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Gender differences in the labor market. A comparative study of contemporary societies.

Dämmrich, Johanna Luise

Thesis submitted for assessment with a view to
obtaining the degree of Doctor of Political and Social Sciences
of the European University Institute

Florence, March 2016

European University Institute
Department of Political and Social Sciences

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This thesis is a work of independent research. In accordance with §9.2 of the ‘Academic rules and regulations for the doctoral and master’s programmes’ at the European University Institute (as amended by Academic Council decision N° 2 of 10 December 2014), the thesis contains my own account of my investigations. It has not previously been published in full. Earlier versions of some of the contents of this thesis appear in the following publications:

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All co-authors agreed with the use of this joint work as parts of my thesis (consents of all co-authors are available upon request).

ABSTRACT

The aim of this thesis is to analyze gender differences across contemporary societies, with the following main research questions: First, do gender differences exist among labor market entrants and the whole labor market population? And does the extent of gender differences vary from country to country? Second, can conventional country groupings and country-specific characteristics – family policies, the gender culture, and labor market related setups – contribute to the explanation of this country variation?

To answer my research questions, I rely on comparative cross-sectional data from the Labour Force Survey (LFS) from 2009 and 2013 and the Programme for the International Assessment of Adult Competencies (PIAAC) from 2011/12. The main empirical analysis strategy is two-step multilevel models. I distinguish between a horizontal and a vertical dimension of gender differences in the labor market and examine several different indicators to offer a comprehensive picture of gender differences.

At labor market entry, horizontal gender differences seem to be already pronounced in all countries, while my findings indicate that females are not yet disadvantaged in vertical gender inequalities (in terms of entering high-status occupations) in several countries. In turn, for the whole labor market population, I find a female disadvantage in working in supervisory positions and participating in employer-financed training in nearly all countries.

Countries vary notably in the extent of their gender differences, indicating that country-specific setups play a role. For horizontal gender differences at labor market entry, however, I can not identify a strong association with any of the theoretically important macro factors I examined: Neither the gender culture nor the share of women in public sector employment contributes notably to explaining country variation. In contrast, females seem to have better chances of entering high-status occupations and participating in employer-sponsored training in countries with family policies supporting females' full-time and continuous employment (i.e., shorter parental leave and higher childcare provision). I further identify a more traditional gender culture to be detrimental to women's chances of participating in employer-sponsored training. Finally, females disadvantage in entering high-status and supervisory positions is higher in countries with higher female employment.

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COUNTRY ABBREVIATIONS

AT	Austria
BE	Belgium
BG	Bulgaria
CY	Cyprus
CZ	Czech Republic
DE	Germany
DK	Denmark
EE	Estonia
ES	Spain
FI	Finland
FR	France
GR	Greece
HU	Hungary
HR	Croatia
IE	Ireland
IS	Iceland
IT	Italy
JP	Japan
KP	South Korea
LT	Lithuania
LU	Luxembourg
LV	Latvia
NL	Netherlands
NO	Norway
PL	Poland
PT	Portugal
RO	Romania
RU	Russia
SE	Sweden
SI	Slovenia
SK	Slovakia
UK	United Kingdom
US	United States

1 INTRODUCTION

1.1 MOTIVATION AND RESEARCH AIMS

During the last few decades, national and international stakeholders have been increasingly stressing gender equality as a fundamental social goal in Europe (Charles and Grusky 2004; European Commission 2009), and much progress in the area of gender equality has been made. Women have caught up to or even surpassed men in their educational attainment (Charles 2011; Iannelli and Smyth 2008) and increasingly participate in employment (Eurostat 2015). Despite women's educational gains, their rising labor market participation, and considerable efforts at the national, European and international level to equalize men's and women's chances and opportunities in the labor market, gender equality is still far from being established. In the private sphere, women still bear the main share of household chores (Hofäcker 2006; Sayer 2010). In the labor market, they differ from men as they work in different occupations (Mandel and Semyonov 2006; Steinmetz 2012; Charles 2005), receive lower wages (Rosenfeld and Kalleberg 1991; Mandel and Shalev 2009; Mandel 2012), and are less likely to hold jobs with high-status (Schäfer et al. 2012; Steinmetz 2012; Mandel and Semyonov 2006) and supervisory responsibilities (Abendroth et al. 2013; Wright et al. 1995; Rosenfeld et al. 1998).

Notably, the extent of gender differences in the labor market varies from country to country (Mandel and Semyonov 2006; Charles 2011; Steinmetz 2012). This variation is likely to stem from countries' differences in institutional arrangements, such as family policies, the gender culture, and structural and (gendered) labor market related characteristics (e.g., Mandel and Semyonov 2006; Charles 2011; Steinmetz 2012). Despite this evidence, however, it is still unclear how pronounced the extent of various labor market related gender differences is, particularly among countries and at the labor market entry. Moreover, the relation between country-specific setups and gender differences in the labor market is not straightforward. Rather, the mechanisms seem to differ depending on the specific dimension of gender differences examined (Mandel and Semyonov 2006; Charles 2011).

Hence, this thesis examines whether men and women differ in terms of several labor market outcomes. Specifically, the following main research questions are tackled: First, do gender differences exist among labor entrants and the whole labor market population? And does the

extent of gender differences vary from country to country? Second, can conventional country groupings and country-specific characteristics – family policies, the gender culture, and labor market related setups – contribute to the explanation of this country variation?

Following the literature of Blackburn and Jarman (2006) and Charles and Grusky (2004), I differentiate between a horizontal and a vertical dimension of gender differences in the labor market. Horizontal gender differences refer to the fact that men and women differ in the types of occupations they work in and that they concentrate in specific occupations and/or labor market segments: For example, that women are hairdressers while men with the same educational level are carpenters. Vertical gender inequalities reflect hierarchical inequalities between males' and females' labor market positions, such as gender differences in earnings, job prestige, or the entry into advantageous positions. An example is men being medical doctors and women being nurses (Blackburn and Jarman 2006; Charles and Grusky 2004; Hakim 2006; see Section 3.2 for more information on the conceptualization of different types of gender differences).

There are several reasons why it is relevant to study different dimensions of labor market related gender differences in a cross-national comparison. First, only the consideration of diverse dimensions of gender differences in the labor market can provide a comprehensive picture of overall labor market related gender inequalities and their relation to country-specific characteristics. For example, Mandel and Semyonov (2006) found the highest disadvantage of women for working in managerial positions and the highest concentration of women in female-typed occupations among 22 countries to be in Denmark – where there are hence large gender differences in both dimensions. In turn, Canada displays the lowest disadvantage of women for working in managerial positions, but quite high concentration of females in female-typed occupations. Therefore, a large (or small) extent of gender differences in one dimension is not necessarily accompanied by a large (or small) extent of gender differences in another dimension. It further follows that – under the premise that a link between country-specific characteristics and gender differences in the labor market exists – this relation also differs depending on the specific type of gender differences examined (Mandel and Semyonov 2006; Charles 2011). It might therefore be misleading to focus only on one dimension of gender differences as this knowledge does not necessarily allow for conclusions about other dimensions and can only partly contribute to the understanding of females' overall labor market situation. Implementing policies to decrease gender differences

on the basis of results referring to only one labor market outcome might thus be premature and instead even worsen females' situation in another important labor market dimension. By relying on several vertical and horizontal dimensions of females' position in the labor market with up-to-date data, and by using comparable approaches, this thesis offers a comprehensive picture of women's labor market position and extends existing literature findings.

Second, while gender differences in the labor market for the whole working population have been intensively examined, less is known about whether these gender differences already exist at the time of labor market entry and how they differ from country to country (though, see Smyth 2005; Arulampalam et al. 2007; Garcia-Aracil 2007; Triventi 2013). Household and childcare duties are the basic mechanism for explaining women's disadvantage in the labor market as these responsibilities make women more likely to experience career interruptions and to have lower labor market attachment (Hofäcker 2006; Sayer 2010). These responsibilities, however, should be lower for labor market entrants because childcare duties are still of minor importance (as the number of individuals with children in this group is small). Therefore, I aim to disentangle whether females' labor market disadvantage already exists in the first career stage or if it mainly emerges later in the career. This can give insights into the importance of family policies that facilitate the combination of work and family life.

Third, for the whole working population, I focus on two dimensions of gender differences that have received less attention by previous investigations, hence contributing to a more comprehensive understanding of overall gender inequality in the labor market. Gender differences both in holding supervisory positions and in non-formal training participation have not been extensively studied from a comparative perspective for recent cohorts (though, see Dieckhoff and Steiber 2011; Wozny and Schneider 2014 for comparative research on gender differences in training participation; and Abendroth et al. 2013; Yaish and Stier 2009; Rosenfeld et al. 1998; Wright et al. 1995 for comparative research on gender differences in holding supervisory positions). However, these constitute important dimensions of the overall gendered labor market situation, particularly because they seem to be connected to other labor market outcomes such as gender differences in wages (Jones et al. 2011; Tomaskovic-Devey and Skaggs 2002; Yaish and Stier 2009). The knowledge about how they vary from country to country and how they relate to country-specific setups can hence deepen our understanding of gendered labor market trajectories and related gender inequalities in the labor market and shed more light on the question of which institutional frameworks are more or less favorable for

gender equality. Moreover, the need to study these two dimensions of gender differences is particularly high for the contemporary labor force because the last decades have been characterized by women's growing career orientation due, for example, to women's desire for self-realization in the labor market and financial independence (e.g., from their partners) (Gornick and Meyers 2009). These developments are likely to have shaped gender differences in holding supervisory positions and in training participation.

Fourth, my analysis also includes countries for which comparative research about gender differences in the labor market is still limited, such as the Post-Socialist and Asian countries.¹ These countries are particularly interesting as they differ notably from traditionally examined countries (which are also covered by this thesis) in their 'welfare state package' and labor-market related factors. The Post-Socialist countries were quite similar during their common socialist past. Their (legal) gender equality, with women and men participating to a similar and large extent in the labor market, was particularly distinctive from other countries. After the fall of the Iron Curtain, however, these countries set out on different developmental paths in political and economic development. They hence show a mix of common inheritances from their socialist past and new developmental paths from after the dissolution of the Soviet Union. This makes them interesting cases for examining how the package of different country-specific characteristics is related to gender differences in the labor market. The Asian countries are characterized by enduring traditional gender norms and a lack of welfare state policies that facilitate women's double burden of work and family. Nonetheless, women increasingly participate in the labor market. As these countries inhibit a high dependence of social services on labor market status, the question of how women fare nowadays in the labor market compared to other societies is particularly interesting in these countries.

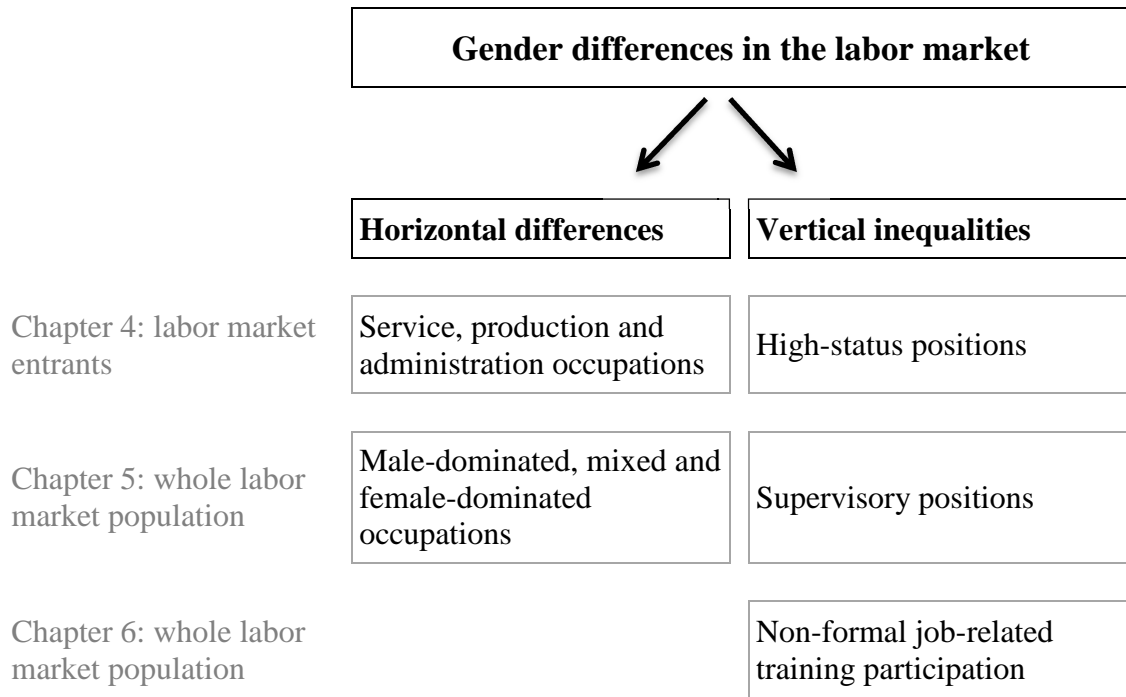
Fifth, in order to implement efficient policies to improve women's position in the labor market, it is necessary to have detailed knowledge about (1) the time when differences between men and women emerge, (2) the relation between country-specific characteristics and various dimensions of gender differences, and (3) the link between horizontal gender differences and vertical gender inequalities. In providing insights into all these queries, my thesis can help to identify favorable policies and labor market related setups. By covering several dimensions of females' (compared with males') labor market position, I offer a multidimensional picture that also enables the discovery of possible 'side-effects' of policies

¹ Please note that only Chapter 6 includes the Asian countries, though.

and labor market setups. Summing up, in exploring differences between men and women in several dimensions of labor market related outcomes at the beginning of the careers and later on, my thesis contributes to the understanding of overall social inequalities in terms of gender in a cross-national perspective. It tackles some queries that remained unsolved but are central for the understanding of the emergence and prevalence of labor market related gender differences, by providing insights into the timing when gendered differences emerge, and whether and why the extent of these differences varies from country to country. Hence, it contributes to an ongoing, highly relevant political discussion in contemporary societies with statistical evidence.

In the course of this thesis, several dimensions of labor-market related gender differences are addressed (see Figure 1.1). For the phase of the labor market entry, I study horizontal gender differences in terms of the allocation into service, production, and administration occupations and vertical gender inequalities in terms of entering high-status occupations. For the whole labor market population, I address vertical gender inequalities in terms of holding supervisory positions, and participation in three types of job-related non-formal training. The horizontal dimension is tackled by examining how gender differences in holding supervisory positions differ for individuals working in male-dominated, mixed, and female-dominated occupations.

Figure 1.1 Dimensions of gender differences examined in this thesis



Notes: Own illustration. Please see Chapter 3.2 for more information on the conceptualization of different types of gender differences.

1.2 THESIS OUTLINE

The thesis is structured into seven chapters.

In the following **Chapter 2**, I introduce my theoretical framework to study gender differences in the labor market in a cross-national approach. I first describe how females' (and males') life courses have changed during the last decades before discussing theories explaining gender differences at the individual level. The next sections are dedicated to explaining why gender differences vary from country to country. I distinguish between the 'regime type approach,' which aims to explain countries' variations with the overall 'welfare state package;' and the 'specific characteristics approach,' which tests certain theoretically important macro factors that might be related to gender differences.

Chapter 3 describes the research design, including information on the data and samples. Moreover, I discuss different approaches to measure horizontal and vertical gender differences and justify the selection of the indicators used in this thesis. After describing the methodology, I give an overview about main challenges of comparative research and how I seek to address them.

Chapter 4 provides a comprehensive overview of gender differences for the first career phase in up to 27 European countries. I examine horizontal gender differences in terms of the entry into service, administration, or production occupations, and vertical gender inequalities in terms of entry into high-status occupations. The following research questions are addressed: (1) Do horizontal gender differences and vertical gender inequalities already exist at the time of the first significant job in European countries? If so, which role do individual characteristics play? (2) Do countries differ regarding their extent of gender differences? And if so, can conventional country classifications and country-specific characteristics, such as labor market related factors (public sector employment and females' labor market participation), family policies (parental leave and childcare), and the gender culture, contribute to explaining these country differences?

Chapter 5 analyzes gender differences in holding supervisory positions in 26 European countries, with a particular focus on the role of horizontal gender differences. The following research questions are addressed: (1) Do gender differences in holding supervisory positions exist in European countries? Do these gender differences in holding supervisory positions vary depending on working in male-dominated, mixed, or female-dominated occupations? (2) Can conventional country classifications and country-specific characteristics contribute to explaining the country variation in overall gender differences in holding supervisory positions? I focus on horizontal gender segregation and on indicators referring to work-family-arrangements (family policies, i.e., parental leave and childcare and maternal employment) at the macro level.

Chapter 6 examines gender differences in different types of job-related non-formal training in 20 contemporary countries and addresses the following research questions: (1) Do men and women differ in their participation in employer-sponsored and non-employer-sponsored training? How does this gendered training participation vary among countries? (2) Can conventional country classifications and country-specific characteristics contribute to explaining this country variation in gendered training participation? I focus on three specific institutional characteristics, namely employment protection legislation, family policies (parental leave and childcare), and the gender culture.

Chapter 7 summarizes the main findings by bringing together the results from all empirical chapters. Moreover, theoretical implications as well as directions for future research are discussed along with the limitations of this thesis.

2 EXPLAINING GENDER DIFFERENCES IN THE LABOR MARKET

2.1 THE DEVELOPMENT OF LIFE COURSES SINCE THE 1950s

The sociology of life courses offers some useful principles for examining women's and men's positions in society, and how these have changed during the last decades. It can be described as 'a set of perspectives that focus on time, timing, and long-term patterns of stability and change' (George 2003: 671). Three principles are most important in the course of this thesis.

First, life-course research anticipates that individual life courses are closely tied to the life courses of other individuals and social groups. Therefore, individuals should not be analyzed in an isolated way, but as embedded in their social relationships ('Principal of linked lives'; Elder et al. 2003). Second, life courses are multi-dimensional, meaning that individuals act in and are influenced by different life domains simultaneously, such as work, family, and education (Mayer 2004). Following these two arguments, it is particularly important in the course of this thesis to study women's (and men's) labor market position by taking into account individuals' characteristics, particularly regarding their family situation.

Third, the sociology of life courses pays attention to the embeddedness of individual lives in societal and historical (multilevel) processes. Accordingly, individual life courses are highly structured by institutions and organizations and shaped by the historical context ('Principle of time and place'; Elder et al. 2003; George 2003; Mayer 2004). In the context of this thesis, institutional, cultural, and labor market related country-settings are particularly important. These have been changed during the last decades, and this change has impacted on women's and men's life courses in general and on their labor market careers in particular. The most important changes are summarized in the following by referring to two main phases since the 1950s.

The *fordist* or *welfare life course regime* between 1955 and the early 1970s was characterized by clearly defined gender roles and a strong gender division of labor (known as the male breadwinner model). Men as the breadwinners were employed full-time and responsible for providing the household income, while women's main responsibility was to care for their children and husband and to take over all household duties (e.g., Lewis 1992). Two main

developments made this gendered labor division possible. First, there was nearly full employment and an increase of the working class with relatively secure and high earnings due to the fordist industrial mass production. Most men were continuously in employment and their income was sufficient for the whole family. Second, the expansion of welfare state benefits increased individual security by providing a guaranteed minimum income across the entire life cycle of the family, including also phases of inactivity (such as sickness, unemployment, disability, or old age). These two developments enabled women to exit the labor market and to focus entirely on the family after marriage (Mayer 2004).²

During this fordist period, men's life courses were highly standardized and stable, with three main life phases ('tripartite model of men's biography'): Education during youth, work during adulthood and retirement in old age (Kohli 1986). Women's life courses, in turn, were mainly centered on the family, with paid employment playing only a secondary role. Accordingly, particularly in traditional welfare states, such as Central and Southern European ones, women's life courses were primarily dependent on those of their husbands' and on family constellations: "[W]omen were supposed to stay at home as soon as their husbands' earnings allowed; the husband's income structured the female life course" (Krüger and Baldus 1999: 362). In Italy, for example, almost half of married women aged 20 to 50 were still housewives in the 1990s (Bernardi 1999). In contrast, this was not the case in Eastern European countries under the Soviet regime, in which "Work was a duty, not a right" (LaFont 2001: 205). These countries relied heavily on the full employment of both men and women; however, in addition to women's labor force participation, household and family duties were seen as female obligations (Salin 2014; Deacon 2000). The male breadwinner model was also less pronounced in Nordic and Liberal countries (Salin 2014).³

In the early 1970s, a period of restructuring of the welfare state and labor market began, with new social problems arising such as labor market crises and an increase of unemployment

² It should be noted, however, that this specialized gender model with men being the breadwinners and women being the carers was not the norm before the 1950s. Previously, men and women had often worked together in family establishments, such as farms, and the separation of the work and family sphere was not so clear-cut, especially not for women (Esping-Andersen 2009; Salin 2014).

³ Pfau-Effinger (2004) even questions whether the male breadwinner model has ever been predominant in Finland. Accordingly, Finland developed from a family-economy model, in which men and women worked together in family agricultural operations or skilled trade, to a dual breadwinner model, with both men and women being in paid employment.

(*post-fordist* or *post-industrial period*) (Leisering 2003; Mayer 2004). Stable employment has become less certain, employment in precarious jobs rose (such as part-time, lower paid, and unstable jobs), and careers became discontinuous with more frequent status changes. Altogether, individual insecurity increased, and this was furthermore amplified by a simultaneous reduction of welfare state benefits in various domains (Brückner and Mayer 2005). As result, the one-earner household in the tradition of the male breadwinner model increasingly lost its ability to guarantee a socially acceptable and secure living standard, making the employment of women more crucial (Mayer 2004; Buchholz et al. 2008; Heinz 2003). The central focus of women's lives hence altered from being primarily homemakers to combining work and family (Hofäcker 2006; Gornick and Meyers 2009). Men's life courses also can not be described as tripartite anymore, since they now consist of more moves into employment, unemployment, education, and phases of inactivity (Dannefer 2003; Heinz 2003). In order to describe the recent post-industrial life-course patterns, terms such as 'individualized' (Weymann 2003), 'de-institutionalized' (Settersten 2003), and 'de-standardized' (Settersten 2003; Mayer 2004) have been used, mirroring the high extent of individual insecurity.

Notably, women's increasing labor market participation was not accompanied by a similar increase of men's involvement in household tasks. As Drobnic and Blossfeld emphasize, "gender-role change has been generally asymmetric, with a greater movement of women into the traditional male sphere than vice versa" (2001: 372). Women thus still take over the majority of household chores and are mainly responsible for handling the double burden of combining work and family tasks (Hofäcker 2006; Sayer 2010).

Gender also remains one of the most important stratifiers of labor markets. Empirical studies have found that men and women still segregate into different types of occupations (horizontal gender differences): Men are more likely to work in manual occupations, for example in agriculture and crafts occupations, while women are more likely to work in non-manual occupations, for example, in clerical, service, and sales occupations (Dolado et al. 2004; Steinmetz 2012; Charles 2005). Women seem to still be disadvantaged in several vertical dimensions of labor market outcomes, such as income (Mandel and Shalev 2009; Korpi et al. 2013; Christofides et al. 2013), participation in employer-sponsored training (Albert et al. 2010; Georgellis and Lange 2007; Grönlund 2011), and access to managerial (Mandel and Semyonov 2006; Korpi et al. 2013; Estevez-Abe 2006) and supervisory positions (Abendroth

et al. 2013; Kosyakova, Kurakin and Blossfeld, 2015; Wright et al. 1995; Rosenfeld et al. 1998).

Marriage and motherhood strengthen traditional gender behavior both within families and in the labor market. With increasing length of marriage (Schulz and Blossfeld 2006) and with the birth of a child (Pettit and Hook 2009), the division of household tasks becomes more and more traditional with women taking over the main share of chores. Regarding gender differences in the labor market, several studies report only slight wage differences between men and single or childless women, but significant disadvantages of married women or mothers compared with men (Waldfogel 1998; Polachek 2006; Gangl and Ziefle 2009). Accordingly, parenthood and marriage seem to affect men and women differently. Married women's and mother's labor market attachment decreases, and they are more likely to withdraw from the labor market, work part-time and/or in lower-wage jobs, probably to be better able to combine work and family obligations. In turn, married men's and father's labor market attachment increases, and they are more likely to be employed and to work longer hours and/or in higher-wage jobs (Pettit and Hook 2009; Gangl and Ziefle 2009; Dieckhoff and Steiber 2011; Lewis et al. 2008). Furthermore, when husbands' resources are high, women are encouraged to exit employment even more (Bernardi 1999). It should also be noted that even when women's attachment to the labor market does not decrease due to family-related events, employers might still favor men simply because they perceive married women and particularly mothers to be less attached to the labor market (Gangl and Ziefle 2009).

2.2 INDIVIDUAL-LEVEL EXPLANATIONS FOR GENDER DIFFERENCES IN THE LABOR MARKET

The basic premise for explaining gender differences in the labor market (which are mostly to females' disadvantage) is women's traditional focus on family and household tasks. Women continue to spend more time on childcare and household duties and are therefore likely to signal a lower labor market productivity and attachment; moreover, they are more likely to interrupt, quit, or change their careers compared with men (Hofäcker 2006; Sayer 2010). In order to explain horizontal and vertical gender differences (see Section 1.1 and Section 3.2 for more details on this distinction), different theoretical approaches must be distinguished.

2.2.1 Horizontal dimension of gender differences

According to *socialization theories*, horizontal gender differences are already established during childhood because children are confronted with *gender-specific stereotypes and norms* from parents and educators. This results in a gender-specific choice of educational fields (Barone 2011), which is – due to the interconnectedness of educational and occupational pathways – later translated into occupational gender segregation in different types of occupations (Iannelli and Smyth 2008; Borghans and Groot 1999; Smyth and Steinmetz 2008).

Moreover, horizontal gender differences might stem from females' double burden of work and family. In response to this double burden, women might self-select certain occupations that make it easier to combine family and work (*theory of self-selection*; Polachek 1981; Becker 1985) and/or offer a higher work-life balance (*preference theory*; Hakim 2006). This might even be the case if women do not have children yet because they anticipate future family obligations and career discontinuity (Barbulescu and Bidwell 2013).

Theories referring to *gender stereotypes, beliefs, and norms* argue that women are not only more interested, but also considered to be better suited to work in 'female' jobs, such as service, communication, and nurture (Charles 2005; Barone 2011). Therefore, horizontal gender differences might not only arise from females' occupational decisions, but also from those of employers.

2.2.2 Vertical dimension of gender differences

The *human capital theory* offers one explanation of females' disadvantage in vertical labor market outcomes (Becker 1964; Mincer 1958). According to this theory, labor markets are segmented along workers' human capital, which acts as a predictor of (future) productivity. Employers try to maximize their profits by hiring or investing in the 'best' available worker, meaning the worker with the best-matching skills (highest human capital). Two different kinds of skills can be distinguished in this regard: general skills from initial education and specific skills from training participation and labor market experience (Becker 1964; Acemoglu and Pischke 1999). For several decades, women have obtained the same or even higher initial educational levels compared with men in contemporary societies (Charles 2011; Iannelli and Smyth 2008). Consequently, there is at a first glance no reason to expect women of recent cohorts to be disadvantaged regarding vertical gender inequalities at labor market entry, because initial education plays the major role in this phase. Regarding later career

phases, a female disadvantage can be expected. This is because specific skills acquired through labor market experience gain more in importance; and women are likely to possess lower amounts of this human capital due to their family-related career interruptions and lower labor market attachment (Polachek 1981; Tam 1997; Becker 1964).

Women might nevertheless be disadvantaged in the first job due to employers' hiring decisions. These might not only be driven by employers' considerations of profit maximization, but also by their prejudices against women, resulting in the exclusion of females from certain (advantageous) occupations ('taste of discrimination' theory; Becker 1971). Similarly, according to the *theory of statistical discrimination* (Phelps 1972; Arrow 1973), employers' might already favor men regarding advantageous labor market positions in the first phase of the labor market career. This is because employers only have imperfect information about employees' productivity, and to cope with this uncertainty, they also use stereotyped information based on productivity characteristics of the group to which the job applicant belongs (Phelps 1972; Arrow 1973). For instance, because women have had a higher probability of leaving or interrupting their jobs after the birth of a child, employers are inclined to evaluate female candidates (even though they do not yet have any children) as a more risky investment than male ones among candidates of the same educational level.

Moreover, women might be disadvantaged in terms of vertical gender outcomes due to *gender stereotypes, beliefs, and norms* about women's and men's characteristics. Women might be perceived as lacking important characteristics and being overly emotional, or men might be considered more status-worthy and better suited for advantageous positions (Charles 2005; Kanter 1977).

Vertical gender inequalities might further stem from females' lower *self-perceptions and self-esteem*, which might result in an under-evaluation of their own abilities and options. Women might hence more likely accept jobs with lower prestige and status and fewer promotion possibilities than their male counterparts (Bielby 2001). Similar to the argumentation of horizontal gender differences, women might also forgo accessing highly demanding jobs (such as jobs with high status or supervisory responsibility) because they opt for jobs that require less commitment (*theory of self-selection*; Polachek 1981; Becker 1985), and/or offer a higher work-life balance (*preference theory*; Hakim 2006).

2.3 EXPLANATIONS FOR COUNTRIES' VARIATION IN GENDER DIFFERENCES IN THE LABOR MARKET

As the last section showed, most theories at the individual level lead to the expectation of a female disadvantage in vertical gender inequalities, and persistent horizontal gender segregation in the labor market. The extent of these gender differences, however, varies from country to country due to country-specific setups (e.g., Buchmann and Charles 1995; Smyth and Steinmetz 2008; Mandel and Semyonov 2006; Wozny and Schneider 2014; Abendroth et al. 2013).

In order to examine what accounts for this country variation in gender differences in the labor market, two main approaches can be distinguished: The first one is to classify countries regarding dominant characteristics into groups and to study whether and how these groups differ regarding gender differences in the labor market (referred to as ‘regime type approach’ in the following). These approaches help us to arrive at a “greater analytical parsimony” (Esping-Andersen 1999: 73) when dealing with a large number of countries. By reducing complexity and focusing on the key features of welfare state and labor market setups, typologies “help us see the forest rather than myriad trees” (Esping-Andersen 1999: 73). However, the broad focus of the regime type approach on the whole ‘welfare state package’ makes it difficult to disentangle which specific macro characteristics contribute to the explanation of country variation in gender differences. This question is tackled by the second approach, which tests whether and how specific – theoretically important – characteristics of countries are related to gender differences in the labor market (referred to as ‘specific characteristics approach’ in the following).

The following sections describe the two approaches in more detail. I begin with the ‘regime type approach,’ which is based on the welfare state classification of Gøsta Esping-Andersen. After describing the approach, I discuss two main critic points regarding his typology that are important in the course of this thesis: first, whether three regimes are sufficient to cover the variety of welfare states, and second the gender blindness of his typology. Afterwards, I turn to the ‘specific characteristics approach.’ I identify four main spheres of country-specific settings that are likely to be related to gender differences in the labor market, and I show how these macro characteristics vary among countries. The four main spheres are: (1) family policies, (2) the gender culture, (3) structural and labor market related characteristics, and (4) different aspects of females’ position in the labor market.

2.3.1 ‘Regime type approach’ – Esping-Andersen’s ‘Three worlds of welfare capitalism’

Gøsta Esping-Andersen’s welfare state classification of 1990, ‘The three worlds of welfare capitalism,’ remains the most popular classification of welfare states and serves as a point of reference for categorizing developed countries (van Kersbergen and Manow 2011). Among various attempts to classify countries, there is hardly any typology that does not refer to Esping-Andersen’s concept.

Esping-Andersen classifies contemporary societies according to two key defining dimensions, namely the degree of de-commodification and the modes of social stratification (Esping-Andersen 1990). De-commodification “occurs when a service is rendered as a matter of right, and when a person can maintain a livelihood without reliance on the market” (Esping-Andersen 1990: 22). Accordingly, countries differ in the extent of their public social assistance, ranging from universal benefits amounting almost former income levels (high de-commodification) to very low and needs-tested benefits (low de-commodification). The term ‘modes of social stratification’ refers to the extent to which countries facilitate status differentiation within society (Dommermuth 2007). “[Welfare] states may be equally large or comprehensive, but with entirely different effects on social structure. One may cultivate hierarchy and status, another dualism and a third universalism. Each case will produce its own unique fabric of social solidarity” (Esping-Andersen 1990: 58).

By referring to these two characteristics, Esping-Andersen distinguishes between three types of welfare regimes: the Liberal regime (Australia, Canada, Ireland, New Zealand, Switzerland, the UK, and the US), which is characterized by a minimized role of the state, the promotion of market solutions, and low de-commodification; the Social-Democratic regime (Denmark, Finland, Norway, and Sweden) with high de-commodification, comprehensive risk coverage and a state-dominated welfare nexus; and the Conservative regime (Austria, Belgium, Germany, Italy, Japan, and the Netherlands), in which the family is the main welfare provider and which is characterized by a moderate level of de-commodification (Esping-Andersen 1990, 1999). He views these regimes as ideal types and classifies countries according to their ‘predominant’ regime traits (Hega and Hokenmaier 2002).

Esping-Andersen’s typology has been criticized on several grounds (for overviews, see Arts and Gelissen 2002 and 2010). Among these, two major points of criticism are of significant

relevance in the course of this thesis: the extension of Esping-Andersen's typology to Southern European, Post-Socialist and Asian countries and the (missing) attention to gender.

2.3.1.1 Six worlds of welfare capitalism?

Most of the re-examinations of Esping-Andersen's typology classify countries into one of the three original regime types and hence confirm his findings to a great extent (Ferragina and Seeleib-Kaiser 2011). Still, the question remains whether three worlds of welfare capitalism are sufficient to capture the diversity of countries or whether more than three worlds are required. In particular, three country groups demand special attention in this respect: the Southern European, the Post-Socialist, and the Asian countries.

First, Southern European countries such as Cyprus, Italy, Spain, Greece, and Portugal might constitute an additive regime type. Esping-Andersen (1990) only considered Italy in his typology and classified it as a Conservative country. The Southern European countries show some similarities with the Conservative ones in terms of their status-based social security system and their traditional family values (Ferrera 1996; Strünk 2008). However, they differ in several aspects: First, the role of the family in providing welfare and the orientation towards traditional gender values is more pronounced than in Conservative countries (Hofäcker 2006); second, the social security system in Southern European countries is highly fragmented, offering individuals employed in the core sectors of the labor market generous welfare state benefits and protection, while employees in the irregular or non-institutional sector only receive marginal benefits; and third, the amount of benefits varies widely dependent on the respective welfare program (Ferrera 1996; van Kersbergen and Manow 2011). In sum, researchers largely agreed in building an additive welfare regime for the Southern European countries, although they used different approaches and indicators for the re-classification of these countries (Ferrera 1996; Bonoli 1997; Leibfried 1992).

The second country group consists of the Post-Socialist countries of Eastern Europe and the Baltic states (e.g., Bulgaria, the Czech Republic, Estonia, Hungary, Lithuania, Latvia, Poland, Romania, Russia, Slovakia and Slovenia). All these countries had a socialist centrally planned economy before the early 1990s and experienced the transformation from this system to a capitalist market system. During the early transformation years, these countries were challenged by a serious economic crisis with inflation, rising unemployment, and increasing poverty. However, afterwards, their development paths dispersed. Whether these countries should be grouped into Esping-Andersen's existing regime types, or whether they form one or

more than one additional regime type(s) is still controversial. Some scholars (e.g., Rys 2001) reject the idea of an additional Post-Socialist regime type; the majority, however, classify these countries as one or more than one additional type (e.g., Deacon 2000; Ferge 2001; Fenger 2007; Bohle and Greskovits 2007). One common approach is to classify the Post-Socialist countries into only one additional regime type while pointing out that: “[...] it appears to be most reasonable to regard these countries as ‘evolving welfare regimes’, yet with ‘different destinations’” (Hofäcker 2010).

The Asian countries (e.g., Japan, South Korea, China, and Hong Kong) represent the third controversial country group. Esping-Andersen considered only Japan in his welfare state typology, but he already emphasized that this country is difficult to classify into the existing three regime types (Esping-Andersen 1997). The Asian countries are all characterized by a striking emphasis on productive, economy-oriented welfare state programs and employment-based welfare and social security programs. The family and the market are the main welfare providers (Choi 2007; Aspalter 2006). These states still experience rapid changes in economic and political development, and widespread welfare state problems such as demographic aging have only begun to emerge (Ku and Jones Finer 2007). This continually ongoing development process makes it hard to classify these countries. However, most studies group the Asian countries into one additional regime type (Holliday 2000; Aspalter 2001, 2006).

2.3.1.2 Extensions to the gender dimension

Esping-Andersen’s classification has also been criticized because it does not explicitly include a gender dimension and overlooks the family’s importance in the provision of welfare and care. Accordingly, it focuses on male workers, and does not consider the sexual division of unpaid and paid work (Orloff 1996; Arts and Gelissen 2002).

As result, new typologies have emerged – so-called gender regimes (e.g., Orloff 1993; Lewis 1992; Sainsbury 1996; Pfau-Effinger 1998; Haas 2005; Korpi et al. 2013) – with greater emphasis on gendered agreements among countries and the gendered division of paid and unpaid work. Beyond the traditional male breadwinner model, this literature has identified further gender models such as the one-and-a-half-earner model (Lewis 1992) (also called the modified breadwinner model (Haas 2005)), the dual carer model (Pfau-Effinger 1998; Korpi et al. 2013), and the universal carer model (also called care-giver model (Haas 2005; Sainsbury 1996)).

Saxonberg (2013) summarizes the widespread trend of developing new typologies considering the gender dimension as follows: “[D]espite widespread agreement on the problems of Esping-Andersen’s model, it proved much easier for feminist scholars to criticize his typology than to agree on an alternative” (p.27). Powell and Barrientos (2011) recapitulate that in general, a “welfare modeling business” (p. 69) has emerged. This is particularly apparent when reviewing approaches that aim to include the gender dimension in the three worlds of welfare capitalism.⁴

In 1999, Esping-Andersen directed attention to two concepts that take the family and gender dimension into account. The first one, the ‘welfare mix,’ acknowledges how welfare is produced and allocated between the state, market, and family (Esping-Andersen 1999: 34f.). The second concept is (de-)familialization. “A de-familialised regime is one which seeks to unburden the household and diminish individuals’ welfare dependence on kinship” (Esping-Andersen 1999: 51). Accordingly, de-familialistic policies reduce individuals’ dependence on family and kinship (Esping-Andersen 1999). Taking these two new dimensions into account, a re-examination of Esping-Andersen’s classification has not resulted in different country groupings (Esping-Andersen 1999: 94 f.). Similarly, Bambra (2004) discovered only slight differences to the original typology of Esping-Andersen and has concluded that the classification of welfare states does not significantly change by the inclusion of a gender approach (Bambra 2004). Her examination rests upon the grouping of countries depending on their level of de-familialization, which was identified by a respective index referring to “the extent to which the welfare state undermines women’s dependency on the family and facilitates women’s economic independence” (Bambra 2004: 203).

The concept of (de-)familialization has been extensively adopted from other scholars; however, it needs some clarification since it has been interpreted in different ways (Saxonberg 2013). A first important distinction refers to the agent of provision: Interventions leading to de-familialization can be provided by the state or by the market, with considerable consequences for social inequalities (Esping-Andersen 1999: 51). Whereas Social-Democratic welfare states provide de-familialization mainly through public social services, Liberal welfare states do not actively intervene – here it is mainly the market that offers services.

⁴ This section does not offer a comprehensive literature review about the welfare state literature that incorporated the gender dimension, but refers (only) to the literature that is most important in the course of this thesis to justify my further procedure.

This, however, makes de-familialization a highly class-biased issue in Liberal countries: It might either be that only families with higher income can afford these services or that the quality of these services varies considerably by income (Leitner 2003: 357). This means that different consequences for individuals' welfare can be expected depending on whether it is the state or the market that offers de-familialization.

Second, it is important to note that de-familialization will never be 'perfect,' meaning that the family will always remain the most important care provider. Even in the most gender-egalitarian countries, society does not aim to have children's development lie exclusively in the hands of public agents (Leitner 2003). Third, there is no consensus in the literature as to how different leave policies can be interpreted in terms of de-familialization: In a country encouraging fathers to take part in parental leave, mothers independence from their husbands (or partners) is reduced, because they can return more quickly in the labor market. Therefore, the extent of de-familialization (the independence of individuals' welfare on kinship) should be higher for women. However, the opposite policy of providing mothers who stay at home with high income replacement for a long time period would also decrease their independence from their husbands (or partners), thus having similar increasing effects on de-familialization (Saxonberg 2013: 29).

In order to solve some of the challenges in adapting the concept of (de-)familialization, Leitner (2003) extended the binary distinction of (de-)familialization: (1) *Explicit familialism* reinforces family care and leaves care fully in the hands of parents without any sufficient alternative; (2) *optional familialism* gives parents (partly) opportunities to externalize care, but still emphasizes family care; (3) *implicit familialism* supports neither family care nor familialistic policies; this lack of publicly financed support leaves care in the hands of families; and (4) *de-familialism* promotes the dual-earner family model by providing comprehensive care services (either by the market or state) (Leitner 2003).

It would be incorrect to state that the re-examinations of Esping-Andersen's original three worlds of welfare capitalism that considered the gender dimension have always resulted in the same country classifications. Nevertheless, the degree of agreement is high.⁵ In the Southern and – to a lower extent – Conservative countries the family plays the main role for welfare

⁵ Leitner (2003) emphasizes that his resulting country clusters differ from those of Esping-Andersen. The main difference is the classification of the Nordic countries: In Leitner's approach, they constitute optional familialism, while Esping-Andersen classified them as de-familialistic.

provision. The Social-Democratic and Liberal countries are characterized by greater opportunities to externalize care – while the state is the main welfare provider in the Social-Democratic countries, it is however the market in the Liberal states.

2.3.1.3 Characteristics of the six country groups

Based upon the insights of the last sections, I distinguish among the following six country groups in the course of this thesis (see Table 2.1):

1. Nordic (Social-Democratic) countries: Denmark, Finland, Iceland, Norway, Sweden
2. Central European (Conservative) countries: Austria, Belgium, Germany, France, Luxembourg, the Netherlands, Switzerland
3. Liberal countries: Canada, Ireland, the UK, the US
4. Southern European countries: Cyprus, Greece, Italy, Portugal, Spain
5. Post-Socialist countries: Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russia, Slovenia, Slovakia
6. Asian countries: Japan, South Korea

The main characteristics of the *Nordic country group* are universalism, comprehensive risk coverage, generous benefit levels and a state-dominated welfare nexus (Esping-Andersen 1999). These countries show the highest extent of de-commodification, and inequalities among different population strata are reduced to a high extent. The state, which is the main welfare provider, actively encourages full employment (Esping-Andersen 1990), which is mirrored in a long-standing tradition to integrate women into the labor market.

Moderate state interventions and a moderate level of de-commodification characterize the *Central European countries* (Esping-Andersen 1990, 1999). The family is considered the main welfare provider (Esping-Andersen 1999) and the social security system is still arranged around the male householders (Esping-Andersen 1990; Pfau-Effinger 1998). However, the male breadwinner model that was traditionally predominant has been increasingly weakening,

and these countries investigated more and more in facilitating women's labor market participation, particularly during the last decades.⁶

Countries of the *Liberal welfare regime* are characterized by a minimized role of the state, the promotion of market solutions, and the individualization of risks. Social benefits are very low and cover only minimum standards, and the level of de-commodification is low (Esping-Andersen 1990; 1999). Through the restriction of social guarantees to only 'bad' risks, individuals are forced to take care of private insurances; moreover, they are often forced to stay in employment, because public benefits are not high enough to secure an adequate living standard when leaving the labor market for a longer time period. Consequently, females' labor market participation is traditionally relatively high (Esping-Andersen 1990; 1999; Hofäcker 2006).

The *Southern European countries* are often described as an under-developed version of the Central European countries since the structure of the welfare state is similar but lags behind in several aspects (Ferrera 1996; Strünk 2008). Welfare state benefits are lower and the social security system is fragmented, offering very differing benefits depending on the type of support and the receiving group (Ferrera 1996; Karamessini 2008). The family and kinship networks are the main providers of welfare. Traditional gender roles in terms of the man being the breadwinner and the woman being the caregiver are still widespread (Esping-Andersen 1999; Karamessini 2008).

Under the Soviet regime, occupational welfare was the key source of individual welfare in the East European countries. "Work was a duty, not a right" (LaFont 2001: 205), and accordingly, women's labor force participation was higher than in most Western societies (LaFont 2001; Brainerd 2000). Although Soviet countries offered relatively long maternity leave, the right to return to a suitable job and generous childcare provision encouraged mothers to re-enter employment (Brainerd 2000; LaFont 2001). After the fall of the Iron Curtain, the *Post-Socialist countries* faced immense economic and labor market related changes, and their development paths diverged. Generally, the amount of de-commodification is nowadays low to medium. Nearly all these countries have a large 'grey market,' with non-formal agreements

⁶ However, it should be mentioned that the country variation is quite high within the Central European welfare regime type. For example, in the Netherlands, women have been participating for several decades in the labor market at a quite high level, although mostly on a part-time basis. France is another example of a more progressive Central European welfare state in terms of gender equality.

playing a striking role. Despite their de-familialized orientation during the Soviet regime, the facilitation of work and family is becoming increasingly difficult in some of these countries (Saxonberg and Sirovatka 2006; LaFont 2001).

Finally, the *Asian countries* show a low level of de-commodification and stratification. The pronounced orientation of the social policy towards economic growth is unique to this country group. Hence, public investments are primarily focused on social and human capital development, such as a commitment to education, work experience, and training. To ensure individual welfare, priority is given to the market and the family, while the level of social benefits is employment-based (Aspalter 2006). These welfare states are family-oriented, traditional and authoritarian (Ku and Jones Finer 2007).

Table 2.1 Characteristics of regime types

	Nordic	Central European	Liberal	Southern European	Post-Socialist	Asian
<i>Prototyp</i> and further countries	<i>Sweden</i> , Iceland,	<i>Germany</i> , Austria,	<i>the US</i> , Canada,	<i>Italy</i> , Cyprus,	Bulgaria, the Czech	Japan, South Korea
	Denmark, Finland,	Belgium, France,	Ireland, the UK	Greece, Portugal,	Republic, Estonia,	
	Norway	Luxembourg, the Netherlands, Switzerland		Spain	Hungary, Latvia, Lithuania, Poland, Romania, Russia, Slovenia, Slovakia	
Welfare mix	Central role of the state	Central role of the family; subsidiarity	Central role of the market	Central role of the family	Weak role of the state; 'grey market'	Central role of the family and the market
De-commodification	High	Medium	Low	Low-medium	Low-medium	Low
Welfare state benefits	Universalist	Based on social insurance (NL; Universalist)	Residual	Dualistic insurance	Generally residual	Residual
Type of familialism	Optional familialism	Optional / explicit familialism	De-familialism	Explicit/ implicit familialism	Diverse	Explicit familialism

Notes: Own illustration; for sources, see text above.

2.3.2 ‘Specific characteristics approach’

When working with typologies, it is important to keep in mind at least two disadvantages: First, they always lead to some level of (over-) simplification. Second, and specific to typologies of welfare states, the regimes should always be understood as ideal types: “[A] conceptualization that assumes the co-occurrence of all its defining properties. In the real world this co-occurrence hardly ever exists” (Sainsbury 1999: 260). It follows that even countries of the same regime type can differ in certain aspects of welfare provision.

The ‘specific characteristics approach,’ in turn, looks at certain – theoretically important – country-characteristics in more detail, without grouping countries together. I identify four main spheres of macro characteristics, which are likely to relate to gender differences in the labor market and are discussed in the following: (1) family policies, (2) the gender culture, (3) structural and labor market related characteristics, and (4) different aspects of females’ position in the labor market. The following gives an overview on how these factors might be related to gender differences, and how countries differ in respect to these characteristics.

2.3.2.1 Family policies

Family policies refer to policies that facilitate the combination of paid and unpaid (family) work. The most important family policies are regulations for (maternity and parental) *leave after childbirth* and *childcare* provision. Both policies seem to be related to gender differences in the labor market: For example, females have been found to be less likely employed in managerial positions (compared with men) in countries offering longer parental leave after childbirth (Steinmetz 2012; Mandel and Semyonov 2006). In countries with higher childcare provision females disadvantage in accessing managerial positions was reported to be lower (Steinmetz 2012). However, there is also evidence for the opposite, i.e. a higher females disadvantage (Mandel and Semyonov 2006).

Leave policies after childbirth

Three main types of leave policies after childbirth can be distinguished:

- (1) Maternity leave, which is linked to pregnancy and the first months after childbirth and provided only to mothers; it normally covers a relatively short period, and the benefit levels are quite high.

- (2) Parental leave, which is offered after maternity leave and can be taken by both fathers and mothers (although it mostly is taken by mothers); it is longer, and the benefits are (usually) lower than the benefits for maternity leave. It is often divided into a paid and an unpaid period.
- (3) Paternity leave, which is provided only to fathers; it has a short length of only some days (between 2 and 20). Only a limited number of countries offer this type of leave (Moss 2011, 2012, 2013; Akgunduz and Plantenga 2013). In the following, this type of leave is not considered further.

Maternity and parental leave vary substantially among countries in terms of length and benefit levels, eligibility criteria (who is entitled for leave), flexibility options (whether it is possible to take leave on a part-time basis or to take leave divided into several periods), and who pays the leave (the state, the employer, or a third party) (Moss 2011, 2012, 2013; Akgunduz and Plantenga 2013). Studies on gender differences in the labor market mainly consider the length and the benefit level of leave due to several reasons: First, these two characteristics seem to matter more than other characteristics of leave systems; second, comparable country data are rare and fragmented regarding these two characteristics; for additional features, comparable data on a variety of countries are even harder to obtain, and quickly become too complex (Javornik 2014).

Table 2.2 shows the lengths and the benefit levels of paid maternity and parental leave for several countries, ordered according to their regime type. The data are gathered from country reports published in joint volumes and recent research papers (Moss 2011, 2012, 2013; An 2013; Lee 2009; Missoc 2013; OECD 2010; Council of Europe 2005).⁷ Due to the large variety of leave systems, I needed to make some simplifications in order to construct the indicators for leave periods and benefits in a comparative way.

First, some countries provide leave benefits as a percentage of the former income, while others offer flat-rate benefits, expressed in the respective country currency or in euros. In order to make these measures comparable, I transformed the flat-rate benefits into the

⁷ In the following, I only consider paid leave because it is likely that particularly economic conditions shape parents' decisions about the length of career interruptions. Unpaid leave is usually provided for a longer time period.

percentage of the median income of the respective country (using Eurostat 2015 data).⁸ Second, when different leave options for different groups are provided, the options with lower benefits are reported. In the case that different leave periods and benefits are provided for workers of different employment sectors, employees in the private (not public) sector are referred to. Moreover, no additional payments from employers (e.g., in Finland) or from communities (e.g., in Belgium) are considered, since information is often unavailable or fragmented. Third, when parents have different options between a shorter leave with higher benefits, or a longer leave with shorter benefits, I report the shorter leave period with the higher benefit rate (see also Ray et al. 2009).

Moreover, some country particularities have to be mentioned: In France, parental leave benefits differ for parents with only one child and parents with more than one child. In this case, the benefits for parents with only one child are taken into account. In Sweden, maternity and parental leave are provided in a combined way and termed together as parental leave. Sweden offers 96 weeks at 65 percent of the last earnings. I account 14 weeks as maternity leave and 82 weeks as parental leave because 14 weeks of paid maternity leave is the minimum an EU country is supposed to offer (Akgunduz and Plantenga 2013).

The comparison of maternity and parental leave evinces the already-mentioned pattern that maternity leave is shorter with higher benefits while parental leave is longer with lower benefits (see Table 2.2). Paid maternity leave ranges between 9 weeks in Norway and 39 weeks in the UK, with the exception of the US, which does not offer any paid maternity leave. Some Liberal countries (the UK and Ireland) and several Post-Socialist countries (e.g., Slovakia, the Czech Republic, Hungary) provide long periods of maternity leave. The benefit level is generally high and amounts to 100 percent of former earnings in half of the countries. The benefits in the Liberal and Asian countries are the lowest. The UK only provides 22 percent of former earnings. In South Korea, the benefits are also comparably low, while the remaining countries offer maternity leave benefits ranging between 65 and 80 percent.

Country variation is even higher for parental leave. All Liberal (Ireland, the UK, the US) and several Southern European countries (Spain, Greece, Cyprus) and Switzerland do not provide any paid parental leave. The Nordic countries offer relatively high benefits for a moderate

⁸ The median rather than the mean income is used for two reasons: First, the median income is less sensitive to outliers. Second, there is a lack of comprehensive data for the mean income for the different countries and years used in this study.

length of time. Within the Central European country group, parental leave in Austria, Germany, and Luxembourg is relatively long and highly remunerated, while Belgium, France and the Netherlands are characterized by shorter lengths and benefits. In Post-Socialist countries parental leave is long (except in Slovenia), but the benefits vary notably: From less than 41 percent of the former income in Poland, Russia, and Slovakia to 100 percent in Estonia, Lithuania and Slovenia.

Summing up, Nordic and Liberal countries are the most distinct in terms of leave arrangements after childbirth, while all other country groups range in-between. The high benefits for a short to moderate time period in the Nordic countries should encourage mothers to re-enter employment after some months while simultaneously ensuring a sufficient living standard during work interruptions. In Liberal countries, benefits are low or non-existent (except in Ireland, with a maternity leave of 80 percent of former earnings, yet only for 26 weeks). This is likely to force mothers back into the labor market in case they cannot rely on other sources (such as their partners' income) to retain a socially acceptable living standard.

Table 2.2 Length and benefit level of paid maternity and parental leave

	Paid maternity leave		Paid parental leave	
	Length	Benefits	Length	Benefits
Nordic countries	15	82	48	84
Denmark	18	100	32	100
Finland	21	70	32	71
Norway	9	100	46	100
Sweden	14	65	82	65
Central European countries	15	94	32	47
Austria	16	100	48	80
Belgium	15	75	24	41
France	16	100	32	34
Germany	14	100	48	67
Luxembourg	16	100	48	66
Netherlands	16	100	26	42
Switzerland	14	80	0	0
Liberal countries	20	39	0	0
Ireland	26	80	0	0
UK	39	22	0	0
US	0	0	0	0
Southern European countries	18	91	13	11
Cyprus	18	75	0	0
Greece	17	100	0	0
Italy	20	80	40	30
Portugal	17	100	24	25
Spain	16	100	0	0
Post-Socialist countries	21	88	74	70
Czech Republic	28	70	96	75
Estonia	20	100	62	100
Hungary	24	70	76	70
Lithuania	10	100	44	100
Latvia	19	100	52	70
Poland	22	100	96	24
Romania	21	75	52	85
Russia	20	100	72	40
Slovenia	15	100	37	100
Slovakia	34	65	156	35
Asian countries	16	53	52	33
Japan	14	66	52	50
South Korea	18	40	52	15

Notes: Leave length expressed in weeks; benefit level expressed in percent of median income in the respective country and year (own calculations).

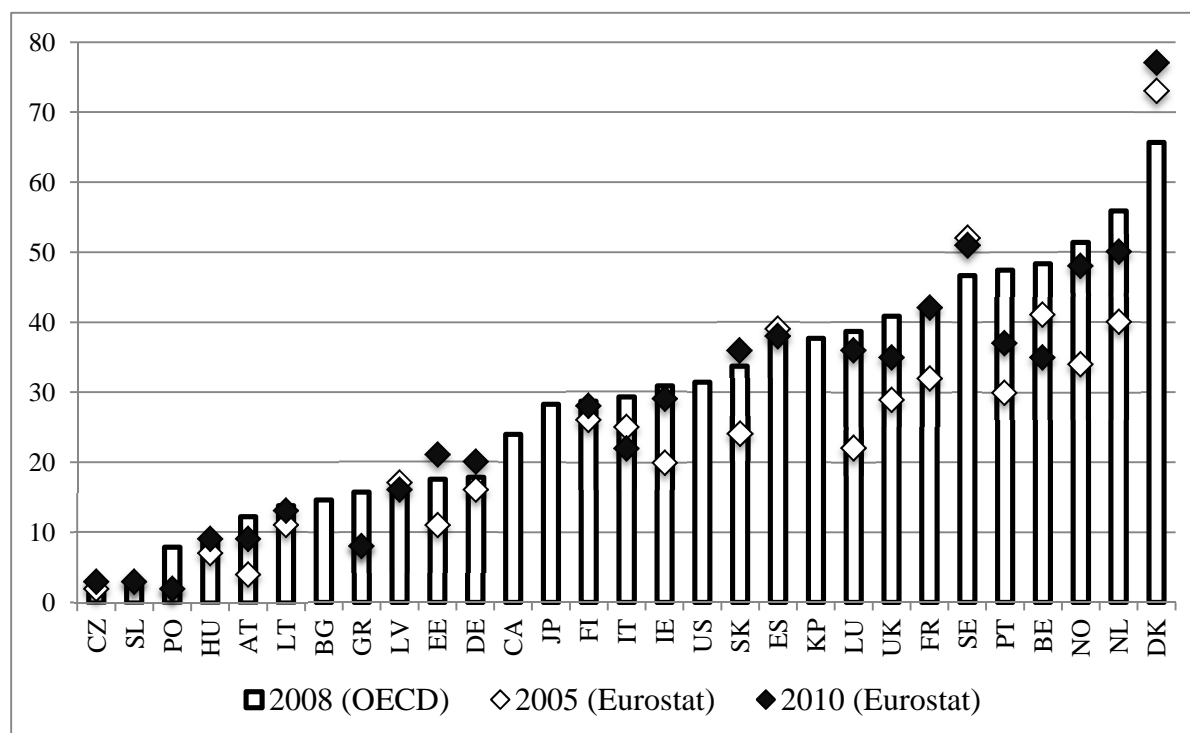
Sources: Moss 2011, 2012, 2013; An 2013; Lee 2009; Missoc 2013; OECD 2010; Council of Europe 2005.

Childcare systems

Childcare systems offer parents (and particularly mothers) the possibility to re-enter employment after childbirth and facilitate the combination of family and work life. Important features of childcare are the availability, affordability, the age for which it is provided (children aged below 3 or between 3 to compulsory school age), opening hours, qualitative characteristics (such as the staff-children ratio), and whether it is publicly or privately provided.

In recent decades, increasing endeavors have been made to collect comparative data on childcare systems (see, for example, the OECD starting strong material); nevertheless, comparable data are still fragmented. The main challenges when comparing childcare systems among countries are: First, data only refer to the use of childcare, and not to its provision (Saxonberg 2013; Javornik 2014); second, most data concern both private and public provided services without making it possible to distinguish between the different types (Saxonberg 2013); third, existing data on a great number of countries are mostly limited to sheer participation rates (information on qualitative indicators is still fragmented); finally, the comparison of existing data from different sources raises some doubts about the reliability of the data (see Figure 2.1).

Figure 2.1 shows the percentage of children aged below 3 in formal childcare for the years 2005 (white diamonds), 2008 (white bars) and 2010 (black diamonds). Due to data availability, I use data from Eurostat for the years 2005 and 2010, and from the OECD for the year 2008; however, this also enables the examination of how data from different sources differ. As the OECD values refer to 2008, namely a year between the reference years of the Eurostat data, one should generally expect the OECD values to range between the values reported from Eurostat for 2005 and 2010. However, in several countries, the OECD values are higher than the two values from the Eurostat data.

Figure 2.1 Percentage of children aged below 3 in formal childcare. Comparison of different data sources

Notes: Values for 2005 and 2010 from Eurostat 2015; values for 2008 from OECD family database 2015; own illustration.

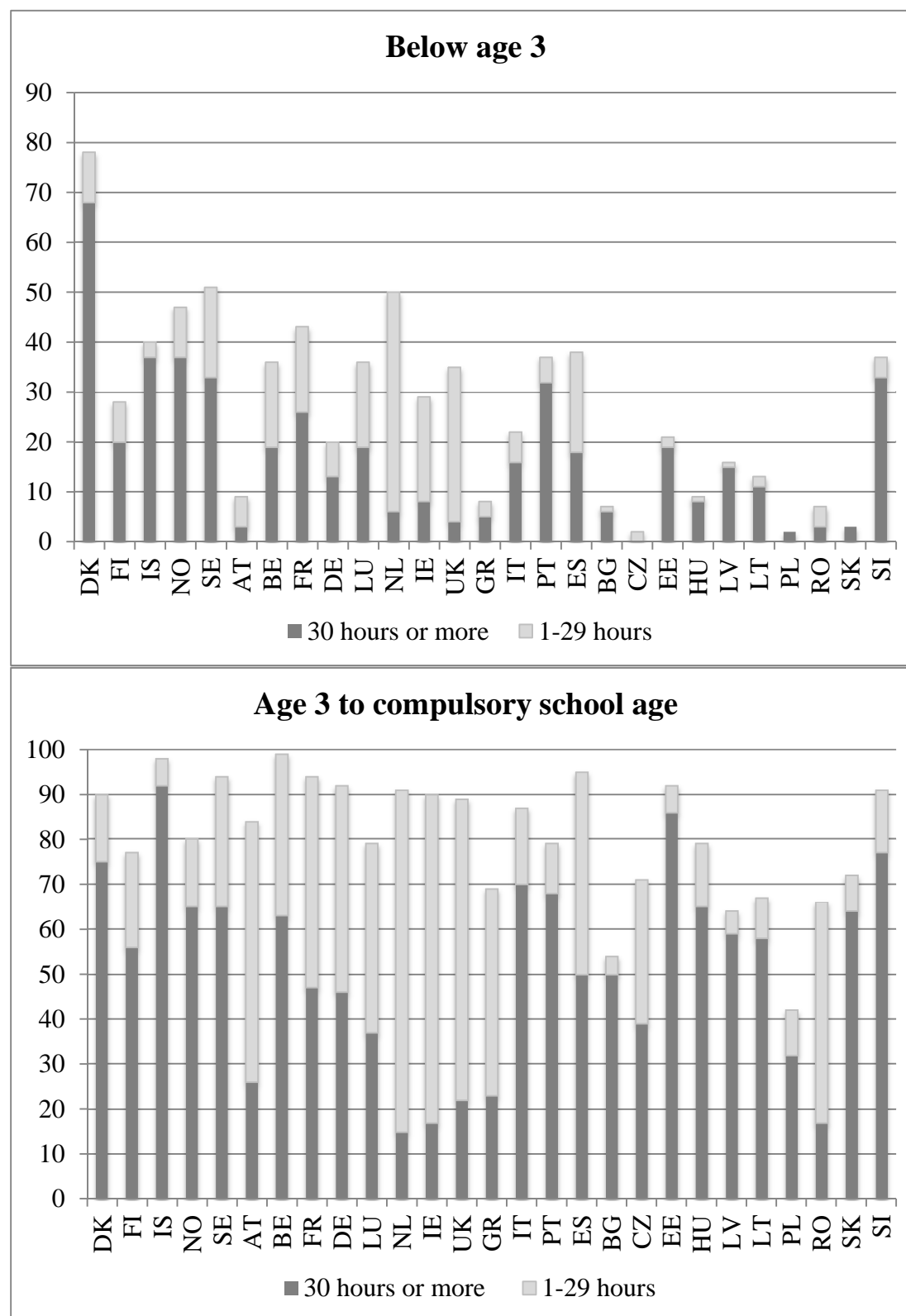
The general country pattern, however, is quite stable, independent of the data being referred to. In the Nordic countries (except Finland), formal childcare is most widespread, whereas it is the lowest in Post-Socialist countries. In the latter states (except Slovakia), less than 20 percent of children aged below 3 attend formal childcare. The same is true for the Central European countries of Austria and Germany, whereas in Luxembourg, France, and particularly Belgium and the Netherlands, around or more than 40 percent of children participated in childcare after 2005. The Southern European countries are quite broadly distributed, with only around 10 to 18 percent of children attending preschool in Greece, but around or more than 40 percent in Portugal and Spain. Liberal and Asian countries show a moderate extent of externalizing childcare, with between 30 and 40 percent of children visiting formal childcare. When comparing the Eurostat values from 2005 and 2010, attendance in formal childcare increased in all countries (except Belgium, Italy, Latvia, Spain, and Sweden).

Figure 2.2 displays the percentage of children aged 0 to 3 (upper panel) and children aged 3 to compulsory school age (lower panel) depending on whether they attended childcare for 1-29

weekly hours or more. Countries are sorted by regime type. Looking first at children aged below 3, all Nordic countries are characterized by high attendance rates for 30 weekly hours or more – with Denmark having the highest participation (nearly 70 percent), and Finland the lowest (around 20 percent). In the Central European (particularly in the Netherlands, Belgium, France and Luxembourg) and Liberal countries, in turn, attendance for 1 to 29 hours is more common. However, in the latter three countries around 20 percent of young children also attend childcare for 30 hours or more. Austria shows very low participation in general, and the same is true for Greece. The three remaining Southern European countries, Portugal, Spain and Italy show relatively high full-day participation, particularly Portugal. The Post-Socialist countries are generally characterized by lower rates (except Slovenia and – to a lesser extent – Estonia).

Participation for children aged 3 to compulsory school age is much higher, with more than 70 percent of children attending preschool in most countries. Only several Post-Socialist countries (Bulgaria, Latvia, Lithuania, Poland, Romania, Slovakia) and Greece have lower rates. While Nordic and Southern European countries are characterized by high attendance for 30 hours or more (lowest in Finland and Spain), participation for 1 to 29 hours is more widespread in Central European and Liberal countries.

Figure 2.2 Percentage of children aged below 3 and aged 3 to compulsory school age in formal childcare by weekly hours of participation, 2010



Notes: Eurostat 2015; own illustration.

Critical evaluation

As this section has shown, there is huge country variation in the arrangement of family policies and this variation is certainly even larger when considering further countries' specificities. However, I only referred to the 'main' features of leave and childcare systems, as they seem to be more important for gender differences than other characteristics (Javornik 2014). Another drawback to data on family policies is their limited availability for several countries and years. As I could demonstrate for childcare systems, data of different sources vary, indicating that different definitions and concepts are used. However, the general country patterns remained quite stable, regardless of the data used.

2.3.2.2 The gender culture

The *gender culture* refers to beliefs and norms about (1) how (typical) women and men should act and (2) on which spheres of life (family or work) they should focus (Blossfeld et al. 2015). They not only shape individual behavior but also underpin policymaking and labor market structures (Aboim 2010: 173). Despite the relation of cultural beliefs and norms with countries' institutional arrangements, they nevertheless do not necessarily correspond to each other (Pfau-Effinger 2004). Hence, the link between gender differences in the labor market with both gender cultural aspects and institutional arrangements demands special attention. The relation between the gender culture and gender differences in the labor market is until now not clear: Horizontal gender differences have been found to be higher in more traditional countries (Charles 1992), as well as in less traditional ones (Steinmetz 2012). For vertical gender inequalities, the literature also reports mixed results (Charles 1992; Charles and Grusky 2004; Estevez-Abe 2006; Steinmetz 2012).

One reason for these contradictory findings might be that the gender culture is a multifaceted construct with diverse dimensions, including beliefs and norms referring to "the ways women and men should best be integrated into society, the division of labour between women and men, and how it should interact with childcare" (Pfau-Effinger and Smidt 2011). This includes, for example, the support of traditional gender roles, the support of females' and/or mother's employment, and the attitudes towards the consequences of women's and/or mother's paid employment, particularly attitudes towards the well-being of children, and towards men's participation in household and family duties (Aboim 2010; O'Sullivan 2012; Haas et al. 2006; Pfau-Effinger and Smidt 2011; Lück 2006).

Following predominant literature in this field, I examine different dimensions of the gender culture. In a first step, data from the International Social Survey Programme (ISSP) module on ‘Family and Changing Gender Roles’ of 2012 was used, which provides several statements concerning gender norms. I ran a principal factor analysis over a subsample of these items, and identified three major dimensions of gender norms, which are largely in line with previous research (see e.g., Lück 2006; Aboim 2010; O’Sullivan 2012): (1) traditional gender roles; (2) support for female employment; and (3) consequences of women’s paid work (see Appendix for Chapter 2 for more information). In the following, I refer to the first two dimensions since they are most crucial in the course of this thesis. The following questions were used to construct these two dimensions:

Dimension 1: Traditional gender roles: the agreement that women’s primary role is to take care of the family and household tasks

- (1) A job is all right, but what most women really want is a home and children.
- (2) Being a housewife is just as fulfilling as working for pay.
- (3) A man’s job is to earn money; a woman’s job is to look after the home and family.

Dimension 2: Support for female employment: the agreement that women should participate in the labor market

- (1) Both the man and woman should contribute to the household income.

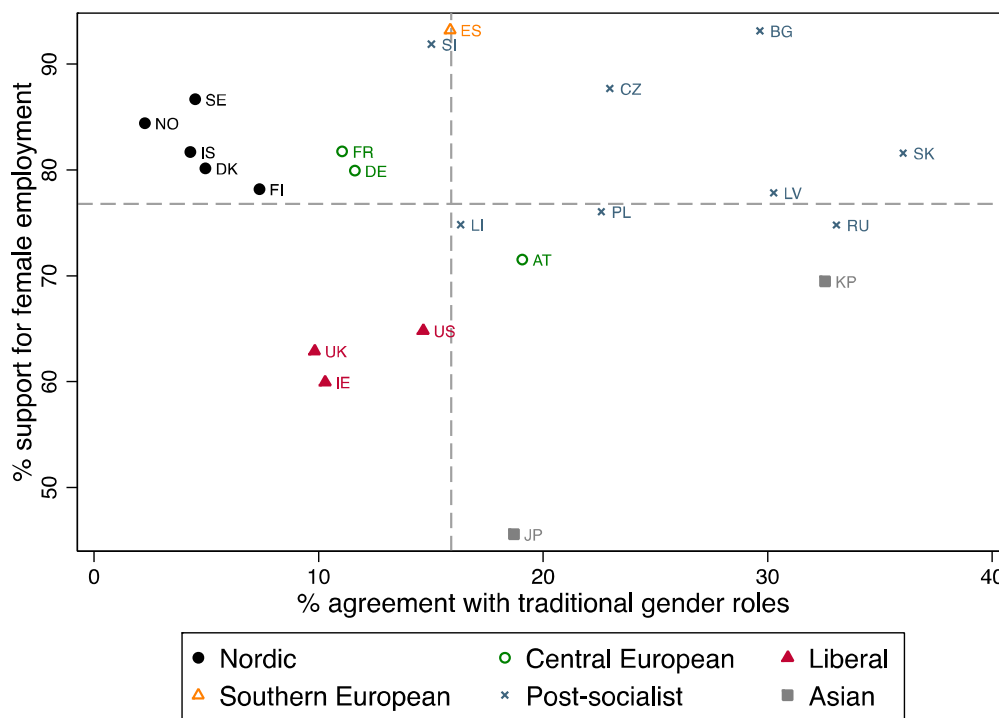
Agreement with these items was measured with a five-point Likert scale (1 = strongly agree; 2 = agree; 3 = neither agree or disagree; 4 = disagree; 5 = strongly disagree).⁹ To compare the countries’ average agreement, I calculated the percentage of individuals having strongly agreed or agreed with the three statements for the dimension of ‘traditional gender roles’, and the percentage of individuals having strongly agreed or agreed with the statement for the dimension of ‘support for female employment.’

Figure 2.3 shows the countries’ agreement with traditional gender roles (x-axis) and support for females’ employment (y-axis). Countries located in the upper left quadrant are most egalitarian in both dimensions: These are all the Nordic, two from three central European

⁹ The Spanish data diverges in so far as only four categories are distinguished: 1 = strongly agree; 2 = agree; 3 = disagree; 4 = strongly disagree.

countries (Germany, France), as well as Spain (as the only Southern European country included)¹⁰ and Slovenia. Countries in the lower right quadrant are the most traditional in both dimensions, including the Asian countries Japan and South Korea, Austria, and three Post-Socialist countries (Lithuania, Poland, and Russia). The position of the remaining Post-Socialist countries (upper right quadrant) is particularly interesting. They combine the highest agreement with traditional gender roles with a high support for females' employment. This indicates that women's double burden of combining work and family is the highest since women are expected to care for family and household duties mainly alone while simultaneously participating in the labor market. Liberal countries are characterized by a relatively low support for women's employment and a low to moderate agreement with traditional gender roles.

Figure 2.3 Agreement with traditional gender roles and support for female employment, 2012



Notes: ISSP 2012; own calculations. Grey lines indicate the average across all countries.

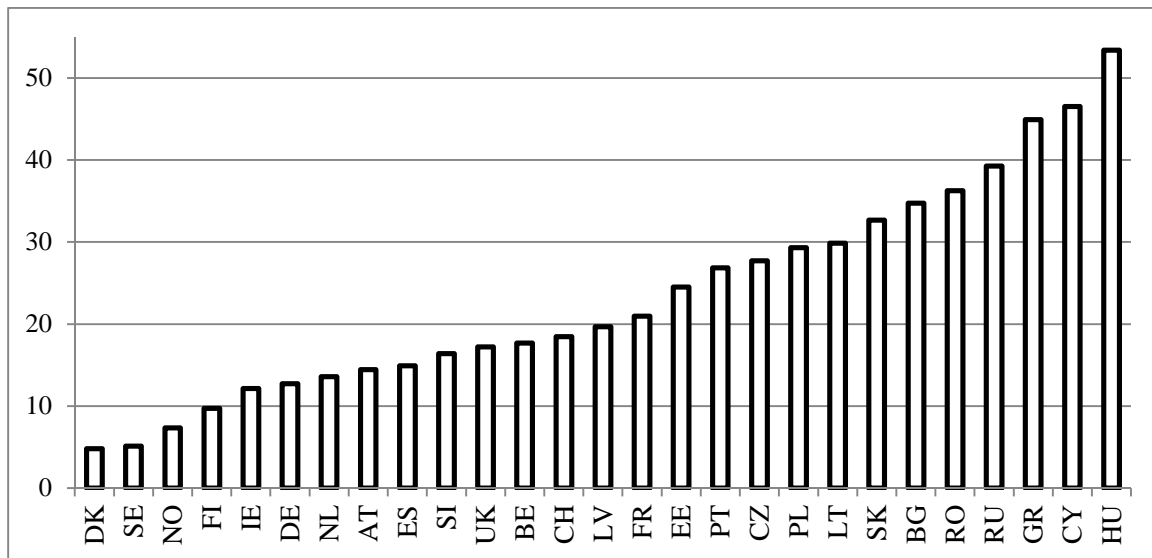
In a second step, an indicator that solely measures attitudes concerning the labor market status of men compared with women was chosen (named 'preference for men's labor'). It expresses whether preference is given to women's or men's employment by relying on the statement:

¹⁰ Additive analyses using the ISSP 2002 data indicated that two other Southern European countries – Cyprus and Portugal – score very similar to Spain, with a high support for female employment and a moderate agreement with traditional gender roles.

‘Men should have more right to jobs than women when jobs are scarce’ (own calculations based on the European Social Survey (ESS) of 2010, 2008). The agreement with this statement has been found to be most strongly associated with female employment rates and females’ disadvantage in wages compared with other attitudinal indicators (Fortin 2005).

Figure 2.4 displays the agreement with ‘preference for men’s labor’ and provides a clear picture: In the Nordic countries, agreement is the lowest and hence most gender-egalitarian, followed by Liberal and Central European countries. In contrast, in several Post-Socialist and Southern European countries, high agreement of more than 25 percent indicates a strong traditional gender orientation (exceptions are Spain, Slovenia, Latvia, and Estonia).

Figure 2.4 Agreement with the statement ‘Men should have more right to jobs than women when jobs are scarce’



Notes: ESS 2010; ESS 2008 for AT, LV, LT, and RO; own calculations.

Taken together, Nordic countries show the highest gender-egalitarian orientation by combining low support for traditional gender roles with an egalitarian conception of men’s and women’s labor market participation. The gender culture in Post-Socialist countries emphasizes women’s employment but is nevertheless strongly traditional in the sense that women are expected to take over the traditional childcare and household tasks and men are largely given preference for paid work in the labor market. The Central European countries (except Austria with more traditional attitudes) are similar to the Nordic ones, but show a slightly higher agreement with the preference of men’s labor. Spain as Southern European

country combines a high agreement with female employment and a moderate agreement with traditional gender roles; however, when it comes to the preference for men's labor, Southern European countries are more traditional orientated. Liberal countries range in the midfield in all three dimensions.

Critical evaluation

This section has shown that the gender culture is a multidimensional construct and that focusing on only one sub-dimension does not describe the overall setup of the gender-cultural orientation. This might constitute one reason for the mixed findings of empirical studies examining the link between the gender culture and gender differences in the labor market (see the beginning of this section). However, it is difficult to find indicators for the gender culture covering a large number of countries, and therefore empirical analyses are often restricted to the use of only one indicator (which is unfortunately also the case in this thesis).

The portrait given about gender-cultural aspects in this section is also not complete: I focused on three dimensions of the gender culture, as these appear to be most important in the course of this thesis. However, other dimensions of the gender culture can also be identified, such as the support for men's involvement in household tasks or the expected consequences on the wellbeing of children and family life when women participate in the labor market.

Regarding the data used in this thesis, it should be noted that the dimension 'support for females' employment' might also partly mirror the economic necessity for a second family income (Lück 2006). Moreover, the ISSP's measurement was criticized for using imprecise language, which might impact on the validity of the findings. For instance, no distinction was made between being employed full- or part-time; rather, all questions referred only to 'having a job' or 'working for pay' (O'Sullivan 2012). Another challenge is the general uncertainty as to whether individuals of different cultural contexts interpret answer categories (attitudinal scales) in the same manner (Aboim 2010). Together with the comparably small coverage of countries, I opt to not rely on this data in the empirical parts of this thesis.

2.3.2.3 Structural and labor market characteristics

Countries' variation in gender differences in the labor market might also be a result of structural and labor market characteristics, such as *public sector employment* and *employment protection*. Horizontal gender differences have been found to be higher in countries with a larger public sector (Steinmetz 2012), while vertical gender inequalities seem to be more

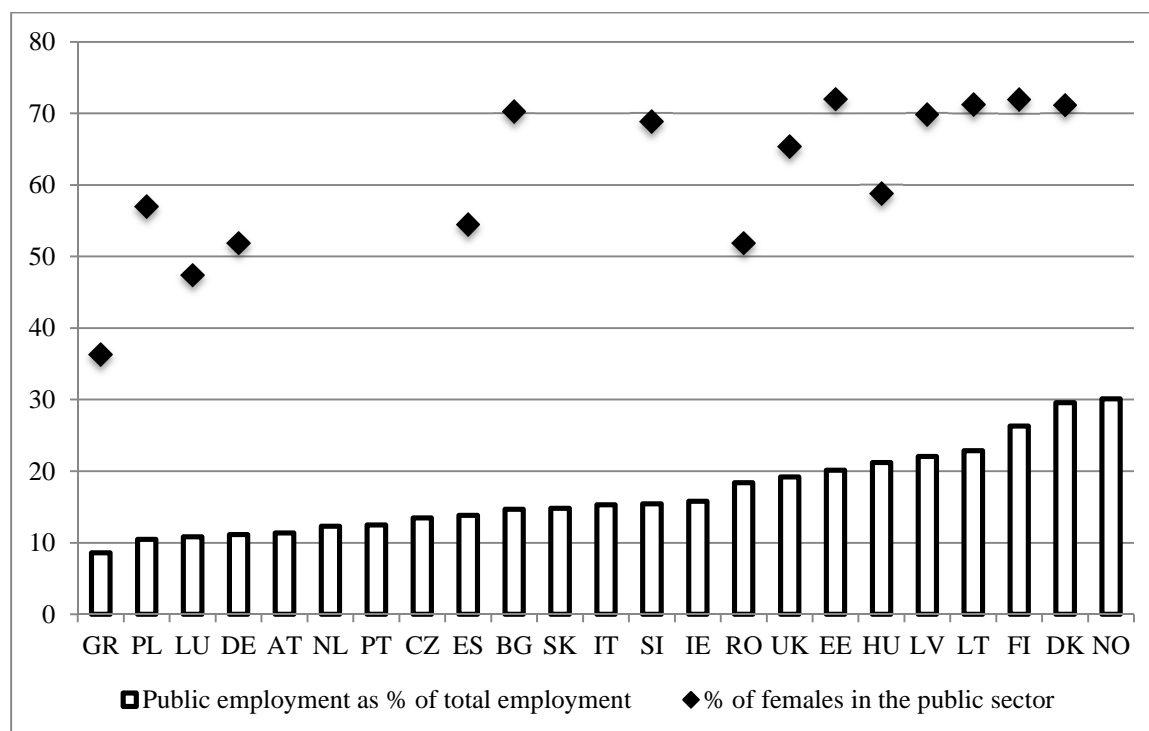
pronounced in countries with higher proportions of women working in the public sector (Yaish and Stier 2009) and with more rigid employment protection (Estevez-Abe 2006).

Public sector employment

Public sector employment can be seen as an instrument to increasingly bring women into the labor market. This was, for example, demonstrated by Sweden's rising public sector employment during the 1960s which contributed notably to an increase of the female share in the labor market (Gottfried 2000). Reasons for the specific attractiveness of these jobs to women are the more convenient working conditions, higher anti-discrimination enforcement, and a high share of typically female responsibilities such as care and services (Mandel and Semyonov 2006; Yaish and Stier 2009; Steinmetz 2012; Barón and Cobb-Clark 2008).

Figure 2.5 shows the percentages of all employed individuals working in the public sector (white bars) and the percentage of females relative to all individuals (black diamonds). The public sector is largest in the Nordic countries (Norway, Denmark, Finland), with more than 20 percent of the workforce being employed in this sector. Several Post-Socialist (Latvia, Lithuania, Hungary, Estonia, and Romania) and Liberal countries (the UK, Ireland) follow, while public sector employment is low in Southern and Central European countries.

Figure 2.5 Public sector employment, 2008



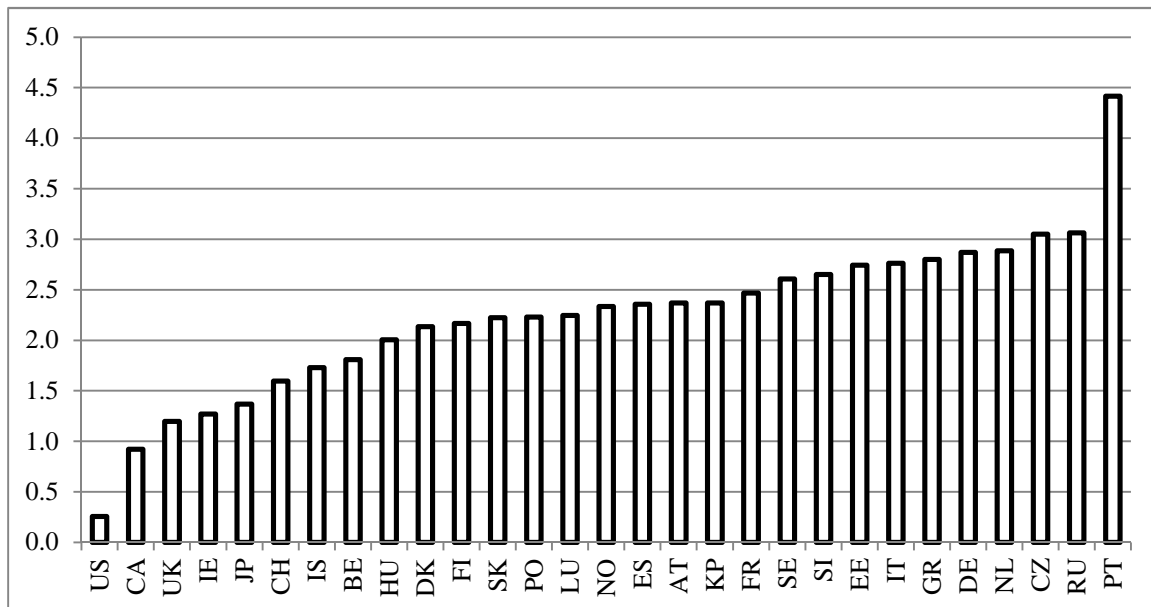
Notes: ILO 2010; own illustration.

Representing more than 50 percent, women dominate the public sector in all countries (except Greece and Luxembourg). This is most pronounced in the Nordic and Liberal countries, followed by several Post-Socialist countries (Lithuania, Estonia, Slovenia, Bulgaria) with around 70 percent of employees being female.

Employment protection legislation

Employment protection legislation refers to procedures and costs in hiring and firing workers, therefore providing a measure for labor market flexibility. Figure 2.6 displays countries' variation regarding employment protection as measured by the OECD. The index is composed of eight different aspects of strictness of individual dismissals and ranges from 0 to 6, with higher values indicating stricter employment protection. The Liberal countries (the US, Canada, the UK, and Ireland) have the lowest employment protection. Within the Nordic countries, Denmark and Finland are characterized by low to moderate values, and Sweden is characterized by higher values. The Southern European countries belong to the countries with most rigid employment protection, whereas the majority of Central European countries indicate moderate to high values.

Figure 2.6 Employment protection legislation, 2008



Notes: OECD 2013; own illustration.

Critical evaluation

Service sector employment is largely discussed as a further structural constraint of horizontal gender differences in the labor market. All industrial countries have experienced a post-industrial restructuring during the recent decades, with rising employment in the service sector. Many service sector occupations correspond more to female than to male interests, because these jobs often translate traditional female household tasks into paid work (Esping-Andersen 1990), thereby attracting mainly women (Charles 1992; Charles and Grusky 2004). While the empirical argument is convincing, I have not provided a detailed overview of countries' variation in service sector employment because the empirical parts do not investigate the link between service sector employment and horizontal gender differences.¹¹

2.3.2.4 Different aspects of females' position in the labor market

Finally, different aspects of females' labor market positions should be considered in their relation to each other. First, females' labor market participation is likely to be related to both horizontal and vertical gender differences in the labor market, although the direction of this relation is controversial (Mandel and Semyonov 2006; Charles 1992; Hakim 2006). Second, regarding a relation of horizontal gender differences to vertical gender inequalities, several studies reveal that women are more concentrated in occupations with less advantageous rewards, such as lower earnings (England et al. 2007; see Leicht 2008 for a literature review). Hence, the following describes *females' full- and part-time labor force participation, maternal employment and occupational gender segregation*.

Females' full-time and part-time labor force participation

Women's labor force participation increased during the second half of the twentieth century in all industrialized countries. While the Nordic, Liberal, and Post-Socialist countries have a longer tradition of female integration into paid work, the rise in female labor force participation has been more pronounced during the last decades in the Southern and Central European countries and in the Asian countries (Jaumotte 2003; Dolado et al. 2004).

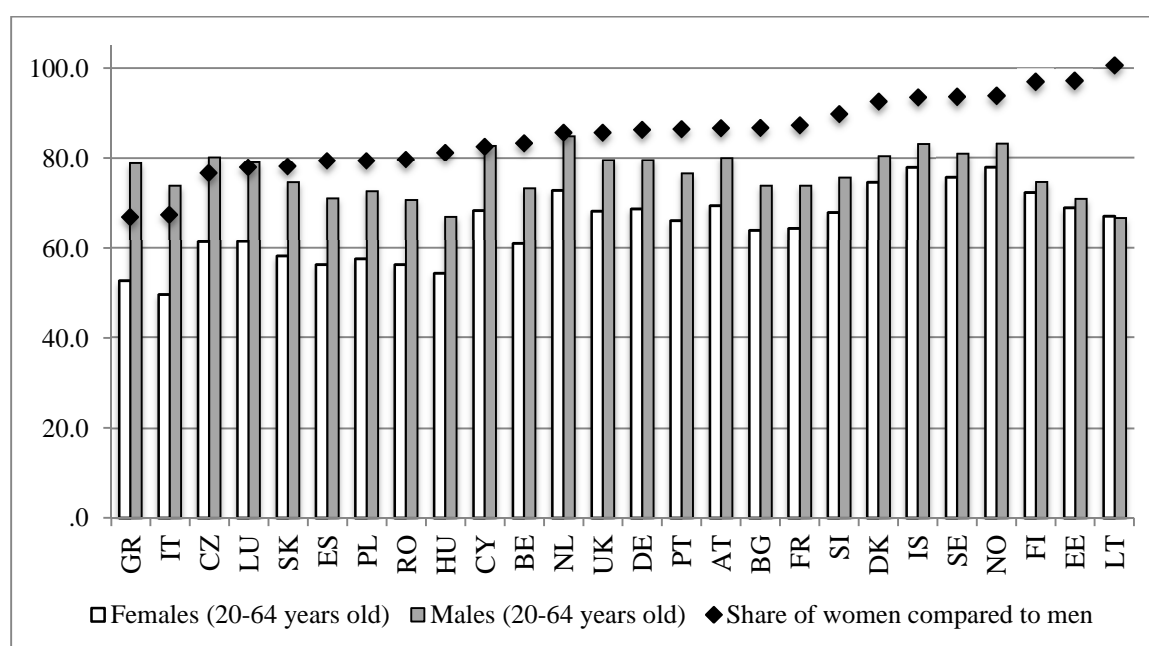
Figure 2.7 shows the percentage of males (grey bars) and females (white bars) in employment as a percentage of all individuals and the respective share of women in employment compared

¹¹ This is because in Chapter 4 – the only empirical chapter examining the relation of horizontal gender differences with country-specific characteristics – horizontal gender differences are measured in terms of the distribution of men and women into service, administration, and production occupations.

with men for 2009 (black diamonds; a value of 100 indicates that the percentages of men and women in employment are the same; a value below 100 means that less women than men are employed).¹² The overall labor force participation is lowest in several Post-Socialist (Hungary, Romania, Poland, Slovakia) and Southern European countries (Italy, Spain, Greece), while it is highest in the Nordic countries (Norway, Iceland, Sweden, Denmark).

The differences between male and female labor force participation are greatest in the Southern European (Italy, Spain, Greece) and Post-Socialist (the Czech Republic, Slovakia) countries and Luxembourg, with the percentage of women among all employed individuals amounting to only a maximum of 80 percent. In turn, the Nordic and two Post-Socialist countries (Lithuania, Estonia) are characterized by the lowest gender differences in labor force participation. Central European and Liberal countries range in the middle.

Figure 2.7 Female and male labor force participation in percent, 2009



Notes: Eurostat 2015; own illustration.

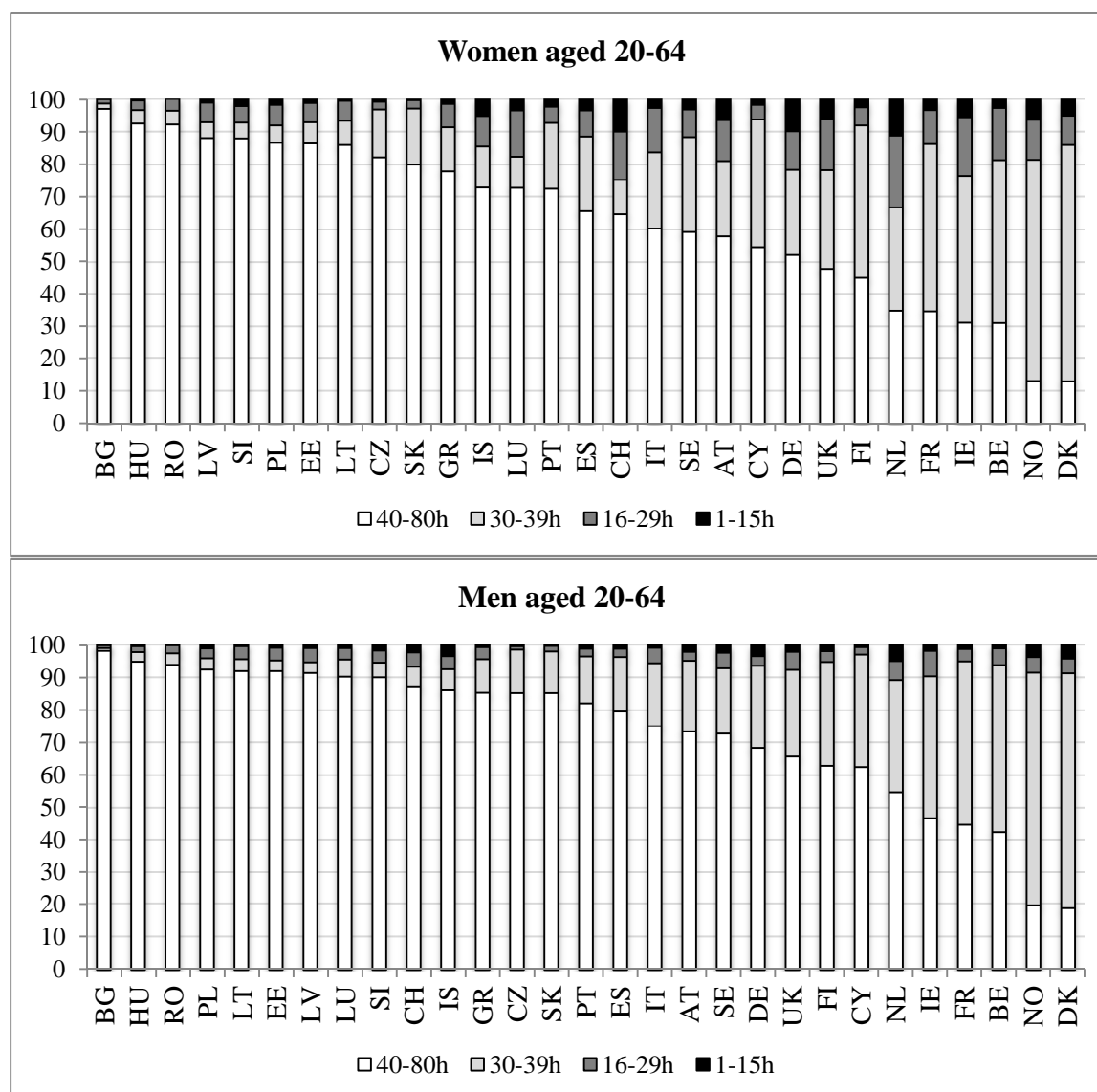
Despite women's and men's general participation in paid work, they also differ in how much time they devote to it. In the following, I distinguish between four groups of employment patterns: (1) full-time work: 40 or more weekly working hours; (2) reduced working hours: 30 to 39 weekly working hours; (3) half-time jobs: 16-29 weekly working hours; and (4) marginal work: 1 to 15 weekly working hours (Hakim 1997: 25). This distinction is preferred

¹² For graphical reasons, the share has been multiplied 100.

over a simple distinction between full-time and part-time employment, because the definition of part-time work differs among countries.

Figure 2.8 shows the country patterns of weekly working hours for females (upper panel) and males (lower panel). Countries are sorted according to the percentage of individuals working full-time (i.e., 40 weekly hours or more). The general trend in terms of gender differences is very obvious: In nearly all countries, more men than women work 40 hours or more per week.

Regarding country patterns, however, the figures for men and women are very similar. The Post-Socialist countries stand out in terms of their scarcity of working-time patterns other than full-time employment. To a lower extent, the same is true for Southern European countries. In turn, Nordic countries show a high percentage of men and women working reduced hours of 30 to 39 weekly hours. Among the Central European countries, the Netherlands, Germany and Switzerland are characterized by high proportions of women working only marginal hours. Half-time work is also quite widespread in these countries among women.

Figure 2.8 Patterns of working time for men and women, 2009

Notes: LFS 2009, own calculations.

Maternal employment rates

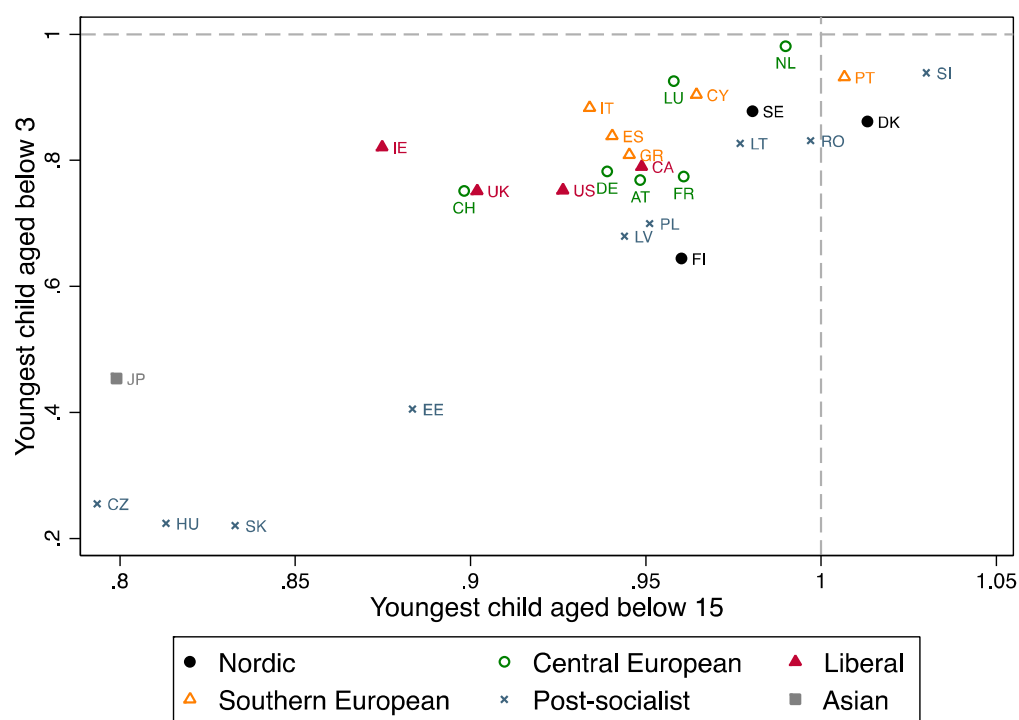
Moreover, whether (and when) women re-enter the labor market after childbirth is of interest. Patterns of maternal employment are likely a result of a variety of circumstances. Both leave arrangements provided by the state and possibilities of externalizing childcare are likely to play a crucial role, as are other factors, such as the general economic situation or the economic necessity of two-earner households, which might shape mothers' labor market behavior (Javornik 2014).

In order to identify how many women re-enter the labor market after childbirth, Figure 2.9 displays the ratio of maternal employment rates for women with children aged below 15 (x-

axis) and aged below 3 (y-axis) to the overall female employment rate (for women aged 25 to 54).¹³ A value of 1 indicates that the employment rates for all females are the same as those for mothers; a value below 1 means that the mothers' employment rates are lower than those for all females.

There is no great country variety of maternal employment for women with children aged below 15, suggesting that most mothers re-enter the labor market after the child has reached a certain age. The ratio of overall female employment ranges between 0.8 (the Czech Republic and Japan) to even slightly more than 1 (Slovenia, Denmark, Portugal).

Figure 2.9 Employment of mothers with youngest child aged below 15 and aged below 3, 2009



Notes: OECD 2015; own calculations. Values refer to the ratio of overall female employment to maternal employment.

In turn, countries differ notably in terms of the labor market participation of women with children aged below 3, being by far lowest in several Post-Socialist countries (the Czech Republic, Hungary, Slovakia, and Estonia) and Japan (ratios below 0.5). Together with the high employment ratios of mothers with children aged below 15, this indicates that most mothers do indeed interrupt their careers, but re-enter employment after their children have

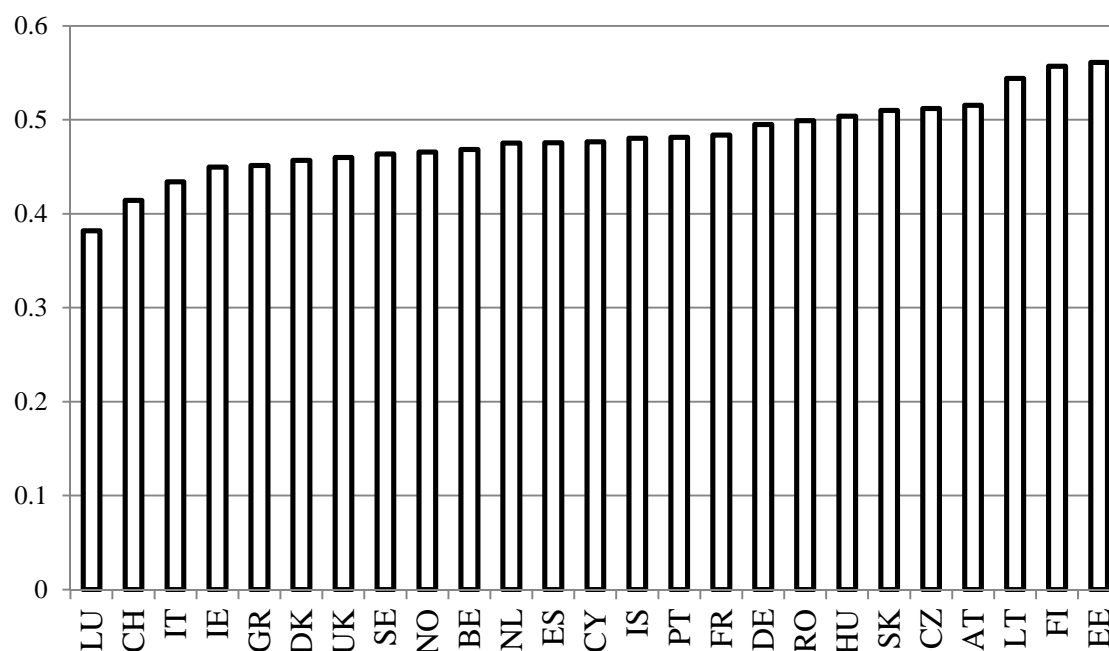
¹³ I use this ratio to account for differences in females' overall employment rates.

reached age 3. In turn, in all remaining countries the employment ratios for mothers with children aged below 3 are higher than 0.6. Notably, the Liberal countries are characterized by comparably low maternal employment, while employment for mothers with children aged below 3 is particularly high in Southern European countries and several Nordic (Sweden, Denmark), Central European (Luxembourg, the Netherlands), and Post-Socialist countries (Slovenia, Romania, Lithuania).

Occupational gender segregation

Finally, vertical gender inequalities might be due to the fact that women and men work in different types of occupations (i.e., horizontal gender differences) that are characterized by different occupational rewards (England et al. 2007; Anker 1998; Gerber and Cheung 2008). In order to assess the extent to which men and women segregate into different occupations, Figure 2.10 displays the Duncan index for types of occupations for individuals aged 20 to 64 (white bars). The Duncan index can be interpreted as the proportion of women (or men) who would have to change occupation in order to achieve an even gender allocation across all occupations. It ranges from 0 (complete similarity) to 1 (complete dissimilarity) (Duncan and Duncan 1955; Blackburn et al. 1995).

Figure 2.10 Duncan index for occupational gender segregation, 2009



Notes: LFS 2009, own calculations. Duncan index for occupational segregation based on ISCO 2-digit data (27 different occupations); (see Appendix Table A2 for details).

Countries are rather broadly distributed. The Southern European, Liberal, and Nordic countries (except Finland) show a low to moderate extent of occupational gender segregation, while it is higher in all the Post-Socialist countries. In several Central European countries (particularly Austria, but also Germany and France), occupational gender segregation is also quite high; however, this is not true for the remaining Central European countries.

Critical evaluation

This section has shown that countries differ markedly in terms of gendered labor force participations and horizontal gender differences. While this gives a broad overview about ‘naïve’ gender differences in the labor market, there are some challenges with the indicators used.

First, labor force participation (in terms of both full-time and part-time participation) is not only the result of individual choices, but also of constraint by other labor market related elements, such as the economic situation and the availability of different types of employment (regarding working hours). This is not accounted for in the data presented. For instance, the economic necessity might affect couples’ decision as to both partners or only one of them participates in paid employment: In countries in which one income cannot guarantee a socially acceptable living standard, both partners might be forced into (full-time) work, although they would prefer for one partner – usually the women – to stay at home (or work part-time). In this regard, it is important to emphasize that one income is often not sufficient to enable a socially acceptable living standard, particularly in the Post-Socialist countries. Coupled with the scarcity of part-time employment in these countries, women might be pushed into full-time employment, although they would prefer not to work or to work fewer hours (Haas et al. 2006). Salin (2014) mentions similar patterns for Southern European countries regarding mothers’ working-time patterns. This is likely to impact also on the composition of the female labor market population. More information about the possible bias due to the non-random selection into employment is provided in Section 3.4.

Second, the Duncan index only refers to the general proportion of men or women who would need to change occupations to achieve an even gender allocation but does not say anything about the specific occupations men and women segregate. Moreover, the Duncan index is sensitive to the size of categories used to define it: The more fine-grained the distinction of categories, the higher the Duncan index is. Finally, it depends on factors associated with context and time, i.e. is not margin-free (Blau et al. 2013; Steinmetz 2012; see also Section

3.2). Hence, in the empirical parts of this thesis, these drawbacks are considered by providing more information on the specific occupations men and women segregate (see Appendix to Chapter 4) or relying on different measures for horizontal gender differences (see Chapter 5).

2.4 SUMMARY AND THEORETICAL FRAME

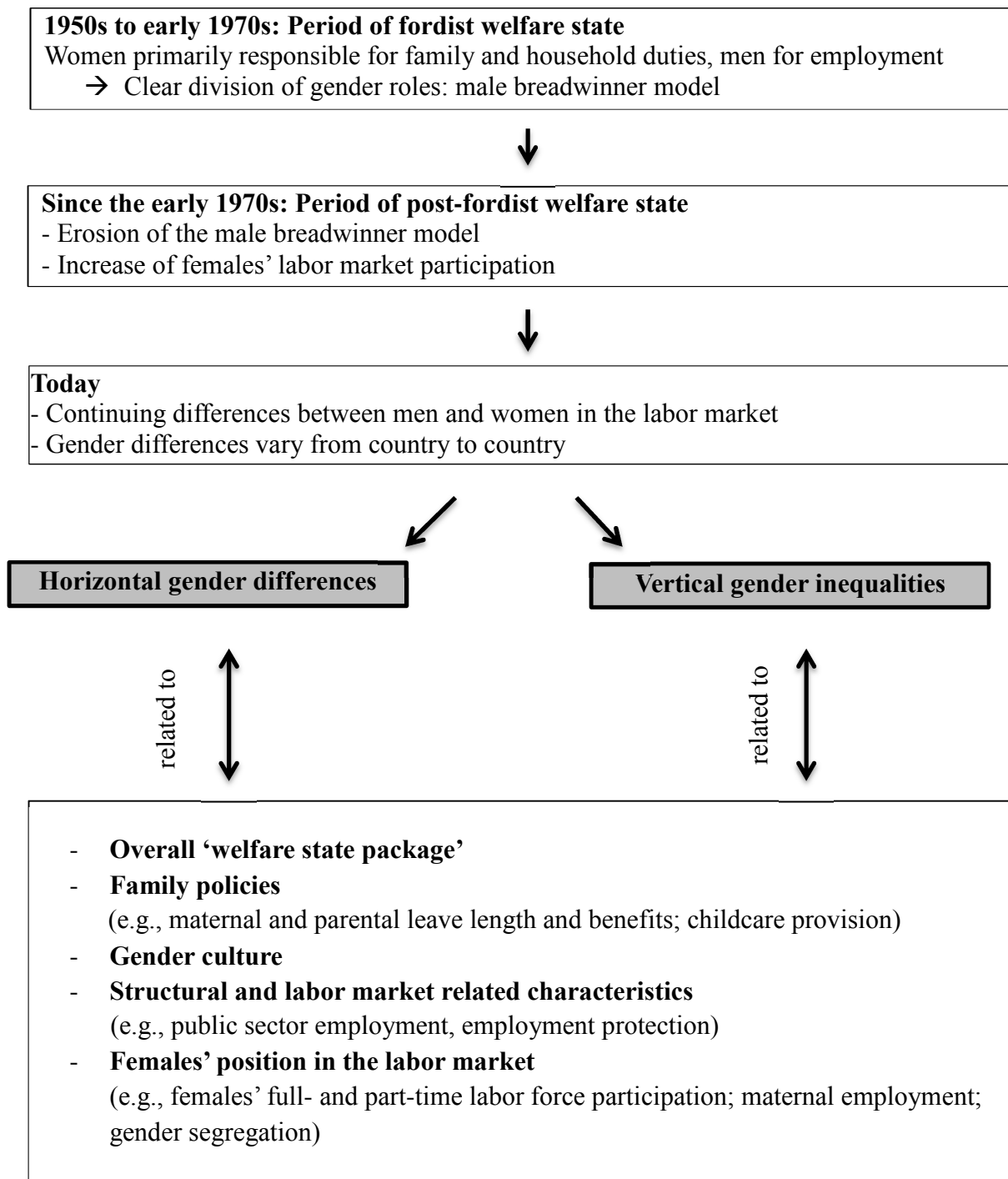
Figure 2.11 summarizes the theoretical framework of this thesis. In most industrialized societies, women's role has changed from being mainly centered on the family and household to combining unpaid family and household chores with paid work in the labor market. The situation of men and women (still) differs in the labor market, both in terms of horizontal gender differences and vertical gender inequalities. While this finding applies to most industrialized countries, the extent of gender differences varies from country to country.

In order to explain this country variation, I distinguished two main approaches: First, I identified country groups (regime types) that are similar in their overall 'welfare state package' and examined whether and how gender differences vary among these country groups. Second, I focused in more detail on specific theoretically important country characteristics and tested whether and how these are linked to gender differences in the labor market. The last sections provided an overview of conventional country classifications and how the identified country groups differ. Moreover, I described countries in terms of specific country characteristics that are likely to be linked to gender differences in the labor market. The following summarizes the most important insights by regime type, as well as by pointing out country specificities that do not fit with the general orientation of the respective regime type (see also Table 2.3).

Nordic welfare states provide the best opportunities for women to combine work and family life: Attendance in childcare is high (except in Finland with moderate attendance), and the state offers high leave benefits for a moderate time span. Hence, the female and maternal employment rates are high in these countries (again, Finland shows lower values for maternal employment); however, a good share of women work reduced hours, and the share of women in public sector employment is high. Naïve horizontal gender differences are low to moderate (Finland: high). Attitudes are very gender-egalitarian, in all dimensions examined. Employment protection is low to moderate (Sweden: higher), which should further facilitate re-entries after career interruptions.

Among the *Central European countries*, country variation is relatively high. Austria, Germany, and Luxembourg provide quite long leave arrangements with high benefits, while these are less generous in Switzerland, Belgium, France, and the Netherlands. The latter three countries also have relatively high attendance rates in childcare in common (however, the rate in the Netherlands is mostly only for 1 to 29 weekly hours), while all other Central European countries, and particularly Austria, are characterized by lower participation. A moderate gender-egalitarian culture with high support for females' employment is common to all Central countries (except Austria which with more traditional values). Public sector employment is low, and employment protection is moderate to high. In terms of maternal and overall female employment, the Central European countries are rather similar, with moderate rates and a moderate extent of females with reduced or part-time working hours. Naïve occupational gender segregation, however, again varies quite a lot among countries: It is high in Austria, Germany, and France, while it is low in Luxembourg and Switzerland.

Figure 2.11 Theoretical framework



Notes: Own illustration.

Liberal countries do not provide any paid parental leave, and maternity leave is only available for a short period and with low benefits. The combination of work and family is further complicated by moderate childcare attendance, which is generally less than 30 weekly hours. In line with the low support for females' employment, maternal employment rates are low to moderate, while overall female labor force participation is moderate. A modest share of women works in reduced or part-time arrangements. When women work, they seem to not segregate into typically female occupations to a large extent, although the share of females in public sector employment is high. Low employment protection indicates flexible labor markets, which should be favorable to females' career re-entry and job changes.

Among the *Southern European countries*, only Italy and Portugal provide paid parental leave with, however, only low benefits. Maternity leave is short, but the benefit level is moderate to high. Despite the still-common opinion that the Southern European countries offer women only marginal possibilities to combine work and family, attendance in childcare is quite high in Portugal, Spain, and Italy – also for childcare arrangements with 30 or more weekly hours (Greece being an exception, with low childcare rates). Moreover, these countries show a high support for female employment – and in line with that, maternal employment is quite high. Overall female labor force participation is low in Italy and Greece and moderate in Spain, Cyprus, and Portugal, which might be due to higher proportions of older women not participating in the labor market. A difficulty of combining work and family for women is that work arrangements other than full-time are rather scarce. The share of women in public sector employment is relatively low; moreover, only low to moderate naïve differences regarding women's and men's allocation into different occupational types exist. Altogether, these countries are characterized by quite low differences regarding the working patterns of men and women in terms of the continuity of careers, working hours, and the occupations in which men and women work.

The countries of the *Post-Socialist regime* are the most diverse. Estonia, Lithuania, and Slovenia provide long leave with high benefits after childbirth, while Poland, Russia, and Slovakia only offer low benefits. Formal childcare provision is low, indicating that the comprehensive provision during the Soviet period has not survived (Saxonberg and Sirovatka 2006; LaFont 2001). Regarding women's and mother's employment, these countries show very diverse patterns, with some countries having low participation rates and others having high ones. However, the fact that nearly all women (and men) work full-time is common.

Gender attitudes clearly favor men's employment and traditional gender roles; nevertheless, these countries show a high support of females' employment. Naïve occupational gender segregation is moderate to high in these countries, as is the share of women working in the public sector (except in Poland, which shows a lower female share).

In *Asian countries*, support for mothers is limited, with only moderate leave length and low benefits and a moderate childcare provision. Gender-egalitarian efforts have only recently gained in importance and are still quite traditional, and accordingly, mothers' labor force participation is low. It seems realistic that these countries will follow a similar development path regarding gender (inequalities) as the other countries; however, they are still at the beginning of this process.

Table 2.3 Overview of country-specific characteristics by regime types

	Nordic	Central European	Liberal	Southern European	Post-Socialist	Asian
<i>Prototype and further countries</i>	SE, DK, FI, IS, NO	DE, AT, BE, CH, FR, LU, NL	US, CA, IE, UK	IT, CY, ES, GR, PT	BG, CZ, EE, HU, LT, LV, PL, RO, RU, SL, SI	JP, KO
Family policies						
Leave after childbirth	Moderate length, high benefits	Moderate length, moderate benefits: AT, DE, LU; short leave, low benefits: BE, FR, CH, NL	Maternity leave: Short, low benefits; no parental leave	Maternity leave: Short, moderate to high benefits for maternity leave; parental leave: only in IT, PT; low benefits	Long; high benefits in EE, LT, SI; low benefits in PL, RU, SK	Moderate length, low benefits
Childcare	High, long weekly hours (FI lower)	Mostly short weekly hours; Moderate attendance (AT: low); children aged 0-3: BE, FR, NL: high attendance	Moderate, short weekly hours	Low: GR; moderate/high: IT, ES; PT (Portugal mostly longer weekly hours)	Low (High: SI)	Moderate
Gender culture	Overall high gender-egalitarian orientation	Overall moderate gender-egalitarian orientation	Moderate gender-egalitarian orientation; lower support for female towards employment	High support for female employment; moderate orientation towards traditional gender roles and preference of men's work	High support for female employment, but also high support for traditional gender roles and preference of men's work	Low gender-egalitarian orientation

Table 2.3 Continued

	Nordic	Central European	Liberal	Southern European	Post-Socialist	Asian
Structural and labor market characteristics						
Public sector employment	Large with high female share	Small	UK: Moderate size with high female share	Small: GR; Moderate: IT, ES, PT; quite low female share	Small: PL; moderate: SI; High: EE, HU, LT, LV; female share: high (PL lower)	
Employment protection	Low to moderate (SE higher)	Moderate to high	Low	Moderate to high	Moderate to high	Low to medium
Women's position in the labor market						
Females labor force participation	High; females often in reduced working hours	Moderate; moderate extent of females in reduced working hours or part-time work	Moderate; moderate extent of females in reduced working hours or part-time work	Low: IT, GR; moderate: ES, CY, PT; females mostly in full-time	High: LT, EE, SI; low: CZ, SK, RO, PL; mostly full-time	
Maternal employment	High: SE, DK; (FI lower)	Moderate to high	Low to moderate	Moderate to high	Low: CZ, HU, SK, EE; High: LT, RO, SI	JP: Low
Occupational segregation	Low to moderate (FI high)	High: AT, DE, FR; low: LU, CH	Low	Low: IT, GR; moderate: CY, PT, ES	Moderate to high	

Notes: Own illustration; for sources, see text above.

3 RESEARCH DESIGN

The objective of this thesis is to compare gender differences in the labor market among countries and to examine their relationship with country-specific characteristics. Therefore, both micro and macro data are combined, and multilevel regression methods are carried out. The following provides an overview on the data and samples I use, and the chosen concepts to measure gender differences. Moreover, I describe my methodological approach as well as major challenges of my empirical analyses.

3.1 DATA AND SAMPLE

The micro data used in this thesis come from three cross-sectional and comparative surveys:

- (1) The European Union Labour Force Survey (LFS) from 2009 and the respective ad-hoc module on ‘entry of young people into the labour market’ for Chapter 4;
- (2) The LFS from 2013 for Chapter 5;
- (3) The Programme for the International Assessment of Adult Competencies (PIAAC) from 2011/12 for Chapter 6

The LFS is a large sample survey among private households coordinated by Eurostat. It was initiated in 1960 in six original EU member states as an annual database on labor market related topics. Today, it is conducted quarterly and provides data on 33 countries: the 28 EU member states, three EFTA countries (Iceland, Norway, and Switzerland), and two candidate countries (the former Yugoslav Republic and Turkey).

The ad-hoc modules of the LFS were introduced in 1999 and refer to a specific labor market topic every year. In 2009, the ad-hoc module investigated the ‘entry of young people into the labour market’; hence, it was specifically designed to generate additional data with respect to the transition from school to work and offers retrospective key information about the first significant job. The target population of the ad-hoc module was all individuals aged 15 to 34 (Denmark, Iceland, and Spain presented some fluctuations; European Commission 2012: 3). For several reasons (see Section 4.2 for more information), I have limited my sample to individuals aged between 25 and 34 from 24 countries for horizontal gender differences, and from 27 countries for vertical gender inequalities.

The LFS data from 2013 – used in Chapter 5 – includes 31 European countries, from which I analyze 26 (see Section 5.2 for more information). My target population is 20-to-64-year-old individuals.

PIAAC is coordinated by the Organization of Economic Co-operation and Development (OECD). It was carried out between August 2011 and June 2012 in 24 countries (Montalvan and Lemay 2013: 3). Beyond comprehensive information about socio-demographic characteristics, this cross-national survey provides the most recent information about cognitive skills (literacy, numeracy, and problem solving in technology-rich environments), qualifications and work experience, the use of skills at work, and different types of lifelong learning activities for adults (Kirsch and Thorn 2013: 2 ff.). For my analyses in Chapter 6, I rely on data from 20 countries for 20-to-54-year-old individuals (see Section 6.2 for more information).

3.2 SELECTION OF INDICATORS MEASURING HORIZONTAL AND VERTICAL GENDER DIFFERENCES

Gender differences are a multidimensional phenomenon, and various ways of measurement exists. It would go beyond the scope of this dissertation to give a thorough description, but the following reviews the main concepts of horizontal and vertical gender differences (see Section 1.1 for the broad definitions) and justifies the selection of indicators used in this thesis.

Central for the measurement of labor-market related gender differences is the International Standard Classification of Occupations (ISCO). By taking into account the presumed skill level and the level of skill-specialization of occupations, it provides an aggregation of occupational information and facilitates international comparisons. Occupations are divided into major groups (coded as 1-digit), sub-major groups (coded as 2-digit), sub-groups (coded as 3-digit), and unit groups (coded as 4-digit). One major challenge with the cross-national use of the ISCO-classification is that the presumed skill level of an occupation may not correspond to the educational requirements in some countries. Moreover, the range of tasks often depends on the firm size, which cannot be taken into account by the ISCO classification. Data unavailability – particularly for the 3-digit and 4-digit distinction – restricts furthermore

the use of ISCO in some cases.¹⁴ Nevertheless, due to the high extent of international comparability, several operationalizations of gender differences are based on the ISCO classification.¹⁵

Segregation indices (in comparative research typically based on the ISCO classification) offer a broad overview of **horizontal gender differences**. The most widely used is the dissimilarity index by Duncan and Duncan (1955) (see Section 2.3.2.4, ‘occupational gender segregation’ and Section 4.2.3 for more information on this index). However, since this index is sensible to the sample size and number of categories, it is less suitable for comparisons over time or across contexts (Steinmetz 2012; Blossfeld et al. 2015). In turn, the IP index by Karmel and MacLachlan (1988) takes into account the relative size of employed men and women and has been found to be more stable for comparisons over time and across countries. The interpretation is slightly different by measuring the percentage of all employed individuals who would have to change occupations for a balanced distribution of both sexes in the labor market (see Steinmetz 2012: 57 ff. for a critical discussion on those indices and others). Two main shortcomings of the Duncan and the IP index can be identified: first, they indicate only the overall extent, but not the structure or patterns of horizontal gender differences; second, they are not margin-free, i.e. they depend on factors associated with context and time.

Charles and Grusky (1995; 2004: 42) proposed with the A-index a margin-free indicator for measuring horizontal gender differences. A represents ‘the extent to which occupation-specific sex ratios deviate from the mean of such ratios calculated across all occupations’ (Charles and Grusky 2004: 42). One drawback of this index is hence that it can only be interpreted in relation to the countries’ average horizontal gender differences, but not ‘one-by-one’ across countries. Also Kalter’s (2000) approach of combining D with log-linear methods provides a margin-free measurement, by controlling for structural conditions; it hence is well suited for comparisons across countries, contexts, or time points. To describe also patterns (and not only the extent) of horizontal gender differences in a margin-free way, log-linear approaches, combined for example with the A-index, have been used (Charles and Grusky 2004; Neramo 2000; Steinmetz 2012).

¹⁴ See www.ilo.org for more information. ISCO-08 is the most recent version and offers an updated and more detailed classification compared to its prior version ISCO-88.

¹⁵ Another way is to base the measurement of gender differences on the sector classification of Singelmann (1978), who classifies occupational sectors into six categories (extractive, transformative, distributive, producer, social and personal services).

Another popular way to assess extent and structure of horizontal gender differences is to differentiate occupations into female-dominated, gender-balanced and male-dominated ones (Smyth and Steinmetz 2008; Steinmetz 2012; Torre 2014; Huppatz and Goodwin 2013). However, also this measurement is not without any problems: First, it is sensitive to the number of persons working in the respective occupation on which the classification is done. An occupation, for example, in which only few people work, will change much faster ‘category’ (e.g. from female-dominated to gender-balanced) than an occupation in which a lot of individuals work in. Second, the thresholds to classify occupations are arbitrary and there is no commonly used and accepted threshold (Smyth and Steinmetz 2008; Huppatz and Goodwin 2013; Cha 2013; Emerek 2006; Magnusson 2013). These problems are solved by Blossfeld’s occupational field division (1987), which defines occupational activities into production, service, and administration and can be interpreted as “the kind of work people do”.

Most popular for measuring **vertical gender differences** is to rely on earnings (e.g. Christofides et al. 2013; Mandel 2012; Mandel and Semyonov 2004; Triventi 2013). However, also the occupational prestige (e.g. CAMSIS, SIOPS) or occupational socio-economic status (e.g. ISEI, SEI) have been widely used to examine vertical gender inequalities (Blossfeld 2014). Another line of research studies vertical gender differences in terms of working in “managerial positions” derived from ISCO group 1 (legislators, senior officials and managers) versus all other ISCO groups. There are however two shortcomings with this measurement: First, and only important for the beginning of the labor market career, only few individuals have direct access to ISCO 1 jobs (see Section 4.2). Second, by focusing on the ISCO group 1, it is likely that lower-educated individuals in demanding positions are largely overlooked. The last mentioned problem is solved when examining positions with supervisory responsibility, because also simple jobs need some kind of supervision. Since supervisory positions are usually higher paid and are characterized by higher responsibility and influence (Abendroth et al 2013; Kraus and Yonay 2000), they are an important vertical outcome.

Less attention as a measure for vertical gender differences received the participation in job-related non-formal training. However, training goes hand-in-hand with higher task complexity of jobs, making also the access to desirable positions – such as supervisory ones – and higher earnings more likely (Tomaskovic-Devey and Skaggs 2002). Hence, gender differences in

training participation might be an essential mechanism for the emergence and maintenance of further labor-market related inequalities. Particularly when distinguishing employer-sponsored and non-employer-sponsored training activities, different consequences for females' and males' career trajectories can be expected (see Chapter 6).

This thesis uses two measurements of **horizontal gender differences**: First, in Chapter 4, I combine Kalter's (2000) approach with Blossfeld's (1987) field division. This enables to measure horizontal gender differences in one single parameter (D), which is, however, margin-free and not dependent on structural conditions – hence it is well suited for cross-national comparisons. In Chapter 5, I use the distinction of occupations into female-dominated, mixed and male-dominated ones. Despite the shortcomings of this measure, it has the advantage to distinguish occupations into meaningful categories that are easily visible for employers and employees; related, this outcome enables a straightforward interpretation. I tried to minimize the drawbacks of this measure by only considering occupations with more than 10 employees and by conducting robustness checks with different thresholds for defining the occupational categories and with the A-Index. **Vertical gender inequalities** at the beginning of the career (Chapter 4) are examined by the access into 'high-status' jobs, i.e. jobs classified as ISCO 1 and 2.¹⁶ Chapter 5 relies on 'holding supervisory positions' because of the aforementioned various advantages of this measure. Chapter 6 conceptualizes vertical gender differences in terms of participation into job-related employer-sponsored and non-employer-sponsored training activities. Table 3.1 summarizes the data and outcomes used as well as the countries covered.

¹⁶ This is mainly driven by data constraints. To my knowledge, the LFS 2009 ad hoc module is the only cross-national data for labor market entrants that refer to all individuals (not only to higher-education graduates, such as the REFLEX data). However, these data has several limitations, including the limited number of possible labor market outcomes one can address. More information is provided in Chapter 4 and Section 7.3.

Table 3.1 Data, outcomes of interest and countries

Population	Labor market entrants		Whole labor market population	
Data	LFS 2009 ad-hoc module		LFS 2013	PIAAC 2012
Outcome	Duncan index	High-status occupations	Supervisory positions	Training participation
Nordic countries				
	DK	DK	DK	DK
	FI	FI	FI	FI
			IS	
	NO	NO	NO	NO
	SE	SE	SE	SE
Central European countries				
	AT	AT	AT	
	BE	BE	BE	BE
			CH	
	DE	DE	DE	DE
	FR	FR	FR	FR
	LU	LU	LU	
	NL	NL	NL	NL
Liberal countries				
	IE	IE	IE	IE
	UK	UK	UK	UK
				US
Southern European countries				
	CY	CY	CY	
	ES	ES	ES	ES
	GR	GR	GR	
	IT	IT	IT	IT
	PT	PT	PT	
Post-Socialist countries				
		BG		
	CZ	CZ	CZ	CZ
	EE	EE	EE	EE
	HU	HU	HU	
			HR	
	LT	LT	LT	
	LV	LV		
		PL		PL
	RO	RO	RO	
				RU
		SI		
	SK	SK	SK	SK
Asian countries				
				JP
				KP
Total	24	27	26	20

Notes: Own illustration.

3.3 METHODOLOGY

In the cross-national framework of my thesis, I use hierarchically structured data: individuals (level-1 units) nested in countries (level-2 units). In order to meet the requirements of this specific data structure and to estimate the interrelatedness of characteristics at the country-level with the respective labor market outcome, a multi-level design is required. The basic assumption of a multi-level design is that both level-1 and level-2 characteristics contribute to the explanation of the existence of a level-1 phenomenon. Therefore, controlling for level-1 characteristics that might be related to the dependent variable is of crucial importance, although the main emphasis of this thesis is on level-2 characteristics. Another statistical reason to apply a multi-level design is the dependence of individual observations on each other: Individuals living in the same country are more similar to each other than to individuals living in other countries. Traditional single-level models rely on the assumption that the observations are independent from each other. Applying them to nested data would therefore be a violation to this assumption and is likely to result in spuriously ‘significant’ findings (Hox 1995; Snijders and Bosker 1999).

Multi-level designs can be applied in either a one-step or a two-step strategy. In this thesis, I use the two-step strategy:

(1) Individual- (micro-) level approach:

Estimation of regression models for each country separately on the respective labor market outcome, under control of level-1 (individual) characteristics.

(2) Country- (macro-) level approach:

Use of the estimation results of the micro-level approach as dependent variable, with inclusion of the level-2 (country) characteristics in order to assess their interrelatedness with the outcome variable.

The two-step method was pioneered by Hanushek (1974) and has recently been gaining in popularity. Compared with traditional one-step multi-level models, the two-step approach has several advantages. First, the two-step approach is better suited for analyses based on a large number of level-1 (individuals) and a limited number of level-2 units (countries) (Franzese 2005). In turn, the estimates of simultaneous one-step multi-level models are sensitive to the number of level-2 units. Especially for logit models, methodological research has revealed a necessity of at least 30 to 35 level-2 units for accurate estimation of the parameters and

standard errors via a one-step multilevel approach (Bryan and Jenkins 2015). Second, one-step multi-level models treat the country effect as random slopes, rendering the validity of results dependent on parametric assumptions. In contrast, two-step approaches calculate country-individual slopes in the first step and compare these afterwards in a second step. Hence, I favor this non-parametric procedure as country-specific slopes may have any distribution. Yet, this comes at the expense of lower statistical efficiency compared to one-step multi-level approaches. Third, because of accounting for both within and between variation, one-step multilevel models calculate smaller standard errors for level-2 variables, which are however underestimated. Two-step approaches, in turn, produce correct and unbiased standard errors (for a formal discussion and exploration of simulation, see Bryan and Jenkins 2015; also see Austin 2010; Bowers and Drake 2005). Fourth, while standard one-step multilevel approaches would constrain coefficients of covariates to be equal across countries, two-step approaches are more flexible and robust by allowing them to vary across countries (Heisig 2011). Finally, two-step approaches offer better possibilities for exploratory analysis and model checking (e.g., detection of outliers, discovery of nonlinearities, sensitivity and robustness analysis). More information about the methodology is provided in the respective empirical chapters (Sections 4.2, 5.2, and 6.2).

3.4 MAJOR CHALLENGES

Comparative research in general, and my thesis in particular, faces several challenges. In the following, I give an overview of the major challenges and how I seek to address them.

A first major challenge is whether the collected information is comparable among countries and whether the data is reliable. Tremendous progress has been made in recent years, and common problems related to language and translation have been reduced (Hoffmeyer-Zlotnik and Harkness 2005). Moreover, to maximize comparability and reliability, I use already-established micro data sources with quite large sample sizes per country and which offer a high extent of standardization, for example by providing information in form of established international classifications, such as ISCED and ISCO. I further only compare countries that are similar regarding their economic and political setup and can be classified as developed welfare states.

Second, cross-national research is challenged by the so-called small number problem and the related ‘too many variables, too few cases’ problem. In statistical terms, this means that the

restricted number of units of analysis (countries) also limits the number of country-specific indicators that can be simultaneously tested to be related to the outcome (due to the degrees of freedom) (Goldthorpe 1997; Ebbinghaus 2005). I address this issue by applying three strategies: First, as the small number problem is less serious when the number of explanatory variables is lower, I keep my models rather parsimonious by including only a restricted number of country-specific characteristics at once. Second, I model indicators referring to the same institutional area (e.g. family policies or employment protection) into one factor by performing principal component factor analysis over the respective indicators. Given that the Eigenvalue's were high enough to indicate one latent concept, I calculated the factor scores for each country, resulting in standardized variables with a mean of 0 and a standard deviation of 1 among all countries (Hamilton 2009). Third, I follow an 'integrated' approach by testing whether gender differences vary among groups of countries with a similar 'welfare-state package' (see Chapter 2 for the classification of countries). In doing so, I account for the possibility that the outcome of interest is not only shaped by one specific macro aspect, but rather by the interplay of several country-specific characteristics (which cannot all be tested simultaneously due to the small number problem).

A third challenge of comparative research is the availability of high-quality comparable data at the macro level (see also Chapter 2). It is difficult to obtain comparable indicators, particularly because my thesis includes more than 20 countries. However, as statistical results gain more security with growing case numbers, I opt to always include the highest number of countries available in the analysis. If data from one source does not cover all countries of interest, I rely on data from different sources – which often brings the challenge of different definitions and operationalization. I try to minimize this problem by comparing data from different sources with each other. Whenever possible, I use time-lagged macro data from the same reference year.

Fourth, my findings might be biased by the non-random selection of individuals into the labor market. Unobservable characteristics (such as parents' labor market participation and the milieu in which individuals grew up, preferences and values, and educational attainment) are likely to shape individuals' labor market participation and their occupational positions. This is particularly true for women (Olivetti and Petrongolo 2008). If, e.g., factors that increase women's likelihood to access favorable positions (such as supervisory or high-status ones) also foster their likelihood of being employed (positive selection), gender differences in

holding favorable positions would be under-estimated. This issue is particularly crucial for cross-national comparisons due to differences in female employment rates across countries. When female employment is low, the positive selection into employment among women tends to be higher. Hence, it can be expected that in these countries the under-estimation of gender differences in holding favorable positions is even higher (Olivetti and Petrongolo 2008; Garcia-Aracil 2007). In turn, in countries with high female employment, increasingly women with lower labor market attachment (Garcia-Aracil 2007) and a higher orientation towards work-life balance (Hakim 2006) enter the labor market.

Empirical evidence for the bias arising by the non-random selection (of women) into the labor market for the vertical outcomes of my thesis (high-status positions, positions with supervisory responsibility and training participation) is unfortunately rare. However, high gender wage gaps – that hardly change when selection into employment was corrected – were found in countries with high female employment (US, UK). In turn, raw wage differences between men and women seem to be quite small in countries with low female employment (Southern European countries), but they increase notably to females' disadvantage when selection into employment is controlled for (Olivetti and Petrongolo 2008). It might therefore be that comparably small vertical gender differences in countries with low female employment in this thesis indicate mainly a positive selection of (more ambitious) women into the labor market (Garcia-Aracil 2007; Hakim 2006). As horizontal gender differences also seem to be higher the greater female employment is (Garcia-Aracil 2007), the same mechanisms as for vertical gender inequalities can be expected. I acknowledge this issue in the findings and discussions parts of the empirical chapters.

Finally, the use of different outcomes and different samples limits the comparability of findings across chapters. Hence, I do not aim to compare the strength of women's (dis)advantage in different labor market outcomes across chapters, but only whether women face disadvantages or not (see also Section 7.1.1). Related, the cross-sectional nature of the micro data used in this thesis prevents to disentangle causal effects. The focus of my thesis is therefore on descriptions of gendered patterns in the labor market and their association with country-specific institutions and policies.

4 HORIZONTAL AND VERTICAL GENDER DIFFERENCES AT LABOR MARKET ENTRY ¹⁷

This chapter presents a comparative analysis of gender differences and inequalities in the first significant job for up to 27 European countries. Comparative research (for the whole labor market population) reports a female disadvantage in various labor market outcomes and identifies the female disadvantage to be related to country-specific characteristics (Charles and Grusky 2004; Mandel and Semyonov 2006; Steinmetz 2012). However, less comparative studies have examined gender differences and inequalities in the first phase of the labor market career of recent cohorts, and particularly whether and why they might vary from country to country (though, see Iannelli and Smyth 2008; Smyth 2005; Triventi 2013).

There are at least two reasons why the extent of gender differences and inequalities might be different for labor market entrants compared with the whole working population: First, the effect of education is larger at the beginning of the occupational career compared with later stages. In turn, the later stages are more dependent on factors such as participation in (on-the-job) training and work experience, which differ among women and men (Marini and Fan 1997; Bukodi and Dex 2010). Among individuals with equal education, gender differences and inequalities might hence be lower in the first significant job than later on. Second, family responsibilities – which are still mainly women's responsibility and seem to deteriorate females' career prospects (Hofäcker 2006; Sayer 2010; Stier and Yaish 2008) – are relatively negligible within the group of labor market entrants.¹⁸ This would also lead to the expectation of lower gender differences in the first significant job. However, even if actual family formation is rare among labor market entrants, expectations about future family formation of

¹⁷ A slightly different version is published as

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¹⁸ When comparing the mean age of starting the first significant job and the mean age of women upon the birth of the first child, it turns out that it is very unlikely in all countries that the birth of the first child occurred either before labor market entry or shortly thereafter.

both (female) employees and employers may still shape hiring processes (Barbulescu and Bidwell 2013).

In order to provide a comprehensive overview of gender differences in the first significant job, both the horizontal and the vertical dimension are examined. The concept of horizontal gender differences refers to the fact that men and women differ in the types of occupations in which they work. In this chapter, horizontal gender differences are examined by scrutinizing the allocation of male and female labor market entrants into service, administration, and production occupations. The concept of vertical gender inequalities reflects hierarchical inequalities between males' and females' labor market positions. In this chapter, I examine the allocation of men and women into high-status occupations as a vertical outcome (Blackburn and Jarman 2006; Charles and Grusky 2004; Hakim 2006; see Section 1.1 and 3.2 for more information on the definitions and conceptualizations of horizontal and vertical gender differences).

Using comparative data from the 2009 ad-hoc module on labor market entry from the Labour Force Survey (LFS), this chapter addresses the following research questions: (1) Do horizontal gender differences and vertical gender inequalities already exist at the time of the first significant job in European countries? If so, which role do individual characteristics play? (2) Do countries differ significantly in the extent of their horizontal and vertical gender differences? And if so, can country-specific characteristics and conventional country groupings contribute to explaining this country variation?

4.1 EXPLAINING GENDER DIFFERENCES AT LABOR MARKET ENTRY

According to socialization theories, **horizontal gender differences** are established during childhood because children are confronted with gender-specific stereotypes and norms by parents and educators. This results in a gender-specific choice of educational fields (Barone 2011), which is later translated into occupational gender segregation in different types of occupations due to the interconnectedness of educational and occupational pathways (Ianelli and Smyth 2008; Borghans and Groot 1999; Smyth and Steinmetz 2008).

Moreover, horizontal gender differences might stem from females' double burden of work and family. In response to this double burden, women might self-select certain occupations that make it easier to combine family and work (theory of self-selection; Polachek 1981; Becker 1985), and/or offer a higher work-life balance (preference theory; Hakim 2006). This

might even be the case if women do not have children yet because they can anticipate future family obligations and career discontinuity (Barbulescu and Bidwell 2013).

Theories referring to gender stereotypes, beliefs, and norms argue that women are not only more interested but also considered better suited to work in ‘female’ jobs, such as service, communication, and nurture (Charles 2005; Barone 2011). Therefore, horizontal gender differences might not only arise from females’ occupational decisions but also from those of employers. Taken together, I expect that *women and men segregate into different types of occupations at labor market entry (Hypothesis 1)*.

Vertical gender inequalities in the first significant job might arise due to employers’ prejudices against women, resulting in an exclusion of females from certain (advantageous) occupations (‘taste of discrimination’ approach; Becker 1971). Similarly, according to the theory of statistical discrimination (Phelps 1972; Arrow 1973), employers might favor men regarding advantageous positions, because employers only have imperfect information about employees’ productivity. To cope with this uncertainty, they use stereotyped information based on productivity characteristics of the group to which the job applicant belongs. For instance, because women have had a higher probability of leaving or interrupting their jobs after the birth of a child, employers are inclined to evaluate female candidates (even though they do not yet have any children) as a more risky investment than male ones among candidates of the same educational level. This results in employers’ preference for hiring men for more demanding jobs in which interruptions are more harmful due to higher training and adaption costs and longer adjustment periods (Phelps 1972; Arrow 1973; Estevez-Abe 2006).

From the employees’ point of view, vertical gender inequalities might stem from females’ lower self-perceptions and self-esteem, which might result in an under-evaluation of their own abilities and options. Therefore, females might be more likely to accept lower-status occupations than their male counterparts (Bielby 2001). Similar to the argumentation of horizontal gender differences, women might also forgo accessing jobs with a high status because they opt for jobs that require less commitment (theory of self-selection; Polachek 1981; Becker 1985), that offer a higher work-life balance (preference theory; Hakim 2006), and/or that facilitate re-entries into the labor market after interruptions (skill-atrophy theory; Polachek 1981). Summing up, I expect that *women are disadvantaged in entering high-status occupations at labor market entry (Hypothesis 2)*.

4.1.1 Cross-national differences

Notable country variation in the extent of gender differences in the labor market has been found for the entire working population, which might be due to country-specific characteristics (e.g., Charles and Grusky 2004; Mandel and Semyonov 2006; Steinmetz 2012). For labor market entrants, similar argumentations can be put forward. Specifically, I expect structural and gender-cultural factors to play a role in countries' variation in horizontal gender differences, and I focus on the relation of horizontal gender differences at labor market entry with (1) female employment in the public sector and (2) the gender culture. For vertical gender inequalities, I examine their link with (3) females' (overall) labor force participation, (4) females' full-time (compared with part-time) labor force participation, and (5) family policies.

Women are likely to work in jobs that reflect their traditional female tasks, such as care services, teaching, and communication jobs (Charles 1992; Charles and Grusky 2004; Mandel and Semyonov 2006). However, the extent to which women can realize this preference for female-typical occupations might be shaped by structural characteristics of the labor market, and particularly by the composition of occupations. In this context, in countries with a larger public sector, greater horizontal gender differences have been found (Mandel and Semyonov 2006). Women are more attracted to public sector employment, probably because a high share of these jobs comprises of typically female responsibilities (e.g., care and services). Moreover, the public sector offers more convenient working conditions for women (and particularly for mothers) compared with the private sector (Mandel and Semyonov 2006; Yaish and Stier 2009; Steinmetz 2012). In line with these arguments, I expect that *horizontal gender differences at labor market entry are more pronounced in countries with higher female employment in the public sector (Hypothesis 3)*.

Not only might structural aspects of the labor market be related to horizontal gender differences, but so, too, might the gender culture. The aforementioned arguments assume implicitly that women prefer to enter occupations that are nearer to their traditional tasks. However, the extent to which women really desire this might differ among countries, with more gender-egalitarian countries showing lower horizontal gender differences because women (and men) are more likely to invest in gender-atypical educational and occupational fields (see Blossfeld et al. 2015). Although empirical findings provide mixed evidence

(Charles 1992; Steinmetz 2012), I expect that *horizontal gender differences at labor market entry are less pronounced in countries with more gender egalitarian culture (Hypothesis 4).*

Vertical gender inequalities might be related to females' (full-time and part-time) labor force participation. On the one hand, it has been argued that women are in a better position to compete in the labor market when their labor force participation is high because their bargaining power rises when their numbers increase (Kanter 1977; Charles 1992), which would result in lower vertical gender inequalities. On the other hand, however, it is likely that with rising female labor force participation, the proportion of women in the labor market increases who are not primarily career-oriented but are rather interested in a suitable combination of family and work tasks ('adaptive women'; Hakim 2006). These adaptive women are less likely to enter high-status positions that make it difficult to combine work and family. Following this latter reasoning, I expect that *the disadvantage of women in entering high-status occupations at labor market entry is more pronounced in countries with higher females' labor force participation (Hypothesis 5).*

Because part-time employment should be even more common among adaptive women, I furthermore expect that *the disadvantage of women in entering high-status occupations at labor market entry is more pronounced in countries with higher females' part-time (compared to full-time) employment (Hypothesis 6).*

Family policies such as parental leave and childcare facilities might further account for differences among countries in vertical gender inequalities by enabling or even impelling women to stay in the labor market more continuously and thereby increasing their labor market attachment. Vertical gender inequalities for the whole working population seem to be lower in countries with shorter maternity leaves (Rosenfeld and Kalleberg 1991; Mandel and Semyonov 2006; Mandel 2012) and a greater provision of childcare (Steinmetz 2012). The same can be expected for labor market entrants due to expectations about future family responsibilities that might affect both employers' and (female) employees' hiring decisions for high-status jobs (see above; Barbulescu and Bidwell 2013). Hence, I expect that *the disadvantage of women in entering high-status occupations at labor market entry is less pronounced in countries with family policies that support females' continuous and full-time labor force participation (Hypothesis 7).*

In order to account for the ‘sum’ of country-specific arrangements, the literature has also followed an integrative approach by testing whether the extent of gender differences varies among country groups. As discussed in Chapter 2, conventional country classifications distinguish between Nordic, Central European, Liberal, Southern European, and Post-Socialist regime types. For the whole labor market population, horizontal gender differences seem to be comparably high in the Nordic countries (Chang 2000; Charles and Grusky 2004; Mandel and Semyonov 2005) yet have had a tendency to decrease in recent years (Ellingsaeter 2013). The same pattern is true for vertical gender inequalities (Korpi et al. 2013; Triventi 2013; Mandel and Semyonov 2005; Mandel and Shalev 2009). In the Liberal states, both horizontal gender differences and vertical gender inequalities seem to be comparably low (Mandel and Semyonov 2005; Mandel and Shalev 2009; Korpi et al. 2013). For Italy and Portugal (Southern European welfare states), relatively low horizontal gender differences have been reported (Charles and Grusky 2004), while Central European welfare states do not attract specific attention in terms of extremely high or low levels of gender differences (though, see Korpi et al. 2013 for relatively high gender inequalities). These findings, however, refer to the entire working population (except Triventi 2013). The following empirical analysis examines whether these patterns also apply to the beginning of the labor market career.

4.2 DATA AND METHODS

I use *data* from the LFS 2009 ad-hoc module ‘Entry of young people in the labour market,’ which was implemented in a total of 30 countries (EU-27 as well as Iceland, Norway, and Switzerland) and offers key information about the school-to-work transition and the first significant job for individuals aged 15 to 34 years. The *first significant job* is defined as every job that lasted for at least 6 months after completing the highest educational level, independent of whether the job began before finishing education. I also take into account jobs that started before the end of education because in some countries, the first job is already part of vocational training (particularly in countries that organize vocational training in a dual system).

Due to small case numbers or extensive missing values for key variables, Switzerland, Malta, and Iceland are excluded from the analysis. Further exclusions of countries depend on the availability of the indicators used and differ depending on the estimated models. The analysis is restricted to individuals born between 1975 and 1984 to exclude incorrect entries caused by

right censoring.¹⁹ I further exclude individuals who entered the labor market in 2009 because they have a lower probability of having already worked 6 months. Based on these definitions, the labor market entry in my analysis sample took place between 1995 and 2008. All implausible cases, all individuals who are likely to be adult learners,²⁰ and all individuals with missing cases in the variables of interest (list-wise deletion) are excluded. My sample for studying horizontal gender differences comprises 24 countries and 26,529 individuals (13,031 men and 13,498 women). For vertical gender inequalities, my sample comprises 27 countries and 30,077 individuals (14,837 men and 15,240 women) (see Appendix Table A1 for more information on the sample selection; see Appendix Table A4 for the case numbers in each country).

4.2.1 Individual-level variables

In order to test Hypothesis 1 regarding whether women and men segregate into different types of occupations at labor market entry, I use Blossfeld's (1987) occupational field division, which defines occupations into three different occupational activity fields, namely *service*, *administration*, and *production*. It can be interpreted as the 'kind of work individuals do' (see Section 3.2 for more information on this measure). While Blossfeld (1987) used the ISCO-68 classification on a 3-digit level to define occupations into these three categories, I applied his field division to the more recent ISCO-88 classification (see Appendix Table A2 for more details on the assignment of occupations into service, administration and production).²¹ Due to missing information on ISCO-88 3-digit data, Bulgaria, Poland, and Slovenia are excluded from the analysis of horizontal gender differences.

To examine whether women are disadvantaged in entering *high-status occupations* at labor market entry (Hypothesis 2), I use ISCO-88 1-digit data to analyze the probability of entering ISCO 1 (legislators, senior officials, and managers) and ISCO 2 (professionals) occupations

¹⁹ As my data were conducted in 2009, the youngest individuals in my sample are 25 with these restrictions. By accounting also for younger individuals, the risk of under-representation of higher-educated individuals would increase. By the age of 25, the majority of individuals are likely to have already left education.

²⁰ This is done by computing the median age for the completion of a specific educational level in a specific country. All individuals who are at least five years older than the median age for completion have been deleted from the analysis. The five-year boundary was applied because the information on age is aggregated in 5-year age bands in the anonymized LFS micro-data.

²¹ The most recent version of the ISCO classification, ISCO-08, is only provided in the LFS data of 2011 onwards.

(termed *high-status occupations* in the following) instead of entering all other occupations. In contrast to other publications (Schäfer et al. 2012; Steinmetz 2012), ISCO 2 occupations are also defined as high-status occupations because these jobs require the highest skill level (3-6 years of tertiary education) (Elias 1997). Moreover, labor market entrants have a lower probability of entering ISCO 1 occupations directly, probably because these jobs often require previous labor market experience. This assumption is supported by my data: The share of labor market entrants directly entering ISCO 1 occupations does not even amount to 1 percent in several countries (e.g., in Cyprus, the Czech Republic, Denmark, Greece, Latvia, Romania, Sweden, Slovakia). When accounting for both ISCO 1 and 2 occupations, more than 7 percent of all labor market entrants enter these positions in every country.

The key independent variable is *gender* (coded one for women and zero for men). I further control stepwise for confounding covariates, which are likely to affect gender differences at labor market entry and vary by gender (see Appendix A3 for further information on the coding of the variables): *educational level* (ISCED 0-2; ISCED 3-4; ISCED 5-6) and *educational field* (aggregated into eight categories: general programs; social sciences; natural sciences; engineering, manufacturing, and construction; agriculture and veterinary; health and welfare; services; unknown) because higher-educated individuals are more likely to access high-status occupations and educational orientation is often translated into occupational orientation (e.g., Borghans and Groot 1999; Smyth 2005; Smyth and Steinmetz 2008). A control for the *labor market entry cohort* (1995-2000; 2001-2008)²² is included in order to take societal and labor market developments into account. For vertical inequalities, I also control for whether the individual *worked before finishing education*. Having worked before finishing education makes an entry into high-status occupations more likely, first on account of employees' job experience and second because employers might already have invested in the employee's specific skills and can better assess his or her productivity.

4.2.2 Country-level variables

To test Hypothesis 3 concerning the relation of horizontal gender differences with *females' public sector employment*, the percentage of women among all employees working in the public sector is used (own calculations based on ILO 2010; Federal Chancellery of Austria 2012; Lanfranchi and Narcy 2013; EPSU 2013; OECD 2012; Anghel et al. 2011). For

²² These time intervals are used because Europe experienced a small economic crisis in the early 2000s, with rising (youth) unemployment rates (Eurostat 2015).

Hypothesis 4, which refers to the *gender culture*, I take the proportion of individuals having agreed or strongly agreed with the statement ‘when jobs are scarce, men should have more right to a job than women’ (own calculations based on the European Social Survey (ESS) of 2008; missing values are replaced by the ESS 2004 and 2010).

The relation of vertical gender inequalities with *females’ (overall) labor force participation* (Hypothesis 5) is measured by the female–male employment ratio (own calculation based on Eurostat 2015). Values below 1 indicate that more men than women are employed; values above 1 indicate that more women than men are employed. For Hypothesis 6 regarding *females’ full-time (compared with part-time) employment*, the percentage of employed women working 40 weekly hours or more (compared with those working less weekly hours) is used (own calculations based on the LFS 2009).

To account for *family policies* (Hypothesis 7), three indicators are taken into account: first, the length of paid parental leave (in weeks); second, the respective benefit level for this period (in percentage of the country’s median income) (Council of Europe 2005; Moss 2011, 2013; European Union 2013; MISSOC 2014; OECD 2015; more information about the construction can be found in Section 2.3.2.1); and third, the proportion of children below the age of 3 attending formal childcare (OECD 2015). The three indicators were modeled into one factor by principal component factor analysis (see Section 3.4 for a justification and a description of this approach). A higher proportion of children in childcare encourages females’ continuous and full-time labor force participation, whereas long parental leave length and high parental leave benefits have the opposite effect. Hence, the two parental leave indicators were reversely recoded before performing the factor analysis. Higher values of the factor for family policies indicate that family policies support females’ continuous and full-time labor force participation.²³

The values of all institutional characteristics and their correlations can be found in Appendix Table A4 and A5, respectively. For the analysis, they have been standardized (means of zero and standard deviations of one) in order to harmonize their measurement scales and simplify their interpretation.

²³ The Eigenvalue for the family policies factor is 1.46, indicating that the indicators used to build the factor constitute a latent concept. I calculated the factor scores to obtain a standardized variable with a mean of 0 and a standard deviation of 1 among all countries. The results of the analysis are available upon request.

Finally, to examine whether gender differences vary among *regime types*, I distinguish among following five *regime types* (see Chapter 2): (1) Nordic countries (Denmark, Finland, Norway, Sweden); (2) Central European countries (Austria, Belgium, Germany, France, Luxembourg, the Netherlands); (3) Liberal countries (Ireland, the UK); (4) Southern European countries (Cyprus, Spain, Greece, Italy, Portugal); and (5) Post-Socialist countries (Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovenia, Slovakia).

4.2.3 Methods

Given the hierarchical data structure with individuals nested in countries, I apply a *two-step multilevel approach*. In the first step I estimate the individual-level parameters for each country separately and use them in the second step as dependent variables (see Section 3.3 for more information on the two-step multilevel method).

For **horizontal gender differences**, in the first step, I run multinomial logistic regression models for each country (i.e., 24 countries) on the probability of entering service, administration, or production occupations (cf. Blossfeld 1987) while controlling for the individual independent variables described above. The beta coefficients for gender are the outcome of interest. I construct a ‘*net*’ *Duncan index* from the predicted marginal effects of the multinomial regression models. The ‘normal’ Duncan index indicates the proportion of women (or men) who would have to change occupations in order to achieve an even gender allocation across occupations – it ranges from 0 (complete similarity) to 1 (complete dissimilarity) and is calculated as follows (Duncan and Duncan 1955):

$$D = \frac{1}{2} \sum_{j=1}^J \left| \frac{F_j}{F} - \frac{M_j}{M} \right|$$

with

F = total number of females in employment

M = total number of males in employment

F_j = number of employed females in occupation/sector j

M_j = number of employed males in occupation/sector j

j = number of occupations/ sectors

The net Duncan can be interpreted as the proportion of women (or men) who would have to change occupations in order to achieve an even gender allocation across occupations under the condition that women and men do not differ in important individual characteristics that were controlled for (see Kalter 2000 for methodological details). The values of this net

Duncan index are used in the second step of the analysis as the dependent variable in order to test in ordinary least square (OLS) regressions how country-specific characteristics are associated with the horizontal gender differences net of the individual characteristics controlled for in the first step.

To examine whether women are disadvantaged in terms of **vertical gender inequalities**, I run logistic regression models for each country (i.e., 27 countries) on the probability of *entering high-status occupations* while controlling for the individual characteristics described above. In the second step, I use the calculated beta coefficients (from the first step) for females, weighted by their standard errors (feasible generalized least squares approach (FGLS) of Lewis and Linzer 2005), as dependent variable, in order to test the relationship of vertical gender inequalities with country-specific characteristics.

4.3 FINDINGS

4.3.1 Descriptive findings

Table 4.1 provides a first descriptive overview of gender differences at labor market entry among the 27 European countries in this study. As an indicator of horizontal gender differences, the distribution of female and male labor market entrants into production, service, and administration occupations is presented. The last two columns refer to the gender-specific share of entrants into high-status occupations in order to assess vertical gender inequalities.

Beginning with production occupations, all countries show a clear pattern of more male labor market entrants working in these occupations as compared with female entrants. Averaging across countries, about 20 percent of women enter production occupations, whereas this rate is 60 percent for men. The share of entrants working in production occupations is highest in the Post-Socialist countries. Overall, approximately 40 percent of females enter service and administration occupations, whereas among males, this amounts to around 20 percent. In Nordic countries, the percentage of women entering service occupations is comparably high, while it is notably lower in Southern European and Post-Socialist countries. For administration occupations, this pattern is reversed: Nordic countries are characterized by a comparably small share of women entering these occupations, and Southern European and Post-Socialist countries are characterized by a higher share. I find less variation among countries in the share of men working in service occupations. The percentage of men in administration occupations is particularly low in the Post-Socialist countries.

Coming to vertical gender inequalities, the last two columns indicate that on average, 18 percent of female labor market entrants enter high-status occupations, while this figure is 14 percent for males. I find a consistent pattern of an overall female advantage in entering high-status occupations. The female advantage is most pronounced among Post-Socialist countries and least pronounced among Nordic and Central European countries.

Table 4.1 Descriptive overview: Men and women entering the labor market in different occupations

	Horizontal gender differences						Vertical gender inequalities	
	% in production		% in service		% in administration		% in high-status	
	Women	Men	Women	Men	Women	Men	Women	Men
Nordic ^a	17.7	57.6	53.7	24.1	28.6	18.3	19.3	17.2
Denmark	20.2	56.9	53.5	21.5	26.3	21.5	19.5	16.8
Finland	19.1	67.4	49.5	18.2	31.4	14.3	20.5	20.2
Norway	12.2	47.9	60.6	32.7	27.1	19.4	15.4	13.1
Sweden	19.2	58.1	51.0	23.9	29.8	18.1	21.6	19.0
Central European ^a	14.9	56.7	42.7	18.7	42.4	24.5	22.6	20.5
Austria	12.9	64.4	37.7	15.9	49.4	19.7	9.3	10.0
Belgium	14.8	53.2	41.5	20.6	43.7	26.2	33.8	22.7
Germany	20.5	73.7	42.6	12.8	36.9	13.6	15.6	13.2
France	21.1	58.0	35.6	20.3	43.3	21.8	11.5	11.8
Luxembourg	7.7	36.7	51.9	23.3	40.4	39.9	45.8	45.1
Netherlands	12.5	54.4	46.9	19.6	40.6	26.0	19.7	20.3
Liberal ^a	12.9	51.9	42.6	22.7	44.5	25.4	21.5	19.2
Ireland	12.7	55.0	41.5	21.3	45.8	23.7	26.6	20.7
UK	13.1	48.8	43.7	24.1	43.2	27.2	16.4	17.7
Southern European ^a	16.8	53.3	35.4	26.5	47.7	20.2	15.6	11.3
Cyprus	11.5	47.0	32.1	32.1	56.5	20.9	19.9	14.0
Spain	19.2	55.8	38.0	25.4	42.8	18.8	17.0	12.7
Greece	11.3	46.8	38.4	30.9	50.3	22.3	17.6	11.3
Italy	20.1	59.2	31.5	20.0	48.4	20.8	10.1	9.7
Portugal	22.0	57.6	37.2	24.1	40.8	18.3	13.5	8.9
Post-Socialist ^a	29.6	69.6	29.1	20.1	41.3	10.2	15.8	9.7
Bulgaria	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	18.7	7.1
Czech Republic	25.7	66.0	31.1	24.2	43.2	9.8	9.9	8.0
Estonia	34.3	78.9	25.4	12.4	40.3	8.7	15.3	8.7
Hungary	25.6	71.3	33.7	18.0	40.7	10.7	16.5	12.2
Lithuania	33.2	74.7	26.2	14.5	40.6	10.8	18.8	14.9
Latvia	22.4	72.7	31.2	20.8	46.4	6.5	11.2	4.6
Poland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	14.6	9.4
Romania	36.9	58.9	28.8	27.2	34.3	13.9	21.3	17.0
Slovenia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	23.4	9.1
Slovakia	29.0	65.0	27.2	23.9	43.8	11.1	8.1	6.4
Average ^b	19.9	59.5	39.0	22.0	41.1	18.5	18.2	14.2

Notes: LFS 2009; own calculations. n.a. = not applicable; ^a average across countries in the respective group. ^b average across all countries.

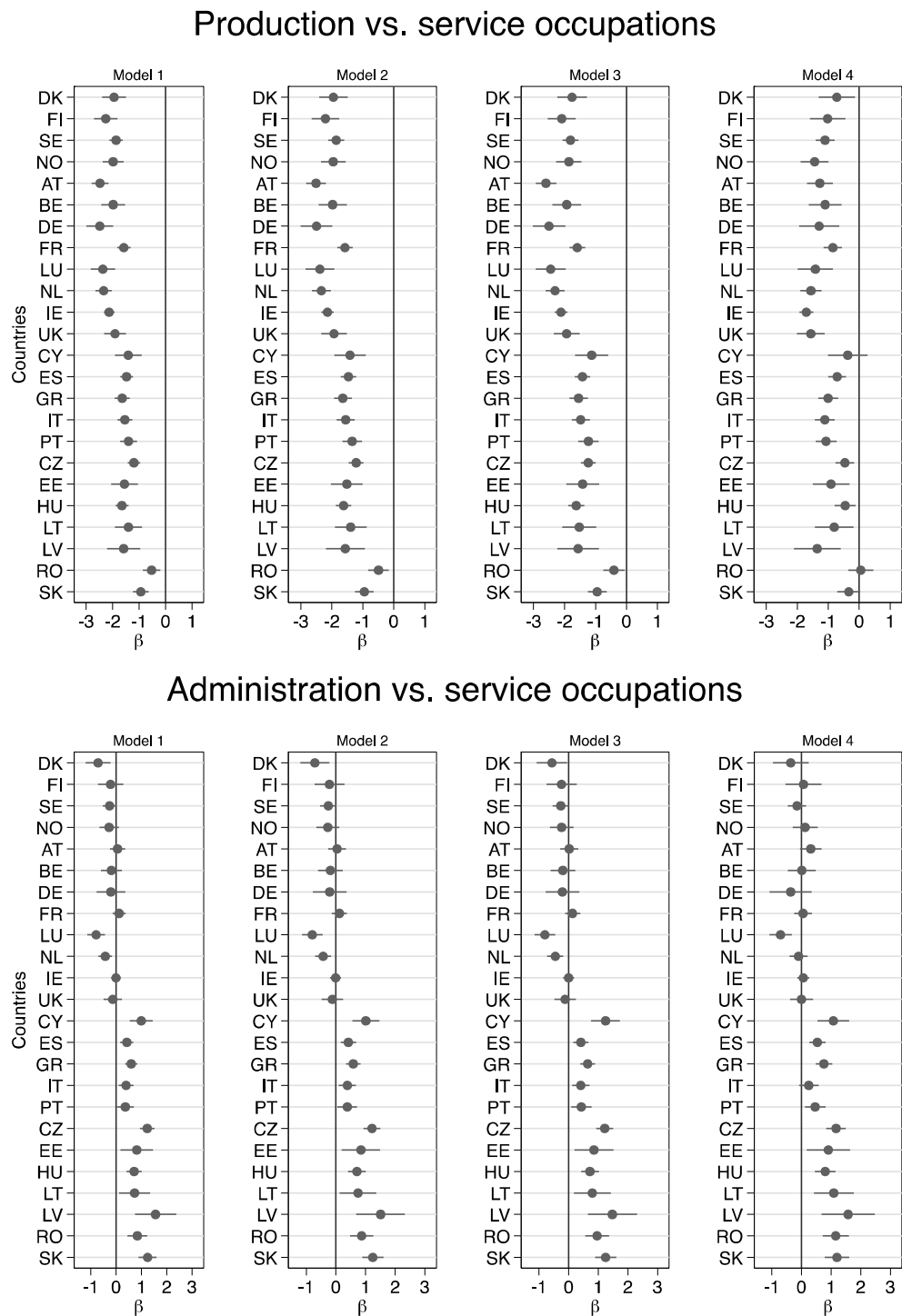
4.3.2 Horizontal gender differences: Individual-level findings

The following presents the multivariate findings on the allocation of male and female labor market entrants into service, production, and administration occupations and on how individual characteristics shape this allocation. Figure 4.1 depicts the mean point estimates of females' beta coefficients of the 24 country-specific multinomial regression analyses (with 95 percent confidence intervals) when controlling for different sets of individual-level variables. Countries are ordered regarding their regime type. Service occupations are the base category, and because gender is coded as 1 for females, a positive beta coefficient indicates a female advantage in entering administration or production compared with service occupations.

The upper panel of Figure 4.1 demonstrates that female entrants are less likely than males to enter production compared with service occupations in all countries (Model 1) and that controlling for further individual characteristics hardly leads to any changes in the general pattern (Models 2 and 3). It is only when (additionally) controlling for the educational field (Model 4) that the female 'disadvantage' in entering production compared with service occupations is reduced in all countries and even becomes non-significant in Romania and Cyprus.

The lower panel reveals some variability among countries regarding gendered entrance into administration compared with service occupations. In nearly all Post-Socialist and Southern European countries (and independent of the inclusion of independent variables), women are more likely than men to enter administration compared with service occupations. In turn, in most Central European, Nordic, and Liberal welfare states, there are no significant gender differences in entering administration compared with service occupations. When controlling for educational level (Model 3) and educational field (Model 4), only female labor market entrants in Luxembourg are significantly more likely to enter service compared with administration occupations.

Figure 4.1 Multinomial regression models: Females' probability of entering administration or production versus service occupations (reference category) (conditional coefficients and 95 percent confidence intervals)



Notes: LFS 2009; own calculations. Model 1 controls for females; M2 = M1 + control for labor market entry cohort; M3 = M2 + control for educational level; M4 = M3 + control for educational field (see Appendix B1 for the full Models (M4)).

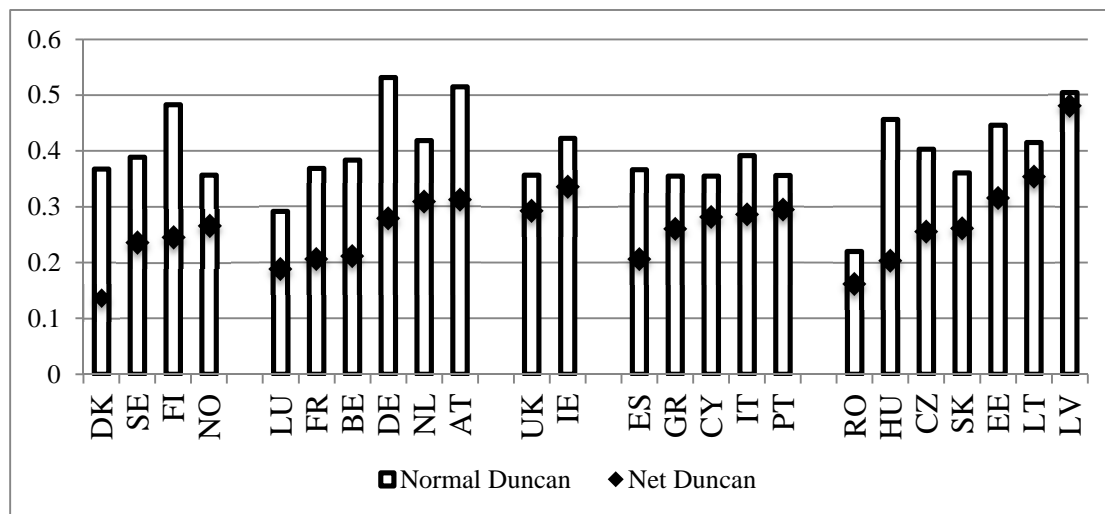
4.3.3 Horizontal gender differences: Comparison of the net and the normal Duncan index

To assess the role of individual characteristics in explaining country differences in horizontal gender differences, Figure 4.2 compares the net and normal Duncan index for each country, sorted by regime type. The net Duncan index is calculated on the basis of the multinomial regression results of Model 4 from the previous section and can be interpreted as the extent to which women and men enter different occupations net of individual characteristics.

As expected, the net Duncan index is lower than the normal one in all countries. Notably, it is mainly the Central European and Nordic welfare states in which the Duncan index most strongly decreases when controlling for individual characteristics. Nevertheless, once individual characteristics are controlled for, women and men still differ in the types of occupations they enter into in each country.

Regarding the distribution of countries in terms of their net Duncan index, horizontal gender differences are moderate in Nordic and Southern European countries (Denmark and Spain: low), while they are relatively high in Liberal countries. Three Central European countries (Luxembourg, France, and Belgium) are characterized by low net Duncan indices, but the remaining countries in this group (Germany, the Netherlands, and Austria) show relatively high values. Post-Socialist countries differ notably in the extent of their net horizontal gender differences: While they are low in Romania and Hungary, horizontal gender differences are particularly high in Latvia.

Figure 4.2 Comparison of the normal and net Duncan index for labor market entrants

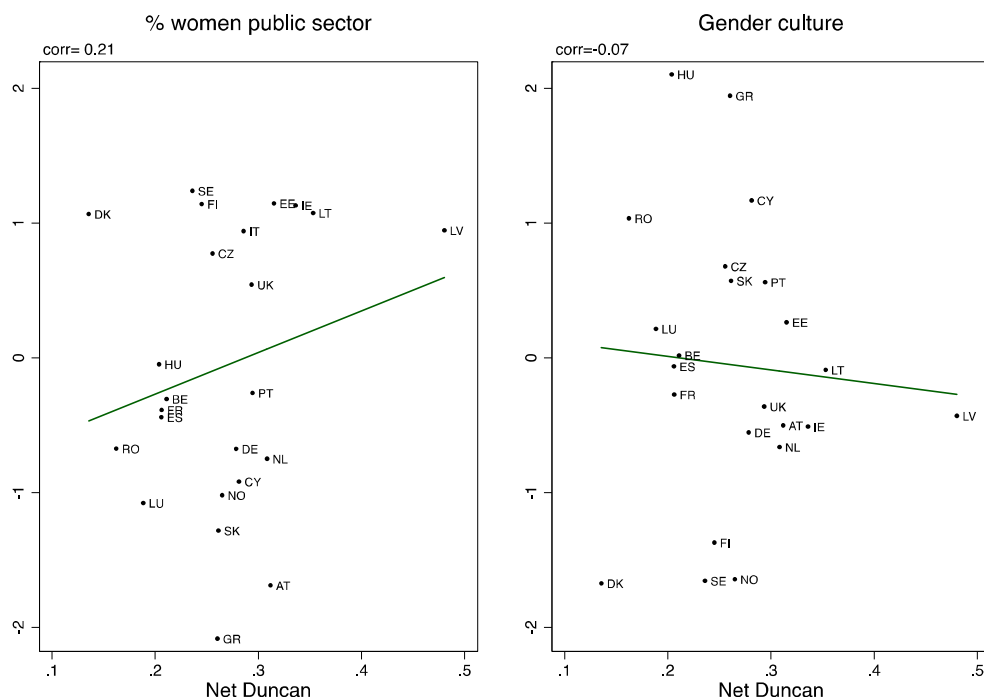


Notes: LFS 2009; own calculations. The net Duncan index is calculated on the basis of the multinomial regression results of Model 4 in Figure 4.1 (see Appendix B1 for the full models (M4)).

4.3.4 Horizontal gender differences: Country-level findings

Is the extent of countries' net horizontal gender differences related to country-specific characteristics? First, Figure 4.3 graphically examines the bivariate relation between the net Duncan and (1) the percentage of women working in the public sector, and (2) the gender culture, by using scatter-plots and regression lines from simple OLS regressions. The left panel indicates that in countries with more women working in the public sector, horizontal (net) gender differences are higher (corr = 0.21). In turn, the indicator for the gender culture shows nearly no correlation with the net Duncan (corr = -0.07).

Figure 4.3 Scatterplot of countries: Bivariate relation between net Duncan and country-specific characteristics



Notes: LFS 2009; own calculations. The net Duncan index is calculated on the basis of the multinomial regression results of Model 4 in Figure 4.1 (see Appendix B1 for the full models).

Second, Table 4.2 displays the results of the multivariate analysis in order to examine whether the country-specific characteristics are (still) related to the net Duncan once the other institutional characteristic is controlled for (M1). Both coefficients are not statistically significant, which might, however, be a result of the low case number ($N = 23$). The bivariate results are supported: In countries with a higher share of females working in the public sector, horizontal gender differences are more pronounced. The gender culture does not contribute to the understanding of countries' variation in horizontal gender differences (coefficient is zero).

M2 tests whether regime types differ significantly in the extent of horizontal gender differences. Horizontal gender differences seem to be higher in all country groups than in Nordic countries (reference group) and most pronounced in Liberal and Post-Socialist countries. However, none of the coefficients reaches conventional levels of statistical significance.

Table 4.2 OLS regressions: Horizontal gender differences and vertical gender inequalities at labor market entry and their association with country-specific characteristics

	Horizontal gender differences		Vertical gender inequalities				
	M1	M2	M3	M4	M5	M6	M7
% of women in public sector	0.02						
Gender culture	0.00						
Female–male employment ratio			-0.12***	-0.07*		-0.06	
% of women working full-time			-0.04		0.06	0.03	
Family policies (factor)				0.09**	0.16***	0.11*	
Regime type (Ref.: Nordic)							
Central European		0.03					0.17
Liberal		0.09					0.27*
Southern European		0.05					0.32*
Post-Socialist		0.07					0.07
Constant	0.27***	0.22***	-0.16***	-0.17***	-0.15***	-0.16***	-0.29**
Observations	23 [^]	24	27	27	27	27	27
R2	0.04	0.16	0.28	0.37	0.33	0.38	0.23

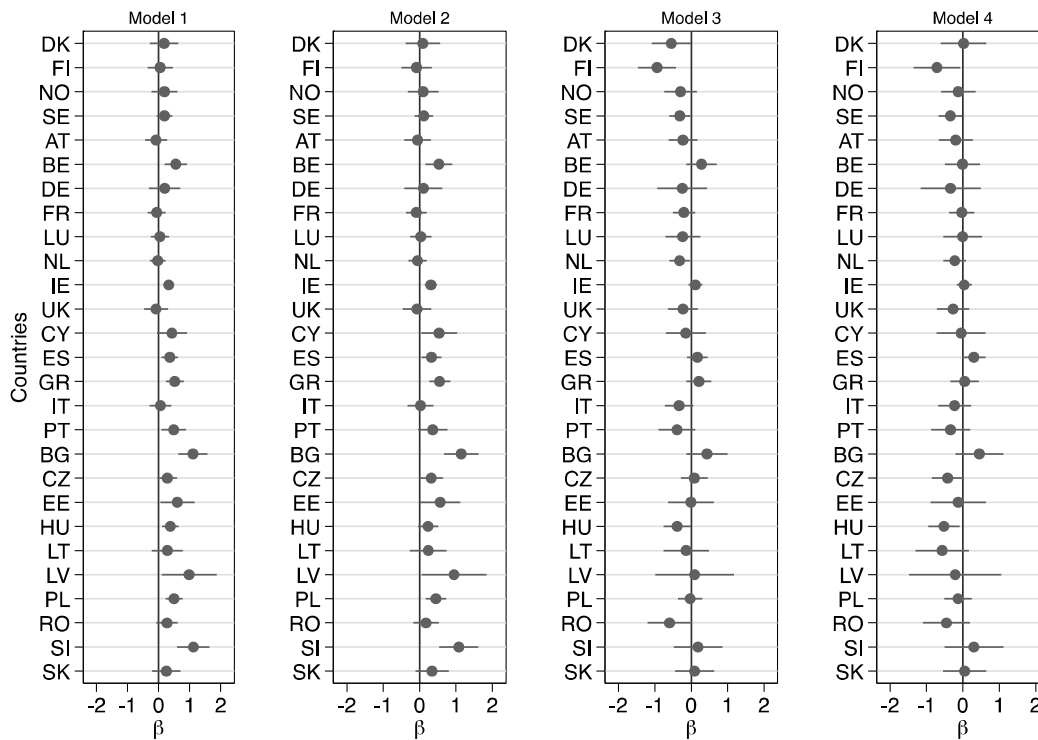
Notes: LFS 2009; own calculations. For horizontal gender differences: OLS regressions; for vertical gender inequalities: OLS regressions using the FGLS approach; [^] Italy missing; * p<0.1; ** p<0.05; *** p<0.01.

4.3.5 Vertical gender inequalities: Individual-level findings

Following a similar approach to that applied to horizontal gender differences, Figure 4.4 presents the mean point estimates of females' beta coefficients for the 27 country-specific logistic regressions (with 95 percent confidence intervals) on the probability of entering high-status occupations. Since gender is coded as 1 for females, a positive beta coefficient indicates a female advantage in entering these occupations.

Models 1 and 2 show that women are more likely to enter high-status occupations than men in several Post-Socialist and Southern European countries, as well as in Belgium and Ireland. However, when controlling for educational level (Model 3) and for additional characteristics (Model 4), this female advantage fades. Only in Spain are women still statistically significantly more advantaged in entering high-status occupations than men. In contrast, women (compared with men with the same individual characteristics) are disadvantaged in two Post-Socialist countries (the Czech Republic and Hungary), and in the two Nordic countries (Finland and Sweden) (Model 4). Apart from not having reached conventional levels of significance, most countries demonstrate negative coefficients, indicating that females are less likely to access high-status occupations.

Figure 4.4 Logistic regression models: Females' probability of entering high-status occupations (conditional coefficients and 95 percent confidence intervals)



Notes: LFS 2009; own calculations; Model 1 controls for female; M2 = M1 + control for labor market entry cohort; M3 = M2 + control for educational level; M4 = M3 + control for educational field + control for whether worked before finishing education (see Appendix B2 for the full Models (M4)).

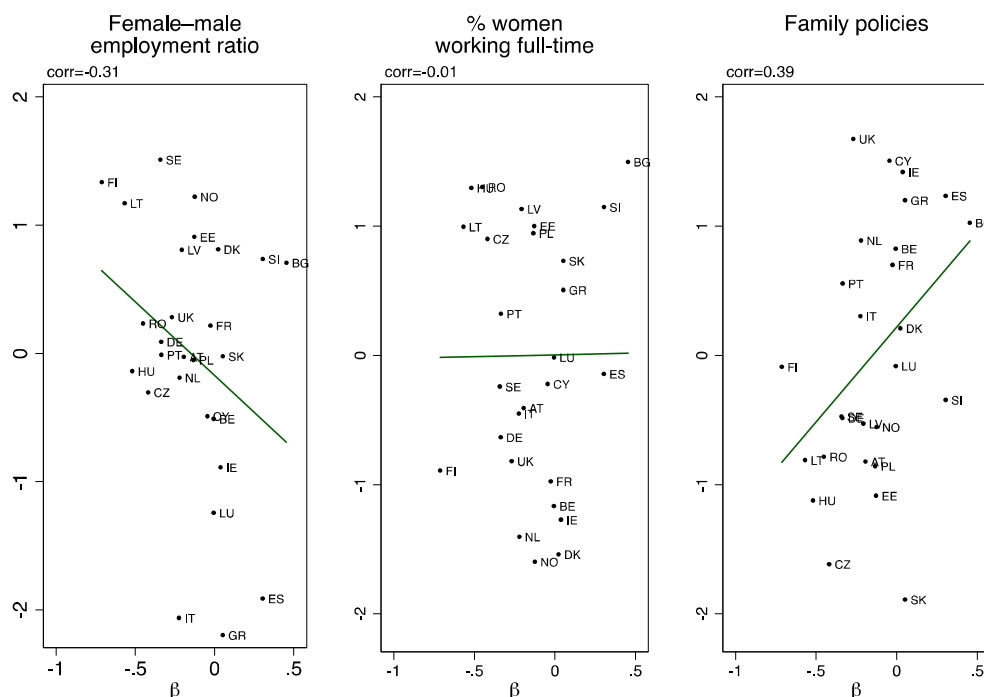
4.3.6 Vertical gender inequalities: Country-level findings

This section investigates the relationship between vertical gender inequalities and country-specific characteristics and whether and how vertical gender inequalities differ significantly among regime types. Therefore, the mean point estimates of females' beta coefficients of the 27 country-specific logistic regressions serve as the dependent variable. Figure 4.5 first displays the bivariate relation between vertical gender inequalities and (1) the female–male employment ratio, (2) the percentage of women working full-time, and (3) family policies by using scatter-plots and regression lines from simple OLS regressions.

In countries with higher female labor force participation (compared with that of men), females' disadvantage in entering high-status occupations is greater (corr = -0.31). In turn, the low correlation of 0.01 for females' full-time (compared with part-time) employment indicates no relation with vertical gender inequalities. A moderate correlation of 0.39 suggests

that in countries with family policies supporting females' continuous and full-time labor force participation, females' disadvantage in entering high-status occupations is lower.

Figure 4.5 Scatterplot of countries: Bivariate relation between vertical gender inequalities and country-specific characteristics



Source: LFS 2009; own calculations. The beta coefficients of females are obtained from logistic regression analyses for each country separately (see also Figure 4.4 and Appendix B2).

Second, Table 4.2 (M3 to M7) depicts the findings of whether vertical gender inequalities are (still) related to macro characteristics once controlling for the other institutional characteristics. Results are in line with the bivariate findings: The higher females' (compared with males') labor force participation, the greater the female disadvantage in entering high-status positions is (M3, M4, M6). In turn, vertical gender inequalities seem to not be linked to females' full-time (compared with part-time) labor force participation, which is indicated by the relatively low and non-significant coefficients and the lack of contribution to the variance explanation (M3, M5, M6). Finally, in countries with family policies supporting females' continuous and full-time labor force participation, the female disadvantage in entering high-status occupations is less pronounced (M4, M5, M6).

As final step of the analysis, M7 indicates that in Liberal and Southern European countries women are statistically significantly advantaged when entering high-status occupations

compared with women in Nordic countries. Although the coefficients for the other country groups do not reach conventional significance levels, women seem to be least likely to access high-status occupations in Nordic countries.

4.4 DISCUSSIONS

This chapter has examined horizontal gender differences and vertical gender inequalities in the first significant job in up to 27 European countries and how these differences are related to individual and country-specific characteristics.

Regarding horizontal gender differences, two main results stand out: First, women and men segregate into different occupations already at labor market entry in all countries (supporting Hypothesis 1), with women being more likely to work in service and administration occupations and men more likely to enter production occupations. Second, I find no strong support for a link between countries' variation in horizontal gender differences and country-specific settings. More specifically, my analyses revealed only non-significant results for higher horizontal gender differences in countries with greater share of women working in the public sector (though, in terms of the direction, supporting Hypothesis 3). The gender culture seems to not be related to horizontal gender differences (contradicting Hypothesis 4). In turn, I conclude that horizontal gender differences are mainly driven by educational orientation. Accordingly, during education, students are 'pre-sorted' into different fields of study, which are then translated into gendered occupational orientations at labor market entry (Borghans and Groot 1999; Smyth 2005; Smyth and Steinmetz 2008). This is supported by the finding that once the educational field is controlled for, existing gender differences diminish notably or even vanish in several countries. Moreover, this reduction is greatest in the Central European and Nordic welfare states – countries that are characterized by particularly high institutional linkages between educational certificates and occupations (e.g., Müller and Shavit 1998; Bernardi et al. 2004).

Regarding vertical gender inequalities, the first main finding is that although most countries demonstrate a female disadvantage in entering high-status occupations, this disadvantage is not statistically significant in most countries. Therefore, Hypothesis 2 finds tentative support only. This finding contrasts with studies on the whole working population, which report a statistically significant female disadvantage in all countries (Schäfer et al. 2012; Steinmetz

2012). We might interpret this as evidence for a lower female disadvantage at labor market entry compared with later career stages.

The second main finding is that the female disadvantage in entering high-status occupations is clearly related to country-specific settings. It is greater in countries with higher female labor force participation (supporting Hypothesis 5) and lower in countries with family policies supporting females' full-time and continuous labor force participation (supporting Hypothesis 7). Moreover, I find women in Liberal and Southern European countries to be more advantaged in entering high-status occupations than women in Nordic countries. How can we interpret these findings? It seems that – in line with Hakim's preference theory (2006) – with rising female employment the labor market is increasingly joined by women who are not primarily career-oriented but rather more interested in a suitable combination of family and work tasks ('adaptive women'). Nordic countries might therefore show a higher share of 'adaptive' women in the labor market who are less ambitious to enter top positions and prefer to opt for a suitable combination of work and family. In turn, women in Southern European and Liberal countries might either decide on a career or a family, thereby resulting in a higher share of primarily career-oriented women entering the labor market (see also Section 3.4). Nevertheless, the findings indicate that family policies supporting females' full-time and continuous labor force participation can lower females' disadvantage in entering high-status positions. Finally, females' full-time (compared with part-time) employment is not associated with vertical gender inequalities (rejection of Hypothesis 6).

One limitation of this study is the impossibility of disentangling age, period, and cohort effects. The result of a lower female disadvantage in entering high-status occupations might be interpreted as lower vertical gender inequalities at labor market entry compared with later career stages. However, this finding might also be due to a reduction in vertical gender inequalities for younger cohorts because I focus only on 25-to-34-year-olds. Moreover, the data I used restricts the choice of indicators for vertical gender inequalities. As Triventi (2013) showed, female labor market entrants are disadvantaged in terms of wages. Hence, it might be that women are disadvantaged in some labor market outcomes already at this early career stage, whereas they are not disadvantaged in others.

5 GENDER DIFFERENCES IN HOLDING SUPERVISORY POSITIONS AND THE ROLE OF HORIZONTAL GENDER SEGREGATION²⁴

This chapter presents a comparative analysis of gender differences in holding supervisory positions for 26 European countries, with a particular focus on the role of horizontal gender differences in terms of men and women working in different types of occupations (referred to simply as ‘gender segregation’ in the following). Gender differences in holding supervisory positions are an important dimension of vertical gender inequalities for at least two reasons. The first is that these jobs incorporate direct power over other employees and seem to be related to higher income (Wright et al. 1995; Rosenfeld et al. 1998; Abendroth et al. 2013). It is often emphasized that women are disadvantaged in having positions in which they ‘control’ or ‘supervise’ men. Analyzing gender differences in supervisory positions can therefore help to understand whether these gender inequalities still exist (Rosenfeld et al. 1998). Second, examining gender differences in supervisory positions offers a comprehensive picture of gender inequalities at all levels of the occupational distribution, because also simple jobs require some kind of supervision. The educational variation of individuals holding supervisory positions is therefore higher than e.g. for managerial positions (Elliott and Smith 2004).²⁵

Several studies have found women to be disadvantaged in holding supervisory positions (Abendroth et al. 2011; Rosenfeld et al. 1998; Wright et al. 1995). It is less clear, however, how the female disadvantage in holding supervisory positions is related to horizontal gender segregation – both at the individual and at the country level. The few country studies examining this question report contradictory results: In Israel, working in occupations with a high share of females has been found to be disadvantageous for women to hold supervisory positions (Kraus and Yonay 2000); in turn, women in the US seem to be more likely to hold

²⁴ This chapter is joint work with Hans-Peter Blossfeld. A slightly different version is under ‘revise and resubmit’ in the journal ‘Acta Sociologica’.

²⁵ In my sample, 13.08 percent from those individuals who have the lowest educational level (ISCED 0-2) hold supervisory positions, but only 1.24 percent of them hold managerial positions.

supervisory positions when working in occupations with a high female share (Huffmann 1995). The comparative studies dealing with the relation between gender differences in holding supervisory positions and horizontal gender segregation have found no significant relation between these two gendered labor market outcomes (Wright et al. 1995; Rosenfeld et al. 1998). However, as I will argue in the following, this missing link might be due to the measurement of horizontal gender segregation, and I will use a more fine-grained measure.

Using comparative data from the LFS 2013, this chapter addresses the following research questions: (1) Do gender differences in holding supervisory positions exist in European countries? Do these gender differences vary based on working in male-dominated, mixed, or female-dominated occupations? (2) How are gender differences in holding supervisory positions related to horizontal gender segregation at the macro level? Can work-family arrangements (i.e., family policies and maternal employment) and conventional country classifications contribute to explaining countries' variation in gender differences in holding supervisory positions?

5.1 EXPLAINING GENDER DIFFERENCES IN HOLDING SUPERVISORY POSITIONS

Positions with supervisory responsibility often require overtime and time flexibility (Abendroth et al., 2013) and are characterized by more complex tasks and longer training periods compared to positions without supervisory responsibility (Tomaskovic-Devey and Skaggs, 2002).

According to the human capital theory (Becker 1985), employers favor men over women for demanding supervisory positions because of females' lower amounts of human capital. Women accumulate less (firm-specific) human capital during their careers because they still assume the main share of household and family duties in most societies (Hofäcker 2006; Sayer 2010). As a result, they often work shorter hours than men, participate less often in on-the-job training, and (due to more frequent career interruptions) have fewer years of work experience (Becker 1985; Yaish and Stier 2009). In turn, theories of discrimination and gender stereotypes, beliefs, and norms argue that women are kept away from supervisory positions due to beliefs that they lack important characteristics and are too emotional or because men are considered more status-worthy and better suited for supervisory positions (Charles 2005; Kanter 1977).

However, females' disadvantage in holding supervisory positions might also stem from their own choices: Because of their double burden of work and family life, employed women might self-select jobs that require less commitment (theory of self-selection; Polachek 1981; Becker 1985), and/or offer a higher work-life balance (preference theory; Hakim 2006). Due to the demanding character of supervisory positions, women might hence opt to forgo accessing them. Following all these theoretical argumentations, I expect *that women are less likely to hold supervisory positions (Hypothesis 1)*.

5.1.1 The relationship between gender differences in holding supervisory positions and horizontal gender segregation

The relationship between gender differences in holding supervisory positions and horizontal gender segregation is less straightforward. On the one hand, it has been argued that women have higher chances of holding supervisory positions when their share in an occupation is high (i.e., female-dominated occupations) or similar to that of men (i.e., mixed occupations) compared with occupations with a low female share (i.e., male-dominated occupations). One reason for this is that women possess more relative power to combat against discrimination and stereotyped occupational allocation when they are in the numerical majority (Kraus and Yonay 2000). Vice versa, in male-dominated occupations, men are better able to 'protect' their privileged and monopolized positions and to practice social closure due to their greater numerical presence (Tomaskovic-Devey and Skaggs 2002). Another reason to expect higher female chances in holding supervisory positions when working in female-dominated or mixed occupations is the claim that women are more likely to supervise other women than men (Yaish and Stier 2009; Wolf and Fligstein 1979). All these arguments lead to the expectation that *the disadvantage of women in holding supervisory positions is higher in male-dominated occupations compared with female-dominated and mixed occupations (Hypothesis 2a)*.

On the other hand, there are also arguments leading to the opposite expectation, i.e., that *the disadvantage of women in holding supervisory positions is lower in male-dominated occupations compared with female-dominated and mixed occupations (Hypothesis 2b)*. Three argumentations support this hypothesis: First, women working in male-dominated occupations might constitute a more ambitious and career-oriented group of females that more actively aims to enter supervisory positions. In turn, a high female share might indicate 'women-friendly' occupational environments (e.g., occupations with a high share of part-time

or flexible work arrangements). These settings might more strongly attract less ambitious women who are less likely to self-select jobs with supervisory responsibilities and grant them to men (Yaish and Stier 2009). Second, men working in female-dominated occupations might fear the risk of cultural disapproval and losing their ‘masculinity.’ Hence, they might more ambitiously and aggressively try to enter the ‘best’ positions – including those with supervisory responsibilities (Kraus and Yonay 2000). Third, as female-dominated occupations are often characterized by lower income and lower prestige (Grönlund and Magnusson 2013), men might opt for the most advantageous positions within these occupations to improve their labor market status.

5.1.2 Cross-national differences

Although women seem to be disadvantaged in holding supervisory positions throughout Europe, there is considerable cross-national variation in the extent of females’ disadvantage, which might stem from different country-specific characteristics (Abendroth et al. 2013; Yaish and Stier 2009; Rosenfeld et al. 1998). Focusing on three theoretically important factors, in the following, I discuss the relation of gender differences in holding supervisory positions with (1) horizontal gender segregation, (2) family policies and (3) maternal employment.

Comparative studies have not found any statistically significant relation between gender differences in holding supervisory positions and horizontal gender segregation at the macro level. To the best of my knowledge, however, former empirical examinations have all used the Duncan index as measure of horizontal gender differences (Wright et al., 1995; Rosenfeld et al. 1998). The Duncan index is a summary indicator reflecting the proportion of women (or men) who would have to change occupation in order to achieve an even gender allocation across occupations (Duncan and Duncan 1955). As I argued in the last section, the relation between gender differences in holding supervisory positions and horizontal gender segregation might be more complex than described by this overall index: Females’ disadvantage in holding supervisory positions is likely to vary between male-dominated, mixed, and female-dominated occupations.

Similarly, it is likely that the country’s overall extent of gender differences in holding supervisory positions is related to its share of male-dominated, mixed, and female-dominated occupations. Hypothesis 2a expects greater gender differences to the disadvantage of women

in male-dominated occupations (compared with female-dominated and mixed occupations). Applying this argumentation to the country level would mean that proportionally more women face disadvantages in holding supervisory positions in case of a high share of male-dominated occupations. It follows that *the disadvantage of women in holding supervisory positions is higher in countries with a higher share of male-dominated occupations compared with female-dominated and mixed occupations (Hypothesis 3a)*. Contrarily, following Hypothesis 2b leads to the expectation that *the disadvantage of women in holding supervisory positions is lower in countries with a higher share of male-dominated occupations compared with female-dominated and mixed occupations (Hypothesis 3b)*.

Family policies aiming to reduce time conflicts between work and family life (most importantly leave arrangements after childbirth and childcare provision) might also be related to gender differences in holding supervisory positions. On the one hand, females' long leave times (with sufficient monetary benefits) after childbirth reduce their career experience, resulting in smaller amounts of accumulated human capital, which is likely to amplify females' disadvantage in holding supervisory positions (Abendroth et al. 2013). Empirical examinations, however, have not found a statistically significant relation between gender differences in holding supervisory positions and parental and/or maternal leave figures (Yaish and Stier 2009; Abendroth et al. 2013; though see Rosenfeld et al. 1998 for tentative evidence).²⁶ On the other hand, childcare provision facilitates the compatibility of work and family life and has been found to increase females' labor force participation (Jaumotte 2003; Ruhm 1998). Higher childcare provision might thus lower employers' discrimination against women because gender differences in human capital accumulation to females' disadvantage are smaller. Moreover, as childcare enables women to dedicate more time to their careers, women's reluctance to work in supervisory positions might be reduced. I hence expect that *the disadvantage of women in holding supervisory positions is lower in countries with family policies that support females' continuous and full-time labor force participation (Hypothesis 4)*.

Women's employment patterns (particularly after childbirth) should also be driven by economic reasons; for example, women might re-enter the labor market because one

²⁶ Rosenfeld et al. (1998) find a greater disadvantage of women in countries with longer (unpaid) maternity leave. However, they only analyze 9 countries and discuss their finding as possibly caused by one outlier country (Australia, which has the longest unpaid leave of one year).

household income is not sufficient to allow for a socially acceptable living standard. Another reason for labor market re-entries after childbirth might lie in gender-cultural norms and expectations, which emphasize women's employment as the standard, while not working is perceived negatively. Both situations are likely to result in a higher labor force participation of mothers. However, a good share of these working mothers might more likely search for a balance between work and family life than strive aggressively for career success and might thus have lower ambitions to hold supervisory positions (Hakim 2006). In turn, when mothers have no monetary or cultural pressure to (re-)enter the labor market, less ambitious women might more often stay at home to focus on childcare and household chores. Consequently, I expect that *the disadvantage of women in holding supervisory positions is higher in countries with higher mothers' employment rates (Hypothesis 5).*

In order to examine the 'sum' of country-specific arrangements, I also investigate whether gender differences in holding supervisory positions differ between *regime types*. Following the predominant literature about welfare state classifications, I distinguish Nordic, Liberal, Central European, Southern European, and Post-Socialist welfare states (see Chapter 2).

5.2 DATA AND METHODS

The analyses are based on *data* from the LFS from the year 2013 (see Section 3.1 for more information on the LFS). The *sample* consists of employed individuals aged 20 to 64 from 26 countries.²⁷ Due to missing information on ISCO-08 3-digit data, Bulgaria, Malta, Poland, and Slovenia are excluded from the analyses, as is Latvia due to small case numbers for individuals holding supervisory positions. Individuals in the armed forces, self-employed individuals and family workers,²⁸ and individuals who were students or apprentices in regular education during the 4 weeks prior to the interview are excluded from the analysis. After listwise deletion of missing cases in the variables of interest, the sample comprises 1,242,424 individuals from 26 countries (632,671 men and 609,753 women) (for more information on

²⁷ These are Austria, Belgium, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Greece, Germany, Hungary, Ireland, Iceland, Italy, Lithuania, Luxembourg, the Netherlands, Norway, Portugal, Romania, Spain, Sweden, Switzerland, Slovakia, and the UK. Norway and Croatia had to be excluded from the country-level analysis because of missing values in the independent country-specific characteristics.

²⁸ The question of holding a job with supervisory position was not directed at self-employed individuals and family workers.

the sample selection, see Appendix Table A1; see Appendix Table A3 for the case numbers in each country).

The *outcome of interest* is gender differences in holding supervisory positions, meaning positions that are characterized by the formal responsibility of directly supervising other employees (or apprentices). A person who has a job with supervisory responsibility ‘takes charge of the work, directs the work and sees that is satisfactorily carried out’ (Eurostat 2006: 9).²⁹

I apply a *two-step multilevel approach*. In the first step, I estimate gender differences in holding supervisory positions for each country separately (i.e., in 26 countries). In the second step, the country variation in these estimates is used as dependent variables and related to country-specific characteristics (see Section 3.3 for more information on the two-step multilevel method).

5.2.1 Individual level approach

To examine Hypothesis 1 (whether women are disadvantaged in holding supervisory positions) and Hypotheses 2a and Hypothesis 2b (whether this disadvantage varies depending on working in female-dominated, mixed, or male-dominated occupations), I run logistic regression models for each country separately. The dependent variable is holding jobs with supervisory responsibilities (1 = yes; 0 = no). *Gender* (1 = female; 0 = men) is the central independent variable for answering Hypothesis 1. To test Hypotheses 2a and 2b, I introduce interaction effects between gender and working in female-dominated (more than 69% women), mixed (31-69% women), and male-dominated (less than 31% women) occupations. This classification is based on ISCO-08 3-digit data and is calculated for each country separately.³⁰

I further control for the following covariates, which are likely to affect gender differences in holding supervisory positions and vary by gender: *Highest educational level* and the respective *educational field* because higher-educated individuals and individuals who attended more technical or business-oriented educational fields are more likely to hold

²⁹ See Rose and Harrison (2010: 153) for a discussion about the possibility of different connotations of the term ‘jobs with supervisory responsibilities’ in different countries and languages.

³⁰ I only consider occupations with more than 10 employees in the respective country because an occupation in which only few individuals work changes ‘category’ much faster due to outliers.

supervisory positions (e.g., Rosenfeld et al. 1998; Abendroth et al. 2013); *age* and *marital status* since married and older individuals should behave even more gender-typically in the labor market due to increasing traditional work divisions after marriage (Grunow et al. 2012; Rosenfeld et al. 1998);³¹ *labor market experience* and its squared term and whether the individual works *full- or part-time* because both longer labor market experience and working in full-time employment increase the probability of holding a supervisory position (Rosenfeld et al. 1998; Abendroth et al. 2013). More information about the construction of the dependent and independent variables can be found in Appendix Table A2.

5.2.2 Country level approach

In order to examine the relation of gender differences in holding a supervisory position with macro characteristics, I run OLS regression analyses with the b-coefficient for females from the country-specific logistic regression analysis as dependent variables and include the country-level variables of interest.

The error term of the dependent variable consists of two components: first, the sampling error that arises due to the fact that the dependent variable is estimated rather than observed, and second, the residual variance from the step-2 regressions (macro-level error term). To account for heteroskedasticity, the b-coefficients are weighted by their standard errors, following Lewis and Linzer's feasible generalized least square approach (FGLS) from 2005 (e.g. Dieckhoff and Steiber 2012; Heisig 2011).

To test the relation of gender differences in holding supervisory positions with *horizontal gender segregation* (Hypotheses 3a and 3b), I use the LFS 2013 data to calculate a variable indicating the countries' share of female-dominated, mixed, and male-dominated occupations (with the same thresholds for defining the occupations as above). I contrast male-dominated occupations with the other two types by calculating the ratio of male-dominated occupations compared with female-dominated and mixed occupations. Higher values of the ratio indicate a higher share of male-dominated occupations.

³¹ Unfortunately, in several countries (Switzerland, Denmark, Finland, Iceland, Norway, and Sweden) no information about the existence of children in the household is provided. I run robustness checks with the inclusion of this information for the countries in which the information is provided. The main conclusions are robust.

For Hypothesis 4, referring to *family policies* supporting females' continuous and full-time labor force participation, I use three indicators: (1) the proportion of children aged below 3 in formal childcare (Eurostat 2015), (2) the length of paid parental leave (in weeks), and (3) the level of parental leave allowance for this period (expressed as percentage of the countries' median income) (Moss 2011, 2012, 2013; more information about the construction of these indicators can be found in Section 2.3.2.1). Principal component factor analysis is used to model the three indicators for family policies into one factor (see Section 3.4 for a justification and a description of this approach; and Section 4.2.2 for more details on the operationalization of this factor). Higher values of the factor for family policies indicate that family policies support females' continuous and full-time labor force participation.³²

The relation between gender differences in holding supervisory positions and *mothers' employment rates* (Hypothesis 5) are tested by using the ratio of female employment of all women to women with children aged below 15 years (own calculations based on OECD, 2014). The higher the values, the higher the share of employed mothers to all employed women.

All country-specific variables have been standardized (mean of 0 and standard deviation of 1) in order to harmonize their measurement scale and facilitate the interpretation. Appendix Table A3 displays the values of the country-specific variables, and Appendix Table A4 displays the correlations between dependent and country-specific independent variables.

Finally, I examine whether gender differences in holding supervisory positions differ among the following *regime types* (see Chapter 2): (1) Nordic countries (Denmark, Finland, Iceland, Norway, Sweden); (2) Central European countries (Austria, Belgium, Switzerland, Germany, France, Luxembourg, the Netherlands); (3) Liberal countries (Ireland, the UK); (4) Southern European countries (Cyprus, Greece, Italy, Portugal, Spain); (5) Post-Socialist countries (Croatia, Czech Republic, Estonia, Hungary, Lithuania, Romania, Slovakia).

³² The Eigenvalue of the factor is 1.60, which reveals that all variables used to build the factor indicate a latent concept.

5.3 FINDINGS

5.3.1 Descriptive findings

Table 5.1 provides descriptive information about supervisory positions in each country. As the second column indicates, the cross-national variation of supervisory positions is high: It ranges between 9 percent (Romania) and 49 percent (Iceland). The Nordic and Liberal countries show the highest share of supervisory positions, with more than 20 percent of all occupations having supervisory responsibilities (with the exception of Denmark). In turn, in Post-Socialist countries, the percentage of supervisory positions is below 21 percent in every country.

The next three columns refer to the distribution of all supervisory positions among male-dominated, mixed, and female-dominated occupations. Most countries display the highest proportion of supervisory positions in mixed occupations, followed by male-dominated ones. In turn, on average, only 19 percent of all supervisory positions can be found in female-dominated occupations.

Women are disadvantaged in all countries in terms of holding supervisory positions (last column). This female disadvantage seems to be most pronounced in Central European countries, where the percentage of females working in supervisory positions does not exceed 37 percent in any country. In the two Liberal countries, females display the highest share, followed by the Nordic and Post-Socialist countries. Ireland and Lithuania show a nearly equal gender share in holding supervisory positions, with 48 percent of women working in these advantageous positions.

Table 5.1 Descriptive statistics about holding supervisory positions, by country

Regime type / country	% of all SUP in				% of women working in SUP
	% of SUP	MDO	FDO	MXO	
Nordic ^a	30.99	38.09	22.22	39.69	39.46
DK	15.11	30.04	19.40	50.56	36.43
IS	49.14	36.11	27.81	36.08	43.65
FI	20.20	45.71	20.57	33.72	36.96
NO	38.96	41.18	15.76	43.07	36.78
SE	31.55	37.40	27.58	35.02	43.49
Central European ^a	27.24	38.26	17.93	43.81	34.79
AT	26.29	38.68	25.62	35.70	32.85
BE	21.72	38.34	17.55	44.11	35.06
CH	34.61	34.17	17.78	48.05	35.05
DE	27.46	38.19	20.35	41.46	36.51
FR	19.30	39.55	16.75	43.69	35.00
LU	35.63	28.59	11.02	60.40	36.63
NL	25.64	50.33	16.44	33.23	32.42
Liberal ^a	32.48	26.99	25.24	47.78	46.80
IE	27.20	26.53	27.41	46.06	48.47
UK	37.75	27.44	23.07	49.50	45.12
Southern European ^a	20.23	37.20	15.34	47.45	37.56
CY	21.49	42.14	12.02	45.84	34.31
ES	17.14	36.70	9.21	54.08	36.31
GR	12.14	40.33	8.20	51.47	29.99
IT	25.22	37.67	15.06	47.27	40.88
PT	25.16	29.18	32.22	38.59	46.29
Post-Socialist ^a	14.19	40.03	19.59	40.38	40.69
CZ	16.25	44.81	16.19	39.00	37.76
EE	20.87	32.28	25.18	42.54	48.38
HR	13.31	38.01	17.34	44.65	37.18
HU	12.78	34.89	16.15	48.96	39.25
LT	15.74	36.86	22.27	40.87	48.09
RO	9.24	47.14	16.34	36.52	35.65
SK	11.17	46.20	23.66	30.15	38.51
Total ^b	23.50	37.63	19.27	43.10	38.73

Notes: LFS 2013; own calculations. SUP = supervisory positions; MDO = male-dominated occupations; FDO = female-dominated occupations; MXO = mixed occupations; ^a average across countries in the respective group; ^b average across all countries.

5.3.2 Multivariate findings: Individual level

Figure 5.1 displays the mean point estimates of the female beta coefficient of the logistic regression analyses on the probability of holding supervisory positions (under control of the individual independent variables) for every country separately (sorted by the respective regime type).³³ A negative beta coefficient indicates that women are disadvantaged in holding supervisory positions; accordingly, in every country except Lithuania, women are significantly less likely to hold supervisory positions compared with men. Regarding country patterns, the figure indicates a lower female disadvantage in Liberal and Post-Socialist countries, while several Nordic, Central, and Southern European countries show a relatively high disadvantage of women.

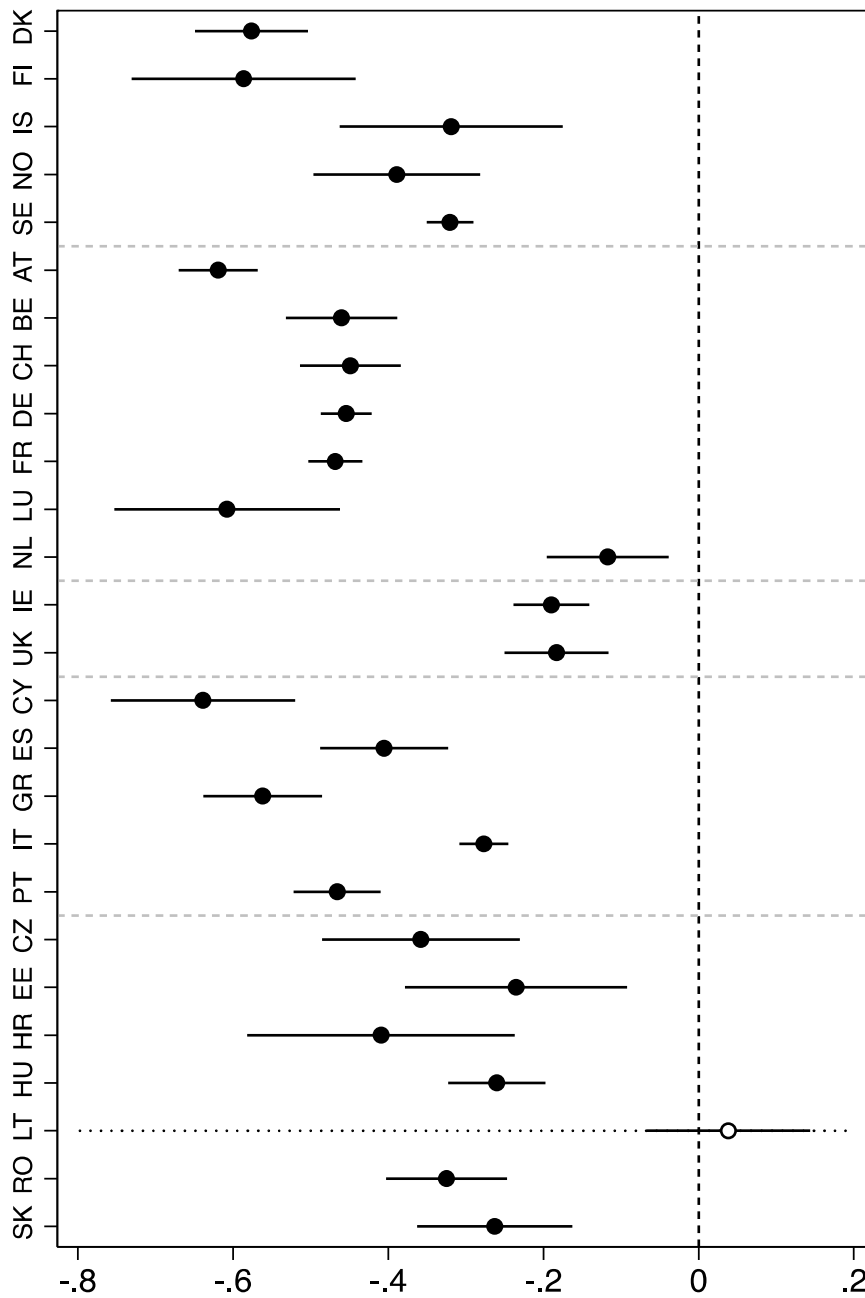
In order to test whether the female disadvantage in holding supervisory positions varies depending on working in male-dominated, mixed, or female-dominated occupations, interaction effects between gender and the variable classifying occupations regarding their female share are introduced (see Figure 5.2).³⁴

Gender differences in holding supervisory positions vary depending on working in male-dominated, mixed, and female-dominated occupations. More specifically, females' disadvantage in holding supervisory positions is lower when working in male-dominated occupations compared with female-dominated and mixed ones in most countries. In four countries (Spain, Greece, Luxembourg, and Portugal), no statistically significant gender differences between men and women exist, and in another seven countries (Czech Republic, Estonia, Hungary, Ireland, Lithuania, the Netherlands, and Slovakia), women are even advantaged compared with men in holding supervisory positions when working in male-dominated occupations. In turn, females are significantly less likely to hold supervisory positions compared with men when working in female-dominated occupations (except in Croatia and the UK: non-significant gender differences) and mixed occupations (except in Lithuania: non-significant gender differences).

³³ The full models are provided in Appendix B1.

³⁴ The results are presented in a graphical form for an easier interpretation. The full models are provided in Appendix B2. Appendix C1 provides an additive significance test.

Figure 5.1 Logistic regression models: Probability of females to hold supervisory positions (conditional coefficients and 95 percent confidence intervals)



Notes: LFS 2013; own calculations. Individual-level regressions: logistic regression analyses. Model controls for educational level, educational field; age; marital status; working in male-dominated, mixed, or female-dominated occupations; labor market experience; and working full- or part-time (see Appendix B1 for the full models). Filled dots indicate significant coefficients, empty dots non-significant coefficients.

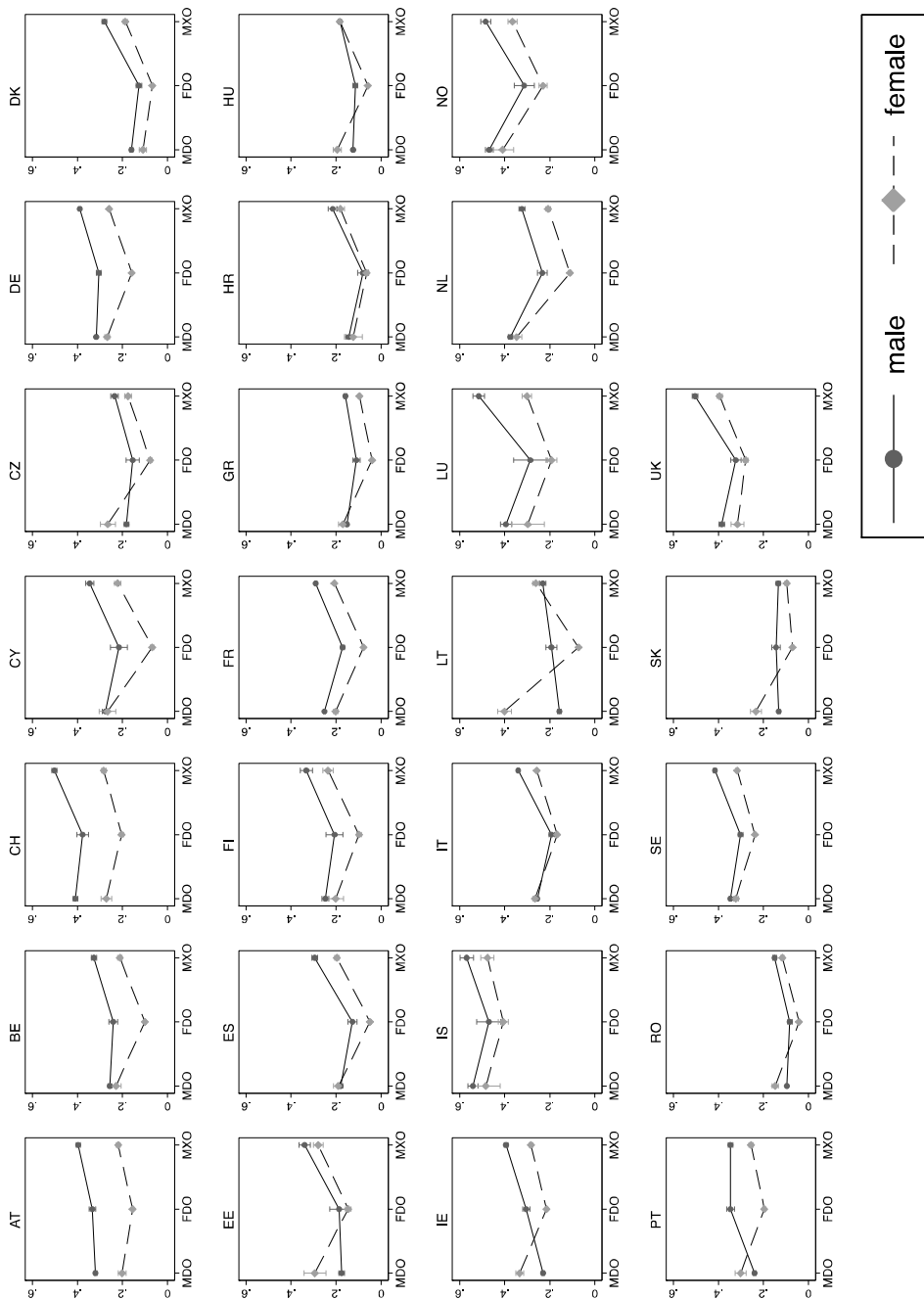
Notably, women (independent of the female share of the occupation they work in) always face disadvantages in holding supervisory positions in the four Nordic countries of Finland, Iceland, Norway, and Sweden, which are well-known for their traditional high female labor force participation and marked gender-egalitarian efforts.³⁵

5.3.3 Multivariate findings: Country level

The following examines whether gender differences in holding supervisory positions are related to country-specific characteristics and whether they vary among different regime types. First, Figure 5.3 graphically depicts the bivariate relationship between gender differences in holding supervisory positions (x-axis) and the macro characteristics (y-axis), by using scatter-plots with regression lines from simple OLS regressions. The dependent variable is the b-coefficients for females from the first step of the analysis. A positive (or negative) relationship indicates lower (or higher) gender differences to the disadvantage of women with rising values of the respective macro indicator.

³⁵ When applying different thresholds for the classification of occupations into female-dominated, mixed, and male-dominated categories, the general patterns remain stable. The thresholds I additively tested are: female-dominated (more than 79 / 75% women), mixed (21-79 / 25-75% women), and male-dominated (less than 21 / 25% women). As further robustness check, I used the A-index of Charles and Grusky (2004, p.42). The general patterns remain stable.

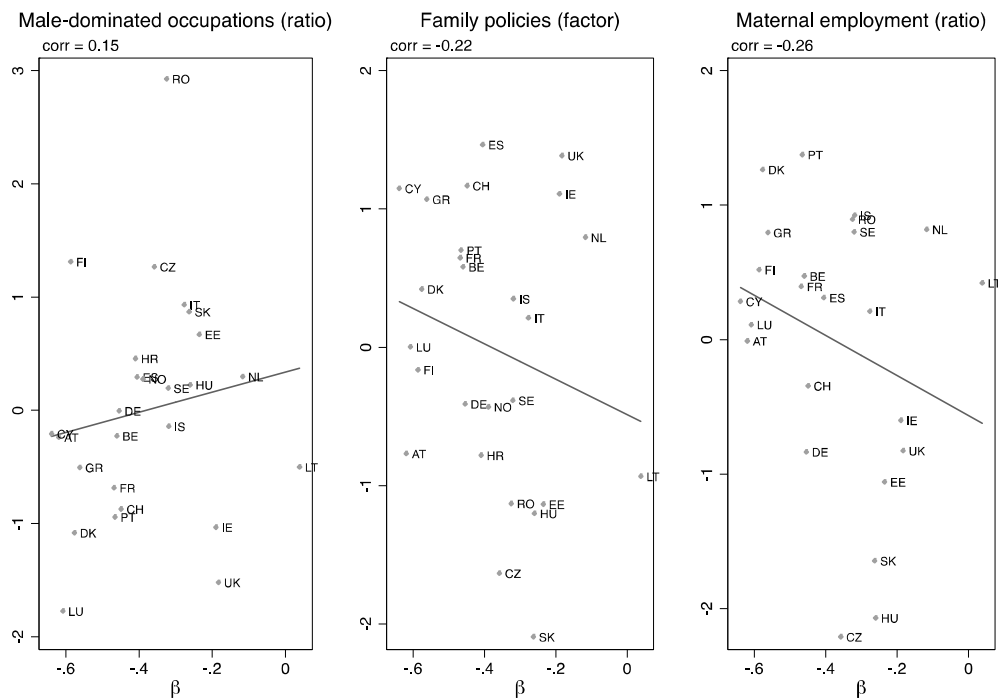
Figure 5.2 Interactions between gender and working in male-dominated, mixed and female-dominated occupations on the probability for holding supervisory positions



Notes: LFS 2013; own calculations. Individual-level regressions: logistic regression analyses (see Appendix B2 for the full models; see Appendix C1 for additive significance tests). MDO = male-dominated occupations; FDO = female-dominated occupations; MXO = mixed occupations.

The first scatter plot indicates that the higher the country's share of male-dominated occupations is, the lower the disadvantage of women in holding supervisory positions is ($\text{corr} = 0.15$). Females' disadvantage in holding supervisory positions is furthermore higher in countries in which family policies support females' continuous and full-time labor force participation ($\text{corr} = -0.22$) and in countries in which more women with children aged below 15 are employed (compared with all employed women) ($\text{corr} = -0.26$).

Figure 5.3 Scatterplot of countries: Bivariate relation between gender differences in holding supervisory positions and country-specific characteristics



Notes: LFS 2013; own calculations. The beta coefficients of females are obtained from logistic regression analyses for each country separately (see also Figure 5.1 and Appendix B1).

Second, Table 5.2 shows the results of OLS regressions (FGLS approach) testing whether gender differences in holding supervisory positions are (still) related to macro characteristics once the other institutional characteristics are controlled for (M1 – M4). None of the coefficients gains statistical significance, which might, however, be due to the small number of countries that are included in the analysis (N=24).

Table 5.2 OLS regressions (FGLS approach): Gender differences in holding supervisory positions and their association with country-specific characteristics

	M1	M2	M3	M4	M5
Male-dominated occupation (ratio)	0.01	0.02		0.02	
Family policies (factor)	-0.03		-0.02	-0.01	
Maternal employment (ratio)		-0.04	-0.04	-0.04	
Regime type (Ref.: Liberal)					
Nordic					-0.25**
Central European					-0.26**
Southern European					-0.28**
Post-Socialist					-0.07
Constant	-0.38***	-0.38***	-0.38***	-0.38***	-0.19*
N	24°	24°	24°	24°	26
R2	0.05	0.08	0.08	0.09	0.39

Notes: LFS 2013; own calculations. The beta coefficients of females are obtained from logistic regression analyses for each country separately (see also Figure 5.1 and Appendix B1). *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$; ° Norway and Croatia missing.

Looking at the direction of the relationships, the bivariate findings are supported: The disadvantage of women in terms of holding supervisory positions is lower the higher the share of male-dominated occupations in a country is (M1, M2, M4). The coefficient for family policies is negative, meaning that the female disadvantage is higher in countries providing family policies that support women's continuous and full-time labor force participation (M1, M3, M4). Finally, the negative coefficient of maternal employment indicates that in countries with higher employment of mothers (compared with the overall female employment rate), the female disadvantage is more pronounced.

As the final step of the analyses, I examine whether the female disadvantage in holding supervisory positions differs among regime types (Table 5.2, M5). Liberal and Post-Socialist countries display the lowest female disadvantage in holding supervisory positions. Compared with the Liberal countries (reference group), females' disadvantage is statistically significantly more pronounced in Nordic, Central and Southern European countries.

5.4 DISCUSSIONS

This chapter has analyzed gender differences in holding supervisory positions among 26 European countries, with particular focus on the role of horizontal gender segregation. Supervisory positions incorporate direct power over other employees and are related to higher income (Wright et al. 1995; Rosenfeld et al. 1998; Abendroth et al. 2013);

consequently, they constitute an important dimension of vertical gender inequalities. Studying gender differences in holding supervisory positions can hence contribute to the understanding of further gendered inequalities in the labor market, such as income differences, and how they might be reduced.

The first main finding is in line with previous literature results: Women are disadvantaged in holding supervisory positions in every country (except Lithuania) compared with men with similar characteristics, supporting Hypothesis 1. Second, the female disadvantage is lower in most countries when working in male-dominated occupations compared with female-dominated and mixed occupations: In seven countries, females (compared with males) are advantaged in holding supervisory positions, and in another four countries, non-significant differences between men and women exist in male-dominated occupations. Conversely, in female-dominated and mixed occupations, women are disadvantaged in holding supervisory positions (with the exception of three cases). This lower female disadvantage when working in male-dominated occupations is in line with Hypothesis 2b (and contradicts Hypothesis 2a). It might be caused by a positive selection of more ambitious women in male-dominated occupations, whereas female-dominated occupations might indicate more ‘woman-friendly’ environments where less-ambitious women work. Another reason might lie in men’s greater efforts to access the best positions in female-dominated occupations due to their fear of losing their masculinity and due to their greater efforts to receive better occupational rewards.

I conclude that overall, women fare better in male-dominated occupations, but also that – depending on the country – different mechanisms work regarding females’ chances of holding supervisory positions among male-dominated, mixed, and female-dominated occupations. With the data at hand, I unfortunately cannot test which of the theoretical arguments discussed can explain countries’ patterns of a varying female (dis-)advantage depending on the female share of an occupation. Therefore, the findings encourage studying this relationship more in-depth with data providing further details about females’ and males’ employment situation as well as their ambitions and preferences.

Third, at the country level (and similarly to the last mentioned result), it seems that the female disadvantage in holding supervisory positions is lower the greater the countries’ share of male-dominated occupations is compared with female-dominated and mixed occupations (tentatively supporting Hypothesis 3b). Moreover, the female disadvantage seems to be lower

the higher mothers' labor force participation is (compared with all women). I expected this pattern (Hypothesis 5) because with rising maternal employment, more women are likely to re-enter the labor market due to economic necessities or predominant gender-cultural pressure instead of pronounced career ambitions (see also Section 3.4). These 'adaptive' women (Hakim 2006) should be more oriented towards a feasible combination of work and family than towards career success. Contrary to Hypothesis 4, the female disadvantage in holding supervisory positions seems to be higher in countries with family policies supporting females' continuous and full-time labor force participation.

However, the finding that women are least disadvantaged in Liberal and Post-Socialist countries is related. These states are characterized by very low social benefits that cover only minimum standards and hence by an individualization of risks (Esping-Andersen 1990; 1999). This overall uncertainty and the fact that women cannot rely on the state in case of career interruptions might constitute one reason why women in Liberal and Post-Socialist countries are more ambitious about entering supervisory positions and thereby stabilizing their employment positions. Moreover, the use of market-provided childcare is more popular in Liberal countries (Hofäcker 2006), which might provide women with extra motivation to gain an irreplaceable position in the firm (apart from compensating for the relatively low coverage of state-provided childcare). In turn, Nordic countries have encouraged high females' labor force participation for decades through advanced family policies. In these countries, women indeed re-enter the labor market after childbirth more often than in other countries. Nevertheless, as the findings indicate, their higher labor force participation comes at the expense of having lower chances of accessing demanding supervisory positions, which is in line with findings for other dimensions of vertical gender inequalities (Charles and Grusky 2004; Mandel and Semyonov 2006).

In conclusion, the findings suggest that the relation between gender differences in holding supervisory positions and country-specific characteristics is driven by the combination of different framework conditions set by the state and formed by the labor market. The striking result of a negative relationship of family policies with gender differences in supervisory positions might be driven by the fact that these efforts are still primarily orientated to pave the way for females to participate in the labor market but not to improve their 'qualitative' position in the labor market. Hence, these efforts increase societies' awareness of females' difficulties of combining work and family, but the main burden of family responsibilities still

remains in the hands of women without men being encouraged to take part to a sufficient extent. Most family policies are only targeted at the time immediately following childbirth and have an ‘additive’ character, meaning that men’s involvement is not seen as a substitute for women’s involvement, but rather only as (temporary or additive) complement. The ‘daddy quotas’, which are leave times after childbirth explicitly reserved for men, serve as an example. Although such efforts are valuable for achieving more gender equality, the daddy quotas’ length of only a few days clearly evinces the only ‘supplementary’ character of men’s involvement in childcare duties. By relieving women more of their home duties and bringing men more into these tasks, women who formerly opted for positions without a supervisory function might see a possibility to combine their family life with such a demanding job position.

6 GENDER DIFFERENCES IN JOB-RELATED NON-FORMAL TRAINING³⁶

This chapter presents a comparative analysis of gender differences in job-related training for 20 contemporary societies. Job-related non-formal training (referred to simply as ‘training’ in the following) is the main instrument of employers and employees for adapting skills to changing labor market demands.³⁷ For employers, training makes employees more productive and provides a competitive advantage. Employees benefit from training as it increases their job rewards, e.g., in terms of wages (Conti 2005; Jones et al. 2011). However, training usually involves monetary investments, which have to be born either by the employer (employer-sponsored training) or by the employee (non-employer-sponsored training).³⁸ And these training investments appear to differ among men and women, with a higher participation of men in employer-sponsored training (Albert et al. 2010; Georgellis and Lange 2002; Grönlund 2011; though, see Albert et al. 2010; Bassanini et al. 2005, who find no significant gender differences). In turn, women seem to participate more in non-employer-sponsored training (Bassanini et al. 2005; Dämmrich et al. 2014).

By drawing on most recent comparative data for 20 contemporary societies from the PIAAC, this chapter addresses the following research questions: First, do men and women with comparable characteristics differ in their participation in employer-sponsored and non-employer-sponsored training? How does this gendered training participation vary among countries? Second, can country-specific characteristics and conventional country classifications contribute to explaining this country variation in gendered training

³⁶ A slightly different version is published as: Dämmrich, J., Kosyakova, Y. & Blossfeld, H.-P. (2016). Gender and job-related non-formal training: A comparison of 20 countries. *International Journal of Comparative Sociology*, Published online before print January 19, 2016.

³⁷ Three different main types of adult learning can be distinguished: Formal, non-formal, and informal learning activities. Non-formal training refers to organized learning activities that are taught by specialized persons and do not lead to a formal education qualification. In contrast, formal activities differ from non-formal ones as they lead to recognized certificates. Informal activities are self-directed and lack organization (Kilpi-Jakonen et al. 2014).

³⁸ The state could be another possible financier of training. I ignore state-financed training due to different incentive mechanisms for employers and employees as argued in the following; moreover, the PIAAC data does not offer information about training financed by the state.

participation? More specifically, I focus on three institutional characteristics: employment protection legislation, family policies (parental leave and childcare), and the gender culture.

The knowledge of gender differences in employer-sponsored and non-employer-sponsored training can enhance our understanding of further gender inequalities in the labor market. Employer-sponsored training mainly strengthens career chances with the same employer (in terms of wages or promotion possibilities), whereas non-employer-sponsored training more likely improves opportunities to find new and/or better jobs (Evertsson 2004). Hence, gender differences in the participation in both training types might be an important mechanism for the emergence and maintenance of gendered labor market trajectories and related gender inequalities. Moreover, studying these gender differences among countries and connecting them to their country-specific setups contributes to our understanding of which institutional frameworks foster gender equality. This is even more crucial since evidence for the gendered participation in employer-sponsored and non-employer-sponsored training – and for their relation with country-specific characteristics, in particular – is still scarce.³⁹

6.1 EXPLAINING GENDER DIFFERENCES IN TRAINING PARTICIPATION

In order to develop hypotheses regarding gender differences in employer-sponsored and non-employer-sponsored training participation I begin with a discussion of the gender bias in skills acquisitions. Afterwards, the role of institutional arrangements is addressed by relying predominantly on the Varieties of Capitalism approach and welfare regime classifications.

Employers are more likely to invest in training when it develops firm-specific skills. These skills are not transferable to other firms and hence bind employees to employers. In turn, non-employer-sponsored training is likely to develop more general skills, which are useful for a large number of employers. This type of ‘general’ training thus improves the overall qualification profile of participants and facilitates employees’ movement between firms (Becker 1962; Estevez-Abe 2005).

³⁹ To the best of my knowledge, only two publications – one by Dieckhoff and Steiber (2011) and one by Wozny and Schneider (2014) – have examined gender differences in training participation among countries so far. Both studies provide evidence for cross-national variation in gender differences in training participation and emphasize the importance of country-specific institutional settings; however, neither distinguishes between employer-sponsored and non-employer-sponsored training activities.

Participation in both employer- and non-employer sponsored training is likely to differ among women and men. The major reason is that women (still) assume the main share of household and childcare duties in most societies (Hofäcker 2006; Sayer 2010). These responsibilities make them more likely to interrupt, quit, or change their careers compared with men. This, in turn, should influence both employers' and (female) employees' training investments.

The human capital theory (Becker 1985) claims that employers invest in training based on (rational) cost-benefit considerations. As employers have imperfect information about the (future) productivity of employees, they rely on group characteristics such as gender as proxies for individuals' productivity (Arrow 1973; Phelps 1972). Since women (compared with men) tend to have more unstable career paths, employers might consider investing in their training as less profitable (Estevez-Abe 2005). Hence, I expect that *women are less likely to participate in employer-sponsored training than men (Hypothesis 1)*.

Due to the higher volatility of females' career pathways and the fewer training opportunities provided by employers, women – who want to stay competitive on the labor market – should be more motivated to invest in the acquisition of general skills. These skills are transferable to other employers and hence facilitate job changes and allow for less loyalty to a particular employer. Women's demand for training might be further strengthened as a consequence of growing women's career orientation due to e.g., the desire for self-realization on the labor market and financial independence (Gornick and Meyers 2009). Men, in turn, are likely to participate less in non-employer-sponsored training because their greater opportunities to get employer-sponsored training should cause them to focus more on their current careers on the one hand and limit their capability in terms of time and efforts for non-employer-sponsored training on the other hand. This leads to the expectation that *women are more likely to participate in non-employer-sponsored training than men (Hypothesis 2)*.

6.1.1 Cross-national differences

Comparative studies claim that country-specific institutions may shape gender differences in training participation, and these differences are found to vary from country to country (Albert et al. 2010; Dieckhoff and Steiber 2011; Wozny and Schneider 2014). Until now, however, only limited frameworks have explained this country variation (Wozny and Schneider 2014). In the following, I draw on gendered versions of (1) the Varieties of Capitalism approach (Hall and Soskice 2001) and (2) welfare regime classifications that are based on Esping-

Andersen's seminal work (1990; 1999). The focus is on three country characteristics conceived in order to shape gender differences in training participation: unemployment protection, family policies, and the gender culture.

The Varieties of Capitalism approach connects aspects of social protection with skill and production formation and distinguishes two main market economies. The first type is coordinated market economies (CMEs, e.g., Germany, Japan, the Netherlands, Belgium, Sweden, Norway, Denmark, and Finland), which rest on complex production strategies that demand high levels of specific skills acquired through training and long-term reciprocal relationships between employers and employees. Certain institutional settings, such as rigid employment protection, foster these long-term commitments. In contrast, Liberal market economies (LMEs, e.g., the US, the UK, Ireland) are characterized by less complex production strategies, higher market competition, and less importance of long-term employer-employee commitments. Coupled with low employment protection, job changes and poaching occur more frequently. Company training serves mainly to train workers in firm-specific skills since the formal educational system is oriented towards general skills. However, due to the higher risk of poaching of trained workers, firm-specific training is less intensive than in CMEs (Hall and Soskice 2001; Dieckhoff, Jungblut and O'Connell 2007).

How are these institutional characteristics related to gender differences in training participation? I expect that in CMEs (characterized by strong employment protection), employers are more reluctant to invest in the training of women compared with LMEs (characterized by low employment protection). Since employers in CMEs base their product strategies heavily on the firm-specific skills and knowledge of their workers, employment interruptions and/or employer changes are detrimental to their profit. Family-based employment interruptions – which are more frequent for women – are hence more costly for employers in CMEs. In particular, costs for the recruiting and training of new employers are higher (Estevez-Abe et al. 2001). In contrast, in LMEs, employment interruptions – and females' discontinuous careers in particular – play a minor role as the labor market is generally more volatile and intensive, specific skills are less important. Moreover, the costs of replacing a worker, including firing and hiring, are comparatively lower. Altogether, I expect

that *in countries with stronger employment protection (usually CMEs), the disadvantage of women in employer-sponsored training participation is more pronounced (Hypothesis 3).*⁴⁰

In turn, I expect the female participation advantage in non-employer-sponsored training to be more pronounced in CMEs compared with LMEs. In this context, strong employment protection and a lack of active state support for full employment – which is the case in e.g., the Southern European countries (Italy, Spain, Portugal) – create the so-called insider-outsider labor markets. In these labor markets, employees are often allocated into two groups: ‘insiders’ with good and secure jobs and high training provisions and ‘outsiders’ with bad and insecure jobs and fewer training opportunities (Lindbeck and Snower 1986). Since women more often belong to the latter group (Esping-Andersen 1999), they might try to improve their chances to access ‘insider’ jobs by investing in training on their own (Kilpi-Jakonen et al. 2014). Additionally, the anticipated female disadvantage in employer-sponsored training in CMEs (see Hypothesis 3) might compel women to invest more in non-employer-sponsored training, leading to the following expectation: *In countries with stronger employment protection (usually CMEs), the advantage of women in non-employer-sponsored training participation is more pronounced (Hypothesis 4).*

Apart from labor market characteristics, family policies such as childcare and leave arrangements after childbirth are likely to shape gender differences in training participation (Wozny and Schneider 2014). In countries with more generous formal childcare facilities and shorter parental leave phases, females’ labor force participation is higher (Jaumotte 2003; see An 2013 for a literature review).⁴¹ Higher labor force participation of women suggests, in turn, a higher female attachment to the labor market. Under these circumstances, employers’ expected risk of losing returns to investments in females’ training is lower; hence, employers should be less deterred to invest in women’s training (Dieckhoff and Steiber 2011). Empirical support comes from Germany, where extensions of parental leave have been found to lower females’ participation in employer-sponsored training (here defined as employers’ initiative to arrange the training) (Puhani and Sonderhof 2011). Therefore, I expect that *in countries offering family policies that support females’ continuous and full-time labor force*

⁴⁰ The expression ‘(dis-)advantage of women’ only refers to the level of training participation of females and males and should not be interpreted in a normative manner.

⁴¹ Guaranteed parental leave of shorter duration after childbirth has been found to be accompanied by higher female labor force participation but longer parental leave (more than 20 weeks) with lower female labor force participation (Jaumotte 2003).

participation, the disadvantage of women in employer-sponsored training participation is less pronounced (Hypothesis 5).

Gender differences in non-employer-sponsored training participation might also be related to family policies. First, the longer that employment interruptions are, the higher the depreciation of skills and knowledge is, resulting in a stronger need for women to update skills and knowledge (Dieckhoff and Steiber 2011). Therefore, women should be more likely to participate in non-employer-sponsored training in countries with longer parental leave and less generous formal childcare. Second, in order to compensate for the disadvantage in employer-sponsored training (following Hypothesis 5) and to stay competitive in the labor market, (career-oriented) women might invest in training on their own in countries where family policies discourage females' labor force participation. Tentative evidence for this pattern has been found for Germany (Puhani and Sonderhof 2011). In sum, I expect that *in countries offering family policies that support females' continuous and full-time labor force participation, the advantage of women in non-employer-sponsored training participation is less pronounced (Hypothesis 6).*

A country's gender culture – that is, country-specific beliefs and norms about women's and men's role in society and about their share of paid and unpaid work – is also likely to impact on gender differences in training participation. In more gender-egalitarian countries, women's role is not primarily focused on family and childcare responsibilities, but is extended to paid work in the labor market. Employers' discrimination against women – for instance, regarding wages – has been found to be lower in these countries (Triventi 2013), suggesting that employers rest their decisions less on ascriptive characteristics such as gender. In line with this observation, I expect that employers in these countries are also less likely to discriminate against women with regard to training investments compared with more traditional societies: *In countries with a more gender-egalitarian culture, the disadvantage of women in employer-sponsored training participation is less pronounced (Hypothesis 7).*

In a similar vein, in more gender-egalitarian societies, men and women are more equal in terms of labor market participation (Clark, Ramsbey and Adler 1991) and thus might have more similar incentive structures. This implies stronger female career attachment to the current job with less available time to invest in 'external' training activities. Hence, I expect that *in countries with a more gender-egalitarian culture, the advantage of women in non-employer-sponsored training participation is less pronounced (Hypothesis 8).*

6.1.2 Regime type differences

Based on the Varieties of Capitalism approach and the welfare regime classifications (see Chapter 2), the 20 countries included in this chapter are grouped into six regime types: (1) the Liberal, (2) the Nordic, (3) the Central European, (4) the Southern European, (4) the Post-Socialist, and (6) the Asian regime. This country grouping, together with indicators used for the respective institutional arrangements (employment protection, family policies and gender cultural orientation), is presented in Table 6.1.

LMEs (Ireland, UK, US) are a quite homogenous country group with low employment protection, low social benefits, and a minimized role of the state. The state does not provide paid parental leave after childbirth. Individuals (and women, in particular) are often forced to stay in employment in order to maintain adequate living standards (Esping-Andersen 1990; 1999). These characteristics, together with widespread gender-egalitarian values, are likely to convert into low gender differences in training participation.

The countries covered by the CMEs can be divided into five groups. The Nordic countries (Norway, Sweden, Finland, Denmark) are unique in their extensive state policies that focus on universalism and the equalization of employment chances, particularly regarding women's labor market participation. These countries show a great emphasis on gender egalitarianism with high levels of public childcare that reduce women's double burden of combining paid and unpaid work. Compared with the other CMEs, employment protection is quite low. Altogether, I expect small gender differences in training participation for this regime type, which is in line with previous research (Dieckhoff and Steiber 2011).

Table 6.1 Country-specific characteristics

	Firing costs (in weeks of salary)	Strictness of employment protection	Length of parental leave (in weeks)	Parental leave allowance	Percentage of children under 3 in childcare	Gender culture
Liberal	15.3	0.9	0.0	0.0	34.3	11.1
Ireland	24.0	1.3	0.0	0.0	30.8	10.5
UK	22.0	1.2	0.0	0.0	40.8	17.1
US	0.0	0.3	0.0	0.0	31.4	5.8
Nordic	16.3	2.3	47.9	84.0	48.1	6.2
Denmark	0.0	2.1	32.0	100.0	65.7	5.1
Finland	26.0	2.2	31.6	70.9	28.6	9.5
Norway	13.0	2.3	46.0	100.0	51.3	8.2
Sweden	26.0	2.6	82.0	65.0	46.7	2.0
Central EU	33.5	2.5	32.5	45.9	41.0	16.1
Belgium	16.0	2.0	24.0	41.1	48.4	19.6
Germany	69.0	2.9	48.0	67.0	17.8	15.6
France	32.0	2.4	32.0	33.6	42.0	21.5
Netherlands	17.0	2.8	26.0	42.1	55.9	7.7
Southern EU	33.5	2.6	20.0	15.0	33.4	16.9
Spain	56.0	2.4	0.0	0.0	37.5	12.4
Italy	11.0	2.8	40.0	30.0	29.2	21.4
Post-Socialist	20.0	2.5	96.4	54.6	12.7	26.6
Czech Republic	22.0	3.1	96.0	74.9	2.2	27.4
Estonia	35.0	1.8	62.0	100.0	17.5	17.9
Poland	13.0	2.2	96.0	23.9	7.9	26.6
Russia	17.0	3.1	72.0	40.0	33.0	29.1
Slovakia	13.0	2.2	156.0	34.5	3.0	31.9
Asian	47.5	1.9	52.0	32.6	33.0	32.3
Japan	4.0	1.4	52.0	50.0	28.3	32.2
South Korea	91.0	2.4	52.0	15.2	37.7	32.3

Notes: Parental leave allowance is measured as a percentage of the countries' median income; gender culture is measured as percentage of agreement with the statement: 'When jobs are scarce, men should have more right to a job than women.'

Sources: Firing costs from World Bank, 2009; strictness of employment protection from OECD 2013b; parental leave indicators from An, 2013, from Lee, 2009, and from Moss, 2011, 2012, 2013; percentage of children aged below 3 in formal childcare from OECD, 2011; 2013a; gender culture from European Social Survey (ESS) of 2010 and from World Values Survey (WVS) of 2010-2014.

The next two country groups include the Central European (Belgium, France, Germany, the Netherlands) and Southern European (Italy, Spain) countries. Both of these groups are still oriented towards the male breadwinner model with traditional gender values. However, this orientation is fading in both regime types, with the number of childcare facilities increasing and traditional beliefs and norms declining, but more so in Central European countries. Moreover, Southern European countries have rigid labor markets with pronounced insider-outsider structures, disadvantaging women (Kilpi-Jakonen et al. 2014). For both of these country groups (but particularly for the Southern European one), greater gender differences in training participation compared with the Liberal and Nordic welfare regimes can be expected.

Post-Socialist countries (the Czech Republic, Estonia, Poland, Russia, Slovakia) are characterized by their common socialist past in which gender equality was a central ideological goal. Since the fall of the Iron Curtain, however, the combination of work and family obligations has been becoming increasingly difficult. Today, these countries show the lowest coverage of childcare and a pronounced tendency for long career interruptions after childbirth. Furthermore, Table 6.1 implies that there is a high agreement that males should have the privilege of getting work when jobs are scarce. Along with moderate employment protection, these countries might retain high gender differences in training participation compared with the other regime types.

Finally, Asian countries (Japan, South Korea) are characterized by a strong family orientation, with a very traditional gender culture and a still underdeveloped family policy that does not support women's gainful employment. These countries offer a quite lengthy parental leave, and childcare coverage is among the lowest compared with the other regime types. This leads to the expectation that gender differences in training participation are quite high, similar to the Post-Socialist countries.

6.2 DATA AND METHODS

The analyses are based on *data* from the Survey of Adult Skills (Round 1) carried out between August 2011 and June 2012. The survey is part of the Programme for the International Assessment of Adult Competencies (PIAAC), coordinated by the OECD. The PIAAC data are particularly suitable for the following analyses because it provides rich and most recent information about different types of learning activities (Kirsch and Thorn 2013).

The target population is 16-65-year-old individuals in 24 OECD countries (for more details, see OECD, 2013c).

The analysis includes only 20 countries due to data availability.⁴² The PIAAC *sample* is restricted as follows: First, it is restricted to individuals aged below 55 because training participation strongly decreases in late adulthood (e.g., Becker 1962). Individuals aged below 20 are excluded as well as their training participation can often be considered a part of initial education (e.g., the dual system in Germany, see Blossfeld and Stockmann 1999). Second, to ensure that the analyses include only adult learners (and not those who participated in on-the-job training as part of the initial education process), I account for the age and the year when the highest educational level was attained. Third, since I aim to consider employers' investments in training, the analysis is limited to those exposed to their employer's training investments, i.e., employed individuals. In order to account for such exposure, individuals are considered (1) who did participate in training and were employed at any time of training participation; (2) who did not participate in training and are currently employed or have been employed in the last 12 months (the reference period for training participation is the last 12 months prior to the interview date).⁴³

After listwise deletion of missing cases in the dependent and independent variables,⁴⁴ the final sample includes 39.3% of the original PIAAC sample (30,156 men and 29,810 women). Details on the sample selection and the case numbers for each country can be found in Appendix Table A1 and A2, respectively.

⁴² The following countries are studied: Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, South Korea, the Netherlands, Norway, Poland, Russia, Slovakia, Spain, Sweden, the UK, and the US. Austria and Canada are excluded from the analysis due to missing information on important job characteristics. In the case of Belgium, the PIAAC data only cover the region of Flanders, while the UK data only cover England and Northern Ireland. The data for Russia do not include the population of the Moscow municipal region (Kirsch and Thorn 2013). As the Russian data were under discussion regarding their reliability, I ran robustness checks excluding Russia, and the main conclusions remained stable. The public use file (updated on the 7th of November, 2013), which does not include data on Australia and Cyprus, was used.

⁴³ I ran robustness checks defining employed individuals only on the basis of the interview time. Results remained robust.

⁴⁴ I additionally exclude individuals who did not complete the questionnaire, or who suffer from language problems, reading and writing difficulties, or learning and mental disabilities (information given in the data; less than 1 percent of PIAAC respondents).

I use a *two-step multilevel method*. In the first step, I assess gender differences in training participation among countries (Hypotheses 1 and 2) by fitting logistic regression models for each country separately, with the dependent variables being the three training types. Analyses are weighted with the sample weights provided by the OECD. In the second step, I test whether the country variation in gender differences in training participation is related to institutional settings, by fitting ordinary least square (OLS) linear regressions with the inclusion of the country-specific variables. The dependent variables are the estimated b-coefficients (from the first step) for females (see Section 3.3 for more information on the two-step multilevel method).

6.2.1 Individual level approach

The dependent variables in the individual level approach are the training types. I consider only training activities that were reported to be mainly job-related and/or undertaken for job-related reasons, and constructed three binary variables: (1) *on-the-job-training (OJT)*, (2) *employer-financed training (EFT)*, and (3) *non-employer-sponsored training (NEST)*. OJT consists of training, instruction, or practical experience organized by supervisors or co-workers. EFT refers to open and distance learning, seminars and workshops, courses, or private lessons that are fully or partly paid by employers. Hence, OJT and EFT are considered employer-sponsored training. NEST also refers to open and distance learning, seminars and workshops, courses, or private lessons, albeit without any employers' monetary investments.

The key independent variable *female* (coded one for women and zero for men) is used to measure gender differences in training participation. I further include several confounding covariates that are likely to affect training participation and vary by gender. *Educational level* accounts for the higher tendency of higher educated individuals to participate in training (e.g., Albert et al. 2010) and for recent positive developments in females' educational attainment. Similarly, I control for abilities measured as *competencies in literacy*. *Cohabitation* and *small children* are likely to affect the training participation of men and women differently (e.g., Dieckhoff and Steiber 2011). Participation in training decreases with increasing *age* due to shorter time horizons to recoup training investments (Becker 1962); *age* as a proxy for labor market experience further accounts for differences in the career behavior of men and women.⁴⁵ Furthermore, the following job characteristics are controlled for: *working hours*,

⁴⁵ Direct control of labor market experience was not possible due to the restricted availability of the relevant information in the data.

firm-size, and *sector*, as these variables have been reported to shape training participation and vary by gender (e.g., Albert et al. 2010; O'Halloran 2008). More information about the construction of the dependent and independent variables can be found in Appendix Table A3.

6.2.2 Country level approach

In order to test whether the country variation in gender differences in training participation is related to institutional settings, OLS regressions with weighting of standard errors (FGLS approach, Lewis and Lizer 2005) were carried out with the inclusion of the country-specific variables. I modeled selected country-specific indicators in one factor, by using principal component factor analysis, (see Section 3.4 for a justification and a description of this approach).⁴⁶

In order to test the hypotheses on *employment protection* (Hypotheses 3 and 4), two indicators are combined into one factor: (1) the strictness of employment protection legislation from the OECD (OECD 2013b) and (2) the firing costs (World Bank 2009). The first indicator is composed of eight different aspects of strictness of individual dismissals. It ranges from 0 to 6, with higher values indicating stricter employment protection. The indicator on firing costs accounts for costs of advance notice requirements, severance payments, and penalties arising when a redundant worker is terminated. These items have been transformed into weeks of salary. Higher values of the factor for employment protection indicate stronger employment protection.

To test the relation of gender differences in training participation with *family policies* (Hypotheses 5 and 6), the following three indicators are modeled together as a single factor: (1) the proportion of children aged below 3 in formal childcare (OECD 2011, 2013), (2) the length of paid parental leave (in weeks), and (3) the level of parental leave allowance for this period (expressed as percentage of the country's median income)⁴⁷ (An 2013; Lee 2009; Moss 2011, 2012, 2013; more information about the construction of these indicators can be found in Section 2.3.2.1; see Section 4.2.2 for more details on the operationalization of the factor).

⁴⁶ The Eigenvalue's indicate a latent concept for both the variables used to build the factor for family policies (1.64), and for employment protection (1.30). Results of the factor analysis are available upon request.

⁴⁷ When running the analysis with maternity leave instead of parental leave indicators, the main results remain stable.

Higher values of the factor for family policies indicate that family policies support females' continuous and full-time labor force participation.

Hypotheses 7 and 8 referring to the *gender culture* are tested by the percentage of individuals having agreed or strongly agreed with the statement, 'When jobs are scarce, men should have more right to a job than women' (own calculations based on ESS 2010 and WVS of 2010-2014; missing values replaced by previous waves of the ESS and WVS). The correlations of the institutional characteristics can be found in Appendix A4.⁴⁸

Finally, to examine whether gender differences in training participation vary across *regime types*, countries are classified into six country groups. The values of the factors for employment protection and family policies as well as the respective regime type can be found in Appendix Table A2.

6.3 FINDINGS

6.3.1 Descriptive findings

A first descriptive overview about overall participation rates and the percentage of women among all participants in the three different types of training provides Table 6.2. The countries are ordered according to their regime type. In general, the highest participation rates can be found in on-the-job training (OJT, with 39 percent of employed individuals having participated during the last 12 months), followed by employer-financed training (EFT, 34 percent), while participation is the lowest (at 17 percent) in non-employer-sponsored training (NEST).

Participation rates in employer-sponsored training (OJT and EFT) appear to be the highest in the Nordic and the lowest in the Southern European countries. For NEST, the highest participation rates can be found in the Asian countries, while participation is the lowest in the Central and Southern European countries.

Overall, the results do not indicate a consistent female participation disadvantage in employer-sponsored training. While women tend to participate less than men in employer-

⁴⁸ The Eigenvalue of the factor for family policies is 1.64, and it is 1.30 for employment protection. Hence, in both cases, these values point out that all variables used to build the factors indicate a latent concept. I calculated the factor scores for each factor, resulting in standardized variables with a mean of 0 and a standard deviation of 1 among all countries. The results of the factor analysis are available upon request.

sponsored training (both in OJT and EFT) in Central European, Southern European and Asian countries, they seem to participate more than or at a similar rate to men in Liberal countries. The same is true for the two Post-Socialist countries of Estonia and Russia; the remaining countries in this group show in turn a quite strong male participation advantage. Nordic countries have the highest variety in gendered participation, depending on the country and the training type. The findings for NEST indicate that in most countries, women's participation is higher in this type of training compared with men. Overall, gender differences (to the advantage of females) are lowest in the Nordic, Southern European and Asian countries and highest in Post-Socialist countries.

Table 6.2 Participation rates in different types of training and percentage of women among all participants

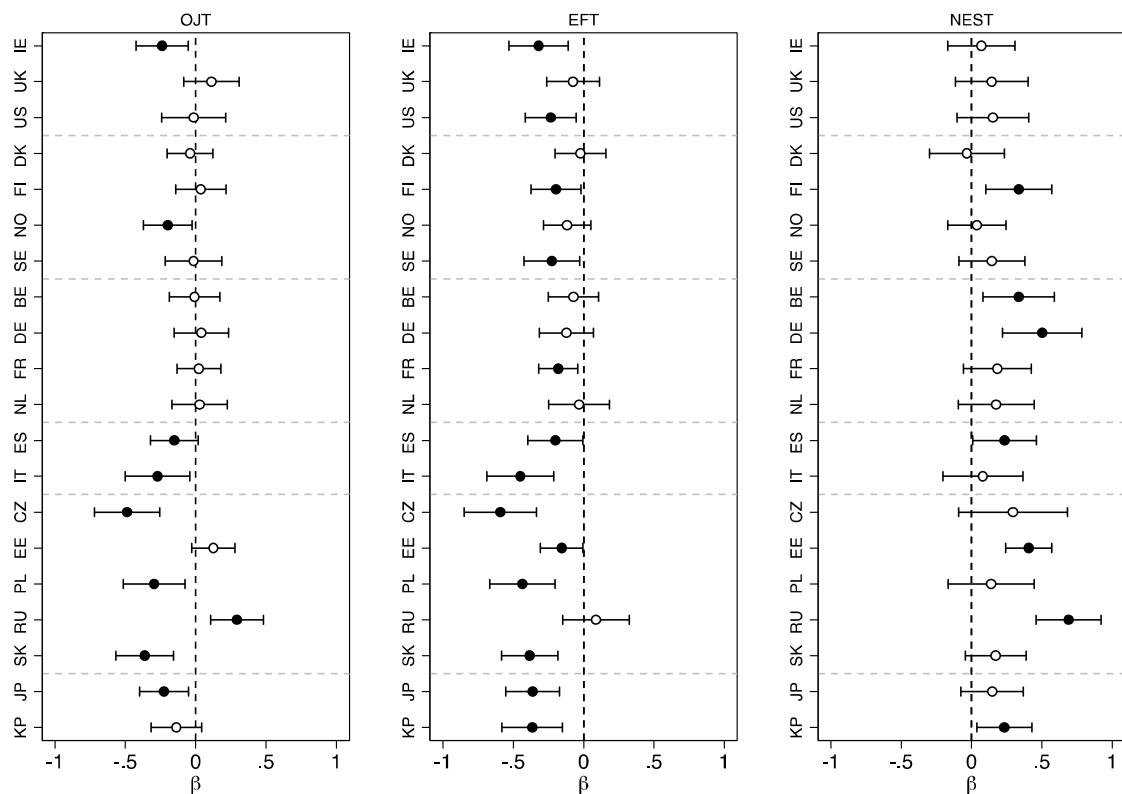
	OJT		EFT		NEST	
	All	Females	All	Females	All	Females
Liberal	43.47	55.00	33.73	53.00	20.27	57.00
Ireland	39.83	52.41	30.51	49.90	19.54	54.16
UK	45.31	58.39	37.79	56.36	17.20	60.55
US	44.84	52.50	29.95	48.75	27.54	54.68
Nordic	46.18	50.00	50.03	48.00	16.10	52.00
Denmark	46.96	52.17	53.04	51.61	11.51	48.70
Finland	55.70	50.74	51.80	47.59	16.83	55.41
Norway	40.47	45.45	51.64	46.29	13.21	48.62
Sweden	40.16	50.11	41.44	45.90	25.46	52.17
Central European	39.39	49.00	38.96	47.00	13.37	56.00
Belgium	37.88	48.31	37.45	47.34	13.49	55.67
Germany	45.70	47.54	40.91	44.63	16.23	58.18
France	24.85	50.00	30.12	46.20	8.42	55.41
Netherlands	53.70	49.73	50.07	47.74	16.89	54.68
Southern European	28.62	45.00	24.29	44.00	13.29	52.00
Spain	34.58	45.44	29.36	44.83	14.59	52.81
Italy	21.16	45.60	17.93	42.16	11.66	51.79
Post-Socialist	33.77	50.00	26.41	47.00	15.24	58.00
Czech Republic	46.91	45.18	38.42	43.58	14.91	56.48
Estonia	43.43	58.22	34.35	54.06	19.12	62.83
Poland	26.65	42.79	20.60	40.06	13.73	48.62
Russia	17.05	67.04	10.09	65.82	13.09	72.68
Slovakia	25.61	43.88	19.86	43.22	13.59	52.88
Asian	35.90	43.00	26.00	39.00	23.09	52.00
Japan	35.78	43.00	29.08	38.79	19.39	53.72
South Korea	35.99	42.94	23.44	38.78	26.16	50.29
All countries	38.63	49.83	34.34	47.49	16.53	54.85

Notes: PIAAC 2012; own calculations. OJT = on-the-job training; EFT = employer-financed training; NEST = non-employer-sponsored training.

6.3.2 Multivariate findings: Individual level

Figure 6.1 presents the estimated net gender differences in training participation, i.e., the mean point estimates of females' beta coefficients of the country-specific logistic regressions (with 95 percent confidence interval), given that the individual characteristics are statistically controlled for. A positive beta coefficient indicates a female advantage in training participation, whereas a negative beta coefficient means a female disadvantage. Filled dots denote significant coefficients, empty dots non-significant ones.⁴⁹

Figure 6.1 Logistic regression models: Probability of females to participate in OJT, EFT, and NEST (conditional coefficients and 95 percent confidence intervals)



Notes: PIAAC 2012; own calculations. Filled dots indicate significant ($p < 0.1$), empty dots non-significant ($p \geq 0.1$) coefficients. All models control for educational level, age, cohabitation, small children, firm size, working hours, and sector. The full models can be found in Appendix Tables B1, B2, and B3.

The findings in Figure 1 suggest that in half of the countries, no statistically significant gender differences in OJT participation exist. In Ireland, Norway, Spain, Italy, the Czech Republic, Poland, Slovakia and Japan females are disadvantaged in OJT participation; while in Russia

⁴⁹ The full models can be found in Appendix Table B1, B2, and B3.

they are advantaged. In turn, in none of the countries, females seem to be (statistically) significantly more likely to participate in EFT than men. Taken together, the results imply gender differences to the disadvantage of women in EFT participation, while participation in OJT is more gender-neutral.

Women are statistically significantly more likely than men to participate in NEST in seven countries. In the remaining countries, the female coefficient – although pointing out a female advantage in participation in almost all countries – does not reach conventional levels of statistical significance.

6.3.3 Bivariate findings: Country level

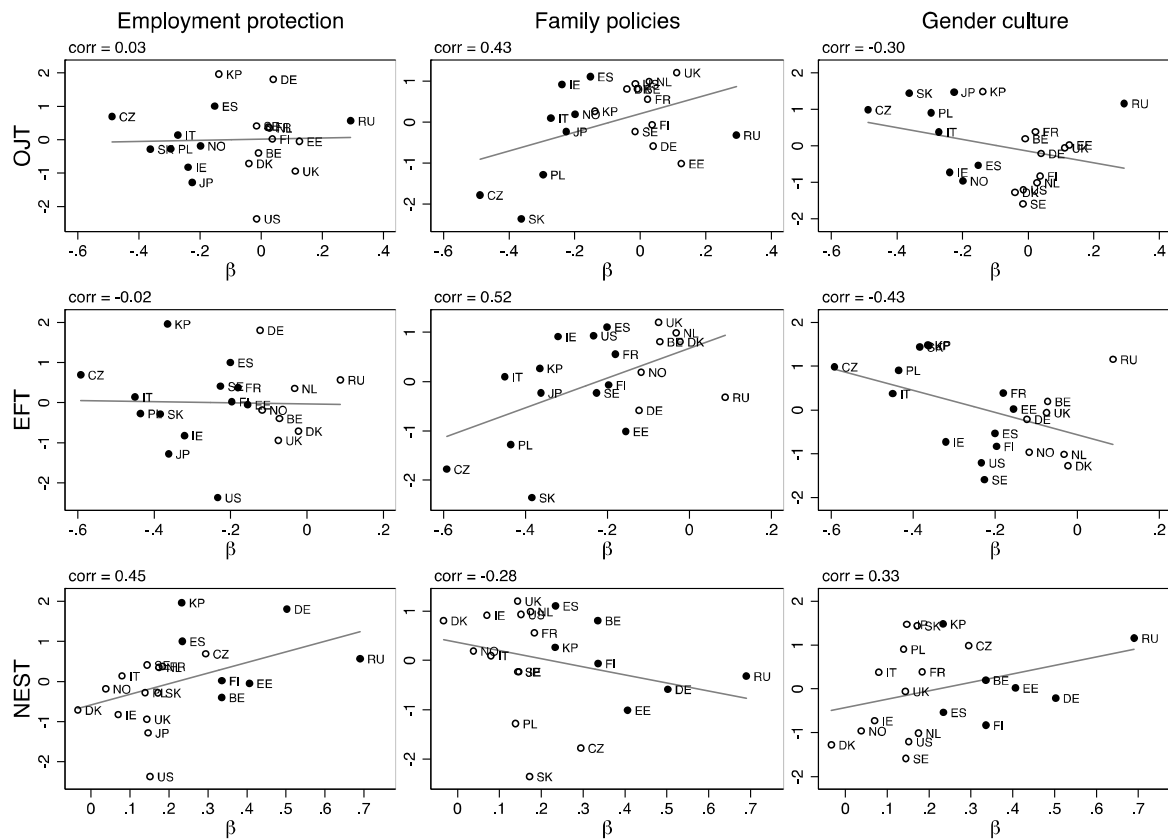
Figure 6.2 displays the bivariate relationship between countries' gender differences in training participation (x-axis) and the country-specific factors (y-axis) through scatter-plots and regression lines from simple OLS regressions. The dependent variables are the b-coefficients for females from the first step of the analysis. Hence, a positive (negative) relationship between the country-level characteristic and the two types of employer-sponsored training (OJT and EFT) indicates lower (higher) participation disadvantages of women for rising values of the macro indicator. A positive (negative) relationship between the country-level characteristic and NEST means higher (lower) participation advantages of women for rising values of the macro indicator.

First, the bivariate relationship between gender differences in both OJT and EFT (the two upper rows) and employment protection is very small, with a correlation of 0.03 and -0.02, respectively. Hence, employment protection seems to not correlate with gender-specific participation in employer-sponsored training. Countries with family policies supporting females' continuous and full-time labor force participation show a lower participation disadvantage of women in both OJT (corr = 0.43) and EFT (corr = 0.52). Further, negative correlations of the gender culture with OJT and EFT indicate a higher female disadvantage in training participation in more traditional countries. This is even more pronounced for EFT with the Pearson correlation coefficient amounting to -0.43 compared with that of OJT (corr = -0.30).

Second, for NEST, I find moderate correlations for all three indicators. Countries with higher employment protection show even higher training participation for women (corr = 0.45). In countries with family policies supporting females' continuous and full-time labor force

participation, the female training advantage is less pronounced ($\text{corr} = -0.28$), while a more traditional gender culture seems to be associated with higher female participation in NEST ($\text{corr} = 0.33$).

Figure 6.2 Scatterplot of countries: Bivariate relation between gender differences in participating in OJT, EFT, and NEST and country-specific characteristics



Notes: PIAAC 2012; own calculations. The conditional effects of females are obtained from logistic regression analyses for every country separately (see also Figure 6.1 and Appendix B1, B2, and B3). Filled dots indicate significant ($p < 0.1$), empty dots non-significant ($p \geq 0.1$) coefficients.

6.3.4 Multivariate findings: Country level

Table 6.3 displays the results of the multivariate analysis that examines the relationship between gender differences in training participation and the country-level variables, net of other country-level covariates.

For OJT, most of the coefficients do not reach conventional levels of statistical significance – which might be a result of the low case numbers ($N=20$ countries). In terms of directions, the findings from the bivariate examination are supported: Countries with higher employment

protection (M1, M2, M4), countries with family policies oriented towards females' labor force participation (M1, M3, M4), and countries with less traditional gender culture (M2, M3, M4) show lower participation disadvantages for women in OJT. The coefficients for employment protection and the gender culture are, however, not significant (neither statistically nor substantially) and the variance explanation of these two indicators is fairly low (see M2: $R^2 = 0.09$). Moreover, when controlling for family policies, the coefficient for the gender culture reduces even more (M3, M4). Altogether, it seems that family policies matter most for gender differences in OJT participation (note statistically significant coefficient in M1).

Small, insignificant coefficients for employment protection also indicate the low importance of this macro characteristic for gender differences in EFT participation (M1, M2, M4). However, when controlling for employment protection, the coefficients for both gender culture and family policies become statistically significant (M1, M2). It seems that the disadvantage of females is lower in countries with more advanced family policies and less traditional gender culture. In Model 3 and 4, in which both of these variables are included, neither of the coefficients is statistically significant. However, this might be due to the high correlation between both variables, which generally dissuades researchers from controlling for both of them. The overall high gains in variance explanation in the full model (M4) on EFT participation compared to OJT participation implies that gender differences in EFT might be particularly contingent on institutional set-ups.

For NEST, the bivariate results are supported: In countries with higher employment protection (M1, M2, M4), with family policies not supporting women's continuous and full-time employment (M1, M3, M4), and with more traditional gender culture (M2, M3, M4), women participate even more in NEST than men. The strength of the coefficients and the variance explanation further suggest that employment protection matters more for explaining gender differences among countries compared with family policies and the gender culture (though, none of the coefficients reaches statistical significance).⁵⁰

⁵⁰ The main conclusions are maintained when running the models with the more detailed country-specific characteristics I used to build the factors.

Table 6.3 OLS regressions (FGLS approach): Gender differences in participating in OJT, EFT, and NEST and their association with country-specific characteristics

	OJT				EFT				NEST			
	M1	M2	M3	M4	M1	M2	M3	M4	M1	M2	M3	M4
Employment protection	0.02	0.02		0.03	0.02	0.01		0.02	0.06	0.06		0.06
Family policies	0.08*		0.06	0.07	0.09**		0.06	0.06	-0.04		-0.03	-0.03
Gender culture		-0.06	-0.02	-0.02		-0.08*	-0.04	-0.04		0.04	0.04	0.03
Constant	-0.09**	-0.09*	-0.09**	-0.09*	-0.22***	-0.22***	-0.22***	-0.22***	0.23***	0.23***	0.23***	0.23***
R2	0.17	0.09	0.16	0.18	0.26	0.20	0.29	0.31	0.22	0.22	0.12	0.24

Notes: PIAAC 2012; own calculations. The conditional effects of females are obtained from logistic regression analyses for every country separately (see also Figure 6.1 and Appendix B1, B2, and B3). * p<0.1; ** p<0.05; *** p<0.01.

Finally, Table 6.4 indicates that – compared with the Nordic countries – Southern European and Asian countries exhibit a higher participation disadvantage of females in OJT, while Liberal and Central European countries show lower levels. In turn, the participation disadvantage of females in EFT is notably higher in Southern European, Post-Socialist and Asian countries compared with Nordic ones. Overall, it seems that Nordic and Central European countries are characterized by the lowest gender differences compared with the other regime types. For NEST, it is the Post-Socialist countries (followed by Central countries) that display the highest gender differences in training participation compared with the Nordic countries. Latter ones, together with Liberal countries, are characterized by the lowest gender differences. Nevertheless, high standard errors do not allow any firm conclusion but more a description of trends.

Table 6.4 OLS regressions (FGLS approach): Gender differences in participating in OJT, EFT, and NEST among country groups

	OJT	EFT	NEST
Nordic (Ref.)			
Liberal	0.01	-0.07	-0.00
Central European	0.08	0.03	0.17
Southern European	-0.15	-0.18	0.04
Post-Socialist	-0.07	-0.15	0.24**
Asian	-0.13	-0.22	0.07
Constant	-0.06	-0.14*	0.12
R2	0.17	0.32	0.35

Notes: PIAAC 2012; own calculations. The conditional effects of females are obtained from logistic regression analyses for every country separately (see also Figure 6.1 and Appendix B1, B2, and B3). * p<0.1; ** p<0.05; *** p<0.01.

6.4 DISCUSSIONS

Using most recent comparative data for 20 contemporary societies from the PIAAC study, this chapter aimed to explore (1) gender differences in participation in employer-sponsored and non-employer-sponsored training and (2) variation in these gendered training participation patterns among regime types and the relation of country-specific characteristics – employment protection legislation, family policies, and the gender culture – with these gendered training participation patterns.

I assumed employers to be more likely to invest in male employees' training because employer-sponsored training is designed to train firm-specific skills that bind employees to

the company, whereas women, due to their more frequent career interruptions, imply a less secure investment in this regard (Hypothesis 1). Rather women seem to have higher incentives and/or a greater demand to invest in non-employer-sponsored training, due to their more volatile career pathways that make general skills more important to find new/better jobs (Hypothesis 2). The findings reveal that gender-specific participation varies notably depending on the training type, with women being less likely to participate in EFT overall (supporting Hypothesis 1) but more likely to participate in NEST (supporting Hypothesis 2). For OJT, however, no consistent female disadvantage was found. While EFT is usually organized as distance or external training, OJT is usually organized as in-house or internal training. Women hence only seem to experience training disadvantages in the more costly, external training type.

Moreover, I found notable country variation in the gendered training participation. Countries with family policies supporting females' continuous and full-time labor force participation and countries with more gender-egalitarian culture demonstrate a lower female participation disadvantage in OJT (albeit not statistically significant) and EFT (supporting Hypotheses 5 and 7). This pattern is further supported when looking at different regime types: Nordic countries (which seek to increase women's labor force participation and are characterized by a pronounced gender-egalitarian culture) imply the lowest female disadvantage in EFT participation. In turn, this disadvantage tends to be notably higher in Southern European, Post-Socialist, and Asian countries. These three regime groups are characterized by more traditional gender cultures and less developed family policies. The gender differences in OJT participation by regime type are similar, with greatest disadvantage of women in Southern European and Asian countries.

Not found was the expected higher female disadvantage in employer-sponsored training participation in countries with higher employment protection (no support for Hypothesis 3). Rather, there seems to be nearly no association of employment protection with gendered training participation in OJT and EFT. Due to the high importance of specific skills in countries with high employment protection (usually CMEs), employers might tend to invest in the training of all of their employees, independent of their ascriptive characteristics, such as gender. Another possible reason might lie in the decreasing length of females' interruptions due to childcare during the last decades (Del Boca and Pasqua 2005). Hence, the

returns to females' training in case of employment interruptions might merely be slightly postponed, but not completely lost.

Regarding gender differences in NEST participation, the findings (although not statistically significant) indicate that women invest even more in training participation on their own in countries with strong employment protection, probably because they seek to improve their chances of accessing 'insider' jobs (supporting Hypothesis 4). Countries with less traditional gender culture show a more equal training participation of men and women (supporting Hypothesis 8). In line with that, I found that Nordic and Liberal countries incorporate the lowest gender differences in NEST – and these countries are characterized by low employment protection and a pronounced gender-egalitarian culture. In turn, Post-Socialist countries show the highest gender differences, meaning that women participate in NEST even more often – probably to compensate for their pronounced training participation disadvantage in EFT. Further a lower female advantage was found in countries with more advanced family policies, supporting Hypothesis 6.

From this summary of findings, we may conclude that women face a double disadvantage in most countries. First, they are disadvantaged in terms of their participation in more costly EFT, which is oriented towards specific skills formation and might be particularly valued by the (current) employer. Second, women – maybe partly due to their disadvantage in employer-sponsored training participation – invest more in their own training (i.e., to acquire more general skills) compared with men. Consequently, men are likely to have better career prospects with their current employer because of higher accumulated specific skills. Nevertheless, women's higher participation in NEST and thus their higher investments in general skills might improve their opportunities of finding new and/or better jobs with other employers (Evertsson 2004). However, this also means that women's careers are more precarious, with lower individual labor market security. Finally, the finding that family policies supporting women's employment and less traditional gender culture are linked to lower female disadvantage in employer-sponsored training indicates that strengthening women's labor market participation and reducing their employment interruptions after childbirth may lessen gender inequalities in the labor market in a broader sense.⁵¹

⁵¹ Such policies may be oriented at e.g., the extension of the coverage and of opening hours of childcare facilities (particularly for small children) and the encouragement of men to participate more in parental leave.

This study has several limitations. First, the results are limited to the 20 countries under study and cannot be easily generalized to further countries. However, by including countries from different welfare state regimes (e.g., Esping-Andersen 1999) and from the West to the East, the analyses cover a broad heterogeneity of contemporary societies. Second, because I am restricted to the use of cross-sectional data, I cannot identify causal effects between country-specific institutional arrangements and gender differences in training participation (which would require longitudinal data at the micro and macro level). Third, while participation in training has been found to improve other labor market outcomes such as wages (e.g., Gronau 1988; Tomaskovic-Devey and Skaggs 2002), it would be promising to study the differences in employers' rewards between employer-sponsored and non-employer-sponsored training. In this regard, I highlight the importance of employers' investments associated with the specific skills formation, which would apparently increase wage returns. In turn, general skills are less likely to lead to such benefits, thereby resulting in a further accumulation of labor market disadvantages for females.

7 SUMMARY AND DISCUSSION

7.1 KEY FINDINGS

This thesis was guided by the following main research questions: First, do gender differences exist for labor market entrants and for the whole working population? And does the extent of gender differences vary from country to country? Second, can conventional country groupings and country-specific characteristics – family policies, the gender culture, and labor market related setups – contribute to the explanation of this country variation?

In order to offer a comprehensive picture of gender differences and inequalities, I have examined several dimensions: For the first phase of the labor market career, I studied horizontal gender differences in terms of the (net) Duncan index based on the (gendered) allocation into production, service, and administration occupations; and I studied vertical gender inequalities in terms of entering high-status occupations. For the whole labor market population, I addressed vertical gender inequalities in terms of holding supervisory positions and participation in three types of job-related non-formal training.

In the following, I review the central findings of this thesis along two main lines: gender differences (1) over the life course and among countries, and (2) among regime types and their relation to country-specific characteristics.

7.1.1 Gender differences of labor market entrants and the whole labor market population among countries

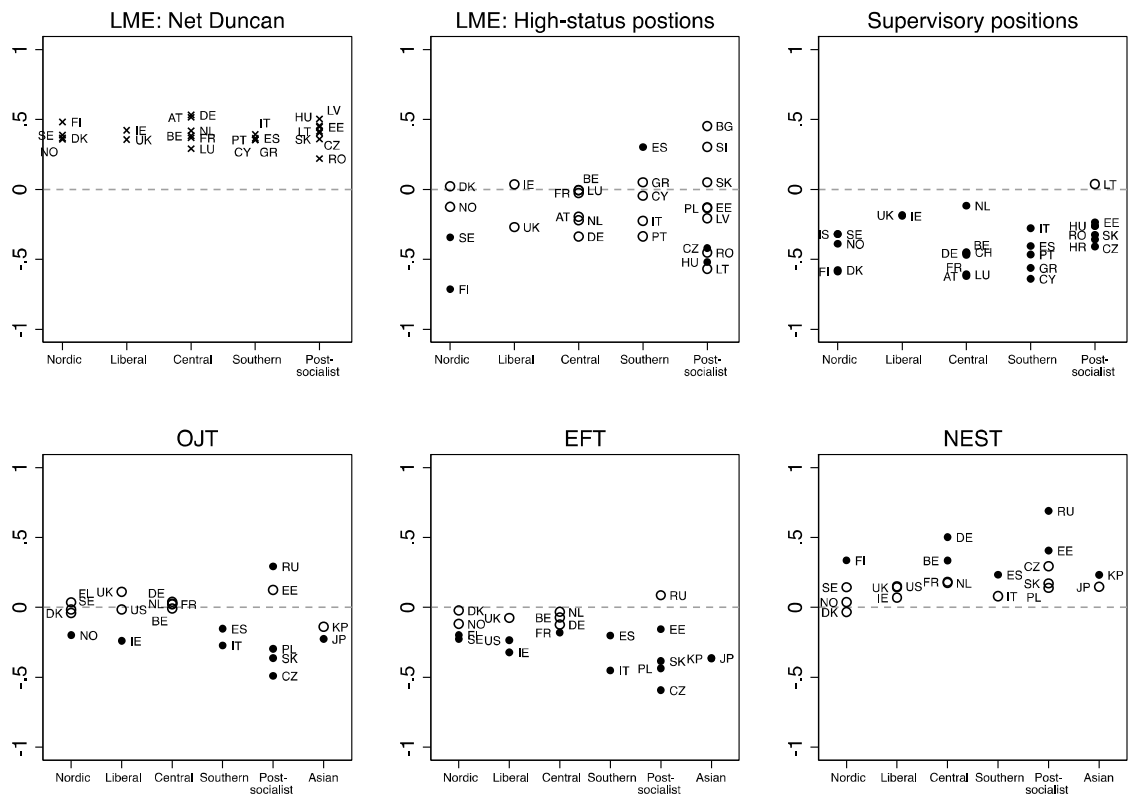
Are gender differences less pronounced among labor market entrants compared to the whole labor market population? And how do gender differences vary from country to country? Figure 7.1, which summarizes the empirical findings of Chapters 4, 5, and 6, provides an answer to these questions. Countries are ordered by regime type.

The upper-left graph shows the countries' net Duncan at labor market entry, with higher values indicating greater horizontal gender differences (i.e., the percentage of women or men who would have to change occupations in order to achieve an even gender allocation across occupations, while individual characteristics are controlled for). There are notable gender differences in all countries, with the net Duncan amounting to a minimum 30 percent (the

only exception being Romania). The net Duncan in Austria, Germany, and Latvia is particularly high with over 50 percent. In turn, Romania, Luxembourg, and the three Southern European countries of Greece, Cyprus, and Portugal display relatively low horizontal gender differences (between 22 and 35 percent). The presence of horizontal gender differences already at the beginning of the labor market career is in line with theories about socialization: Because children are confronted with gender-specific stereotypes and norms from parents and educators, they choose educational pathways that are later translated into occupational pathways in a gender-specific manner. Women might further strengthen these initial educational choices by selecting certain occupations in order to have better possibilities of combining family and work and due to their higher interest in female-typical work. Moreover, employers might contribute to horizontal gender differences by hiring women for female-typical occupations due to beliefs that women are better suited for these occupations.

The remaining graphs concern vertical gender inequalities. The dots are the beta-coefficients for being female from the country-specific regression analyses, and the dependent variable is the respective labor market outcome (under control of important individual characteristics). A negative coefficient indicates a female disadvantage; a positive one indicates a female advantage. Filled dots denote significant coefficients; empty ones non-significant coefficients.

Comparing men and women with similar characteristics, women seem to be less likely than men to enter high-status occupations at labor market entry in most countries (upper graph in the middle). However, the female disadvantage is only statistically significant in the two Nordic countries of Sweden and Finland and in the two Post-Socialist countries of the Czech Republic and Hungary. In turn, Spain actually displays an advantage for women, while the same is true for Denmark, Ireland, Greece, and the three Post-Socialist countries of Bulgaria, Slovenia, and Slovakia, although they do not reaching conventional levels of significance.

Figure 7.1 Summary of findings for gender differences in the labor market

Notes: LFS 2009; LFS 2013; PIAAC 2012; own calculations. Country-specific regression analyses under control of important independent variables (see Sections 4.2.1, 5.2.1, and 6.2.1 for more information); dots indicate beta-coefficient for females (dependent variable is the respective gendered labor market outcome); filled dots indicate significant coefficients; empty dots indicate non-significant coefficients; net Duncan calculated on the basis of entry into service, production, or administration occupations.

LME = labor market entry; OJT = on-the-job training; EFT = employer-financed training; NEST = non-employer-sponsored training.

For the whole labor market population, the results indicate that women are disadvantaged in entering supervisory positions in every country (the only exception being Lithuania, with non-significant gender differences; upper-right graph). Compared with the findings for the other vertical gender inequalities, females' disadvantage in supervisory positions seems to be most recurrent. One possible explanation is that supervisory positions incorporate direct 'control' over (male) workers. Hence, the allocation of men and women into these 'power positions' might be even more dependent on gendered beliefs about women's and men's characteristics, i.e., that women lack important characteristics and are too emotional or that men are considered as more status-worthy and better suited for supervisory positions (Charles 2005; Kanter 1977).

In eight out of 20 countries, women are statistically significantly disadvantaged in on-the-job training participation (lower-left graph), while in the remaining countries, no statistically significant differences exist (Russia being the only exception, with women more likely to participate than men). For employer-financed training participation, women face a disadvantage in 12 out of 20 countries (lower graph in the middle). In turn, for non-employer-sponsored training, the lower-right graph indicates a statistically significant female advantage in seven countries.

Although the different vertical dimensions of gender inequalities examined are not directly comparable, it seems that – when looking at the whole labor market population – women face higher disadvantages than the subgroup of labor market entrants in the majority of countries. This is particularly true for working in supervisory positions. One explanation is that family responsibilities that conflict with paid employment are relatively negligible within the group of labor market entrants, making women more likely to choose higher and more demanding positions. Moreover, employers' reluctance to promote women might be less pronounced because of a lower risk of females' career interruptions or lower females' labor market attachment.

Regarding country differences, it is difficult to identify any consistent pattern across the different labor market outcomes. Overall, it seems that in all vertical dimensions, women face relatively low disadvantages in the UK and in the Netherlands, while these disadvantages are high in the Czech Republic and Slovakia. In Belgium, Germany, and Denmark, women are not statistically significantly less likely to participating in the two types of employer-sponsored training; however, their disadvantage in working in supervisory positions is quite pronounced. An important conclusion is hence that depending on the respective dimension of gender differences in the labor market, women's position differs notably, even within countries. The findings of women's position in one dimension of gender differences are therefore not generalizable to another dimension.

7.1.2 Gender differences among regime types and their relation with country-specific characteristics

The following summarizes the empirical findings of Chapters 4, 5, and 6 on how gender differences and inequalities differ among regime types and how they are related to country-specific characteristics. Beginning with regime-type differences, women in Liberal and Post-

Socialist countries experience statistically significantly lower net disadvantages for entering high-status positions at the beginning of their labor market career and for working in supervisory positions (compared with the Nordic countries). These states are characterized by low social benefits that cover only minimum standards and hence by an individualization of risks (Esping-Andersen 1990; 1999). This overall uncertainty (and particularly the fact that women cannot rely on the state in case of career interruptions) might constitute one reason why women in Liberal and Post-Socialist countries are more eager to enter these demanding positions and thereby stabilize their employment positions. Moreover, the lower replacement costs in these countries might reduce employers' reluctance to hire women in demanding positions.

It is also worth mentioning the particular pattern in Southern European countries: They are characterized by the lowest female disadvantage in entering high-status positions at labor market entry (statistically significantly from the Nordic countries), but by pronounced female disadvantages in all other vertical dimensions of gender inequalities when measured for all labor market phases (although they do not statistically significantly differ from the Nordic countries). This might offer further evidence that employers base their hiring decisions on the possibility of women's (costly) employment interruptions, which disadvantages women particularly in these countries due to (still) underdeveloped family policies. Alternatively, the more traditional gender culture might explain females' pronounced disadvantages in later career stages by resulting both in women's lower career ambitions and employers' higher reluctance to support women's career progress. A similar argument can be made for the high female disadvantage in employer-financed training participation found in the Asian countries.

Table 7.1 summarizes the findings regarding the relation of country-specific characteristics with gender differences in the labor market. In countries with advanced family policies (i.e., parental leave after childbirth and childcare provision encouraging females' full-time and continuous labor market participation), women face lower disadvantages in entering high-status positions and in participating in both types of employer-sponsored training. Both shorter leave and higher childcare provision reduce the length of females' employment interruptions, which also lessen human capital differences between men and women. As result, employers might more likely invest in women due to the lower risk of loose returns in these countries (both in terms of longer-term commitment to high-status positions and in terms of training participation). Moreover, females' reluctance to enter high-status positions is

likely to be reduced as childcare gives them the possibility of dedicating more time to their careers. However, the result that women are even less likely to work in supervisory positions in countries with advanced family policies is puzzling. As mentioned before, supervisory positions are special insofar as they corporate direct ‘control’ over other (male) workers and might therefore even depend more on gendered beliefs of women’s and men’s characteristics (Charles 2005; Kanter 1977). In countries with family policies supporting women’s full-time and continuous labor market participation, these gender beliefs and stereotypes might be even more pronounced because these policies increase societies’ awareness of females’ double burden of combining work and family. Moreover, these policies still primarily aim at increasing women’s labor force participation and hence might only marginally help improve women’s status in vertical dimensions in the labor market.

A more gender-egalitarian culture is beneficial for women’s participation in employer-sponsored training and related to lower participation differences in non-employer-sponsored training between men and women. This result was expected because in more gender-egalitarian countries, women’s role is not only focused on family and childcare responsibilities but is also extended to paid work in the labor market. Employers’ discrimination against women might therefore be lower in these countries, and women might also be more career-oriented. In turn, the gender culture does not seem to be linked to horizontal gender differences.

Horizontal gender differences are greater in countries with a higher proportion of women working in the public sector, which might be explained by the greater attractiveness of these jobs to females: They are closer to females’ traditional responsibilities and offer more convenient working conditions compared with jobs in the private sector. Employment protection seems to matter only for non-employer-sponsored training participation in increasing females’ participation compared with that of men.

Table 7.1 Summary of findings on the relation of gender differences and country-specific characteristics

Domain	Country-specific characteristic	Labor market outcome Relation
Family policies	Leave and childcare arrangements	High-status positions Lower female disadvantage (significant moderate relation)
	supporting females' employment	Supervisory positions Higher female disadvantage (non-significant small relation)
		OJT participation Lower female disadvantage (non-significant moderate relation)
		EFT participation Lower female disadvantage (significant high relation)
Gender culture		NEST participation Lower female advantage (non-significant moderate relation)
	% agreement: preference of men's work	Net Duncan No relation
		OJT participation Higher female disadvantage (non-significant moderate relation)
		EFT participation Higher female disadvantage (significant moderate relation)
Structural and labor market related factors		NEST participation Higher female advantage (non-significant moderate relation)
	% of women in the public sector	Net Duncan Higher net Duncan (non-significant small relation)
	Employment protection	OJT participation No relation
		EFT participation No relation
Women's position in the labor market		NEST participation Higher female advantage (non-significant moderate relation)
	Female (compared with male) employment	High-status positions Higher female disadvantage (significant moderate relation)
	Females full- vs. part-time employment	High-status positions No relation
	Maternal employment	Supervisory positions Higher female disadvantage (non-significant moderate relation)
	% of male-dominated occupations	Supervisory positions Lower female disadvantage (non-significant small relation)

Notes: OJT = On-the-job training; EFT = Employer-financed training; NEST = Non-employer-sponsored training; strength of relation refers to correlation; > 0.5 = high correlation; 0.25-0.5 = moderate correlation; 0.1-0.24 = small correlation; <0.1 = no correlation.

With rising female employment rates, females' disadvantage in entering high-status positions increases, while the same pattern is found for maternal employment and women's chances of accessing supervisory positions. These findings are in line with Hakim (2006), who stated that with rising female labor market participation, more women enter the labor market who are not primarily career-oriented but instead opt for a suitable combination of family and work tasks ('adaptive women'). These women are hence less likely to enter high-demanding positions, because they make it more difficult to combine employment and family (see also Section 3.4). Females' part-time vs. full-time employment seems to not be related to entering high-status occupations. Finally, women fare better in terms of accessing supervisory positions in countries with a higher percentage of male-dominated occupations.

Summing up these findings, I have found support for the argument that very different country-specific characteristics are related to females' (dis-)advantage in the labor market. However, it also seems that the relationship depends on the respective labor market outcome; hence, one should be very careful when generalizing the relationship between country-specific factors with one dimensions of gender differences to that of another dimension.

7.2 THEORETICAL IMPLICATIONS

After more than 70 years of Europe's promoting gender equality,⁵² women indeed outperform men in terms of educational attainment and are increasingly participating in the labor market in most contemporary societies. However, as Steinmetz (2012) has noted, gender equality is often treated as only a 'quantitative' problem by referring to sheer numbers of male and female students or the percentage of females (compared with males) participating in the labor market. In this regard, Nordic countries (and countries under the socialist regime) would be characterized by the highest gender equality. However, this perspective overlooks the 'qualitative' dimension of paid work, meaning gender differences in horizontal (e.g., Where do women and men work?) and vertical (e.g., Do men and women differ in terms of hierarchical outcomes such as entering high-status occupations?) labor market outcomes.

Since women now indeed participate to a similar extent as men in paid employment in most countries, the qualitative dimensions of paid work are becoming more and more important benchmarks for gender equality. In this context, it is particularly important to understand that

⁵² This promotion began around 1957 with the Treaty of Rome, initiating the principle of equal pay for equal work.

countries with high female labor force participation are not necessarily the ones with the lowest vertical gender equalities. By examining different ‘qualitative’ indicators for men’s and women’s labor market situations, this thesis contributes to the understanding of overall gender equality in the labor market.

The finding that women (with comparable characteristics to men) are still disadvantaged in several dimensions of gender differences in the labor market in most contemporary societies, particularly in entering supervisory positions and participating in employer-financed training, is discouraging. Nevertheless, I have also found some evidence for a more optimistic forecast.

First, the female disadvantage seems to be lower among labor market entrants compared to the whole labor market population.⁵³ This can be interpreted as evidence that (time-consuming) family responsibilities are one reason for females’ disadvantage, either by making employers more reluctant to promote women to the same extent as men or by modifying women’s preferences: Since they have to combine work and family life, particularly women with childcare responsibilities might be less motivated to work in highly demanding positions. I have found the potential of family policies (such as higher childcare provision and shorter parental leave) to decrease females’ disadvantages in terms of entering high-status positions and participating in employer-financed training. Hence, countries might further decrease the level of gender inequalities by improving childcare provision and encouraging men to participate more into household and childcare responsibilities. The fact that a more traditional gender culture seems to impede progress in gender equality is no less important (in countries with more gender-traditional gender culture, females’ disadvantage in employer-sponsored training is higher). Hence, the implementation of efficient policies as well as the promotion of a more gender-egalitarian climate through public relations might have the potential to improve women’s qualitative labor market situation.

Second, I have found a high women’s disadvantage in participating in employer-sponsored training in the Asian countries compared with other welfare states. This strengthens the aforementioned argument about the possible beneficial effects of advanced family policies and gender-egalitarian culture. Compared with the Asian countries, the spread of gender-egalitarian attitudes and the developments of family-friendly policies in most other welfare

⁵³ However, it should be noted that I examine different labor market outcomes for labor market entrants and the whole labor market population due to data constraints (see also Section 7.3).

states have been more pronounced. Therefore, we might conclude that both macro factors contribute to a more favorable labor market situation for females.

Third, the female disadvantage differs depending on the labor market outcome examined. This attests that gender equality is a multifaceted construct that cannot be reduced to one dimension. When relying on what is probably the most popular indicator for women's labor market disadvantage (i.e., earnings), women seem to be disadvantaged in an unchanged manner (e.g., Triventi 2013; Christofides et al. 2013; Mandel and Semyonov 2005). However, as this thesis has been able to demonstrate, in several countries, women do not suffer in terms of other dimensions of gender inequalities, such as the entrance into high-status occupations or participation in on-the-job training. These dimensions have received less attention until now, but they constitute important dimensions of the overall gendered labor market situation and also seem to be connected to gender differences in earnings (Jones et al. 2011; Tomaskovic-Devey and Skaggs 2002; Yaish and Stier 2009).

Finally, there is no 'exemplary country' with low gender differences in all dimensions. Rather, it seems that the reduction of gender differences in one dimension might be accompanied by an increase in another dimension. This indicates that the road to greater gender equality is a long and rocky one and that it can only be managed step by step. For example, Nordic countries are characterized by high female labor force participation, but this comes at the cost of relatively high vertical gender inequalities.

Another issue arises when thinking about the question of what society (or women) actually want(s). As the theoretical part of this thesis regarding the gender culture has shown, it is indeed not the case that men and women are seen as equal and that even when there is a high agreement with female labor force participation, this is often also coupled with a high agreement with traditional gender roles. It is additionally important to note that this agreement with traditional gender roles is not only what men expect from women but also results from women's own ideas about their roles. Moreover, as Leitner (2003) emphasizes, the family will always remain the most important care provider. Since women – and not men – give birth and breastfeed children, they will always have a double burden of work and family, at least for a limited time period, but more probably for a longer time span as a good share of women also want to spend more time with their children, even as they grow up. Altogether, women's (and men's) own preferences and choices are likely to play a very important role, and more

research is needed to understand how these preferences impact on different dimensions of gender differences and how and why they differ among countries.

7.3 LIMITATIONS AND FUTURE RESEARCH

There are several limitations to the current research (see also Sections 3.4, 4.4, 5.4, and 6.4). The following describes the main limitations and some implications for further research.

First, given the cross-sectional nature of all the data I use, I cannot disentangle any causal effects. All that this thesis aims to describe are gendered patterns and their association with country-specific institutional settings and policies.

Second, also due to the cross-sectional nature of the data I use, I cannot clearly disentangle whether the female disadvantage in vertical gender inequalities is indeed lower for labor market entrants and higher for the whole labor market population. Or whether females' disadvantage has decreased over time, meaning that the cohorts I examine for the first significant job (which are, on average, younger than all the cohorts covered by the whole labor market population) would also experience lower gender inequality in their later lives.

Third, the data on the labor market entry (LFS ad hoc module) is very limited. However, to the best of my knowledge, there is no other cross-national data available that offer information on the first career phase for the whole population. Regarding the measurement of vertical gender inequalities, I was required to use the ISCO-classification and to rely on the entry into ISCO-1 and ISCO-2 occupations (high-status occupations) since other information on vertical dimensions is not provided. It is possible that the finding of lower vertical gender inequalities in the first career stage compared with later stages is due to this measurement. Hence, it would be promising to examine with panel or event history data how gender differences develop over the labor market career. Moreover, it would be interesting to compare the development of different dimensions of gender differences over the life course because, as this thesis has demonstrated, findings for one labor market outcome are not generalizable for other outcomes. Further research is needed to shed more light on these topics.

8 REFERENCES

- Abendroth, A.-J., Maas, I., & van der Lippe, T. (2013). Human Capital and the Gender Gap in Authority in European Countries. *European Sociological Review*, 29(2), 261–273.
- Aboim, S. (2010). Gender Cultures and the Division of Labour in Contemporary Europe: A cross-national Perspective. *Sociological Review*, 58(2), 171–196.
- Acemoglu, D., & Pischke, J.-S. (1999). Beyond Becker: Training in imperfect Labor Markets. *Economic Journal*, 109, 112–142.
- Achen, C. H. (2005). Two-Step Hierarchical Estimation: Beyond Regression Analysis. *Political Analysis*, 13(4), 447–456.
- Akgunduz, Y. E., & Plantenga, J. (2013). Labour Market Effects of Parental Leave in Europe. *Cambridge Journal of Economics*, 37(4), 845–862.
- Albert, C., García-Serrano, C. & Hernanz, V. (2010). On-the-job Training in Europe: Determinants and Wage Returns, *International Labour Review*, 149(3), 315–341.
- An, M.-Y. (2013). Institutional Options, Cultural Orientation and Mothers' Work and Family Reconciliation in Korea. *Asian Social Work and Policy Review*, 7, 157–174.
- Anghel, B., De la Rica, S., & Dolado, J. J. (2011). The Effect of Public Sector Employment on The Effect of Public Sector Employment on Women's Labour Market Outcomes (No. 5825). IZA Discussion Papers. Bonn.
- Anker, R. (1998). Gender and jobs: Sex Segregation of Occupations in the World. Geneva: International Labour Office.
- Arrow, K. J. (1973). Higher Education as a Filter. *Journal of Public Economics*, 2, 193–216.
- Arts, W. A., & Gelissen, J. (2010). Models of the Welfare State. In F. G. Castles, S. Leibfried, J. Lewis, H. Obinger and C. Pierson (Eds.), *The Oxford Handbook of The Welfare State* (pp. 569-584). Oxford: University Press.
- Arts, W., & Gelissen, J. (2002). Three Worlds of Welfare Capitalism or more? A State-of-the-Art Report. *Journal of European Social Policy*, 12(2), 137–158.
- Arulampalam, W., Booth, A. L., & Bryan, M. L. (2007). Is There a Glass Ceiling over Europe? Exploring the Gender Pay Gap across the Wage Distribution. *Industrial and Labor Relations Review*, 60(2), 163–186.
- Aspalter, C. (2001). Conservative Welfare State Systems in East Asia, Westport, CT: Praeger.

- Aspalter, C. (2006). The East Asian Welfare Model. *International Journal of Social Welfare*, 15(4), 290–301.
- Austin PC (2010). Estimating multilevel logistic regression models when the number of clusters is low: a comparison of different statistical software procedures. *The International Journal of Biostatistics*, 6(1), Article 16.
- Bambra, C. (2004). The Worlds of Welfare: Illusory and Gender Blind? *Social Policy and Society*, 3(3), 201–212.
- Barbulescu, R., & Bidwell, M. (2013). Do Women choose different Jobs from Men? Mechanisms of Application Segregation in the Market for Managerial Workers. *OrganizationScience*, 24(3), 737–756.
- Barón, J. D., & Cobb-Clark, D. A. (2008). Occupational Segregation and the Gender Wage Gap in Private- and Public-Sector Employment: A Distributional Analysis. IZA Discussion Paper Series (No. 3562). IZA Bonn, Germany.
- Barone, C. (2011). Some Things Never Change: Gender Segregation in Higher Education across eight Nations and three Decades. *Sociology of Education*, 84(2), 157–176.
- Bassanini A., Booth A., Brunello G., et al. (2005). Workplace Training in Europe. IZA Discussion Paper (No. 1640), IZA Bonn, Germany.
- Becker G. S. (1962). Investment in human capital: A theoretical analysis. *Journal of Political Economy*, 70(5), 9–49.
- Becker, G. S. (1964). *Human Capital*. New York: Columbia University Press.
- Becker, G. S. (1971). *Economics of Discrimination*. Chicago: The University of Chicago Press.
- Becker, G. S. (1985). Human Capital, Effort, and the Sexual Division of Labor. *Journal of Labor Economics*, 3(1), 33–58.
- Bernardi, F. (1999). Does the Husband matter? Married Women and Employment in Italy. *European Sociological Review*, 15(3), 285–300.
- Bernardi, F., Gangl, M., & Van de Werfhorst, H. G. (2004). The from-School-to-Work Dynamics: Timing of Work and Quality of Work in Italy, the Netherlands, and the United States, 1980-1998. *Estudio Working Paper* 2004/201.
- Bielby, W. T. (2001). The Structure and Process of Sex Segregation. In D. B. Grusky (Ed.), *Social Stratification: Class, Race, and Gender in Sociological Perspective* (2nd ed., pp. 703–714). Oxford: Westview Press.
- Blackburn, R. M., & Jarman, J. (2006). Gendered Occupations: Exploring the Relationship between Gender Segregation and Inequality. *International Sociology*, 21(2), 289–315.

- Blau, F. D., Brummund, P., & Liu, A. Y.-H. (2013). Trends in Occupational Segregation by Gender 1970–2009: Adjusting for the Impact of Changes in the Occupational Coding System. *Demography*, 50(2), 471–92.
- Blossfeld, H.-P. (1987). Labor-Market Entry and the Sexual Segregation of Careers in the Federal Republic of Germany. *American Journal of Sociology*, 93 (1), 89–118.
- Blossfeld, H.-P., & Hakim, C. (1997). Introduction: A Comparative Perspective on Part-Time Work. In H.-P. Blossfeld & C. Hakim (Eds.), *Between Equalization and Marginalization. Women Working Part-Time in Europe and the United States of America* (pp. 1–21). Oxford: Oxford University Press.
- Blossfeld, H. P., & Stockmann, R. (1999). The German Dual System in Comparative Perspective. *International Journal of Sociology*, 28(4), 3–28.
- Blossfeld, H.-P., Buchholz, S., Dämmrich, J., Kilpi-Jakonen, E., Kosyakova, Y., Skopek, J., Triventi, M., & Vono de Vilhena, D. (2015). Gender Differences at Labor Market Entry: The Effect of Changing Pathways and Institutional Structures. In: Blossfeld, H.-P., Skopek, J., Triventi, M., & Buchholz, S. (Eds.). *Gender, Education and Employment. An International Comparison of School-to-Work Transitions*. Cheltenham, UK: Edward Elgar.
- Bohle, D., & Greskovits, B. (2007). Neoliberalism, embedded Neoliberalism and Neocorporatism: Towards Transnational Capitalism in Central-Eastern Europe. *West European Politics*, 30(3), 443–466.
- Bonoli, G. (1997). Classifying Welfare States: a Two-dimension Approach. *Journal of Social Policy*, 26(3), 351–72.
- Borghans, L., & Groot, L. (1999). Educational Presorting and Occupational Segregation, *Labour Economics*, 6, 375–395.
- Bowers J and Drake KW (2005). EDA for HLM: Visualization when probabilistic inference fails. *Political Analysis*, 13(4), 301–326.
- Brainerd, E. (2000). Women in Transition: Changes in Gender Wage Differentials in Eastern Europe and the Former Soviet Union. *Industrial & Labor Relations Review*, 54(1), 138–162.
- Brückner, H., & Mayer, K. U. (2005). De-Standardization of the Life Course: What it Might Mean? And if it Means Anything, Whether it Actually Took Place? *Advances in Life Course Research*, 9, 27–53.

- Bryan, M.L., & Jenkins, S.P. (2013). *Regression Analysis of Country Effects using Multilevel Data: A Cautionary Tale*. Institute for Social and Economic Research, University of Essex.
- Bryan ML and Jenkins SP (2015). Multilevel modelling of country effects: A cautionary tale. *European Sociological Review*, First online: May 8, 2015: 1–20.
- Buchholz, S., Hofacker, D., Mills, M., Blossfeld, H.-P., Kurz, K., & Hofmeister, H. (2008). Life Courses in the Globalization Process: The Development of Social Inequalities in Modern Societies. *European Sociological Review*, 25(1), 53–71.
- Buchmann, M., & Charles, M. (1995). Organizational and Institutional Factors in the Process of Gender Stratification: Comparing Social Arrangements in Six European Countries. *International Journal of Sociology*, 25(2), 66–95.
- Bukodi, E., & Dex, S. (2010). Bad Start: Is There a Way Up? Gender Differences in the Effect of Initial Occupation on Early Career Mobility in Britain. *European Sociological Review*, 26(4), 431–446.
- Cha Y. (2013). Overwork and the Persistence of Gender Segregation in Occupations. *Gender & Society*, 27(2), 158–184.
- Chang, M. L. (2000). The Evolution of Sex Segregation Regimes. *The American Journal of Sociology*, 105(6), 1658–1701.
- Charles, M. (1992). Cross-National Variation in Occupational Sex Segregation. *American Sociological Review*, 57(4), 483–502.
- Charles, M. (2005). National Skill Regimes, Postindustrialism, and Sex Segregation. *Social Politics: International Studies in Gender, State & Society*, 12(2), 289–316.
- Charles, M. (2011). A World of Difference: International Trends in Women’s Economic Status. *Annual Review of Sociology*, 37(1), 355–371.
- Charles, M., & Bradley, K. (2009). Indulging our Gendered Selves? Sex Segregation by Field of Study in 44 Countries. *American Journal of Sociology*, 114(4), 924–76.
- Charles, M., & Grusky, D. B. (2004). *Occupational Ghettos: The Worldwide Segregation of Women and Men* (pp. 1–57). Stanford: Stanford University Press.
- Choi, Y. J. (2007). Coming to a Standstill? A New Theoretical Idea of East Asian Welfare Regimes (No. 3). Oxford.
- Christofides, L. N., Polycarpou, A., & Vrachimis, K. (2013). Gender Wage Gaps, “Sticky Floors” and “Glass Ceilings” in Europe. *Labour Economics*, 21(March 2009), 86–102.
- Clark, R., Ramsbey, T. W., & Adler, E. S. (1991). Culture, Gender, and Labor Force Participation: A Cross-National Study. *Gender and Society*, 5(1), 47–66.

- Conti, G. (2005). Training, productivity and Wages in Italy. *Labour Economics*, 12(4), 557–576.
- Council of Europe (2005). Parental Leave in Council of Europe Member States. Strasbourg, France: Council of Europe Publishing.
- Dämmrich J, Vono De Vilhena, D and Reichart, E (2012). Participation in Adult Learning in Europe: The Impact of Country-Level and Individual Characteristics. In: Blossfeld H-P, Kilpi-Jakonen E, Vono De Vilhena D, Buchholz, S (2014). *Adult Learning in Modern Societies. An International Comparison from a Life-Course Perspective*, Cheltenham (UK) and Northampton (USA): Edward Elgar, pp. 29–55.
- Dannefer, D. (2003). Toward a Global Geography of the Life Course. Challenges of Late Modernity for Life Course Theory. In J. T. Mortimer & M. J. Shanahan (Eds.), *Handbook of the Life Course* (pp. 647–660). New York: Kluwer Academic.
- Deacon, B. (2000). Eastern European Welfare States: the Impact of the Politics of Globalization. *Journal of European Social Policy*, 10(2), 146–161.
- Del Boca, D., & Pasqua, S. (2005). Social Policies and Employment of Married Women in Europe. *Working Papers Child No. 19/2005*. Centre for Household, Income, Labour and Demographic Economics. Turin, Italy.
- Dieckhoff, M. & Steiber, N. (2012). Institutional reforms and Age-Graded Labour Market Inequalities in Europe. *International Journal of Comparative Sociology*, 53, 97–119.
- Dieckhoff, M., & Steiber, N. (2011). A Re-Assessment of common Theoretical Approaches to explain Gender Differences in Continuing Training Participation. *British Journal of Industrial Relations*, 49(S1), 135–157.
- Dieckhoff, M., Jungblut, J.-M., & O`Connell, P. J. (2007). Job-Related Training in Europe: Do Institutions Matter? In D. Gallie (Ed.), *Employment Regimes and the Quality of Work* (pp. 77–103). Oxford: University Press.
- Dolado, J. J., Felgueroso, F., & Jimeno, J. F. (2004). Where do Women Work?: Analysing Patterns in Occupational Segregation by Gender. *Annales D'Economie et de Statistique*, 71-72, 294–315.
- Dommermuth, L. (2007). Wege ins Erwachsenenalter in Europa. Italien, Westdeutschland und Schweden im Vergleich. Wiesbaden: VS-Verlag.
- Drobnic, S., & Blossfeld, H. P. (2001). Careers of Couples and Trends in Inequality. In S. Drobnic & H.P. Blossfeld (Eds.), *Careers of Couples in Contemporary Society. From Male Breadwinner to Dual-Earner Families* (pp. 371–386). Oxford: University Press.

- Duncan, O. D., & Duncan, B. (1955). A Methodological Analysis of Segregation Indexes. *American Sociological Review*, 20(2), 210–217.
- Ebbinghaus, B. (2005). When Less is More: Selection Problems in Large- N and Small- N Cross-National Comparisons. *International Sociology*, 20(2), 133–152.
- Elder, G. H., Johnson, M. K., & Crosnoe, R. (2003). The Emergence and Development of Life Course Theory. In J. T. Mortimer & M. J. Shanahan (Eds.), *Handbook of the Life Course* (pp. 3–22). New York: Springer.
- Elias, P. (1997). Occupational Classification (ISCO-88): Concepts, Reliability, Validity and Cross-National Comparability. *OECD Labour Market and Social Policy Occasional Papers No. 20*. Paris: OECD Publishing.
- Ellingsaeter, A. L. (2013). Scandinavian Welfare States and Gender (De) segregation: Recent Trends and Processes. *Economic and Industrial Democracy*, 34(3), 501–518.
- Elliott J. R., & Smith R. A. (2004). Race, Gender, and Workplace Power. *American Sociological Review*, 69(3), 365–386.
- Emerek R. (2006). Measuring Gender Segregation. In: Gonäs L and Karlsson JC (eds), *Gender Segregation. Divisions of Work in Post-Industrial Welfare States*, Aldershot: Ashgate Publishing Limited, pp. 65–82.
- England, P., Allison, P., & Wu, Y. (2007). Does bad Pay cause Occupations to feminize, Does Feminization reduce Pay, and how can we tell with Longitudinal Data? *Social Science Research*, 36, 1237–1256.
- EPSU (2013). *Cuts in Public Sector Pay and Employment: the Impact on Women in the Public Sector*. Brussels. Available online at: http://www.epsu.org/IMG/pdf/Impact_of_cuts_initial_drft_report_layout.pdf (accessed 13 October 2014)
- Esping-Andersen, G. (1990). *The Three Worlds of Welfare Capitalism*, Cambridge, UK: Blackwell Publishing Ltd.
- Esping-Andersen, G. (1997). Hybrid or Unique: The Japanese Welfare State between Europe and America. *Journal of European Social Policy*, 7(3), 179-189.
- Esping-Andersen, G. (1999). *Social Foundations of Postindustrial Economies*. Oxford: Oxford University Press.
- Esping-Andersen, G. (2009). *The Incomplete Revolution. Adapting to Women’s New Roles*. Polity Press: Cambridge.

- Estevez-Abe, M. (2005). Gender Bias in Skills and Social Policies: The Varieties of Capitalism Perspective on Sex Segregation. *Social Politics: International Studies in Gender, State & Society*, 12(2), 180–215.
- Estevez-Abe, M. (2006). Gendering the Varieties of Capitalism. A Study of Occupational Segregation by Sex in Advanced Industrial Societies. *World Politics*, 59, 142–175.
- Estevez-Abe, M., Iversen, T., & Soskice, D. (2001). Social Protection and the Formation of Skills: A Reinterpretation of the Welfare State. In P. Hall & D. Soskice (Eds.), *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage* (pp. 145–183). Oxford: Oxford University Press.
- European Commission (2012). Evaluation report. LFS ad hoc module 2009. Entry of Young People into the Labour Market. Luxembourg.
- European Commission. (2009). Gender segregation in the Labour Market. Root Causes, Implications and Policy Responses in the EU. Luxembourg: Publications Office of the European Union.
- European Union (2013). *European Platform for Investing in Children*. Available online at: http://europa.eu/epic/countries/cyprus/index_en.htm (accessed: 20 June 2014).
- Eurostat (2006). Explanatory Notes to the LFS List of variables (codification to be used from 2006). Available online at: http://epp.eurostat.ec.europa.eu/portal/page/portal/employment_unemployment_lfs/documents/EU_LFS_explanatory_notes_from_2006_onwards.pdf (accessed 1 July 2015).
- Eurostat (2015). Online database. Available online at: <http://ec.europa.eu/eurostat/data/database> (accessed 11 September 2015).
- Evertsson, M. (2004). Formal On-the-Job Training: A Gender-Typed Experience and Wage-Related Advantage? *European Sociological Review*, 20(1), 79–94.
- Federal Chancellery of Austria (2012). *The Austrian Federal Civil Service. Facts and Figures 2012*. Wien. Available online at: <https://www.bka.gv.at/DocView.axd?CobId=49013> (accessed 20 June 2014).
- Fenger, H. J. (2007). Welfare Regimes in Central and Eastern Europe: Incorporating Post-communist Countries in a Welfare Regime Typology. *Contemporary Issues and Ideas in Social Sciences*, 3(2).
- Ferge, Z. (2001). Welfare and ‘Ill-fare’ Systems in Central-Eastern Europe. In B. Sykes, B. Palier & M. Prior (Eds.), *Globalization and European Welfare States: Challenges and Change* (pp.127-152). Basingstoke: Palgrave.

- Ferragina, E., & Seeleib-Kaiser, M. (2011). Welfare Regime Debate: Past, Present, Futures? *The Policy Press*, 39(4), 583–611.
- Ferrera, M. (1996). The ‘Southern Model’ of Welfare in Social Europe. *Journal of European Social Policy*, 6(1), 17–37.
- Fortin, N. M. (2005). Gender Role Attitudes and the Labour-market Outcomes of Women across OECD Countries. *Oxford Review of Economic Policy*, 21(3), 416–438.
- Franzese, R. J. (2005). Empirical Strategies for Various Manifestations of Multilevel Data. *Political Analysis*, 13(4), 430–446.
- Gangl, M., & Ziefle, A. (2009). Motherhood, Labor Force Behavior, and Women’s Careers: An Empirical Assessment of the Wage Penalty for Motherhood in Britain, Germany, and the United States. *Demography*, 46(2), 341–369.
- Garcia-Aracil, A. (2007). Gender Earnings Gap Among Young European Higher Education Graduates. *Higher Education*, 53, 431–55.
- George, L. K. (2003). Life Course Research. Achievements and Potential. In J. T. Mortimer & M. J. Shanahan (Eds.), *Handbook of the Life Course* (pp. 671–680). New York: Kluwer Academic.
- Georgellis Y. & Lange T. (2007). Participation in Continuous, On-the-Job Training and the Impact on Job Satisfaction: Longitudinal Evidence from the German Labour Market. *The International Journal of Human Resource Management*, 18(6), 969–985.
- Gerber, T. P., & Cheung, S. Y. (2008). Horizontal Stratification in Postsecondary Education: Forms, Explanations, and Implications. *Annual Review of Sociology*, 34(1), 299–318.
- Goldthorpe, J. H. (1997). Current Issues in Comparative Macrosociology: A Debate on Methodological Issues. *Comparative Social Research*, 16, 1–26.
- Gornick, J. C., & Meyers, M. K. (2009). Institutions that Support Gender Equality in Parenthood. In J. C. Gornick & M. K. Meyers (Eds.), *Gender Equality. Transforming Family Divisions of Labor* (pp. 3–66). New York: Erik Olin Wright.
- Gottfried, H. (2000). Compromising Positions: Emergent Neo-Fordisms and embedded Gender Contracts. *The British Journal of Sociology*, 51(2), 235–59.
- Gronau, R. (1988). Sex-related Wage Differentials and Women’s Interrupted Labor Careers- the Chicken or the Egg. *Journal of Labor Economics*, 6(3), 277–301.
- Grönlund, A. (2011). On-the-Job Training - A Mechanism for Segregation? Examining the Relationship between Gender, Occupation, and On-the-Job Training Investments. *European Sociological Review*, 28(3), 408–420.

- Grönlund, A., & Magnusson, C. (2013). Devaluation, Crowding or Skill Specificity? Exploring the Mechanisms behind the lower Wages in female Professions. *Social Science Research*, 42(4), 1006–17.
- Grunow, D., Schulz, F., & Blossfeld, H.-P. (2012). What determines Change in the Division of Housework over the Course of Marriage? *International Sociology*, 27(3), 289–307.
- Haas, B. (2005). The Work-Care Balance: Is it Possible to Identify Typologies for Cross-National Comparisons? *Current Sociology*, 53(3), 487–508.
- Haas, B., Steiber, N., Hartel, M., & Wallace, C. (2006). Household Employment Patterns in an Enlarged European Union. *Work, Employment & Society*, 20(4), 751–771.
- Hakim, C. (1997). A Sociological Perspective on Part-Time Work. In H.-P. Blossfeld & C. Hakim (Eds.), *Between Equalization and Marginalization. Women Working Part-Time in Europe and the United States of America* (pp. 22–70). Oxford: Oxford University Press.
- Hakim, C. (2006). Women, careers, and Work-Life Preferences. *British Journal of Guidance & Counselling*, 34(3), 279–294.
- Hall, P. A., & Soskice, D. (2001). *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*. Oxford: University Press.
- Hanushek, E. A. (1974). Efficient Estimators for Regressing Regression Coefficients. *The American Statistician*, 28(2), 66–67.
- Hega, G. M., & Hokenmaier, K. G. (2002). The Welfare State and Education: A Comparison of Social and Educational Policy in Advanced Industrial Societies. *Politikfeldanalyse/ German Policy Studies*, 2(1), 1–29.
- Heinz, W. R. (2003). From Work Trajectories to Negotiated Careers. The Contingent Work Life Course. In J. T. Mortimer & M. J. Shanahan (Eds.), *Handbook of the Life Course* (pp. 185–204). New York: Springer.
- Heisig, J. P. (2011). Who Does More Housework: Rich or Poor?: A Comparison of 33 Countries. *American Sociological Review*, 76(1), 74–99.
- Hofäcker, D. (2006). Expertise No.7: Väter im internationalen Vergleich. Beitragsmanuskript. *ifb-Familienreport Bayern*, Bamberg.
- Hofäcker, D. (2006). Women's Employment in Times of Globalization: A Comparative Overview. In H.-P. Blossfeld & H. Hofmeister (Eds.), *Globalization, Uncertainty and Women's Careers. An International Comparison* (pp. 32–58). Northampton: Edward Elgar Publishing.

- Hofäcker, D. (2010). *Older Workers in a Globalizing World. An International Comparison of Retirement and Late-Career Patterns in Western Industrialized Countries*. Cheltenham: Edward Elgar.
- Hoffmeyer-Zlotnik, J. H. P., & Harkness, J. A. (2005). *Methodological Aspects in Cross-National Research*. Mannheim.
- Holliday, I. (2000). Productivist Welfare Capitalism: Social Policy in East Asia, *Political Studies*, 48, 706-723.
- Hox, J. J. (1995). *Applied Multilevel Analysis*. Amsterdam: TT-Publikaties.
- Huffman, M.L. (1995). Organizations, Internal Labor Market Policies, and Gender Inequality in Workplace Supervisory Authority. *Sociological Perspectives*, 38(3), 381–397.
- Huppatz K. & Goodwin S. (2013). Masculinised jobs, feminised jobs and men’s ‘gender capital’ experiences: Understanding occupational segregation in Australia. *Journal of Sociology*, 49(2-3), 291–308.
- Iannelli, C., & Smyth, E. (2008). Mapping Gender and Social Background Differences in Education and Youth Transitions across Europe. *Journal of Youth Studies*, 11(2), 213–232.
- ILO (2010). Public Sector Employment. Available online at: <http://laborsta.ilo.org/STP/guest> (accessed 13 October 2014).
- Jaumotte F. (2003). Female Labour Force Participation. Past Trends and Main Determinants in OECD Countries. *OECD Economics Department Working Papers* No. 376, Paris: OECD Publishing.
- Javornik, J. (2014). Measuring State De-familialism: Contesting Post-socialist Exceptionalism. *Journal of European Social Policy*, 24(3), 240–257.
- Jones, D. C., Kalmi, P., & Kauhanen, A. (2011). The Effects of General and Firm-Specific Training on Wages and Performance: Evidence from Banking. *Oxford Economic Papers*, 64(1), 151–175.
- Kalter, F. (2000). Measuring Segregation and Controlling for Independent Variables. *Working Papers – Mannheim Centre for European Social Research* (No. 19). Mannheim, Germany.
- Kanter, M. (1977). *Men and Women of the Corporation*. New York: Basic Books.
- Karamessini, M. (2008). Continuity and Change in the Southern European Social Model. *International Labour Review*, 147(1), 43–70.
- Kilpi-Jakonen E, Buchholz, S., Dämmrich, J., McMullin, P. & Blossfeld, H.P. (2014). Adult Learning, Labor Market Outcomes, and Social Inequalities in Modern Societies. In:

- Blossfeld, H-P, Kilpi-Jakonen, E, Vono De Vilhena, D, & Buchholz. S. (Eds.). *Adult Learning in Modern Societies. An International Comparison from a Life-Course Perspective*, Cheltenham, UK and Northampton, MA, USA: Edward Elgar, pp. 3–26.
- Kirsch, I., & Thorn, W. (2013). Preface: The Programme for International Assessment of Adult Competencies: An Overview. In: OECD (eds.). *Technical Report of the Survey of Adult Skills (PIAAC)*. Paris: OECD Publishing.
- Kohli, M. (1986). The World we Forgot: An Historical Review of the Life Course. In V. W. Marshall (Ed.), *Later life: The Social Psychology of Aging* (pp. 271-303). Beverly Hills: Sage.
- Korpi, W., Ferrarini, T., & Englund, S. (2013). Women's Opportunities under Different Family Policy Constellations: Gender, Class, and Inequality Tradeoffs in Western Countries Re-examined. *Social Politics: International Studies in Gender, State & Society*, 20(1), 1–40.
- Kosyakova, Y., Kurakin, D., & Blossfeld, H.-P. (2015). Horizontal and Vertical Gender Segregation in Russia--Changes upon Labour Market Entry before and after the Collapse of the Soviet Regime. *European Sociological Review*, 3, 1–18.
- Kraus, V., & Yonay, Y. P. (2000). The Effect of Occupational Sex Composition on the Gender Gap in Workplace Authority. *Social Science Research*, 29(4), 583–605.
- Krüger, H., & Baldus, B. (1999). Work, Gender and the Life Course: Social Construction and Individual Experience. *The Canadian Journal of Sociology*, 24(3), 355–379.
- Ku, Y.-W., & Jones Finer, C. (2007). Developments in East Asian Welfare Studies. *Social Policy & Administration*, 41(2), 115–131.
- LaFont, S. (2001). One Step forward, two Steps back: Women in the Post-Communist States. *Communist and Post-Communist Studies*, 34(2), 203–220.
- Lanfranchi, J., & Narcy, M. (2013). Female Overrepresentation in Public and Nonprofit Sector Jobs: Evidence From a French National Survey. *Nonprofit and Voluntary Sector Quarterly*. Available online at: <https://hal.inria.fr/halshs-01081038/document> (accessed 20 June 2014).
- Lee, K. H. (2009). *Gender Equality in Reconciling Work and Childcare in South Korea*. Cornell Law School Inter-University Graduate Student Conference Papers 17. Available online at: http://scholarship.law.cornell.edu/lps_clacp/17 (accessed 02 December 2014).
- Leibfried, S. (1992). Towards a European Welfare State? On Integrating Poverty Regimes into the European Community. In Z. Ferge & J. E. Kolberg (Eds), *Social Policy in a Changing Europe* (pp.245-279). Frankfurt am Main: Campus Verlag.

- Leicht, K. T. (2008). Broken Down by Race and Gender? Sociological Explanations of New Sources of Earnings Inequality. *Annual Review of Sociology*, 34, 241–270.
- Leisering, L. (2003). Government and the Life Course. In J. T. Mortimer & M. J. Shanahan (Eds.), *Handbook of the Life Course* (pp. 205–228). New York: Kluwer Academic.
- Leitner, S. (2003). Varieties of Familialism: The Caring Function of the Family in Comparative Perspective. *European Societies*, 5(4), 353–375.
- Lewis, J. (1992). Gender and the Development of Welfare Regimes, *Journal of European Social Policy*, 2(3), 159 – 173.
- Lewis, J. B., & Linzer, D. A. (2005). Estimating Regression Models in Which the Dependent Variable Is Based on Estimates. *Political Analysis*, 13(4) (Special Issue on Multilevel Modeling for Large Clusters), 345–364.
- Lewis, J., Campbell, M., & Huerta, C. (2008). Patterns of Paid and Unpaid Work in Western Europe: Gender, Commodification, Preferences and the Implications for Policy. *Journal of European Social Policy*, 18(1), 21–37.
- Lindbeck, A., & Snower, D. (1986). Wage setting, Unemployment, and Insider-Outsider Relations. *American Economic Review*, 76(2), 235–239.
- Lück, D. (2006). Cross-national Comparison of Gender Role Attitudes and their Impact on Women's Life Courses. In H.-P. Blossfeld & H. Hofmeister (Eds.), *Globalization, Uncertainty and Women's Careers: An International Comparison* (pp. 405–432). Cheltenham, UK: Edward Elgar.
- Magnusson C. (2013). More women, lower pay? Occupational sex composition, wages and wage growth. *Acta Sociologica*, 56(3), 227–245.
- Mandel, H. (2012). Winners and Losers: The Consequences of Welfare State Policies for Gender Wage Inequality. *European Sociological Review*, 28(2), 241–262.
- Mandel, H., & Semyonov, M. (2005). Family Policies, Wage Structures, and Gender Gaps: Sources of Earnings Inequality in 20 Countries. *American Sociological Review*, 70(6), 949–967.
- Mandel, H., & Semyonov, M. (2006). A Welfare State Paradox: State Interventions and Women's Employment Opportunities in 22 Countries. *American Journal of Sociology*, 111(6), 1910–49.
- Mandel, H., & Shalev, M. (2009). Gender, Class, and Varieties of Capitalism. *Social Politics: International Studies in Gender, State & Society*, 16(2), 161–181.
- Mandel, H., & Shalev, M. (2009). How Welfare States Shape the Gender Pay Gap: A Theoretical and Comparative Analysis. *Social Forces*, 87(4), 1873–1912.

- Marini, M. M., & Fan, P.- L. (1997). The Gender Gap in Earnings at Career Entry. *American Sociological Review*, 62(4), 588.
- Mayer, K. U. (2004). Whose Lives? How History, Societies, and Institutions Define and Shape Life Courses. *Research in Human Development*, 1(3), 161–187.
- Mincer, J. (1958). Investment in Human Capital and Personal Income Distribution. *The Journal of Political Economy*, 66(4), 281-302.
- MISSOC (2013). MISSOC Comparative Tables Database. Available online at: <http://www.missoc.org/MISSOC/INFORMATIONBASE/COMPARATIVETABLES/MISSOCDATABASE/comparativeTableSearch.jsp> (accessed 22 July 2014).
- Moss, P. (2011). *International Review of Leave Policies and Related Research 2011*. London. Available online at: http://www.leavenetwork.org/archive_2005_2009/annual_reviews (accessed 02 December 2014).
- Moss, P. (2012). *International Review of Leave Policies and Related Research 2012*. London. Available online at: http://www.leavenetwork.org/archive_2005_2009/annual_reviews (accessed 02 December 2014).
- Moss, P. (2013). *International Review of Leave Policies and Related Research 2013*. London. Available online at: http://www.leavenetwork.org/archive_2005_2009/annual_reviews (accessed 02 December 2014).
- Müller, W., & Shavit, Y. (1998). The Institutional Embeddedness of the Stratification Process: a Comparative Study of Qualifications and Occupations in Thirteen Countries. In W. Müller & Y. Shavit (Eds.), *From School to Work: A Comparative Study of Educational Qualifications and Occupational Destinations* (pp. 1–48). Oxford: Oxford University Press.
- O'Halloran, P. L. (2008). Gender Differences in Formal On-the-Job Training: Incidence, Duration, and Intensity. *Labour*, 22(4), 629–659.
- O'Sullivan, S. (2012). “All Changed, Changed Utterly”? Gender Role Attitudes and the Feminisation of the Irish Labour Force. *Women's Studies International Forum*, 35(4), 223–232.
- OECD (2011). *OECD Reviews of Labour Market and Social Policies: Russian Federation*. Paris: OECD Publishing.
- OECD (2012). *Human Resources Management Country Profiles: Norway*. Paris: OECD Publishing. Available online at: http://www.oecd.org/gov/pem/OECD_HRM_Profile_-_Norway.pdf (accessed 20 June 2014)

References

- OECD (2013). *OECD Indicators of Employment Protection. Annual time series data 1985-2013.* Available online at: <http://www.oecd.org/employment/emp/oecdindicatorsofemploymentprotection.htm> (accessed 02 December 2014).
- OECD (2013b). *OECD Indicators of Employment Protection. Annual time series data 1985-2013.* Available online at: <http://www.oecd.org/employment/emp/oecdindicatorsofemploymentprotection.htm> (accessed 02 December 2014).
- OECD (2013c). Technical Report of the Survey of Adult Skills (PIAAC). Paris: OECD Publishing.
- OECD (2015). *Family database.* Available online at: <http://www.oecd.org/els/family/database.htm> (accessed 11 September 2015).
- Olivetti C. & Petrongolo B. (2008) Unequal pay or unequal employment? A cross-country analysis of gender gaps. *Journal of Labor Economics*, 26(4), 621–654.
- Orloff, A. (1993). Gender and the Social Rights of Citizenship: State Policies and Gender Relations in Comparative Research. *American Sociological Review*, 58(3), 303–328.
- Orloff, A. (1996). Gender in the Welfare State. *Annual Review of Sociology*, 22, 51–78.
- Petersen, T., & Morgan, L. A. (1995). Separate and Unequal: Occupation-Establishment Sex Segregation and the Gender Wage Gap. *American Journal of Sociology*, 101(2), 329–365.
- Pettit, B., & Hook, J. L. (2009). Gendered Tradeoffs: Family, Social Policy, and Economic Inequality in twenty-one Countries. New York: Russell Sage Foundation.
- Pfau-Effinger, B. (2004). Socio-Historical Paths of the Male Breadwinner Model – An Explanation of Cross-National Differences. *British Journal of Sociology*, 55(3), 377–399.
- Pfau-Effinger, B., & Smidt, M. (2011). Differences in Women’s Employment Patterns and Family Policies: Eastern and Western Germany. *Community, Work & Family*, 14 (February 2015), 217–232.
- Pfau - Effinger, B. (1998). Gender Cultures and the Gender Arrangement – A Theoretical Framework for Cross - National Gender Research. *Innovation: The European Journal of Social Science Research*, 11(2), 147–166.
- Phelps, E. S. (1972). The Statistical Theory of Racism and Sexism. *The American Economic Review*, 62(4), 659–661.

- Polachek, S. W. (1981). Occupational Self-Selection: A Human Capital Approach to Sex Differences in Occupational Structure. *The Review of Economics and Statistics*, 63(1), 60–69.
- Polachek, S. W. (2006). How the Life-Cycle Human Capital Model Explains Why the Gender Wage Gap Narrowed. In F.D. Blau, M.C. Brinton & D.B. Grusky (Eds.), *The Declining Significance of Gender?* (pp. 102-124). New York: Russell Sage Foundation.
- Powell, M., & Barrientos, A. (2011). An Audit of the Welfare Modelling Business. *Social Policy & Administration*, 45(1), 69–84.
- Puhani, P. A., & Sonderhof, K. (2011). The Effects of Parental Leave Extension on Training for Young Women. *Journal of Population Economics*, 24(2), 731–760.
- Ray, R., Gornick, J. C., & Schmitt, J. (2010). Who cares? Assessing Generosity and Gender Equality in Parental Leave Policy Designs in 21 Countries. *Journal of European Social Policy*, 20(3), 196–216.
- Rosenfeld, R. (1983). Sex Segregation and Sectors: An Analysis of Gender Differences in Returns from Employer Changes. *American Sociological Review*, 48(5), 637–655.
- Rosenfeld, R. A., & Kalleberg, A. L. (1991). Gender Inequality in the Labor Market: A Cross-National Perspective. *Acta Sociologica*, 34(3), 207–225.
- Rosenfeld, R. A., Van Buren, M. E., & Kalleberg, A. L. (1998). Gender Differences in Supervisory Authority: Variation among Advanced Industrialized Democracies. *Social Science Research*, 27(1), 23–49.
- Ruhm, C. J. (1998). The Economic Consequences of Parental Leave Mandates: Lessons from Europe. *The Quarterly Journal of Economics*, 285–317.
- Rys, V. (2001). Transition Countries of Central Europe Entering the European Union: Some Social Protection Issues. *International Social Security Review*, 54, 2–3.
- Sainsbury, D. (1996). *Gender Equality and Welfare States*. New York: Cambridge University Press.
- Sainsbury, D. (1999). *Gender, Policy Regimes and Politics*. In D. Sainsbury (Ed.), *Gender and Welfare State Regimes*. Oxford: Oxford University Press.
- Salin, M. (2014). Opportunities, Constraints and Constrained Opportunities - A Study on Mothers' Working Time Patterns in 22 European Countries. University of Turku.
- Saxonberg S. (2013). From Defamilialization to Degenderization: Toward a New Welfare Typology. *Social Policy & Administration*, 47(1), 26–49.

- Saxonberg, S., & Sirovátka, T. (2006). Failing Family Policy in Post-Communist Central Europe. *Journal of Comparative Policy Analysis: Research and Practice*, 8(2), 185–202.
- Sayer, L. C. (2010). Trends in Housework. In J. Treas & S. Drobic (Eds.), *Dividing the Domestic. Men, Women & Household Work in Cross-National Perspective* (pp. 19–40). Stanford: Stanford University Press.
- Schäfer, A., Tucci, I., & Gottschall, K. (2012). Top Down or Bottom up? A Cross-National Study of Vertical Occupational Sex Segregation in Twelve European Countries. Berlin: German Institute for Economic Research.
- Schulz, F., & Blossfeld, H.-P. (2006). Wie verändert sich die häusliche Arbeitsteilung im Eheverlauf? Eine Längsschnittstudie der ersten 14 Ehejahre in Westdeutschland. *Kölner Zeitschrift für Soziologie und Sozialpsychologie*, 58(1), 23–49.
- Settersten, R. A. (2003). Age Structuring and the Rhythm of the Life Course. In J. T. Mortimer & M. J. Shanahan (Eds.), *Handbook of the Life Course* (pp. 81–102). New York: Springer.
- Smyth, E. (2005). Gender Differentiation and Early Labour Market Integration across Europe. *European Societies*, 7(3), 451–479.
- Smyth, E., & Steinmetz, S. (2008). Field of Study and Gender Segregation in European Labour Markets. *International Journal of Comparative Sociology*, 49(4-5), 257–281.
- Snijders, T. A. B., & Bosker, R. J. (1999). *Multilevel Analysis*. London: SAGE Publications.
- Steinmetz, S. (2012). The Contextual Challenges of Occupational Sex Segregation. Differences in Europe. Wiesbaden: VS Verlag für Sozialwissenschaften.
- Stier, H., & Yaish, M. (2008). The Determinants of Women's Employment Dynamics: The Case of Israeli Women. *European Sociological Review*, 24(3), 363–377.
- Strünk, C. (2008). Wahlverwandtschaften oder Zufallsbekanntschaft? Wie Wohlfahrtsstaat und Wirtschaftsmodell zusammenhängen. In A. Evers & R.G. Heinze (Eds.), *Ökonomisierung und Entgrenzung* (pp.139-156). Wiesbaden: VS-Verlag.
- Tam, T. (1997). Sex Segregation and Occupational Gender Inequality in the United States: Devaluation or Specialized Training? *American Journal of Sociology*, 102(6), 1652–1692.
- The World Bank (2009). *Doing Business*. Washington: The World Bank. Available online at: <http://www.doingbusiness.org/reports/global-reports/Doing%20Business%202009> (accessed 02 December 2014).

References

- Tomaskovic-Devey D., & Skaggs, S. (2002). Sex Segregation, Labor Process Organization, and Gender Earnings Inequality. *The American Journal of Sociology*, 108(1), 102–128.
- Torre M. (2014). The Scarring Effect of ‘Women’s Work’: The Determinants of Women’s Attrition from Male-Dominated Occupations. *Social Forces*, 00(00), 1–29.
- Triventi, M. (2013). The Gender Wage Gap and its Institutional Context: A Comparative Analysis of European Graduates. *Work, Employment & Society*, 0(0), 1–18.
- Van der Lippe, T., & van Dijk, L. (2002). Comparative Research on Women’s Employment. *Annual Review of Sociology*, 28(1), 221–241.
- Van Kersbergen, K. & Manov, P. (2011). The Welfare State. In: D. Caramani (Ed.), *Comparative Politics. 2nd Edition* (pp.389-407). Oxford: University Press.
- Waldvogel (1998). The Family Gap for Young Women in the United States and Britain: Can Maternity Leave Make a Difference? *Journal of Labor Economics*, 16, 505–45.
- Weymann, A. (2003). Future of the Life Course. In J. T. Mortimer & M. J. Shanahan (Eds.), *Handbook of the Life Course* (pp. 703–714). New York: Kluwer Academic.
- Wolf W. C., & Fligstein N. D. (1979). Sex and Authority in the Workplace : The Causes of Sexual Inequality. *American Sociological Association*, 44(2), 235–252.
- Wozny, C., & Schneider, M. R. (2014). A Matter of Degree: The Continuing Training Gap for Women in Europe. *Socio-Economic Review*, 12(2), 353–379.
- Wright, E. O., Baxter, J., & Birkelund, G. E. (1995). The Gender Gap in Workplace Authority: A Cross-National Study. *American Sociological Association*, 60(3), 407–435.
- Yaish, M., & Stier, H. (2009). Gender Inequality in Job Authority: A Cross-National Comparison of 26 Countries. *Work and Occupations*, 36(4), 343–366.

References

9 APPENDIX

9.1 APPENDIX FOR CHAPTER 2

Table A1. Operationalization of gender norms, values and attitudes. Items, factors and rotated factor loadings

Factor name	Items: to what extent do you agree or disagree...? (5 = strongly agree, 4 = agree, 3 = neither agree nor disagree, 2 = disagree, 1 = strongly disagree)	Factor 1	Factor 2	Factor 3	Uniqueness
Traditional gender roles	Consequences of women's paid employment				
	A working mother can establish just as warm and secure a relationship with her children as a mother who does not work (recoded reversely)	0.49	0.04	0.24	0.69
	A pre-school child is likely to suffer if his or her mother works	0.73	0.21	0.07	0.42
	All in all, family life suffers when the woman has a full-time job	0.73	0.25	0.06	0.40
	A job is all right, but what most women really want is a home and children	0.40	0.54	-0.01	0.55
	Being a housewife is just as fulfilling as working for pay	0.19	0.44	0.12	0.76
Support for females employment	A man's job is to earn money; a woman's job is to look after the home and family	0.46	0.49	0.11	0.54
	Both the man and woman should contribute to the household income	-0.18	-0.12	-0.34	0.84

Notes: ISSP 2012; own calculations. Grey shaded fields indicate belonging to this factor.

Table A2. Definition of occupations for the calculation of the Duncan index

Occupations	
1	Armed force
2	Legislators and senior officials
3	Corporate managers
4	Managers of small enterprises
5	Physical, mathematical and engineering
6	Life science and health professionals
7	Teaching professionals
8	Other professionals
9	Physical and engineering science associates
10	Life science and health associate professionals
11	Teaching associate professionals
12	Other associate professionals
13	Office Clerks
14	Costumer service clerks
15	Personal and protective services worker
16	Models, salespersons and demonstrators
17	Skilled agricultural and fishery worker
18	Extraction and building trades workers
19	Metal, machinery and related trades worker
20	Precision, handicraft, craft printing a
21	Other craft and related trades workers
22	Stationary plant and related operations
23	Machine operators and assemblers
24	Drivers and mobile plant operators
25	Sales and services elementary occupations
26	Agricultural, fishery and related laborers
27	Laborers in mining, construction, manufacturing

9.2 APPENDIX FOR CHAPTER 4

Appendix A. Information on sample and variables

Table A1. Information about excluded cases from the original LFS 2009 sample

Drop	Description	All	Men	Women
Original sample	LFS 2009	1,146,145	553,219	592,926
Individuals without first significant job	Only individuals who had taken part in the ad-hoc module Only individuals who had a job that lasted at least 6 months	53,698	27,941	25,757
Individuals born before 1975 and after 1984	Only individuals born between 1975 and 1984	44,006	22,344	21,662
Individuals who entered labor market before 1995 or after 2008	Only individuals having entered the labor market between 1995 and 2008	34,518	17,174	17,344
Implausible cases and adult learners	Only individuals who have correct information and are not adult learners	31,903	15,812	16,091
Missings in independent variables		31,290	15,546	15,744
Horizontal gender differences		31,290	15,546	15,744
Missings in dependent variable	Only individuals with information about working in production, service, administration	26,609	13,069	13,540
Island	Not enough case numbers	26,529	13,031	13,498
Final sample horizontal gender differences		26,529	13,031	13,498
Vertical gender inequalities		31,290	15,546	15,744
Missings in dependent variable	Only individuals with information about high-status jobs	30,258	14,934	15,324
Island, Malta	Not enough case numbers	30,077	14,837	15,240
Final sample vertical gender inequalities		30,077	14,837	15,240

Notes: LFS 2009; own calculations.

Table A2. Classification of occupations into service, administration, and production

Name of occupation	ISCO-88	Activity
Major group 1: Legislators, senior officials and managers		
Legislators	111	Administration
Senior officials of special organizations	114	Administration
Directors and chief executives	121	Administration
Production and operations department managers	122	Administration
Other department managers	123	Administration
General managers	131	Administration
Major group 2: Professionals		
Physicists, chemists, and related professionals	211	Production
Mathematicians, statisticians, and related professionals	212	Production
Computing professionals	213	Production
Architects, engineers, and related professionals	214	Production
Life science professionals	221	Production
Health professionals (except nursing)	222	Service
Nursing and midwifery professionals	223	Service
College, university, and higher education teaching professionals	231	Service
Secondary education teaching professionals	232	Service
Primary and pre-primary education teaching professionals	233	Service
Special education teaching professionals	234	Service
Other teaching professionals	235	Service
Business professionals	241	Administration
Legal professionals	242	Service
Archivists, librarians, and related information professionals	243	Service
Social science and related professionals	244	Service
Writers and creative or performing artists	245	Service
Religious professionals	246	Service
Major group 3: Technicians and associate professionals		
Physical and engineering science technicians	311	Production
Computer associate professionals	312	Production
Optical and electronic equipment operators	313	Service
Ship and aircraft controllers and technicians	314	Production
Safety and quality inspectors	315	Service
Life science technicians and related associate professionals	321	Production
Modern health associate professionals (except nursing)	322	Service
Nursing and midwifery associate professionals	323	Service
Primary education teaching associate professionals	331	Service

Table A2. Continued (1)

Pre-primary education teaching associate professionals	332	Service
Special education teaching associate professionals	333	Service
Other teaching associate professionals	334	Service
Finance and sales associate professionals	341	Administration
Business services agents and trade brokers	342	Administration
Administrative associate professionals	343	Administration
Customs, tax, and related government associate professionals	344	Administration
Police inspectors and detectives	345	Service
Social work associate professionals	346	Service
Artistic, entertainment, and sports associate professionals	347	Service
Religious associate professionals	348	Service
Major group 4: Clerks		
Secretaries and keyboard-operating clerks	411	Administration
Numerical clerks	412	Administration
Material-recording and transport clerks	413	Production
Library, mail, and related clerks	414	Administration
Other office clerks	419	Administration
Cashiers, tellers and related clerks	421	Administration
Client information clerks	422	Service
Major group 5: Service workers and shop and market sales workers		
Travel attendants and related workers	511	Service
Housekeeping and restaurant services workers	512	Service
Personal care and related workers	513	Service
Other personal services workers	514	Service
Protective services workers	516	Service
Fashion and other models	521	Administration
Shop salespersons and demonstrators	522	Administration
Stall and market salespersons	523	Service
Major group 6: Skilled agricultural and fishery workers		
Market gardeners and crop growers	611	Production
Market-oriented animal producers and related workers	612	Production
Market-oriented crop and animal producers	613	Production
Forestry and related workers	614	Production
Fishery workers, hunters, and trappers	615	Production
Major group 7: Craft and related trades workers		
Miners, shotfirers, stone cutters, and carvers	711	Production
Building frame and related trades workers	712	Production
Building finishers and related trades workers	713	Production

Table A2. Continued (2)

Painters, building structure cleaners and related trades workers	714	Production
Metal molders, welders, sheet-metal workers, structural- metal	721	Production
Blacksmiths, tool-makers and related trades workers	722	Production
Machinery mechanics and fitters	723	Production
Electrical and electronic equipment mechanics and fitters	724	Service
Precision workers in metal and related materials	731	Production
Potters, glass-makers and related trades workers	732	Production
Handicraft workers in wood, textile, leather, and related materials	733	Production
Printing and related trades workers	734	Production
Food processing and related trades workers	741	Production
Wood treaters, cabinet-makers and related trades workers	742	Production
Textile, garment, and related trades workers	743	Production
Pelt, leather, and shoemaking trades workers	744	Production
Major group 8: Plant and machine operators and assemblers		
Mining- and mineral-processing-plant operators	811	Production
Metal-processing-plant operators	812	Production
Glass, ceramics, and related plant operators	813	Production
Wood-processing- and papermaking-plant operators	814	Production
Chemical-processing-plant operators	815	Production
Power-production and related plant operators	816	Production
Automated-assembly-line and industrial-robot operators	817	Production
Metal- and mineral-products machine operators	821	Production
Chemical-products machine operators	822	Production
Rubber- and plastic-products machine operators	823	Production
Wood-products machine operators	824	Production
Printing-, binding-, and paper-products machine operators	825	Production
Textile-, fur-, and leather-products machine operators	826	Production
Food and related products machine operators	827	Production
Assemblers	828	Production
Other machine operators and assemblers	829	Production
Locomotive-engine drivers and related workers	831	Service
Motor-vehicle drivers	832	Service
Agricultural and other mobile-plant operators	833	Production
Ships' deck crews and related workers	834	Production
Major group 9: Elementary occupations		
Street vendors and related workers	911	Production
Shoe cleaning and other street services elementary occupations	912	Service
Domestic and related helpers, cleaners and launderers	913	Production

Table A2. Continued (3)

Building caretakers, window, and related cleaners	914	Production
Messengers, porters, doorkeepers, and related workers	915	Service
Garbage collectors and related laborers	916	Production
Agricultural, fishery and related laborers	921	Production
Mining and construction laborers	931	Production
Manufacturing laborers	932	Production
Transport laborers and freight handlers	933	Production

Table A3. Information about coding of variables

Variable name and coding	Construction from original LFS variables
Dependent variables	
Horizontal: Working in Production, service, or administration occupations	
= 1 Production	Individual works in production occupation
= 2 Service	Individual works in service occupation
= 3 Administration	Individual works in administration occupation
Vertical: Working in high-status jobs	
= 1 Yes	Individual works in high-status occupation (ISCO 1 and 2)
= 0 No	Individual does not work in high-status occupation (ISCO 3-9)
Independent individual variables	
Female	
= 0 No	Male
= 1 Yes	Female
Labor market entry cohort	
= 1 1995-2000	Individual entered labor market between 1995 and 2000
= 2 2001-2008	Individual entered labor market between 2001 and 2008
Educational level	
= 1 low	Highest attained education is ISCED 0 (pre-primary education) ISCED 1 (primary education or first stage of basic education) or ISCED 2 (lower secondary or second stage of basic education)
= 2 medium	Highest attained education is ISCED 3 ((upper) secondary education) or ISCED 4 (post-secondary non-tertiary education)
= 3 high	Highest attained education is ISCED 5 (first stage of tertiary education) or ISCED 6 (second stage of tertiary education)
Educational field	
= 1	General programs
= 2	Social sciences
= 3	Natural sciences
= 4	Engineering, manufacturing, and construction
= 5	Agriculture and veterinary
= 6	Health and welfare
= 7	Services
= 8	Unknown
Job while being in education	
= 0 No	Individual entered labor market after finishing education
= 1 Yes	Individual entered labor market while being in education

Notes: LFS 2009.

Table A4. Case numbers and values of the country-specific variables, by country

	N	% women in the public sector	Gender culture	Female– male employ- ment ratio	% women working full-time	Family factor
Nordic						
DK	508	71.1	5.7	0.9	7.5	0.2
FI	565	71.9	9.1	0.9	26.4	-0.1
NO	720	48.0	6.0	0.9	5.9	-0.6
SE	1,566	73.0	5.9	0.9	45.2	-0.5
Central European						
AT	1,391	40.6	18.9	0.8	40.4	-0.8
BE	597	55.9	24.8	0.8	18.4	0.8
DE	489	51.8	18.3	0.8	33.8	-0.5
FR	1,866	55.0	21.5	0.8	24.0	0.7
LU	763	47.4	27.0	0.7	51.8	-0.1
NL	1,542	51.0	17.1	0.8	11.2	0.9
Liberal						
IE	3,073	71.8	18.8	0.7	15.3	1.4
UK	737	65.3	20.5	0.8	28.5	1.7
Southern European						
CY	502	49.1	37.7	0.8	45.8	1.5
ES	1,719	54.4	23.8	0.6	48.1	1.2
GR	1,585	36.2	46.5	0.6	67.0	1.2
IT	1,413	69.7	n.a.	0.6	39.2	0.3
PT	1,014	56.4	30.9	0.8	61.6	0.6
Post-Socialist						
BG	760	70.2	33.4	0.9	95.7	1.0
CZ	1,853	67.9	32.2	0.8	78.4	-1.6
EE	482	72.0	27.5	0.9	81.3	-1.1
HU	1,744	58.8	48.3	0.8	89.9	-1.1
LT	443	71.2	23.5	0.9	81.2	-0.8
LV	283	69.8	19.7	0.9	85.2	-0.5
PL	1,989	56.9	33.6	0.8	79.7	-0.9
RO	846	51.8	36.2	0.8	90.1	-0.8
SI	489	68.8	20.8	0.9	85.6	-0.4
SK	1,138	45.1	31.0	0.8	73.5	-1.9

Notes: n.a. = not applicable; gender culture is measured as % of agreement to the statement: ‘When jobs are scarce, men should have more right to a job than women’; the family factor is build out of three indicators: (1) the length of paid parental leave (in weeks); (2) the respective benefit level for this period; and (3) the proportion of children below the age of 3 attending formal childcare.

Table A5. Correlations between the country-specific variables

	% women in the public sector (1)	Gender culture (2)	Female–male employment ratio (3)	% women working full-time (4)	Family factor (5)
(2)	-0.36	1.00			
(3)	0.45	-0.54	1.00		
(4)	0.11	0.66	0.06	1.00	
(5)	-0.04	-0.03	-0.39	-0.46	1.00

Notes: own calculations.

Appendix B. Models

Table B1. Country models for entering administration or production versus service occupations (multinomial regression models)

	AT	AT	BE	BE	CY	CY	CZ	CZ	DE	DE	DK	DK
	Pro	Adm	Pro	Adm	Pro	Adm	Pro	Adm	Pro	Adm	Pro	Adm
Female	-1.27***	0.31*	-1.10***	0.01	-0.37	1.08***	-0.47***	1.17***	-1.30***	-0.36	-0.72**	-0.36
Labor market entry cohort (Ref.: 1995-2000)												
2001-08	-0.18	0.00	-0.26	-0.30	0.03	0.23	-0.15	-0.35**	-0.35	0.09	0.01	0.14
Education (ref.: high)												
Low	3.61***	1.90***	0.72	-1.35**	16.36	1.21	2.81***	0.36	1.91	1.05	2.13**	0.08
Moderate	1.50***	1.39***	0.44	-0.46	0.91***	0.71***	0.57**	0.12	0.80**	1.44***	1.68***	1.50***
Educational field (Ref.: Social sciences)												
General programs	-0.05	-1.55***	1.78***	0.58	-13.63	-0.95	0.47	-0.67**	-0.61	-0.95	-0.72	-1.19
Natural sciences	4.45***	1.98*	2.15***	0.16	2.25***	-0.15	1.73***	-0.75	0.83	-1.98	2.28***	-0.71
Engineering, manufac- turing, construction	2.49***	-1.11***	2.55***	-0.52	1.90***	-1.31***	2.04***	-0.84***	1.82***	-2.30***	2.06***	-1.71***
Agriculture and veterinary	2.35***	-1.42**	1.88***	-1.27	0.96	-1.41	2.09***	-0.67	1.10	-2.06	15.34	12.64
Health and welfare	-1.06**	-4.53***	-1.03	-3.05***	-1.15	-2.28***	-2.08***	-3.62***	-2.31***	-3.72***	-3.59***	-4.05***
Services	-0.86***	-2.12***	-1.13	-0.76*	-0.68	-1.91***	-1.07***	-2.35***	-1.65***	-3.80***	-1.72***	-4.43***
Unknown			0.78	0.70								
Constant	-1.28***	-0.04	-0.85**	0.85***	-1.42***	-0.34	-0.62**	0.11	0.53	0.37	-0.63	0.14
Observations	1387	1387	597	597	502	502	1845	1845	487	487	506	506
Pseudo R2	0.36	0.36	0.25	0.25	0.25	0.25	0.29	0.29	0.38	0.38	0.37	0.37

Table B1. Continued (1)

	EE		ES		FI		FR		GR		HU	
	Pro	Adm	Pro	Adm	Pro	Adm	Pro	Adm	Pro	Adm	Pro	Adm
Female	-0.91***	0.91**	-0.72***	0.54***	-1.02***	0.07	-0.85***	0.06	-1.00***	0.76***	-0.45***	0.80***
Labor market entry cohort (Ref.: 1995-2000)												
2001-08	-0.38	-0.41	0.07	-0.15	-0.62**	-0.28	-0.08	-0.04	-0.00	-0.15	-0.33*	0.16
Education (Ref.: High)												
Low	1.60**	-0.00	1.01***	-0.75**	0.65	-0.37	0.77	-0.14	1.37***	0.46	3.95***	-0.19
Moderate	0.38	-0.11	0.50**	-0.22	0.63**	-0.14	0.31**	-0.25*	0.88***	1.25***	1.67***	1.17***
Educational field (Ref.: Social sciences)												
General programs	0.73	0.02	0.94***	0.03	1.15*	-0.14	0.28	-1.05	1.01***	-0.37*		
Natural sciences	1.05	-0.22	1.67***	-0.60**	1.86***	-1.13	0.65**	-0.80***	0.17	0.04	3.46***	0.34
Engineering, manufacturing, construction	1.57***	-1.17*	2.76***	-1.01***	1.98***	-1.12***	1.38***	-1.41***	1.52***	-0.47*	2.62***	-1.06***
Agriculture and veterinary	1.63	0.91	2.90***	-0.52	3.54***	0.47	2.17***	-0.41	2.54***	1.35**	3.81***	0.78
Health and welfare	-1.22	-2.11***	-1.35***	-1.99***	-1.51***	-3.83***	-0.88***	-2.50***	-0.85*	-1.13***	-1.44***	-3.39***
Services	0.22	-1.60***	-0.61*	-1.46***	-0.28	-1.89***	-0.42*	-2.19***	-0.72*	-2.22***	-0.79***	-2.43***
Unknown			-0.17	-0.66	1.96	13.18	1.46	-0.85	-12.38	-1.86		
Constant	0.59	0.37	-0.79***	0.26	-0.15	0.82**	0.07	0.99***	-1.23***	-0.74***	-1.79***	-0.57***
Observations	478	478	1708	1708	561	561	1735	1735	1585	1585	1741	1741
Pseudo R2	0.21	0.21	0.21	0.21	0.31	0.31	0.19	0.19	0.17	0.17	0.36	0.36

Table B1. Continued (2)

	IE		IT		LT		LU		LV		NL	
	Pro	Adm	Pro	Adm	Pro	Adm	Pro	Adm	Pro	Adm	Pro	Adm
Female	-1.71***	0.06	-1.11***	0.25	-0.81**	1.09***	-1.42***	-0.70***	-1.36***	1.57***	-1.56***	-0.10
Labor market entry cohort (Ref.: 1995-2000)												
2001-08	-0.30***	-0.03	-0.45***	-0.16	0.00	-0.33	-0.26	0.04	-0.04	0.35	-0.23	-0.16
Education (Ref.: High)												
Low	0.98***	-0.18	2.14***	0.19	1.97**	-1.03	1.14*	0.41	3.33***	0.89	0.62	0.18
Moderate	0.44***	0.12	0.96***	0.87***	1.65***	-0.01	0.21	0.84***	1.33*	0.41	0.03	0.07
Educational field (Ref.: Social sciences)												
General programs	0.87***	-0.33*	-0.29	-0.77***	1.20*	0.09	2.19***	0.08	-0.20	-0.63	0.51	-0.87**
Natural sciences	1.68***	0.04	0.99**	-0.08	2.90***	0.19	2.48***	-0.66	-13.77	-0.05	2.66***	0.56
Engineering, manufacturing, construction	1.69***	-1.01***	1.05***	-0.86***	2.47***	-0.04	3.60***	-0.01	0.35	-0.67	1.94***	-0.41
Agriculture and veterinary	1.48***	-1.13***	1.41**	0.22	16.29	14.63	2.78**	-0.94	14.79	13.36	3.08***	1.48**
Health and welfare	-0.84***	-2.30***	-0.10	-3.32***	-15.17	-2.03***	-15.65	-3.77***	-14.98	-2.01	-1.52***	-2.25***
Services	-0.55**	-1.35***	-0.74**	-1.78***	0.04	-1.57***	-0.28	-1.52***	-1.00	-2.18**	-0.93***	-1.93***
Unknown	-12.33	-1.63	0.12	-1.87***	15.74	0.51				15.09	-0.75	
Constant	-0.09	0.52***	0.02	0.20	-0.93**	0.03	-1.19***	0.47**	-0.13	-1.08*	0.35*	0.84***
Observations	3071	3071	1412	1412	443	443	756	756	279	279	1440	1440
Pseudo R2	0.19	0.19	0.17	0.17	0.28	0.28	0.27	0.27	0.24	0.24	0.23	0.23

Table B1. Continued (3)

	NO		PT		RO		SE		SK		UK	
	Pro	Adm	Pro	Adm	Pro	Adm	Pro	Adm	Pro	Adm	Pro	Adm
Female	-1.44***	0.12	-1.07***	0.46***	0.05	1.16***	-1.10***	-0.15	-0.34*	1.20***	-1.56***	0.00
Labor market entry cohort (Ref.: 1995-2000)												
2001-08	-0.39*	-0.10	-0.24	-0.19	0.01	0.12	-0.52***	-0.33**	0.24	0.11	-0.18	0.16
Education (Ref.: High)												
Low	1.00**	0.46	1.89***	0.44	4.69***	1.92	1.48***	0.13	2.21**	-0.78	1.03*	0.33
Moderate	0.32	0.11	0.94***	0.62***	0.83***	1.51***	0.87***	0.13	1.10***	0.67**	0.95***	0.42
Educational field (Ref.: Social sciences)												
General programs	-0.21	-0.38	0.19	-0.42			0.50*	-0.42*	0.38	-0.24	1.14*	-1.16*
Natural sciences	1.02***	-0.39	0.82**	0.13	1.94***	0.62	1.87***	-0.81*	1.71***	-0.17	1.48***	0.42
Engineering, manufacturing, construction	0.59*	-0.41	1.92***	-0.12	2.43***	-0.12	2.24***	-0.41	1.80***	-0.70***	2.59***	0.01
Agriculture and veterinary												
Health and welfare	-2.67***	-3.22***	-0.69	-2.38***	-2.27**	-17.10	-1.37***	-2.86***	-3.13***	-3.58***	-0.67	-1.88***
Services	-0.77	-0.54	0.05	-0.55	0.43	-1.48***	-0.84***	-2.03***	-1.07***	-2.52***	-0.19	-1.52***
Unknown							0.29	-0.92**		0.57		-0.44
Constant	0.30	-0.21	-0.70**	-0.38	-1.67***	-1.58***	-0.27	0.50**	-1.03***	-0.42	-0.63**	0.19
Observations	712	712	1012	1012	845	845	1557	1557	1136	1136	734	734
Pseudo R2	0.18	0.18	0.14	0.14	0.21	0.21	0.24	0.24	0.25	0.25	0.16	0.16

Notes: Pro = Production; Adm = Administration; *** p<0.01, ** p<0.05, * p<0.1.

Table B2. Country models for entering high-status occupations (logistic regression models)

	AT	BE	BG	CY	CZ	DE	DK	EE	ES
Female	-0.19	-0.01	0.45	-0.05	-0.42*	-0.34	0.02	-0.13	0.30*
Labor market entry cohort (Ref.: 1995-2000)	0.64***	0.05	-0.25	0.41	0.19	0.58	0.81*	-0.01	0.35**
Education (Ref.: High)									
Low	-1.89**	-4.20***					-1.76	-3.21***	-3.38***
Moderate	-2.22***	-2.38***	-4.17***	-4.55***	-2.82***	-4.29***	-3.33***	-2.18***	-2.18***
Educational field (Ref.: Social sciences)									
General programs	-0.18	0.05	-0.27		-0.20	2.77**	-1.79	-0.39	-0.11
Natural sciences	0.10	0.22	0.89	1.04**	0.46	0.06	0.78	0.45	0.44*
Engineering, manufacturing, construction	-0.37	-0.58*	-0.16	0.36	-1.44***	-0.91*	-0.34	-0.55	0.37*
Agriculture and veterinary	-0.65	1.06	0.75	0.66	-1.19**	0.86	-1.51	0.76	1.48***
Health and welfare	-0.59	1.60***	-1.83**	0.21	-0.48	-0.64	-2.12***	0.45	0.41*
Services	-1.44***	-1.28*	-0.99	-2.55**	-2.44***		-1.43	-1.00	-0.90**
Unknown		0.14						-0.48	
Job while education	-0.23	-0.21	0.27	0.75	1.45**	0.31	-0.62	-0.58	-0.49**
Constant	-0.56	0.17	-0.52	-1.68***	-0.91	-0.02	-0.14	-0.02	-1.23***
Observations	1391	597	722	464	1812	405	508	482	1719
Pseudo R2	0.22	0.29	0.42	0.28	0.34	0.48	0.34	0.26	0.17

Table B2. Continued (1)

	FI	FR	GR	HU	IE	IT	LT	LU	LV
Female	-0.71**	-0.03	0.05	-0.52**	0.04	-0.22	-0.57	-0.01	-0.21
Labor market entry cohort (Ref.: 1995-2000)									
2001-08	0.18	0.45***	-0.12	-0.16	0.09	0.49*	0.13	-0.07	-0.04
Education (Ref.: High)									
Low	-3.99***	8.15	-3.25***		-2.92***	-4.05***		-8.13***	-2.05
Moderate	-3.32***	-2.34***	-2.93***	-4.47***	-2.14***	-2.65***	-17.43	-6.45***	-2.92***
Educational field (Ref.: Social sciences)									
General programs	1.23*	-10.98	-2.08***		-0.52**	1.27***	13.18	2.94***	-1.46
Natural sciences	0.72	1.01***	0.17	0.00	0.08	0.53	0.56	0.24	
Engineering, manufacturing, construction	-0.00	0.37	-0.64**	-0.65**	-0.15	0.62**	-1.36***	0.45	-0.42
Agriculture and veterinary	-0.04	-0.03	-0.35	-0.60	-0.79**	-0.68	-0.30	3.57***	
Health and welfare	-1.18***	0.26	-1.14***	-0.13	0.77***	0.49	-0.02	-1.06**	1.11
Services	-0.95*	-0.01	-2.16***	-1.24***	-1.35***	0.12	-2.00*	-2.93***	0.04
Unknown		0.73			0.30	-0.08			
Job while education	-0.42	-0.01	-2.10*	0.36	0.25	-0.18	0.08	0.74	0.07
Constant	0.70	-1.62***	2.23**	0.53	-0.61**	-1.04**	0.34	0.92	-0.19
Observations	564	1866	1582	1668	3073	1413	410	763	274
Pseudo R2	0.30	0.18	0.38	0.48	0.21	0.24	0.45	0.59	0.34

Table B2. Continued (2)

	NL	NO	PL	PT	RO	SE	SI	SK	UK
Female	-0.22	-0.13	-0.13	-0.34	-0.45	-0.34**	0.30	0.05	-0.27
Labor market entry cohort (Ref.: 1995-2000)									
2001-08	0.10	0.79**	-0.15	-0.45	-0.35	-0.11	0.81*	-0.55	0.17
Education (Ref.: High)									
Low	-4.06***	-3.13***		-6.10***		-4.36***			-2.21***
Moderate	-2.46***	-2.50***	-4.26***	-3.53***	-7.14***	-3.42***	-4.07***	-4.00***	-1.89***
Educational field (Ref.: Social sciences)									
General programs	0.59	0.57	0.59	-0.03		0.83**	2.39***	0.78	
Natural sciences	0.53*	-0.32	0.65**	0.37	0.57	0.03	-1.32	0.69	0.26
Engineering, manufacturing, construction	-0.26	0.57	-0.12	0.50	0.91**	-0.26	0.26	-0.38	-0.38
Agriculture and veterinary	-0.53	-0.00	0.06		1.63	-0.43	0.98	-1.07	
Health and welfare	-0.90***	-0.62*		0.44	0.91	-0.29	0.23	-1.11	-0.21
Services	-1.08***	0.32	-0.90*	-0.99*	-0.10	-2.21***		-1.80*	-0.73
Unknown	-1.50		3.23***			-1.30			0.28
Job while education	-0.07	0.46	0.82***	0.30	0.99	-0.11	0.46		-0.50
Constant	-0.09	-2.06***	-0.83***	-0.01	0.26	0.32	-1.11*	0.24	-0.16
Observations	1542	720	1944	1010	821	1566	422	1122	698
Pseudo R2	0.23	0.16	0.41	0.43	0.66	0.29	0.43	0.40	0.12

Notes: *** p<0.01, ** p<0.05, * p<0.1.

9.3 APPENDIX FOR CHAPTER 5

Appendix A. Information on samples and variables**Table A1.** Information about excluded cases from the original LFS sample

Drop	Description	All	Men	Women
Original sample	LFS 2013	4,648,260	2,240,323	2,407,937
Drop BG, PL, MT, SI, LV	Information on ISCO-08 3 digit is missing or small case numbers	4,098,039	1,977,486	2,120,553
Drop individuals younger than 20 and older than 64	Focus on core members of the labor market	2,463,392	1,201,656	1,261,736
Drop individuals not employed	Only employed individuals	1,666,591	882,049	784,542
Drop full-time students or apprentices		1,601,803	852,521	749,282
Drop individuals working in an occupation with less than 10 employees	In order to build female-dominated, mixed and male-dominated occupations	1,600,502	851,683	748,819
Drop missings in dependent and independent variables	Final sample	1,242,424	632,671	609,753

Table A2. Information about coding of variables

Variable name and coding	Construction from original LFS variables
Dependent variable	
Jobs with supervisory responsibilities	
= 0 No	Job without supervisory responsibilities
= 1 Yes	Jobs with supervisory responsibilities
Independent individual variables	
Female	
= 0 No	Male
= 1 Yes	Female
Educational level	
= 1 low	Highest attained education is ISCED 0 (pre-primary education), ISCED 1 (primary education or first stage of basic education) or ISCED 2 (lower secondary or second stage of basic education)
= 2 medium	Highest attained education is ISCED 3 ((upper) secondary education) or ISCED 4 (post-secondary non-tertiary education)
= 3 high	Highest attained education is ISCED 5 (first stage of tertiary education) or ISCED 6 (second stage of tertiary education)
Educational field	
= 1	General programs
= 2	Social sciences
= 3	Natural sciences
= 4	Engineering, manufacturing, and construction
= 5	Agriculture and veterinary
= 6	Health and welfare
= 7	Services
= 8	Unknown
Age	
= 1 20-24	Individuals aged between 20 and 24
= 2 25-29	Individuals aged between 25 and 29
= 3 30-34	Individuals aged between 30 and 34
= 4 35-39	Individuals aged between 35 and 39
= 5 40-44	Individuals aged between 40 and 44
= 6 45-49	Individuals aged between 45 and 49
= 7 50-54	Individuals aged between 50 and 54
= 8 55-59	Individuals aged between 55 and 59
= 9 60-64	Individuals aged between 60 and 64
Marital status	
= 1	Widowed, divorced, or legally separated
= 2	Single
= 3	Married

Table A2. Continued

Occupation	
= 1 Male-dominated	Individual works in occupation with female share <31%
= 2 Female-dominated	Individual works in occupation with female share >69%
= 3 Mixed	Individual works in occupation with female share 31-69%
Labor market experience	
= range[0; 677]	Months since person started working
Working part-time	
= 0 No	Individual works full-time
= 1 Yes	Individual works part-time

Table A3. Case numbers and values of the country-specific independent variables, by country

	Case numbers	Share of male-dominated occupations	Family policies (factor)	Maternal employment (ratio)
Nordic				
DK	37,343	0.42	1.01	0.42
IS	5,782	0.50	0.99	0.35
FI	8,998	0.62	0.96	-0.16
NO	9,642	0.53	n.a.	-0.43
SE	135,078	0.53	0.98	-0.38
Central European				
AT	68,804	0.49	0.92	-0.77
BE	32,635	0.49	0.96	0.58
CH	31,324	0.44	0.90	1.17
DE	146,415	0.51	0.86	-0.41
FR	153,762	0.45	0.95	0.65
LU	5,655	0.36	0.93	0.00
NL	29,682	0.53	0.98	0.80
Liberal				
IE	57,865	0.42	0.88	1.11
UK	26,598	0.38	0.86	1.39
Southern European				
CY	12,963	0.49	0.94	1.15
ES	27,932	0.53	0.95	1.46
GR	42,380	0.47	0.98	1.07
IT	148,771	0.59	0.94	0.21
PT	45,874	0.43	1.02	0.70
Post-Socialist				
CZ	14,403	0.62	0.77	-1.63
EE	9,439	0.57	0.85	-1.14
HR	9,055	0.55	n.a.	-0.78
HU	73,818	0.53	0.78	-1.20
LT	22,963	0.47	0.95	-0.93
RO	52,267	0.76	0.99	-1.13
SK	32,976	0.58	0.81	-2.09

Source: See text.**Notes:** MDO = male-dominated occupations; FDO = female-dominated occupations; MXO = mixed occupations; n.a. = not applicable.

Table A4. Correlations between gender differences in holding supervisory positions and the country-specific variables

	Gender differences in SUP (1)	Share of male- dominated occupations (2)	Family policies (factor) (3)	Maternal employment (ratio) (4)
(1)	1.00			
(2)	0.15	1.00		
(3)	-0.22	-0.57	1.00	
(4)	-0.26	-0.14	0.50	1.00

Notes: SUP = Supervisory positions.

Appendix B Models

Table B1. Country-specific logistic regression models on the probability of holding supervisory positions (full models without interaction effects)

	AT	BE	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR
Female	-0.62***	-0.46***	-0.45***	-0.64***	-0.36***	-0.45***	-0.58***	-0.24***	-0.41***	-0.59***	-0.47***	-0.56***	-0.41***
Occupation (Ref. MDO)													
FDO	-0.01	-0.72***	-0.23***	-1.12***	-1.16***	-0.22***	-0.50***	-0.48***	-1.05***	-0.71***	-0.91***	-1.32***	-1.07***
MDO	0.15***	0.01	0.19***	-0.08	-0.14**	0.06***	0.57***	0.54***	0.25***	0.23***	0.00	-0.36***	0.08
Education (Ref. High)													
Low	-1.74***	-1.73***	-1.16***	-1.10***	-3.67***	-2.23***	-0.68***	-1.81***	-1.71***	-1.72***	-1.02***	-1.76***	-3.49***
Moderate	-0.60***	-0.95***	-0.50***	-1.17***	-1.44***	-1.04***	-0.32***	-0.77***	-0.93***	-1.18***	-0.71***	-0.81***	-1.34***
Educational field (Ref. Social science)													
General	0.16***	0.39***	-0.27***	-0.65**	0.35**	-0.00	-0.03	-0.05	0.27***	0.61***	-0.23***	-0.47***	0.05
Natural science	-0.09	0.04	-0.40***	0.11	-0.43***	-0.01	-0.22***	0.15	-0.03	-0.10	-0.09***	-0.63***	0.03
Eng..manuf.& construction	-0.19***	0.08*	-0.09**	-0.33***	-0.61***	-0.30***	-0.31***	0.01	-0.09	0.11	-0.04**	-0.09	-0.17*
Agriculture & veterinary	0.08	0.06	0.21*	-1.59***	-0.13	-0.40***	-0.21**	0.01	0.26*	0.38**	0.00	0.13	0.23
Health and welfare	-0.04	0.17***	0.53***	-0.10	0.08	0.24***	0.11**	0.32**	-0.30***	-0.01	0.33***	0.17***	0.26*
Services	0.11***	0.32***	-0.26***	0.22**	-0.05	-0.18***	0.26***	-0.07	0.31***	0.72***	0.10***	0.41***	-0.25**
Unknown		2.89**					0.88	0.02	-0.61**		0.07	0.23	

Table B1. Continued (1)

	AT	BE	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR
Marital status (Ref. Single)													
Wid., div., separ.	0.19***	0.15***	0.17***	0.11	0.27***	0.18***	0.20***	-0.01	0.28***	0.28***	0.28***	0.69***	0.69***
Married	0.19***	0.29***	0.20***	0.19**	0.40***	0.18***	0.36***	0.07	0.35***	0.46***	0.31***	0.28***	0.65***
Age (Ref. 20-24)													
25-29	0.52***	0.54***	-0.18**	0.69***	0.72***	0.42***	0.28**	0.69***	0.20	0.60**	0.51***	0.53***	0.61
30-34	0.79***	0.91***	-0.03	1.24***	0.85***	0.58***	0.16	1.00***	0.56***	0.84***	0.78***	0.69***	1.26***
35-39	0.92***	0.94***	-0.02	1.38***	0.85***	0.57***	0.45***	1.03***	0.75***	0.98***	0.89***	0.84***	1.67***
40-44	1.00***	1.06***	0.15*	1.42***	0.94***	0.54***	0.64***	1.08***	0.70***	0.97***	0.94***	0.87***	1.55***
45-49	0.92***	1.07***	0.05	1.84***	0.85***	0.45***	0.66***	0.94***	0.62***	0.94***	0.94***	0.64***	1.37***
50-54	0.86***	1.09***	0.01	1.67***	0.74***	0.33***	0.58***	0.88***	0.58***	1.00***	0.90***	0.73***	1.59***
55-59	0.66***	1.18***	-0.09	1.64***	0.88***	0.16***	0.50***	0.49**	0.57***	0.93***	0.83***	0.89***	1.55***
60-64	0.67***	1.28***	-0.25***	1.81***	1.03***	0.05	0.38***	0.49**	0.56***	0.91***	0.96***	0.81***	1.30***
LME (months)	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.01***	0.01***	0.00***	0.00***	0.00***	0.00***
LME(months2)	-0.00***	-0.00**	-0.00***	0.00	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***	-0.00	-0.00**
Part-time (Ref. Fulltime)	-0.92***	-0.75***	-0.91***	-1.03***	-1.02***	-0.96***	-1.00***	-0.54***	-0.97***	-0.79***	-0.83***	-0.83***	-0.41
Constant	-1.30***	-1.60***	-0.16**	-2.16***	-1.21***	-0.56***	-2.19***	-1.98***	-2.13***	-1.80***	-1.79***	-2.19***	-2.69***
Observations	68801	32635	31324	12963	14403	146412	37343	9439	27932	8997	153762	4238	9055
Pseudo R2	0.122	0.122	0.122	0.122	0.122	0.122	0.122	0.122	0.122	0.122	0.122	0.122	0.122

Table B1. Continued (2)

	HU	IE	IS	IT	LT	LU	NL	NO	PT	RO	SE	SK	UK
Female	-0.26***	-0.19***	-0.32***	-0.28***	0.04	-0.61***	-0.12***	-0.39***	-0.47***	-0.32***	-0.32***	-0.26***	-0.18***
Occupation (Ref. MDO)													
FDO	-1.15***	-0.09***	-0.36***	-0.45***	-1.69***	-0.41***	-0.94***	-0.63***	-0.16***	-0.81***	-0.35***	-0.65***	-0.06
MDO	0.29***	0.53***	-0.01	0.06***	-0.18***	0.10	-0.42***	-0.05	0.17***	0.09**	0.18***	-0.29***	0.42***
Education (Ref. High)													
Low	-2.92***	-1.53***	-0.84***	-1.39***	-3.85***	-1.22***	-1.05***	-0.54***	-1.50***	-3.44***	-0.98***	-5.00***	-1.17***
Moderate	-1.34***	-0.83***	-0.50***	-0.67***	-1.78***	-0.68***	-0.45***	-0.41***	-0.80***	-2.23***	-0.56***	-1.55***	-0.77***
Educational field (Ref. Social science)													
General	0.07	-0.16	0.05*	0.05*	-0.54***	-0.17	0.05	-0.10	0.07		0.36***	0.48***	-0.31***
Natural science	-0.16**	0.02	-0.45***	-0.11***	-0.19*	-0.09	-0.27***	-0.20**	-0.11	-0.14*	0.01	0.08	-0.07
Eng..manuf.& construction	-0.25***	0.01	-0.18*	-0.01	0.01	-0.11	-0.15***	0.07	0.32***	0.24***	0.22***	-0.12**	0.13**
Agriculture & veterinary	0.31***	-0.28***	-0.06	-0.12***	0.07	-0.28	0.01	0.19	0.17	0.28***	0.15***	0.36***	0.26
Health and welfare	0.10*	0.43***	0.43***	0.04	-0.34***	0.50***	0.10*	0.17**	0.19***	0.42***	0.66***	-0.33***	0.36***
Services	0.32***	0.06	0.30**	-0.08**	-0.59***	0.38**	0.10*	-0.05	0.06	0.33***	0.28***	0.31***	0.40***
Unknown		-0.33**	0.60	-0.50***		0.04		-0.71			0.11**		0.14***

Table B1. Continued (3)

	HU	IE	IS	IT	LT	LU	NL	NO	PT	RO	SE	SK	UK
Marital status (Ref. Single)													
Wid., div., separ.	0.23***	0.13**	0.14	0.01	0.15	0.23*	0.22***	0.17**	0.25***	0.19**	-0.00	-0.08	0.15***
Married	0.38***	0.24***	-0.01	0.08***	0.37***	0.24***	0.35***	0.08	0.34***	0.25***	0.21***	0.02	0.34***
Age (Ref. 20-24)													
25-29	0.22**	0.64***	-0.03	0.10**	0.57***	0.07	0.39***	0.41***	0.30***	0.17	0.18***	0.44***	0.29***
30-34	0.58***	0.78***	0.12	0.17***	0.80***	0.16	0.46***	0.36***	0.47***	0.38***	0.31***	0.89***	0.46***
35-39	0.65***	1.03***	0.36**	0.31***	0.81***	0.41*	0.48***	0.60***	0.42***	0.46***	0.37***	1.07***	0.53***
40-44	0.62***	1.18***	0.53***	0.37***	0.86***	0.50**	0.64***	0.56***	0.43***	0.61***	0.39***	1.12***	0.61***
45-49	0.57***	1.13***	0.49***	0.39***	0.80***	0.43*	0.66***	0.65***	0.45***	0.69***	0.32***	1.08***	0.57***
50-54	0.41***	0.95***	0.46***	0.44***	0.78***	0.27	0.49***	0.49***	0.34***	0.86***	0.28***	1.31***	0.43***
55-59	0.51***	0.88***	0.22	0.42***	0.76***	0.39	0.37***	0.41***	0.26***	0.93***	0.14***	1.05***	0.37***
60-64	0.72***	0.90***	-0.26	0.36***	0.82***	0.72**	0.24**	0.20	0.12	1.00***	0.08**	1.41***	0.13
LME (months)	0.01***	0.00***	0.01***	0.00***	0.01***	0.00***	0.00***	0.01***	0.00***	0.00***	0.00***	0.00***	0.01***
LME (months2)	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***	-0.00*	-0.00***	-0.00***	-0.00***	-0.00	-0.00***	-0.00***	-0.00***
Part-time (Ref. Fulltime)	-0.71***	-1.07***	-0.83***	-0.32***	-0.48***	-0.69***	-0.90***	-0.75***	-1.22***	-0.44	-0.64***	-1.03***	-1.03***
Constant	-1.75***	-2.00***	-0.05	-0.88***	-1.60***	-0.63***	-0.92***	-0.67***	-0.93***	-1.88***	-0.88***	-1.84***	-1.19***
Observations	73818	57865	5782	148771	22963	5655	29682	9642	45874	52267	135078	32976	26598
Pseudo R2	0.122	0.122	0.122	0.122	0.122	0.122	0.122	0.122	0.122	0.122	0.122	0.122	0.122

Notes: *** p<0.01, ** p<0.05, * p<0.1.

Table B2. Country-specific logistic regression models on the probability of holding supervisory positions (full models with interaction effects)

	AT	BE	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR
Female	-0.37***	-0.21***	-0.30***	-0.40***	0.24**	-0.18***	-0.54***	0.42***	0.07	-0.49***	-0.33***	-0.12	-0.68***
Occupation (Ref. MDO)													
FDO	0.03	-0.50***	-0.24***	-0.46***	-0.70***	-0.07**	-0.41***	-0.24	-0.72***	-0.46***	-0.65***	-1.15***	-1.21***
MXD	0.19***	0.04	0.24***	-0.09	0.04	0.11***	0.56***	0.71***	0.36***	0.20**	-0.01	-0.28***	0.04
Interactions gender * occupation													
Female * FDO	-0.27***	-0.51***	-0.12	-0.99***	-1.05***	-0.43***	-0.15	-0.84***	-0.83***	-0.39***	-0.47***	-0.62***	0.41
Female * MXD	-0.29***	-0.23***	-0.21***	-0.16	-0.78***	-0.31***	0.00	-0.84***	-0.56***	-0.02	-0.07*	-0.52***	0.29
Education (Ref. High)													
Low	-1.74***	-1.71***	-1.16***	-1.09***	-3.67***	-2.22***	-0.68***	-1.77***	-1.68***	-1.70***	-1.01***	-1.73***	-3.49***
Moderate	-0.60***	-0.94***	-0.50***	-1.17***	-1.43***	-1.04***	-0.32***	-0.74***	-0.92***	-1.18***	-0.70***	-0.80***	-1.35***
Educational field (Ref. Social science)													
General	0.16***	0.38***	-0.27***	-0.65**	0.34**	-0.01	-0.04	-0.08	0.27***	0.60***	-0.23***	-0.47***	0.06
Natural science	-0.10	0.04	-0.40***	0.11	-0.47***	-0.02	-0.21***	0.15	-0.05	-0.12	-0.10***	-0.64***	0.05
Eng..manuf.& construction	-0.18***	0.10**	-0.08*	-0.31***	-0.59***	-0.29***	-0.31***	0.00	-0.06	0.12	-0.04*	-0.09	-0.18*
Agriculture & veterinary	0.08	0.06	0.20	-1.55***	-0.13	-0.40***	-0.20**	-0.01	0.25*	0.39**	0.00	0.11	0.23
Health and welfare	-0.03	0.18***	0.53***	-0.12	0.11	0.25***	0.12**	0.33***	-0.29***	0.01	0.35***	0.18***	0.26*
Services	0.11***	0.32***	-0.26***	0.23**	-0.06	-0.18***	0.26***	-0.08	0.30***	0.72***	0.10***	0.41***	-0.25**
Unknown		2.92**					0.86	0.04	-0.60**		0.08	0.21	
Marital status (Ref. Single)													
Wid., div., separ.	0.19***	0.15***	0.17***	0.11	0.26***	0.18***	0.20***	-0.01	0.28***	0.28***	0.28***	0.70***	0.69***
Married	0.19***	0.29***	0.20***	0.19**	0.40***	0.18***	0.36***	0.07	0.36***	0.46***	0.32***	0.28***	0.65***

Table B2. Continued (1)

	AT	BE	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR
Age (Ref. 20-24)													
25-29	0.52***	0.53***	-0.18**	0.72***	0.71***	0.42***	0.28**	0.70***	0.20	0.59**	0.51***	0.52***	0.60
30-34	0.79***	0.90***	-0.03	1.25***	0.84***	0.58***	0.16	0.99***	0.56***	0.83***	0.78***	0.69***	1.26***
35-39	0.92***	0.94***	-0.02	1.40***	0.85***	0.56***	0.46***	1.04***	0.75***	0.98***	0.89***	0.83***	1.67***
40-44	0.99***	1.06***	0.14*	1.44***	0.94***	0.53***	0.64***	1.09***	0.70***	0.96***	0.94***	0.86***	1.55***
45-49	0.91***	1.07***	0.05	1.87***	0.85***	0.45***	0.66***	0.95***	0.62***	0.93***	0.93***	0.64***	1.37***
50-54	0.85***	1.09***	0.01	1.71***	0.74***	0.33***	0.59***	0.88***	0.58***	1.00***	0.90***	0.73***	1.58***
55-59	0.66***	1.17***	-0.09	1.67***	0.88***	0.15***	0.51***	0.50**	0.57***	0.92***	0.83***	0.88***	1.55***
60-64	0.66***	1.27***	-0.26***	1.84***	1.03***	0.05	0.39***	0.51**	0.56***	0.90***	0.96***	0.79***	1.30***
LME (months)	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.01***	0.01***	0.00***	0.00***	0.00***	0.00***
LME (months2)	-0.00***	-0.00**	-0.00***	0.00	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***	-0.00*	-0.00**
Part-time (Ref. Fulltime)	-0.92***	-0.74***	-0.90***	-1.04***	-1.04***	-0.95***	-0.99***	-0.54***	-0.97***	-0.79***	-0.82***	-0.82***	-0.42
Constant	-1.31***	-1.64***	-0.18**	-2.22***	-1.32***	-0.60***	-2.20***	-2.07***	-2.20***	-1.82***	-1.82***	-2.25***	-2.66***
Observations	68801	32635	31324	12963	14403	146412	37343	9439	27932	8997	153762	4238	9055
Pseudo R2	0.122	0.122	0.122	0.122	0.122	0.122	0.122	0.122	0.122	0.122	0.122	0.122	0.122

Table B2. Continued (2)

	HU	IE	IS	IT	LT	LU	NL	NO	PT	RO	SE	SK	UK
Female	0.29***	0.40***	-0.34**	-0.07**	1.06***	-0.31	0.14**	-0.29**	0.11	-0.12*	-0.19***	0.51***	-0.24***
Occupation (Ref. MDO)													
FDO	-0.66***	0.15***	-0.37***	-0.58***	-0.55***	-0.82***	-0.70***	-0.68***	0.04	-0.71***	-0.28***	-0.26***	-0.17**
MXD	0.33***	0.69***	-0.02	0.15***	0.03	0.18*	-0.35***	-0.01	0.26***	0.16***	0.23***	-0.08	0.43***
Interactions gender * occupation													
Female * FDO	-1.09***	-0.77***	0.04	-0.01	-2.17***	0.22	-0.52***	-0.02	-0.76***	-0.31***	-0.19***	-1.14***	0.18*
Female * MXD	-0.53***	-0.73***	0.03	-0.31***	-1.10***	-0.41*	-0.31***	-0.15	-0.63***	-0.30***	-0.18***	-1.04***	0.03
Education (Ref. High)													
Low	-2.92***	-1.48***	-0.84***	-1.38***	-3.79***	-1.23***	-1.01***	-0.53***	-1.47***	-3.44***	-0.97***	-4.99***	-1.17***
Moderate	-1.32***	-0.80***	-0.50***	-0.67***	-1.73***	-0.68***	-0.44***	-0.41***	-0.79***	-2.21***	-0.56***	-1.52***	-0.77***
Educational field (Ref. Social science)													
General	0.05	0.05	-0.16	0.04	-0.57***	-0.17	0.04	-0.10	0.07		0.36***	0.47***	-0.31***
Natural science	-0.18***	0.01	-0.45***	-0.11***	-0.23**	-0.10	-0.26***	-0.20**	-0.14*	-0.17**	0.01	0.07	-0.07
Eng..manuf.& construction	-0.24***	0.04	-0.18*	-0.01	0.01	-0.11	-0.13***	0.07	0.31***	0.22***	0.23***	-0.11*	0.12**
Agriculture & veterinary	0.30***	-0.27***	-0.06	-0.12***	0.02	-0.29	0.01	0.19	0.16	0.26***	0.15***	0.34***	0.26
Health and welfare	0.11**	0.45***	0.43***	0.05	-0.32***	0.50***	0.11**	0.17**	0.21***	0.42***	0.66***	-0.29***	0.35***
Services	0.29***	0.04	0.30**	-0.08**	-0.58***	0.36**	0.10*	-0.05	0.04	0.32***	0.28***	0.30***	0.40***
Unknown		-0.33**	0.60	-0.50***		0.03		-0.70			0.11**		0.13***
Marital status (Ref. Single)													
Wid., div., separ.	0.23***	0.13**	0.14	0.01	0.16	0.23*	0.23***	0.17**	0.25***	0.18**	-0.00	-0.08	0.15***
Married	0.40***	0.24***	-0.01	0.08***	0.38***	0.25***	0.35***	0.08	0.35***	0.25***	0.21***	0.03	0.34***

Table B2. Continued (3)

	HU	IE	IS	IT	LT	LU	NL	NO	PT	RO	SE	SK	UK
Age (Ref. 20-24)													
25-29	0.22**	0.64***	-0.03	0.10**	0.57***	0.06	0.39***	0.41***	0.30***	0.17	0.18***	0.45***	0.29***
30-34	0.57***	0.78***	0.12	0.17***	0.81***	0.14	0.46***	0.36***	0.46***	0.38***	0.31***	0.90***	0.46***
35-39	0.65***	1.03***	0.36**	0.31***	0.80***	0.39*	0.47***	0.60***	0.42***	0.46***	0.37***	1.08***	0.53***
40-44	0.62***	1.18***	0.53***	0.37***	0.88***	0.47**	0.63***	0.56***	0.44***	0.61***	0.39***	1.12***	0.61***
45-49	0.57***	1.14***	0.49***	0.39***	0.80***	0.41*	0.65***	0.65***	0.45***	0.69***	0.32***	1.08***	0.56***
50-54	0.41***	0.96***	0.46***	0.44***	0.78***	0.24	0.48***	0.48***	0.34***	0.86***	0.28***	1.32***	0.43***
55-59	0.50***	0.88***	0.22	0.42***	0.76***	0.36	0.37***	0.41***	0.25***	0.93***	0.14***	1.07***	0.37***
60-64	0.70***	0.91***	-0.26	0.35***	0.81***	0.68**	0.23**	0.20	0.12	1.00***	0.08**	1.43***	0.13
LME (months)	0.01***	0.00***	0.01***	0.00***	0.01***	0.00***	0.00***	0.01***	0.00***	0.00***	0.00***	0.00***	0.01***
LME(months2)	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***	-0.00*	-0.00***	-0.00***	-0.00***	-0.00	-0.00***	-0.00***	-0.00***
Part-time (Ref. Fulltime)	-0.72***	-1.05***	-0.84***	-0.32***	-0.54***	-0.70***	-0.89***	-0.75***	-1.22***	-0.45	-0.64***	-1.05***	-1.03***
Constant	-1.81***	-2.12***	-0.04	-0.90***	-1.78***	-0.64***	-0.98***	-0.68***	-0.99***	-1.91***	-0.90***	-1.97***	-1.18***
Observations	73818	57865	5782	148771	22963	5655	29682	9642	45874	52267	135078	32976	26598
Pseudo R2	0.122	0.122	0.122	0.122	0.122	0.122	0.122	0.122	0.122	0.122	0.122	0.122	0.122

Notes: *** p<0.01, ** p<0.05, * p<0.1.

Appendix C. Additive tests

Table C1. The gender gap in holding supervisory positions by male-dominated, mixed, and female-dominated occupations

	MDO		FDO		MXO	
	Female APE	P> z	Female APE	P> z	Female APE	P> z
AT	-0.37	0.000	-0.54	0.000	-0.67	0.000
BE	-0.21	0.007	-0.72	0.000	-0.44	0.000
CH	-0.30	0.000	-0.42	0.000	-0.51	0.000
CY	-0.40	0.001	-1.40	0.000	-0.56	0.000
CZ	0.24	0.025	-0.81	0.000	-0.54	0.000
DE	-0.18	0.000	-0.61	0.000	-0.49	0.000
DK	-0.54	0.000	-0.70	0.000	-0.54	0.000
EE	0.42	0.003	-0.42	0.009	-0.42	0.000
ES	0.07	0.392	-0.76	0.000	-0.48	0.000
FI	-0.49	0.000	-0.88	0.000	-0.51	0.000
FR	-0.33	0.000	-0.78	0.000	-0.40	0.000
GR	-0.12	0.132	-0.75	0.000	-0.65	0.000
HR	-0.68	0.002	-0.27	0.174	-0.39	0.000
HU	0.29	0.000	-0.80	0.000	-0.24	0.000
IE	0.40	0.000	-0.36	0.000	-0.32	0.000
IS	-0.34	0.027	-0.30	0.032	-0.32	0.001
IT	-0.07	0.019	-0.09	0.037	-0.39	0.000
LT	1.06	0.000	-1.11	0.000	-0.04	0.581
LU	-0.31	0.132	-0.09	0.695	-0.72	0.000
NL	0.14	0.030	-0.38	0.000	-0.17	0.002
NO	-0.39	0.013	-0.31	0.013	-0.44	0.000
PT	0.11	0.107	-0.65	0.000	-0.52	0.000
RO	-0.12	0.091	-0.43	0.000	-0.41	0.000
SE	-0.19	0.000	-0.37	0.000	-0.36	0.000
SK	0.51	0.000	-0.63	0.000	-0.53	0.000
UK	-0.24	0.003	-0.06	0.378	-0.21	0.000

Notes: MDO = male-dominated occupations; FDO = female-dominated occupations; MXO = mixed occupations; APE = Average partial effect of interactions between female and working in male-dominated, mixed or female-dominated occupations.

9.4 APPENDIX FOR CHAPTER 6

Appendix A. Information on samples and variables

Table A1. Information about cases excluded from the original PIAAC sample

Stages of sample selection	Definition	All	Men	Women	%
Original sample ^a	PIAAC data	152,514	72,241	80,271	
Austria and Canada	Country's exclusion due to missing information on important job characteristics (working hours)	31,813	14,972	16,841	20.86
Literacy non-response	Individuals who did not complete the questionnaire or who suffer from language problems, reading and writing difficulties, or learning and mental disabilities; information given in the data	1,503	766	737	0.99
Aged < 20	Individuals aged below 20 years	9,791	4,852	4,939	6.42
Aged ≥ 55	Individuals aged above 55 years	25,267	11,809	13,457	16.57
Non-adult-learners	1. Among individuals aged between 20 and 25: those attained highest educational level at the age of 16 and above if this attainment was after 2007 (at least four years before the interview) or if the year of attainment is missing 2. Among individuals aged between 25 and 29: those attained highest educational level at the age of 20 and above if this attainment was after 2007 (at least four years before the interview) or if the year of attainment is missing	14,660	6,751	7,908	9.61
Not employed	Individuals not exposed to their employers' training investments, i.e. not employed individuals (for definition of employed individuals, see Section 6.2)	3,539	1,275	2,264	2.32
Missings in DVs	Information on training participation is missing	48	19	29	0.03
Missings in IDs	Information on control variables at individual level is missing	5,927	1,641	4,286	3.89
= Analysis sample	Adult learners	59,996	30,156	29,810	39.34

Notes: PIAAC (2012); own calculations; DVs = Dependent variables, IDs = Independent variables. ^a For two cases in the full sample gender could not be identified.

Table A2. Case numbers and values of the country-specific independent variables, by country

Country	N males	N females	Factor employ- ment protection	Factor family policies	Gender culture
Liberal					
IE	1,649	1,733	-0.82	0.91	-0.73
UK	2,152	2,754	-0.94	1.20	-0.06
US	1,175	1,229	-2.37	0.93	-1.21
Nordic					
DK	1,682	1,653	-0.71	0.81	-1.28
FI	1,465	1,334	0.02	-0.07	-0.83
NO	1,451	1,289	-0.19	0.19	-0.96
SE	1,186	1,080	0.41	-0.23	-1.59
Central European					
BE	1,463	1,346	-0.40	0.81	0.19
DE	1,364	1,347	1.80	-0.59	-0.21
FR	1,863	1,759	0.37	0.56	0.39
NL	1,398	1,384	0.35	0.99	-1.01
Southern European					
ES	1,759	1,538	1.00	1.11	-0.54
IT	1,428	1,204	0.14	0.10	0.38
Post-Socialist					
CZ	1,357	1,540	0.69	-1.78	0.98
EE	1,681	1,906	-0.05	-1.01	0.02
PO	1,801	1,374	-0.28	-1.28	0.90
RU	577	989	0.57	-0.32	1.16
SK	1,500	1,436	-0.28	-2.35	1.44
Asian					
JP	1,432	1,343	-1.28	-0.23	1.47
KP	1,773	1,572	1.96	0.27	1.48

Notes: Data comes from the following sources OECD (2011, 2013a, 2013b), World Bank (2009), An (2013), Lee (2009), Moss (2011; 2012; 2013), Esping-Andersen (1990; 1999).

Table A3. Information about coding of individual-level variables ^a

Variable name and coding	Construction from original PIAAC variables
Dependent variables	
<i>Employer-financed training</i>	
= 0 No	No participation in job-related employer-financed training in the last 12 months.
= 1 Yes	Participation in job-related employer-financed training in the last 12 months. Employer-financed training includes open and distance learning, seminars and workshops, courses, and private lessons. Only training that was mainly job-related is taken into account. The activity is considered employer-financed when the employer or prospective employer paid fully or partly for tuition or registration, exam fees, expenses for books, or other costs resulting from the participation in this activity.
<i>Non-employer-sponsored training</i>	
= 0 No	No participation in job-related non-employer-sponsored training in the last 12 months
= 1 Yes	Participation in job-related non-employer-sponsored training in the last 12 months. Non-employer-sponsored training includes open and distance learning, seminars and workshops, courses, and private lessons. Only training that was mainly job-related is taken into account. The activity is considered non-employer-sponsored when (1) the employer or prospective employer did not pay for tuition or registration, exam fees, expenses for books, or other costs resulting from the participation in this activity, (2) there were no such costs, or (3) the respondent had no employer or prospective employer at that time.
<i>On-the-job training</i>	
= 0 No	No participation in job-related on-the-job training in the last 12 months
= 1 Yes	Participation in job-related on-the-job training in the last 12 months. On-the-job training is defined as ‘any organized sessions for on-the-job training or training by supervisors or co-workers’ and is usually organized by the employer. It ‘is characterized by planned periods of training, instruction, or practical experience, using normal tools of work.’ No separate question if the activity was job-related or if the employer or prospective employer paid for expenses related to the training activity. However, as on-the-job training is organized by the employer, it can be assumed that it is job-related and employer-supported.

Table A3. (continued)

Independent variables	
<i>Age</i>	
= 1 20-34	Individuals aged between 20 and 34
= 2 35-44	Individuals aged between 35 and 44
= 3 45-54	Individuals aged between 45 and 54
<i>Cohabitation</i>	
= 0 No	Individual lives without partner
= 1 Yes	Individual lives together with partner
<i>Competencies in literacy</i>	
= range [0, 500]	Ten continuous variables indicating the level of literacy competencies; Use of plausible values provided by the OECD to account for missing individual information
<i>Educational level</i> ^b	
= 1 low	Highest attained education is ISCED 0 (pre-primary education), ISCED 1 (primary education or first stage of basic education) or ISCED 2 (lower secondary or second stage of basic education)
= 2 medium	Highest attained education is ISCED 3 ((upper) secondary education) or ISCED 4 (post-secondary non-tertiary education)
= 3 high	Highest attained education is ISCED 5 (first stage of tertiary education) or ISCED 6 (second stage of tertiary education)
<i>Female</i>	
= 0 No	Male
= 1 Yes	Female
<i>Full-time work</i> ^c	
= 0 No	Individual works below 30 hours a week
= 1 Yes	Individual works 30 or more hours a week
<i>Large firm</i> ^c	
= 0 No	Individual works in firm with 1 to 50 employees
= 1 Yes	Individual works in firm with more than 50 employees
<i>Missing on firm size</i> ^c	
= 0 No	Information on firm size is available
= 1 Yes	Information on firm size could not be identified
<i>Sector</i> ^c	
= 0 private	Individual works in private or non-profit sector
= 1 public	Individual works in public sector
<i>Small children</i>	
= 0 No	No (step-)child aged 5 years or below
= 1 Yes	At least one (step-)child aged 5 years or below

^a For survey instruments, see PIAAC Background questionnaire MS version 2.1 d.d. 15-12-2010 (available online at: <http://www.oecd.org/site/piaac/Background%20Questionnaire%2015DEC10.pdf>, accessed on 11th July 2014). ^b Educational level does account for educational attainment achieved both in the home country and abroad. ^c Concerns either the current or the previous job in case the previous job was held when participation in training took place.

Table A4. Correlations between the country-level variables

	Factor employment protection	Factor family policies
Factor employment protection	1.00	
Factor family policies	-0.21	1.00
Gender culture	0.24	-0.54

Notes: PIAAC (2012); own calculations.

Appendix B. Models.

Table B1. Country models for participation in on-the-job training

	BE	CZ	DK	EE	FI	FR	DE	IE	IT	JP
Female	-.01	-.49***	-.04	.13	.04	.02	.04	-.24**	-.27**	-.23**
Education level: high (Ref.: low)	1.05***	1.02***	.86***	1.01***	.92***	.89***	1.42***	1.16***	1.01***	.82***
Education level: medium (Ref.: low)	.52***	.89***	.52***	.33***	.39**	.52***	1.06***	.62***	.44***	.09***
Competencies in literacy	.00**	.00*	.00***	.00***	.00***	.00***	.01***	.00***	.01	.00
Cohabitation	.53***	.053	.25***	.33***	.21**	.27***	.31***	.25***	.15	.30***
Small children	-.11	-.35**	-.27**	-.34***	-.43***	.01	-.36**	-.40***	-.53***	-.12
Aged 20-34 (Ref.: 35-44)	-.04	-.14	-.10	.32***	-.24*	-.22**	-.24*	-.03	.08	.14
Aged 45-54 (Ref.: 35-44)	-.04	.19	-.12	-.32***	-.27**	.11	-.23*	.03	-.03	.12
Full-time work	.50***	.11	.91***	.58***	.89***	.53***	.71***	.35***	.21	.65***
Large firm	.21**	.50***	.49***	.46***	.78***	.58***	.64***	.40***	.62***	.46***
Missing on firm size	-1.48***	-.10***	-1.30***	-.97***	-1.56***	-1.07***	-1.03***	-1.26***	-.72***	-.86***
Public sector	.22**	.43***	.63***	.88***	.62***	.70***	.58***	.71***	.21	.57***
Constant	-2.85***	-1.83***	-2.79***	-2.97***	-2.82***	-4.14***	-4.17***	-2.85***	-3.60***	-2.28***
	KP	NL	NO	PL	RU	SK	ES	SE	UK	US
Female	-.14	.03	-.20**	-.30***	.29***	-.36***	-.15*	-.02	.11	-.01
Education level: high (Ref.: low)	.91***	.90***	.37***	1.37***	1.02	1.81***	1.03***	.39**	.48***	1.11***
Education level: medium (Ref.: low)	.52***	.48***	.14	.46*	.17	1.61***	.60***	.46***	.38**	.66***
Competencies in literacy	.01***	.00	.00	.01***	-.00	.01***	.00**	.00	.01***	.00**
Cohabitation	.05	.31***	-.05	.19	.03	.11	.27***	.13	.21**	.05
Small children	-.06	-.24**	-.23**	-.28*	.07	-.29**	-.07	-.31***	-.39***	-.03
Aged 20-34 (Ref.: 35-44)	-.36***	.16	.07	.13	.40**	-.15	.019	.18	-.08	.14
Aged 45-54 (Ref.: 35-44)	-.26**	.23**	-.24**	-.16	-.26	.08	-.04	-.21*	-.09	-.00
Full-time work	.33**	.38***	.37***	.35*	-.32	.34*	.61***	.62***	.46***	.19
Large firm	.94***	.43***	.44***	.73***	.92***	.68***	.76***	.16*	.57***	.44***
Missing on firm size	-1.19***	-1.25***	-.84***	-1.51***	-1.16***	-1.35***	-1.46***	-1.16***	-1.42***	-1.49***
Public sector	.71***	.39***	.24***	.79316	.52**	.18	.71***	.47***	.81***	.46***
Constant	-3.15***	-1.71***	-1.19***	-3.78***	-3.17*	-5.34***	-2.69***	-2.12***	-2.94***	-2.26***

Notes: PIAAC 2012; own calculations; * p<0.1; ** p<0.05; *** p<0.01.

Table B2. Country models for participation in employer-financed training

	BE	CZ	DK	EE	FI	FR	DE	IE	IT	JP
Female	-.07	-.59***	-.02	-.16**	-.20**	-.18**	-.12	-.32***	-.45***	-.36***
Education level: high (Ref.: low)	.99***	.93***	1.05***	.98***	1.03***	1.08***	1.44***	.10***	1.08***	1.25***
Education level: medium (Ref.: low)	.40**	.87***	.54***	.35**	.55***	.58***	1.16***	.51***	.48**	.53**
Competencies in literacy	.00***	.00	.01***	.00**	.00***	.00***	.01***	.01***	.00**	.00
Cohabitation	.53***	.20	.39***	.28***	.30***	.28***	.45***	.10	.27*	.39***
Small children	-.15	-.32*	-.10	-.07	-.11	-.19*	-.41***	.03	-.45**	.07
Aged 20-34 (Ref.: 35-44)	-.17	-.29**	-.26**	.07	-.27**	-.27***	-.37***	-.23**	-.15	.14
Aged 45-54 (Ref.: 35-44)	-.17*	.01	.07***	-.14	-.03	.11	-.19	.15	-.18	.20*
Full-time work	.57***	.16	1.05***	.41***	1.00***	.57***	.73***	.40***	.48**	.99***
Large firm	.21**	.32**	.57***	.50***	.54***	.47***	.69***	.30***	.62***	.36
Missing on firm size	-.154***	-.158***	-.150***	-.69***	-.90***	-.142***	-.148***	-.129***	-.89***	-.67***
Public sector	.20*	.34***	.54***	.56***	.32***	.40***	.36***	.63***	.35**	-.18
Constant	-.301***	-.208***	-.344***	-.274***	-.283***	-.360***	-.423***	-.343***	-.356***	-.333***
	KP	NL	NO	PL	RU	SK	ES	SE	UK	US
Female	-.37	-.03	-.12	-.44***	.09	-.38***	-.20**	-.23**	-.08	-.23**
Education level: high (Ref.: low)	1.39***	.65***	.63***	1.28***	1.91	2.00***	.97***	.47***	.54***	1.65***
Education level: medium (Ref.: low)	.72***	.34***	.42***	.34	.10	1.30***	.57***	.35*	.32**	1.06***
Competencies in literacy	.01***	.00***	.01***	.00**	-.00	.01***	.00*	.01***	.00***	.00***
Cohabitation	.36***	.27***	.16*	.35***	.65***	.17	.19**	.19*	.23**	.32***
Small children	-.10	.06	-.15	-.14	.21	-.12	.02	-.10	-.09	.02
Aged 20-34 (Ref.: 35-44)	-.21	.00	-.25**	-.13	.22	-.22*	-.01	-.01	-.22**	.03
Aged 45-54 (Ref.: 35-44)	-.26**	.27**	-.07	-.18	-.17	.08	-.01	.10	-.11	.13
Full-time work	.26*	.56***	.71***	.53**	-.23	.55*	.65***	.93***	.59***	.52***
Large firm	.74***	.31***	.25***	.66***	.79***	.45***	.62***	.23**	.42***	.08
Missing on firm size	-.109***	-.139***	-.127***	-.171***	-.265***	-.137***	-.143***	-.82***	-.127***	-.102***
Public sector	.74***	.46***	.29***	.24*	.18	-.08	.32***	.45***	.52***	.52***
Constant	-.422***	-.242***	-.256***	-.335***	-.398	-.566***	-.262***	-.366***	-.242***	-.415***

Notes: PIAAC 2012; own calculations; * p<0.1; ** p<0.05; *** p<0.01.

Table B3. Country models for participation in non-employer-financed training

	BE	CZ	DK	EE	FI	FR	DE	IE	IT	JP
Female	.34***	.29	-.03	.41***	.34***	.18	.50***	.07	.08	.15
Education level: high (Ref.: low)	1.52***	1.27***	.38*	.79***	-.01	.76***	.79*	.90***	1.41***	.17
Education level: medium (Ref.: low)	.88***	.45	.15	.43*	-.15	.32	.47	.51***	.85***	-.35
Competencies in literacy	.00	.00	.00	.01***	.00***	.01***	.00***	.00	.01***	.00*
Cohabitation	-.13	-.32	-.23*	.00	.061	.06	-.22	0.11	-.14	-.10
Small children	-.18	-.18	-.44***	-.44***	-.70***	-.18	-.17	-.56***	-.37*	-.33*
Aged 20-34 (Ref.: 35-44)	.27*	.21	.31*	.29*	.06	.05	.19	.63	.08	.09
Aged 45-54 (Ref.: 35-44)	.20	.21	-.34*	-.35***	-.49***	.04	.01	.00	.20	-.08
Full-time work	-.15	-.13	-.46***	-.01	-.39*	-.22	.18	.06	-.21	-.32*
Large firm	-.04	.26	-.40**	-.15	.053	.02	-.28*	.15	.06	.19
Missing on firm size	1.02***	.98***	1.15***	.52***	.69	.83***	1.16***	.30*	.65	.25
Public sector	.15	.09	.09	.34***	.13	.57***	.23*	.20	.18	.61***
Constant	-3.58***	-2.82**	-1.89***	-3.80***	-2.63***	-4.48***	-3.96***	-2.45***	-5.43***	-2.71***
Female	.23*	.17	.04	.14	.69***	.17	.23*	.14	.14	.15
Education level: high (Ref.: low)	.75***	.62***	.52*	1.07***	.59	2.64***	.80***	.54***	.51***	.34*
Education level: medium (Ref.: low)	.48***	.27	.15	.11	-.17	2.25***	.47***	.42*	.41*	.07
Competencies in literacy	.00*	.00	-.00	.00***	.01*	.01*	.01***	.00	.01***	.00***
Cohabitation	-.30***	-.19	-.25*	-.23	-.42*	-.03	-.03	-.09	.02	-.09
Small children	-.21	-.39*	-.30*	-.25	-.37	-.48	-.38	-.30*	-.41***	-.15
Aged 20-34 (Ref.: 35-44)	-.08	.18	.43***	.31*	.48*	.11	.22	.19	.10	.15
Aged 45-54 (Ref.: 35-44)	-.01	-.18	-.29*	.12	-.52*	.05	-.03	-.03	.14	-.14
Full-time work	-.13	-.25*	-.23	-.11	-.60*	.09	-.15	.07	-.20	-.10
Large firm	.26*	-.08	-.03	.20	.64***	.49***	.00	.17	.19	.33***
Missing on firm size	-.00	1.03***	.88***	.17	-.23	.02	.34	-.11	-.18	.06
Public sector	.12	-.09	-.05	.69***	.75***	.51***	.73***	.20*	.19	.00
Constant	-2.50***	-1.78***	-1.18*	-4.0***	-4.56**	-6.24***	-4.26***	-2.31***	-3.94***	-2.29***

Notes: PIAAC 2012; own calculations; * p<0.1; ** p<0.05; *** p<0.01.