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Research Report

Working women and labour market inequality. Research project for the Wilfried Martens Centre for European Studies: Final report - July 2018

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Research Report

RWI – Leibniz Institute for Economic Research

Working Women and Labour Market Inequality

**Research Project for the Wilfried Martens Centre
for European Studies**

Final Report – July 2018



Imprint

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Research Report

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Working Women and Labour Market Inequality

Research Project for the Wilfried Martens Centre for European Studies

Final Report – July 2018

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Working Women and Labour Market Inequality

**Research Project for the Wilfried Martens Centre
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Executive Summary

This report provides an overview of the gender gap in labour market participation across EU countries, its determinants, as well as policies aimed at improving gender equality in the labour market. In doing so, we explore in detail four factors, i.e. education, taxes, childcare provision, and cultural and historic norms, focussing on four case study countries which represent different regions and feature diverse institutional characteristics. Against this background, the report proposes key actions that are likely to reduce the gender gap in labour market participation across the European Union.

The situation with respect to the gender gap in labour market participation is as follows:

- The gap is large. While men display a participation rate of 78.5% in 2016, women only reach a rate of 67.3%.
- Differences between countries are large. The labour market participation rate of women ranges from around 55% to over 80% across EU countries.
- Differences between socio-economic groups also play an important role. Older and less-educated women, for example, have the lowest participation rates. The household context matters, too.

Looking at factors that determine the participation rate shows:

- There is a positive relationship between the provision of childcare facilities (both in terms of quantity and of affordability and accessibility) and maternal labour market outcomes.
- The tax system, particularly joint taxation, often constitutes a barrier for women to enter the labour market.
- Educational outcomes are not a reason for a gender gap amongst younger generations. However, the school-to-work transition often leads to such a gender gap.
- Cultural norms play an important role as they determine the division of work within households, with important differences between education levels.
- Higher labour market participation rates of women are likely to generate financial benefits both in the short run, e.g. through increased tax revenues, and in the long run through better career prospects leading to higher wages and higher productivity of female workers.

Key actions likely to improve gender equality in labour market participation are as follows:

- Further expand the availability of and secure access to affordable good-quality childcare.
- Provide properly designed parental-leave schemes and flexible work arrangements for both women and men.
- Remove work disincentives to women engaging in the labour market without exerting undue financial pressure on parents who choose to stay at home to take care of the children.
- Further foster the educational level of women in the EU, and facilitate the first labour market entry of women, e.g. through vocational training.
- Promote positive perceptions of gender equality through the education system.

It is argued that it will be most beneficial to implement such policies in a way that they are tailored towards the institutional and cultural settings in each country as well as to specific groups of workers. The role of the EU should be to set overall objectives and to define minimum standards.

1. Introduction

Gender equality is one of the core principles of the European Union as stipulated for example in Article 2 of the Treaty of the European Union. This includes equality between men and women in the labour market. However, gender equality in the labour market is far from having been achieved. For example, in the EU as a whole, women's gross hourly earnings were 16.2% below those of men in 2016 (Eurostat, 2018). While this gender pay gap is frequently addressed, the gap in labour market participation rates between men and women is often overlooked in the public and policy debate. Yet, although this gap has been shrinking in many EU countries in recent years, it is still high, differing strongly between countries. In 2016, for the EU as a whole the participation rate of women amounted to 67.3%, whereas the corresponding rate for men amounted to 78.5%.

Reducing the gender gap in the labour market ranks highly on the political agenda because it has a number of positive implications:

1. At the individual level, the well-being of women is positively affected for those who would like to participate more in the labour market but were previously unable to do so.
2. Women's financial independence increases, which prevents the risks of poverty and social exclusion. The latter risks may especially arise when adverse working conditions over the life course (lower pay, occupational gender segregation, part-time employment and career interruptions due to childcare) result in reduced pension entitlements (European Commission, 2018).
3. At an aggregate level, a larger labour force generally implies higher employment, which is beneficial to the productive capacity of the economy. This means that a lower participation gap, i.e. a higher participation rate of women, has the potential to increase growth rates in the European Union and boost the long-term competitiveness of the European Union. For example, the Nordic countries gained from a higher share of working women in terms of economic growth (OECD, 2018). This is all the more important in the light of the ongoing demographic change, i.e. a shrinking workforce because of population ageing. Given that significant shortages of skilled labour may emerge in the future because of ongoing technological progress, activating the work potential of women by ensuring gender equality appears to be a promising way to enable sustainable growth.
4. Lower female employment rates imply higher costs because of missed public revenues. This is particularly the case when looking at education, where one can observe high enrolment rates by women, which do not fully translate into beneficial labour market outcomes. Higher costs and foregone revenues also arise through public finance costs, such as transfer payments and social benefits, as well as lacking contributions to the social security system.
5. Promoting labour market equality can contribute to an economic convergence between Member States and thus a stronger cohesion of the European Union.

While there are many studies analysing the determinants of the gender gap in labour market participation for specific countries, there are far fewer studies when it comes to cross-country comparisons. This report therefore tackles this issue taking an explicitly international perspective. In order to do so, we first provide a number of labour market indicators at the national and at the EU level. Second, we explore in detail four factors that potentially explain the gender gap in labour force participation across countries, i.e. education, taxes, childcare provision, and cultural and historic norms. In doing so, we focus on four case study countries which represent dif-

ferent regions and feature diverse institutional characteristics: Germany, Italy, Poland and Sweden. This allows us to focus on specific institutional details and to take into account potential interplays between the factors considered. The final section of the report summarises the main findings and proposes key actions that are likely to reduce the gender gap in labour market participation across the European Union.

2. Women's labour market position in European Union Member States

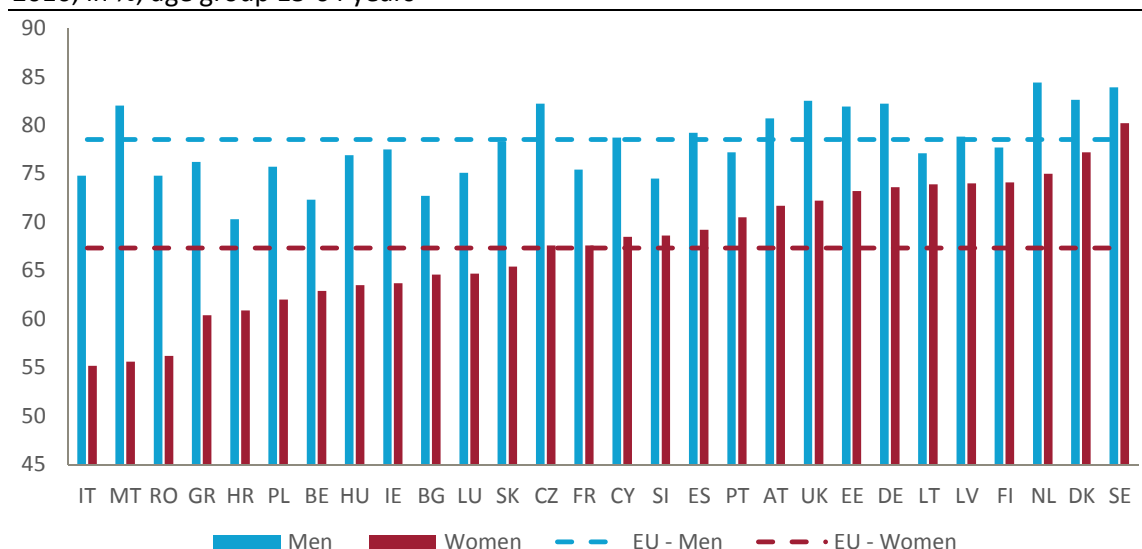
While the previous chapter has shown how severe the economic consequences of gender inequality on individual and national level are, this chapter provides a comparative analysis of the current labour market situation of women in the European Union along several dimensions.

2.1 Participation rate and working time

To start with, Figure 2.1 presents the labour market participation rate among 15 to 64 year old women and men across EU Member States in 2016. The labour market participation rate is the ratio of the labour force over the working age population and therefore indicates the pool of labour available within a country, which is either working or actively looking for a job. Additionally, the Figure displays the EU-wide average for women and men, which allows to compare whether single states deviate from the EU-mean. For the European Union as a whole, women reach a labour market participation rate of 67.3% and men a rate of 78.5%. In other words, women do not reach or exceed the participation rates of men, neither in average terms nor in a single country. With respect to women, countries such as Belgium (62.9%), Italy (55.2%) or Romania (56.2%) are below the EU-wide average, whereas the Czech Republic, France or Spain feature rates that are in line with the EU-mean. The remaining countries outperform the general picture, which is especially true for Denmark (77.2%), the Netherlands (75%) and Sweden (80.2%).

Figure 2.1

Labour market participation rates
2016; in %; age group 15-64 years



Source: Eurostat (2018), Indicator: *lfsa_argaed*.

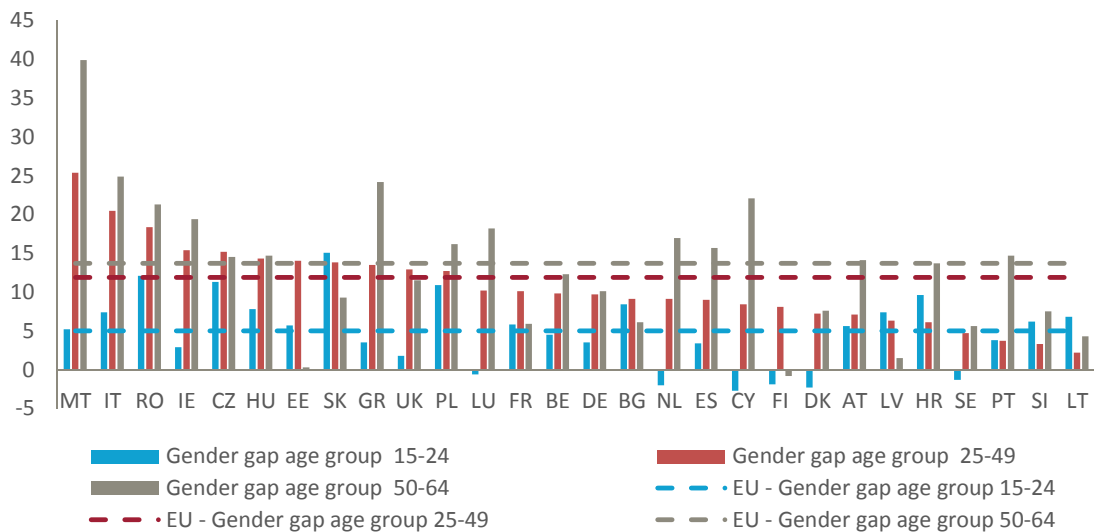
A low female labour force participation rate may correspond with general problems on the respective labour market that also relate to low male labour force participation rates. However, this is only partly true. On the one hand, one can make the observation that those countries with below, average or above – average female labour force participation rates rank similar in terms of male labour force participation rates. Here, the EU-average is 78.5%. Again, Belgium, Italy and Romania show considerable lower rates, while the Czech Republic, France and Spain hover around that value. Once more, Denmark, the Netherlands and Sweden are leading the country sample in terms of male labour force participation. On the other hand, there is a number of countries in which female and male labour force participation rates go in the opposite with respect to the deviation from the EU-wide mean. For instance, Slovenia shows a considerably lower share of male labour force participation of 4 percentage points, but is 1.3 percentage points above the EU-mean in terms of female labour force participation. In contrast, Malta performs well in terms of male (3.5 percentage points above – average) but with a lot of room for improvement in terms of female (11.7 percentage points below – average) labour force participation. Finally, Figure 2.1 provides a first impression of the gender gap in labour market participation rates. This gap varies immensely across countries, from Malta with 26.4 percentage points to Lithuania with 3.2 percentage points.

Figure 2.1 illustrates the labour market situation by gender for the age group of those between 15 and 64 years old, which might be misleading. First, an important reason for this is that the gender gap in labour market participation rates decreased during the last decades. That is, while older generations displayed higher gaps, these differences – albeit still existing – became considerably smaller for younger generations. This convergence can probably be explained by, for example, a better infrastructure of childcare and changed norms and values with respect to working women. Further reasons include higher levels of education, a shift in the demand for products to the service sector and new technologies in household production that save time (Fitzenberger et al., 2004).¹ Second, the labour force participation rate of younger cohorts might be driven by their entry into the labour market, especially their transition from education to employment, and that of older cohorts might be influenced by retirement decisions.

Against this background, Figure 2.2 sheds light on the gender gap of the labour market participation rate separately for different age groups. The gender gap is calculated as the male participation rate minus the female participation rate. Overall, the figure points to two important facts. First, it is visible that the gender gap differs by age cohort: While it is only 5 percentage points for the youngest cohort, it is close to 12 percentage points for those between 25 to 49 years old and peaks for the oldest cohort with 13.7 percentage points. This observation might be explained by two things. First, and as mentioned earlier, younger cohorts show smaller gaps than older cohorts. For more recent generations, the labour force attachment increased and converged to that of men.

¹ Albeit Goldin et al. (2006) investigate the catch-up of women in terms of education, their arguments do also apply to the labour market performance of women. According to the authors, women started to invest more in education because of better job market perspectives and a higher age at the time of their first marriage.

Figure 2.2
Gender gap in labour market participation rates by age group
2016; in %



Source: Eurostat (2018), Indicator: *lfsa_argaed*.

Second, and from an individual perspective, the impact of parenthood might be more persistent for the labour market careers of women than for men. The decision about having children or not goes typically together with career choices and promotions. Women, who typically take care of the children in their early life, do have to handle this employment interruption. Later on, they take huge responsibilities within the household (see Figure 2.7) that make it especially challenging to combine work and family life. This implies that younger women have higher participation rates than older women, i.e. participation falls over the life cycle. Figure 2.2 shows that in some countries, namely Cyprus, Denmark, Finland, the Netherlands and Sweden, women have even higher participation rates than men in the youngest cohorts. In addition, it appears that the variation across countries of the same age groups and across age groups within the same country is very large. The first is especially prominently documented for the middle age group, where the gap varies from 25.4 percentage points in Malta to 2.2 percentage points in Lithuania. The latter is for example displayed for Greece, where the gender gap is 3.5 percentage points for the youngest group and thus below the EU-average of 5 percentage points, 13.5 percentage points for the group of 25 to 49 years old (EU-average of 11.9 percentage points) and then nearly doubles for the oldest cohort to 24.2 percentage points (EU-average of 13.7 percentage points).

The reasons for these variations can be manifold. The labour market participation of the youngest group will be particularly determined by the transition from education into the labour market. For the oldest cohort, retirement decisions and thereby their transition out of employment is crucial. Within this chapter, we will – if possible – focus on the group of 25 to 49 year old due to a number of reasons. On the one hand, this middle age group should have entered the labour market after having completed their education. Furthermore, their labour supply should not or at least less be affected by retirement decisions. Put differently, this group is in their prime age of employment. For the group of 25 to 49 years, important cross country patterns are visible. Countries such as Ireland, Poland or the UK show a higher gender gap than the European average. Others, such as Belgium, France or Luxembourg feature a gap which is comparable to the EU-wide gap. Again, there is no country where the participation rate of women is higher than that

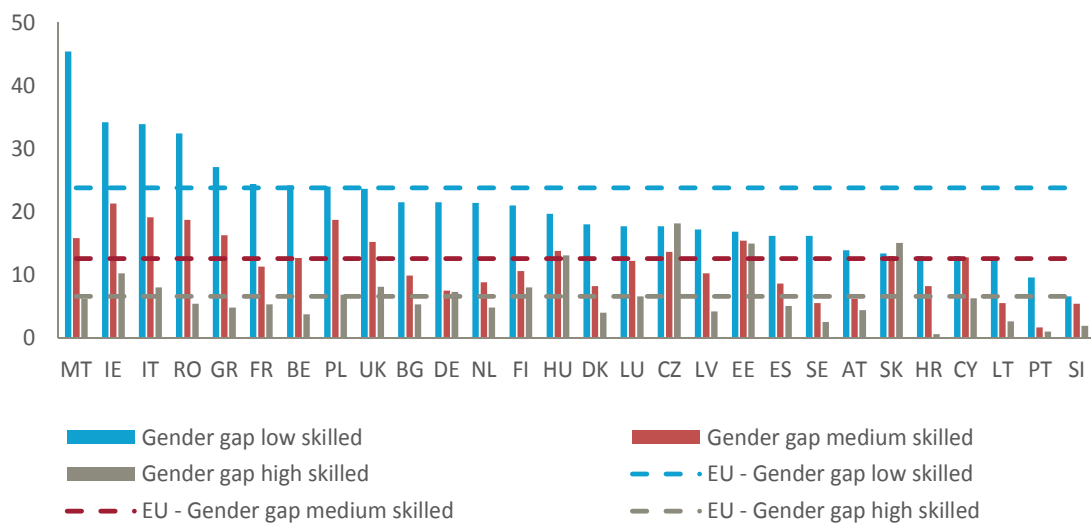
of men. However, this gap is at least smaller than 5 percentage points for Lithuania, Portugal, Slovenia and Sweden.

Focusing on the prime age group (25-49 years), Figure 2.3 reveals important heterogeneities across skill groups. For the European Union as a whole, the gender gap for low skilled is roughly 24 percentage points. This value halves for the medium skilled and is 6.6 percentage points for the high skilled. Overall, the gender gap of the high skilled is around one fourth of that of the low skilled. This can potentially be explained by the higher costs of education and skill acquisition for high versus low skilled. That is, women who invested more in their skills have higher incentives to work in order to receive returns on their investment. Furthermore, highly skilled women do on average also have lower fertility rates (i.e. Cygan-Rehm and Maeder, 2013), which corresponds to fewer employment interruptions and may also have partners who are high skilled, too and may have a higher probability to encourage their women to work.² However, there are also countries that differ from this EU-wide picture. In Estonia, Germany and Hungary, the gender gaps for the low and medium skilled are comparable. In the case of Slovakia, only small differences appear across all skill groups. Furthermore, it can be noted that the variation across European Union Member States is the highest for the low skilled, ranging from 45.4 percentage points in Malta to 6.6 percentage points in Slovenia. This range is considerably lower for medium skilled (21.3 percentage points in Ireland to 1.7 percentage points in Portugal) and high skilled (ranging from 18.2 percentage points in the Czech Republic to 0.6 percentage points in Croatia).

Figure 2.3

Gender gap in labour market participation rates by skill group

2016; in %



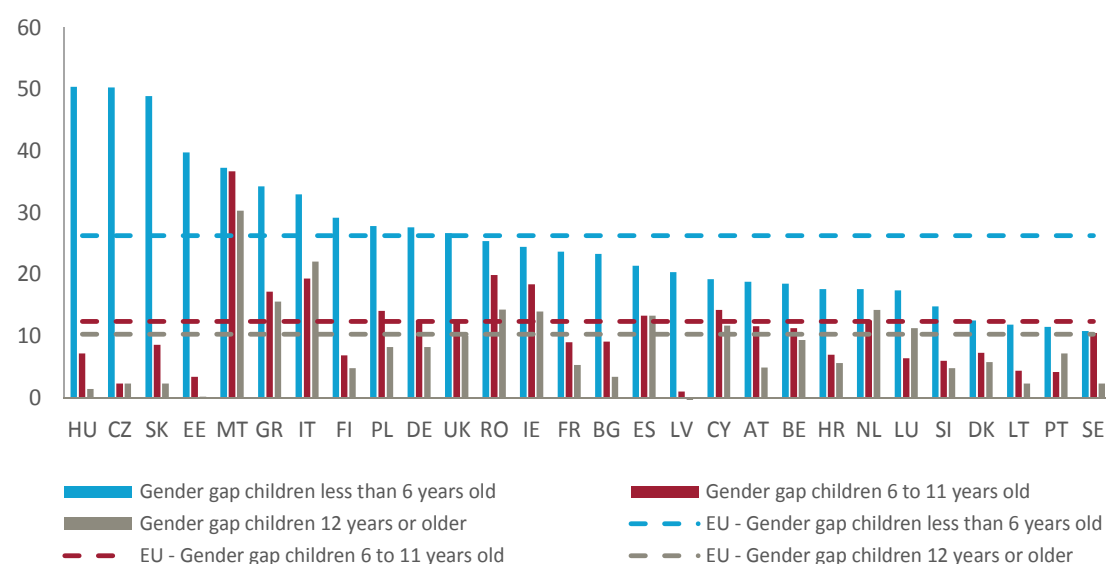
Source: Eurostat (2018), Indicator: *lfsa_argaed*.

² See for instance Bertrand et al. (2010) for an analysis on the effects of employment interruptions in the context of the gender-wage gap.

The increase of the participation gap between men and women over the life cycle can be explained by various factors. One important factor is the presence of children, as having children is related to mothers' return to the labour market after they gave birth (i.e. Schönberg and Ludsteck, 2014), differences in the childcare system³ (i.e. Baker and Milligan, 2008, for pre-school and Felfe et al., 2016, for after-school care) and the reconciliation of work and family life in general (i.e. Gregory and Connolly, 2008). Figure 2.4 shows the gender gap separately for parents with children who are younger than 6 years, between 6 and 11 years old and older than 12 years. The figure suggests that the gender gap is especially high (26.3 percentage points for the whole European Union) if young children are present in the household. This gap decreases to 12.4 percentage points for parents, whose children are in the middle age group, and amounts to 10.3 percentage points for the group with children older than 12 years.

Figure 2.4

Gender gap in employment rates by presence of children in the household
2016; in %



Source: Eurostat (2018), Indicator: *lfst_hheredch*.

Again, some important differences across countries within the European Union appear. First, the countries Hungary, Czech Republic, Slovakia and Estonia show extremely high gender gaps for the youngest children, ranging from 50.4 percentage points to 39.8 percentage points. In contrast, these countries display gender gaps that are far below the EU average for the group of children between 6 and 11 years and virtually no gender gap for the oldest children. It might be the case for these countries that they lack childcare opportunities for small children, and many of these countries have very generous parental leave provisions (Szelewa and Polakowski, 2008). However, the high gender gap does not transmit to other stages of the children's life, i.e. after having entered school, women can successfully return to the labour market and/or their partner increases their childcare activities. Countries such as Bulgaria, Finland, France or Latvia follow this pattern. Second, for countries such as Greece, Ireland, Italy, Malta and Romania, the gender gap remains at a relatively high level independently of the age of the child. Finally, a third group

³ Chapter 3 will give a detailed overview how the country-specific taxation and childcare system might influence women's position in the labour market.

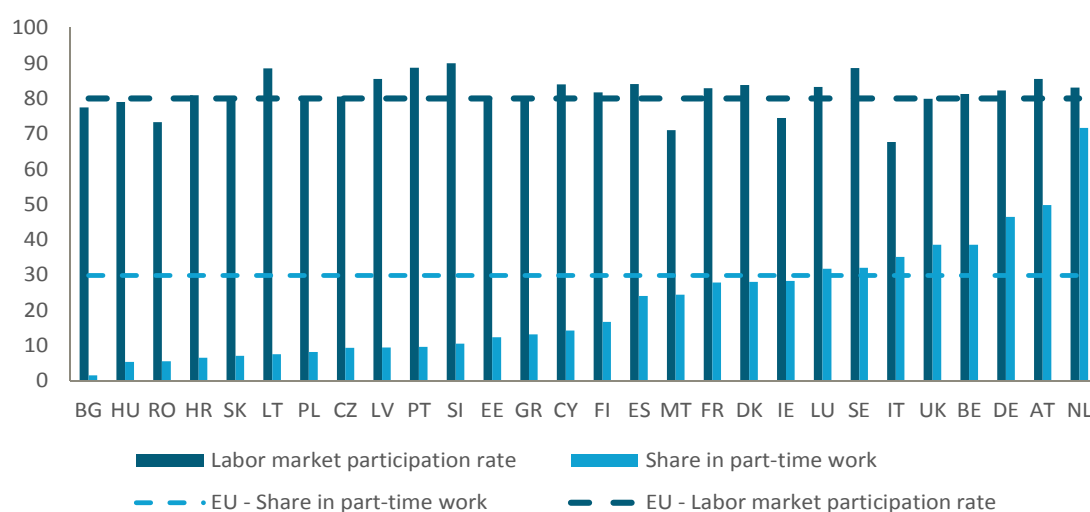
of countries displays low gender gaps, irrespectively of the age of the child. This group consists of Denmark, Latvia, Portugal, Slovenia and Sweden.

So far, we considered whether women are present on the labour market, which is called the extensive margin. The following two figures shed light on the intensive margin of labour supply, that is, the hours worked of those who work at all. While Figure 2.5 gives a general view on part-time work and labour market participation, Figure 2.6 combines the information on part-time work and the presence of children in the household. Women may work fewer hours per week than men for a number of reasons. Given the gender-wage gap (see Chapter 1), women may work less as they expect lower monetary and non-monetary returns to employment. Next, it could be a matter of preferences: While men focus on their employment career, women may want to combine employment with other activities. However, and most importantly with respect to gender (in-) equalities, women are potentially more constrained in their labour supply than men, i.e. due to an insufficient coverage with childcare and gender norms, and thus involuntarily work part-time. Data from Eurostat (2018) support this view. In a survey, individuals were asked about the reasons why they are working part-time, covering unsuccessful search for full-time employment, own illness or disability, family and personal responsibilities, childcare and care-provision for the elderly or education and training. It turned out that women and men have quite different reasons for reduced working hours. Amongst men, the unsuccessful search for a full-time job was the main reason, amongst women care responsibilities, including childcare.

Figure 2.5

Part-time share and labour market participation rate of women

2016; in %



Source: Eurostat (2018), Indicator: *lfsa_argaed*. – Notes: The Figure displays the share of women in part-time work and the labour market participation rate of the age group 25 to 49.

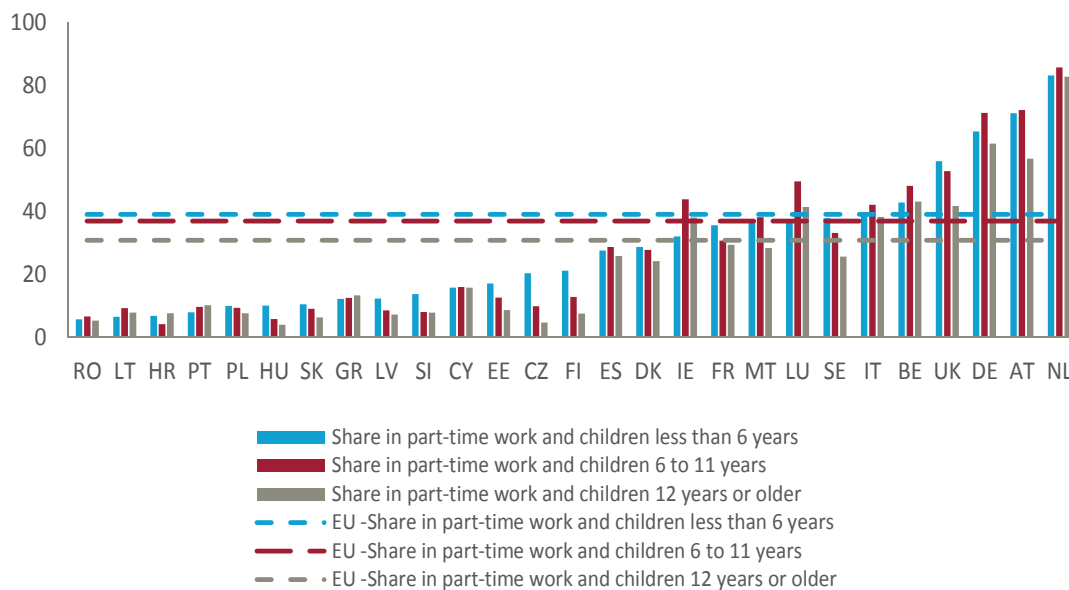
Figure 2.5 displays the share of women working part-time and the labour market participation rate for the age group of women aged 25-49. It documents considerable variation in the share of part-time employment, which is low in countries such as Bulgaria (1.5%), Hungary (5.4%) or Croatia (6.5%) and high in Germany (46.4%), Austria (49.8%) and the Netherlands (71.6%). For the European Union as a whole, the share of part-time work for women is close to 30%. Interestingly, two distinguished groups appear. The first group, including Austria, Belgium, Germany, Finland, the Netherlands and the United Kingdom, show high female labour market participation rates

and high part-time employment rates as well. These countries are in line with the general perception that women may be active on the labour market, but have to reduce their working hours in order to achieve this goal. The other group of countries features a high participation rate as well, but low part-time shares. Countries that belong to this group include Latvia, Portugal and Slovenia. The differences between these two groups are relatively large: For example, Austria and Latvia both reach an above-average female labour force participation rate of 85.5 percentage points. However, the share of women working part-time is 49.8% in Austria and 9.4% in Latvia.

As mentioned, a potential source of gender (in-) equality may arise from specific policies, such as the childcare system, which pose restrictions for women to engage in the labour market. In order to look at this in more detail, Figure 2.6 displays the share of women working part-time by the age of children in the household. The Figure suggests that the relationship of part-time work and the age of the child may be weaker than expected, but that the relationship between part-time work and presence of children in general is strong. While for the European Union as a whole, the share of women working part-time and who have children younger than 6 years is 39.1%, it only moderately drops to 37% for mothers with children between 6 and 11 years and to 30.9% for the oldest group of children, who are at least 12 years old.

Figure 2.6

Part-time share of women by the presence of children in the household
2016; in %



Source: Eurostat (2018), Indicator: *lfsa_eppga*. – Notes: Information for Bulgaria not completely available.

A potential reason could be that women are restricted in their chances to move to a full-time position, even if their child needs less care. The latter is supported by the comparison with Figure 2.5, where the share of women working part-time in the EU is close to 30% and thus lower than the share of women working part-time who have children in the household (Figure 2.6). Even though the share of women working part-time with children younger than 6 years only drops from 39.1% to 37% for women with children between 6 and 11 years, the highest part-time shares are found for the youngest children. Furthermore, it seems that the respective labour markets provide different options in engaging in part-time work. Figure 2.6 clearly shows that

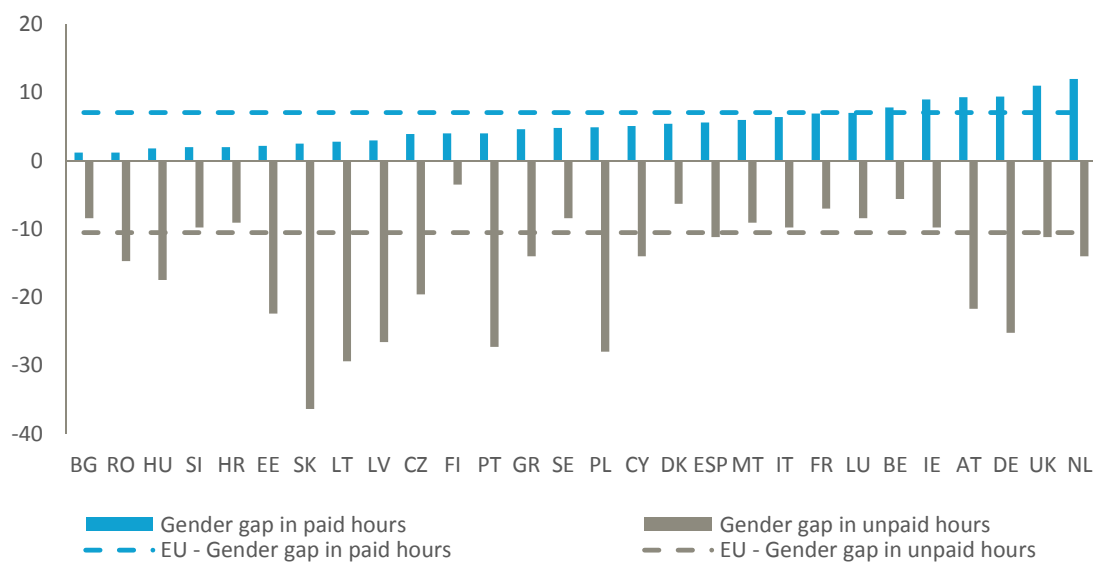
part-time work, independently of the age of the child, is less an option in many Southern and Eastern European as well as Nordic countries, including Finland, Romania and Slovakia. The contrary is the case for Austria, Germany, the Netherlands and the United Kingdom, for which high part-time shares are visible.⁴

The last three figures on the labour market participation rate of women with respect to children, part-time work and the combination of both may indicate that women are potentially more constrained in their labour supply than men. Figure 2.7 supports this perception by displaying gender gaps in paid and unpaid work in 2015. Paid work refers to the average weekly hours of work in the main job. Unpaid work is the total time spent caring for children or grandchildren, caring for elderly or disabled relatives and housework per week.⁵

Figure 2.7

Gender gap in paid and unpaid working hours

2015; in %



Source: Eurostat (2018), Indicator: *lfsa_ewhui*. – Notes: Paid work is defined as the average weekly hours worked in the main economic activity. Unpaid work is the sum of caring for your children or grandchildren, caring for elderly or disabled relatives and time work cooking and/or housework. The later information was provided on a daily basis and aggregated on a weekly basis by multiplying with 7.

For the European Union as a whole, men devote on average 7 hours per week more to paid work than women. The picture for unpaid work is in contrast to this, as women spend 10.5 hours more. At first glance, there seems to be a trade-off between paid and unpaid work. This is especially true for countries such as Austria, Germany, the Netherlands and the United Kingdom,

⁴ The finding that the share of part-time employment is low in Eastern European countries and highest in Continental Europe is also found if one does not consider the presence of children in the household, see for instance RWI (2011).

⁵ The named activities of unpaid work do not entirely cover the non-labour market activities of households. This can be seen as a drawback, however, it is only a serious problem if women and men systematically differ in their unpaid activities. Suppose for example that males potentially spend more time on re-building the house or flat or take care of the car of the family. If this amount of time is not fully covered by the category "housework", Figure Fig 2.7 does only provide a specific part of unpaid work.

where also the share of part-time working women is high (Figure 2.5). Here, above EU-average gaps in paid work co-exist with above-average gaps in unpaid work. However, at second glance, the country group of Estonia, Latvia, Lithuania and Slovakia differs from this perspective. In this group, the gap in terms of unpaid work is among the highest across European countries. For instance in Estonia, women spend on average more than 22 hours more on unpaid work than men. At the same time, the surplus of males in terms of unpaid work is quite small and amounts to about 2.2 hours per week. A traditionally high female labour force supply in former Eastern European countries may serve as an explanation for this finding. Overall, also a third group of countries exists, to which Belgium, Denmark and Finland belong. For these countries, neither the gap in unpaid work nor the gap in paid work is sizeable and both are far below the respective EU averages. It might be the case that in these countries, the intra-household division of labour between couples is more equally balanced than in other countries.

2.2 Fields of segregation

So far, we discussed the labour market position of women in European Union Member States mainly from the perspective of labour force participation and potential factors which constrain their working hours (i.e. presence of children). In a next step, we take a closer look at the labour market situation of women in terms of educational fields, occupations and sectors of employment, and the corresponding gender gaps. Thereby, segregation can be regarded from different perspectives, namely vertical and horizontal segregation. Vertical segregation refers to the over- or under-representation of a specific gender in fields that can be ordered, i.e. income classes or prestige classes. In contrast, horizontal segregation occurs in fields which cannot be ordered, such as occupations or industries.

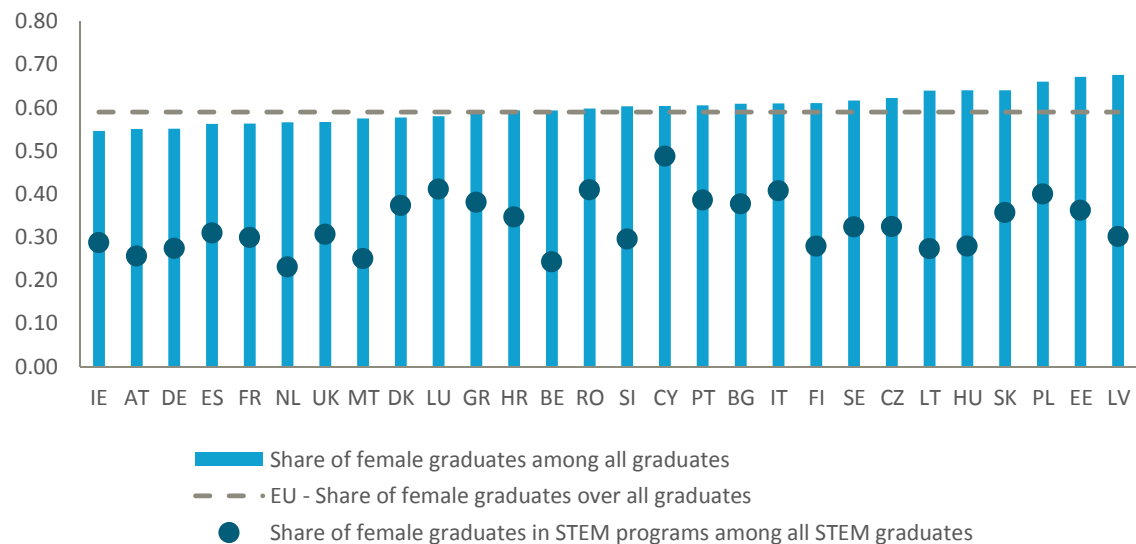
A highly segregated labour market entails large economic and social costs. At the individual level, women may not choose their field of education and occupation in line with their talent and skills. Concurrently, they potentially select into fields that provide lower wages and provide less attractive career options. At the national level, an ongoing segregation in terms of occupations is counterproductive in closing the gender wage gap. Furthermore, labour markets are less efficient as they do not allocate skills and occupations or jobs perfectly. However, there is also a trade-off with respect to employment: It is potentially easier for women to engage in the labour market in a more segregated occupation or industry (see Bettio, 2002, and Sparreboom, 2014).

We start the consideration of gender segregation with the field of education. We do so as educational choices are an important yardstick of a successful labour market performance. First, educational choices determine how much education a person acquires, as well as which type of education and in which field. Second, educational choices are made early in life and thus may lead to specific paths in terms of occupations and industries, which are not easily reversible later on in life. Figures 2.8 and 2.9 provide information on the segregation of gender across educational fields as well as women among graduates and men among graduates in STEM programs. Overall, two distinct features appear. First, in all European member countries, women are overrepresented among graduates (Figure 2.8). For the European Union as a whole, this share makes up about 59%. Thus, differences between men and women with respect to their labour market performance do not seem to be systematically related to differences in the amount of education. Second, women and men select quite differently into different fields of education, which may additionally explain the gender differences in labour market participation presented above. Figure 2.9 shows the share of females and males who graduated in tertiary education programs by field, pooled for all member countries. Women make up a large part of graduates

in the fields of health and welfare, social sciences, journalism and education and general education. Men show high graduation rates in engineering, manufacturing and construction. Interestingly, both gender do to some extent equally select themselves into the field of business, administration and law.

Figure 2.8

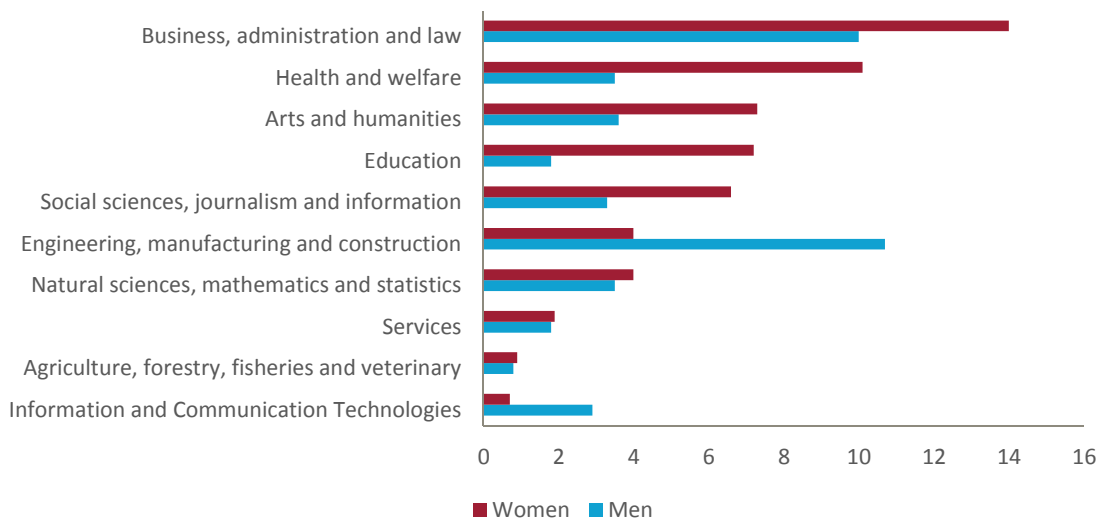
Women among all graduates and graduates in STEM programs
2012; in %



Source: Eurostat (2018), Indicator: educ_uoe_grad03. – Notes: STEM programs cover the fields natural sciences, mathematics, statistics, information and communication technologies as well as engineering, manufacturing and construction. Due to missing values in 2012, value of 2011 is used in the case of France.

Figure 2.8 presents information on STEM programs which are often taken as a prominent example of educational segregation. STEM programs cover the field natural sciences, mathematics, statistics, information and communication technologies as well as engineering, manufacturing and construction. The reasons for the attention STEM programs receive are manifold. First, STEM programs provide the adequate education to later on work in jobs and industries that are especially important to promote technological progress. Second, these programs are especially male-dominated, however, women do not display worse test-scores and grades in mathematics, physics or other STEM-related subjects in school. In this field, for the European Union as a whole, women make up about 33% of all graduates. Again, important heterogeneities across countries exist. This share is especially low in countries such as the Netherlands (23%), Germany (27%), Ireland (29%) or France (30%). In contrast, other countries lie above the European average. This group includes countries such as Slovakia (36%), Denmark (37%), Poland (40%) and Cyprus (49%). This heterogeneity can hardly be explained by any regional clustering, as for instance another Nordic country, Finland, displays a share of female graduates among all STEM graduates of 28%. A general explanation for the differences in education fields by gender is given by Turner and Bowen (1999) who argue that preferences and labour market expectations play a key role for field decisions.

Figure 2.9
Segregation across educational fields
2015; in %



Source: Eurostat (2018), Indicator: educ_uoe_grad03. – Notes: The Figure displays the share of graduates among male and female graduates in tertiary education (ISCED 5-8) for the EU in 2015.

Summarising, it turns out that women show lower participation rates than men in all countries of the European Union. For younger cohorts, the gender gap in participation rates is much smaller or even non-existent. Furthermore, the overall gender gap decreased over the last decades as younger cohorts entered and older cohorts left the labour market. Nevertheless, the gender gap still exists overall, and its extent differs strongly between countries and across socio-demographic groups. In particular, the gender gap generally falls as the level of educational attainment rises. Cross-country differences emerge particularly when looking at the household context. For example, a group of CEE countries displays low participation rates of women with very young children, but relatively high participation rates of women with older children. Furthermore, in many (but not all) countries of the EU one can observe a clear link between part-time work and labour market participation, i.e. part-time work arrangements seem to facilitate labour market participation for women in these countries. This may however be problematic in the long run if women have difficulties moving to full-time work once they do not have to devote that much time to childcare anymore. Finally, paid and unpaid hours worked differ strongly, with a group of (mainly Western European) countries displaying much lower paid hours and much higher unpaid hours for women than for men, and another group of (mainly Eastern European) countries featuring only slightly lower paid hours as well as much higher unpaid hours. Against this background, the following chapter discusses in detail potential explanatory factors that may be responsible for the persistence and the cross-country differences in gender gaps.

3. Case studies: Which factors can explain cross-country disparities in labour market inequality?

The last section has illustrated that there exist large disparities in women's labour market position across European Member States. In order to gain a better understanding of these differences, this section includes case studies exploring four factors that potentially explain the varying

degrees of gender equality in European labour markets, i.e. childcare provision, the tax system, education as well as cultural and historic norms. The focus is on the four selected countries Germany, Italy, Poland and Sweden, which are chosen as representatives of Western, Southern, Eastern and Northern Europe, and which are characterized by different frameworks with respect to the four factors considered.

For each explanatory factor, the relevant labour market indicators and their gender differences are discussed and compared across all four selected countries, followed by a summary of the key characteristics of the institutional or cultural settings specific to each country. In contrast to the previous section which provides information on the current situation, the case studies additionally take into account key developments over the last decade. The analysis of the country-specific labour market indicators and institutional settings are complemented by a brief review of the relevant research literature that provides in-depth analyses on female labour market outcomes in the selected countries and potentially identifies causal impact factors that encourage or discourage women's labour market attachment. Overall this section allows us to get a better knowledge on how the considered explanatory factors differ across countries and how they relate to women's position in the labour market and the different levels of gender equality prevalent in each sample country.

3.1 Childcare

Enhancing women's labour market participation and thus reducing gender inequality through measures facilitating the reconciliation of family and employment has been considered as a high priority goal of European Union policy. As a disproportionate weight of care responsibilities falls onto women, and the organisation of childcare constitutes a limiting factor for labour market access, the employment attachment of women with children appears to be particularly low (Felfe et al., 2016). These "motherhood penalties" are reflected primarily in reduced labour market participation rates and increased part-time shares. Against this background, improving the provision of affordable childcare services is heavily discussed as a promising candidate for an effective policy strategy in supporting maternal employment. However, the coverage and cost of childcare as well as the design of parental leave schemes vary strongly across European Union Member States. This implies that the role of these factors for the labour market participation of women also differs between European Union Member States. In this chapter, we therefore first present the institutional set-up with respect to childcare in our example countries, and then turn to the link between childcare and the labour market outcomes of women in these countries.

3.1.1 Comparison of country-specific childcare systems

In **Germany**, family policies and social norms display strong differences between the Eastern and the Western part of the country. In West Germany, they were for a long time based on the male breadwinner model, according to which private care work was mostly provided by the woman and infrastructures for public care, particularly for children under 3 years old, remained underdeveloped (BMFSFJ, 2017). Contrary to that, a long tradition of working mothers and double-earner families in East Germany has been linked to a broad acceptance of using formal care for little children. While the availability of childcare for children between 3 and 6 years is similar in West and East Germany, both regions strongly differ with respect to the hours of provided care. Since 2005, several reforms increasing the provision of subsidized childcare, particularly for children aged 1 to 3 years, have been implemented in order to encourage mothers to enter the labour market. In addition to that, a major paid parental leave reform in 2007 aimed at increasing the share of women returning to employment after childbirth and – with the introduction of

father-specific periods – at generating financial incentives for fathers to use parental leave and thus participate in childrearing tasks.

Like many other southern European countries, **Italy** follows the traditional male-breadwinner model. This may partly be attributed to the relatively low provision of childcare services for little children. Public care for children aged 3 to 6 years is characterized by its large availability which is quite uniform across regions as well as by high subsidies and thus comparatively low costs. In contrast to that, there is a limited availability of public childcare for younger children, which strongly varies across regions with the Northern part exhibiting a much better provision than the Southern part of Italy (Del Boca and Vuri, 2007). Moreover, public childcare is highly regulated in terms of hours and has limited access giving priority to certain categories of households (according to e.g. children with disabilities, job arrangements, household income, and number of kids). Due to the rigidity and limitations in the provision of public childcare, a large proportion of Italian families relies on the family support system, mainly facilitated by grandparents (Del Boca, 2002). Parental leave may be accessed by mothers and fathers, although only part of it, usually the mother-specific period, is paid.

In **Poland** socialist policies used to expect both men and women to be attached to the labour market and provided generous maternity leave benefits as well as state contributions to child-rearing. However, the gendered division of caretaking duties with mothers raising their children up to the age of 3 was already present before 1989 (Bargu and Morgandi, 2018). Similarly to many other post-socialist countries, family policies have generally moved away from encouraging the employment of mothers after the fall of Communism (Lovasz, 2016). Due to a reduction of the generosity of state support to families and the closure of many childcare services that used to be provided at the municipal level, childcare appeared more than ever a woman's business (Heinen and Wator, 2006). Childcare availability still remains low and is mostly characterized by restrictive access, accepting only children with two employed parents. New national government initiatives nowadays focus on efforts to increase childcare provision as well as support to families. In 2013 a generous parental leave system was introduced, which can be shared between mothers and fathers.

Childcare in **Sweden** is in line with the Scandinavian welfare model, which aims at generating an appropriate environment for dual-earner couples and thus at equalizing the labour market integration of men and women. As a result Sweden has been a frontrunner in the development of publicly provided childcare, which can be characterized by high participation rates also of little children and a high flexibility in opening hours. In the course of the implementation of a reform package between 2001 and 2003, a system of maximum fees was introduced which significantly reduced pre-reform fees and made childcare even more affordable (Wikström et al., 2015). In addition to that, an increased accessibility of children of unemployed parents was provided. Sweden was the first country that introduced a parental leave policy with generous earnings-related benefits and earmarked leave for fathers, thus leading the way to a dual earner/dual career model (Albrecht et al., 2017).

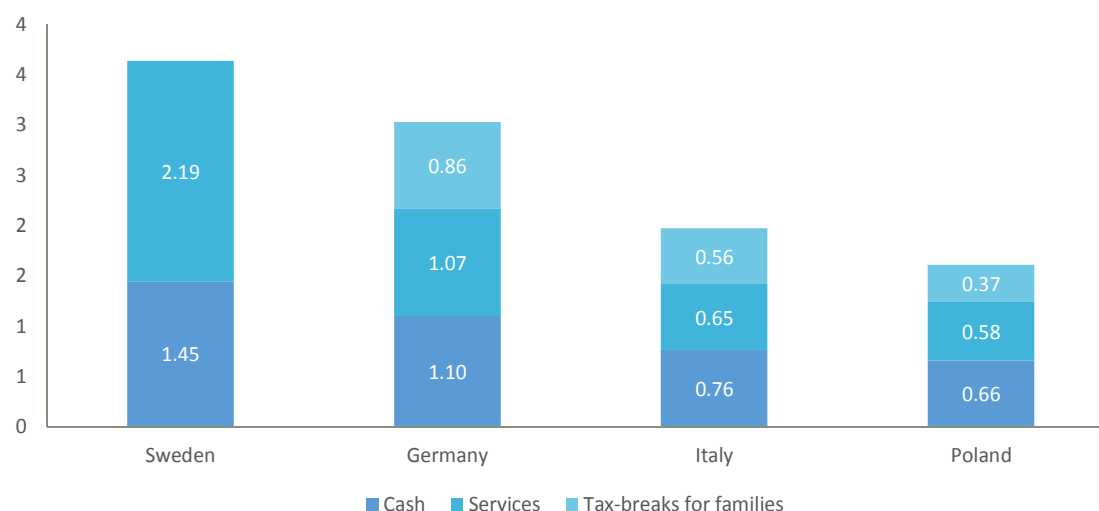
Figure 3.1 summarises the public spending on family benefits for each selected country and thus gives an impression on the relative generosity of the country-specific family support systems. In comparison, spendings in Germany and particularly Sweden are much larger than in Italy and Poland. There exist large cross-country variations not only in the amount (measured in % of GDP) but also in the proportional division over the three types of public spending. With the exception of Sweden, most countries spend the largest part on cash benefits, including for example child allowances and the income support during periods of parental leave. The spending on services, which comprises the direct financing or subsidisation of childcare and early childhood education

facilities, usually is a bit smaller. Germany, Italy and Poland additionally embed support for families with children in the tax system, with the amount spent on tax-breaks being considerably large in Germany. In Sweden public spending on family benefits is divided between cash benefits and services, whereas the latter one reaches more than 2% and thus is exceptional in comparison to other European Member States.

Figure 3.1

Public spending on family benefits by type of expenditure

2013; in % of GDP



Source: OECD Social Expenditure Database. – Notes: Data for Poland refers to 2012. Cash comprises child allowances, public income support payments during periods of parental leave and income support for single parent families. Services comprise the direct financing or subsidisation of childcare and early childhood education facilities, public childcare support through earmarked payments to parents. Tax-breaks for families include tax exemptions, child tax allowances as well as child tax credits.

Sweden's outstanding position with respect to publicly provided childcare also becomes apparent in Figure 3.2, which illustrates the enrolment of children in formal childcare and pre-school by age group and duration as well its development between 2006 and 2016. In Sweden, the proportion of children aged 0 to 2 years enrolled in formal childcare services (including public and private centre-based services and organized care services provided by paid professional childminders) has always been considerably high and has even increased from 44% in 2006 to more than 50% in 2016. Thereby the largest share of children participate in full-time care. In the course of pursuing the goals of the Barcelona targets and thus reaching a coverage rate of 33% for children under 3 years, the provision of childcare services has also substantially increased in most other European Member States. There exist however significant variations across Member States. While in 2016, Italy has surpassed and Germany is almost approaching the 33% coverage rate, Poland has a considerably low coverage rate and thus does not meet the demand for childcare facilities. Similarly to Sweden, childcare for the lower age group in Germany and Italy is mainly used on a full-time basis (about two-thirds).

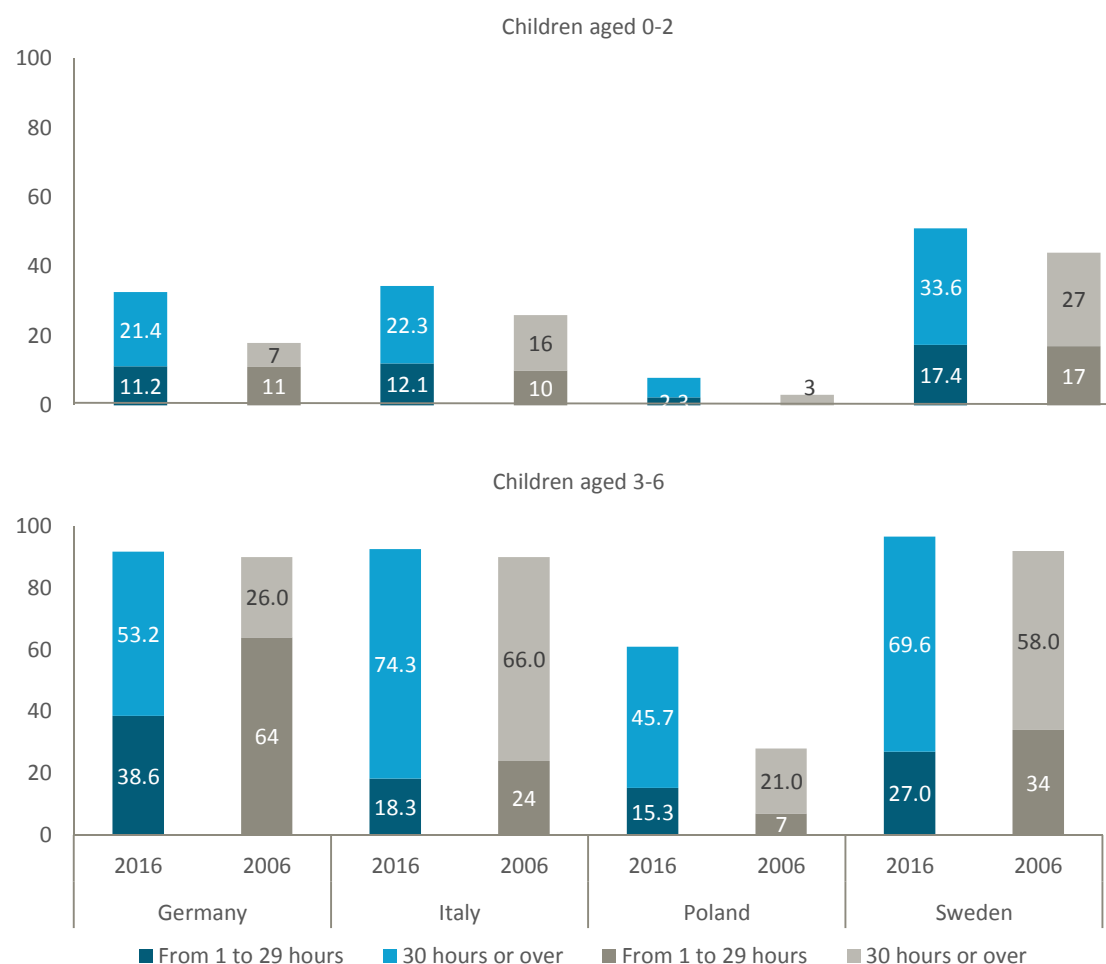
As indicated by Figure 3.3, the lack of formal childcare provision in Poland is compensated by informal childcare arrangements mainly provided by grandparents or other relatives. Already amounting to 37% in 2006, the share of children under 3 years participating in part-time and full-time informal childcare increased to more than 46% in 2016. In Italy the utilisation of informal

childcare also exceeds that of formal care arrangements, while it plays only a minor role in Germany and is almost not existent in Sweden.

Figure 3.2

Children in formal childcare by age group and duration

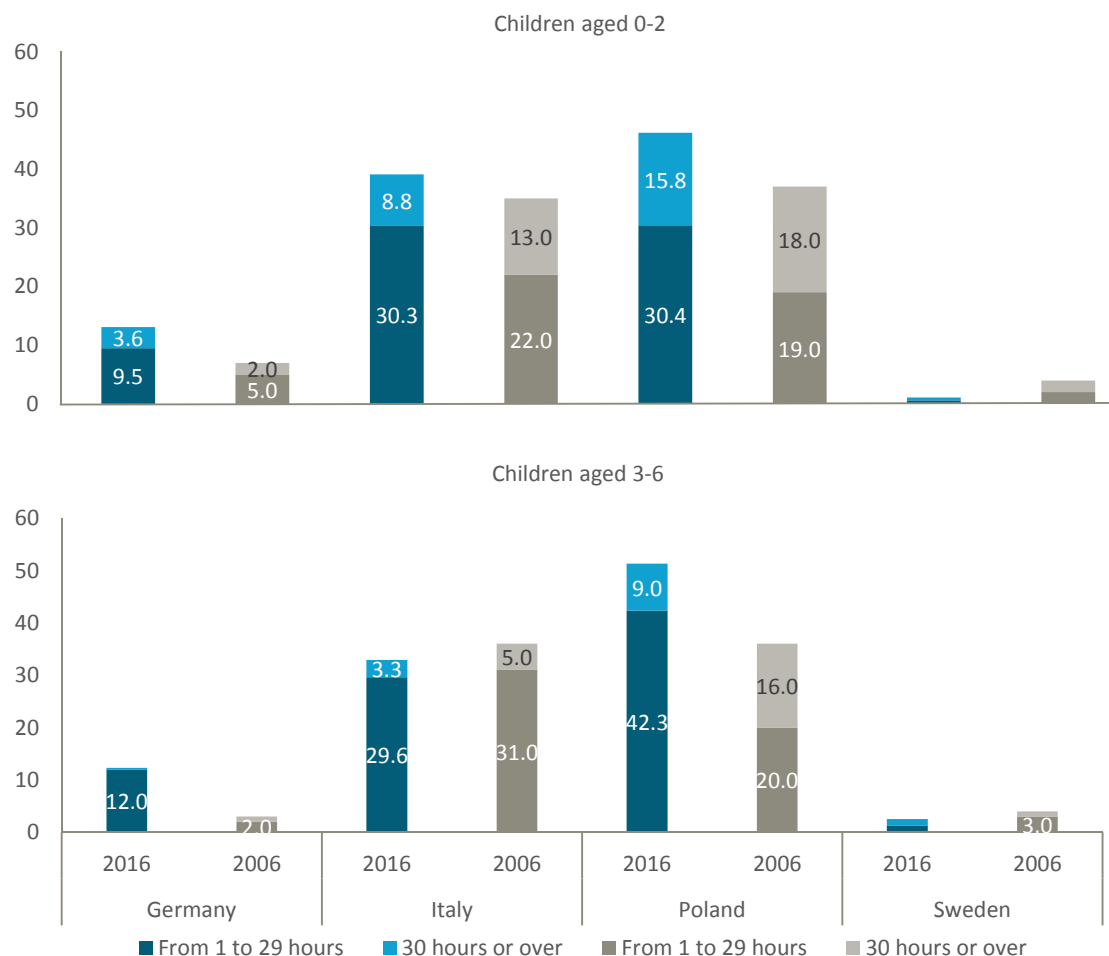
2016; percentage of the population in each age group



Source: Eurostat (2018), EU-SILC Indicator: *ilc_caindformal*. - Notes: Informal childcare includes 1) child care by a professional child-minder at child's home or at child-minders's home and 2) child care by grand-parents, other household members (outside parents), other relatives, friends or neighbours.

The participation rates in formal childcare for children aged 3 to 6 years are generally higher than those for smaller children and do not exhibit such large differences across countries. Figure 3.2 illustrates that in Germany, Italy and Sweden more than 90% of the children were enrolled in pre-primary education services in 2016, whereas the enrolment rate was already at a similar level in 2006. In contrast to that, Poland is far away from reaching the Barcelona target of 90% for children aged 3 to 6 years and thus lags behind the other European countries. Specifically, although the enrolment rate has substantially increased in the last decade, in 2016 still only 61% of the children participated in formal childcare. In all selected countries, more children are in full-time care than in part-time care, with the full-time share being high in Italy and Sweden. As already seen for the younger age group, this low availability of formal childcare facilities

Figure 3.3
Children in informal childcare by age group and duration
 2016; percentage of the population in each age group



Source: Eurostat (2018), EU-SILC Indicator: *ilc_caindformal*. – Notes: Formal childcare includes 1) education at pre-school or equivalent, 2) childcare at centre-based services outside school hours and 3) childcare at day-care centre organised/controlled by a public or private structure.

for 3 to 6 year olds in Poland is accompanied by a higher share of children cared for in informal arrangements (see Figure 3.3). In 2016 more than 50% of the Polish children participated in informal, mostly full-time care. While in Italy this share is also relatively large and amounts to 32%, it is small in Germany and Sweden.

Besides the coverage, the costs of childcare are an important factor for the reconciliation of employment and family duties. Especially for low-income families, high expenses on childcare may act as inactivity trap, when the household income benefits from women not working but caring for their children themselves (Janta, 2014). Thus, a low level of childcare usage may not only be attributed to a low provision but also to high costs of childcare. The measurement of affordability and its comparison across countries, however, is not straightforward, as the fees charged by childcare providers are set at the municipality level and thus strongly differ within a country. More importantly, childcare costs are not only influenced by the fees charged to parents, which in turn are strongly affected by government subsidies received by childcare providers, but also by country-specific childcare-related tax concessions and cash benefits available to

parents (Immervoll and Barber, 2006). The OECD Family Database provides country-specific information on gross childcare fees (regardless of any subsidy that providers may receive) as well as on net childcare costs (after accounting for childcare benefits etc.). Although there exist some limitations, the comparison of these costs gives a good impression of the relative affordability of publicly provided childcare.⁶ A comparison of the gross fees for a full-time centre-based care in the selected countries shows that in 2015 relatively low fees existed in Germany and particularly Sweden, while Poland was slightly above the European average.⁷ In all countries the net childcare costs were considerably smaller, with the reduction being considerably large in Germany, especially for single parents. As a general rule, one can say that net costs are lowest in countries with relatively low gross fees, implying that Sweden as well as Germany exhibit a comparatively high affordability of childcare.

Table 3.1

Paid leave entitlements available to mothers

2016; in weeks

	Paid maternity leave			Paid parental and home care leave available to mothers		
	Length, in weeks	Average payment rate (%)	Full-rate equivalent, in weeks	Length, in weeks	Average payment rate (%)	Full-rate equivalent, in weeks
Germany	14.0	100.0	14.0	44.0	65.0	28.6
Italy	21.7	80.0	17.4	26.0	30.0	7.8
Poland	20.0	100.0	20.0	32.0	67.5	21.6
Sweden	12.9	77.6	10.0	42.9	57.7	24.7

Source: OECD Social Expenditure Database. – Notes: The "average payment rate" refers the proportion of previous earnings replaced by the benefit over the length of the paid leave entitlement for a person earning 100% of average national (2015) earnings.

Parental leave, although not a childcare arrangement per se, also gives parents the opportunity to provide care for their very young children. Leave policies take the forms of 1) maternity leave, taken by the mother just before, during, and immediately after childbirth, 2) paternity leave, taken by the father soon after the child is born, and 3) parental leave, which usually can only be taken after the end of maternity leave and is available to both parents (Moss, 2013). To what extent the selected countries differ with respect to the length and compensation level of the different forms of leave is depicted in Table 3.1 for mothers and Table 3.2 for fathers. In all selected countries, mothers are entitled to at least three months of paid leave around childbirth, whereas the leave periods are relatively short in Sweden as well as in Germany, and much longer – almost reaching the European average – in Poland and Italy (20 and 21.7 weeks). Maternity leaves are generally well paid, with all selected countries providing payments that replace over 75% of previous earnings. Germany and Poland even offer a full compensation of earnings across the leave. Paternal leaves tend to be considerably shorter. While in Poland fathers are provided with two weeks of full compensated leave, Germany does not offer paid paternal leave at all.

⁶ Limitations occur as for example in some countries information is only provided for a particular region (e.g. Hamburg in Germany, Warsaw in Poland), which might not be representative for the whole country. Moreover, as childcare fees in many countries are income-related, the maximum applicable fee is shown.

⁷ Information on childcare for Italy is not provided by the OECD.

Table 3.2
Paid leave entitlements available to fathers
 2016; in weeks

	Paid paternity leave			Paid parental and home care leave reserved for fathers		
	Length, in weeks	Average payment rate (%)	Full-rate equivalent, in weeks	Length, in weeks	Average payment rate (%)	Full-rate equivalent, in weeks
Germany	0.0	0.0	0.0	8.7	65.0	5.7
Italy	0.4	100.0	0.4	0.0	0.0	0.0
Poland	2.0	100.0	2.0	0.0	0.0	0.0
Sweden	1.4	61.2	0.9	12.9	77.6	10.0

Source: OECD Social Expenditure Database. – Notes: Information refers to entitlements to paternity leave, 'father quotas' or periods of parental leave that can be used only by the father and cannot be transferred to the mother, and any weeks of sharable leave that must be taken by the father in order for the family to qualify for 'bonus' weeks of parental leave.

There also exist large disparities across countries regarding the availability and generosity of paid parental and home care leave. Italy and Poland provide mothers with only relative short parental leaves (26 and 31 weeks, respectively). However, while the replacement of earnings during that period is relatively low in Italy, it is more than twice as high in Poland. Therefore, the general rule established for OECD countries, according to which payment rates tend to decrease with the length of entitlements, does not apply to the countries in our sample. This is particularly true for Germany and Sweden, providing more than 40 weeks of parental leave with considerably high replacement payments of 65% and 57.7%, respectively. Two decades ago, leave periods in both countries tended to be longer at lower payment rates (see OECD Family Database).

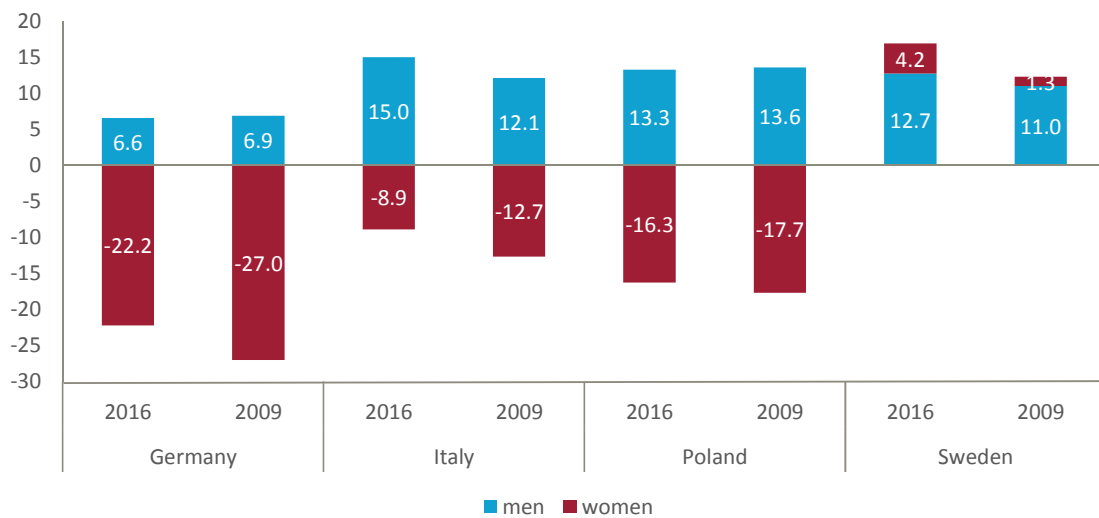
Countries not only differ in the level of support provided to parents, but also in the degree to which leave policies promote an egalitarian distribution of childcare between mothers and fathers (Ray et al., 2008). While in all selected countries part of these parental leaves can be shared between both parents, only Germany and Sweden offer a 2- to 3-month earmarked leave for fathers, which is also well paid. Overall, both countries provide the most generous parental leave schemes, which is also reflected by the public expenditures already mentioned above (see Figure 3.1).

3.1.2 Impact of parenthood on labour market outcomes

Figure 3.4 illustrates the differences in labour market participation rates between non-parents and parents of children between 0 to 5 years and thus gives an idea of the child-related gender inequality in employment prevalent in the four selected countries. With the exception of Sweden, the female participation in all other countries tends to be much lower in the presence of little children, although this "motherhood penalty" has been decreasing over the last decade. The difference in labour market attachment between mothers and non-mothers is still particularly large for Germany, despite the high public expenditure on childcare. In Contrast, mothers in Sweden are more likely to work than their childless counterparts. This positive relationship between parenthood and labour market participation can also be observed for fathers in all selected countries, with the positive effect being of similar size in Italy, Poland, Sweden and a bit smaller in Germany.

Figure 3.4

Differences in LMPR between non-parents and parents of children aged 0-5
2009 and 2016

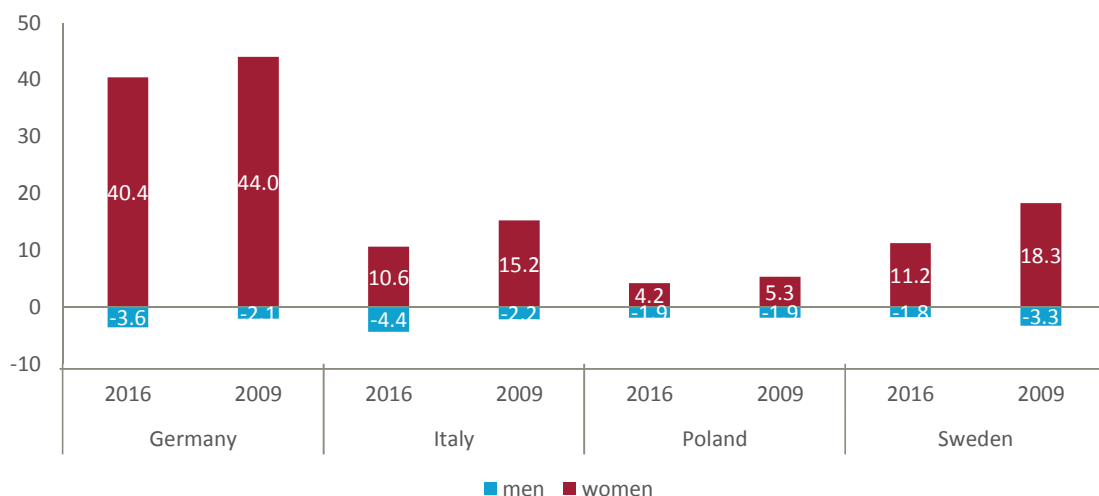


Source: Eurostat (2018), Indicator: *lfst_hheredch*.

Parenthood also tends to affect the number of working hours as indicated by Figure 3.5. Comparing the share of part-time workers between non-parents and parents of children aged between 0 and 5 reveals a positive relationship between motherhood and the probability of part-time work, which has been slightly decreasing over time. This is particularly true for Germany, where the presence of little children increases the probability to work part-time by more than 40 percentage points. In Poland, however, the corresponding difference is much smaller, indicating that only a small proportion of mothers is more likely to be engaged in part-time work than non-mothers. Across all selected countries, fathers exhibit a slightly lower part-time share than non-fathers.

Figure 3.5

Differences in part-time shares between nonparents and parents of children aged 0-5
2009 and 2016



Source: Eurostat (2018), Indicator: *lfsa_eppga*.

Overall, parenthood appears to be an important determinant of extensive and intensive labour supply. However, the direction of the effect differs between men and women, due to the gender-specific differences regarding the allocation of care-duties (Maron and Meulders, 2008). Especially the motherhood penalty, reflected in reduced labour market participation and increased part-time shares, is a widely discussed issue in the economic literature. Evidence is provided that the availability of affordable childcare is crucial for female employment outcomes. According to Mills et al. (2014) the majority of mothers across the European Union is not working or working part-time due to childcare being too expensive, and a further larger share due to a lack of availability of childcare services. In a similar vein, Janta (2014) shows that most European mothers are involuntarily engaged in part-time work as high costs and low availability constitute obstacles in accessing childcare services. Empirical studies from many different countries show that an increase in childcare availability has a positive and significant effect on the maternal labour market attachment (e.g. for Germany Bauernschuster and Schlotter, 2015, for Italy Brilli et al., 2016). Regarding the costs of childcare, empirical studies for several countries generally report a significantly negative, though small, relationship to maternal employment behaviour (e.g. for Italy Del Boca et al., 2009, for Germany Haan and Wrohlich, 2011). For Sweden Lundin et al. (2008), however, do not find any employment effects of a reform leading to a reduction in childcare prices. This may be attributed to the fact that childcare attendance as well as maternal employment were already at a very high level before the reform. Simulating different kinds of policy reforms in Germany, Wrohlich (2011) suggests that an extension of childcare slots has larger effects on maternal employment than a reduction of parents' fees to existing slots.

Parental leave constitutes another policy instrument aiming at improving the reconciliation of family life and labour market participation for mothers of young children. Although leave policies prolong the time spent at home, they may still be beneficial for the labour market attachment of mothers, as they facilitate the return to work for those mothers who would have stayed at home after childbirth anyway (Kluve and Schmitz, 2014). A series of empirical studies indeed finds that in response to a more generous or newly introduced parental leave, maternal employment rates increased (e.g. for the UK Burgess et al., 2008, for Nordic countries Datta Gupta et al., 2008). For the German case, Kluve and Tamm (2013) as well as Bergemann and Riphahn (2017) show that the probability of returning to the labour force is relatively low while mothers receive parental benefits, and strongly increases at the time of benefit expiration. In addition, there is evidence that the introduction of well-paid and non-transferable leaves for fathers – as it is the case for example in Sweden and Germany – leads to an increase of the paternal involvement in childcare and has the potential to reduce the maternal care responsibilities and thus the motherhood penalty in labour market outcomes (e.g. for Sweden Duvander and Jans, 2008, for the EU Meil, 2011). However, the literature in this respect is ambiguous, as some empirical studies find that the use of father-specific leave does not increase fathers' involvement in childcare and housework (e.g. Ekberg et al., 2013).

Given the empirical results found in the literature, one would expect that a descriptive comparison of the four selected countries would yield a positive relationship between the availability of affordable childcare and maternal labour market outcomes. This is indeed the case for Sweden where family policies, characterized by a high coverage of inexpensive, mainly full-time childcare and generous parental leave schemes with periods that can only be used by fathers, tend to lead to high participations rates with low-part-time shares of mothers and thus to a relatively low level of gender inequality on the labour market. In the case of Poland and Italy, one may argue that the observed motherhood penalties in labour market participation are related to lower public expenditures on family benefits, reflected in a relatively lower provision of affordable childcare and less generous parental leave schemes. For Germany, however, this relationship does

not apply. Here, high childcare-related expenditures, a relatively high – although mainly part-time – coverage with childcare facilities and generous parental leave schemes go along with low labour market participation rates and a high part-time share of mothers. Given that some of these policy measures were introduced relatively recently, this may suggest that the beneficial effects of these policies take some time to produce beneficial labour market results for mothers.

3.2 Tax policy

In the literature the tax system is considered to be an important policy tool that is potentially able to shape work incentives and thus affects the extent of labour market equality between men and women. However, tax policies in European Member States have traditionally been reluctant to adequately acknowledge the importance of the gender dimension and to take into account the allocative and distributional effects on gender equality (Bettio and Verashchagina 2009). As most Member States have abolished tax regulations explicitly treating men and women differently, it is the implicit bias that requires particular attention. That is, due to gender-differentiated labour market outcomes (i.e. labour market participation rates, division of work within the household and the distribution of income) even gender-neutral tax systems affect the personal income of men and women dissimilarly.⁸

3.2.1 Comparison of country-specific tax systems

The tax system in **Germany** can be characterised by comparatively high income tax rates. In 2016 the basic personal tax allowance is 8,652 €, meaning that taxable incomes below this threshold are tax-free. Higher taxable incomes are taxed with a rate progressively increasing from 14% to 42%, whereas incomes above 254,447 € are taxed with a maximum tax rate of 45%. Additionally to that there exists the solidarity surcharge of 5.5% of the tax amount mostly justified by the costs of German reunification. Married couples are taxed jointly with full income splitting, which means that a couple's joint income is divided by two and taxed at each partner's income tax rate. Germany allows a variety of deductions that can decrease the taxable income, such as specified insurance premiums as well as expenses for childcare up to certain limits. Most notably there is a system of income tax relief for families, which either is achieved via a payment of child-benefits taking the form of a tax refund or alternatively by the deduction of child allowances in the process of taxing the parents.⁹

In **Italy** income tax rates have traditionally been among the highest in the European Union. Although having been reduced in recent years, they are still above the EU average, ranging from 23% for taxable incomes below 15,000 € to 43% for taxable incomes above 75,001 €. There exists a "no tax area" with basic allowances of a minimum 3,000 €, which – depending on the personal income – can reach a maximum of 7,500 €. Married couples are assessed separately for taxation, meaning that the income of each spouse is taxed individually, i.e. independently from the other spouse's income. Besides the reduction in average tax rates over recent years, the tax credits for dependent relatives were changed into income related tax allowances, which resulted in a re-

⁸ In this report we focus on personal income tax, where gender aspects are most apparent. For an evaluation of the relationship between gender equality and corporate taxes, taxes on property and wealth as well as consumption taxes, see Gunnarsson et al., 2017.

⁹ The local tax office will examine each case to check whether it would be more beneficial for a family to receive tax allowances for children or to receive child benefit.

duction of the tax burden for low-income families as well as for large families in the middle income bracket. Over a certain level of income (varying with the number of family members), tax allowances are no longer granted.

During the last decades the tax system in **Poland** has been subject to a number of changes and tax reforms with the aim to simplify taxation rules and to at least partly harmonise them with the European Union tax law. Since 2009 there has been a new progressive tax schedule with comparatively low average tax rates, ranging from 18% for incomes below 85,528 PLN to 32% for incomes above this threshold. There is an initial personal tax allowance of 3,091 PLN for the lowest income bracket. Individuals carrying out business activities may opt for certain conditions under which a flat 19% tax rate applies. Generally, married couples are taxed separately unless they apply for joint taxation and fulfill certain requirements (e.g. being married over the calendar year). A tax splitting system that reduces the overall tax burden is also available for single individuals with dependent children. Like many other European Member States, Poland allows for certain tax deductions and tax credits, such as the child tax credit or deductions of mandatory health insurance contributions.

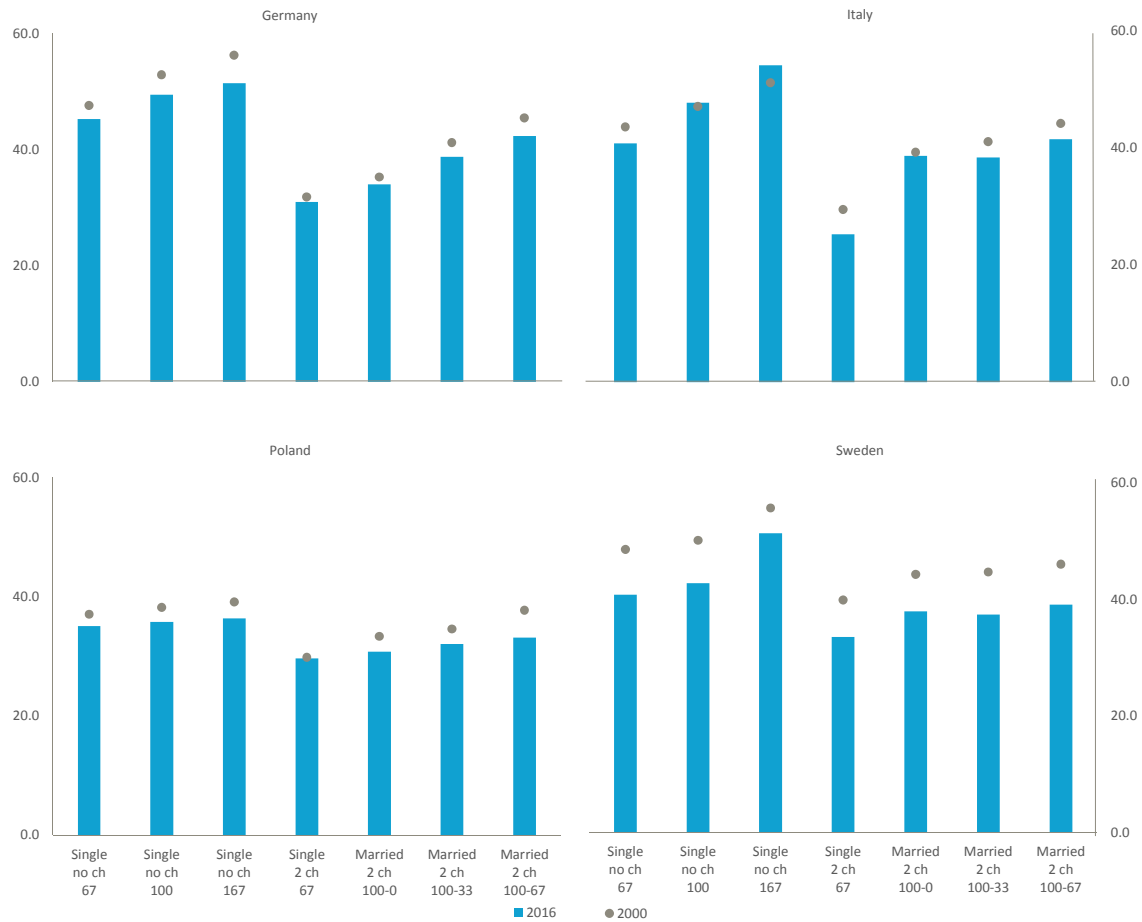
In **Sweden**, where tax rates have decreased over the last two decades but still belong to the highest among European Union Member States, employment incomes are subject to a municipal income tax as well as a progressive national income tax. The first one, varying across municipalities between 29.19% and 35.11% and in 2016 achieving an average of about 32%, is applied for incomes above the threshold of 18,800 SEK. Individuals who earn more than 430,200 SEK and 625,800 SEK are additionally taxed with a national income tax rate of 20% and 25%, respectively. In total a maximum tax rate of approximately 60.1% may be levied. A basic tax allowance is given between 13,000 SEK and 34,200 SEK, with the amount decreasing with income and thus especially lowering the tax burden for individuals with relatively low incomes. In addition to generous child allowances and standard tax reliefs, the Swedish tax system offers a variety of allowances of mainly work-related expenses. Sweden has an individual-based tax system, where the incomes of spouses are taxed separately.

Figure 3.6 summarises the main characteristics of the tax systems in the four selected countries as it displays the average tax burden, covering income taxes plus social security contributions as a percentage of labour costs, for different family types and income levels. In each country the tax burden increases with rising income, whereas the progressivity of the tax rate is particularly pronounced in Italy. Here, singles with no children earning 67% of the average wage have an average tax burden of 40.8%, while for childless singles earning 167% of the average wage the tax burden amounts to 54.1%. Due to certain tax allowances for families, the average tax burden is reduced for singles and couples with children. This is particularly true for Germany and Italy both providing generous benefits to families with children through cash transfers and preferential tax provisions. With respect to the treatment of married couples the countries offering a system of joint taxation exhibit a lower tax burden for couples than for singles with the same income. For example, the joint taxation for spouses as well as the highly progressive tax rates prevalent in the German tax system considerably reduce the combined tax burden of couples with large income differences, particularly for one-earner couples. If in a family with two dependent children the previously non-employed spouse finds a job and earns 33% of the average wage, the income tax burden increases by 4.8 percentage points.

Figure 3.6

Average tax burden by family type

2016; income taxes plus social security contributions as a percentage of labour costs



Source: OECD (2016a), *Taxing Wages*.

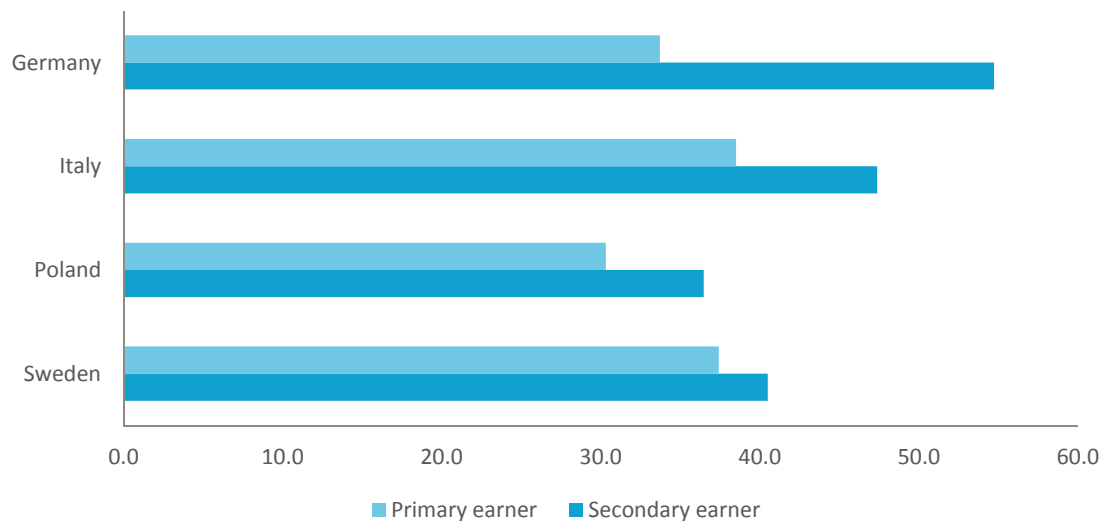
In Poland where married couples are also taxed jointly but the tax level of tax progressivity is lower, the income tax burden between a one-earner couple and two-earner couple (100-33) differs by 1.3 percentage points. Contrary to that, the separate taxation in Italy and Sweden leads to a decrease in the tax burden (-0.2 and -0.6 percentage points, respectively), once the non-employed spouse finds a job paying at least 33% of the average wage.

In order to examine in more detail how the systems of joint and separate taxation for married couples may affect the tax rate of both spouses, Figure 3.7 compares the average tax burden for primary and secondary earners of a couple with two dependent children (see OECD, 2016). The primary earner is considered to earn the average wage, while the secondary earner is considered to move into employment paying 67% of the average wage. Assuming that the second earner enters the workforce after the primary earner and the working decision is made at the family level, the tax burden of the secondary earner measures the tax burden the family additionally has to pay, as a proportion of the second earner's gross income. As Figure 3.7 indicates, there exist differences in the tax burden of primary and secondary earners in all four selected countries. With 21 percentage points this difference is particularly large in Germany. Due to the system of joint taxation and the progressivity of tax rates, the second earner effectively pays tax at a higher part of the income tax schedule than they would under individual-based taxation since

Figure 3.7

Average tax burden for primary and secondary earners

2015; income taxes plus social security contributions as a percentage of labour costs



Source: OECD (2016b). - Notes: Primary earner at the average wage level, second earner at 67% of the average wage, 2 children.

the primary earner is already gaining the full benefits from the lower part of the tax schedule (OECD, 2016). There might also exist substantial differences in the tax burden of primary and secondary earners even in the presence of an individual-based income tax system such as for example Italy. This can be explained by the fact that there exist different kinds of exemptions from pure individual taxation. For example, dependent spouse allowances are lost when both spouses work or tax allowances and tax credits that are based on the family income are transferred to the spouse when the other partner is not working (Bettio and Verashchagina, 2009). A comparable tax burden for the primary and the secondary earner can be observed for Sweden, where one of the few strictly individualized income tax system exists.

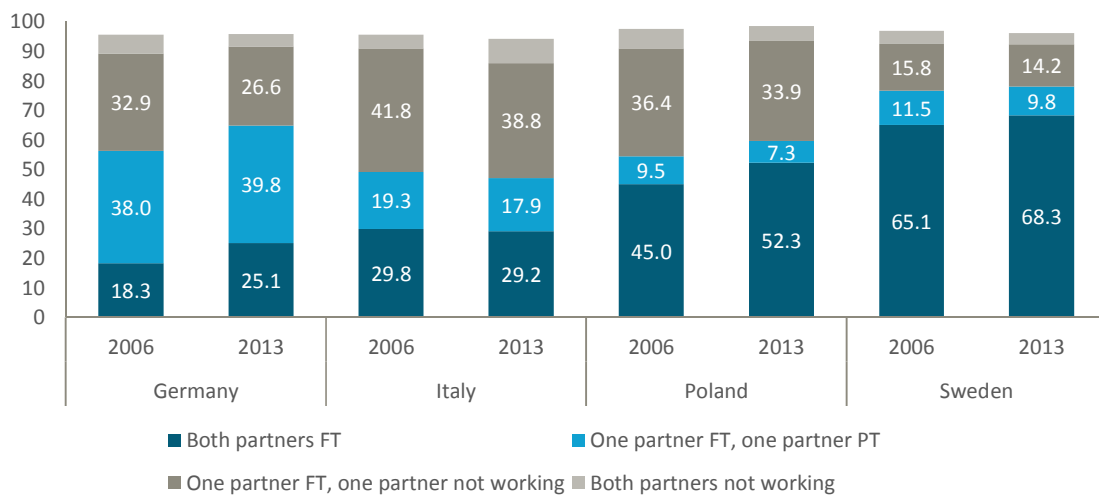
Due to lower earnings or a lower amount of working hours it is mainly the women whose contribution to the household income is lower than that of their spouses (Bettio and Verashchagina, 2009). This implies that in the majority of cases the female partner is the secondary earner and thus is confronted with a comparatively high tax burden. As one might expect that higher tax rates lower women's incentives to increase their extensive or intensive labour supply, the secondary earner trap prevalent in many European tax systems works against the achievement of gender equality in the labour market.

3.2.2 Relation between labour market outcomes and the tax system

Although women's employment opportunities in European Member States have increased over the last decades, there still exist substantial gender differences regarding the participation rate and the share of part-time work. The countries selected for the case studies highly differ with respect to these two labour market indicators, with considerably high participation rates and a part-time share close to the EU-average in Sweden, above EU-average participation rates and an exceptionally high share of part-time workers in Germany, below EU-average participation rates and a considerably low rate of women working part-time in Poland as well as with an exceptionally low labour market participation and a part-time share slightly above the EU average in Italy.

These labour market features are apparent in Figure 3.8 which displays the distribution of employment patterns in couples. Overall, dual-earner couples is the most prevalent model in all countries. The share of “full-time dual-earning”-couples has increased during the last decade (except Italy) and is the most common employment pattern in Poland and Sweden. In both countries the difference between the tax burden of the primary and the secondary earner are comparatively low, implying that the fiscal system does not create substantial disincentives for women to work in full-time employment. In Germany it is particularly common (39.8%) for one partner to work full-time and one partner part-time, while this is less frequent in the other countries. This large share of one-and-a-half earner households may be attributed to the secondary earner penalty which in Germany is particularly large and weakens women's financial incentives to increase working hours. The lack of incentives might also explain the share of single-earner couples which, although it is decreasing over time, still represent a substantial portion in Germany (26.6%) and Italy (36.4%). Poland can be characterized by a high share of couples with only one spouse working (33.9%), although the average tax burden of secondary earners is comparatively low.

Figure 3.8
Employment patterns of couples
2006 and 2013



Source: OECD Family Database. - Data for Sweden refers to 2009 and 2012.

A number of studies has identified the design of the tax and benefit system as a key dimension in shaping incentives to enter or stay in employment and thus to play an important role in explaining cross-country differences in the labour supply behaviour (e.g. Rogerson, 2006; Olovsson, 2009). However, there are important differences across socio-demographic groups, with women being generally more responsive to changes in net earnings than men. While there is hardly any difference between single women and men, the responsiveness with respect to the probability to work or with respect to the hours of work strongly differs between married women and married men. A large body of research provides evidence that across countries the labour supply of the primary earner, typically the man, is rather inelastic, whereas the labour supply of the secondary earner, typically the woman, is considerably elastic and strongly depends on the household income (e.g. for Italy Aaberge, 1999; Blundell and MaCurdy, 1999; Evers et al., 2008). This is especially the case when market activities are easily substituted by home production (Garibaldi and Wasmer, 2004).

The higher labour supply elasticity of the secondary earner, together with Ramsey's optimal taxation criterion whereby tax rates should be inversely proportional to the labour supply elasticity of the taxpayer, secondary earners should be taxed at a lower rate than primary earners (see Immervoll et al., 2009). This to a certain degree is achieved by the progressivity of income taxes prevalent in all four selected countries, since the higher incomes of the primary earner are taxed at a higher marginal rate than the lower incomes of their spouses. However, a system of joint taxation with progressive tax rates, as it can be found in Germany and Poland, creates equivalent marginal tax rates across partners and therefore does not fulfill this efficiency criterion.¹⁰ Moreover, as the tax on the second income starts at the highest marginal tax rate of the primary income and the secondary earner trap can get considerably large (as shown in Figure 3.7), secondary earners in Germany face strong disincentives to supply labour (Meier and Rainer, 2015).

There exists a large literature showing that married women's low labour market participation rates or high shares of part-time employment are closely related to the negative labour supply incentives for secondary earners (e.g. Steiner and Wrohlich, 2004; Dearing et al., 2007). A cross-country analysis conducted by the OECD (2012) considering different factors determining female labour market participation shows that the prevailing higher tax rates on secondary earners significantly reduces labour force participation. According to the European Commission (2013), disincentives to return to work are high in Belgium, Germany and the Netherlands, whereas disincentives to increase working hours are particularly high in Belgium, Germany, Italy and Denmark. Several studies employing micro simulation models to simulate different reform scenarios and their impact on labour market participation suggest that a move from joint to individual taxation would substantially increase the extensive as well as the intensive labour supply of married women (e.g. for Germany Steiner and Wrohlich, 2004; Bach et al., 2011). The introduction of a gender-based taxation, which has been proposed by Alesina et al. (2011) and where secondary earners face lower tax rates than their spouses, has been found to increase women's labour market participation (e.g. for Italy Colonna and Marcassa, 2013).

3.3 Education

Education has important implications on the labour market careers of men and women by increasing their skill endowment and improving their employment opportunities. Across European Member States there has been an increasing trend in the educational attainment of women during the last decades. Not only do younger women feature higher levels of education than their older counterparts, but they are also more successful than men in terms of completing school education and accessing higher education. In most European countries, women even obtain tertiary education more frequently than men. The expansion in the educational attainment of women, however, does not result in a corresponding improvement of their labour market position. It rather appears that gender prejudices and stereotypes throughout education and the resultant professional choices and career paths contribute to the continuing gender inequality in labour market outcomes. In this context, the school-to-work transition, representing a crucial stage in young people's work life, plays an important role and might explain why higher educational attainment does not translate into advanced labour market outcomes.

Against this background, cross-country differences in education can potentially explain gender gaps in labour market participation. In the following, we therefore describe various components

¹⁰ Even in countries where the tax system is individualized there may be some elements of joint taxation (e.g. benefits provided against the family income (Bettio and Verashchagina, 2009), which influences the household net income.

of education systems in the example countries chosen, such as school tracking, prevalence of vocational training and public expenditures on education.

3.3.1 Comparison of country-specific education systems

The education system in **Germany** is characterized by its school tracks. After the primary school, which starts at the age of 6, pupils are tracked into three different secondary school types at the age of 10. These are mainly classified as: i) lower secondary schools (Hauptschule), preparing pupils for blue collar professions, ii) intermediate secondary schools (Realschule), preparing pupils for administrative and lower white-collar professions and iii) upper secondary schools (Gymnasium), preparing pupils for higher education with the possibility of direct access to university programs. Additionally, there is a comprehensive school form (Gesamtschule), which involves preparation for the three types of degrees within one school. In the 2014/2015 school year, 34.2% of pupils in secondary education were enrolled in upper, 22.7% in intermediate, and 12.1% in lower secondary schools, whereas 15.8% attended comprehensive schools (Malecki, 2016).¹¹

Another distinctive feature of the German education system is the widespread use of dual education. The dual education system is based on a combination of courses in the classroom and the acquisition of practical knowledge through learning-by-doing. Almost half of the individuals (49 %) aged 25-34 possess upper secondary or post-secondary non-tertiary vocational qualification as their highest educational level (OECD, 2017a). Vocational education constitutes a very significant part of the upper secondary education in Germany. Among students enrolled in upper secondary education, the share choosing general programmes (52.2%) is slightly above the share in vocational programmes (47.8%) (Hippach-Schneider and Huisman, 2016).

Compulsory education in **Poland** starts with one year of pre-school at the age of 6. With the 8 years of primary school, compulsory education lasts 9 years. As a result of the declining share of vocational education over the last decades, recent policies have targeted to promote dual vocational training in cooperation with the business sector to address the needs of the labour market more directly. As a consequence, vocational education and training has become relatively widespread again in Poland. Currently, approximately 43% of secondary level pupils are enrolled in general programmes, whereas 57% are in vocational programmes (Chłoń-Domińczak et al., 2016). In Poland, numerous education reforms were implemented since the 1990s as the skill endowments of people were not easily adaptable to the needs of the market economy after the collapse of the socialist state (Pastore, 2005). These reforms resulted in a substantial educational expansion in Poland, which outstripped the average increase in educational attainment in other European countries. The improvements in terms of years of schooling were also observed in terms of skill improvements of pupils. Poland's education system is shown as a distinctive example internationally. PISA studies conducted by the OECD have revealed that Polish pupils demonstrate one of the best performances in international comparisons. This is a remarkable improvement compared to the relatively weak performance of Polish pupils in the first PISA studies.

In **Sweden**, one year of pre-school is provided to all children. Although pre-school is not compulsory, almost all children participate in it. Compulsory schooling lasts 9 years. Upper secondary school, which lasts 3 years, is optional. Those not eligible for upper secondary education can apply for one of the 5 introductory programmes, which offer students an individually-adapted education addressing their educational needs. At the upper secondary level, there are 18 national programmes, 6 of which prepare pupils for higher education such as university, whereas

¹¹ The remaining 15% are enrolled in other forms of education.

12 provide vocational degrees. 33% of those in upper secondary education were enrolled in a vocational programme in 2016 (ReferNet Sweden, 2016). The overall participation rate in vocational programmes has been declining in Sweden over the last years with the sharpest decline being in programmes for handicraft and construction.

Recent education policies in Sweden have focused on improving the quality of education and teaching. This policy target arose from the deteriorating performances of students in PISA studies. Thus, Sweden implemented reforms in 2011 and 2013 which mainly targeted teaching profession. Moreover, eliminating discrimination and providing equal opportunity to all students with a gender-aware education have been major targets of the public education policy.¹²

Compulsory education in **Italy** starts at the age of 6 and continues until the age of 16. Students are required to stay in education or training until they are 18 or until they obtain a training qualification. The first school tracking takes place at the age of 14. At the upper secondary level, pupils are tracked into i) high schools (general programme); ii) technical schools; or iii) vocational schools. School tracks, however, do not have strong restrictive implications on the study choices of students as in the German example. Early school drop-out rates in Italy (14.7 % in 2015) are high compared to the European average (11%) (OECD, 2017b). High drop-out rates represent one of the largest challenges of the Italian education system. This implies a large concern for the students in vocational training as approximately half of them are one year late in their training and previous examples showed that this leads to a higher likelihood of early exits or drop-outs (INAPP, 2016).

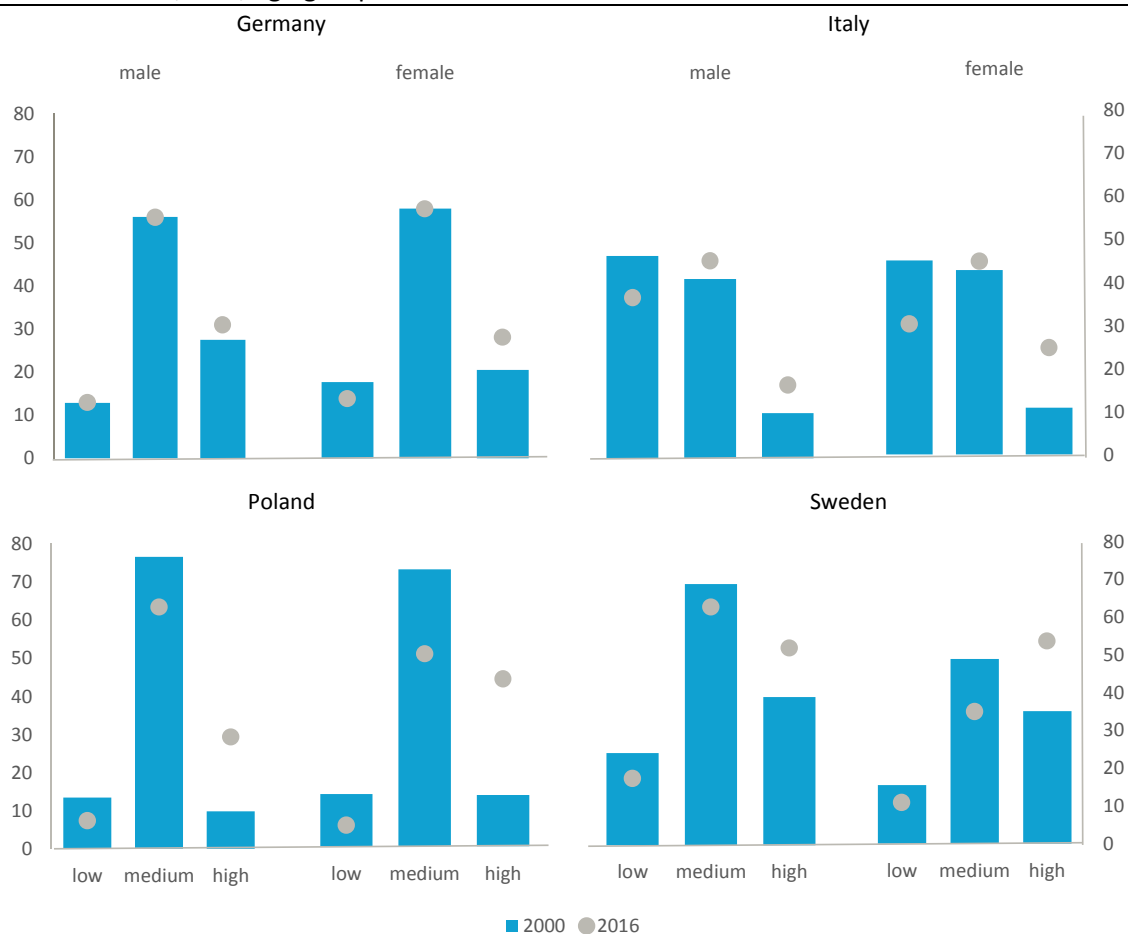
Italy has recently implemented a school reform called “La Buona Scuola (The Good School)” which targeted at improving the quality of the school system. The reform includes various tools, such as offering schools more independence in setting curricula, hiring a large number of new teachers, introducing merit-based payment scheme to teachers and requiring participation in mandatory traineeship for all upper secondary students (OECD, 2017b).

Despite these differences in educational systems, there are some similarities between countries. Figure 3.9 displays the educational levels attained by men and women as well as their development between 2000 and 2016 for the selected countries. The last decades have witnessed a remarkable improvement in the educational attainment in Europe, reflected by decreased shares of low- and medium-educated and increased shares of highly-educated individuals. The decrease was particularly pronounced in Italy, as the share of low-educated men and women has been considerably high. However, education attainment is still lower compared to other selected countries. In contrast to that, Sweden exhibits the highest educational attainment with more than 50% of men and women holding a tertiary degree in 2016.

Regarding gender differences, Figure 3.9 illustrates that the rapid educational expansion during the last decade has been very prominent among women, as they now more frequently attain higher educational levels and in most countries even outperform their male counterparts. Women’s increase in tertiary education has been relatively large in all selected countries and has been particularly pronounced for Polish women.

¹² More detailed information on the Swedish education system and policy is available at: <https://swe-den.se/society/education-in-sweden/>.

Figure 3.9
Educational attainment levels
2000 and 2016; in %; age group 25-49



Source: Eurostat (2018), Indicator: *lfsa_pgaed*. - Notes: low: less than primary, primary and lower secondary education (ISCED 0-2); medium: upper secondary and post-secondary non-tertiary education (ISCED 3-4); high: tertiary education (ISCED 5-8).

While women are thus not in a worse position than men regarding the attained levels of education, gender stereotyping in education and the associated segregation in educational fields might play an important role in the context of gender equality. Already in early stages of schooling the relative performance of boys and girls differ across certain subfields, with girls performing on average better than boys in reading and boys outperforming girls in mathematics (OECD, 2016c). Moreover, parents as well as teachers have gender-differentiated educational and career expectations and often encourage boys and girls to choose career options that fit gender stereotypes (ETUCE, 2012). As shown in Chapter 2, this is reflected by segregation prevalent in education, with women dominating fields like social sciences and humanities and men dominating STEM-fields like science and engineering. The question whether segregation in study fields is linked to ability, more specifically the underperformance of girls in mathematics, has been frequently raised. The empirical evidence shows no significant relation between the ability and the field of study (Wang et al., 2013; Friedman-Sokuler and Justman, 2016). Thus challenging gender prejudices throughout the education cycle and ensuring that choices about education and career are not influenced by stereotypical perceptions appears to be crucial in reducing gender segregation and reaching a higher level of gender equality at the labour market.

3.3.2 Relation between labour market outcomes and education

Labour market outcomes of women exhibit remarkable dissimilarities by education level, indicated for example by Figure 3.10 which presents the gender gap in labour market participation rates as well as its development between 2000 and 2016. In all selected countries, the gender gap in participation rates is highest among the low-educated individuals and decreases as the education level increases. This can be attributed to the higher labour market participation rates among highly-educated women compared to medium- and low-skilled women as shown in Chapter 2. The educational expansion over the last decades coincides with the observed increase in the labour market participation of women, leading to a convergence of gender gaps. In our sample of selected countries, this is true for Germany and Italy, where the gender gap in participation rates has particularly converged among the low educated. In Poland and Sweden, however, the gender gap has increased or stayed at the same level in all educational groups. The Polish evidence is quite striking, as the relative improvement of women in educational attainment in Poland outstripped the improvement of women in other countries. Although there is an increasing trend in the employment levels of women in Poland, this increase is relatively weak considering the large increase in their educational attainment levels. Nevertheless, across all European Member States higher educational levels are related to lower gender gaps in labour market participation rates and thus appear to be an important pathway to more gender equality in economic outcomes.

Gender disparities in employment patterns are already observable during the school-to-work transition. As the school-to-work transition is a crucial life stage for young people and has long-lasting effects on their labour market outcomes, gender disparities in school-to-work transition may partly explain the overall disparities in the gender gap in labour market outcomes. In particular, there are large differences between countries with respect to the duration to find the first job. In general, individuals in Southern and Eastern European countries have a slower transition to their first job than individuals in other parts of the EU. Overall, although women and men have a similar pace of finding a job directly after leaving education, this similarity disappears after the first months. Men have a faster transition to their first job than their female counterparts. This result persists even after accounting for individual characteristics, such as age, education level and educational field. For example, in Italy, it takes 19 months for men until half of them find their first job, whereas it takes on average 25 months until half of the female graduates find their first job. This gap is the largest in Italy among all EU countries. The transition to first job is much faster in Germany, where half of the men need 6 months and women 9 months. Both in Poland and Sweden, there are no significant differences between men and women (Mills and Präg, 2014). The school-to-work transition is also affected by the education level. While women of all skill levels have a slower transition in comparison to men, highly-educated women experience a faster transition to their first jobs than their low- and medium-educated counterparts. The gender gap in transition is thus especially pronounced for the low-educated women.

Vocational training is shown to ease the school-to-work transition. Individuals with vocational education, especially those with a workplace-based vocational training, find their first jobs faster than those without a vocational degree. Yet, this result is largely driven by men as women are in general less frequently represented in the upper secondary vocational education than men. Figure 3.11 presents the gender differences in enrolment in vocational versus general programmes at the upper-secondary level. Vocational programmes are clearly dominated by male pupils in Germany, Italy and Poland, whereas differences between men and women are very small in vocational education in Sweden.

Figure 3.10

Gap in labour market participation rate (LMPR men – LMPR women) by education level
2000 and 2016; % difference; age group 25-49



Source: Eurostat (2018), Indicator: *lfsa_argaed*. - Notes: low: less than primary, primary and lower secondary education (ISCED 0-2); medium: upper secondary and post-secondary non-tertiary education (ISCED 3-4); high: tertiary education (ISCED 5-8).

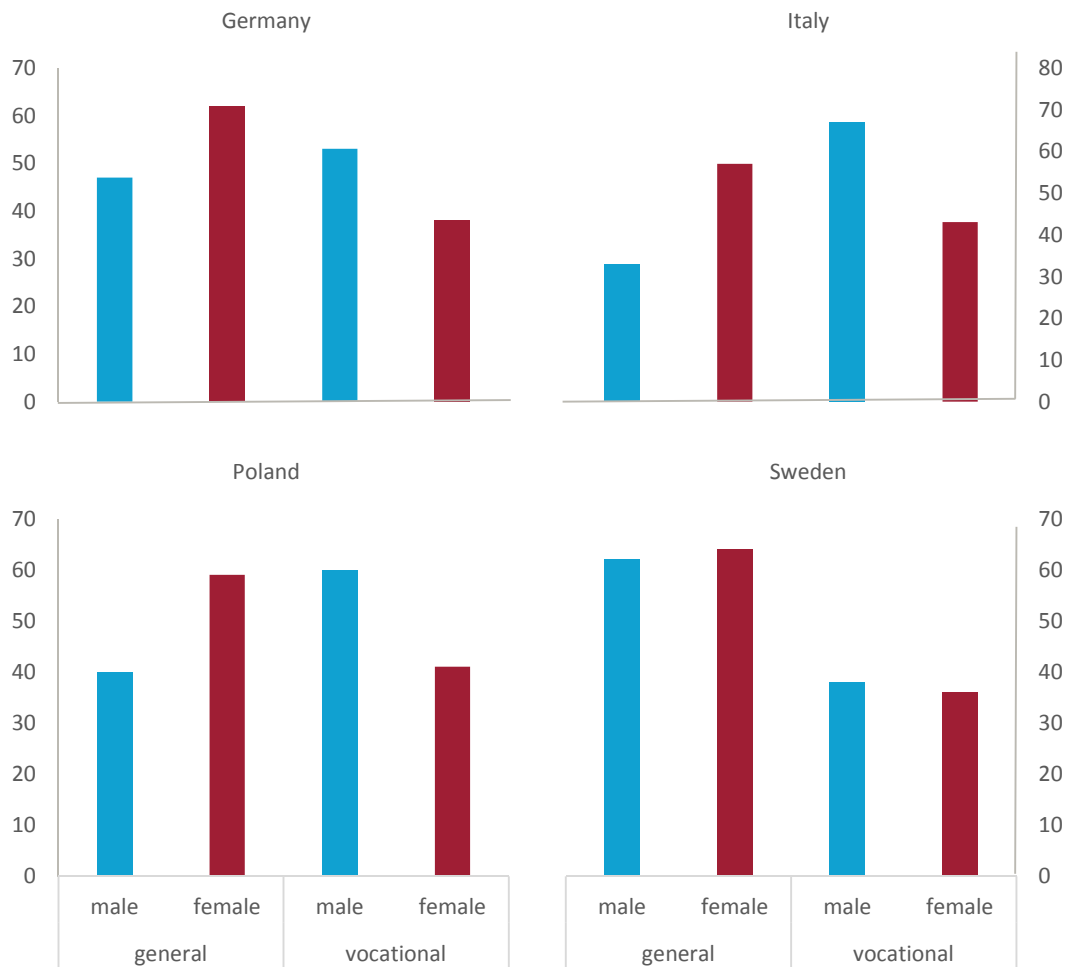
In order to facilitate the transition from education to the labour market and to directly address the current skill shortages, European Member States have recently started to provide incentives to extend vocational education and training throughout Europe. As vocational training provides different employment opportunities than general education programmes, a persistent uneven gender distribution in vocational training is likely to contribute to existing gaps in employment in the future.

Generally, education yields large benefits – both at the level of the individual and of society – especially when it starts early. Early educational interventions may also lead to lower levels of inequality because they are particularly beneficial for children from disadvantaged backgrounds. This has for example been shown for the HighScope Perry Preschool Program, which was an early childhood programme in the US. In this programme, children aged 3 years from disadvantaged backgrounds participated in a 2.5-hour preschool programme on weekdays, and were visited by teachers at home once a week. This programme has been shown to yield social rates of return

Figure 3.11

Share of vocational vs. general programmes in upper secondary education

2016; % distribution in upper education



Source: Eurostat (2018), Indicator: educ_uoe_enrs05. - Notes: Upper secondary education refers to ISCED 3.

of between 7 and 10% (Heckman et al., 2010). The returns include fewer grade repetitions following participation in the programme, a lower need for special education, higher earnings and thus tax receipts, lower welfare payments, and lower costs of crime. In addition, further outcomes such as health and healthy behaviour were improved (Conti et al., 2016). Finally, it should be taken into account that “skills beget skills”, i.e. individuals who acquire education early in life are more likely to continue doing so later in life (Cunha and Heckman, 2007, 2008).

3.4 Cultural and historic norms

Socio-cultural norms about the role of women in the family are important determinants of the differences between countries with respect to labour market outcomes of women. As one important effect, the social norms about gender roles determine the distribution of paid and unpaid work within the family. In traditional societies, women have a higher responsibility for unpaid work in the household, while men are perceived as bread-winners. Such perceptions constitute a barrier to the labour market participation of women. Moreover, gender stereotypes play an important role when it comes to choosing a field of education as well as an occupation.

Family, tax and education policies, which we considered in previous chapters, can help alleviate gender gaps by providing women and families with the possibility to reconcile work and family and to create the right incentives in this context. However, the effectiveness of policies highly depends on the cultural norms within societies. Thus, implementing successful policies to promote female labour force participation requires taking cultural norms into consideration. Below, we therefore briefly describe cultural norms in our four example countries.

3.4.1 Comparison of country-specific cultural and historic norms

Employment patterns of women in East and West **Germany** differ quite strongly, which can be put down to the historical developments in Germany over the last century. The socialist ideology in East Germany actively supported the labour market participation of women, while in West Germany traditional gender roles in labour force participation of women was relatively stronger. As a result, large discrepancies in the employment patterns of women in East and West Germany arose. At the time of reunification, the female employment rate was remarkably high at around 67% in the East, whereas it was at around 55% in the West. Employment rates in the East decreased for both men and women for a decade after reunification, but started to increase again since the 2000s. On the other hand, the female employment rate in West Germany has been increasing steadily, reaching levels similar to the East (Holst and Wieber, 2014).

While the employment rates in East and West Germany have been converging, there is a substantial gap with respect to working hours. In the East, women work on average 6 hours more than women in the West. The East-West gap is even more severe when women with children are considered. In East Germany, 55.7% of women with children worked full time in 2012, whereas only 25.2% did so in the West (Holst and Wieber, 2014). Overall, the differences in employment patterns are a sign of the widespread acceptance of women working full-time in East Germany.

In the former socialist regimes in Central and Eastern Europe, women's labour market participation rates were substantially higher than in Western Europe. State socialism implemented a double-earner model with generous social policies, job security and low labour market competition. Although women's employment participation rate in **Poland** was remarkably higher than in southern, western and northern Europe in the 1980s, it was relatively low compared to other communist countries (Jackman and Rutkowski, 1994). After the collapse of the socialist regime, the formerly communist countries implemented very different economic and welfare policies, which affected female employment participation differently. While some countries, e.g. Slovenia and Lithuania, provided further incentives for women's continuous employment and active fatherhood, Poland, on the contrary, strongly reduced public support for parents (Matysiak, 2009). This is likely driven by the rigid attitudes towards a traditional understanding of family in Poland. Limited provision of public childcare puts the burden of childcare solely on families and hinders compatibility of work and family (Javornik, 2014). Due to traditional gender roles within families, childcare obligations fall upon mothers.

The strong gender roles in combination with the scarcity of public support have resulted in low labour market participation rates in Poland relative to other EU countries. Also when only former communist countries are considered, Poland still falls behind with respect to women's labour market outcomes. Moreover, the relatively stable gender gap in labour market participation rates reveals that the employment situation of women has not significantly improved in Poland over the last decade.

In **Sweden**, family policies have targeted a double earner model since the 1960s. With 80% of women participating in the labour market, Sweden displays the highest female employment participation rate in the EU as shown by Figure 2.1 in Chapter 2. The egalitarian attitude promoted by active policies, education and the welfare system has led to a more equal distribution of both paid and unpaid work between men and women. Moreover, gender equality is strongly highlighted in the Swedish education system. Providing equal opportunities regardless of gender and incorporating teaching methods which counteract traditional gender patterns and gender roles are explicitly stated as public policy.¹³

The egalitarian attitudes promoted by the education system is supported also by the welfare system. Men in Sweden take active roles in parenthood. Long periods of parental leave used by many men alleviate the participation problems for women due to childcare obligations. Thus, government initiatives play an important role in transforming gender stereotypes.

The labour market participation of **Italian** women is much below the European average. As a result of widely accepted gender stereotypes, Italian women are allocated a substantial part of the unpaid work within the family, which means that there is less time available for women to participate in the labour market. This effect is exacerbated by the limited provision of public childcare. However, informal childcare provided by relatives is used commonly to deal with the scarcity of formal cares. 30% of grandparents in Italy provide care on a daily basis, whereas it is only 15% in Germany and 2% in Sweden (Arpino et al., 2014). These differences in the dependence on informal care result both from family ties and from the availability of childcare. On the other hand, Italian women are shown to take care of elderly family members, which keeps them away from employment, too (Bordone and Rosina, 2013).

This situation can also be explained by the impact of norms and culture, which can be seen when looking at differences within Italy. In particular, there have traditionally been large discrepancies between the north and the south of Italy, both economically and socially. While traditional norms are more deeply rooted in southern Italy, the economic performance is weaker compared to the north (del Boca, 2002; del Boca and Vuri, 2007). These discrepancies are also reflected in the labour market participation of women. In the north of Italy, female employment rates are substantially higher than in the south.

Culture affects not only individuals' attitude but also firms' attitude towards the employment of women. In Italy, firms are generally more reluctant to hire female workers than males (Campa et al., 2011). The reluctance of firms is generally linked to perceived costs resulting from childcare obligations of women, which keep them away from the labour market for a while.

3.4.2 Relation between labour market outcomes and cultural and historic norms

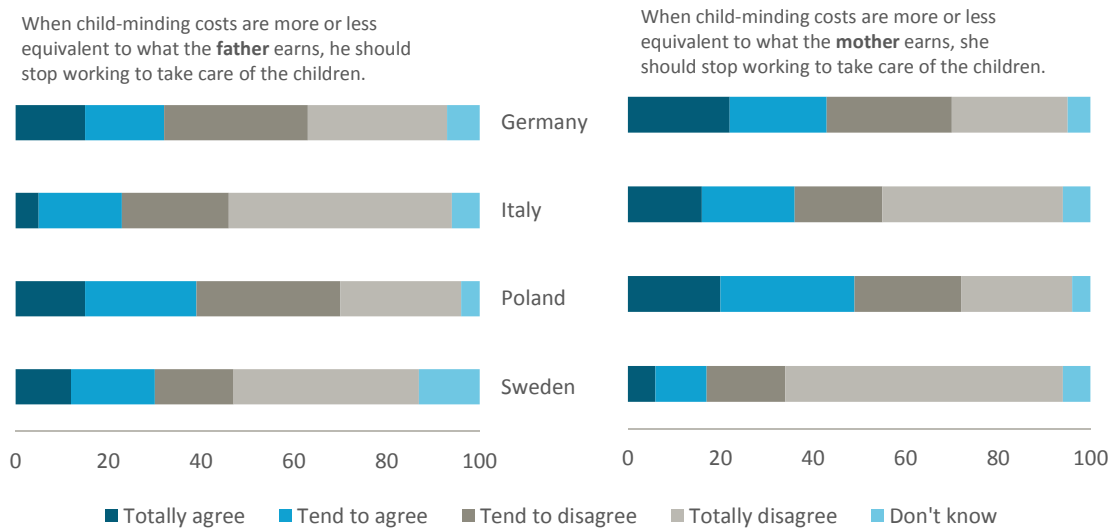
Cultural norms with respect to the labour market participation of women differ widely across European countries. For example, the World Values Survey 2010-2014 asks a question about the allocation of available jobs between men and women (Inglehart et al., 2014). It turns out that 26 % of respondents in Poland express that "when jobs are scarce, men should have more right to a job than women". On the contrary, only 2% agree with this statement in Sweden, where egalitarian attitudes are deeply rooted.

¹³ More detailed information on the education and social policies in Sweden is available at <https://swe-den.se/society/education-in-sweden/>.

Cross-country differences are equally pronounced when it comes to working mothers. Figure 3.12 displays the preference of individuals towards a working mother or father in case their earnings are more or less equal to the costs of childcare. In Poland, Germany and Italy, people have stronger preferences that women should stop working when their earnings are more or less equal to childcare costs than in Sweden. When it comes to whether fathers should work in the same situation, the share of people stating they should stop working is much lower than the share stating women should stop working in the countries where traditional gender stereotypes are stronger, i.e. Poland, Italy and Germany. Regardless of income prospects, negative attitudes towards working mothers are also more pronounced in more traditional countries. For example, while 34% of people in Poland agree that a preschool child is likely to suffer if his or her mother works, this share is only 3% in Sweden (OECD, 2017c).

Figure 3.12

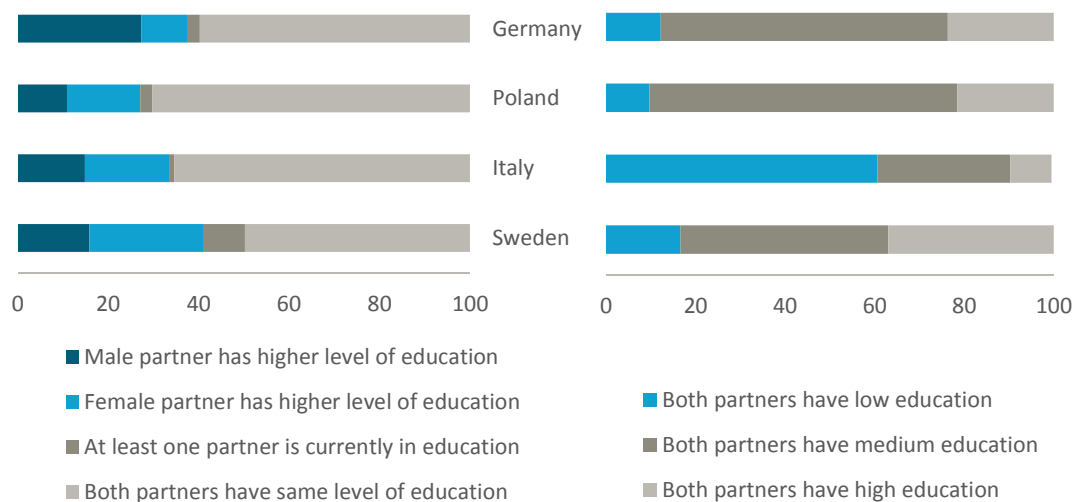
Gender attitudes towards working
2012; % of responses to survey questions



Source: *Gender Inequalities in the European Union- Report (based on Flash Eurobarometer 341).*

Attitudes towards working mothers have however become more positive over the last decades. One important factor contributing to this evolution are the substantial advancements in the educational attainment of women, which have changed the educational balances within families. In particular, the patterns of educational assortative mating, i.e. couples with similar educational attainment level, have changed. In general, the share of women married to more educated men has become lower over time. Substantial cross-country differences in assortative mating are observable from Figure 3.13. While the share of women who hold a higher education level than their partners is 25% in Sweden, it is only 10 % in Germany. Among the couples with same level of education, a remarkable share in Italy display a low level of education, whereas in other countries assortative mating is observed more among medium and high skill couples. This is likely to arise from the relatively low average educational attainment in Italy compared to other countries as shown in Figure 3.9.

Figure 3.13
Educational assortative mating
 2014 (for Germany, 2013)



Source: *The Pursuit of Gender Equality- An Uphill Battle (OECD, 2017)*. OECD calculations are based on the EU-LFS. - Notes: Distribution (%) of individuals living with an opposite-sex partner by pattern of educational attainment in current partnership, 20-year-olds and over. Education levels refer to low: ISCED 0-2; medium: ISCED 3-4; high: ISCED 5-8.

As the education level within families becomes more similar, the division of paid and unpaid work between men and women gets also more equal. Men, especially the high-skilled, take a more active part in parenting. This can arise both from more gender-egalitarian attitudes among highly-educated individuals and from a more equal contribution of each spouse to the household income. Gender roles and the distribution of unpaid work within the family seem to remain persistent over time, yet with substantial differences between countries. Throughout Europe, men are most often primary earners and women invest more time in unpaid work as revealed by Figure 2.7 in Chapter 2. With increasing levels of education and changing family structures, women are more likely to hold higher educational degrees and to become the primary earner within their family. This is especially prominent in Poland, where 41 % of women who hold higher education than their partners are primary earners of their families (OECD, 2017c).

Education and earnings imbalances within couples also have an impact on the parental leave decision of fathers. Geisler and Kreyenfeld (2011) show that men in Germany are more likely to take parental leave when women are more highly educated. Lappegard (2008) indicates that fathers' likelihood of taking parental leave in Norway is positively correlated with the contribution of mothers to the family income. However, a US study by Bertrand et al. (2015) shows that in couples where the wife earns more than the husband, the wife spends more time on household work. Their results suggest that being primary earners does not necessarily indicate that the burden of unpaid work is lower for women. Moreover, they state that the contribution of women to the household income displays a sharp decline at the level where their earnings start to exceed the earnings of their husbands. This implies that there are very few women who earn more than their husbands. They discuss that this is driven by the gender identity norms which induces that men should earn more than women. Indeed, results of the World Values Survey (2010-2014) reveal the strong societal preferences for the aversion of women earning more than men in many

countries. For example, 19 % of German and 17 % of Polish respondents agree that “if a woman earns more than her husband, it’s almost certain to cause problems”.

Finally, it is not only the case that education affects cultural norms, but causality also runs the other way: Cultural norms can affect the education and occupation of women. However, the descriptive evidence on this relation is somehow puzzling. As Figure 2.9 in Chapter 2 displays, in Poland and Italy, where the traditional gender roles are more prevalent, the share of female students in the “men-dominated” STEM fields is about 40%, which is above the EU average. On the other hand, the share of female graduates in STEM fields in gender-egalitarian Sweden lies at 32%. Germany has the lowest female share in STEM among the four countries with 27%. Thus, choice of study field does not appear to be directly related to the gender norms in the society. Moreover, the degree of gender segregation in occupations exhibits little variation between countries, which suggests again that the choice of occupation is not strongly related to country-characteristic gender roles. Finally, gender segregation both in education and in occupation has remained rather stable over time in Europe (Bericat and Bermejo, 2016).

There are thus a number of channels through which cultural norms can affect labour market outcomes. It turns out that this matters indeed in reality. Giavazzi et al. (2013) find for OECD countries that attitudes towards women’s role in the family are important determinants of the employment rate of women, as are policies and institutional characteristics of the labour market. These results hold even when taking into account that culture also shapes policies and institutions. These results also imply that policy measures can have a different impact depending on the cultural background of the persons affected. In this context, it also is worth pointing out that the societal attitude towards working mothers can also have an indirect effect on the labour market participation of women because they are likely to influence policies such as the provision of childcare (Borck, 2014).

Overall, the findings from the literature imply first that culture matters for the labour force participation of women, both directly and indirectly (through an effect on institutions). Second, policy measures can still have an effect, but the magnitude of this effect depends on the cultural background. Therefore, the magnitude of the effect of a specific policy measure in a country is difficult to forecast.

4. Conclusions and proposed actions

In this chapter, the findings of the statistical analysis and of the cases studies are consolidated in order to give an overview of the key factors determining the position of women in European labour markets. The aim of this concluding overview is to strengthen the understanding of the policies needed to support the development of greater equality in the labour market. In order to do so, we identify a number of key actions which could be undertaken at the EU level and at the national level – both approaches are clearly warranted in order to tackle these issues. In particular, the results of the country case studies may be able to determine successful policy mixes that help to strengthen various components of gender equality principles and to promote and support female employment.

4.1 Conclusions

A. Childcare

Regarding childcare, the findings point to a positive relationship between the provision of childcare facilities and maternal labour market outcomes. The country with the most generous provisions in this context is Sweden. This country is characterized by high public expenditures on family benefits and a relatively high coverage of inexpensive, mainly full-time childcare as well as generous parental leave with earmarked periods for fathers. As a result, the labour market position of mothers tends to be better and thus the level of gender equality higher than in other countries. As such policies are expensive, it is important to realize that part of the costs are offset by the additional tax revenues and reduced transfer payments that are associated with an increase of women's labour market participation.

The overall results also suggest that high participation rates in formal childcare alone are not a prerequisite for high levels of maternal labour market participation. It is rather the combination of certain family-friendly policies such as improving the accessibility, affordability and flexibility of childcare as well as legislating properly designed parental leave schemes that decreases the barriers to supply labour and encourages mothers to actively participate in the labour market. Furthermore, the example of Germany suggests that the introduction of worker-friendly policies with respect to childcare may take some time to have a positive impact on the (full-time) employment of mothers or is weakened by other policies creating disincentives to work.

B. Tax System

Although the tax system is gender-neutral across all European Member States, its design may lead to significant inequalities between men and women as it shapes their work incentives differently. As women often earn less than their spouses and are the secondary earner in the household, their tax burden under a joint taxation system with progressive tax rates is considerably larger than that of the primary earner. As a result, women's financial incentives to enter employment or increase working hours are weakened. This secondary earner trap, which is for example particularly large in Germany, works against the achievement of gender equality in the labour market. By contrast, an individual taxation system, where the incomes of both spouses are taxed separately, favours dual-earner couples and incentivizes women to participate in the labour market. However, even in countries with an individualized tax system there may exist some elements of jointness (e.g. tax reliefs that are transferable between partners or benefits provided against the family income), that may also affect the secondary earner's decisions to enter work or work more.

C. Education

Education is a crucial determinant of labour market success and of gender equality. It turns out that European women without higher levels of education display much worse labour market outcomes than women who are relatively highly educated. Furthermore, gender equality in terms of labour market participation is much lower at lower levels of education. In that respect, it is encouraging that younger cohorts of women feature higher levels of education than their older counterparts, they are on average even more successful than men in completing school education and accessing higher education.

However, this very good educational performance does not directly translate into a high labour market participation in many countries. One important factor in this context is the transition from the education system to the labour market, where disparities between men and women already become apparent, especially for individuals with low levels of education. Vocational training can be successful in facilitating the school-to-work transition. However, in many countries vocational training is predominantly used by men, which potentially even increases gender inequalities in the labour market.

D. Cultural Norms and Societal Conventions

Cultural norms and societal conventions with respect to women, and especially mothers, participating in the labour market differ widely across Europe, and they have been shown to play an important role for gender equality in the labour market. This works through a direct effect as gender norms to an extent determine the division of work between couples. With more traditional norms, women fulfill more unpaid work in the household, which reduces their participation in the labour market.

Education also matters in this context. In particular, there is a strong link between the differences in education of couples and the division of paid and unpaid work: The larger the educational differences, the more unpaid work women do in the household, and the less they participate in the labour market. The increase in education level has therefore significantly contributed to more gender equality in the labour market in the past.

Finally, there is also an indirect effect of cultural norms on labour market inequality. This effect arises as countries with norms which favour the participation of women in the labour market also tend to implement policies and institutions which increase female labour market participation.

4.2 Proposed actions

In European Member States, a number of important steps to improve women's labour market position and combat gender inequality have already been taken by both the public and the private sector. This includes amongst others the legislation of employment-protected parental leave implementation of family-friendly policies and tackling the promotion of stereotypes in school through educational programmes (see OECD, 2017d). Besides country-specific policies, there already exist a series of policies at the EU level aiming to equalize employment opportunities between men and women across the whole of Europe. An example for such an initiative is the proposed Work Life Balance Directive currently debated in the European Parliament. This directive sets out a comprehensive package of complementary legal and policy measures and addresses the modernisation of the existing EU legal framework of family-related leaves and flexible working arrangements. However, significant gender disparities still arise, whereas - as Chapter 2 has shown - the level of inequality varies considerably across countries and certain socio-demographic groups. In order to further equalize employment opportunities of women and men, a series of key actions seem appropriate.

1. Promotion of greater work life balance

The promotion of family-friendly policies enabling parents to reconcile their work and family responsibilities appears to be a promising way to enhance gender equality in the labour market.

This issue has been addressed by the proposed Work Life Balance Directive mentioned above, which aims at enabling parents to better balance their work and family lives and to encourage a better sharing of care responsibilities between women and men. Further expanding the availability of and securing access to affordable good-quality childcare is an important cornerstone when it comes to removing obstacles, particularly for women with little children, to enter into or stay in employment. The provision of long-term childcare with flexible schedules gives mothers a real choice about their preferred care arrangements and – in combination with flexible working schemes provided by the employer – their preferred labour supply. In addition to that, properly designed paid parental leave allows women to take care of their children while being employment-protected, and thus to be able to return to the labour market soon.

Policies with the aim of reconciling work and family should explicitly include male workers. Incentivizing fathers to use flexible work entitlements may encourage a more equal sharing of paid and unpaid work between men and women and thus may help to advance a substantial reduction of motherhood penalties in the labour market. This means that reserving part of the parental leave entitlement for the exclusive and non-transferable use by fathers may encourage fathers to take care leave and increasingly share parental responsibilities in childcare. Combining such family-friendly policies has the strong potential to enhance women's labour market attachment and to ensure gender equality.

2. Embedding equality in national tax systems

If the primary objective is to remove women's disincentives to engage in the labour market, a careful reassessment of the advantages and disadvantages of joint and individual taxation systems with a special emphasis on gender equality is needed. Designing a tax system which for both spouses generates broadly similar financial incentives to work may lead to a more equal distribution of paid and unpaid work within households. At the same time, policy measures should not exert undue financial pressure on a parent who chooses to stay at home in order to take care of the children. In this context the system of additional benefits that determine the taxable income of spouses jointly rather than individually also needs to be reexamined. As there exist heterogeneities in labour supply elasticities across socio-demographic groups, tax policies aiming at lowering the tax burden and systematically reducing conflicting work incentives appear to be more promising if they are targeted at groups of workers exhibiting a more elastic labour supply than others (e.g. married women, single mothers, low educated individuals).

3. Education and tackling gender stereotypes

Given that gender inequalities in terms of labour market participation fall as the level of educational attainment rises, it seems crucial to further foster the educational level of women in the European Union. Furthermore, in order to improve the transition of individuals between the education system and the labour market and thus to reduce the first appearance of a gender gap at labour market entry, a more intensive use of vocational training is likely to help. This will however only be effective if the participation rate of women in vocational training rises above the current levels. In order to achieve this aim, two pathways are imaginable: To increase the participation of women in vocational training in previously male-dominated professions, and to strengthen vocational training in traditionally female professions.

As cultural norms play an important role for gender equality in the labour market, it seems crucial to promote positive perceptions of gender equality through the education system, e.g. in schools. Furthermore, increasing the educational level of women also helps to reduce gender inequality in the labour market. This seems all the more important as attitudes towards working women are likely to strongly determine the effectiveness of policies aiming at increasing the participation of women in the labour market.

4. Financing

As with any investment, policies designed to increase women's opportunities to participate in the labour market – such as childcare provisions and education – lead to costs, but also to economic returns. In the short run, increased labour market participation of women can lead to an increase in tax revenues. For example, a more generous parental leave benefit scheme with a clear time limit on the payment of parental leave benefits can provide appropriate incentives for women to return to the labour market after a period of childcare. In this context, RWI (2015) shows that about one fourth of the expenditures on introducing a new parental leave scheme in Germany was refinanced through the additional tax revenues created by women, who - as a result of the reform - reentered the labour market or increased working hours. However, such re-financing effects should not be taken for granted as Dahl et al. (2016) show for Norway, but rather depend on the previous situation and the details of the new policy.

In the long run, it seems likely that increased gender equality through increased labour force participation of women will also lead to increased tax revenues. This will probably be brought about by women being able to work in jobs characterized by higher responsibility and productivity, and generally a higher productivity and thus a higher growth rate of the economy.

Education plays a particular role when it comes to the financing aspect, especially when it occurs early in life because there is a double dividend from providing high quality childcare. On the one hand, an increase in female labour market participation resulting from higher childcare availability may increase tax revenues immediately. On the other hand, high quality childcare may have positive returns for the tax payer also in the long-run by boosting the education of children. For example, a pre-school education programme for disadvantaged children in the US has been shown to yield social benefits in the range of between 7 and 10% (Heckman et al., 2010). These benefits include a faster advancement in the education system, higher earnings and thus tax receipts, lower welfare payments, and lower costs of crime. Better health and healthier behaviour can be noted as well, which in turn is likely to reduce costs of health care systems. Overall, this points to the importance of investing in education early in life as “skills beget skills” (J. Heckman).

5. Building real personal choice and responsibility

Taken together, in order to enhance women's position in the labour market and combat gender inequalities, a comprehensive approach is needed taking into account various policy fields. Expanding the availability and securing access to affordable good-quality childcare, designing a tax system that for both spouses generates similar financial incentives to work and ensuring greater gender equality in education will expand the personal choice set and will allow families to develop a work-life balance reflecting their personal preferences and circumstances. Addressing only one field does not appear to yield the desired effects, as policies may hinder one another.

For example, in Germany, the participation of mothers in (full-time) employment is rather low despite generous family policies, which can to a great extent be explained by disincentive effects of the tax system and a low provision of full-time child care facilities.

Moreover, rather than a general approach which is applied in the same way to all European countries, it is preferable to implement policies that are tailored towards the institutional and cultural settings in each country as well as to specific groups of workers. While it is thus important that gender policies are established at a national level, rather than seeking to expand its competencies in the areas of education, taxation or social policy, the role of the EU should be to set overall objectives and defining minimum standards.

Country codes

AT	Austria
BE	Belgium
BG	Bulgaria
CY	Cyprus
CZ	Czech Republic
DE	Germany
DK	Denmark
EE	Estonia
ES	Spain
EU	„Europe“
FI	Finland
FR	France
GR	Greece
HR	Croatia
HU	Hungary
IE	Ireland
IT	Italy
LT	Lithuania
LU	Luxembourg
LV	Latvia
MT	Malta
NL	Netherlands
PL	Poland
PT	Portugal
RO	Romania
SE	Sweden
SI	Slovenia
SK	Slovakia
UK	United Kingdom

References

- Aaberge, R., U. Colombino and S. Strom (1999), Labour Supply in Italy: An Empirical Analysis of Joint Household Decisions, with Taxes and Quantity Constraints. *Journal of Applied Econometrics* 14 (4): 403-422.
- Albrecht, C., A. Fichtl and P. Redler (2017), Fathers in Charge? Parental Leave Policies for Fathers in Europe. *Ifo DICE Report* 15 (1): 49-51.
- Alesina, A., A. Ichino and L. Karabarbounis (2011), Gender Based Taxation and the Division of Family Chores. *American Economic Journal: Economic Policy* 3 (2): 1-40.
- Arpino, B., Pronzato, C.D. & Tavares, L.P. (2014), The Effect of Grandparental Support on Mothers' Labour Market Participation: An Instrumental Variable Approach. *European Journal of Population* 30(4): 369-390.
- Bach, S., J. Geyer, P. Haan and K. Wrohlich (2011), Reform des Ehegattensplittings: Nur eine reine Individualbesteuerung erhöht die Erwerbsanreize deutlich [Reform of income splitting. Only individual taxation increases incentives for employment]. *DIW Wochenbericht* 78 (41): 13-19.
- Bargu, A. and M. Morgandi (2018), Can Mothers Afford to Work in Poland: Labor Supply Incentives of Social Benefits and Childcare Costs. World Bank Policy Research Working Paper No. 8295.
- Baker, M. and K. Milligan (2008), Maternal Employment, Breastfeeding, and Health: Evidence from Maternity Leave Mandates. *Journal of Health Economics* 27: 871–887.
- Bauernschuster, S. and M. Schlotter (2015), Public Child Care and Mothers' Labor Supply – Evidence from Two Quasi - Experiments. *Journal of Public Economics* 123: 1-16.
- Bericat, E. and E. S. Bermejo (2016), Structural Gender Equality in Europe and Its Evolution Over the First Decade of the Twentyfirst Century. *Social Indicators Research* 127(1): 55-81.
- Bergemann, A. and R. Riphahn (2017), Maternal Employment Effects of Paid Parental Leave. SOEP Paper No. 900.
- Bertrand, M., C. Goldin, and L. F. Katz (2010), Dynamics of the Gender Gap for Young Professionals in the Financial and Corporate Sectors. *American Economic Journal: Applied Economics* 2 (3): 228-55.
- Bertrand, M., E. Kamenica and J. Pan (2015), Gender Identity and Relative Income within Households. *The Quarterly Journal of Economics* 130 (2): 571–614.
- Bettio, F. (2002), The Pros and Cons of Occupational Gender Segregation in Europe. *Canadian Public Policy/Analyse De Politiques* 28: 65-84.
- Bettio, F. and A. Verashchagina (2009), Fiscal system and female employment in Europe. EU Expert Group on Gender and Employment (EGGE). Brussels: European Commission.
- Bettio, F., A. Verashchagina, I. Mairhuber and A. Kanjoo-Mrčela (2009), Gender segregation in the labour market: Root causes, implications and policy responses in the EU. Luxembourg: Publications Office of the European Union.
- Blundell, R. and T. MaCurdy (1999), Labor Supply: A Review of Alternative Approaches. In: Ashenfelter, O. and D. Card (eds), *Handbook of Labor Economics*, Volume 3. North-Holland: Elsevier, 1559-1695.
- BMFSFJ (2017), Second Gender Equality Report: Summary. Internet: <https://www.bmfsfj.de/blob/122438/27f7e397c87a77b66180ce58e5da1e7b/zweiter-gleichstellungsbericht-der-bundesregierung-eine-zusammenfassung-englisch-data.pdf>, accessed on 15 May 2018.
- Borck, R. (2014), Adieu Rabenmutter—culture, fertility, female labour supply, the gender wage gap and childcare. *Journal of Population Economics* 27 (3): 739-765.
- Bordone, V. and A. Rosina (2013), The role of education in the reconciliation between female occupation and family responsibilities at mid-life: the Italian case. *Journal of Population Research* 30:39-65.
- Brilli, Y., D. Del Boca and C.D. Pronzato (2016), Does child care availability play a role in maternal employment and children's development? Evidence from Italy. *Review of Economics of the Household* 14 (1): 27-51.

- Burgess, S., P. Gregg, C. Propper and E. Washbrook (2008), Maternity rights and mothers' return to work. *Labour Economics* 15 (2): 168-201.
- Campa, P. et al. (2011), Gender Culture and Gender Gap in Employment. *CESifo Economic Studies* 57: 156-182.
- Chłoń-Domińczak, A., H. Dębowski, D. Holzer-Żelażewska and A. Maliszewska (2016), Vocational education and training in Europe – Poland. Cedefop ReferNet *VET in Europe reports*. Internet: http://libserver.cedefop.europa.eu/vetelib/2016/2016_CR_PL.pdf, accessed on 15 June 2018.
- Colonna, F. and S. Marcassa (2013), Taxation and Labor Force Participation: The Case of Italy. Bank of Italy Occasional Paper No. 191.
- Conti, G., J.J. Heckman and R. Pinto (2016), The effects of two influential early childhood interventions on health and healthy behaviour. *The Economic Journal* 126: F28-F65.
- Cunha, F. and J.J. Heckman (2007). The technology of skill formation. *American Economic Review* 97 (2): 31–47.
- Cunha, F. and J.J. Heckman (2008). Formulating, identifying and estimating the technology of cognitive and noncognitive skill formation. *Journal of Human Resources* 43 (4), 738–782.
- Cygan-Rehm, K. and M. Maeder (2013), The effect of education on fertility: Evidence from a compulsory schooling reform. *Labour Economics* 25: 35-48.
- Dahl, G., K.V. Løken, M. Mogstad and K. Salvanes (2016): What Is the Case for Paid Maternity Leave? *Review of Economics and Statistics* 98: 655–670.
- Datta Gupta, N., N. Smith and M. Verner (2008), The Impact of Nordic countries' family friendly policies on employment, wages, and children. *Review of Economics of the Household* 6: 65-89.
- Dearing, H., H. Hofer, C. Lietz, R. Winter-Ebmer and K. Wrohlich (2007), Why are Mothers Working Longer Hours in Austria than in Germany? A Comparative Micro Simulation Analysis. IZA Discussion Paper No. 2845.
- Del Boca, D. (2002), The Effect of Child Care and Part Time Opportunities on Participation and Fertility Decisions in Italy. *Journal of Population Economics* 15 (3): 549-573.
- Del Boca, D. (2015), The impact of child care costs and availability on mothers' labor supply. Collegio Carlo Alberto Working Paper 399.
- Del Boca, D. and D. Vuri (2007), The Mismatch between Employment and Child Care in Italy: The Impact of Rationing. *Journal of Population Economics* 20 (4): 805-832.
- Duvander, A.-Z. and A.-C. Jans (2008), Consequences of Father's Parental Leave Use: Evidence from Sweden. *Finnish Yearbook of Population Research* 44: 49-62.
- Ekberg, J, R. Eriksson and G. Friebel (2013), Parental leave —A policy evaluation of the Swedish “Daddy-Month” reform. *Journal of Public Economics* 97: 131-143.
- ETUCE (2012), Counteracting Gender Stereotypes in Education and Gender Segregation in the Labour Market - Teacher Trade Unions Promoting Gender Equality: Assessment, Knowledge Sharing and Action. European Trade Union Committee for Education, Brussels. Internet: <https://www.csee-etu.org/images/attachments/GENDERFINALBROCHUREEN.pdf>, accessed 15 June 2018.
- European Commission (2013), Tax Reforms in EU Member States 2013. Tax Policy Challenges for Economic Growth and Fiscal Sustainability. Brussels: European Commission.
- European Commission (2017), 2017 Report on equality between women and men in the EU. Brussels: European Union.
- European Commission (2018), 2018 Report on equality between women and men in the EU. Luxembourg: Publications Office of the European Union.
- Eurostat (2018), eurostat Statistics Explained – Gender pay gap statistics. Internet: http://ec.europa.eu/eurostat/statistics-explained/index.php/Gender_pay_gap_statistics, accessed 9 May 2018.

Eurostat (2018), Main reason for part-time employment - Distributions by sex and age (%). Internet: [lfsa_epgar. http://ec.europa.eu/eurostat/web/products-datasets/-/lfsa_epgar](http://ec.europa.eu/eurostat/web/products-datasets/-/lfsa_epgar), accessed 14 May 2018.

Evers M., R. De Mooij and D. Van Vuuren (2008), The wage elasticity of labour supply: a synthesis of empirical estimates. *De Economist* 156 (1): 25-43.

Felfe, C., R. Iten and S. Stern (2016), Child Care Institutions - A Relevant Tool to Enhance Gender Equality? In: Liebig, B., L. Criblez, K. Gotschall and B. Sauer (Eds.), *Gender Equality: Theories, Practices and Perspectives*. Germany, Verlag Barbara Budrich: 199-215.

Fitzenberger, B., R. Schnabel and G. Wunderlich (2004), The gender gap in labor market participation and employment: A cohort analysis for West Germany. *Journal of population economics* 17 (1): 83-116.

Friedman-Sokuler, N. and M. Justman (2016), Gender streaming and prior achievement in high school science and mathematics. *Economics of Education Review* 53: 230-253.

Garibaldi, P. and E. Wasmer (2003), Raising Female Employment: Reflections and Policy Tools. *Journal of the European Economic Association* 2 (2/3): 320-330.

Geisler, E. and M. Kreyenfeld (2011), Against all odds: Fathers' use of parental leave in Germany. *Journal of European Social Policy* 21 (1).

Giavazzi, F., F. Schiantarelli and M. Serafinelli (2013), Attitudes, Policies, and Work, *Journal of the European Economic Association* 11 (6): 1256–1289.

Goldin, C., L. F. Katz, and I. Kuziemko (2006), The Homecoming of American College Women: The Reversal of the College Gender Gap. *Journal of Economic Perspectives* 20 (4): 133-156.

Gregory, M. and S. Connolly (2008), Feature: The Price of Reconciliation: Part-Time Work, Families and Women's Satisfaction. *The Economic Journal* 118 (526): F1-F7.

Gunnarsson, Å., M. Schratzenstaller and U. Spangenberg (2017), Gender equality and taxation in the European Union. Brussels: European Parliament.

Haan, P. and K. Wrohlich (2011), Can child care policy encourage employment and fertility? Evidence from a structural model. *Labour Economics* 18 (4): 498-512.

Heckman, J.J., S.- H. Moon, R. Pinto, P. A. Savelyev, A. Yavitz (2010), The rate of return to the HighScope Perry Preschool Program. *Journal of Public Economics* 94: 114-128.

Heinen, J. and M. Wator (2006), Child Care in Poland before, during, and after the Transition: Still a Women's Business. *Social Politics* 13 (2): 189-216.

Hippach-Schneider, U. and A. Huismann (2016), Vocational education and training in Europe – Germany. Cedefop ReferNet VET in Europe reports. Internet: http://libserver.cedefop.europa.eu/vetelib/2016/2016_CR_DE.pdf, accessed 15 June 2018.

Holst, E. and A. Wieber (2014), Eastern Germany ahead in employment of women. *DIW Economic Bulletin* 11 (4): 33-41.

Immervoll, H. and D. Barber (2006), Can Parents Afford to Work? Childcare Costs, Tax-Benefit Policies and Work Incentives. IZA Discussion Paper No. 1932.

Immervoll, H., H. J. Kleven, C. T. Kreiner and N. Verdolin (2009), An evaluation of the tax-transfer treatment of married couples in European countries. IZA Discussion Paper No. 3965.

INAPP (2016), Vocational education and training in Europe – Italy. Cedefop ReferNet VET in Europe reports. Internet: http://libserver.cedefop.europa.eu/vetelib/2016/2016_CR_IT.pdf, accessed 15 June 2018.

Jackman, R. and M. Rutkowski (1994), Labor Markets: Wages and Employment. In Nicholas Barr (ed) *Labor Markets and Social Policy in Central and Eastern Europe: The Transition and Beyond*. Oxford University Press.

Janta, B., (2014), Caring for children in Europe: How childcare, parental leave and flexible working arrangements interact in Europe. European Union.

- Javornik, J. (2014), Measuring state de-familialism: Contesting post-socialist exceptionalism. *Journal of European Social Policy* 24 (3): 240–257.
- Jürges, H. and K. Schneider (2011), Why Young Boys Stumble: Early Tracking, Age and Gender Bias in the German School System. *German Economic Review* 12 (4): 371–394.
- Kluve, J. and S. Schmitz (2014), Social Norms and Mothers' Labor Market Attachment: The Medium-run Effects of Parental Benefits. IZA Discussion Paper No. 8115.
- Kluve, J. and M. Tamm (2013), Parental leave regulations, mothers' labor force attachment and fathers' childcare involvement: evidence from a natural experiment. *Journal of Population Economics* 26 (3): 983–1005.
- Lappegard, T. (2008), Changing the Gender Balance in Caring: Fatherhood and the Division of Parental Leave in Norway. *Population Research and Policy Review* 27 (2): 139–159.
- Lovasz, A. (2016), Childcare expansion and mothers' employment in post-socialist countries. *IZA World of Labor* 2016: 319.
- Lundin, D., E. Mörk and B. Öckert (2008), How far can reduced childcare prices push female labour supply? *Labour Economics* 15 (4): 647–659.
- Malecki, A. (2016), Schulen auf einen Blick. Wiesbaden: Statistisches Bundesamt.
- Maron, L. and D. Meulders (2008), Having a child: a penalty or bonus for mother's and father's employment in Europe? DULBEA Working Papers 08-05.RS
- Matysiak A. (2009) Employment first, then childbearing: Women's strategy in post-socialist Poland, *Population Studies* 63 (3): 253–276
- Meil, G. (2013), European men's use of parental leave and their involvement in child care and housework, *Journal of Comparative Family Studies* XLIV (5): 557–570.
- Meier, V. and H. Rainer (2015), Pigou meets Ramsey: Gender-based taxation with non-cooperative couples. *European Economic Review* 77: 28–46.
- Mills, M., P. Präg, F. Tsang, K. H. Begall, J. Derbyshire, L. Kohle, C. Miani and Hoorens, S. (2014), Use of childcare in the EU Member States and progress towards the Barcelona targets. *Short Statistical Report 1*, RAND Europe.
- Mills M. and P. Präg (2014), Gender Inequalities in the School-to-Work Transition in Europe. *Short Statistical Report 4*, RAND Europe.
- Moss, P. (2013), International review of leave policies and related research 2013. London: International Network on Leave Policies and Research.
- OECD (2012) Closing the Gender Gap: Act Now. Paris: OECD Publishing.
- OECD (2016a), Taxing Wages 2016. Paris: OECD Publishing.
- OECD (2016b), Special feature: Measuring the tax wedge on second earners. In: Taxing Wages 2016. Paris: OECD Publishing.
- OECD (2016c), PISA 2015 Results (Volume I): Excellence and Equity in Education, PISA. Paris: OECD Publishing.
- OECD (2017a), Education at a Glance 2017: OECD Indicators. Paris: OECD Publishing.
- OECD (2017b), Education Policy Outlook Italy. Paris: OECD Publishing.
- OECD (2017c), The Pursuit of Gender Equality: An Uphill Battle. Paris: OECD Publishing.
- OECD (2017d), 2013 OECD Recommendation of the Council on Gender Equality in Education, Employment and Entrepreneurship. Paris: OECD Publishing.
- OECD (2018), Is the Last Mile the Longest? Economic Gains from Gender Equality in Nordic Countries. Paris: OECD Publishing.

- Olovsson, C. (2009), Why Do Europeans Work So Little? *International Economic Review* 50 (1): 39-61.
- Pastore, F. (2005), To Study or to Work? Education and Labour Market Participation of Young People in Poland. IZA Discussion Papers #1793.
- Ray, R., J. Gornick and J. Schmitt (2008), *Parental Leave Policies in 21 Countries: Assessing Generosity and Gender Equality*. CEPR Reports and Issue Briefs.
- ReferNet Sweden (2016), Vocational education and training in Europe – Sweden. Cedefop ReferNet *VET in Europe reports*. Internet: https://cumulus.cedefop.europa.eu/files/vetelib/2016/2016_CR_SE.pdf, accessed 15 June 2018.
- Rogerson, R. (2006), Understanding Differences in Hours Worked. *Review of Economic Dynamics* 9: 365-409.
- RWI (2011), Studies on “flexicurity” Lot 1: Study on various aspects of labour market performance using micro data from the European Union Statistics on Income and Living Conditions (EU-SILC) – Final Report. RWI Projektberichte.
- RWI (2015), Fiskalische Refinanzierungseffekte des Elterngeldes (Fiscal Refinancing of the Parental Leave Benefit). RWI Projektberichte.
- Schönberg, U. and J. Ludsteck (2014), Expansions in maternity leave coverage and mothers’ labor market outcomes after childbirth. *Journal of Labor Economics* 32 (3): 469-505.
- Sparreboom, T. (2014), Gender equality, part-time work and segregation in Europe. *International Labour Review* 153 (2): 245-268.
- Steiner, V. and K. Wrohlich (2004), Household Taxation, Income Splitting and Labor Supply Incentives – A Microsimulation Study for Germany. *CESifo Economic Studies* 50 (3): 541-568.
- Szelewa, D. and M. P. Polakowski (2008), Who cares? Changing patterns of childcare in Central and Eastern Europe. *Journal of European Social Policy* 18 (2): 115–131.
- Turner, S.E. and W.G. Bowen (1999), Choice of major: The changing (unchanging) gender gap. *ILR Review* 52 (2): 289-313.
- Wang, M., J. S. Eccles and S. Kenny (2013), Not Lack of Ability but More Choice: Individual and Gender Differences in Choice of Careers in Science, Technology, Engineering, and Mathematics. *Psychological Science* 24 (5): 770-775.
- Wikström, M., E. Kotyrlo and N. Hanes (2015). Childcare Reform: Effects on Earnings and Employment among Native Swedish and Immigrant Mothers. In: Polachek, S.W., K. Tatsiramos and K.F. Zimmermann (Eds.), *Gender in the Labor Market*. West Yorkshire: Emerald Group Publishing Limited, 93-129.
- Inglehart, R., C. Haerpfer, A. Moreno, C. Welzel, K. Kizilova, J. Diez-Medrano, M. Lagos, P. Norris, E. Ponarin & B. Puranen et al. (eds.) (2014) World Values Survey: Round Six - Country-Pooled Datafile Version. Internet: <http://www.worldvaluessurvey.org/WVSDocumentationWV6.jsp>, accessed 15 June 2018.
- Wrohlich, K. (2011), Labor Supply and Child Care Choices in a Rationed Child Care Market. DIW Discussion Papers #1169.

Appendix

A Data

Table A.1

References for country-level data: labour market indicators and explanatory factors

Variable	Datasource	Reference
Labour Market Indicators		
Labour Market Participation Rates (overall, age groups, skill groups)	Eurostat	http://appsso.eurostat.ec.europa.eu/nui/submitView-TableAction.do (Eurostat code: lfsa_argaed; extracted: 27/3/2018)
Part-Time Share	Eurostat	http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsa_eppga&lang=en (Eurostat code: lfsa_eppga; extracted: 27/3/2018)
Part-Time Share by Presence of Children	Eurostat	http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfst_hhpstechi&lang=en (Eurostat code: lfst_hhpstechi; extracted: 27/3/2018)
Employment Rates by Presence of Children	Eurostat	http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfst_hheredch (Eurostat code: lfst_hheredch; extracted: 27/3/2018)
Employment patterns of couples	OECD	http://www.oecd.org/els/family/LMF-2-2-Distribution-working-hours-couple-households.xlsx (extracted: 18/5/2018)
Time Use		
Paid and Unpaid Working Hours and paid and unpaid working hours (by gender)	Eurostat	http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsa_ewhuis&lang=de (Eurostat code: lfsa_ewhui; extracted: 30/4/2018)
Segregation		
Segregation across Educational Fields and women among all graduates and graduates in STEM programs	Eurostat	http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=educ_uoe_grad03&lang=de (Eurostat code: educ_uoe_grad03; extracted: 28/4/2018)
Dissimilarity index for occupations and industries	European Commission	2017 Report on equality between women and men in the EU - Annex. 2017
Dissimilarity index for occupations and labour market participation rates	European Commission, Eurostat	2017 Report on equality between women and men in the EU - Annex. 2017 and http://appsso.eurostat.ec.europa.eu/nui/submitView-TableAction.do . (Eurostat code: lfsa_argaed; extracted: 27/3/2018)
Segregation across Occupational Fields	Eurostat	http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsa_eegais&lang=de (Eurostat code: lfsa_eegais; extracted: 29/4/2018)
Female share in selected industrial sectors	Eurostat	http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsa_egan2&lang=de (Eurostat code: lfsa_egan2; extracted: 26/4/2018)
Gender gap in managerial and professional positions and share of manager and professional positions by gender	Eurostat	http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsa_egais&lang=de (Eurostat code: lfsa_egais; extracted: 11/4/2018)
Child Care		
Public spending on family benefits by type of expenditure	OECD	http://www.oecd.org/els/family/PF1_1_Public_spending_on_family_benefits.xlsx (extracted: 18/5/2018)
Public spending on early childhood education and care	OECD	http://www.oecd.org/els/family/PF3_1_Public_spending_on_childcare_and_early_education.xlsx (extracted: 18/5/2018)
Paid leave entitlements available to mothers	OECD	http://www.oecd.org/els/family/PF2_1_Parental_leave_systems.xlsx extracted: 18/5/2018)
Paid leave entitlements available to fathers	OECD	http://www.oecd.org/els/family/PF2_1_Parental_leave_systems.xlsx extracted: 18/5/2018)
Children in formal and informal childcare by age group and duration	Eurostat	http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc_caindformal&lang=de Eurostat code: ilc_caindformal; extracted: 2018)

Table A.1, continued

Variable	Datasource	Reference
Taxation		
Average tax burden by family type	OECD	https://www.oecd-ilibrary.org/docserver/tax_wages-2017-en.pdf?expires=1526634077&id=id&ac-cname=ocid41017171&check-sum=6D2794AC34C4AB4749B31A571A82645E (accessed: 18/5/2018)
Average tax burden for primary and secondary earners	OECD	https://www.oecd-ilibrary.org/docserver/tax_wages-2016-en.pdf?expires=1526634138&id=id&ac-cname=ocid41017171&check-sum=2187E950E41BF577D99396A5DB07725C (accessed: 18/5/2018)
Education		
Educational attainment levels	Eurostat	http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsa_pgaed&lang=en (Eurostat code: edat_ifs_9903; extracted: 25/5/2018)
LMPR Gap by Education Level	Eurostat	http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsa_argaed&lang=en (Eurostat code: lfsa_argaed; extracted 25/05/2018)
Share of vocational vs. general programmes in upper secondary education	Eurostat	http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=educ_uoe_enrs05&lang=en (Eurostat code: educ_uoe_enrs05; extracted: 25/05/2018)
Public expenditures on education as percentage of GDP by level of education	OECD	http://www.oecd.org/education/skills-beyond-school/education-at-a-glance-2016-indicators.htm (accessed: 25/05/2018)
Cultural and Historic Norms		
Educational assortative mating	OECD	https://www.oecd-ilibrary.org/social-issues-migration-health/the-pursuit-of-gender-equality/more-than-one-in-six-adults-live-in-a-couple-where-the-woman-has-a-higher-level-of-education-attainment-than-her-partner_9789264281318-graph19-en (accessed: 25/05/2018)
Gender attitudes towards working	European Commission	http://www.europarl.europa.eu/pdf/eurobarometre/2012/femme_mars/rapport_en.pdf (accessed: 25/05/2018)



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