6 Institutional constraints on cross-national differences in occupational sex segregation[136]

As underlined in previous chapters, the distribution of women and men across occupations and hierarchical positions will differ across countries, as these vary with respect to educational, economic, political and cultural factors. These different institutional arrangements may shape resources, and influence preferences of individuals for a specific occupation or position as well as of employers for a specific applicant (Chafetz 1990, Molm 1993, Charles and Grusky 2004). Even though the above described interdependence between individual occupational choices and the institutional context is obvious, it has rarely been examined empirically. Prior comparative studies, frequently, content themselves with descriptive analyses of the relation between sex segregation indices and selected macro-level factors (see, for example Estévez-Abe 2005).[137]

In this chapter, however, the issue is addressed using advanced techniques of empirical analysis. Applying multi-level analysis, attention is devoted to both individual attributes, such as key demographic and human capital characteristics, as well as institutional factors that potentially influence gender-specific occupational allocation processes horizontally and vertically. This mode of analysis seems to be appropriate because it takes into account the nested sources of variability and allows for the combination of different levels of analysis in a single framework (Snijders and Bosker 1999, Luke 2004). If either of these sources of complex variability is not correctly assessed, as often occurs when employing, for example, OLS-regression techniques, there is a considerable likelihood of drawing inaccurate conclusions.

Using the European Union Labour Force Survey for 2004 and 2005 for 21 EU Member States and comparable macro data from different European sources (see for more detail chapter 5), the analyses focus on the horizontal (division

[136] Parts of this chapter have been developed for an article (together with Emer Smyth) in the framework of the Field-of-Study Group of the EUQALSOC network. I would like to thank particularly Emer Smyth, Herman van de Werfhorst, Luis-André Vallé and David Reimer for their helpful and inspiring ideas and comments on this work.

[137] Exceptions to the rule are, for example, studies by Charles and Grusky (1995, 1998, 2004) and Nermo (1999, 2000) where log-linear modelling is applied to show the influence of post-industrial developments and egalitarian forces on the level of occupational sex segregation.

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between typically female, male and integrated occupations) and the vertical dimension (division of men and women between management and non-management positions) of occupational sex segregation. The hypotheses put forward in line with the analyses largely concern the already discussed macro-level factors (see chapters 2, 4 and 5) that might have an effect on segregation patterns: the organisation of the educational system, post-industrial developments, family policies and society's gender culture.

The chapter is organised as follows: the next section describes the theoretical background and a set of hypotheses concerning the impact of the aforementioned institutional macro-level factors on cross-national variation in occupational sex segregation. In section two, the research design and relevant variables are described. The formulated hypotheses are then empirically tested in section three. The chapter ends with a concluding section discussing the main findings.

6.1. Theoretical background and hypotheses

As already emphasised, there are various theories which attempt to explain in terms of supply as well as demand side factors why women choose certain occupations and hierarchical positions.[138] Even though individual-level constraints affect individuals' distribution across occupations, most scholars agree that substantial gender gaps in market behaviour remain (Roos 1985, Breen and Goldthorpe 1997, Jonsson 1999, Okamoto and England 1999). These gaps are in part attributable to structural and institutional constraints which are central to answering the question why countries differ with regard to the extent of occupational sex segregation.

In this study, it is generally assumed that the institutional characteristics of individual countries might have a different effect on the distribution of men and women across occupations (horizontal dimension) and hierarchical positions (vertical dimension). Furthermore, the chapter seeks to assess the explanation power of the developed sex segregation regimes. On the other hand, it also seeks to assess the influence of the above-selected macro-level factors on the cross-national variation in occupational sex segregation.

[138] As already pointed out in chapter 2, supply-side factors relate the different allocation of women and men across occupations to anticipated future market roles and opportunities, gender specific role socialisation, cultural values about the appropriate role of women in society, etc. (Becker 1964, Mincer and Polachek 1974, Polachek 1978, Marini and Brinton 1984, Morgan 1992, Perlman and Pike 1994). Important demand side processes, like statistical discrimination, internal labour markets and the gendering of labour queues, are also used by sociologists to explain gender segregation in the labour market.

6.1.1. The organisation of the educational system

Even though several researchers (Borghans and Groot 1999, Smyth 2005) have underlined that educational and occupational sex segregation are interrelated, educational segregation need not necessarily 'cause' occupational segregation (see chapter 4). In respect of cross-national variation in occupational sex segregation, however, it can be assumed that the institutional arrangements of educational and training systems may be an important factor determining the extent to which educational segregation is translated into the labour market (Treiman and Roos 1983, Roos 1985, Rubery and Fagan 1995). It is certainly true that institutional arrangements in education systems are of fundamental importance to labour market outcomes as they channel, constrain or enable the acquisition of a sufficient individual level of qualification. Furthermore, Charles et al. (2001: 376) underline that "…the impact of any gender-specific educational aspiration or investments on women's market opportunities is likely to be contextually variable."

Only few educational institutional factors have been discussed in relation to occupational sex segregation. Buchmann and Charles (1995), for example, assume that educational choices are more likely to be gender-typical when they are made at an early stage. However, the question central to occupational sex segregation would be in how far such gender-typical decisions are translated into the labour market. In this context, the authors assume that strong linkages between the educational system and the labour market are important. Particularly in countries with highly differentiated vocationally-oriented systems and a strong labour market linkage, occupational sex segregation is likely to be more pronounced.[139] This is supported by Estévez-Abe (1999, 2005)[140] who argues that educational segregation processes have a higher probability to be translated into the labour market in countries where people specialise earlier than in countries where the educational system rather seeks to provide general educational courses. In her opinion, this is due to the fact that women, in general, tend to invest less in 'skill-specific' (often typically-male and vocationally organised)

[139] Germany can serve as an example: in 2001/2002 around 63% of young people leaving general education schools continued to gain vocational qualifications in vocational training programmes in the dual system. In this regard, the share of men is somewhat higher than that of women (EURYDICE 2006). Typically male vocational trainings are mechanics, craftsman painter and varnisher, electrician, carpenter. Typically female trainings are office clerk, trained retail saleswoman, hairdresser, physician assistant (see: http://www.bmbf.de/pub/ berufsausbildung_sichtbar_gemacht.pdf).

[140] Estévez-Abe's (2005) argumentation can be related to the 'vocational specificity' (way in which the link between the educational and labour market system is institutionalised) and the 'stratification' of educational systems (see Allmendinger 1989, Müller and Shavit 1998, Hannan et al. 1999).

education because they anticipate higher labour market risks (see also chapter 5). Accordingly, it can be assumed that

H1a: In countries where a high proportion of persons is enrolled in vocational education, horizontal sex segregation should be more pronounced. Therefore, women should be more often in typically female and integrated instead of typically male occupations.

Also the organisation of tertiary education should influence occupational sex segregation. For instance, it has been assumed that, particularly for women, higher education (higher attained human capital) is positively related to better labour market outcomes (Semyonov 1980, Becker 1981, Clark 1991, Jacobs and Lim 1992, Semyonov and Jones 1999).[141] However, critics have underlined that this may also increase gender-specific stratification processes due to field-specific and institutional-specific differentiation. In this line of reasoning Charles and Bradley (2002: 578) argue that with an increase in women's tertiary participation rates the willingness of female students to attend courses in typically female fields increases. It has been asserted against this argument that an increasing share of women in tertiary education might also cause a 'spill-over' effect opening new and formerly male-dominated fields and institutions (Bradley and Ramirez 1996, Davis and Guppy 1997). It can be expected that both developments, depending on the interrelation between the educational system and the labour market, may affect the horizontal dimension of occupational sex segregation and particularly the distribution of women across occupations (Jacobs 1989b, Kelly and Slaughter 1991). Therefore, two hypotheses can be formulated. On the one side it might be that

H1b: In countries with a high share of female tertiary graduates horizontal sex segregation should be more pronounced. Women should be more often in typically female and integrated instead of typically male occupations.

On the other side, it may also be possible that

H1c: In countries with a high share of female tertiary graduates in atypical fields of study, horizontal sex segregation should be reduced. Women should have a higher likelihood to be employed in typically male or integrated instead of typically female occupations.

[141] Studies of segregation across the occupational structure yielded inconsistent results as to the relationship between levels of segregation and women's educational attainment (for example Anker 1998).

With respect to the question in how far educational institutions affect the distribution of men and women across hierarchical positions, the argumentation is somehow different. Even though it can be assumed that a higher share of tertiary graduates enhances career prospects particularly among women, it may also lead to a higher, heavily gendered institutional specification. As already mentioned in chapter 5, Oechsel and Zoll (1992) indicate that women tend to choose more often short-cycle programmes which are generally rewarded lower on the labour market. Such institutions may be of particular interest to women because they are less competitive and can more easily be reconciled with anticipated family responsibilities. As a result it can be assumed that

H1d: In countries with a high proportion of women in short-term programs, vertical segregation should be pronounced. Women should be less likely to be employed in management positions.

Furthermore, Charles and Bradley (2002: 578) pointed out that a higher gender-specific distribution across fields of study may also strengthen vertical stratification processes. Several studies demonstrated that typically female fields not only lead more often to typically female occupations, but that these occupations are also less rewarded on the labour market in terms of status, income and career prospects (Meyer 2003, Smyth 2005). In this context a debate has started on the extent to which an increasing number of women graduating in atypical fields of study might lead to better career chances on the labour market. While some scholars (e.g. Hayes 1986, 1989) assume that women, by choosing male-dominated occupations, increase their opportunities for higher pay and career advancement, others (Blalock 1967, Kanter 1977a) indicate that women in typically male occupations face labour market difficulties (Reskin and Roos 1990, Hultin 2003).[142] On this basis two contrary hypotheses can be formulated.

H1e: In countries with a high share of female graduates in atypical fields of study, women should be more likely to reach management positions (1). However, it may also be possible that women have a lower likelihood to reach such positions (2).

[142] It is argued that, especially at the stage where jobs are allocated to men and women, beliefs or prejudices regarding the performance of women might be prevalent and discrimination relatively easy to implement (e.g. Petersen and Saporta 2004).

6.1.2. Post-industrialism - the situation of women on the labour market

With regard to the interrelation between post-industrial developments and occupational sex segregation, several aspects have been discussed in literature. The first aspect is women's increasing labour force participation. Charles (1992), for instance, assumes that higher levels of female labour force participation may have an integrative effect, as women spend more of their lives working and therefore gain levels of human capital more similar to those of men. In contrast, it has been pointed out that higher levels of female labour market participation may be realised in specific areas of the labour market and in typically 'female' jobs rather than resulting in more integration within occupational niches (see Semyonov and Shenav 1988, Hansen 1997, Rubery et al. 2001b). However, the empirical results have been diverse and there is conflicting evidence regarding the nature of the relationship for both dimensions of occupational sex segregation. While Charles (1992) found neither a segregative nor an integrative effect of the female employment rate on occupational sex segregation, others brought to light a significant negative (Jacobs and Lim 1992) as well as a positive relationship (Nermo 1996, Anker 1998, Jones 1999, Semyonov and Jones 1999, Rubery 2002b).[143] Accordingly it can be hypothesised that

H2a: In countries with a high female employment rate horizontal sex segregation is enforced and women are more likely to be employed in typically female and integrated instead of typically male occupations (1).
However, also the opposite development might be possible: horizontal segregation may be reduced and women may more often be employed in typically male and integrated instead of typically female occupations (2).

The size of the service sector is closely related to the growing female employment rate (Boje and Nielsen 1993, Boyd et al. 1995, Nermo 1999). As the industrial mix of some occupations becomes more and more service-based, it may be assumed that not only the female labour market participation (Bell 1973) but also occupational sex segregation increases by shifting responsibilities for services, such as childcare, cleaning, and meal preparation, to the marketpla-

[143] A further result has been that with an increase in women's labour force participation, overall segregation decreases. At the same time, women's likelihood to work in higher status occupations declines. Possible explanations refer to the fact that with an increase of women's employment, the composition of the female workforce becomes more diverse. While formerly the few employed women were characterised by a higher educational level and career-orientation or the necessity to work, they are now more equally distributed across the occupational structure. As a result horizontal sex segregation declines, while the vertical gender inequality increases.

ce where they are fulfilled primarily by women (Chang 2000, Hakim 2000).[144] This assumption is supported by other researchers (Charles 1992, 1998, Charles and Grusky 2004) underlining the close relation of many service-sector jobs, especially in the rapidly-expanding routine non-manual sector, with the expansion of the welfare state and its public and family services. In this area of the labour market, jobs are particularly attractive to women with care-giving responsibilities because they allow for more flexible scheduling and intermittence on the labour market (Roos 1985, Esping Anderson 1990, Alestalo et al. 1991, Draper 2000, Lee and Hirata 2001). As a consequence, it can be assumed that

H2b: In countries with a high service sector employment, horizontal sex segregation should be high. Women should increasingly be employed in typically female and integrated instead of typically male occupations.

However, a further argument underlines that besides a growing service sector, particularly the expansion of the public sector should be associated with higher horizontal sex segregation. Therefore, the analyses will additionally test whether

H2c: In countries with a high female public sector employment, horizontal sex segregation is more pronounced. Women should be more likely to be employed in typically female and integrated instead of typically male occupations.

Besides the fact that higher levels of female employment are related to service sector expansion and women's employment in public services, a positive relation to higher levels of part-time work is also conceivable. These developments are related to the growing necessity of flexibilisation. With a higher demand for non-employed wives and mothers, the adaptation to flexible working times becomes ineluctable. Most studies focusing on part-time work and sex segregation suggest that there is an overall positive association between high levels of part-time work and high levels of sex segregation (Birkelund 1992, Birkelund and Rosenfeld 1995, Schmid 1991).[145]

[144] As already emphasised, this trend can particularly be observed in the Nordic countries (see Hansen 1995, 1997, Melkas and Anker 1997).

[145] However, there are also studies, like the one presented by Kim and Levanon (2004), which deny any relation between occupational sex segregation and part-time work.

In accordance, it is hypothesised that

H2d: In countries with a high share of persons working part-time, horizontal sex segregation increases. Women should be more often employed in typically female or integrated instead of typically male occupations.

In this context, a further argument has been advanced by Estévez-Abe (2005). In her opinion countries that institutionally support high levels of employment security, sustain internal labour markets.[146] Therefore, gender gaps are created through to 'firm-specific' (male-specific) skill acquisition. Women investing less in those skills are underrepresented in the primary/internal and overrepresented in the secondary/external labour market segment with greater flexibility, lower employment security and lower career perspectives. As a consequence it can be expected that

H2e: In countries with a high share of persons staying a longer period of time with their employer, horizontal sex segregation should be more pronounced. Women should be more often directed to the secondary 'typically' female labour market.

The rapid changes in the economic and occupational structure as well as in common female employment patterns should also markedly affect the vertical dimension of occupational sex segregation. The described research, for instance, indicates that with service sector expansion and a corresponding increase in typically female occupations, women's representation in the already male-dominated production and managerial occupations decreases. Therefore, it may be possible that

H2f: In countries with a high female employment rate and high level of service sector employment, vertical sex segregation is higher. Women should be less likely to work in management positions.

Also for the vertical dimension of occupational sex segregation the aspects of 'flexibility' and 'rigidity' should be influential as they banish women to the 'secondary/external' labour market segment with greater flexibility, lower employment security and lower career prospects.

[146] A similar argument has been developed earlier by Charles and Grusky (1995).

Against this background it can be hypothesised that

H2g: In countries with a high share of persons being in part-time positions and/or staying a longer period of time with their employer, vertical sex segregation should be more pronounced. In particular, women should be more often banished to the secondary labour market which reduces their chance to work in a management position.

Another more aggregated measure of labour market rigidity is the Employment Protection Legislation index (EPL)[147] developed by the OCED (1994b, 1999: 50-51). As employment protection regulations are a key factor in generating labour market rigidity, they are often cited as one cause for the large cross-country differences in labour market performance. Furthermore, there are reasons to assume that women with intermittent participation spells will primarily be affected by any reduced hiring caused by employment protection legislation, while being less likely to benefit from enhanced employment stability than other groups. Hence, employment protection would damage their employment opportunities, while men who are already in the core labour market would primarily benefit from any greater job stability induced by EPL. Due to that it can be hypothesised that

H2h: In countries with high labour market protection legislation vertical sex segregation is pronounced. Women should have difficulties to gain skill-specific acquisitions which decrease their chances to reach managerial positions.

6.1.3. Family Policies

Besides the fact that labour market conditions, like the female employment rate, might serve as an indicator of better labour market opportunities for women, Estévez-Abe (2005) argues that welfare states can support female investment in specific or general skills by making skill-specific ('male-specific') investments safer (see also Mares 2003). In this respect, special attention has to be devoted to the situation of women who particularly need institutional support to reduce difficulties in combining work and family responsibilities. Even though work-family reconciliation policies appear to have been instrumental in raising female

[147] The EPL-Index is a summary index of the strictness of employment protection. It ranges from 0 to 4, where higher scores imply stricter employment protection and stricter regulation.

employment rates[148], there is less consensus on their effect on occupational sex segregation. While they might enable women to enter a wider range of occupations (including typically male occupations), concerns have been expressed that they might also encourage and perpetuate working patterns associated with both dimensions of occupational segregation.

Several studies (Chang 2000, 2004, Mandel and Semyonov 2003, Estévez-Abe 2005) have pointed out that cross-national differences in the occupational distribution of women and men may be related to available childcare facilities. If women are less often represented in typically male occupations and management positions because of small children, then generous childcare options may support women's entry into these occupations and positions. Even though this hypothesis seems plausible at first glance, such developments may also have opposite effects. An outsourcing of former family services may support an increase in typically female occupations on the labour market (particularly in the public service sector) (OECD 1998, Hakim 2000, Rubery et al. 2001b). As a consequence, horizontal sex segregation and particularly a feminisation of the labour market should be observable.

H3a: Countries with generous childcare facilities support horizontal sex segregation by increasing the proportion of typically female jobs on the labour market (increasing feminisation of the labour market). Therefore, women should be more likely to work in typically female or integrated instead of typically male occupations.

A further important aspect is related to parental leave options. If such options are relatively long and well-paid (Moss and Deven 1999), they may foster horizontal segregation by encouraging women to choose occupations in which patterns of intermittent employment are less likely to harm their career. Furthermore, employers will have an incentive to allocate young women to occupations in which work interruptions are less problematic. In this rein, Hakim (2000), for instance, argues that women are concentrated in the education and health sector because intermittent patterns of work are tolerated in many occupations of this segment.[149]

[148] This should be particularly reflected by the expansion of personal, social and community services.

[149] Even though this argumentation seems plausible, it should be emphasised that the underlying causality of women choosing such occupations is questionable and cannot be adequately answered with this analysis. Intermittent patterns may also be tolerated in these occupations just because many women work in this segment.

Therefore it can be assumed that

H3b: In countries with long parental leave, feminisation tendencies should be pronounced, and women should be more likely to work in typically female occupations. Longer parental leave should therefore increase the likelihood of women to work in an integrated rather than a typically male occupation.

As to the vertical dimension of occupational sex segregation, a somewhat different development can be expected. It may be possible that a higher share of childcare facilities improves women's access to managerial positions because it helps to reconcile work and family life and reduces labour market discontinuity (Cartmill 1999, chapter 4). In this respect an increase in childcare would reduce vertical segregation.

H3c: Countries with generous childcare facilities, particularly for the youngest age group, should have lower levels of vertical sex segregation. Women should have a higher chance of reaching managerial positions.

Long parental leave options may encourage longish absence from work during years that are central to career development. It may also encourage the reduction of working hours for family reasons that again is likely to slow career advancement in a competitive labour market environment (Estévez-Abe 2005). Consequently, these factors may be central to the lower representation of women in management positions. Hence, it can be hypothesised that

H3d: In countries with long parental leave options the vertical dimension of occupational sex segregation is strengthened. As women are expected to have lower incentives and prospects of developing a career, they should be less likely to work in management positions.

Finally, as argued in chapter 4 and 5, gender discrimination in pay and promotion opportunities reduces the return of the female labour force to the market and tends to depress female labour supply. Irrefutable empirical evidence on the existence of gender discrimination is difficult to obtain. Theoretically, gender differences in pay and promotion could result from gender differences in unobserved characteristics (OECD 2002). It has also been argued that women may be underrepresented at higher job levels because they voluntarily choose jobs with fewer promotion opportunities, and not because they are discriminated.

However, it is equally impossible to demonstrate that there is no discrimination against women. Most countries have introduced gender-specific anti-discrimination laws which have been relatively effective in lowering, for exam-

ple, the gender pay gap (Blau and Kahn 1996, Manning 1996). For the issue of occupational sex segregation, particularly Chang (2000) has pointed out that laws aiming at equal job opportunities may work in two ways: first they increase horizontal segregation by excluding women from specific, typically male occupations which, for instance, require night shifts. On the other side, equality legislation may also direct more women into traditionally male and 'higher status' occupations which reduces vertical segregation. As a consequence, countries with stricter anti-discrimination laws should have a more integrated labour market than those without. Furthermore, Blackburn et al. (2000) have suggested that in countries where women have a higher empowerment[150], i.e. earning and political power, 'gender equality' has also been legally institutionalised. In sum, it may be hypothesised that

H3e: In countries with a high 'empowerment' of women, horizontal and vertical sex segregation should be reduced. However, the effect can be expected to be particularly strong with respect to the vertical dimension. Therefore, women should be more likely to be employed in management positions.

6.1.4.'Gender culture'

As demonstrated, in spite of more and more insights into reasons and underlying mechanisms for the emergence of egalitarian norms and institutions[151], important national and regional differences persist in the degree to which egalitarian norms and institutions have been accepted and institutionalised in society (Charles 1992, Orloff 1993, Evans and Mason 1996, Sainsbury 1996, Berkovitch 1999, Lamont 2000, Bradley and Charles 2003, Inglehart and Norris 2003).

The present analysis gives rise to the question in how far such developments influence the different dimensions of occupational sex segregation. On the one side, some authors contend that countries characterised by an ideology that emphasises gender equality have more egalitarian occupational structures (Ramirez 1987). As the costs of sex discrimination are high in these societies, the gender typing of occupations should be less pronounced.

[150] For a definition of gender empowerment see chapter 5, p. 111.
[151] For different lines of argumentation, see Kerr et al. 1960, Treiman 1970 (functionalist tradition) and Ramirez 1987, Meyer et al. 1997 (neo-institutional tradition).

As a consequence, it may be assumed that

H4a: In countries where the aspects of 'access' and 'motherhood' indicate high 'egalitarian principles', both forms of occupational sex segregation should be reduced. Women should be more often employed in integrated or typically male instead of typically female occupations. Moreover, they should also have a higher likelihood to be employed in management positions.

However, Charles and Grusky (2004: 25) demonstrate that the rise of egalitarian values does not weaken all forms of segregation equally and automatically. One reason lies in the fact that 'egalitarianism' directly refers to the concept of 'male primacy' (see chapter 2) and that egalitarian mandates are rather understood as norms against ascriptive discrimination on the basis of class, race or gender. Consequently, women's role in society is culturally redefined, and organisational barriers to women's full participation in education and the labour market should be weakened, particularly with respect to management occupations. Nevertheless, such developments have no direct impact on horizontal forms of segregation because the modern form of egalitarianism allows men and women to understand their roles and competencies in ways that are consistent with standard essentialist visions of 'masculinity' and 'femininity' (Bourdieu 2001).

As a result, cultural gender stereotypes maintain their influence on family, educational and occupational preferences, and also support residual forms of discrimination by employers.[152] This development is confirmed by the fact that, despite the increase in gender equality norms, gender-typical occupational distinctions are still persistent. Charles and Grusky (2004) point out that even the restricted form of 'egalitarian values' has not spread uniformly throughout the occupational structure. It seems that the manual sector shows a higher vertical segregation. Men continue to dominate the most desirable skilled craft positions, while women are allocated to less desirable semi-skilled labouring or service positions (see chapter 4, figure 4.17).[153]

Taking these considerations into account, two different aspects of 'egalitarian principles' ('access' and 'motherhood') have been differentiated in this study (see chapter 4 and 5). Only if a country's 'gender culture' supports equali-

[152] As Charles and Grusky (2004) point out, even though the norm of procedural equality may be gradually institutionalised in the workplace delegitimising discrimination by employers, more subtle forms of discrimination arising from essentialist prejudices (such as the presumption that women are more nurturant) can and do live on.

[153] The authors assume that the difference arises partly because the non-manual sector is subject to closer public scrutiny. Hence, employers who continue to segregate face substantial social costs. The public visibility of elite professional and managerial positions, moreover, heightens political pressure to conform to equal opportunity laws.

ty with respect to both aspects, the above-formulated hypothesis (4a) should apply. If there is an imbalance of both aspects, the consequences for both dimensions of occupational sex segregation might be different. If persons have divergent opinions with regard to the aspect of 'access' and 'motherhood'- if they agree, for instance, that women should have equal access to occupations like men, but should also be mainly responsible for childcare - particularly horizontal forms of occupational sex segregation should be pronounced. However, it is obvious that this may at least indirectly affect the vertical dimension as typically female occupations are often less rewarded on the labour market. Therefore, it is expected that

H4b: In countries where the aspects of 'access' and 'motherhood' are not equally supported, particularly horizontal sex segregation should increase. In consequence, women should be more often employed in integrated or typically female instead of typically male occupations. It can also be expected that the imbalance of both aspects affects reduces the chance of women to be employed in a management position.

6.2. Data and research methodology

6.2.1. Data

As mentioned in chapter 1, data for the present analyses were obtained from the European Union Labour Force Survey (EULFS) 2004 and 2005[154] (second quarter) that provides standardised, cross-sectional information on labour force participation and employment. It offers core demographic and educational background information (see chapter 1, section 1.4. for more information). The sample used differs for the selected segregation outcomes. For the analyses of both dimensions of occupational sex segregation, the sample is restricted to employed persons aged 20-64 with a tertiary degree. The educational level is divided between a lower and a higher tertiary degree. The restriction to tertiary degree owners seems reasonable for two reasons. With regard to the horizontal aspect, it is advisable to keep the educational level constant because the underlying micro-mechanism of field of study for the gender-specific distribution across occupations might be different. As to the vertical aspect of segregation, the focus on persons with a tertiary degree is plausible because the highest 'human capital' is reached in this group. Accordingly, the chance of attaining a career position should be higher. As a consequence, the unequal distribution of

[154] For the UK only data for 2005 were available.

women and men across management positions might be attributable to other forces, like individual preferences but also institutional barriers.

Finally, in all samples, the definition of employment follows the standard international ILO definition (ILO, 1988)[155], while occupations are classified according to the ISCO88 scheme at the 1- and 2-digit level (see appendix, general part, table B). Moreover, the analysis is limited to 21 countries providing detailed information on educational, employment and basic demographic variables as well as information on relevant macro indicators. These countries are Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, the Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden and the United Kingdom. This leads to a sample of 196,033 for the analysis of the distribution of graduates across typically female vs. integrated occupations, and of 224,107 adults for the analysis of the distribution of graduates across typically male vs. integrated occupations, while the vertical analysis contains 250,237 adults for the selected European countries.

6.2.2. Variables

The application of a multi-level research design implies a need for information on both individual (level-1) and country level variables (level-2). As mentioned above, three 'segregation outcomes' - the dependent variables - are examined at level-1 in this chapter. They refer to

a. the *'horizontal dimension'* of occupational segregation measured by two dichotomous variables. The first outcome captures the distribution of persons who are employed in typically female versus integrated occupations ('feminisation'). The second variable refers to the distribution of persons across typically male versus integrated occupations ('masculinisation').

The division into typically male, female and integrated occupations is based on the ISCO88 on the 2-digit level. The definition of gender-typical occupations is country-specific. Nonetheless, it follows the same logic in all countries. Occupations are gender typical if the share of women/men equals or exceeds 75%, while integrated occupations range from 26% to 74%.[156]

[155] Thus 'inactive' persons, i.e., those studying, looking after the home, the retired, disabled etc., are excluded from the analyses.

[156] For a detailed discussion of appropriate thresholds for typically male and female occupations, see Anker 1998: 82.

b. the *'vertical dimension'* is measured by a dichotomous variable capturing employed persons in management and non-management positions.

Defining management positions cross-nationally is delicate as there are varying definitions and classifications of managerial positions and inconsistencies with regard to the survey bases. Political reports (ILO 2004, European Commission 2008) are mainly referring to management positions based on the ISCO88 group 1 and additional data including detailed information on the share of women in decision-making positions in politics, economy and public administration. On the basis of this additional information they mainly seek to reflect that management and supervisory roles may not only be found in ISCO88 group 1 but also within other occupational groups. Considering these difficulties, two strategies underlie the following analyses.

In line with the first and principal strategy, management positions are defined on the basis of the ISCO88 group 1 because the EULFS data only contain information about occupations. The ISCO88 group 1 distinguishes between (a) legislators, senior government officials and senior officials of special interest organizations (11), (b) corporate managers, including directors and chief executives, production and operating managers as well as other specialist managers (12), and (c) managers of small enterprises (13) (see for more detail appendix, general part table B as well as figures A4.2 and A4.4). In consequence, the analysis rather focuses on the question which contextual factors explain cross-national variation in the unequal access of highly educated men and women to a specific occupational group characterised by a high share of management positions.

As management and supervisory roles may also be found within other occupational groups, like the professionals (group 2), the second strategy, serving as a sensitivity analysis, seeks to test the reliability of findings on the basis of a broader definition of management position by applying the concept of class. For this purpose, the EGP class scheme is used that constitutes a useful attempt to empirically categorise hierarchical occupational outcomes, since it relies not only on the actual occupation, but also on further information about employment relations (see for more detail Erikson and Goldthorpe 1992, Ganzeboom and Treiman 1996, and appendix, general part table C). As the scheme is designed to capture *qualitative* differences in employment relationships, the classes are not consistently ordered according to some inherent hierarchical principle. However, insofar as the overall economic status is concerned, the high service class I is privileged. Therefore, the broader definition of management positions underlying the second strategy widens the perspective by referring to this class. It addresses the question which macro-level factors explain the cross-

national variation in the unequal access of women and men to management positions including managerial and professional occupations.

Independent variables at the individual level

The log odds of being in a sex-typical, atypical or integrated occupation and management or non-management position are predicted by a number of individual and macro level variables. At the individual level (see table 6.1), the following dummy-coded variables are included in the analysis:

Table 6.1: Micro-level variables and descriptions

Variable	Description
Gender	Men (0) women (1)
Age cohort	Dummy-coded variable distinguishing persons at the age of 20-34 (0) and persons aged 35-64 (=1).
Level of higher education	Dummy-coded variable distinguishing between tertiary education (ISCED 5A and 5B) (0) and higher tertiary education (ISCED 6) (1).
Field of study	Dummy-coded variable with three categories: typically female fields, typically male fields and integrated fields (0).
Marital status	Dummy-coded variable distinguishing between married (1) and unmarried (0) persons.

Independent variables at the country level

According to the theoretical framework developed in the previous chapters, certain macro-level variables are included in the analyses of horizontal and vertical occupational segregation (see for more details chapter 5, and tables A6.1-A6.4 in the appendix).

To capture the discussed dimensions of educational systems, the following proxies are included in the analyses:

1. Percentage of students (%) enrolled in vocational and technical education
2. Share of female tertiary graduates (%)
3. Share (%) of female tertiary graduates in typically male fields of study.[157]

[157] The indicator reflects the share of women in mathematics, informatics and engineering which are generally defined as typically male.

As to the vertical aspect of segregation, the time of selection seems less important. The indicator of vocational involvement is thus replaced by the following indicator:

4. Gender ratio of persons with a tertiary degree in short-term programs (ISCED 5B) compared to all persons with a tertiary degree.

With respect to possible indicators for the measurement of a country's 'post-industrial' development, Charles and Grusky (2004) as well as Estévez-Abe (2005) apply several factors. Based on their findings, the following indicators have been selected for the analyses:

5. Female employment rate (%)
6. Share of employed persons (%) in the service sector
7. Share of persons (%) who stay more than 20 years with the same employer
8. Share of persons (%) who are in part-time employment (as a percentage of all employed persons)

Instead of service sector employment, the analysis will additionally test in how far the public sector employment of women is a better indicator for the explanation of occupational sex segregation (Mandel and Seynonw 2003).

9. Share of women employed (%) in the public service sector

Furthermore the EPL-index is also examined to measure the rigidity of labour markets (replacing indicators 7 and 8).

10. Summary index of the strictness of employment protection (EPL)[158]

For the aspect of family and gender policies, four indicators are used which have also been discussed and applied in studies by Blackburn and Jarman (1997), Mandel and Semyonov (2003), and Chang (2004).

11. Childcare provision for children aged 0-3
12. Childcare provision for children aged 3-6
13. Effective parental leave (weeks)
14. Gender empowerment index (GEM)

The first two indicators refer to the extent to which the national state supports the reconciliation of work and family by providing childcare facilities. The

[158] The EPL-Index ranges from 0 to 4. Higher scores imply stricter employment protection and regulation than considered by the Employment Protection Legislation Index (EPL) (see OECD 1994b).

third represents the effective parental leave of a country as a measure of time allowed and payment benefits[159], while the fourth indicator, the Gender Empowerment Measure (GEM)[160] tries to capture gender equality legislation indirectly by referring to the 'empowerment' of women in the public across countries. As the GEM indicator is a quite aggregated measure, two additional indicators (replacing GEM) will be tested that refer to the theoretical considerations by Chang (2004):

15. Access legislation (ratification of ILO convention 111 and the UN convention CEDAW)
16. Protective legislation (ratification of ILO conventions 89, 45 and 127)[161]

In this context, Chang argues that besides state policy legislation focusing on the reconciliation of work and family, two further types of legislation are important. The first refers to 'anti-discrimination legislation' which reduces occupation-based sex discrimination by providing a legal justification for women to seek employment in all occupations. 'Protective legislation', by contrast, might increase segregation by excluding women from certain types of work (like underground work, night work etc.). Accordingly, it constitutes an opposite body of legislative measures.

Finally, the gender culture of countries is measured by four indicators capturing the already-discussed aspects of 'access' (indicators 17 and 18) and 'motherhood' (indicators 19 and 20). They refer to the share of persons (%)…

17. …who disagree that men should have more right to work if jobs are scarce;
18. …who disagree that it is men's job to work and women's job to look after the home and children;
19. …who disagree that a pre-school child suffers if the mother works;
20. …who agree that men should do more childcare.

As the high correlation between macro-level variables is a potential problem of the contextual analysis, tables A6.1 to A6.4 in the appendix present bivariate Pearson correlations at the setting level. As most of the correlations do not exceed a value of 0.56, there is no reason to doubt the results on grounds of multi-co-linearity between the macro variables.[162] Furthermore, it can be re-

[159] For more details, see Gauthier (2005) and chapter 4, table 4.7.
[160] For more information see footnote 118 in chapter 5: 129.
[161] For a detailed description see Chang 2004: 124-125.
[162] Three coefficients are highly correlated: the share of women with a tertiary degree with the share of women with an atypical field degree (0.72), the share of employed persons in services with the share of persons in part-time (0.76), and the share of persons, who disagree that it is men's job to work and women's job to look after the home and children with the share who disagree that a pre-

vealed that a high share of persons involved in vocational education at the upper secondary level is related with a lower share of women in tertiary education. A high share of women within tertiary education, moreover, is related with a high share of women with an atypical field of study degree.

The bivariate correlation coefficients for the post-industrial indicators show that a higher female employment participation is connected with a higher overall share of part-time and service sector employment. With respect to family policies, better childcare supply, particularly for smallest children, also enhances the gender empowerment. For the gender culture indicators, a positive correlation can be observed between a high disagreement that men should have more right to work if jobs are scarce and the disagreement that women should look after the home and children, and that a pre-school child suffers if the mother works. Finally, a particularly strong correlation appears between the two latter statements of disagreement.

6.2.3. Method of analyses

For the purpose of examining cross-national variation in the distribution of men and women across occupations and hierarchical positions, multi-level analysis seems appropriate (Bryk and Raudenbush 1992, Longford 1993, Goldstein 1995, Snijders and Bosker 1999, Langer 2004, Luke 2004). The basic idea of a multi-level design is to explain a phenomenon on the individual level, like the unequal distribution of women and men across occupations and positions, through effects of different levels. As pointed out in the previous chapters, occupational sex segregation, on the one hand, might be due to individual characteristics like age, gender, children, education etc. (individual level). On the other hand, different national institutional contexts, like the education system or family policies, also affect segregation processes on the labour market (country level).

From a theoretical and statistical perspective, this mode of analysis is an appropriate means of combining different levels of analysis (micro and macro) into a single framework. In particular, multi-level analysis takes into account nested sources of variability - in the present analysis individuals (level 1) nested in countries (level 2). In this case of complex variability, there is variability not only between individuals but also between countries. As a consequence, it would be incorrect to use regular logistic or ordinary least square regression

school child suffers if the mother works (0.76). Therefore, models have been applied which exclude these indicators. As there is no difference in the results, they have not been described explicitly.

techniques since the error terms at the macro-level are neglected and the standard errors of parameters are underestimated (Snijders and Bosker 1999).

The two-level contextual analysis has certain advantages: firstly, it allows the effect of gender to vary between countries; secondly, it enables an estimation of the effect of country-level attributes on gender inequality (cross-level interactions) from a horizontal and vertical perspective. Furthermore, it becomes possible to estimate the influence of the different levels on the dependent variable explicitly, i.e. to evaluate the share of explained variance of the dependent variable for the different levels. For the estimation of the models, STATA (Release 10.0, Stata Corporation, College Station, TX) is used.[163]

For the modelling of the horizontal segregation outcome, the dependent variable is constructed as a dichotomous one so that binary hierarchical logistic regression models can be applied. Even though a multinomial logit model seems to be more appropriate, there is no real advantage of using such a model because the results would not differ much. Furthermore, as multi-level modelling is already complex, the results of binary logit models are easier to interpret.

According to these considerations, a simple random intercept multi-level equation with one explanatory variable at the individual level *(women)* predicting the log odds of being in a typically female vs. an integrated occupation takes the following form (for further model specifications, see the analyses of typically male vs. integrated occupations as well as management vs. non-management position in the appendix, 6A and B):[164]

$$(6.1.) \qquad \ln\left[\frac{P_{typfemocc}}{P_{ingocc}}\right] = \beta_{0j} + \beta_{1j}(women)_{ij} + \beta_{ij}X_{ij}$$ [165]

Where

β_{01} intercept (log odds of being in a typically female occupation for unmarried working men aged 20-34 with a lower tertiary degree in an integrated field of study in country j)

β_{1j} difference in log odds of being in a typically female occupation between men and women in country j)

β_{ij} slopes for i control variables X in country j (including marital status, age cohort, higher tertiary degree and field of study).

[163] See for more details for model specification Rabe-Hesketh and Skrondal (2005).

[164] All multi-level models start with a so-called null model where no explanatory variable is included into the model $Y_{ij}=\beta_{0j}+(\varepsilon_{ij})$ (individual level), $\beta_{0j}=\gamma_{00}+u_{0j}$ (country level).

[165] It has to be noted that there is no term for level-1 error variance (ε_{ij}). For binary logit models, the variance is completely determined by the mean. Accordingly, it does not constitute a separate term to be estimated (see Luke 2004: 55).

For the country-level the following formulas can be specified:

(6.2.)
$$\beta_{0j} = \gamma_{00} + u_{0j}$$
$$\beta_{1j} = \gamma_{10}$$
$$\beta_{ij} = \gamma_{ij}$$

Where

γ_{00}, γ_{10} *and* γ_{ij} 2-level intercepts of the intercept and the slopes for unmarried men aged 20-34 with a tertiary degree in an integrated field of study in country j

u_{0j} country-specific error terms or residual corresponding to the variation of the intercept at the country level.

Combining formula (6.1) with (6.2.) the following model-specification describes the complete random intercept model:

(6.3.)
$$\ln\left[\frac{P_{typfemocc}}{P_{ingocc}}\right] = \underbrace{\gamma_{00} + \gamma_{10}(women)_{ij} + \gamma_{ij}X_{ij}}_{\text{Fixed effects}} + \underbrace{u_{0j}}_{\text{Random effect}}$$

With all parameters as defined previously in formulas 6.1. and 6.2.

With respect to the above-described modelling strategy, this hierarchical model, first and foremost, implies a variation between countries in the general distribution of men and women across occupations and hierarchical positions. This means that the slopes of all individual level and control variables were constrained to be equal across countries. In case of this modelling, only the intercept is allowed to vary across countries, whereas the remaining micro and macro indicators are fixed to indicate that the effects do not vary across countries.

However, as the analyses mainly aim at assessing the country variation with regard to the individual level effect of *'gender'* and selected outcomes, the model specificity has to be enhanced by a random slope model. In this respect, it is assumed that the *'gender'* slope at the individual level is random.

(6.4.)
$$\ln\left[\frac{P_{typfemocc}}{P_{ingocc}}\right] = \gamma_{00} + \gamma_{10}(women)_{ij} + \gamma_{ij}X_{ij} + u_{0j} + u_{1j}(women)_{ij}$$

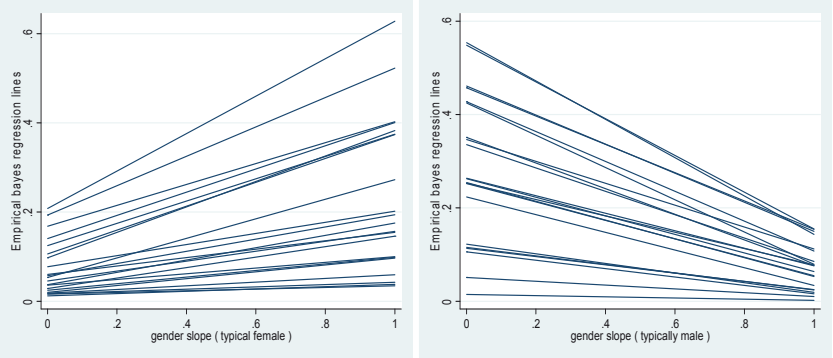
Where

u_{1j} country-specific error terms corresponding to the variation of the intercept and the slopes for women at the country level.

All other parameters are defined as previously in formulas 6.1. and 6.2.

The following figure 6.1 shows the empirical bayes predictions of country-specific regression lines for random slope models of being either in a typically male or female instead of an integrated occupation.[166] In case of no variation in the gender effect between countries, the lines should be parallel with a possible variation in the intercept (as in case of a random-intercept model). However, the graphs clearly show that the occupational distribution of men and women varies across countries as to both the intercept and the slope.

Figure 6.1: Empirical Bayes Predictions of country-specific regression lines for random slope models to be in a typically female vs., male vs. integrated occupation



Source: EULFS 2004/2005, own calculations

Furthermore, to determine whether the above-demonstrated country-level variation in the gender slope is contingent upon country-level factors (for instance *Vocational*), the inclusion of terms to predict the slopes is also referred to as a cross-level interaction (see exemplarily equation (6.5.) and (6.6.) for one educational context variable). The latter constitutes a distinct feature of the combined models of a multilevel analysis (Raudenbush and Bryk 2002). Furthermore, these models shed light on the influence of pertinent institutional characteristics on gender inequalities.

[166] For detailed information about Empirical Bayes Prediction see Rabe-Hesketh and Skrondall 2005: 19-23.

While the individual level formula is the same as in equation (6.1.), the following formula can be specified for the country-level:

(6.5.)
$$\beta_{0j} = \gamma_{00} + \gamma_{01}(Vocational)_j + u_{0j}$$
$$\beta_{1j} = \gamma_{10} + \gamma_{11}(Vocational)_j + u_{1j}$$
$$\beta_{ij} = \gamma_{ij}$$

Including equation (6.6.) into (6.1.) the final model can be specified as follows:

(6.6.) $$\ln\left[\frac{P_{typfemocc}}{P_{ingocc}}\right] = \gamma_{00} + \gamma_{01}(Vocational)_j + \gamma_{10}(women)_{ij} + \gamma_{11}(Vocational_j * women_{ij}) + \gamma_{ij}X_{ij} + u_{0j} + u_{1j}(women)_{ij}$$

Finally, for all models, the residuals are assumed to be drawn from normally distributed populations, to be mutually independent and to have zero means given the values of the explanatory variables. None of the individual level dummy variables is centred in any of the models. By contrast, the selected macro-level variables have been centred around the grand mean. This seems plausible for two reasons: first in models with cross-level interaction effects it is highly recommended to use centred variables to avoid conditioning problems (Aiken and West 1991). Second, the interpretation of multi-level results suffers when predictors are incorporated in a raw form, particularly when a zero score is not a feasible outcome in the sample for any of the level-2 predictors (Kreft et al. 1995).

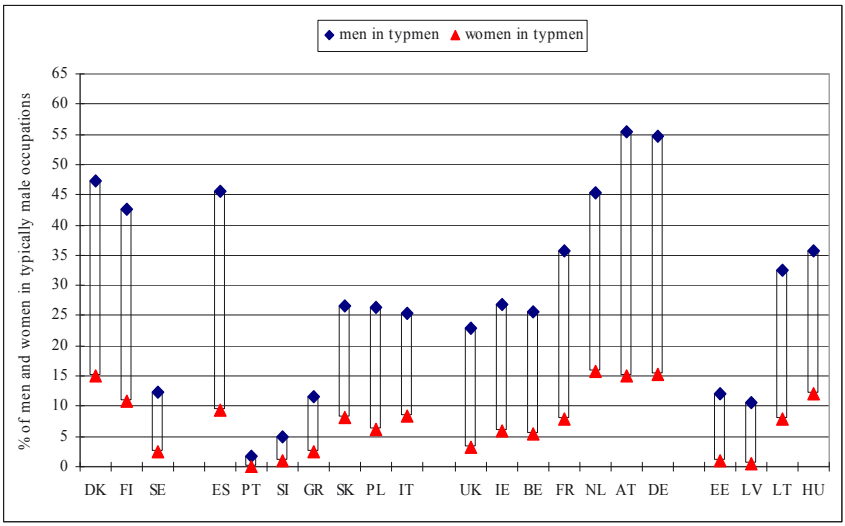
6.3. Results for being in a typically female, male or integrated occupation

6.3.1. Descriptive results

As a first step of the empirical analyses, figures 6.2 and 6.3 show the variation of men's (dark blue quadrates) and women's (red triangles) distribution across typically male and female occupations at the national and, more importantly, at the cross-national level. Hence, they provide an insight into the 'feminisation', 'masculinisation' and 'integration' tendencies of European labour markets for tertiary graduates. Two important findings can be deduced from the figures: firstly, the amount of persons employed in typically female or male instead of integrated occupations varies considerably across countries. Secondly, it is obvious that the gender gaps within a single country and between typically male and female occupations differ cross-nationally. Considering both figures, there are only a couple of countries, Sweden, Portugal, Slovenia, Greece, Estonia and Latvia, where most of the tertiary graduates, irrespective of sex, work in integra-

ted rather than gender-typical occupations (around 15% of all employed men and women).

Figure 6.2: Percentage of men and women in typically male occupations (tertiary degree, age 20-64), 21 EU Member States, 2004



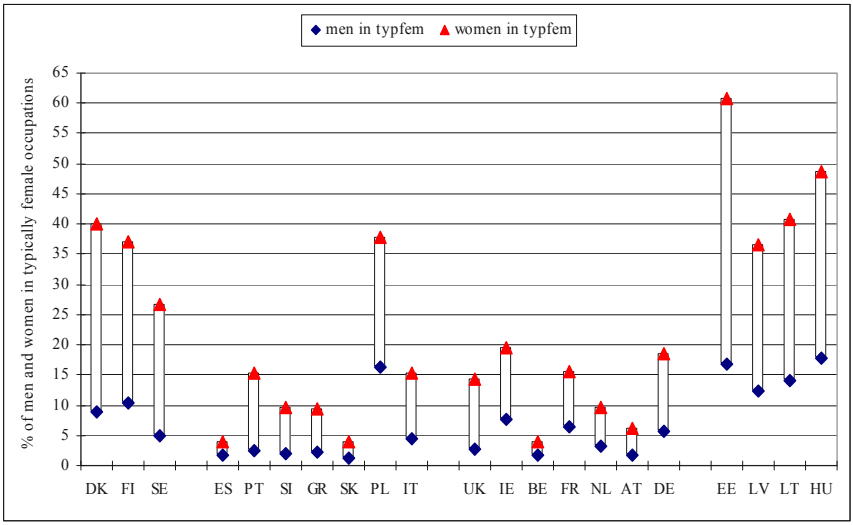
Source: EULFS 2004/2005, own calculations

With respect to the distribution of graduates across typically male occupations (see figure 6.2), the gender gaps are particularly pronounced in countries like Austria, Germany, the Netherlands, Spain, Finland and Denmark. Here, around 40-50% of all employed men are working in typically male occupations, while women more often tend to work in integrated occupations. A similar but slightly reduced trend towards masculinisation can be observed in France, Hungary and Lithuania. When compared with the aforementioned countries, the gender gaps in these countries are smaller, and a higher proportion of men is also employed in integrated occupations.

A somehow different picture emerges when focusing on 'feminisation' trends in European labour markets (see figure 6.3). Particularly countries belonging to the traditional (except Poland) and the conservative sex segregation regime have, on average and irrespectively of sex, a smaller share of persons who work in typically female occupations. In these countries gender differences are less pronounced and most of the tertiary graduates rather work in integrated

or typically male occupations. The opposite, however, holds for countries belonging to the modern and post-communist sex segregation regime which are characterised by high levels of 'feminisation' and a greater difference in the distribution of men and women across these occupations.

Figure 6.3: Percentage of men and women in typically female occupations (tertiary degree, age 20-64), 21 EU Member States, 2004



Source: EULFS 2004/2005, own calculations

In sum, the descriptive results confirm the findings of chapter 4. The mostly segregated labour markets with respect to 'feminisation' and 'masculinisation' can be found in the Nordic countries (except Sweden), and in Eastern European countries, like Latvia, Poland and Hungary. In the remaining countries one of these aspects, but mostly the 'masculinisation' trend, features prominently.

Although offering a general idea of the magnitude of the horizontal dimension of occupational sex segregation, the figures might be somewhat misleading because they conceal differences in human capital and demographic characteristics. The next section, therefore, presents the results of multivariate analyses which take into account both individual characteristics of the analysed individuals and institutional factors of the different European Union countries.

6.3.2. Odds of being in a typically female, male vs. an integrated occupation - testing the hypotheses

In keeping with the descriptive analyses, the following table presents the results of two binary logistic multi-level analyses concerning the odds of being in a typically male vs. an integrated occupation, and the odds of being in a typically female vs. an integrated occupation.

Table 6.2a: Individual-level coefficients (two random intercept and random slope models) being in typically male vs. integrated ('male') and in typically female vs. integrated ('fem.') occupations

	M0		**M1**	
	male	**fem.**	**male**	**fem.**
Intercept	-1.76*** *(0.24)*	-1.91*** *(0.23)*	-1.16*** *(0.24)*	-2.91*** *(0.23)*
Fixed effects				
Individual level				
Women *(ref. men)*			-1.78*** *(0.01)*	1.43*** *(0.02)*
Random effects				
Var *(intercept u_{0j})*	1.16 *(0.36)*	1.11 *(0.34)*	1.16 *(0.36)*	1.10 *(0.34)*

*$p < 0.05$, * $p < 0.01$, ** $p < 0.001$;***, standard errors are in parenthesis, N (individual level) = 196,033 for typically female vs. integrated occupation and 224,107 for typically male vs. integrated occupation), N (country level) = 21*
Source: EULFS 2004/2005, own calculations

Model 0 (variance component model) estimates the systematic gross-variation between countries. The random coefficients indicate that there is a significant between-country variation in the gender-typing of occupations when no individual-level variable is included into the model. The largest extent of country variation comes to the fore in relation to the concentration in male vs. integrated occupations. Model M1 shows the results of two random intercept models where the macro units (countries) are permitted to have different intercepts while being constrained to have the same slopes. Introducing 'gender' as a first individual level variable, the results are in line with the expectations. Women are, on average, more likely to enter female instead of integrated occupations ($=e^{1.43}$) and less likely to enter male instead of integrated occupations ($=e^{-1.78}$). Both results are significant at the 1% level.

As the main focus of this chapter is to analyse in how far macro-level factors contribute to the explanation of the cross-national variation in the gender

slope, model M2 includes a random slope allowing the observed gender effect to vary across countries (while all other individual level variables are fixed).

Table 6.2b: Individual-level coefficients (two random intercept and random slope models) being in typically male vs. integrated ('male') and in typically female vs. integrated ('fem.') occupations

	M2		M3	
	male	**fem.**	**male**	**fem.**
Intercept	-1.16***	-2.89***	-1.98***	-3.25***
	(0.23)	*(0.21)*	*(0.24)*	*(0.20)*
Fixed effects				
Individual level				
Women	-1.77***	1.41***	-1.09***	1.06***
(ref. men)	*(0.07)*	*(0.07)*	*(0.07)*	*(0.07)*
High. tert. degree			-0.48***	-1.48***
(ref. sec. degree)			*(0.04)*	*(0.08)*
Male field			1.91***	-0.21***
(ref. integrated field)			*(0.01)*	*(0.03)*
Female field			-1.10***	1.33***
			(0.03)	*(0.02)*
Young age cohort			0.20***	0.12***
(ref. old age cohort)			*(0.02)*	*(0.02)*
Married			-0.03*	0.02
(ref. not married)			*(0.01)*	*(0.02)*
Random effects				
Var *(intercept u_{0j})*	1.15	0.89	1.19	0.82
	(0.36)	*(0.28)*	*(0.37)*	*(0.26)*
Var *($women_j$)*	0.06	0.10	0.07	0.08
	(0.03)	*(0.04)*	*(0.03)*	*(0.03)*
Covar *(u_{0j}, $women_j$)*	0.03	0.09	-0.11	0.08
	(0.09)	*(0.07)*	*(0.09)*	*(0.06)*

*$p < 0.05$, * $p < 0.01$, ** $p < 0.001$;***, standard errors are in parenthesis, N (individual level) = 196,033 for typically female vs. integrated occupation and 224,107 for typically male vs. integrated occupation), N (country level) = 21*
Source: EULFS 2004/2005, own calculations

The random effects indicate that the average gender slope coefficient (0.06 / 0.10) varies significantly between countries. In case of typically male occupations this leads to a standard deviation of 0.24 ($\sqrt{0.06}$) which shows that the gender effect for typically male occupations varies in 95% of the cases in the countries between -1.28 to - 2.26.[167]

[167] The calculation is (-1.77-(2*0.24) and -1.77+(2*0.24)). For typically female occupations the gender variation is 0.77 to 2.05.

With the inclusion of the individual level variables[168] in model M3, the gender effects are slightly reduced but still significant. Moreover, results for additional individual characteristics confirm the expectations. With respect to education, persons with a higher tertiary degree are more likely to be in integrated than in gender-typical occupations. Also field of study is significantly associated with a gender-typical occupational allocation. Those who have chosen a male field of study, on average, are more likely to enter a male instead of an integrated job to a significant extent ($=e^{1.91}$). Those who have opted for female field are more likely to enter a female job ($=e^{1.33}$) than those who have studied in an integrated field. As predicted, the effect of gender is partially mediated through the gender-typing of field of study; in other words, male and female graduates enter sex-typical jobs partly because they have chosen gendered courses during higher education. However, a directly significant gender effect is still apparent when the level of education as well as field of study is taken into account. Significant differences in occupational allocation can also be observed between younger and older cohorts. Younger people are more likely to be in male or female instead of integrated occupations. Accordingly, there is no apparent tendency towards a decline in occupational gender-typing among young cohorts. Finally, married persons seem to be more frequently employed in typically female (insignificant) and integrated (significant) instead of typically male occupations.

In the next model M4 (see table 6.3) the defined occupational segregation regimes are included (as macro-level factors) to determine their association with patterns of occupational outcomes. As expected, a reduced between-country variance can be observed when these clusters are factored into the model; this result is particularly clear with regard to access to female occupations. The calculations show that, in comparison to the conservative segregation regime (base category), persons in the modern and post-communist segregation regime are, on average, more likely to be employed in a typically female occupation, even though only the effect for the post-communist segregation regime is significant. An opposite effect can be observed for the traditional segregation regime where persons tend to be more often employed in integrated rather than typically female occupations. However, this effect is not significantly different from the conservative sex segregation regime.

[168] The individual level effects (which are fixed in all models) are only shown once because they do not differ for the random intercept models. They can be interpreted as average for the European Union. As the gender variable is set random, this did not apply and the effect for each model is presented in the tables.

Table 6.3: Results (two binary hierarchical logistic regressions) for the division between typically male vs. integrated ('male') and typically female vs. integrated ('fem.') occupations - defined segregation regimes

	M4	
	male	**fem.**
Intercept	-1.26***	-3.55***
	(0.34)	*(0.26)*
Fixed effects		
Individual level		
Women	-1.26***	0.94***
(ref. men)	*(0.08)*	*(0.09)*
Country level		
Conservative seg. regime	*Ref.*	*Ref.*
Modern seg. regime	-0.53	0.71
	(0.62)	*(0.47)*
Traditional seg. regime	**-1.48****	-0.18
	(0.48)	*(0.37)*
Post-com. seg. regime	-0.78	**1.39****
	(0.57)	*(0.43)*
Cross level		
Modern*women	**0.35***	**0.46****
	(0.14)	*(0.17)*
Traditional*women	**0.25***	0.06
	(0.13)	*(0.14)*
Post-com.*women	0.28	0.19
	(0.17)	*(0.16)*
Random effects		
Var *(intercept u_{0j})*	0.82	0.47
	(0.26)	*(0.15)*
Var *($women_j$)*	0.04	0.05
	(0.02)	*(0.02)*
Covar *(u_{0j}, $women_j$)*	-0.05	0.02
	(0.06)	*(0.04)*

*$p < 0.05$, * $p < 0.01$, ** $p < 0.001$,***; standard errors are in parenthesis, N (individual level) = 196,033 for typically female vs. integrated occupation and 224,107 for typically male vs. integrated occupation), N (country level) = 21*
Source: EULFS 2004/2005, own calculations

With respect to the cross-level interaction effects and the question in how far the segregation regimes and their institutional settings are able to explain the cross-national variance in the gender slope, only the positive and significant effect for the modernised segregation regime indicates that within this set of countries, the average positive gender effect increases and women tend to be more often employed in typically female occupations. This is also confirmed by the fact that the standard deviation of 0.224 ($\sqrt{0.05}$) is reduced which shows that

the gender effect for typically female occupations, in 95% of the cases, now varies only between 0.49 and 1.39. Furthermore, the findings support the assumption made in chapter 5 that a relatively early educational specialisation, a tertiary system where women pre-dominantly graduate in typically female fields of study, and an advanced post-industrial development, enhance at least the feminisation of the labour market. For all other regimes, no significant effects can be observed in comparison to the conservative regime.

In case of the 'masculinisation' of the labour market, however, a different picture emerges. In comparison to the conservative sex segregation regime, persons in the remaining regimes are, on average, more likely to be employed in an integrated rather than a typically male occupation. This negative effect is, however, only significant in the case of the traditional sex segregation regime. Nevertheless, the cross-level interaction effects reveal that, in particular, women in the modernised and traditional segregation regimes have a significantly higher likelihood of being employed in typically male instead of integrated occupations. Also in this case the standard deviation is reduced from 0.24 to 0.20.

As the above-described analyses are quite aggregated, it seems advisable to examine the influence of the selected macro-level factors. In this way it should become possible to draw a more detailed picture of the institutional features of countries which enhance or reduce horizontal sex segregation. Therefore, in the next models (see table 6.4-6.7), the intercept and the slope of 'gender' are modelled as a function of macro-level characteristics, namely countries' educational systems (M5a-M8a), post-industrial developments (M5b-M9b), family policies (M5c-M8c) and gender cultures (M5d-M7d). The modelling always follows the same logic: firstly single indicators and their cross-level interactions with 'gender' are introduced stepwise, while the final models include all relevant indicators and interactions per group. Since the effects of macro-level predictors upon the gender slope are of primary interest to this study, the focus of the discussion will be on the cross-level interaction effects.

Starting with the results for the distribution across typically female and integrated occupations (see table 6.4a and b, models M5a - M8a (fem.)), the first educational indicator (M5a) shows that persons with a tertiary degree, on average, are more often channelled into integrated jobs in countries with a higher share of students in vocational education. The opposite effect can be observed for the female participation rate in tertiary education which serves as a proxy for the selectivity and openness of tertiary systems (M5a). Accordingly, persons, on average, have a significantly higher likelihood to be in a typically female occupation in countries with a higher share of women in tertiary education. The last-examined educational indicator measuring the extent of horizontal sex segrega-

tion within the tertiary system shows that persons, on average, are more often employed in a typically female occupation in countries where a higher share of women graduates in atypical fields of study. This might be supported by the descriptions in chapter 4 (see section 4.1.2, figure 4.2) where it has been demonstrated that integrative tendencies with respect to typically male fields of study also increase feminisation processes within the educational system. Such a development might also be expected with respect to the labour market.

Table 6.4a: Results (two binary hierarchical logistic regressions) for the division between typically male vs. integrated ('male') and typically female vs. integrated ('fem.') occupations - educational system indices

	M5a		**M6a**	
	male	**fem.**	**male**	**fem.**
Intercept	-1.98***	-3.25***	-1.98***	-3.25***
	(0.23)	*(0.18)*	*(0.21)*	*(0.16)*
Fixed effects				
Individual level				
Women	-1.09***	1.06***	-1.09***	1.06***
(ref. men)	*(0.07)*	*(0.07)*	*(0.07)*	*(0.07)*
Country level				
Vocational[a]	0.026	**-0.04***		
	(0.02)	*(0.02)*		
Tertiary[b]			**-0.10***	**0.10****
			(0.04)	*(0.03)*
Cross level				
Vocational*women	0.003	-0.003		
	(0.006)	*(0.006)*		
Tertiary *women			0.007	0.02
			(0.02)	*(0.01)*
Random effects				
Var *(intercept u_{0j})*	1.11	0.68	0.91	0.54
	(0.35)	*(0.21)*	*(0.29)*	*(0.17)*
Var *($women_j$)*	0.07	0.08	0.07	0.07
	(0.03)	*(0.03)*	*(0.03)*	*(0.03)*
Covar *(u_{0j}, $women_j$)*	-0.12	0.07	-0.09	0.03
	(0.09)	*(0.06)*	*(0.08)*	*(0.05)*

*$p < 0.05$, * $p < 0.01$, ** $p < 0.001$;***, standard errors are in parenthesis, N (individual level) = 196,033 for typically female vs. integrated occupation and 224,107 for typically male vs. integrated occupation), N (country level) = 21*
Notes: a) Share of students involved in ISCED 2 and 3, b) Share of women in tertiary education
Source: EULFS 2004/2005, own calculations

Turning to the question in how far these indicators influence the observed cross-national variation in the gender slope, it appears that none of the educational indicators significantly affects gender-specific differences in the occupational

distribution across countries. Neither the share of persons graduating from vocational streams nor the degree of the feminisation of the tertiary system seems to matter when explaining cross-national differences in the unequal distribution of women and men across occupations. This also holds for the share of women in atypical fields of study.

Table 6.4b: Results (two binary hierarchical logistic regressions) for the division between typically male vs. integrated ('male') and typically female vs. integrated ('fem.') occupations - educational system indices

	M7a		**M8a**	
	male	**fem.**	**male**	**fem.**
Intercept	-1.98***	-3.25***	-1.98***	-3.25***
	(0.22)	*(0.18)*	*(0.21)*	*(0.17)*
Fixed effects				
Individual level				
Women	-1.10***	1.06***	-1.09***	1.06***
(ref. men)	*(0.07)*	*(0.07)*	*(0.06)*	*(0.07)*
Country level				
Vocational[a]			-0.001	-0.01
			(0.02)	*(0.02)*
Tertiary[b]			-0.08	0.08
			(0.07)	*(0.05)*
Atypical[c]	**-0.05***	**0.04***	-0.02	0.007
	(0.02)	*(0.02)*	*(0.03)*	*(0.02)*
Cross level				
Vocational*women			0.007	0.004
			(0.006)	*(0.007)*
Tertiary *women			0.02	0.03
			(0.02)	*(0.02)*
Atypical*women	0.001	0.007	-0.002	-0.002
	(0.009)	*(0.007)*	*(0.01)*	*(0.009)*
Random effects				
Var *(intercept u_{0j})*	0.98	0.65	0.89	0.53
	(0.31)	*(0.21)*	*(0.28)*	*(0.17)*
Var *($women_j$)*	0.07	0.07	0.06	0.07
	(0.03)	*(0.03)*	*(0.03)*	*(0.03)*
Covar *(u_{0j}, $women_j$)*	-0.10	0.06	-0.09	0.03
	(0.08)	*(0.06)*	*(0.08)*	*(0.05)*

*$p < 0.05$, * $p < 0.01$, ** $p < 0.001$;***, standard errors are in parenthesis, N (individual level) = 196,033 for typically female vs. integrated occupation and 224,107 for typically male vs. integrated occupation), N (country level) = 21*
Notes: a) Share of students involved in ISCED 2 and 3, b) Share of women in tertiary education, c) Share of women in atypical fields of study
Source: EULFS 2004/2005, own calculations

Proceeding with results for the distribution of persons across typically male vs. integrated occupations (M5a-8a (male)), the share of students in vocational

education proves to be an insignificant factor to explain people's occupational distribution. In countries with a high share of female tertiary graduates, however, the net risk of persons to be employed in typically male instead of integrated occupations is significantly reduced ($=e^{-0.10}$). A similar significant integrative effect can be observed in countries with a high share of women in atypical fields of study. However, again none of the selected educational indicators has a significant influence on the cross-national differences in the gender effect. In the final model M8a all educational indicators and cross-level interactions for both outcomes are included. The result for both analyses (M8a, fem. and male) show that the inclusion of all macro-level predictors removes the significance of the relevant indicators.

The second set of models focuses on the question whether post-industrial indicators are relevant predictors for cross-national differences in the distribution of men and women across occupations (see table 6.5a and b, M5b-9b and appendix table A6.5). Again separate analyses have been applied with regard to the distribution of employed persons across typically female vs. integrated and typically male vs. integrated occupations. Starting with a stepwise introduction of the selected post-industrial indicators, only the share of women in the public sector and the 'rigidity' of the labour market seem to be significant factors influencing the distribution of persons across occupations. The significant positive effect implies that in countries with a high female public sector employment, the net risk of persons to be employed in typically female instead of integrated occupations increases ($=e^{0.10}$). As the comparable factor for service sector employment is insignificant this indicator seems to be a better measure. The opposite effect can be observed in case of countries with a high share of employees staying more than 20 years with their employer. Here, persons with a tertiary degree, on average, are more often channelled into integrated occupations (controlling for the female employment rate). This effect is significant at a 5% level. In case of labour market flexibility, however, the negative but insignificant effect is somehow surprising because it indicates that in countries with a higher share of part-time workers, the likelihood of employed persons to work in integrated rather than typically female occupations, on average, increases.

Furthermore, only some of these indicators are capable to explain part of the cross-national differences in the gender slope. The average positive gender effect significantly increases in countries with a high female employment rate ($=e^{0.02}$) implying that women are more likely to enter typically female than integrated occupations in those countries. Moreover, the average gender effect is significantly reduced in countries with a high overall part-time employment

(=$e^{-0.01}$). As none of the remaining indicators is significant, they do not increase the understanding of cross-national variation in the gender slope.[169]

Table 6.5a: Results (two binary hierarchical logistic regressions) for the division between typically male vs. integrated ('male') and typically female vs. integrated ('fem.') occupations - post-industrial indices

	M5b		**M6b**		**M6b_alt**	
	male	**fem.**	**male**	**fem.**	**male**	**fem.**
Intercept	-1.98***	-3.25***	-1.98***	-3.26***	-1.98***	-3.24***
	(0.24)	*(0.20)*	*(0.20)*	*(0.19)*	*(0.23)*	*(0.17)*
Fixed effects						
Individual level						
Women	-1.09***	1.06***	-1.08***	1.06***	-1.08***	1.05***
(ref. men)	*(0.07)*	*(0.05)*	*(0.07)*	*(0.05)*	*(0.06)*	*(0.05)*
Country level						
FER[a]	0.003	0.01	-0.03	0.03	0.02	-0.03
	(0.03)	*(0.03)*	*(0.03)*	*(0.03)*	*(0.04)*	*(0.03)*
Service[b]			**0.08****	-0.04		
			(0.03)	*(0.03)*		
Public[c]					-0.05	**0.10***
					(0.05)	*(0.05)*
Cross level						
FER*women	-0.003	**0.02*****	0.002	**0.03*****	-0.009	**0.02****
	(0.008)	*(0.007)*	*(0.009)*	*(0.007)*	*(0.009)*	*(0.008)*
Service*women			-0.01	-0.009		
			(0.01)	*(0.007)*		
Public*women					0.02	-0.001
					(0.01)	*(0.01)*
Random effects						
Var *(intercept u_{0j})*	1.19	0.81	0.85	0.74	1.14	0.60
	(0.37)	*(0.25)*	*(0.27)*	*(0.23)*	*(0.36)*	*(0.19)*
Var *($women_j$)*	0.07	0.05	0.06	0.04	0.06	0.05
	(*0.03*)	(*0.02*)	(*0.03*)	(*0.02*)	(*0.02*)	(*0.02*)
Covar *(u_{0j}, $women_j$)*	-0.10	0.07	-0.07	0.05	-0.09	0.08
	(*0.09*)	(*0.05*)	(*0.07*)	(*0.05*)	(*0.08*)	(*0.05*)

*$p < 0.05$, * $p < 0.01$, ** $p < 0.001$,***; standard errors are in parenthesis, N (individual level) = 196,033 for typical female vs. integrated occupation and 224,107 for typical male vs. integrated occupation), N (country level) = 21*

Notes: a) Female employment rate, b) Share of persons in the service sector, c) Female share in the public sector

Source: EULFS 2004/2005, own calculations

[169] The more aggregated measure for labour market rigidity (ELP) has a negative but insignificant effect on the average distribution of persons across typically female occupations. This holds also for the cross-level interactions even though the signs are varying (see appendix table A6.5 for more detail).

Table 6.5b: Results (two binary hierarchical logistic regressions) for the division between typically male vs. integrated ('male') and typically female vs. integrated ('fem.') occupations - post-industrial indices

	M7b		**M8b**		**M8b_alt**	
	male	**fem.**	**male**	**fem.**	**male**	**fem.**
Intercept	-1.98***	-3.25***	-1.98***	-3.25***	-1.98***	-3.25***
	(0.19)	*(0.18)*	*(0.17)*	*(0.18)*	*(0.19)*	*(0.17)*
Fixed effects						
Individual level						
Women	-1.09***	1.06***	-1.09***	1.06***	-1.09***	1.05***
(ref. men)	*(0.07)*	*(0.05)*	*(0.07)*	*(0.05)*	*(0.06)*	*(0.05)*
Country level						
FER[a]	**-0.06***	0.01	**-0.07***	0.01	-0.04	-0.03
	(0.03)	*(0.03)*	*(0.03)*	*(0.03)*	*(0.04)*	*(0.04)*
Service[b]			**0.08***	-0.01		
			(0.03)	*(0.03)*		
Public[c]					0.04	0.08
					(0.09)	*(0.05)*
Length[d]	**-0.07***	**-0.06***	**0.08****	-0.06	**-0.08***	-0.04
	(0.03)	*(0.03)*	*(0.03)*	*(0.03)*	*(0.04)*	*(0.03)*
Part-time[e]	**0.07****	-0.02	0.03	-0.01	**0.06***	-0.003
	(0.02)	*(0.02)*	*(0.03)*	*(0.03)*	*(0.03)*	*(0.02)*
Cross level						
FER*women	0.007	**0.03*****	0.008	**0.03*****	-0.003	**0.05*****
	(0.01)	*(0.008)*	*(0.01)*	*(0.03)*	*(0.01)*	*(0.01)*
Service*women			-0.007	-0.001		
			(0.01)	*(0.009)*		
Public*women					0.02	-0.02
					(0.02)	*(0.01)*
Length*women	0.01	0.008	0.01	0.008	0.02	0.002
	(0.01)	*(0.01)*	*(0.01)*	*(0.009)*	*(0.01)*	*(0.01)*
Part-time*women	-0.01	**-0.01***	-0.006	-0.01	-0.005	**-0.02*****
	(0.008)	*(0.006)*	*(0.010)*	*(0.008)*	*(0.009)*	*(0.007)*
Random effects						
Var *(intercept u_{0j})*	0.74	0.63	0.59	0.63	0.73	0.56
	(0.23)	*(0.20)*	*(0.19)*	*(0.20)*	*(0.23)*	*(0.18)*
Var *($women_j$)*	0.06	0.04	0.06	0.04	0.05	0.03
	(0.03)	*(0.02)*	*(0.03)*	*(0.01)*	*(0.02)*	*(0.01)*
Covar *(u_{0j}, $women_j$)*	-0.04	0.06	-0.03	0.06	-0.03	0.08
	(0.06)	*(0.04)*	*(0.05)*	*(0.04)*	*(0.06)*	*(0.04)*

*$p < 0.05$, * $p < 0.01$, ** $p < 0.001$, ***; standard errors are in parenthesis, N (individual level) = 196,033 for typical female vs. integrated occupation and 224,107 for typical male vs. integrated occupation), N (country level) = 21*
Notes: a) Female employment rate, b) Share of persons in the service sector, c) Female share in the public sector, d) Share of persons who stay longer than 20 years with the same employer; e) Share of part-time employment among all employed persons
Source: EULFS 2004/2005, own calculations

The models examining the distribution across typically male vs. integrated occupations yield different results. While there is no significant effect of the female employment rate, the inclusion of the indicator for service sector employment shows that in countries with a high share of persons working in the service sector, people with a tertiary degree are on average more often employed in a typically male occupation (=$e^{0.08}$). For these models, however, the replacing of the service sector variable with the indicator 'female public sector employment' reveals no new insights. The effect is insignificant, even though the negative sign implies an integrative tendency.

The measures for both labour market rigidity and flexibility are significantly influencing the distribution of persons across occupations (M7b). The negative sign for 'rigidity' shows that in countries with a high share of persons staying longer than 20 years with the same employer, individuals, on average, are more often employed in integrated than typically male occupations. The opposite effect can be observed for countries with a high share of part-timers, where the average effect indicates that persons are more often employed in a typically male occupation. Furthermore, the female employment rate has a significant negative effect in this model. None of the selected indicators has a significant effect on the gender slope implying that they are not capable to explain part of the cross-national variance in the unequal distribution of women and men across typically male vs. integrated occupations.

When finally combining all effects in one model M8b, only the interaction effect with the female employment rate keeps its significance for the analysis of typically female vs. integrated occupations.[170] At to typically male vs. integrated occupations (M8b, male), the cross-level interaction effects remain insignificant. In the alternative model M8_alt, the measure for service sector employment is replaced with female public sector employment. In this context, at least the interaction effects for typically female occupations show that besides a high female employment rate, also the share of overall-part-time employment significantly explains part of the cross-national variation in the gender slope.

In this chapter it has moreover been assumed that family and gender policies are important for the explanation of cross-national differences in the allocation of women and men across typically, atypical and integrated occupations. In the following models M5c to M8c (see table 6.6a and b), the relevant macro indicators and cross-level interactions are introduced.

As to the distribution of persons across typically female vs. integrated occupations (M5c-8c, fem.), none of the selected macro-level indicators significantly affects the distribution across these occupations. A similar picture

[170] Also for these models the ELP measure is negative but insignificant (see appendix table A6.5).

emerges with regard to the cross-level interactions and the central question whether the selected indicators effectively explain cross-national differences in the observed gender slope. All examined effects are insignificant, even though the signs, at least, indicate countries with a good support for youngest children are associated with a higher tendency of women to be employed in typically female occupations.

Table 6.6a: Results (two binary hierarchical logistic regressions) for the division between typically male vs. integrated ('male') and typically female vs. integrated ('fem.') occupations - family and gender policy indices

	M5c		**M6c**	
	male	**fem.**	**male**	**fem.**
Intercept	-1.98***	-3.25***	-1.98***	-3.25***
	(0.21)	*(0.20)*	*(0.21)*	*(0.19)*
Fixed effects				
Individual level				
Women	-1.09***	1.06***	-1.09***	1.06***
(ref. men)	*(0.07)*	*(0.06)*	*(0.06)*	*(0.06)*
Country level				
Child3[a]	-0.005	0.003	-0.005	0.004
	(0.02)	*(0.01)*	*(0.02)*	*(0.01)*
Child6[b]	**0.03***	-0.008	**0.04***	-0.007
	(0.02)	*(0.01)*	*(0.02)*	*(0.01)*
Parent[c]			0.004	0.008
			(0.006)	*(0.005)*
Cross level				
Child3*women	0.002	0.006	0.002	0.006
	(0.004)	*(0.004)*	*(0.004)*	*(0.004)*
Child6*women	-0.005	-0.006	-0.004	-0.005
	(0.004)	*(0.004)*	*(0.004)*	*(0.004)*
Parent*women			0.003	0.001
			(0.002)	*(0.002)*
Random effects				
Var *(intercept u_{0j})*	0.94	0.81	0.92	0.72
	(0.30)	*(0.26)*	*(0.29)*	*(0.23)*
Var *($women_j$)*	0.06	0.07	0.05	0.07
	(0.03)	*(0.03)*	*(0.02)*	*(0.03)*
Covar *(u_{0j}, $women_j$)*	-0.07	0.07	-0.08	0.06
	(0.08)	*(0.06)*	*(0.07)*	*(0.06)*

*$p < 0.05$, * $p < 0.01$, ** $p < 0.001$, ***; standard errors are in parenthesis, N (individual level) = 196,033 for typically female vs. integrated occupation and 224,107 for typically male vs. integrated occupation), N (country level) = 21*
Notes: a) Childcare facilities for children aged 0-3, b) Childcare facilities for children aged 3-6, c) Effective parental leave
Source: EULFS 2004/2005, own calculations

Table 6.6b: Results (two binary hierarchical logistic regressions) for the division between typically male vs. integrated ('male') and typically female vs. integrated ('fem.') occupations - family and gender policy indices

	M7c		**M8c**	
	male	**fem.**	**male**	**fem.**
Intercept	-1.98***	-3.25***	-1.98***	-3.25***
	(0.21)	*(0.20)*	*(0.20)*	*(0.18)*
Fixed effects				
Individual level				
Women	-1.08***	1.06***	-1.08***	1.06***
(ref. men)	*(0.06)*	*(0.07)*	*(0.05)*	*(0.06)*
Country level				
Child3[a]			-0.02	0.01
			(0.02)	*(0.02)*
Child6[b]			0.02	0.001
			(0.02)	*(0.01)*
Parent[c]			0.003	0.009
			(0.005)	*(0.005)*
GEM[d]	**4.59***	-1.86	4.64	-2.86
	(2.04)	*(1.85)*	*(2.52)*	*(2.32)*
Cross level				
Child3*women			0.006	0.006
			(0.004)	*(0.005)*
Child6*women			-0.001	-0.005
			(0.004)	*(0.005)*
Parent*women			**0.003***	0.001
			(0.001)	*(0.002)*
GEM*women	-0.80	-0.10	**-1.25***	-0.07
	(0.57)	*(0.63)*	*(0.61)*	*(0.79)*
Random effects				
Var *(intercept u_{0j})*	0.95	0.78	0.79	0.66
	(0.30)	*(0.25)*	*(0.25)*	*(0.21)*
Var *($women_j$)*	0.06	0.08	0.03	0.07
	(0.02)	*(0.03)*	*(0.02)*	*(0.03)*
Covar *(u_{0j}, $women_j$)*	-0.06	0.09	-0.04	0.06
	(0.08)	*(0.06)*	*(0.06)*	*(0.05)*

*$p < 0.05$, * $p < 0.01$, ** $p < 0.001$,***; standard errors are in parenthesis, N (individual level) = 196,033 for typically female vs. integrated occupation and 224,107 for typically male vs. integrated occupation), N (country level) = 21*

Notes: a) Childcare facilities for children aged 0-3, b) Childcare facilities for children aged 3-6, c) Effective parental leave, d) Gender Empowerment Measure

Source: EULFS 2004/2005, own calculations

The opposite holds in case of a sufficient childcare support for children aged 3 to 6 years. In this case the observed strong gender effect is slightly reduced, and women are more often employed in integrated rather than typically female occupations. Moreover, a certain support can be found for the hypothesis

that segregation tendencies are strengthened by generous parental leave and weakened by a high gender empowerment.

In case of the distribution of persons across typically male vs. integrated occupations, the results for childcare show that generous childcare provision for pre-school children (aged 0-3) has an insignificant effect. The effect for children (aged 3 to 6), by contrast, has a significant positive effect ($=e^{0.03}$) which implies that the risk of persons to be employed in typically male occupations, on average, increases in countries with a high childcare provision for children in this age group. This effect becomes stronger when the parental leave indicator is included in the analyses, even though the positive effect for parental leave itself is insignificant. With respect to the aggregated gender empowerment measure, the strong positive and significant effect shows that in countries with a high gender empowerment, persons, on average, are more likely to be employed in typically male occupations. Replacing the GEM indicator with some detailed measures (see appendix table A6.6), the results are insignificant and divergent. However the signs indicate that in countries with a legislation offering women equal access to occupations, people are on average more often employed in typically male occupations, whereas legislation restricting women's access to specific, often typically male occupations increases the average chance of individuals to be employed in integrated rather than typically male occupations.

Also with regard to this horizontal outcome, the selected indicators do not offer sufficient explanation power for the observed cross-national variation in the gender slope. While none of the effects is significant, at least some of the signs are pointing in the assumed direction. With respect to childcare, for instance, the strong negative gender effect is reduced in countries with a high childcare coverage for children aged 0-3, while the opposite holds for the effect concerning children aged 3-6.

When finally including all indicators into one model M8c the picture changes in the field of typically male vs. integrated occupations. While the two main effects of childcare and gender empowerment are becoming insignificant, two cross-level interactions are significantly influencing the distribution of persons across typically male occupations. In countries with generous parental leave, the average negative gender effect is reduced and women tend to be more often employed in typically male occupations. However, in combination with a high gender empowerment, the opposite effect can be observed. In this case, and women more often employed in integrated occupations.

With regard to the final group of indicators measuring 'gender culture', a distinction has been made between women's 'equal access to the labour market' and the importance of 'motherhood'. Starting with the distribution of persons across typically female vs. integrated occupations, persons, on average, are

more likely to be employed in an integrated occupation in countries with a high share of persons disagreeing that men's sphere is work and women's home and children (=$e^{-0.02}$). The effect is significant at the 5%-level.

Table 6.7: Results (two binary hierarchical logistic regressions) for the division between typically male vs. integrated ('male') and typically female vs. integrated ('fem.') occupations – 'gender culture' indices

	M5d		**M6d**		**M7d**	
	male	**fem.**	**male**	**fem.**	**male**	**fem.**
Intercept	-1.98***	-3.25***	-1.98***	-3.25***	-1.98***	-3.24***
	(0.24)	*(0.18)*	*(0.22)*	*(0.20)*	*(0.22)*	*(0.18)*
Fixed effects						
Individual level						
Women	-1.07***	1.05***	-1.09***	1.06***	-1.07***	1.04***
(ref. men)	*(0.052)*	*(0.061)*	*(0.065)*	*(0.066)*	*(0.052)*	*(0.060)*
Country level						
Right	-0.006	0.03			-0.02	0.03
	(0.02)	*(0.02)*			*(0.02)*	*(0.02)*
Division	0.01	**-0.02***			-0.008	**-0.03***
	(0.02)	*(0.01)*			*(0.02)*	*(0.02)*
Suffer			0.03	-0.004	0.044	0.02
			(0.02)	*(0.02)*	*(0.03)*	*(0.02)*
Childcare			-0.02	-0.008	-0.02	0.006
			(0.02)	*(0.02)*	*(0.03)*	*(0.02)*
Cross level						
Right*women	**0.011***	**0.012***			0.009	**0.014***
	(0.005)	*(0.006)*			*(0.005)*	*(0.006)*
Division*women	**-0.009***	-0.001			**-0.011***	0.004
	(0.004)	*(0.004)*			*(0.005)*	*(0.006)*
Suffer*women			-0.001	0.001	0.005	-0.010
			(0.005)	*(0.005)*	*(0.007)*	*(0.008)*
Childcare*women			-0.006	-0.005	-0.003	-0.002
			(0.007)	*(0.007)*	*(0.005)*	*(0.007)*
Random effects						
Var *(intercept u_{0j})*	1.15	0.65	1.04	0.82	0.96	0.62
	(0.36)	*(0.21)*	*(0.33)*	*(0.26)*	*(0.30)*	*(0.20)*
Var *($women_j$)*	0.03	0.07	0.06	0.08	0.03	0.06
	(0.02)	*(0.02)*	*(0.03)*	*(0.03)*	*(0.02)*	*(0.02)*
Covar *(u_{0j}, $women_j$)*	-0.06	0.06	-0.11	0.08	-0.07	0.08
	(0.07)	*(0.05)*	*(0.08)*	*(0.06)*	*(0.06)*	*(0.05)*

*$p < 0.05$, * $p < 0.01$, ** $p < 0.001$,***; standard errors are in parenthesis, N (individual level) = 196,033 for typically female vs. integrated occupation and 224,107 for typically male vs. integrated occupation), N (country level) = 21*
Notes: a) Right of women to work if jobs are scarce, b) Women=child and men=work, c) Child suffers if the mother works, d) Men should do more childcare
Source: EULFS 2004/2005, own calculations

However, there is no significant effect for the measure capturing the aspect of a 'right to work', even though the sign indicates that in countries with a high share of people disagreeing that men should have more rights to work when jobs are scarce, individuals, on average, are more often employed in typically female instead of integrated occupations.

With respect to the measures for the aspect of 'motherhood' (M5d) both effects are negative but insignificant. The cross-level interactions with gender yield a different picture. Part of the observed cross-national variation in the gender slope can be explained by one measure of 'access'. In countries where a high share of persons disagrees that men should have a better right to work if jobs are scarce, the average positive gender effect is reinforced, and women are more often employed in typically female occupations. The remaining cross-level interactions, however, are insignificant and not capable to explain the cross-national variation in the gender effect.

The findings resulting from the second outcome - the distribution across typically male vs. integrated occupations - are divergent: M5d shows that both measures of 'access' and 'motherhood' yield insignificant effects. Their different signs indicate that even within one aspect, different influences are possible. For the explanation of cross-national differences in the gender slope, however, particularly the aspect of 'access' seems to be important as both measures show significant but contrary effects. In countries where a high share of persons disagrees that men should have more right to work if jobs are scarce, the average negative gender effect is reduced, and women have a higher chance to be employed in typically male occupations. A high share of persons disagreeing that men's task is work and women's home and children, by contrast, increases the likelihood of women to be employed in an integrated occupation.

As to the aspects of 'motherhood', the negative but insignificant signs at least point towards the expected integrative forces. Including all indicators in one model (M7d), the results finally indicate that, in particular with regard to the observed differentiation of the gender slope, at least one measure of 'access' tends to increase feminisation and push women into typically female occupations, while the aspects of 'motherhood' have a rather integrative influence on the labour market. With regard to the findings for typically male vs. integrated occupations, however, the significant positive effect for one measure of 'access' disappears. Furthermore, the results show that within one aspect, the measures can have quite divergent effects on occupational sex segregation. Therefore, the interpretation of results is not as straightforward as expected.

6.3.3. Variance components - what does the institutional context explain?

Finally, the question arises to what extent the micro and macro variables included in the analyses are capable to explain the cross-national differences in the distribution of persons across occupations and the differences in the observed gender gap. Therefore, the variance[171] components are to be discussed (see table 6.8).

Table 6.8: Variance components of the random slope models

	1	2	3	4	5	6	7
Random Slope							
Var *(u_{0j})* / *typically female*	1.11 *(0.34)*	0.82 *(0.26)*	0.47 *(0.15)*	0.53 *(0.17)*	0.63 *(0.20)*	0.66 *(0.21)*	0.62 *(0.20)*
R^2	**25%**		**43%**	**35%**	**23%**	**20%**	**24%**
Var *($women_j$)*		0.08 *(0.03)*	0.05 *(0.02)*	0.07 *(0.03)*	0.04 *(0.01)*	0.07 *(0.03)*	0.06 *(0.02)*
R^2			**38%**	**13%**	**50%**	**13%**	**25%**
Covar *(u_{0j}, $women_j$)*		0.08 *(0.06)*	0.02 *(0.04)*	0.03 *(0.05)*	0.06 *(0.04)*	0.06 *(0.05)*	0.08 *(0.05)*
Var *(u_{0j})* / *typically male*	1.16 *(0.36)*	1.19 *(0.37)*	0.82 *(0.26)*	0.89 *(0.28)*	0.59 *(0.19)*	0.79 *(0.25)*	0.96 *(0.30)*
R^2	**26%**		**31%**	**25%**	**50%**	**34%**	**19%**
Var *($women_j$)*		0.07 *(0.03)*	0.04 *(0.02)*	0.06 *(0.03)*	0.06 *(0.03)*	0.04 *(0.02)*	0.03 *(0.02)*
R^2			**43%**	**14%**	**14%**	**43%**	**57%**
Covar *(u_{0j}, $women_j$)*		-0.11 *(0.09)*	-0.05 *(0.06)*	-0.09 *(0.08)*	-0.03 *(0.05)*	-0.04 *(0.06)*	-0.07 *(0.06)*

Notes: All calculations refer to the random slope model where all individual variables are included. 1=zero model, 2=only individual-level variables, 3= individual+segregation regime variables, 4=individual+educational variables, 5=individual+post-industrial variables, 6=individual +family policy variables, 7=individual+gender culture variables
Source: EULFS 2004/2005, own calculations

The variation at the macro-level for the distribution across typically female and integrated occupations is around 25% (M0). This indicates that 25% of the variance of the distribution of persons across the two occupational groups can be attributed to country-specific contextual factors. It seems logical that nearly half (43%) of the cross-national variance can be explained when including the quite aggregated measures of 'segregation regimes' as a proxy for the different institutional settings of countries. In these more sophisticated measures the inclusion of the educational system indicators proves to be central, at least, with

[171] It should be underlined that the logistic distribution for the level-one residuals implies a variance of $\pi^2/2=3.29$ (see Snijders and Bosker 1999: 224). The total variance is therefore composed of the variance between individuals $\sigma 2$ (fixed by 3.29) and the variance between countries τ_{b00}.

regard to the feminisation of the labour market. A comparison of the variances between the models with individual variables and those including educational system variables shows that 35%[172] of the 25% country-level variance can be explained. The remaining groups of indicators reach from 20% (family policy indicators) to 24% (gender culture indicators). With respect to the variance components of the random slope and cross-level interaction models, the picture is different. The results show that the inclusion of post-industrial indicators explains nearly 50% of the variance of the observed 'gender' effect across countries. Ranging from 13% to 38%, the other groups of indicators have less influence on the explanation of cross-national gender differences.

With respect to the distribution of persons across typically male and integrated occupations, around 26% (M0) of the variance can be explained by country-specific contextual factors. Again, the inclusion of post-industrial indicators explains half (50%) of the cross-national variance, even though this group of indicators is less efficient in explaining the cross-national variance of the 'gender' slope (14%). The other measures are varying between 19% (gender culture indicators) and 34% (family policy indicators). As already indicated above, the findings reveal that particularly the 'gender culture' measures are essential to the variance components of the random slope and cross-level interaction models. Including these indicators into the model, nearly 60% of the variance of the observed 'gender' effect across countries can be explained. The other measures are ranging from 14% to 43%.

6.3.4. Summary

The diverse findings indicate that no coherent trend can be found for the horizontal dimension of occupational segregation. It seems that depending on the focus of the analysis, different factors can be identified which impact on the distribution of employed persons across occupations. In explaining part of the observed cross-national differences in the unequal distribution of men and women across typically female occupations, education-related measures prove to be less helpful. Post-industrial measures, by contrast, are quite effective in terms of explained variance. Particularly countries with a higher female employment rate are positively associated with a higher likelihood of women to work in typically female occupations. Controlling for the female employment rate and the rigidity of the labour market, a higher overall share of part-timers on the labour market, surprisingly, seems to be related to female integration processes.

[172] Following Bryk and Raudenbusch (1992), the value is calculated on the basis of R^2 (level 2) = $[var_0(u_{0j}) - var_1(u_{0j})] / var_0(u_{0j})$

However, it should be underlined in this regard, that the causality cannot be disentangled from the used data. The observed association might be due to the fact that a high overall share of part-timers signals a generally higher flexibility of labour markets. Part-time options might be seen not only as a measure to bring more women into the labour market but also as a means to reduce, for instance, higher overall unemployment. From this perspective, part-time work can be perceived as a characteristic of typically female as well as integrated occupations.

As to factors that further the inclusion of women in typically male occupations, none of the selected educational and post-industrial indicators is able to explain cross-national variation in the gender slope. A similar result can be observed with regard to family and gender policies. Only when including all indicators, it becomes apparent that in countries with generous parental leave. the likelihood of women to work in a typically male occupation increases. A high gender empowerment, by contrast, has the contrary effect of strengthening a negative gender effect. This finding is surprising, as it has been hypothesised that a stronger gender empowerment might facilitate women's access to typically male occupations. However, it must be borne in mind that the GEM indicator is a rather vertical measure particularly including factors which refer to women's power in terms of income and high status positions.

The findings for 'gender culture' indicators show that the measures for the aspect of 'access to the labour market' are of particular importance to the explanation of the cross-national variation in the gender slope. Even though the already-mentioned problem of causality cannot be clarified, it seems that there is a positive correlation between women's employment in typically male occupations and countries where the majority disagrees that men should have more right to work if jobs are scarce. In countries where the majority disagrees that the division of work between men and women should follow the traditional route, women with a tertiary degree work in integrated rather than typically male occupations.

In sum, these findings testify to the multi-dimensionality and complexity of segregation processes. They show that the factors impacting on feminisation processes are different from those shaping integrative or masculinisation processes. Both developments may take place simultaneously. This might also indicate that even in quite 'gender-equal' countries, 'traditional' views of women's participation in the labour market subliminally persist. These attitudes might hinder women from entering typically male occupations.

6.4. Results for being in a management or non-management position

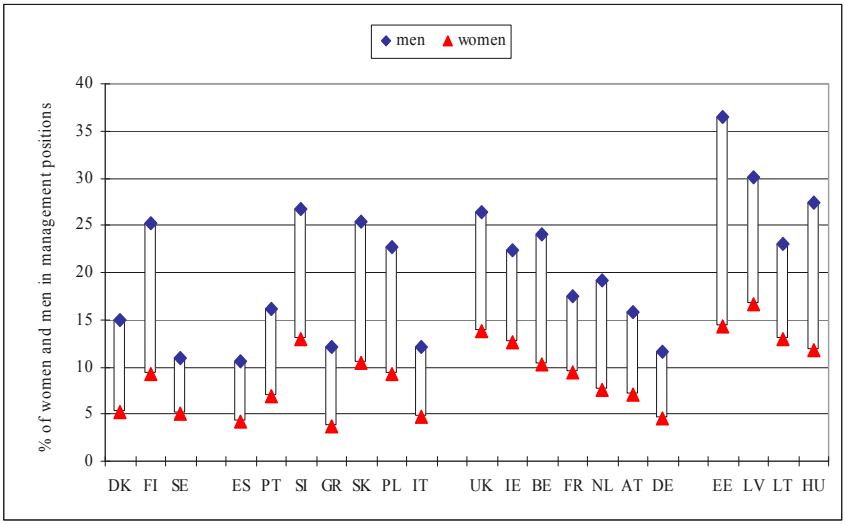
6.4.1. Descriptive results

As pointed out above, prejudices and stereotypical beliefs about the role of women in society often limit their chances of reaching top-leadership positions. Furthermore, women's traditional family responsibilities still are a major part of beliefs in many cultures. They make it difficult for women to achieve high-ranking positions with challenging time demands. One result is the already-described 'glass ceiling', an invisible barrier blocking the rise of women to top jobs (Wirth 2001, ILO 2004).

The persistent gender gap in high-level managerial positions clearly reflects a lack of gender equality in society. The size of this gap provides some insight into the extent to which women are accepted in non-traditional roles, and shows how power is distributed between women and men in different countries and societies. Seeing a woman in a management position is the exception rather than the rule. However, the degree of under-representation differs from country to country (Davidson and Burke 2004). This is confirmed by the following figure (see figure 6.4) showing results with regard to the distribution of men and women across management positions (ISCO88 group 1, 2004). It is evident that within the group of persons with a tertiary degree, men are more often employed in management positions than their female counterparts in all EU Member States. Even though the underlying trend seems to be similar across Member States, some variation in the magnitude of gender differences is apparent. It features prominently in Estonia, Finland, Hungary and Slovakia where the difference between men and women is around 15 to 20%. The smallest differences between men and women can be found in Sweden, Spain, Germany and Italy. Furthermore, it should be underlined that there is also a substantial cross-national variation in the overall share of persons in management positions: while only around 10% of all men reach management positions in Spain, Sweden, Greece and Germany, the percentage is around 30% in countries like Estonia, Latvia, and Hungary.[173]

[173] One possible reason for the observed country differences in the overall share of persons in management positions might also stem from the already mentioned methodological limitations concerning the measurement of high managerial positions and the varying definitions and classifications of managerial positions across countries (see also section 6.2.2).

Figure 6.4: Percentage of men and women in management positions (ISCO88 group 1, tertiary degree, age 20-64), 21 EU Member States 2004



Source: EULFS 2004/2005, own calculations

In this context, it seems difficult to identify common patterns within the defined segregation regimes. The most obvious patterns can be observed in the conservative segregation regime characterised by a high share of persons working in management positions and a substantial gender difference. In contrast, the traditional segregation regime has a generally lower share of persons in management positions and a lower gender gap indicating that women in these countries might have a higher chance to work in management positions.

6.4.2. Odds of being in a management or non-management position - testing the hypothesis

As demonstrated in chapter 4, even though women are concentrated in the non-manual sector, they are less likely to reach high management positions within this sector. Therefore, the question arises in how far cross-national differences in the distribution of women in management positions are attributable to the already-discussed macro-level factors.

Table 6.9 presents the results of a binary logistic multi-level analysis concerning the odds of being either in a management or a non-management position. Following the modelling strategy introduced in the previous sections, first a variance component model is estimated (M0) to show the systematic cross-country variation. The random coefficient indicates that there is a significant between-country variation in the distribution of employed persons across management positions when no individual level variable is included in the model. The second step involves the analysis of a random intercept model allowing only the intercepts to vary between countries (see M1). Introducing 'gender' as a first individual-level variable, the result confirms the expectation that women are less likely to enter a management position ($=e^{-0.95}$). This result is significant at the 1% level.

As the main purpose of this analysis is to examine whether the selected macro-level factors are able to explain the cross-national variance of the observed gender slope (see figure A6.1 in the appendix), model M2 includes a random slope allowing the gender effect to vary across countries (while all other individual level variables are fixed). The finding indicates that the average gender slope coefficient (0.02)[174] varies significantly between countries. Moreover, results for model M3 including all other individual level characteristics[175] (which are fixed) are in line with the expectations. With respect to education, persons with a higher tertiary degree are, on average, less likely to be in management positions than persons with a tertiary degree. This effect might also be related to the fact that for managerial positions based on group 1 of the ISCO88 a higher tertiary degree is not necessarily needed.

It is interesting to note that a gender-typical field of study (male and female) significantly decreases the chance of being in a management position. Particularly a typically female field of study decreases the chance by $e^{-0.90}$. Significant differences in the allocation to management positions are also evident for younger and older cohorts. Younger people are, on average, less likely to be in management positions which seems plausible as many management positions are also related to a principle of seniority. Finally, the results imply that married persons are more often in a management position than unmarried people.

[174] This is a standard deviation of 0.14 ($\sqrt{0.02}$) which shows that the gender effect for management positions varies in 95% of the cases in the countries between -1.24 (-0.96-(2*0.14)) and -0.67 (-0.96 + (2*0.14)).

[175] Also here the individual level effects (which are fixed in all models) are only shown once because they do not differ for the random intercept models. They can be interpreted as average for the European Union. As the gender variable is set random, this did not apply and the effect for each model is presented in the tables.

Table 6.9: Individual-level coefficients (random intercept and random slope models) to be in a management or non-management position

	M0	M1	M2	M3	M4
Intercept	-1.86***	-1.44***	-1.44***	-1.38***	-1.43***
	(0.10)	*(0.10)*	*(0.10)*	*(0.11)*	*(0.15)*
Fixed effects					
Individual level					
Women		-0.95***	-0.96***	-0.77***	-0.73***
(ref. men)		*(0.01)*	*(0.04)*	*(0.05)*	*(0.06)*
High. Tert. Degree				-0.29***	-0.29***
(ref. Sec. degree)				*(0.04)*	*(0.04)*
Male field				-0.10***	-0.10***
(ref. Integrated field)				*(0.02)*	*(0.02)*
Female field				-0.90***	-0.90***
				(0.02)	*(0.02)*
Young age cohort				-0.52***	-0.52***
(ref. old age cohort)				*(0.02)*	*(0.02*
Married				0.32***	0.32***
(ref. not married)				*(0.02)*	*(0.02)*
Country level					
Con. seg. regime					*Ref.*
Mod. seg. regime					-0.15
					(0.27)
Trad. seg. regime					-0.14
					(0.21)
PC. seg. regime					**0.66****
					(0.25)
Cross level					
Mod.*women					-0.10
					(0.12)
Trad. *women					-0.17
					(0.10)
PC.*women					0.13
					(0.12)
Random effects					
Var *(intercept u_{0j})*	0.17	0.20	0.19	0.24	0.16
	(0.05)	*(0.06)*	*(0.06)*	*(0.08)*	*(0.05)*
Var *($women_j$)*			0.02	0.04	0.03
			(0.009)	*(0.01)*	*(0.01)*
Covar *(u_{0j}, $women_j$)*			0.009	0.05	0.02
			(0.02)	*(0.03)*	*(0.02)*

*$p < 0.05$, * $p < 0.01$, ** $p < 0.001$,***; standard errors are in parenthesis, N (individual level) = 250,237 for management vs. non-management positions, N (country level) = 21*
Source: EULFS 2004/2005, own calculations

In model M4 the defined occupational segregation regimes are included as a first set of macro-level factors to determine their association with the vertical aspect of occupational segregation. As expected, the size of the between-country

variance for the intercept as well as for 'gender' is reduced when these segregation regimes are entered into the model. The results show that in comparison to the conservative segregation regime, persons in the post-communist regime are, on average, more often employed in management positions. This effect is significant at the 5% level and confirms the already-described bivariate finding.

For the other segregation regimes no significant effect can be observed, even though the negative signs indicate a lower average likelihood of persons to be employed in a management position. With respect to the central question whether the defined segregation regimes and their institutional setting are able to explain part of the cross-national variance in the gender slope, none of the cross-level effects is significant.

Also for the vertical segregation outcome, macro-level factors are groupwise introduced in order to establish more precisely the institutional features of countries which enhance or reduce vertical sex segregation (see table 6.10-6.13). The intercept and slope of the variable 'gender' are modelled as a function of the established macro-level characteristics: educational systems (M5a-M9a), post-industrial developments (M5b-M8b), family policies (M5c-M8c) and gender cultures (M5d-M7d). The modelling follows the same logic applied previously: firstly single indicators and their cross-level interactions with the variable 'gender' are stepwise introduced, while the final model includes all relevant indicators and interactions per group.

Starting with the group of educational factors, the results show that all three indicators have a significant positive effect on the average distribution of employed persons into management positions. It can be inferred from the findings that in countries with a high share of women holding a degree in a short-term programme, persons with a tertiary degree tend to be, on average, more often employed in management positions. This tendency is also observable in countries with a higher share of highly educated women as well as with a higher share of women holding a degree in an atypical field of study.

Table 6.10: Results (hierarchical logistic regression) for the division between management and non-management positions - education indices

	M5a	M6a	M7a	M8a	M9a
Intercept	-1.35***	-1.35***	-1.35***	-1.35***	-1.35***
	(0.09)	*(0.10)*	*(0.10)*	*(0.08)*	*(0.08)*
Fixed effect					
Individual level					
Women	-0.78***	-0.78***	-0.78***	-0.78***	-0.78***
(ref. men)	*(0.05)*	*(0.05)*	*(0.05)*	*(0.05)*	*(0.05)*
Country level					
Short[a]	**0.61****			**0.51****	**0.53****
	(0.21)			*(0.19)*	*(0.20)*
Tertiary[b]		**0.05****		**0.04***	**0.05***
		(0.02)		*(0.02)*	*(0.02)*
Atypical[c]			**0.02***		-0.00
			(0.01)		*(0.01)*
Cross level					
Short*women	0.02			0.00	-0.02
	(0.11)			*(0.11)*	*(0.12)*
Tertiary *women		0.01		0.01	0.00
		(0.010)		*(0.01)*	*(0.01)*
Atypical*women			0.00		0.00
			(0.01)		*(0.007)*
Random effects					
Var *(intercept u_{0j})*	0.18	0.18	0.20	0.14	0.14
	(0.06)	*(0.06)*	*(0.06)*	*(0.04)*	*(0.04)*
Var *($women_j$)*	0.04	0.04	0.04	0.04	0.04
	(0.01)	*(0.01)*	*(0.01)*	*(0.01)*	*(0.01)*
Covar *(u_{0j}, $women_j$)*	0.05	0.04	0.04	0.04	0.04
	(0.02)	*(0.02)*	*(0.02)*	*(0.02)*	*(0.02)*

*$p < 0.05$, * $p < 0.01$, ** $p < 0.001$,***; standard errors are in parenthesis, N (individual level) = 250,237 for management vs. non-management positions, N (country level) = 21*
Notes: a) Share of women graduating from ISCED5B courses, b) Share of women in tertiary education, c) Share of women in atypical fields of study
Source: EULFS 2004/2005, own calculations

As to the question in how far these indicators also explain part of the observed cross-national variation in the gender slope, none of the aforementioned indicators is significant. However, the signs point towards a reduction in the average negative gender effect. Combining the set of indicators in a final model M9a, the significant average effects 'short term' and 'tertiary education' slightly decrease, whereas the effect 'atypical field' is rendered insignificant.

The second set of models focuses on the question whether post-industrial indicators are relevant predictors of cross-national differences in the distribution of men and women across management positions (see table 6.11).

Table 6.11: Results (hierarchical logistic regression) for the division between management and non-management positions - post-industrial indices

	M5b	M6b	M6b_alt	M7b	M8b	M8b_alt
Intercept	-1.35***	-1.35***	-1.35***	-1.35***	-1.37***	-1.38***
	(0.11)	*(0.10)*	*(0.09)*	*(0.09)*	*(0.09)*	*(0.08)*
Fixed effects						
Individual level						
Women	-0.78***	-0.78***	-0.78***	-0.78***	-0.77***	-0.77***
(ref. men)	*(0.04)*	*(0.04)*	*(0.04)*	*(0.04)*	*(0.04)*	*(0.04)*
Country level						
FER[a]	0.01	0.02	-0.02	0.00	0.00	-0.02
	(0.014)	*(0.02)*	*(0.01)*	*(0.01)*	*(0.01)*	*(0.02)*
Service[b]		-0.02			-0.01	
		(0.01)			*(0.02)*	
Public[c]			**0.07*****			**0.05***
			(0.02)			*(0.02)*
Length[d]				**-0.05*****	**-0.05****	**-0.03***
				(0.02)	*(0.02)*	*(0.02)*
Part-time[e]				-0.01	-0.01	0.00
				(0.01)	*(0.01)*	*(0.01)*
Cross level						
FER* women	0.01	0.01	-0.00	0.01	0.01	-0.00
	(0.01)	*(0.01)*	*(0.01)*	*(0.01)*	*(0.01)*	*(0.01)*
Ser.* women		-0.01			-0.00	
		(0.01)			*(0.01)*	
Pub.*women			**0.02****			0.02
			(0.01)			*(0.01)*
Len.*women				**-0.02***	**-0.02***	-0.01
				(0.01)	*(0.01)*	*(0.01)*
PT*women				-0.00	-0.00	0.00
				(0.01)	*(0.01)*	*(0.01)*
Random effects)						
Var *(intercept u_{0j})*	0.24	0.22	0.15	0.15	0.15	0.12
	(0.08)	*(0.07)*	*(0.05)*	*(0.05)*	*(0.05)*	*(0.04)*
Var *($women_j$)*	0.03	0.03	0.02	0.03	0.02	0.02
	(0.01)	*(0.01)*	*(0.01)*	*(0.01)*	*(0.01)*	*(0.01)*
Covar *(u_{0j}, $women_j$)*	0.05	0.04	0.02	0.02	0.02	0.01
	(0.02)	*(0.02)*	*(0.02)*	*(0.02)*	*(0.02)*	*(0.01)*

*p < 0.05, * p <0.01, ** p <0.001,***; standard errors are in parenthesis, N (individual level) = 250,237 for management vs. non-management positions, N (country level) = 21*
Notes: a) Female employment rate, b) Share of persons in the service sector, c) Female share in the public sector, d) Share of persons who stay longer than 20 years with the same employer, e) Share of part-time employment among all employed persons
Source: EULFS 2004/2005, own calculations

In this respect, the findings reveal that the additional indicator of female public sector employment (M6b_alt) affects the average distribution of persons

across management and non-management positions significantly. The positive effect indicates that there is an association between a country's share of women working in the public sector and the average share of persons in management positions. This significant and positive effect can also be found with respect to the observed cross-national variation in the gender slope ($=e^{0.02}$). In countries with a high share of women in the public sector, the average negative gender effect is reduced. Hence, women are more likely to be employed in management positions in those countries. Furthermore, the 'rigidity' of the labour market, measured as the share of persons staying longer than 20 years with the same employer, seems to be important (M7b). The results show a significant negative association between the share of persons staying more than 20 years with the same employer and the average share of persons holding management positions. Such a negative and significant association can also be observed for the cross-level interaction with gender. It indicates that in countries with a high share of persons staying more than 20 years with the same employer, women have a lower chance to be employed in a management position ($=e^{-0.02}$). In this context, the additionally-tested EPL index which is a more aggregate measure of labour market rigidity reveals an insignificant but also negative effect (see appendix, table A6.7).

When finally including all indicators into one model M8b, only the aforementioned effects of 'rigidity' (length and women*length) remain significant. However, this picture changes once the indicator 'service sector employment' is replaced with 'female public sector employment' (M8b_alt). In this case, only the average effects of 'female public sector employment' and 'rigidity' are still significant, whereas the significance of the cross-level interactions diminishes.

With regard to cross-national differences in the allocation of women and men across management positions, family and gender policies might be important additional explanation factors. In this context it has been argued that anticipated family responsibilities and discontinued working patterns are mainly responsible for the underrepresentation of women. Actual findings (see models M5c to M8c, table 6.12) partly support this argument: countries with particularly high childcare coverage for children aged 3-6 are interrelated on an average lower employment of persons in management positions ($=e^{-0.02}$). This effect is significant at the 95% level.A high coverage for children aged 0-3, by contrast, has an insignificant but positive effect. Adding a parental leave measure to the following model M6c, the former results reappear. Moreover, as the effect for generous parental leave is insignificant, this does not seem to influence the distribution across management positions. The gender empowerment measure (GEM), however, has a significant negative effect on the average distribution of individuals across management positions ($=e^{-1.93}$).

Table 6.12: Results (hierarchical logistic regression) for the division between management and non-management positions - family and gender policy indices

	M5c	M6c	M7c	M8c
Intercept	-1.37***	-1.37***	-1.37***	-1.37***
	(0.10)	*(0.10)*	*(0.10)*	*(0.09)*
Fixed effects				
Individual level				
Women	-0.77***	-0.77***	-0.77***	-0.77***
(ref. men)	*(0.04)*	*(0.04)*	*(0.05)*	*(0.04)*
Country level				
Child3[a]	0.006	0.007		**0.015***
	((0.007)	*(0.007)*		*(0.007)*
Child6[b]	**-0.015***	**-0.014***		-0.007
	(0.007)	*(0.007)*		*(0.007)*
Parent[c]		0.002		0.002
		(0.003)		*(0.002)*
GEM[d]			**-1.93***	**-2.56***
			(0.947)	*(1.123)*
Cross level				
Child3*women	**0.006***	**0.007***		**0.009****
	(0.003)	*(0.003)*		*(0.003)*
Child6*women	-0.004	-0.004		-0.002
	(0.003)	*(0.003)*		*(0.003)*
Parent*women		0.002		**0.002***
		(0.001)		*(0.001)*
GEM*women			-0.231	-0.762
			(0.436)	*(0.440)*
Random effects				
Var *(intercept u_{0j})*	0.20	0.19	0.20	0.16
	(0.06)	*(0.06)*	*(0.06)*	*(0.05)*
Var *($women_j$)*	0.03	0.02	0.04	0.02
	(0.01)	*(0.01)*	*(0.01)*	*(0.008)*
Covar *(u_{0j}, $women_j$)*	0.03	0.03	0.04	0.01
	(0.02)	*(0.02)*	*(0.02)*	*(0.01)*

*$p < 0.05$, * $p < 0.01$, ** $p < 0.001$,***; standard errors are in parenthesis, N (individual level) = 250,237 for management vs. non-management positions, N (country level) = 21*
Notes: a) Childcare facilities for children aged 0-3, b) childcare facilities for children aged 3-6, c) Effective parental leave, d) Gender Empowerment Measure
Source: EULFS 2004/2005, own calculations

This outcome is interesting: in countries with a high gender empowerment, persons with a tertiary degree, on average, are less often employed in management positions. This negative effect can also be observed for the more sophisticated measures of gender empowerment, even though these effects are insignificant (see appendix, table A.6.8).

Turning to the question whether the selected family policy measures are also capable to explain part of the observed cross-national variation in the gen-

der slope, the cross-level interactions confirm some of the prior assumptions: particularly in countries with generous childcare support for youngest children (0-3), the average negative gender effect is reduced and women have a higher likelihood to be employed in a management position.

This effect also remains significant with the inclusion of parental leave which has an insignificant effect. The cross-level interaction of the gender empowerment measure is negative but insignificant. In this context, the more sophisticated measures of 'gender equality' also confirm this negative but insignificant association (see appendix table A6.8). However, when combining finally all indicators in one model M8c, some changes occur: the negative average effect of high childcare support for children aged 3-6 is rendered insignificant, whereas the average distribution of persons across management positions is positively and significantly associated with countries providing a high childcare support for the youngest age group. A negative effect comes to the fore when at the same time, a high gender empowerment is observable. With respect to the cross-level interactions, the already-discussed positive effect of childcare support for the youngest age group is intensified. Furthermore, the positive effect for parental leave becomes significant. This indicates that in countries with a high childcare coverage for youngest children, and with a generous parental leave system, the average negative gender effect is significantly reduced.

This also becomes visible when comparing the standard deviations of model M3 with those of M8c. The reduction by 0.02 indicates that the cross-national variation in the gender slope for being in a management position varies in 95% of the cases only between -0.49 and -1.05 instead of -0.37 and -1.17.

The last group of indicators (see models M5d to M7d, table 6.13) measuring societies' 'gender culture' shows that only one measure of the aspect of 'access' has a significant negative influence on the average distribution of employed persons across management and non-management positions. In countries with a high share of persons disagreeing that men's domain is work and women's the home and children, persons are on average less often employed in management positions ($=e^{-0.02}$). As to the aspect of 'motherhood', none of the selected measures has a significant influence, even though the negative signs point towards a lower average distribution of persons across management positions. With respect to the cross-level interactions and the question whether these indicators are also important for the explanation of cross-national differences in the gender slope, neither the measures of 'access' nor of 'motherhood' contribute to the understanding of cross-national variation in the gender slope. This also holds when all indicators are included in one model M7d.

Table 6.13: Results (hierarchical logistic regression) for the division between management and non-management positions - 'gender culture' indices

	M5d	**M6d**	**M7d**
Intercept	-1.37***	-1.37***	-1.37***
	(0.09)	*(0.10)*	*(0.07)*
Fixed effects			
Individual level			
Women	-0.78***	-0.77***	-0.77***
(ref. men)	*(0.05)*	*(0.05)*	*(0.04)*
Country level			
Right[a]	0.02		0.01
	(0.008)		*(0.01)*
Division[b]	**-0.02*****|		**-0.03*****
	(0.006)		*(0.006)*
Suffer[c]		-0.008	**0.02***
		(0.008)	*(0.009)*
Childcare[d]		-0.02	-0.01
		(0.011)	*(0.008)*
Cross level			
Right*women	0.003		0.001
	(0.004)		*(0.005)*
Division*women	-0.003		-0.006
	(0.003)		*(0.004)*
Suffer*women		0.001	0.007
		(0.004)	*(0.005)*
Childcare*women		-0.002	-0.001
		(0.005)	*(0.005)*
Random effects			
Var *(intercept u_{0j})*	0.15	0.22	0.10
	(0.05)	*(0.07)*	*(0.03)*
Var *($women_j$)*	0.04	0.04	0.03
	(0.01)	*(0.01)*	*(0.01)*
Covar *(u_{0j}, $women_j$)*	0.04	0.05	0.02
	(0.02)	*(0.02)*	*(0.01)*

*$p < 0.05$, * $p < 0.01$, ** $p < 0.001$,***; standard errors are in parenthesis, N (individual level) = 250,237 for management vs. non-management positions, N (country level) = 21*
Notes: a) Right of women to work if jobs are scarce, b) Women=child and men=work, c) Child suffers if the mother works, d) Men should do more childcare
Source: EULFS 2004/2005, own calculations

6.4.3. Variance components - what does the institutional context explain?

Also for this segregation outcome, finally, the question should be raised whether the micro- and macro-level variables included in the analyses are able to explain the cross-national differences in the distribution of persons across management and non-management positions and the differences in the observed gender gap (see table 6.14). The variation at the macro level for the distribution across management and non-management positions is at a low level of 5% (M0). This implies that only 5% of the variance of the distribution of persons across management positions can be attributed to country-specific contextual factors. Nevertheless, it seems interesting that the selected indicator groups have quite different explanation power varying between 33% (family policy indicators) and 58% (cultural indicators). In this respect, particularly the 'gender culture' of countries but also 'characteristics of the educational system' seem to be central to the understanding of the general distribution of persons across management and non-management positions.

Table 6.14: Variance components (random slope models) for holding a management or non-management position

	1	2	3	4	5	6	7
Random Slope							
Var *(u_{0j})*	0.17 *(0.05)*	0.24 *(0.08)*	0.16 *(0.05)*	0.14 *(0.04)*	0.15 *(0.05)*	0.16 *(0.05)*	0.10 *(0.03)*
R^2	**5%**		**33%**	**42%**	**40%**	**33%**	**58%**
Var *($women_j$)*		0.04 *(0.01)*	0.03 *(0.01)*	0.04 *(0.01)*	0.02 *(0.01)*	0.02 *(0.01)*	0.03 *(0.01)*
R^2			**25%**	**0%**	**50%**	**33%**	**25%**
Covar *(u_{0j}, $women_j$)*		0.05 *(0.03)*	0.02 *(0.02)*	0.04 *(0.02)*	0.02 *(0.02)*	0.01 *(0.01)*	0.02 *(0.01)*

Notes: 1=zero model, 2=only individual-level variables, 3= individual+segregation regime variables, 4=individual+educational variables, 5=individual+post-industrial variables, 6=individual +family policy variables, 7=individual+gender culture variables
Source: EULFS 2004/2005, own calculations

With respect to the variance components of the random slope and cross-level interaction models, a different picture can be drawn. The results indicate that educational factors are less important for the explanation of the observed cross-national variance in the gender slope, while post-industrial and family policy indicators explain around 50% and 33% of the aforementioned variation in the gender slope.

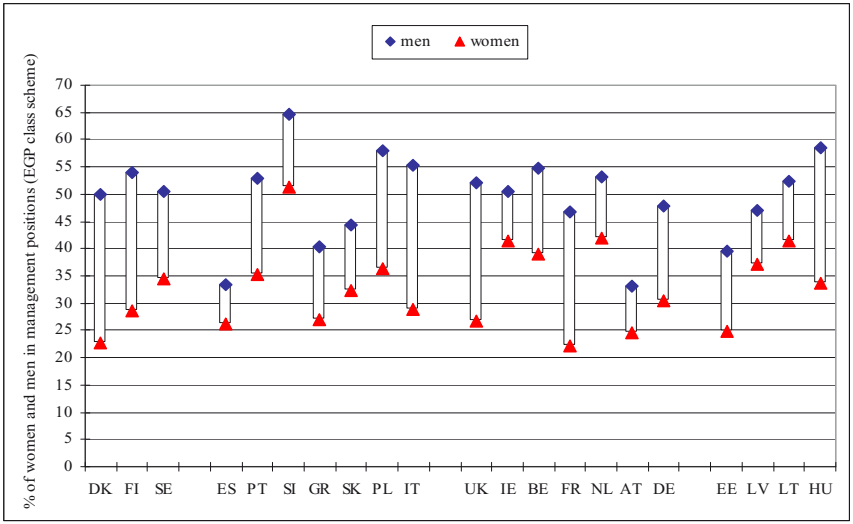
6.4.4. Sensitivity analyses applying a broader definition of management positions

As already indicated in this chapter, there is an ongoing debate on the level of comparability and standardisation of the classification of management positions across countries. On the basis of this debate, it may be argued that management and supervisory roles are not only to be found in occupations belonging to the ISCO88 group 1 but also in other occupations, like the professionals.[176] This seems of particular interest for the present analyses because it has been shown in chapter 4 that highly educated women are often represented in professional occupations. Therefore, it seems advisable to test whether the above-described findings can be confirmed on the basis of a broader definition of management positions. For this purpose, the EGP class scheme is used defining management/high-class positions as the so-called 'high service class I' (higher grade professionals, administrators, and officials; managers in large industrial establishments; large proprietors).

The bivariate descriptive results following from the broader concept of management positions reveal that, in comparison with the former definition (group 1 ISCO88), a higher overall share of men and women with a tertiary degree reaches management positions. Nevertheless, the differences between women and men remain. Only in some countries, like Estonia, Latvia and Slovakia, gender differences are reduced. In Ireland, Spain, Slovenia, Belgium, the Netherlands and Austria, however, the differences persist. In the rest of the countries, the distribution of men and women across management positions becomes more unequal.

[176] It should be pointed out that even official reports of the European Commission (2008) and the ILO (2007) concerning women's under-representation in management positions base their analyses on the ISCO88 group 1. However, as these institutions are also aware of the problem, they compensate the lack of comparable micro-data with additional, more detailed macro-data.

Figure 6.5: Percentage of women and men in management positions (EGP class scheme, tertiary degree, age 20-64), 21 EU Member States, 2004



Source: EULFS 2004/2005, own calculations

As the aim of the present sensitivity analysis is to test whether the already-described findings for the explanation of cross-national differences in the distribution of men and women across management positions can be confirmed also on the basis of a broader definition of management positions, only the results of cross-level interaction effects will be summarised and discussed in more detail (for a complete overview of the results, see tables A6.9-A6.14 in the appendix).

The modelling follows the same logic applied previously: the intercept and slope of the variable 'gender' are modelled as a function of the established macro-level characteristics: educational systems (table A6.10 in the appendix), post-industrial developments (table A6.11 in the appendix), family policies (table A6.12 in the appendix) and 'gender cultures' (table A6.13 in the appendix). The macro-level factors are group-wise introduced in order to identify the institutional features of countries which enhance or reduce vertical sex segregation.

Before turning to macro-level factors, the variance component (M0) and random slope (M2) models still confirm a systematic cross-country variation. However, the slightly reduced value (see table A6.14. in the appendix) indicates that only 3% of the country variation of the unequal distribution of persons

across management positions can be explained by contextual factors. With respect to individual level factors, most of the previous effects are confirmed. Only in the case of two effects - a higher tertiary degree and a male field of study - the signs change. Accordingly, persons with a higher tertiary degree and with a degree in a typically male field of study are more likely to be in management positions.

Turning to the defined sex segregation regimes, as a first set of macro-level factors, the findings for the cross-level interactions reveal that none of the defined sex segregation regimes is able to explain the cross-national variation in the gender slope (see table A6.9. in the appendix). This has already been observed in the previous analysis based on a narrow definition of management positions. With respect to the detailed analyses of selected macro-level factors, and the question in how far these factors are capable to explain part of the observed cross-national variation in the gender slope, the broader definition confirms the previous results that none of the selected educational and 'gender cultural' variables account for the cross-national gender variation in the distribution across management positions (see table A6.10 and A6.13 in the appendix). Also in the case of family policy measures, the selected variables are less relevant to the explanation of cross-national variation in the gender slope in comparison to the situation following from a more narrow management definition (see variance components table A6.14 in the appendix). This is additionally supported by the fact, that none of the previous effects (childcare, parent) remains significant (see table A6.12 in the appendix). Post-industrial measures indicate a similar development. The results for a broader definition of management positions show that the significance of the previous 'public' and 'rigidity' effects vanishes. However, including all post-industrial indicators in a final model (M8b, table A6.11 in the appendix), the previous insignificant and negative 'service sector' effect is strengthened. This indicates that countries with a growing service sector are significantly associated with a lower chance of women to be in a management position. Moreover, the previous 'rigidity' effect is rendered insignificant, while the insignificant effect of 'part-time' becomes significant. In this respect, however, the results seem to be driven by the high correlation between the indicators of 'service sector' and 'part-time' (see footnote 162 and appendix table A6.2). The significance cannot be confirmed when excluding one of the aforementioned indices from the analyses.

Against this backdrop, the sensitivity analyses indicate that only some of the results are also applicable to a broader definition of management positions. With regard to both definitions, educational and 'gender cultural' indicators are less meaningful for the explanation of cross-national variations in the vertical dimension of occupational sex segregation. However, with respect to the fin-

dings for post-industrial and family policy measures, the significant effects of the narrow definition are diminished.[177]

6.4.5. Summary

In sum, the findings for the vertical segregation outcome(s) reveal that part of the observed cross-national differences in the unequal distribution of men and women across management positions can be explained by the selected macro-level indicators. With respect to results for the narrow definition of management positions (first group of the ISCO88), neither educational nor cultural factors are influential, while family policies as well as post-industrial indicators are important. The findings for family policies reveal that the variation between countries in the distribution of women across management positions is significantly influenced by high childcare coverage for youngest children. It seems that countries offering generous childcare services for youngest children also tend to have more women in management positions. When including further indicators in the analysis, this effect is even strengthened in countries with generous parental leave schemes and a high gender empowerment. In this latter constellation, generous parental leave also contributes significantly to the explanation of the cross-national variation in the distribution of men and women across management positions.

As mentioned above, the cross-national variation in the gender slope is also significantly influenced by post-industrial measures. In particular, the 'rigidity' of labour markets seems to be crucial. In countries where a high share of persons stay longer than 20 years with the same employer, the average negative gender effect is strengthened. This mainly supports the assumption that a rigid labour market leads to a 'primary', predominantly male labour market segment that can hardly be accessed by women. A further significant factor is the female share in public sector employment. The result indicates that there is a positive association between a high share of women in public sector employment and a higher tendency of women to be employed in management positions. Even though no concrete assumptions have been expressed in this regard in the present study, this finding is in line with previous research (Blossfeld and Becker 1988, Becker 1993, Gornick and Jacobs 1998) suggesting that the public sector might serve as a comfortable female 'niche' where equal employment opportu-

[177] Very similar results can be observed when a concept is applied in the analysis that distinguishes between management (without ISCO88 group 2) vs. non-management positions on the one side, and professional vs. non-management positions (without ISCO88 group 1) on the other side.

nities are required by law. However, it is not surprising that the significance of this effect diminishes when 'flexibility' and 'rigidity' measures are included in the analysis. Part-time and/or temporary jobs are often assumed to be an obstacle to women's representation in management positions even in the public sector.

The sensitivity analysis has shown that the results for the vertical outcome have to be interpreted with caution. The observed results can only provide an answer to the question in how far contextual factors are able to explain the cross-national variation in women's and men's access to management positions in one specific occupational group. However, when 'management' is defined in a more functional and broader way (including, for instance, the occupational groups 1 and 2 of the ISCO88) the shortcomings of the used data, not allowing for an adequate operationalisation of management positions, come to the fore.

Even though the results do not confirm the conducted analyses of vertical sex segregation based on a narrow definition of management positions, it would be premature to conclude that the selected indicators are inappropriate for the explanation of cross-national gender variation. Instead, they should be tested on more detailed micro data offering detailed occupational variables as well as more variables measuring the work relation and the work context.

6.5. Discussion and conclusion

In this chapter, it has been investigated to what extent national institutional arrangements concerning the educational system, post-industrial developments, family policies and different 'gender cultures' affect the two dimensions of occupational sex segregation in 21 EU Member States. The central aim was to examine whether the cross-national variation in the distribution of women and men holding a tertiary degree across typically, atypically and integrated occupations as well as management and non-management positions, can systematically be related to the aforementioned contextual factors.

The descriptive overview reveals a strong significant gender effect for all analysed segregation outcomes: as expected, in comparison to men, women are over-represented in typically female occupations. Moreover, they are less often in management positions. The overview also shows that the extent to which women are distributed differently across occupations and management positions varies across countries. In other words, women's chances on the labour market in terms of occupational distribution and career prospects are determined by the institutional setting of a given national system. The challenge, therefore, is the identification of the reasons underlying these differences between countries.

Using multi-level analysis, three different segregation outcomes have been analysed: distribution across typically female occupations (feminisation), distribution across typically male occupations (masculinisation) and the distribution across management positions.

Horizontal inequalities - Feminisation of the labour market

As to the cross-national variation in the feminisation of the labour market, three institutional factors are of particular importance: the female labour force participation rate, the share of overall part-time employment and a high share of persons in society supporting the equal access of women to the labour market if jobs are scarce. With respect to the hypotheses drawn at the beginning of this chapter, H2a is confirmed insofar as the results show that in countries with a high female employment rate, women have a higher chance to be employed in typically female occupations (see following table 6.15).

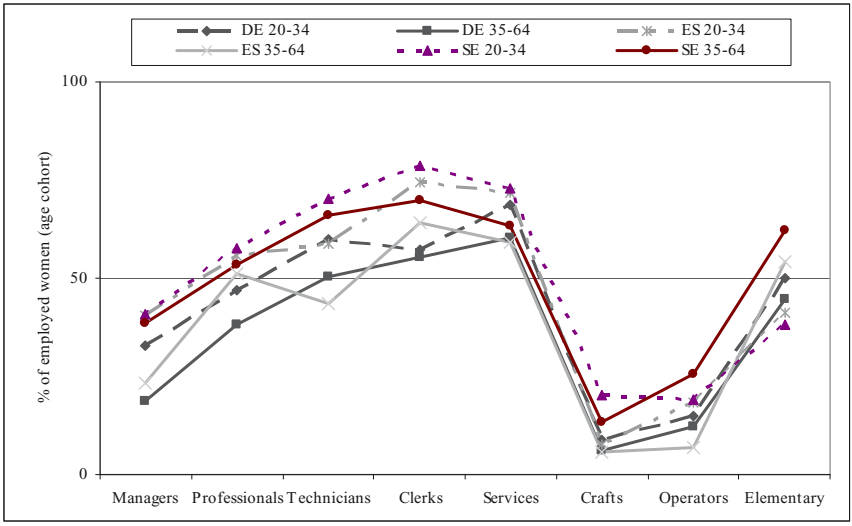
Table 6.15: Results for the hypotheses with regard to cross-level interactions

Hypotheses	**Feminisation**	**Masculinisation**	**Management narrow**
1a) Vocational	Positive / Negative	Negative / Positive	N.I.
1b) Tertiary	Positive / Positive	Negative / Positive	N.I. but Positive
1c/e) Atypial	Negative / Positive	Positive / Positive	Positive or Negative / Positive
1d) Short	N.I.	N.I.	Negative / Positive
2a) FER	Positive or Negative/ **Positive** ✓	Negative or Positive / Negative	Negative / Positive
2b/f) Service	Positive / Negative	Negative / Negative	Negative / Negative
2c) Public	Positive / Negative	Negative / Positive	N.I. but **Positive**
2d/g) Part	Positive / **Negative**	Negative / Positive	Negative / Negative
2e/g) Length	Positive / Positive	Negative / Negative	Negative / **Negative** ✓
2h) EPL	N.I.	N.I.	Negative / **Negative** ✓
3a/c) Child3	Positive / Positive	Negative / Positive	Positive / **Positive** ✓
3a/c) Child6	Positive / Negative	Negative / Negative	Positive / Negative
3b/d) Parent	Positive / Positive	Negative / **Positive**	Negative / **Positive**
3e) GEM	Negative / Negative	Positive / **Negative**	Positive / Negative
_add Prohi	Positive / Negative	Negative / Positive	Negative / Positive
_add Equal	Negative / Positive	Positive / Positive	Positive / Negative
4a) all aspects equal	Negative / not found	Positive / not found	Positive / not found
4b) all aspects vary	Positive / **Positive** and Negative	Negative / **Negative** and Positive	Negative / Positive and Negative

Note: The table can be read as follows: hypothesis/result (italic = insignificant, fat= significant, ✓ = hypothesis verified, N.I. no specific hypotheses has been indicated)

It is hard to determine in how far this process is driven by women increasingly entering already-existing typical female occupations (occupational niches), or a general increase in the feminisation of the labour market. However, the following figure 6.6 indicates that both factors might influence this development:

Figure 6.6: Patterns of occupational sex typing by age cohort, selected EU Member States (share of employed women, ISCO88 1-digit without agriculture), 2004



Source: EULFS 2004/2005, own calculations

Considering the occupational distribution of women in different age cohorts, integration and feminisation trends can be observed particularly in the non-manual labour market (managers, professionals, technicians, clerks and services). This is due to the fact that younger women are increasingly entering typically male occupations, thereby enhancing the integration of the labour market. They are also entering formerly 'integrated' occupations that are now tipping towards feminisation. Finally, they also choose already-existing female niches which become 'hyper-feminised'. However, the picture also shows that these trends apply to a lower extent to the manual sector of the labour market (crafts, operators and elementary occupations). Here processes of integration seem to be slower. For occupations like crafts and operators, a higher educational degree is not necessarily required. These considerations may additionally

indicate that, irrespective of the observed persistent level of horizontal sex segregation, there is constant occupational change in the labour market. The impression of stability might predominantly be due to the inadequate analysis of the phenomenon with an aggregated measure, such as the index of dissimilarity (see chapter 3 and 4).

With respect to a higher share of overall part-time employment, hypothesis H2c has to be rejected. The assumption that a high overall part-time employment also increases the feminisation of the labour market is not confirmed. Instead, the findings suggest that in countries with a higher overall share of part-timers, women are more often employed in integrated occupations. As already emphasised, this might be due to the fact that part-time is not so much stigmatised as 'typically female' in societies where part-time employment not only serves the inclusion of 'mothers' but also, for instance, the reduction of unemployment that would otherwise be higher.

As to the question in how far the 'gender culture' impacts on cross-national differences in the gender slope, it has been argued that various factors may be important. However, the results show that measures related to enhanced gender equality tend to have different effects on the feminisation and masculinisation of the labour market. Furthermore, the two aspects of 'access' and 'motherhood' which reflect a 'general' awareness of gender equality, point in different directions in both analyses of horizontal sex segregation. This contradicts hypothesis H4a, according to which countries with a high 'general' awareness of gender equality should distribute women and men more equally across occupations. In respect of the distribution of women across typically female occupations, particularly the indicator of 'equal' access has a positive significant effect. It seems that the feminisation of the labour market is associated with countries where a high share of persons disagrees that men have more right to work if jobs are scarce. Even though the result is not in line with the expectations, it seems plausible when critically assessing the indicator. Apparently, it captures an overall attitude of 'gender equality' in society rather than women's equal right to work in typically male occupations.

Horizontal inequalities - masculinisation of the labour market

With respect to institutional characteristics supporting desegregation tendencies and women's access to typically male occupations, different factors prove to be crucial. First, factors belonging to the area of family policy play a decisive role. When all family measures are considered, the results indicate that countries with a generous parental leave system are associated with a higher chance of women

to be employed in typically male occupations, whereas the opposite effect can be observed for the gender empowerment measure. This contradicts the expectations formulated in H3b and H3e. However, the result for the gender empowerment measure becomes understandable when considering that the empowerment of women often takes place in typically female areas of the labour market. Women's empowerment as such, therefore, does not necessarily open male occupational domains.

The second group of crucial factors concerns the 'gender culture'. In a highly 'equalised' nation, the different aspects of gender equality affect the distribution of women and men across occupations differently and sometimes with contradictory effects. With respect to the masculinisation of the labour market, the study has shown that a higher share of persons questioning the traditional division of working spheres of men and women (one 'access' indicator), is not automatically accompanied by a higher integration of women into typically male occupations. Again it becomes apparent that an attitude promoting the equal division of tasks between men and women need not necessarily facilitate women's access to typically male occupations. It may simply be the product of given individual circumstances and needs rather than a reflection of a general higher belief and awareness of gender equality.

Vertical inequalities - management positions

With respect to the vertical aspect of occupational sex segregation, post-industrial and family policy indicators are central to the question why countries differ with respect to the distribution of men and women across management positions. The analyses, for instance, show that the rigidity of the labour market is a crucial factor for the explanation of the observed cross-national variation in the unequal distribution of women and men across management positions. This supports H2g and the assumption that rigid labour markets are divided into a 'primary' and a 'secondary' segment. Women who have difficulty in entering the 'primary' market face lower career prospects. A further interesting finding is related to female public sector employment. It seems that countries with a high female participation rate in the public sector are likely to offer women an occupational career 'niche'. However, the inclusion of flexibility and rigidity measures renders this effect insignificant. This indicates that, even within such a 'niche', part-time employment and high job security are counteracting forces to female careers.

With respect to family policy measures, childcare provision for youngest pre-school children appears to be associated with a higher representation of

women in management positions which confirms H3c. However, when considering all family policy factors, also generous parental leave seems to have a positive association with a higher share of women in management positions. This contradicts the expectations expressed in H3d. However, the outcome might indicate that, in combination with appropriate childcare facilities, the option to stay longer out of the labour market loses its attractiveness for highly-educated women. Even though the underlying causality cannot be examined adequately with the available data, the findings suggest that countries with generous childcare facilities for youngest children have more success in offering career-oriented women the possibility of reconciling career development with a family. This is an important policy finding because it shows that systems which support female high potentials seeking to combine work and family are likely to have lower levels of vertical segregation.

Concluding remarks

In conclusion, the analysis has shown that the extent to which women and men focus on different occupations and positions on the labour market varies significantly across countries. In some national contexts, there is a much closer association between sex and occupation, while in other contexts this link is somewhat weaker. The strength of the association itself reflects the individual national setting. Key features of national institutional contexts are found to shape the distribution of women and men across occupations and management positions. In this respect the chapter confirms the importance of distinguishing between different dimensions of occupational sex segregation. For each dimension, a different set of macro-level factors is central to the explanation of cross-national differences with respect to sex. Feminisation tendencies are, for instance, associated with post-industrial developments, while family policies may facilitate women's access to male-dominated occupations. The situation of women in management positions is particularly shaped by post-industrial factors.

In this context, it is also important to recognise that, as in the case of 'gender cultural' factors, one measure might encourage the masculinisation and the feminisation of the labour market simultaneously. Furthermore, while some of the selected factors can be employed to reduce horizontal segregation, they might at the same time have the opposite effect on the vertical aspect. This interplay of factors has to be taken into account when policy makers are calling for a fundamental reduction of occupational sex segregation without distinguishing the different dimensions and influence factors underlying the phenomenon.

Finally, the limits of the analyses have to be mentioned. With respect to the findings concerning a country's 'gender culture', it remains unclear whether positive attitudes towards gender equality lead to a higher sensibility with regard to gender equality in society. These attitudes are measured by the two distinct aspects of 'access' and 'motherhood' in the current analyses. The observed divergent attitudes even within these two aspects might be the result of given realities which persons are facing in their work and family lives rather than the cause of a higher awareness of gender inequality. This might also be due to the fact that cultural beliefs about the appropriate role of women and men within society, as mentioned above, vary from person to person and can hardly be summarised in one common definition or notion of gender equality. While one person might regard women's labour market participation per se as an important step towards gender equality, a feminist may have more radical visions of a 'gendered' labour market.

A further problem arises with regard to the vertical analyses. It concerns the lack of comparable micro data enabling a standardised definition of management positions. The applied alternative operationalisation following the EGP class scheme is problematic because the EULFS data include occupational categories on an ISCO88 level that is less detailed than required. Furthermore, the EULFS lacks information on a number of important subordinates which are important for an appropriate application of the class scheme (for a detailed application, see Ganzeboom and Treiman 1996). As a consequence, the results of the vertical outcome have to be interpreted with caution. In this respect, detailed micro-level analysis on the basis of more detailed data would be needed.

Furthermore, it has to be underlined that the present study describes the aggregated results of rather complex personal selection processes which are embedded in an individual social context as well as a specific institutional framework. Therefore, the potential for disentangling the interplay of these factors and understanding cross-national differences is limited. With the analytical strategy adopted in this chapter, and the cross-national data used, it is not possible to scrutinise the complex processes occurring at the individual level that lead to the observed segregation patterns within a country. Such detailed micro-level analyses may be conducted in future research, especially including a wider variety of individual level variables devoting particular attention to the interrelation between educational choices and occupational segregation outcomes.