage earners working overtime (paid and unpaid) by country and gender, 2015 (percentage)
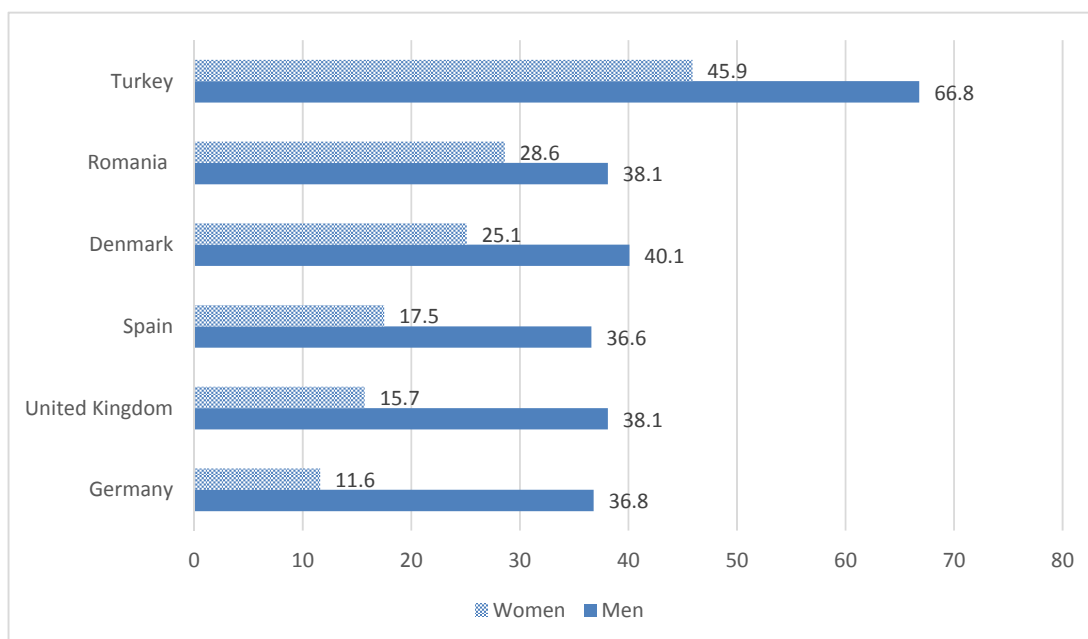
Source: EWCS 2016 and own calculations

Figure B4: Share of wage earners reporting paid overtime by country and gender, 2015 (percentage)
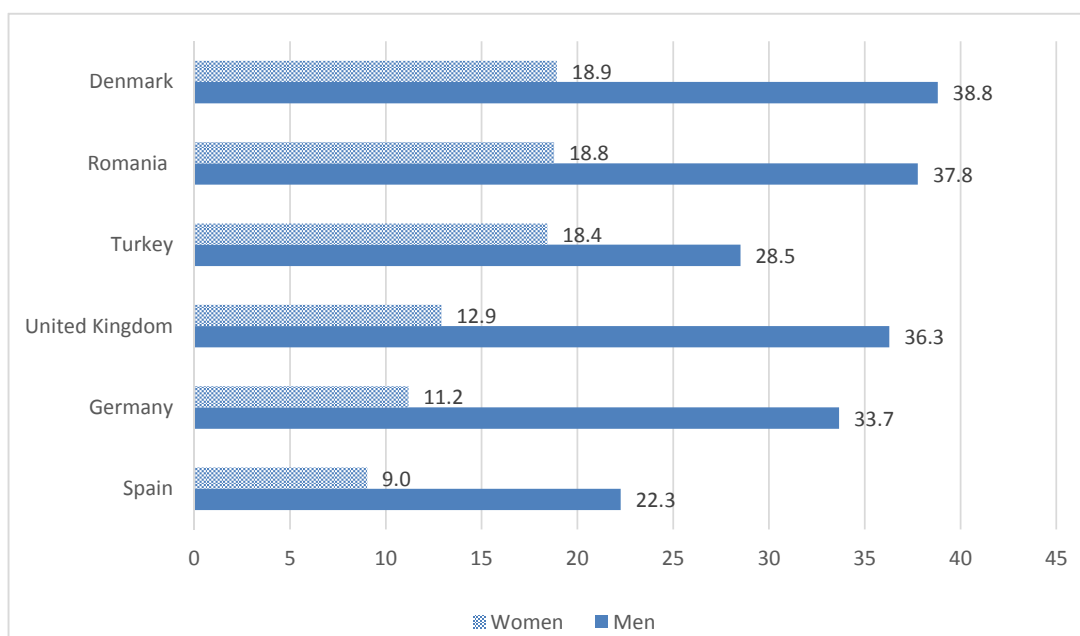
EWCS 2015: Question q101c: Thinking about your earnings from your main job, what do they include? Extra payments for additional hours of work/overtime

Source: EWCS 2016 and own calculations

Figure B5: Average weekly overtime hours by country, wage earners, 2015, hours per week
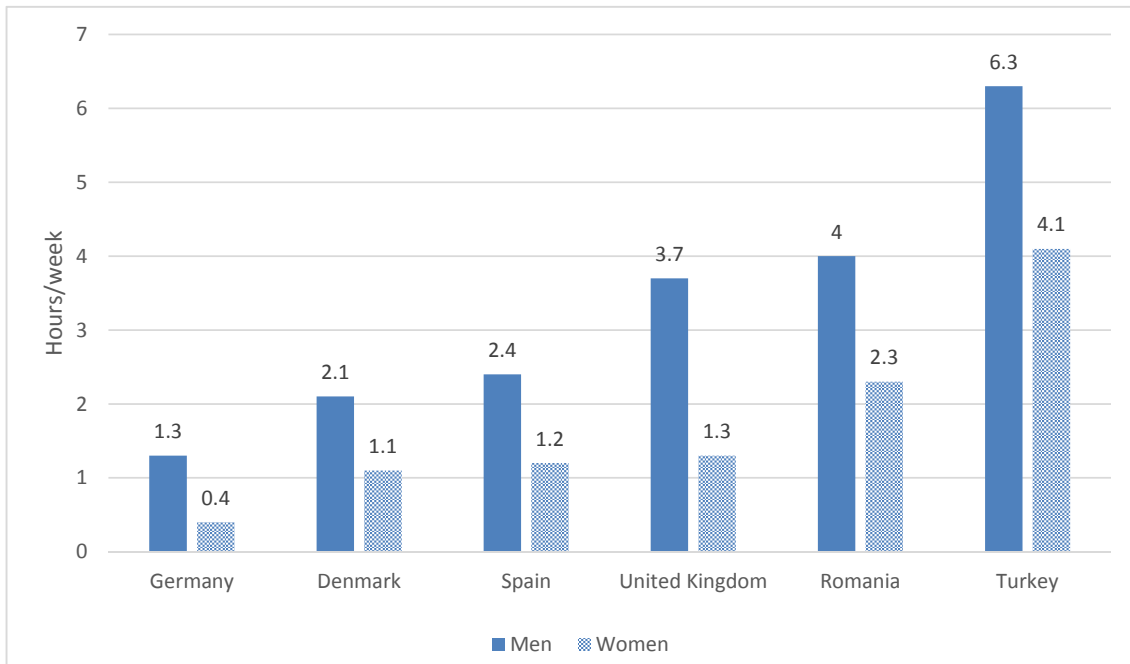
Estimation of average weekly overtime hours based on country regulatory framework for determining the hour-threshold where overtime (paid and unpaid) begins.

Source: EWCS 2016; own calculations.

Figure B6: Distribution of weekly overtime hours given participation, by country, all wage earners, 2015, hours per week
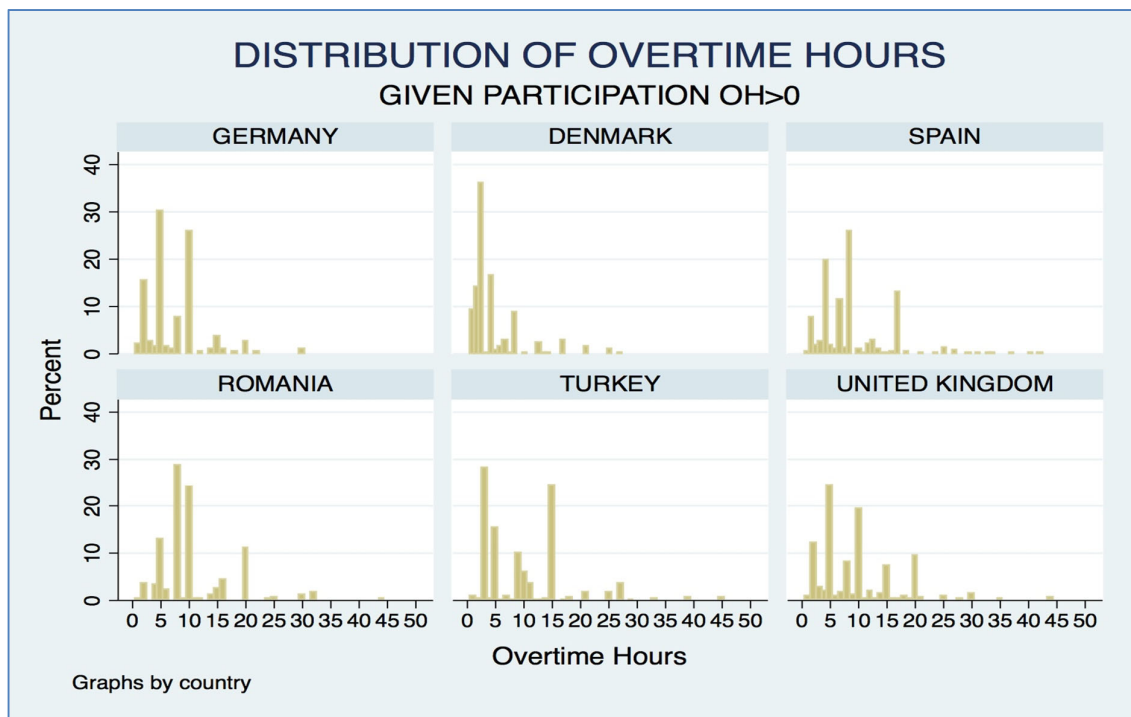
Source: EWCS 2016 and own calculations

Figure B7: Distribution of weekly overtime hours given participation, by country, male wage earners, 2015, hours per week
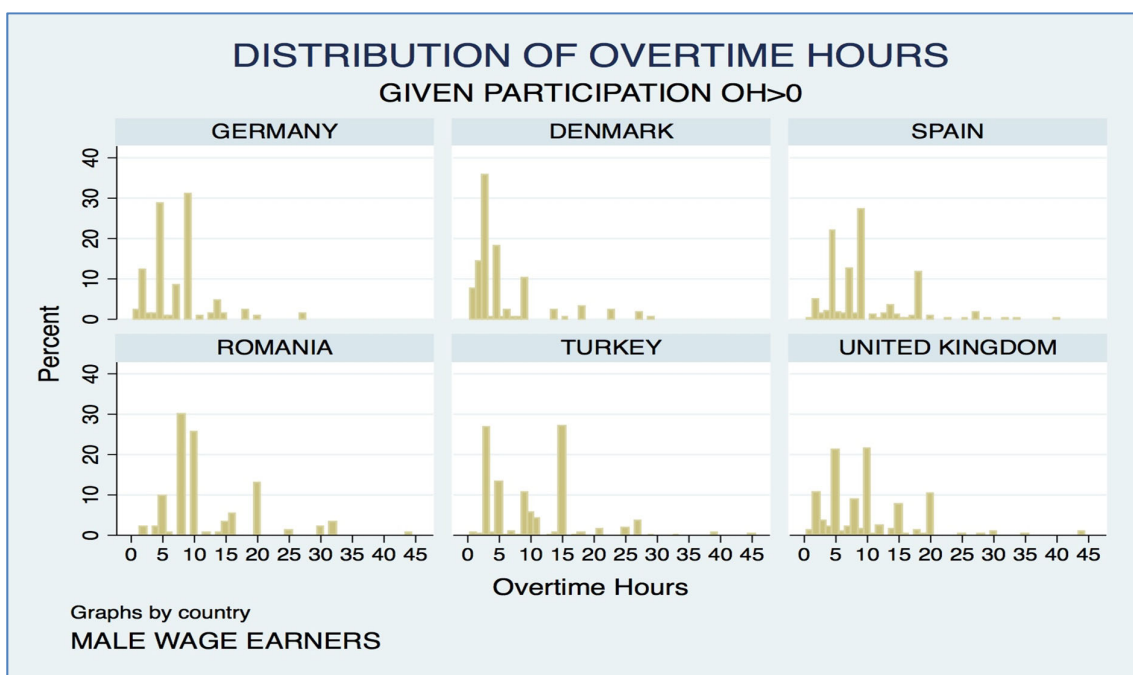
Figure B8: Distribution of weekly overtime hours given participation, by country, female wage earners, 2015, hours per week
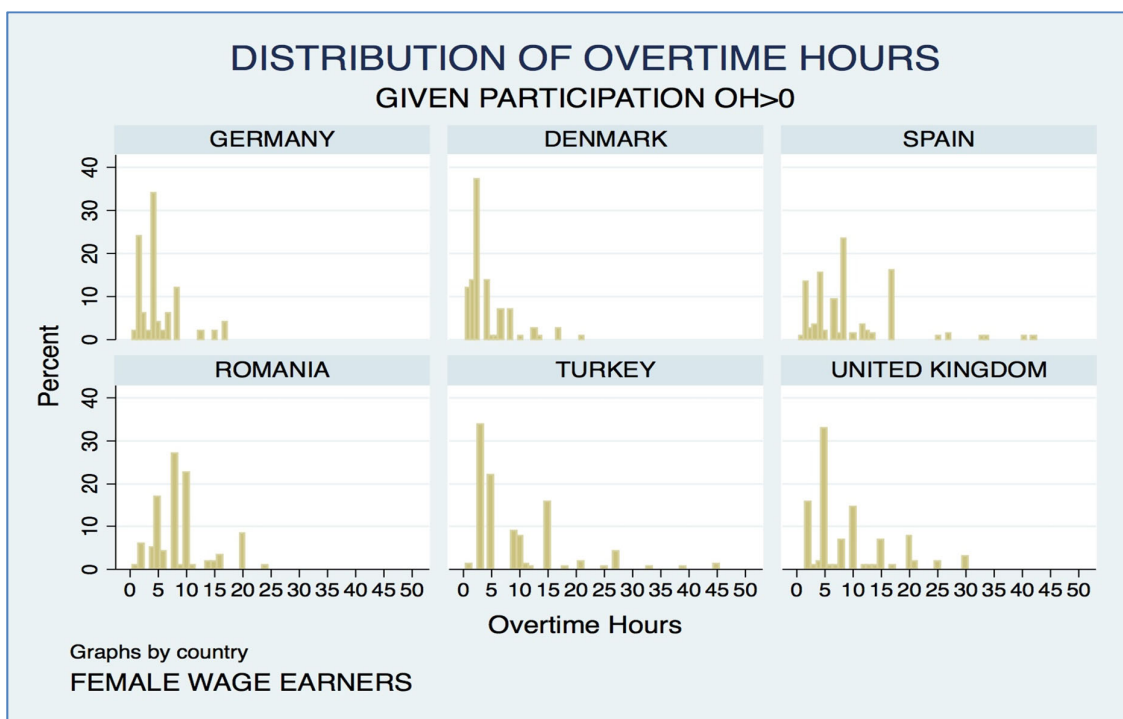
Source: EWCS 2016 and own calculations

Appendix C: Results of estimations

Table C1: Logit regression pooled data, dependent variable: Binary variable=1 if the respondent is working overtime (paid and unpaid) =zero otherwise, all wage earners, all countries, marginal effects estimated at sample means

VARIABLES	All	Men	Women
Women	-0.107***	-	-
Age	0.0223***	0.0339***	0.0108***
Age square	-0.000254***	-0.000382***	-0.000126***
Low skill	-0.0218	0.0133	-0.0498***
High skill	0.0609***	0.0836***	0.0298*
Construction	0.0366	0.0486	0.0446
Whole sale & retail	0.00596	0.0320	-0.0172
Transport	-0.00689	-0.0243	0.0451
Financial services	-0.0407	-0.0360	-0.0381
Administration	-0.120***	-0.158***	-0.0706***
Education	-0.0928***	-0.174***	-0.0440**
Health	-0.0835***	-0.109**	-0.0656***
Other services	-0.0399**	-0.0174	-0.0445***
Public sector	-0.0832***	-0.125***	-0.0417***
Small establish.	0.00687	0.0325	-0.0119
Large establish. (>=250)	-0.00446	-0.0101	0.00411
Fixed-term contract	-0.0481***	-0.0821***	-0.0110
Weekend work	0.0960***	0.0793***	0.111***
Night work	0.136***	0.168***	0.0861***
Shift work	-0.0664***	-0.0865***	-0.0470***
Frequent on-call	0.0431**	0.0844***	0.00237
Denmark	-0.0741***	-0.0967***	-0.0413**
Spain	-0.00497	-0.00592	0.00537
Romania	0.173***	0.180***	0.162***
Turkey	0.576***	0.587***	0.549***
United Kingdom	0.113***	0.186***	0.0394
Predicted probability	*0.1973*	*0,2971*	*0.1119*
Observations	8,309	4,346	3,963

*, ** and *** statistically significant at 10 per cent, 5 per cent and 1 per cent level

Interpretation. Ceteris paribus, the predicted probability (penultimate row) that wage earner report working overtime is respectively 19,7 per cent for the sample as a whole, 29,7 per cent for male wage earners and 11,2 per cent for female wage earners. Everything else been equal, female workers have a significant lower likelihood to working overtime, a reduction of the probability of 10,7 percentage points (or 54,3 %=10,7/19,7) compared to their male counterparts. High-skilled workers (5th row, second column) have a 6.1 percentage points higher probability to report that they work overtime (or an increase of the probability by 31% =6,1/19,7) compared to medium-skilled workers (reference category).

Source: EWCS 2016 and own calculations.

Table C2: Logit regression pooled data, dependent variable, Binary variable= 1 if the respondent reports *paid overtime*, all wage earners all countries, marginal effects estimated at sample means

VARIABLES	All	Men	Women
Women	-0.114***	-	-
Age	0.0143***	0.0232***	0.00558*
Age square	-0.000175***	-0.000281***	-6.90e-05**
Low skill	0.0464***	0.0694***	0.0230
High skill	-0.0175	-0.0792***	0.0274
Construction	0.0662***	0.0959***	-0.0587**
Whole sale & retail	-0.0799***	-0.104***	-0.0480***
Transport	-0.0486***	-0.0673**	-0.0285
Financial services	-0.0691***	-0.132***	-0.0109
Administration	-0.0677***	-0.0557	-0.0510***
Education	-0.121***	-0.153***	-0.0771***
Health	-0.0737***	-0.155***	-0.0426***
Other services	-0.0957***	-0.0961***	-0.0805***
Public sector	-0.0391**	-0.0786***	-0.0174
Small establish.	-0.0515***	-0.0612***	-0.0373***
Large establish. (>=250)	0.0270*	0.0179	0.0391**
Fixed-term contract	-0.0596***	-0.0847***	-0.0316**
Weekend work	0.0191	0.0190	0.0169
Night work	0.0950***	0.0964***	0.0865***
Shift work	0.0833***	0.107***	0.0542***
Frequent on-call	0.0443***	0.0714***	0.0164
Denmark	-0.0807***	-0.0983***	-0.0545***
Spain	-0.127***	-0.180***	-0.0730***
Romania	-0.0517***	-0.0845**	-0.0183
Turkey	-0.0465***	-0.0924***	0.0251
United Kingdom	-0.0451***	-0.0254	-0.0502***
Predicted Probability	0.1855	0,2751	0.1063
Observations	8,273	4,333	3,940

*, ** and *** statistically significant at 10 per cent, 5 per cent and 1 per cent level

Interpretation. *Ceteris paribus*, the predicted probability (penultimate row) that a wage earner reports *paid overtime* is respectively 18,6 per cent for the sample as a whole, 27,5 per cent for male wage earners and 10,6 per cent for female wage earners. Everything else been equal, female workers have a significant lower likelihood to report paid overtime, a reduction of the probability of 11,4 percentage points (or 61,3 %=11,4/18,6) compared to their male counterparts. **Low-skilled** workers (4th row, second column) have a 4.6 percentage points higher probability to report paid overtime (or an increase of the probability by 24,7% =4,6/18,6) compared to medium-skilled workers (reference category).

Source: EWCS 2016 and own calculations

Table C3: Tobit regression pooled data, dependent variable, weekly overtime hours, all wage earners all countries, marginal effect estimated at sample means, given participation (Overtime hours>0)

VARIABLES	All	Men	Women
Women	-0.877***	-	-
Age	0.168***	0.260***	0.0857***
Age square	-0.00192***	-0.00296***	-0.000989***
Low skill	-0.242***	0.0350	-0.431***
High skill	0.739***	1.054***	0.414***
Construction	0.302*	0.583*	-0.177
Whole sale & retail	0.0309	0.283	-0.190
Transport	0.243	0.297	0.109
Financial services	-0.527***	-0.483	-0.475***
Public adm & defence	-0.895***	-0.991***	-0.640***
Education	-0.719***	-1.150***	-0.491***
Health	-0.832***	-1.047***	-0.711***
Other services	-0.489***	-0.249	-0.522***
Public sector	-0.739***	-1.317***	-0.323***
Small establish.	0.0674	0.246	-0.0184
Large establish. (>=250)	-0.0479	-0.148	0.0470
Fixed-term contract	-0.192*	-0.405***	0.0205
Weekend work	1.337***	1.378***	1.276***
Night work	1.293***	1.688***	0.891***
Shift work	-0.802***	-1.093***	-0.526***
Frequent on-call	0.570***	0.986***	0.222
Denmark	2.985***	3.378***	2.447***
Spain	1.097***	1.395***	0.842***
Romania	3.850***	4.477***	3.139***
Turkey	6.560***	7.269***	6.066***
United Kingdom	2.428***	3.274***	1.580***
Number of Observations	8,324	4,351	3,973

*, ** and *** statistically significant at 10 per cent, 5 per cent and 1 per cent level

Interpretation. Everything else been equal, female wage earners work on average 0,8 hours less overtime hours compared to their male counterpart (*First row second column*). Compared to medium-skilled workers (the reference category), low skilled workers work on average 0,2 hour less overtime (*4th Row, second column*). By contrast high-skilled workers work on average 0,7 hours more overtime hours compared to medium-skilled workers (*5th Row, second column*). Compared to Germany (the reference category) the number of overtime hours worked is *ceteris paribus*, on average 3 hours more in Denmark, 1,1 hour more in Spain, 3,9 hours more Romania, 6,6 hours in Turkey and in 2,4 hours more in the UK a (See the last five rows second column).

Source: EWCS 2016 and own calculations.

Table C4: Tobit regression by country, dependent variable, weekly overtime hours, all wage earners by country, marginal effect estimated at sample means, given participation (Overtime hours>0)

VARIABLES	Denmark	Germany	Spain	Romania	Turkey	United Kingdom
Women	-0.903***	-0.427***	-0.770***	-1.543***	-1.165***	-1.512***
Age	0.346***	0.0933***	0.0998**	0.278	-0.0311	0.150**
Age square	-0.00386***	-0.00104***	-0.00122**	-0.00293	0.000821	-0.00175**
Low skill	-1.103***	-0.277***	-0.238	-0.909*	0.937*	0.0243
High skill	1.322***	0.836***	0.179	-0.0874	-0.899	1.453***
Whole sale & retail	-0.161	0.249*	0.0107	1.128*	0.736	-1.300***
Transport	1.398	0.343	0.358	1.048	-1.107	-0.328
Financial services	0.627	-0.112	-0.749	-1.087	-3.840***	-0.104
Public admin.	-0.247	-0.132	-0.376	-0.898	-3.187***	-0.940***
Education	0.279	-0.350	-1.094***	-2.205	-3.826***	0.194
Health	-0.999***	-0.306***	-0.224	1.118	-2.832***	-1.174***
Other services	-0.131	-0.0306	-0.502***	-0.809	-1.180**	-0.692***
Public sector	-0.417	-0.0739	-0.887***	-1.331**	-3.105***	-0.279
Small establish.	0.183	-0.168**	-0.170	0.0114	0.291	0.125
Large establish. (>=250)	0.107	0.0808	0.295	-1.043**	-0.647	-0.715***
Fixed-term contract	-0.662	-0.320***	-0.0162	1.990**	-0.366	-0.791***
Weekend work	0.975***	0.217	1.310***	2.712***	1.089**	1.772***
Night work	1.431***	0.719**	0.919***	0.727	2.067***	1.744***
Shift work	-1.259***	-0.311***	-0.838***	-0.943*	-0.992*	-0.662**
Frequent on-call	1.006	0.478**	0.705**	0.228	0.984	0.341
Number of Observations	899	1,722	2,588	719	1,125	1,271

*, ** and *** statistically significant at 10 per cent, 5 per cent and 1 per cent level

Interpretation. Everything else been equal and compared to their male counterpart (*First row*), female wage earners in Denmark work on average 0,9 hours less overtime hours, in Germany 0,4 hours less, in Spain 0,8 hour less, in Romania 1,5 hour less, in Turkey 1,2 hour less and 1,5 hour less the UK (*First row second column*). Compared to medium-skilled workers (the reference category), low skilled workers in Denmark work on average 1,1 hour less overtime (*4th Row, second column*). By contrast high-skilled workers in Denmark works on average 1,3 hour more overtime hours compared to medium-skilled workers (*5th Row, second column*).

Source: EWCS 2016 and own calculations

Table C5: Tobit regression by country, dependent variable, weekly overtime hours, male wage earners by country, marginal effect estimated at sample means, given participation (Overtime hours>0)

VARIABLES	Denmark	Germany	Spain	Romania	Turkey	United Kingdom
Age	0.543***	0.181***	0.178*	0.127	0.00820	0.367***
Age square	-0.00612***	-0.00196***	-0.00219*	-0.00120	0.000606	-0.00406***
Low skill	-1.175*	-0.246*	0.0468	0.449	0.761	0.375
High skill	2.148***	0.755*	0.323	0.767	-1.060	1.571***
Whole sale & retail	-0.0515	0.641**	0.122	2.289**	0.148	-1.947***
Transport	2.050	0.519	0.263	0.460	-1.184	-0.832
Financial services	0.553	-0.293	-0.875	-2.013	-4.399***	0.720
Administration	0.0222	0.123	-0.769*	-0.426	-2.668***	-1.159*
Education	-0.186	-0.831***	-1.667	-3.970***	-3.829***	0.619
Health	-1.824***	-0.117	0.177	2.174	-2.934**	-2.010***
Other services	-0.125	0.156	-0.639**	0.934	-1.159*	-0.738
Public sector	-0.500	-0.391**	-1.080***	-1.640*	-4.380***	-0.820
Small establish.	0.120	-0.235	-0.227	-0.0280	1.280***	0.915
Large establish. (>=250)	-0.582	-0.0118	0.502	-1.256	-0.425	-0.819**
Fixed-term contract	-0.418	-0.378***	-0.269	1.233	-0.485	-1.164**
Weekend work	0.953**	-0.0614	1.300***	2.701*	1.298**	2.490***
Night work	2.360***	0.748**	1.304***	0.852	1.755***	1.926***
Shift work	-1.454**	-0.405**	-1.155***	-1.180	-0.922	-1.358***
Frequent on-call	0.979	0.698**	1.178**	0.493	1.235*	1.531**
Number of Observations	455	854	1,257	348	783	654

*, ** and *** statistically significant at 10 per cent, 5 per cent and 1 per cent level

Interpretation. Everything else been equal low-skilled male workers in Denmark work on average 1,2 hour less overtime (*4th Row, second column*). By contrast male high-skilled workers in Denmark work on average 2,2 hours more overtime hours compared to their medium-skilled counterparts (*5th Row, second column*). The corresponding figure in Germany are respectively for low and high-skilled male workers 0,2 and 0,8 hour. (4th and 5th row, third column).

Source: EWCS 2016 and own calculations

Table C6: Tobit regression by country, dependent variable, weekly overtime hours, female wage earners by country, marginal effect estimated at sample means, given participation (Overtime hours>0)

VARIABLES	Denmark	Germany	Spain	Romania	Turkey	United Kingdom
Age	0.129	0.0110	0.0536	0.398	-0.0392	-0.00468
Age square	-0.00138	-0.000135	-0.000649	-0.00452	0.000219	-6.35e-05
Low skill	-1.172*	-0.129	-0.396**	-1.700	1.351	-0.225
High skill	0.747**	0.655	0.0902	-0.505	-0.578	1.252***
Whole sale & retail	-0.204	-0.0392	-0.138	-0.0806	2.011	-0.652*
Transport	0.0205	-0.0276	0.288	0.737	-3.099***	0.415
Financial services	0.753	-0.0111	-0.625	-0.652	-2.654**	-0.402
Administration	-0.453	-0.0815	-0.0676	-1.217	-2.861**	-0.462
Education	0.683	-0.103	-0.715**	-1.416	-2.986***	0.180
Health	-0.432	-0.187	-0.316	0.152	-2.003**	-0.529
Other services	-0.183	-0.0566	-0.379*	-1.554*	-0.803	-0.495
Public sector	-0.397	0.0649	-0.676***	-0.658	-1.723**	-0.0307
Small establish.	0.157	-0.0520	-0.109	0.289	-1.383*	-0.351
Large establish. (>=250)	0.704*	0.120	0.112	-0.321	-0.947	-0.494*
Fixed-term contract	-0.721**	-0.0930	0.164	2.049	0.0112	-0.427*
Weekend work	0.922**	0.356	1.344***	2.084*	0.316	1.034**
Night work	0.137	0.334	0.649	0.0718	3.807*	1.458**
Shift work	-0.940	-0.0662	-0.591***	-0.961*	-0.951	-0.0576
Frequent on-call	1.483	0.124	0.336	0.115	0.316	-0.540*
Number of Observations	444	868	1,331	371	342	617

*, ** and *** statistically significant at 10 per cent, 5 per cent and 1 per cent level

Interpretation. Everything else been equal low-skilled female workers in Denmark work on average 1,2 hour less overtime (*4th Row, second column*). By contrast high-skilled female workers in Denmark work on average 0,7 hour more overtime hours compared to their medium-skilled counterparts (*5th Row, second column*). In Demark, female employees on fixed-term contract work 0,7-hour overtime less than their female employee counterpart with open ended contract (6th row from bottom and 2nd column). In Spain female employees working on week-end work on average 1,3 more overtime hour than their female counterpart working on week-days (5th row from bottom and 4th column).

Source: EWCS 2016 and own calculations

Table C7: Tobit regression, dependent variable, weekly overtime hours, all wage earners pooled data, Introduction of life phases, marginal effect estimated at sample means, given participation (Overtime hours>0)

VARIABLES	Men	Women
Low skill	0.0135	-0.487***
High skill	1.051***	0.396**
Young singles on their own	-0.688**	-0.151
Couples with pre-school children	-0.0488	-0.342**
Couples with children 7-12 years	0.801**	-0.136
Couples with children 13-18	0.496*	-0.186
Couple empty nest 46-59 years	0.0884	-0.252
Older Couple	-1.071***	-0.0303
Older singles	-0.548	-0.314*
Construction	0.538*	-0.273
Whole sale & retail	0.560**	-0.0577
Transport	0.464	0.365
Financial services	-0.223	-0.412**
Administration	-1.156***	-0.627***
Education	-1.061***	-0.403**
Health	-1.010***	-0.666***
Other services	-0.224	-0.461***
Public sector	-1.141***	-0.285**
Small establish.	0.216	-0.0977
Large establish. (>=250)	-0.142	0.0121
Fixed-term contract	-0.393**	0.0358
Weekend work	1.261***	1.185***
Night work	1.902***	0.946***
Shift work	-1.092***	-0.517***
Frequent on-call	1.079***	0.250
Denmark	2.424***	2.205***
Spain	1.114***	0.919***
Romania	4.026***	3.059***
Turkey	6.579***	5.711***
United Kingdom	3.208***	1.511***
Number of Observations	3,461	2,870

*, ** and *** statistically significant at 10 per cent, 5 per cent and 1 per cent level

Interpretation. Everything else been equal fathers with children aged 7-12 years (5th row second column) increase their overtime hours with 0,8 hours compared to cohabiting/married men without children (reference category). By contrast, mothers of pre-school children reduce ceteris *paribus* overtime hours by us reduce their overtime hours with 0,3 hours (4th row last column).

Source: EWCS 2016 and own calculations

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