

Universität Mannheim  
Fakultät für Sozialwissenschaften

# **Culture and female labor force participation in international comparison**

Inauguraldissertation zur Erlangung eines akademischen Grades einer  
Doktorin in Sozialwissenschaften der Universität Mannheim

vorgelegt von  
**Stefanie Heyne**

Dekan der Fakultät für Sozialwissenschaften  
Prof. Dr. Michael Diehl

Gutachter/in  
Prof. Dr. Michael Gebel  
Prof. Dr. Irena Kogan

Datum der Disputation: 28.02.2017

## **Acknowledgments**

There are several people without whom this thesis would not have been possible and whom I would like to thank. First and foremost, I am grateful to my supervisor Michael Gebel for his support and guidance throughout the dissertation project. By his encouragement to participate in conferences, scientific exchange, networking and publications, Michael provided me insights into the academia from the very beginning. I am especially grateful for his unfailing encouragement and his patience.

I would also like to thank Irena Kogan for supporting my scientific career from the very beginning and during my time at the University of Mannheim. Without her employing me as student research assistant in 2006 I would not have found my way to become a sociologist.

I strongly benefited from intellectual exchange with my colleagues at the University of Mannheim and the University of Bamberg. The Mannheim Centre for European Social Research (MZES) provided a stimulating environment for me to work in. Special thanks go to my colleague Jonas Voßemer for his continuous support and a lot of coffee and cake. I have benefitted greatly from our thorough discussions on methodological aspects and beyond.

Finally, I am indebted to my family and all my friends for their scientific and non-scientific advice and the necessary distraction during the last years. Without their love and support this thesis would have never been finished.

Mannheim, February 2017

Stefanie Heyne

**Contents**

- 1. Introduction ..... 1**
- 2. Background: Female labor force participation in comparison..... 7**
  - 2.1. Female labor force participation in international comparison..... 9
  - 2.2. Explanations of female labor force participation ..... 13
    - 2.2.1. The structural explanation ..... 13
    - 2.2.2. The institutional explanation ..... 15
    - 2.2.3. The cultural explanation ..... 17
- 3. State of the art ..... 19**
  - 3.1. The impact of gender role attitudes on female labor force participation ..... 20
  - 3.2. The impact of religion on female labor force participation ..... 27
  - 3.3. Culture and female labor force participation in MENA countries ..... 32
- 4. Theoretical considerations..... 35**
  - 4.1. Approaches for explaining female labor force participation..... 35
    - 4.1.1. The neoclassical model ..... 35
    - 4.1.2. The relevance of preferences..... 38
    - 4.1.3. Bargaining approaches ..... 40
    - 4.1.4. Labor demand and the relevance of discrimination ..... 41
    - 4.1.5. Summary ..... 42
  - 4.2. Culture and female labor force participation..... 43
    - 4.2.1. The impact of culture on labor force participation..... 44
    - 4.2.2. Mechanisms..... 47
    - 4.2.3. Effect heterogeneity ..... 50
  - 4.3. Conclusion..... 52
- 5. Data and method ..... 53**
  - 5.1. Data ..... 53
  - 5.2. Operationalization ..... 54
  - 5.3. Method ..... 64
- 6. Culture and female labor force participation in international comparison ..... 67**
  - 6.1. The impact of culture on female labor force participation..... 67
    - 6.1.1. Descriptive results ..... 67

6.1.2.	The impact of social norms and gender roles.....	70
6.1.3.	Mechanisms.....	74
6.2.	Effect heterogeneity .....	77
6.3.	Alternative interpretation and causality .....	84
6.4.	Conclusion.....	85
<b>7.</b>	<b>The impact of religion on female labor force participation .....</b>	<b>87</b>
7.1.	Theoretical considerations.....	89
7.2.	Operationalization .....	93
7.3.	Results .....	95
7.3.1.	The impact of religion on female labor force participation .....	95
7.3.2.	Religion, gender roles, and female labor force participation .....	100
7.4.	Conclusion.....	104
<b>8.</b>	<b>Culture and female labor force participation in MENA .....</b>	<b>106</b>
8.1.	Theoretical considerations.....	109
8.1.1.	Cultural explanations.....	109
8.1.2.	Structural explanations .....	111
8.1.3.	Effect heterogeneity .....	113
8.2.	Operationalization .....	114
8.3.	Results .....	115
8.3.1.	Cultural explanations.....	116
8.3.2.	Structural explanations .....	120
8.3.3.	Effect heterogeneity .....	123
8.4.	Conclusion.....	127
<b>9.</b>	<b>Sensitivity analyses.....</b>	<b>130</b>
9.1.	Are the results driven by outliers?.....	130
9.2.	Do the effects depend on the sample used?.....	135
9.3.	Are the effects stable using logistic regression? .....	138
<b>10.</b>	<b>Conclusion.....</b>	<b>139</b>
	<b>Literature .....</b>	<b>145</b>
	<b>Appendix .....</b>	<b>157</b>

## Figures

Figure 2.1: Female labor force participation worldwide, 2010.....	9
Figure 2.2: Labor force participation rates, 2014.....	10
Figure 2.3: Trends in female labor force participation rates .....	11
Figure 2.4: Trends in female labor force participation in OECD countries.....	12
Figure 4.1 The impact of culture on FLFP .....	45
Figure 4.2 Mechanisms of the relationship between culture and FLFP.....	47
Figure 5.1 Causal impact of social norms on FLFP on societal level.....	60
Figure 5.2 Historical plough use .....	62
Figure 5.3 Causal impact of preferences on LM decision on individual level.....	63
Figure 6.1 Female labor force participation of the sample grouped by regions.....	68
Figure 6.2 Social norms and female labor force participation .....	69
Figure 6.3: Alternative causal relationship .....	84
Figure 8.1 Trends in human development in different World regions.....	106
Figure 8.2 Gross enrollment rates of women, secondary education .....	107
Figure 8.3 Total fertility rates in different World regions.....	108
Figure 8.4 Percentage of women active in the labor market in MENA countries .....	115
Figure 8.5 Impact of education on female labor force participation in MENA.....	125
Figure 8.6: Impact of family formation on female labor force participation in MENA .....	126
Figure 9.1 Distribution of the social-norm effect.....	131
Figure 9.2 Distribution of the preference effect.....	132
Figure 9.3 Distribution of the MENA effect.....	134

## Tables

Table 3.1: Studies on the impact of gender roles .....	21
Table 3.2 Overview studies religion.....	28
Table 4.1 Overview of the hypotheses .....	52
Table 5.1 Comparison of female labor force participation rates.....	56
Table 6.1 Effect of social norms and gender roles on female labor force participation .....	72
Table 6.2 Impact of culture depending on development.....	77
Table 6.3 Impact of culture depending on family status .....	80
Table 7.1: Classifications of countries by predominant religion.....	94
Table 7.2 Effect of religion on female labor force participation.....	96
Table 7.3 Impact of religion on gender role attitudes .....	101
Table 7.4 Religion, attitudes, and female labor force participation .....	103
Table 8.1: Cultural explanations for low female labor force participation in MENA .....	117
Table 8.2 Structural explanations for low female labor force participation.....	121
Table 8.3 Impact of education and family formation in MENA countries .....	124
Table 9.1 Distribution of the effects of religion.....	133

# 1. Introduction

The rise of female labor force participation is one of the most significant social changes of the last century. Women's engagement in formal employment has increased strongly since World War II, a development which was mainly driven by a stronger labor market engagement of married women and mothers (Blau et al. 2014). But despite a general rising trend in female labor force participation rates, there are noticeable differences in the strength of women's labor market integration between countries. This holds true not only for Western countries, but even more so if we widen our perspective to non-Western countries. From a global perspective the picture is even more complex since not all countries display a trend of rising female labor force participation. Rather, there are countries without any increase in female labor force participation and countries where female labor force participation decreased over the last decades. This is especially true for countries of the Middle East and Northern Africa (MENA) region, which have the lowest female labor force participation rates in the world and show no increase in the rate over the last 20 years at all (World Bank 2013b).

The low female labor force participation in this region is especially striking because other social changes which are usually described as a driver for rising female labor force participation, such as educational expansion and a decline in fertility, have been observed in this region, too. This puts into question the explanatory power of modernization theory, which is usually used to explain the increase in female labor force participation. According to this approach, modernization and related processes such as educational expansion and economic development are responsible for the rise of female labor force participation. Relying on human capital theory, modernization theorists argue that the rise in female labor force participation is a result of rising educational levels, decreasing fertility rates and structural changes in the labor market, which made participation in formal employment more profitable for women during the last decades and hence increased their participation (e.g. Blau et al. 2014; Goldin 1990).

Relying on this approach, existing differences among highly developed countries are often explained by differences in institutions which provide support for the reconciliation of family and work, such as the provision of public childcare (e.g. Kremer 2007; Mandel and Semyonov 2006; Pettit and Hook 2005; Stier et al. 2001); however, this approach faces several challenges. First, the applicability of this approach in explaining differences in female labor force participation beyond the Western world for countries with only a rudimentary welfare system can be questioned. Accordingly, existing studies are limited to a small and quite

homogenous group of countries and usually restricted to Western countries. Second, the institutionalist approach has failed to fully explain existing differences among Western countries, and existing studies often lack a research design that allows the distinction between culture and institutions (Hakim 2000; Pfau-Effinger 2000).

This raises the question of what other factors, besides structural variables related to modernization and institutional differences, can explain patterns of female labor force participation both between and within countries, and has turned the attention of scholars to the relevance of cultural factors (e.g. Fernández and Fogli 2009 in the economic literature; Hakim 2000; Pfau-Effinger 2000 in the sociological literature). Although modernization theory includes a cultural argument, it describes cultural change as a consequence of modernization (e.g. Inglehart and Norris 2003). Contrary to that, proponents of the cultural approach argue that culture does have an independent effect on female labor force participation. According to this approach, low female labor force participation is related to social norms and attitudes which prevent women from working outside the home (e.g. Algan and Cahuc 2005; Fortin 2005; Seguino 2011; Steiber and Haas 2009). Previous research showed that countries with low female labor force participation, such as those in the MENA region, do indeed have more traditional social norms regarding the role of women than other countries (e.g. Alexander and Welzel 2011; Inglehart and Norris 2003). Furthermore, several studies show that attitudes toward female labor force participation are connected to women's labor market participation in several countries (e.g. Cloin et al. 2011; Kan 2007; Kanji 2011; Stähli et al. 2009; Stam et al. 2013).

Another indication that cultural factors play a role in explaining female labor force participation stems from studies about within-country variation. Within-country variation questions the explanatory power of factors which are relatively constant within countries, such as economic development or institutions. In many countries female migrants show a labor force behavior which is quite different from that of their counterparts in their country of destination and more similar to that of women in their country of origin (e. g. Antecol 2000; Blau et al. 2013; Fernandez 2007). These findings have been linked by several authors to the relevance of culture for explaining female labor force participation; however, it has rarely directly been tested whether cultural factors such as attitudes or religion are responsible for the behavior of migrated women (but see, by way of exception, Read 2004 on Arab immigrants in the U.S.).

The determinants of female labor force participation are not only interesting from a theoretical perspective, but have a high practical relevance for the society. Two lines of argument can be distinguished. First, it is often argued that the participation of women in the labor force is an important determinant for different dimensions of female empowerment and well-being such as the political representation of women (Iversen and Rosenbluth 2008) or the incidence of domestic violence (Aizer 2010; Macmillan and Gartner 1999). Second, female labor force participation is relevant to policy makers and society not only in the sense of gender equality and women's empowerment but also in economic terms. Several authors have argued that female employment has an impact on economic growth (Klasen and Lamanna 2009; Morrison et al. 2007). Especially the reconciliation of family and work is a frequently discussed issue, and several policies are designed to improve the situation, get women into work and increase the fertility rate at the same time. Accordingly, the question emerges whether women do respond to such policies and in how far culture is a barrier to those efforts. In this context, female labor force participation in different cultures should be of emerging interest for Western policy makers in times of increasing migration given the relevance of labor market integration for social integration (Algan et al. 2010; Kogan 2007; Lancee 2012).

Against this background, the aim of this thesis is to analyze the influence of culture on female labor force participation. Culture is a very vague term that is often used in literature as a rest category without an explicit description (Pfau-Effinger 2000). In the sociological literature many different concepts of culture can be found (for an overview, see Charles 2008; Polavieja 2015). Within the literature about the effect of culture on female labor force participation two concepts of culture are used, i.e. gender-role attitudes and religion. These two concepts are related since it is assumed that religion has an impact on female labor force participation given that religious denominations differ in their emphases of traditional gender roles. This thesis will follow this research tradition and concentrate on culture in terms of gender-role attitudes as well as the impact of religion.

The central research question is whether cultural factors contribute to the explanation of female labor force participation. This implies the question whether cultural factors have an impact on individual labor force participation decisions and whether differences in culture between societies can explain differences in female labor force participation rates between countries. The impact of culture on female labor force participation is further analyzed with respect to the following issues. First, it is analyzed how culture influences female labor force participation. According to the theoretical model, which will be discussed in more detail in

chapter 4, cultural factors are expected to influence female labor force participation on different pathways. Besides an impact of individual preferences, it is argued that culture influences female labor force participation via social norms that are independent from one's own preferences. Furthermore, education and fertility decisions made on individual level and by institutions on societal level are assumed to be important mechanisms in the relation between culture and female labor force participation. Second, the question emerges whether cultural factors play the same role in all countries and for all women within one country. From a theoretical point of view it can be argued that the impact of culture is mediated by the stage of economic development on the societal level. On individual level it can be argued that cultural factors have a stronger impact on the female labor force participation of married women and mothers.

To analyze the impact of culture on female labor force participation, two different measurements of culture are used. First, this thesis follows previous research and uses gender-role attitudes as a measurement of preferences and social norms. Second, religion is used as an alternative measurement of culture. This is not only interesting because religion is an important aspect of culture, but also from a methodological point of view. A central disadvantage of using attitudes as a measurement of preferences is that attitudes are not stable over the life course and are influenced by life course events such as the entry into the labor market or family formation (Berrington et al. 2008; Fan and Marini 2000). This results in the problem that the causal direction between attitudes and labor force participation is not clear, since it cannot be ruled out that attitudes are an adaption to the labor market situation. By contrast, an individual's religious denomination can be assumed to be relatively stable over the life course and to be exogenous to labor market participation (Wilson and Sherkat 1994). Accordingly, the use of the different measurements can help to disentangle the causal relationship between culture and female labor force participation.

The second central research question emerges from the paradox that female labor force participation in the MENA region remains low despite processes of modernization. Different explanations for this phenomenon are discussed in the literature. This discussion includes a debate about the role of cultural factors compared to structural factors (Moghadam 2004; Norris 2009; Ross 2008) as well the question of what aspect of culture is relevant. Whereas some authors regard the predominance of Islam as responsible for the situation of women in those countries (Clark et al. 1991; Inglehart and Norris 2003), several authors have criticized this argument and emphasize the relevance of other cultural features, especially the

persistence of the patriarchy (Haghighat 2005; Hayo and Caris 2013; Moghadam 2004). Accordingly, the second central research question is whether culture can explain low female labor force participation in the MENA region and which feature, i.e. Islam or the patriarchy proves to be a more suitable explanation.

To answer these questions, this thesis will develop a general theoretical framework, which will be tested by way of several empirical analyses using international survey data. Previous comparative research on the impact of culture on female labor force participation is mostly limited to Western countries (e.g. Nordenmark 2004; Pastore and Tenaglia 2013; Steiber and Haas 2009; Uunk et al. 2005), which are – from a worldwide perspective – quite homogenous in terms of development and culture. Another group of research focuses on specific world regions such as Arab countries (e.g. Spierings et al. 2010). Only a few studies include a comparison between developed and developing countries (e.g. Bayanpourtehrani and Sylwester 2013; Clark et al. 1991; H'madoun 2010).

This thesis expands on previous studies by examining cultural explanations for female labor force participation by way of a worldwide comparison including developed and developing countries. Using data of the World Value Survey and the European Value study combined with macro indicators for economic and social development this thesis analyzes differences in female labor force participation in more than 80 countries. While previous comparative research on the impact of cultural factors often uses aggregated data and hence cannot distinguish between influences on the individual and the societal level, the data used in this study contains information on the individual and the country level which allows for the use of multilevel models to test both mechanisms on the individual and the country level and figure out which factors explain the differences between countries.

Furthermore, previous research is often limited to a specific group of women e.g. mothers of small children (e.g. Steiber and Haas 2009), and many studies exclude women who work on farms or in agriculture (e.g. Fernández and Fogli 2009). This thesis has a broader perspective and analyzes the impact of culture on female labor force participation for all women independent from the kind of employment. As described above, it is also analyzed whether culture has a bigger impact on married women and mothers than on single women. This research strategy allows for a more comprehensive evaluation of the impact of culture than in previous studies.

This thesis is structured as follows: first, the topic of this thesis is put in context by describing female labor force participation in international comparison and discussing the three paradigms used in previous research (chapter 2). This overview is followed by a detailed discussion of previous research on the impact of culture on female labor force participation (chapter 3). Second, a theoretical model is presented. Building on the neoclassical model of labor supply and some improvements to this model made by preference theory and bargaining approaches, a general theoretical model about the impact of culture on female labor force participation is developed and hypotheses are derived from this (chapter 4). Third, those hypotheses are empirically tested. In chapter 5 data and method are presented before in chapter 6 the hypotheses are empirically tested. In chapter 7 the impact of religion as an alternative measurement of culture is analyzed and chapter 8 discusses the relevance of cultural explanations for the low female labor force participation in MENA countries. After some additional sensitivity analyses (chapter 9), this thesis closes with a discussion of the central findings and implementations for future research (chapter 10).

## **2. Background: Female labor force participation in comparison**

To begin with it is important to define what this thesis is about and what it does not cover. According to the International Labour Organization (ILO), the labor force participation rate is defined as “the proportion of a country’s working-age population that engages actively in the labour market, either by working or looking for work” (ILO 2016: 51). This definition includes people who are engaged in or are available to be engaged in activities that are included in the System of National Accounts (SNA). Usually this definition encompasses people in paid employment, self-employed people including unpaid family workers as well as unemployed people.<sup>1</sup> An important share of work carried out in the society is explicitly excluded by this definition: domestic labor, work done by people for themselves and for members of their household, which is usually not counted as labor force participation (see Psacharopoulos and Tzannatos 1989 for a discussion of the definition of female labor force participation).<sup>2</sup>

From a historical perspective, this distinction between market work and non-market work is quite a recent one. Before the industrial revolution, only a few people worked for pay and the differentiation between work performed at home and elsewhere was non-existent. In the course of the industrialization a separation between work and family occurred with families starting to send some of their members to work in the new industrial settings. This resulted in the separation of family life from paid work, with women responsible for domestic work and men for the paid work outside the home. Although the exclusion of women from the labor market was only a reality for a small share of married women in the upper middle class, it shaped the perception of women’s and men’s roles for the whole society and formed the ideology of separate spheres (Padavic and Reskin 2002). Hence, female labor force participation can also be described in terms of the division of labor. The sexual division of labor, i.e. the assignment of different kind of tasks to men and women is a typical feature of all societies and also existed before the age of industrialization (Wharton 2012). With the differentiation between market work and non-market work, the division of labor between men and women started to become the division between these two spheres, while the sexual division of tasks within the labor force is usually referred to as labor market segregation. With the growing engagement of women in market work the time they spent doing domestic work

---

<sup>1</sup> For a specific definition of those groups see ILO (2016).

<sup>2</sup> The ILO includes persons who are engaged in the production of economic goods and services for own and household production as economically active if “such production comprises an important contribution to the total consumption of the household” (ILO 1982: §9(6)).

decreased, although this development was accompanied only by small shifts in the participation of men in non-market work (Hochschild 1989). Women still do the large share of domestic labor even if they are employed, and the segregation of domestic work is still high (e.g. Brines 1994; Treas and Drobnič 2010).

As we will see below, men's engagement in the labor market differs only slightly between societies compared to that of women and can largely be explained by differences in age structure, typical school leaving age and retirement age. Contrary to that, female labor force participation is influenced much more by the social context (Psacharopoulos and Tzannatos 1989). This is why this thesis focusses solely on the labor market engagement of women.<sup>3</sup> The following contains an overview of the development and status of female labor force participation in international comparison (chapter 1.1) and an introduction to the three paradigms of explanations (chapter 1.2).

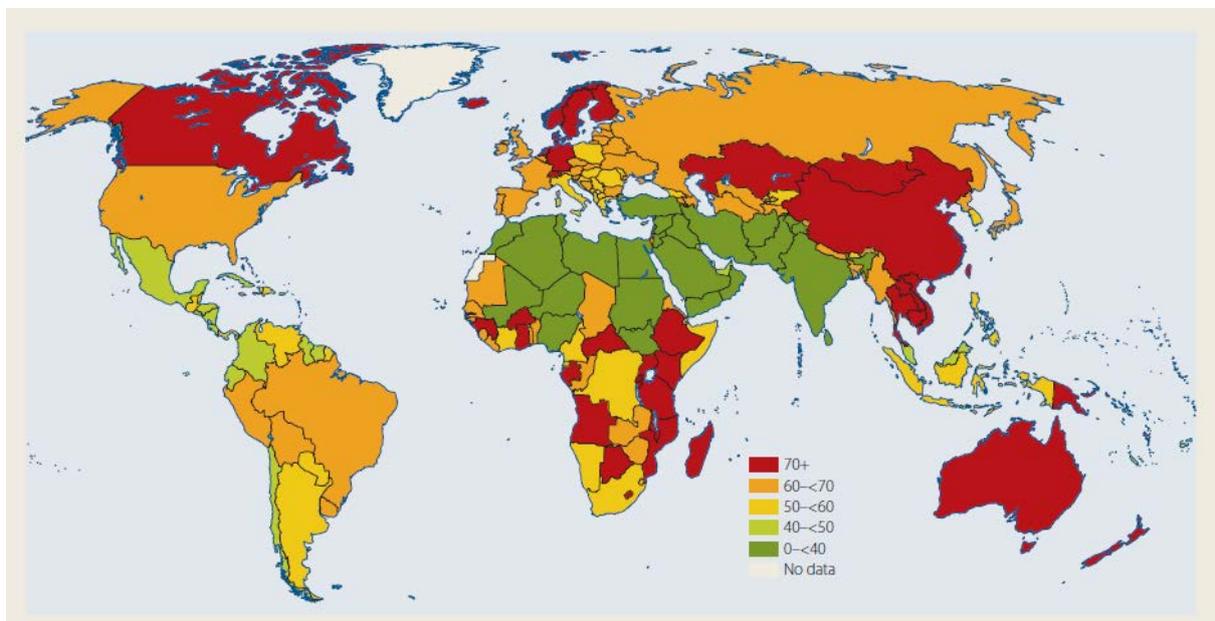
---

<sup>3</sup> Nevertheless some additional empirical analyses have been performed by including men in the sample and testing whether culture explains differences in female labor force participation relative to that of men. This produced identical results.

## 2.1. Female labor force participation in international comparison

Figure 2.1 gives an impression of the different levels of female labor force participation worldwide. The map, which shows female labor force participation rates grouped into five broad categories, shows a strong variation in female labor force participation between the countries. Furthermore, the map uncovers a first pattern, i.e. a green belt of very low female labor force participation in several countries grouped in one specific world region. On the other side of the distribution no specific geographical pattern of female labor force participation can be found, with countries as diverse as Canada, China, and Mozambique with very high rates of female labor force participation.

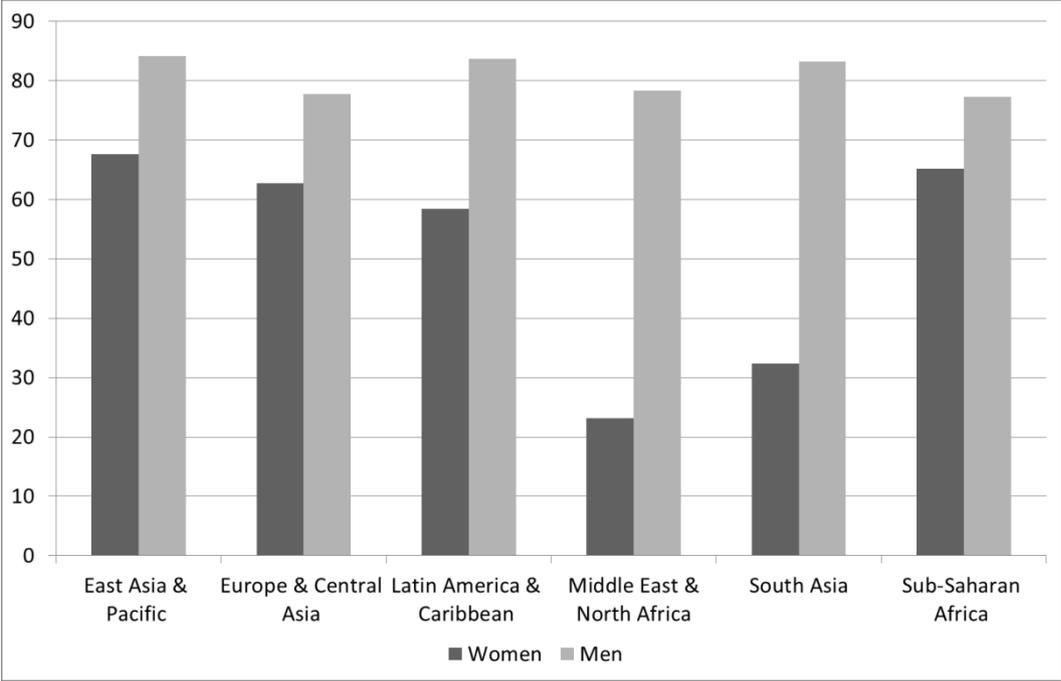
**Figure 2.1: Female labor force participation worldwide, 2010**



*Source:* World Development Report (2012)

If we compare female labor force participation with male participation, as is illustrated in figure 2.2 which shows the labor force participation rate in 2014 for men and women in six world regions, two key findings stand out. First, while male labor force participation rates differ only slightly between the regions (ranging from 77 to 84 percent), female labor force participation rates differ much more and range from 23 percent in MENA to 68 percent in East Asia and Pacific. Second, the lowest female labor force participation rates can – as we have already seen above – be found in MENA and South Asia, two world regions which are located close to each other. The figure also illustrates that the female labor force participation rate within the other four world regions is quite similar compared to those two world regions.

**Figure 2.2: Labor force participation rates, 2014**



*Note:* Modelled ILO estimates; % of population ages 15-64  
*Source:* ILO (2016); Own illustration.

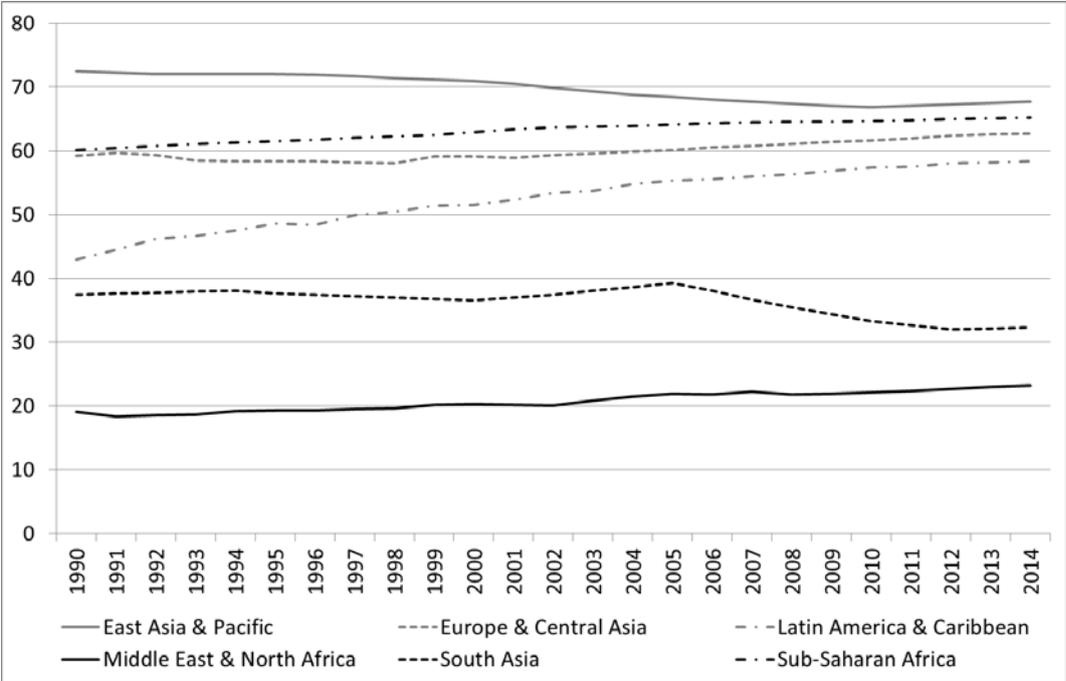
It should be noted that the figure hides strong variations within the different regions. For example, within the MENA region female labor force participation ranges from more than 40 percent in the United Arab Emirates, Bahrain, Kuwait and Qatar to less than 20 percent in Algeria, Iran, Iraq, Jordan and Syria.<sup>4</sup> In the East Asian and Pacific region – the region with the highest female labor force participation rates – the rates vary from less than 50 percent in Malaysia, Fiji, Samoa, and Timor-Leste to more than 80 percent in Laos and Cambodia.

When we additionally focus our attention on trends in the world regions during the past few years, some further interesting observations can be made. Figure 2.3 shows female labor force participation rates for the six world regions since 1990. It shows that not only the level but also the trends of female labor force participation differ between the world regions. The most obvious finding is that the very low female labor force participation in the Middle East and Northern Africa increased only slightly from 19 percent in 1990 to 23 percent in 2014. The female labor force participation in South Asia even decreased in this time period from 37 percent to 32 percent. All other world regions show a convergence. Latin America shows a strong increase of 15 percentage points; female labor force participation slightly decreased in

<sup>4</sup> An outlier within the group of countries, which belongs geographically to the MENA region but differs culturally, is Israel with a female labor force participation rate of 67 percent.

East Asia and Pacific and slightly increased in the other three world regions from 1990 to 2014.

**Figure 2.3: Trends in female labor force participation rates**

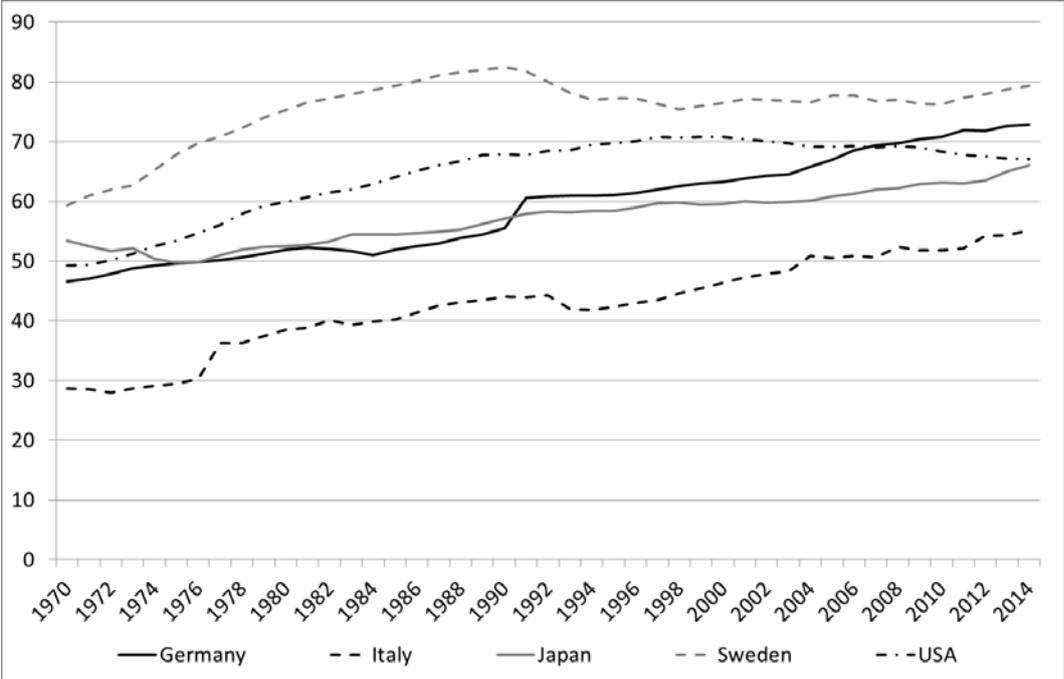


Note: Modelled ILO estimates; % of female population ages 15-64.  
 Source: ILO (2016); Own illustration.

It is important to note that this figure only displays changes in female labor force participation from 1990 to 2014, since no comparable data for all world regions is available before that time. Most of the changes in regions which show fairly stable labor force participation rates during this period already occurred prior to 1990. To illustrate that, figure 2.4 shows trends in female labor force participation in relation to a longer time period for five OECD countries. This figure shows that, in all five countries, female labor force participation rates increased strongly, although to a different degree and over different periods. For example, Sweden and the U.S. showed a strong increase in female labor force participation during the 1970s and 1980s and stagnating or even decreasing rates of female labor force participation since the 1990s. In Japan and Germany the increase in female labor force participation started a little bit later and less steeply than in Sweden and the U.S.. Italy shows a strong increase as well but, starting from a very low female labor force participation in 1970, still has a comparably low female labor force participation rate which is around 10 percentage points lower than in Japan and more than 20 percentage points lower than in Sweden.

Overall, this overview shows the strong variation of female labor force participation over time and between countries. In a next step, the different explanations found in the literature for these findings are presented.

**Figure 2.4: Trends in female labor force participation in OECD countries**



Note: % of female population ages 15-64  
Source: (OECD 2015); Own illustration.

## **2.2. Explanations of female labor force participation**

Different explanations for the increase in female labor force participation and the differences between the countries can be found in the literature. Three different paradigms can be distinguished: the structural, the institutional and the cultural approach. Although partly relying on the same theories and having some common assumptions, these approaches differ in their emphasis of the different explanatory factors. Furthermore, they differ with respect to their applicability. While those approaches which aim to explain the trends in female labor force participation are suitable to explain cross-sectional differences between countries at a given point in time, the opposite is usually not possible without some additional assumptions about the historical emergence of these differences. In the following, all three approaches are briefly introduced and their potential to explain the patterns described above are discussed. The aim of this overview is not to provide a complete theoretical and empirical discussion of these approaches but to make it possible to place the analyses undertaken in this thesis into the context of the existing literature on female labor force participation and show the shortcomings of previous research.<sup>5</sup> The overview accordingly focuses on the rough arguments of the approaches without detailed theoretical underpinnings. The theoretical foundation of these approaches is used in this thesis as well, and a more detailed introduction is included in chapter 4. A more comprehensive discussion on empirical studies on the specific research question of this thesis is given in the next chapter.

### **2.2.1. The structural explanation**

According to the structural approach, female labor force participation depends on economic development and related structural changes (e.g. England and Farkas 1986; Goldin 1990). This approach is strongly related to modernization theory, according to which economic development reduces gender inequality (see for a modern version e.g. Jackson 1998). Relying on the neoclassical model of labor supply (see chapter 4.1) this approach argues that educational expansion, a decline in fertility as well as occupational and technological changes increased the utility for women to participate in the labor market.

Most representatives of this approach argue that there is a U-shaped relationship between modernization and female labor force participation. According to this interpretation, female labor force participation is high in low developed societies which rely mainly on agricultural

---

<sup>5</sup> For overviews of sociological approaches with a focus on Western countries see also Steiber and Haas (2012), van der Lippe and van Dijk (2002).

production. In these societies, fertility rates are high and women work mainly on family farms or in household enterprises, which allow them to combine work and child rearing. Due to low earnings, there is an economic necessity for women to work. When societies develop, female labor force participation decreases since industrialization offers no attractive jobs for women. Furthermore, there are cultural restrictions on female employment outside the home and an incompatibility of paid work and childcare. An overall increase of income and family earnings reduces the economic necessity to work. Further economic development leads to a renewed increase in female labor force participation since educational expansion and the emergence of service sector jobs increase the labor market opportunities of women. Decreasing fertility, the availability of part-time jobs and social acceptance make labor force participation for mothers more attractive (Boserup 1970; Gaddis and Klasen 2014; Goldin 2006).

Overall, according to economic scholars the strong increase in female labor force participation starting in the 1960s is mainly due to shifting costs and benefits of labor market participation rooted in changing labor market conditions, to the educational expansion that led to an increase in wages for women, as well as to technological changes that reduced the value of non-market time, such as the invention of household production technologies and an increased availability of goods and services in the market that had previously been produced in the household (Blau et al. 2014). Besides those factors, some authors argue that the invention of the pill plays a role in women's increasing engagement in the formal market since it offers women the opportunity to control their fertility and hence to postpone marriage and first birth (Goldin and Katz 2002). Although proponents of the structural approach recognize the relevance of the cultural change as well, they assume that changing attitudes are part of a general value change from materialist to postmaterialist values in the process of modernization (Inglehart 1997). Hence, changing gender roles are seen as consequence rather than a driving force of changing structural factors such as the increase in female labor force participation (Inglehart and Norris 2003).

The structural approach is able to explain the increase in female labor force participation in theory, but empirical evidence for a U-shaped relation between development and female labor force participation is rather mixed. While several country studies show the assumed U-shaped development over time (e.g. Goldin 2006 for the U.S.; Tansel 2002 for Turkey) and cross-sectional comparative studies find the expected relation between countries (e.g. Mammen and Paxson 2000), using different data sources and indicators for economic development Gaddis

and Klasen (2014) show that the U-shaped relationship is rather weak across countries and over time and depends heavily on the data source used for female labor force participation.

A further important critique of the structural approach is that the theory cannot explain why the changes in factors that drive female labor force participation, such as educational expansion, emerged since those factors are handled as exogenous (Blossfeld and Drobnič 2001b). The fact that female labor force participation has not increased in some world regions, for example in countries in the Middle East and North Africa, despite some of the processes of modernization described, such as educational expansion and a decline in fertility, are observable in these countries as well, is at odds with the assumptions of the structural approach. Furthermore, it remains unclear why, for instance in some countries within Europe that are at a similar stage of development, some remarkable differences exist (Hakim 2000).

### **2.2.2. The institutional explanation**

The institutionalist approach aims to resolve this paradox by seeking the reasons for differences in rates of female labor force participation in the different manifestations of the modern welfare state (e.g. Kremer 2007; Mandel and Semyonov 2006; Pettit and Hook 2005). Two different features of the welfare state are assumed to play a role: first, the state as employer and provider of typical female jobs in the public sector and second, the state as a provider of institutions which facilitate the combination of childcare and work, for example public childcare provision and maternity and paternal leave regulations (Del Boca et al. 2008). Related to the argument about the impact of the welfare state are discussions about the impact of the tax system (e.g. Bick and Fuchs-Schündeln 2012; Schwarz 2012), the availability of part-time jobs (Rosenfeld and Birkelund 1995), and other labor market characteristics such as employment protection legislation (e.g. Dieckhoff et al. 2015; Iversen et al. 2005). All of these arguments rely on the assumption of the neoclassical model of labor supply (see chapter 4) according to which labor force participation is a function of costs and benefits. Hence, all institutions that influence those factors influence the benefits of labor market participation of women. For example, public childcare provided by the state reduces the financial burden of private childcare (Gornick et al. 1998) and makes labor force participation for women more beneficial.

Institutionalist researchers disagree about whether the best way to understand the impact of the welfare state is as a complex combination of different features best measured with the help of typologies (e.g. Blossfeld and Drobnič 2001a; Boje and Ejrnæs 2012; Stier et al. 2001) or whether single institutions have an influence on female labor force participation independent from the regime type (e.g. Gornick et al. 1998; Nieuwenhuis et al. 2012). The former has its roots in the work of Esping-Andersen (1990) who extended his classification of the European welfare states after being criticized by feminist scholars (e.g. Lewis and Ostner 1994; Orloff 1993) to the dimension of de-feminization, i.e. the degree to which care is organized privately or by the state. This approach is often applied in small N country comparison studies (e.g. Drobnič et al. 1999; Grunow et al. 2011; Matysiak and Steinmetz 2008) Contrary to that, several studies analyze the effect of single family policies, such as parental leave or public childcare (e.g. Boeckmann et al. 2014; Pettit and Hook 2005).

Most of the abovementioned studies use a cross-sectional design by comparing institutions across countries, which makes it difficult to decide whether the differences in female labor force participation observed between countries are indeed caused by differences in institutions or by other characteristics that differ between countries. This problem has been addressed by studies that evaluate the impact of policy reforms. Relying on the institutional approach, those studies have analyzed the effect of reforms in family policies over time within one country and come to very different conclusions on the explanatory power of family institutions for female labor force participation (Lalive and Zweimüller 2009; Rønsen and Sundström 2002; Ziefle and Gangl 2014).

An important shortcoming of the institutionalist approach in the context of this thesis is the fact that it is hardly applicable to an international comparison beyond Western countries, where often only a rudimentary welfare system exists. Research on policy effects for less developed countries is rather limited.<sup>6</sup> Furthermore, representatives of the third approach have criticized that the institutionalist approach is only partially able to explain country differences within Europe and has underestimated the role of cultural factors (see, in particular, Hakim 2000; Pfau-Effinger 2000).

---

<sup>6</sup> But see Klasen and Lamanna (2009) and Seguino (2000) on policies that promote growth in light manufacturing in East and South-East Asia.

### **2.2.3. The cultural explanation**

The cultural approach for the explanation of women's labor force participation is less systematized and lacks a coherent theoretical underpinning. Different approaches can be subsumed under this framework. In general, cultural explanations emphasize that social norms and attitudes are important for the explanation of female labor force participation. It is assumed that culture shapes social norms and attitudes, and that those influence human behavior (e.g. Inglehart and Norris 2003; Seguíno 2011). Many studies explicitly refer to the work of Birgit Pfau-Effinger (2000) or the work of Catherine Hakim (2000).

According to Pfau-Effinger (2000), the institutional approach neglects the importance of culture in explaining differences and changes in female labor force participation. Although the author does not deny the relevance of institutions, she argues that previous research has been too deterministic about the role of institutions and disregarded the interplay between culture and structure. According to her, the cultural heritage of a country and its interplay with welfare state institutions is important in understanding differences in female labor force participation. Pfau-Effinger (2000) has developed a theoretical framework according to which values and social norms about gender roles and care arrangements are implemented on different levels in the society. Those values and norms operate through the gender culture on societal level where they affect social structure, institutions and discourses as well as through the value orientations of individuals. The gender culture, which can differ between subgroups of a society, emerges through conflicts and bargaining processes and is quite stable. Gender culture is both cause and consequence of social acting. Pfau-Effinger (2000) develops her argument with the help of three historical case studies (i.e. West Germany, the Netherlands, and Finland) and distinguishes different ideal types. Her focus on Western Europe and research design limits the usability of her approach in a large-scale international comparison such as the one used in this thesis. Even the author herself denies the applicability of her approach for quantitative research (Pfau-Effinger 2000: 97).

Contrary to Pfau-Effinger, Hakim (2000) follows a strict individualistic approach which largely relies on economic theory, but complements the neoclassical model with the relevance of preferences. According to Hakim (2000), individual preferences are an important factor in explaining female labor force participation. While her approach is motivated by the shortcoming of institutionalist explanations for country differences as well, her approach fails to make clear how exactly differences between countries emerge. Nevertheless, her approach

provides important ideas regarding the relation between culture and female labor force participation and is discussed in more detail in chapter 4.

In general, a cultural approach seems to be a promising alternative for the explanation of country differences in female labor force participation, although a central shortcoming is the missing theoretical underpinning and the implementation of cultural factors in a general theory of female labor force participation. Accordingly, it is necessary to develop such a theoretical framework. This framework will be presented in chapter 4.

### **3. State of the art**

In this chapter I present previous empirical results on the relationship between culture and female labor force participation. Instead of discussing single studies in detail, the review gives an overview of the central results and limitations of previous research by attempting to clarify the confusing state of the art on this topic, with its wide variety of concepts and research designs taken from different disciplines which have contributed to this research topic. Due to the large number of studies which analyze female labor force participation in general or related outcomes, I focus on studies with an explicit reference to culture, independently of how culture is empirically measured.

As already discussed in the introduction, culture is a very vague term. Accordingly, very diverse measurements of culture can be found in the literature. The most frequent measurements of culture are attitudes and religion. The focus of this chapter relies on studies which use one of these two concepts, but it is worthwhile to note that a new line of research exists, especially within economics, which measures culture more indirectly. Several studies (e.g. Alesina et al. 2013; Antecol 2000; Blau et al. 2013; Fernandez 2007) use the female labor force participation rate of the country of origin of immigrants as a proxy for culturally transmitted values to analyze the impact of culture in explaining differences between immigrants and natives. A similar approach is applied by Polavieja (2015) who uses attitudes of non-migrated women as an instrument for attitudes of immigrant women to solve the endogeneity problem of attitudes. Although this approach provides some advantages, especially a better handling of the problem of endogeneity, the following review focuses on studies which measure culture more directly since this approach is applied in this thesis. Furthermore, the economic activity of female immigrants is only partially comparable to that of women in their country of origin since it can be assumed that immigrants are highly selective and other factors such as a lack of language skills and social capital influence the labor market participation of immigrants (Chiswick 1999; Kalter and Kogan 2014; Lancee 2012).

In line with the research questions of this thesis the literature review is divided into three parts. First, the research on the relation between attitudes and female labor force participation is discussed. The second part focuses on studies which explicitly address the relation between religion and female labor force participation. The third part focusses on studies which try to explain the low female labor force participation in MENA countries with respect to culture.

### **3.1. The impact of gender role attitudes on female labor force participation**

Previous research on the effect of attitudes on female labor force participation can best be grouped with respect to the level of analysis of the studies. Most of the studies can either be characterized as country studies that analyze the relationship between attitudes and labor force participation on individual level within one country or as comparative studies that analyze the relationship by comparing several countries. Since the research design of this thesis is comparative, country studies on the relationship between attitudes and female labor force participation are discussed only briefly while comparative studies are discussed in more detail.

Country studies on the effect of attitudes on female labor force participation are available for several countries, most of them Western countries (e.g. see among others Cloin et al 2011 and Stam et al 2013 for the Netherlands; Kanji 2011 for Great Britain; Stähli et al. 2009 for Switzerland) and only a few studies for non-Western country (e.g. Contreras and Plaza 2010 for Chile). Most of these studies use a cross-sectional design and analyze the impact of one or several attitudinal items related to gender roles on employment decisions. All of those studies find an impact of attitudes on female labor force participation, with women who support more traditional gender roles to be less likely to be employed than women with less traditional gender roles. All studies apply regression analysis and control for several other individual determinants of labor force participation, such as education, to account for spurious correlation.

However, cross-sectional studies fail to make sure that the direction of causality goes from attitudes to labor market decision and not vice versa. Some studies which use longitudinal data try to resolve this issue (e.g. Berrington et al. 2008; Corrigan and Konrad 2007; Cunningham 2008; Himmelweit and Sigala 2004). Using individual panel data and appropriate methods, those studies are able to analyze how gender role attitudes change over the life course and whether they are influenced by changes in the labor market status. These studies find the relationship between attitudes and employment participation to be recursive, i.e. changes in employment status result in changes in attitudes and changes in attitudes cause changes in employment status. In general, gender role attitudes appear not to be very constant over the life course and appear to be influenced by employment status (Cunningham 2008). Due to these results the use of attitudes as a measurement of (stable and exogenous) preferences, as has been done in this thesis, should be handled carefully. The use of religion

as an alternative (and exogenous) measurement of culture is used to solve this problem. This approach is discussed in more detail in chapter 7.

Several studies analyze the effect of culture on female labor force participation in a comparative way using cross-national survey data. Table 3.1 gives an overview over those studies and the research design used in the studies. Different research designs of comparative studies can be distinguished.

**Table 3.1: Studies on the impact of gender roles**

Study	Data	Level of Analysis	Method
Fortin (2005)	WVS	Microlevel	Regression analysis + country FE
Nordenmark (2004)	ISSP	Microlevel	Regression analysis + country FE
Algan and Cahuc (2005)	WVS + macro level indicators	Macrolevel	Regression analysis
Giavazzi et al (2009)	WVS + macro level indicators	Macrolevel	Regression analysis + IV estimation
Uunk et al (2005)	ECHP, SOEP, BHPS + macro level indicators	Microlevel	Multilevel analysis
Antecol (2003)	ISSP	Microlevel	Regression analysis + clustered SE
Boeckmann et al (2014)	National labor market surveys	Microlevel	Multilevel analysis
Steiber and Haas (2009)	ISSP	Microlevel	Multilevel analysis
Uunk (2015)	EVS	Microlevel	Multilevel analysis

First, many studies use country-fixed effects in their analysis to control for any country-related differences. In this research design it is not possible to test the impact of factors on the country level and produce some evidence on differences between countries. For example, Fortin (2005) uses three waves of the World Value Survey (WVS) to investigate the relationship between different attitudes and female employment rates in 25 OECD countries. Employing a probit model including country-fixed effects she estimates the effect of different gender role attitudes and work values on the employment status of 25 – 54 year old women controlling for education, age, marital status and the presence of children. Fortin finds

significantly lower employment probabilities for women stating traditional gender role attitudes.<sup>7</sup> A similar strategy is employed by Nordenmark (2004) using data from the International Social Survey Program (ISSP) of 1994 for ten countries. Gender ideology is measured by several items of gender attitudes on individual level using regression analysis with country-fixed effects, and this study comes to a similar conclusion. These studies can be seen as an extension to the country studies discussed above by estimating the individual effect of attitudes for many countries; however, due to the use of country-fixed effects no conclusion about differences between countries and whether attitudes have the same impact in every country can be made.

A second strategy is to use macro indicators or aggregated measures of individual-level data and analyze determinants of female labor force participation only on country level. This strategy is employed by Algan and Cahuc (2005). Using three waves of the WVS they estimate the relationship between aggregated attitudes and female employment rates on a country level. They find a significant relation in a regression analysis, also when controlling for labor market and family institutions, such as employment protection legislation or the share of public spending in childcare, for 19 OECD countries. They conclude that their measurement of family culture has a significant influence on female labor force participation as expected. A similar research strategy is used by Giavazzi et al. (2009) who, in addition to the aggregated measurement of attitudes, use average religiosity as an exogenous instrumental variable for attitudes toward gender roles. The aim of using an instrumental variable is to circumvent reverse causality and control for all possible confounding variables. For this purpose, an instrumental variable needs to have an impact on the independent variable but no other connection to the dependent variable. This assumption is not testable and highly questionable in case of religiosity. Overall, they find traditional gender role attitudes to have a negative effect on female labor force participation. Analyzing the relation between attitudes and female labor force participation on country level makes it possible to address country differences but has the disadvantage that individual-level processes cannot be analyzed. Accordingly, it is not possible to disentangle whether culture works primarily via social norms on country level or via individual attitudes.

Third, a few sociological studies follow the same strategy employed in this thesis and use multilevel analysis of international comparative micro data. This research design takes into account the hierarchical structure of that data and allows for the effect of attitudes to be

---

<sup>7</sup> Fortin (2005) additionally employs the second strategy of country-level analysis, as described above, and comes to the same conclusion.

estimated on individual level, on societal level or on both levels. Since the same research design is used in this thesis, these five studies are described in more detail.

Uunk et al. (2005) analyze the effect of different explanations for differences of labor force participation of mothers within the European Union. They test the impact of institutional factors, the economic necessity to work and the impact of gender-role values in a society on the employment behavior of young women for 13 countries using the European Community Household Panel (ECHP) complemented by data from the GSOEP for Germany and the BHPS for the United Kingdom. This data is, in turn, complemented by different macro-level indicators to test the impact of the proposed macro-level explanations. Gender role values stem from two waves of the European Value Study (EVS) (1990 and 1999) and are constructed by using the average agreement with two items on the reconciliation of work and family. In their analysis Uunk et al. (2005) estimate the effect of the different macro-level explanatory factors on differences in working hours before and after childbirth under control of several variables on individual level, such as education, household income, and the partner's working hours. Although, in theory, they distinguish between an effect of individual attitudes and a social-norm effect, they are only able to test the impact of aggregated attitudes on the country level. They find the expected effect for traditional gender roles, but this effect disappears after controlling for public childcare availability. The authors discuss this finding with respect to causality and conclude that institutions may operate as an intermediating factor that explains the relationship between gender-role attitudes and female labor force participation.

A similar strategy of analysis is used by Antecol (2003), who investigates the impact of male attitudes as a proxy of culture on female labor force participation rates using ISSP data of 1994 for 23 countries (mainly European countries plus Australia, Canada, Japan, New Zealand, and the Philippines). Instead of using multilevel modeling to account for the hierarchical data structure, she estimates models with clustered standard errors. Attitudes are measured as the aggregated agreement of the male respondents within one country with several attitudinal items on family and gender roles. She finds that male attitudes have the expected impact on female labor force participation with women to be more likely to be active in the labor market in countries where men have favorable attitudes toward women's employment.

Different data but a similar research strategy is used by Boeckmann et al. (2014). Using individual-level data from national labor-market surveys harmonized by the Cross-National Data Center in Luxembourg, they analyze the difference in employment probability and employment hours between mothers and non-mothers for 18 Western countries. Different macro-level variables from different sources are used to test the influence of institutional, economic, and cultural factors. Cultural factors are measured by an aggregated measure of attitudes toward the employment of mothers from the ISSP. Accordingly, attitudes are only measured on country level. Employing logistic multilevel models for the employment probability and linear multilevel models for working hours, they estimate the impact of different country-level variables for the motherhood gap in those dependent variables. They find the expected results. In countries with less attitudinal support of employment of mothers, the employment probability and working hours of mothers compared to women without children are lower than in countries with a stronger attitudinal support.

All of these studies only account for culture as the societal context on the country level without a measurement of attitudes on the individual level. The inclusion of attitudes only on the societal level without an additional control of attitudes on the individual level is problematic insofar as it is not clear whether country differences stem from compositional effects or context effects. Compositional effects are differences between countries that emerge through a different composition of individuals between countries, in this case differences in the distribution of individual attitudes between countries. Contrary to that, context effects are effects that exist independently of composition (Snijders and Bosker 2012).<sup>8</sup> In order to distinguish composition from context effects it is necessary to measure attitudes on both the country level and the individual level. This is done by the following two studies.

Steiber and Haas (2009) investigate individual- and country-level determinants of employment for women with small children. Using data from the ISSP 2002 from 26 countries, they analyze the effect of different factors on individual and country level on the likelihood of being employed and, in addition, distinguish between full-time and part-time employment. Attitudes are measured by way of agreement with two statements on gender roles and care attitudes. They find a significant effect of individual-level attitudes but no effect for the average attitudes on country level after controlling for individual attitudes.

Uunk (2015) follows a similar strategy to that of Steiber and Haas (2009) and measures the impact of culture on both levels simultaneously, which allows the compositional effect to be

---

<sup>8</sup> See for a general discussion of the relevance of social context Friedrichs and Nonnenmacher (2014).

disentangled from a context effect on macro level. Using the 2008 wave of the EVS for 33 Western and Eastern European countries, he estimates the effect of attitudes on individual and country level on the likelihood of being employed. Individual gender-role attitudes are measured by way of the (dis)agreement with eight different statements in relation to gender roles. The social norm is measured by the average attitude of all respondents within a country. Contrary to Steiber and Haas (2009), he finds an independent effect of average gender-role attitudes on country level under the control of individual level attitudes, which have the expected effect as well.

Beyond those large-N comparative studies, there are some comparative studies which use only a small number of countries (e.g. Albrecht et al. 2000; Haas et al. 2006; Hummelsheim and Hirschle 2010; Kangas and Rostgaard 2007). Although they use quantitative data and methods on individual level, they can be characterized as qualitative studies on country level without explicit statistical tests of macro explanations. For this reason, those studies are not discussed here in detail.

To sum up, the existing studies on the relationship between culture and female labor force participation that use attitudes as a measurement of culture find the expected effects of attitudes. Women with more traditional gender roles are less likely to be employed than women with less traditional attitudes. This relation has been found by using different data sets and research strategies. It is less clear whether there is a social-norm effect independently from individual attitudes. Only two studies have been able to test the impact of attitudes on individual level and societal level simultaneously, and they come to different conclusions. While Uunk (2015) finds an effect of aggregated attitudes on country level under control of the individual level, Steiber and Haas (2009) cannot find such an effect. A possible explanation for this inconsistent result is that the two studies rely on different data sources and a different sample of countries. This would point to the possibility that the social context is more important in some countries than in others. Furthermore, the two studies use different measurements of attitudes, which could vary in their eligibility to measure a social norm.

An important limitation of all existing comparative studies on the relationship between attitudes and female labor force participation is that they are restricted to a specific region, namely Western and Eastern Europe (plus some other Western countries such as the United States). The variation in both female labor force participation as well as culture in this sample is quite restricted in a worldwide comparison. With a few exceptions all country studies also relate to countries in this region. Furthermore, many existing studies, especially those studies

which estimate the effect of attitudes on individual and country level simultaneously, focus on mothers. This has the disadvantage that those studies only provide an insight into the role of culture for the labor force participation of mothers, and not for female labor force participation in general. This approach is traceable within the Western context where country-specific differences in female labor force participation arise mainly from differences in the labor-market attachment of mothers, but becomes more problematic in a worldwide comparison since female labor force participation of women without children is not self-evident in some world regions. For example, in countries of the Middle East and North Africa female labor force participation is low among young unmarried and childless women as well (Gebel and Heyne 2014; Sieverding 2012). Furthermore, most studies do not discuss problems of causality that emerge from the use of specific control variables. As will be discussed in more detail in chapter 4, it is likely that some of the variables that many studies control for, such as fertility or institutions, are not confounding variables but mechanisms that explain part of the relation between gender-role attitudes and female labor force participation. Controlling for these variables biases the results in the sense that the causal effect of gender role attitudes is underestimated.

### **3.2. The impact of religion on female labor force participation**

In a next step, the state of the art regarding the impact of religion on female labor force participation is summarized. Similar to studies investigating the impact of attitudes, studies which analyze the impact of religion can be categorized either as country studies which compare the labor force participation between different religious groups of women within one country, or comparative studies which analyze the impact of religion on female labor force participation for a large number of countries. Again the focus of this review lies on the research design of this thesis, i.e. on a cross-country comparison. Results from country studies on religion are only partially transferable since some differences between religious groups within countries are not reflected in differences in religious denominations between countries because they mainly exist within one country. This is especially true for the differences between different strands of Protestant groups within the U.S., which has been the focus of most of the research undertaken. Nevertheless a short overview of existing country studies is given.

As mentioned just now, most country studies on the relation between religion and female labor force participation relate to the U.S. Those studies mainly focus on differences between different strands of Protestantism (e.g. Glass and Nath 2006; Sherkat 2000), differences between the most frequent denominations in the U.S. (e.g. Cornwell et al. 2003; Lehrer 1995; Lehrer and Chen 2013) or differences in religiosity among conservative Protestants (e.g. Chadwick and Garrett 1995). Overall, those studies found that religious denomination and religiosity influence female labor force participation, with women of more traditional denominations and women who were more religious to be less likely to be active in the labor market. Furthermore, there are several studies for different countries (e.g. Amin and Alam 2008 for Malaysia; De Giusti and Kambhampati 2015 for Kenya; Ekert-Jaffe and Stier 2009 for Israel; Heineck 2002 for Germany; O'Neil and Bilgin 2013 for Turkey; Spierings 2014 for Indonesia and Nigeria) which analyze the impact of different denominations and religiosity within one country. Overall, all studies which include Muslim women find them to be least likely to be employed, while differences between Protestant and Catholic women seem to be less pronounced and depend on the context. Several studies find religiosity to be negatively correlated with female labor force participation (e.g. Ekert-Jaffe and Stier 2009; Heineck 2002).

Besides these country studies a much more manageable amount of comparative studies exists on the relationship between religion and female labor force participation. The research designs of those studies are similar to that used in comparative studies on the effect of attitudes, although there are no multilevel studies. The studies use either macro-level data or individual-level data with country-fixed effects which does not allow an analysis of the impact of religion on individual and societal level simultaneously. Table 3.2 gives an overview of the described studies.

**Table 3.2 Studies on the impact of religion**

Study	Data	Level of Analysis	Method
Bayanpourtehrani and Sylwester (2013)	Macrolevel indicators	Macrolevel	Regression analysis
Feldmann (2007)	Macrolevel indicators	Macrolevel	Regression analysis and time-series analysis
Clark et al (1991)	Macrolevel indicators	Macrolevel	Regression analysis
H'madoun (2010)	World Value Survey	Microlevel	Regression analysis + Country FE
Pastore and Tenaglia (2013)	European Value Study	Microlevel	Regression analysis + Country FE
Guetto et al (2015)	European Value Study	Microlevel	Structural Equation Models

Bayanpourtehrani and Sylwester (2013) as well as Feldmann (2007) analyze the impact of religion on female labor force participation on a country level using macro-level indicators from different sources. Bayanpourtehrani and Sylwester (2013) measure religion in terms of percentage of denomination of the population stemming from survey data and distinguish between Islam, Catholicism, Protestantism, Hinduism, and no religious affiliation. Feldmann (2007) is only interested in the effect of Protestantism and uses a dummy variable differentiating between countries where the majority of the population is Protestant and countries where the majority is not. In both studies several variables that are assumed to influence labor force participation, such as economic development, are controlled for. Bayanpourtehrani and Sylwester (2013) find female labor force participation in countries where all inhabitants are Muslims to be 17 percentage points lower than in countries without

any Muslims. Furthermore, they find higher female labor force participation in Protestant and non-religious countries and lower female labor force participation in Hindu countries compared to Catholic countries. Similarly, Feldmann (2007) find female labor force participation in Protestant countries to be higher than in other countries (between 11 and 12.8 percentage points depending on the specification).

In addition to the impact of religion, Bayanpourtehrani and Sylwester (2013) analyze whether the effect of religion is robust when controlling for regions, and found the Muslim effect to weaken (from 17 to an 8 percentage points difference to Protestant countries) when additionally controlled for the MENA region. The results show a strong negative effect for the MENA countries even under control or religion. Excluding MENA countries from the sample, they find the Muslim effect to be insignificant. They additionally find negative effects for South Asia, Latin America and Caribbean countries compared to Western countries, but those effects partly diminish when religion is controlled for. Overall they conclude that the negative relationship between Islam and female labor force participation is driven by the MENA countries and that other cultural characteristics than Islam or a different practice of Islam in the MENA region is important for the explanation of female labor force participation in those countries.

A macro-level comparative study is also conducted by Clark et al. (1991) whose study uses data from the 1980s and geographical regions instead of religion but embraces around 100 nations, which makes it the study with the largest sample by far. Using macro-level indicators, they differentiate between the Islamic, non-Islamic African, Latin American, non-Islamic Asian, Marxist, and Western region – a classification partly related to religion – and control for economic development and international dependency. They find women in Islamic and Latin American nations to constitute a lower and women in Marxist nations to constitute a higher share of the labor force compared to women in Western countries. Although their findings provide an indication as regards the role of religion, their measurement of geographically regions is only loosely related to religion and it is not clear whether the effects they found can really be attributed to religion.

Another research design is used by H'madoun (2010) who analyzes the impact of religion on female labor force participation on individual level by using data from the WVS and country-fixed effects. H'madoun (2010) analyzes the influence of different dimensions of religion, namely affiliation, intensity of belief, and participation in religious service on individual level in 48 countries. She estimates probit regression and controls for several individual level

determinants of labor force participation such as education, marital status, number of children, health, and class. H'madoun (2010) finds a negative effect on labor force participation for religious women. In addition, she finds differences in separate analysis for religious and non-religious women when it comes to the role of family-related determinants of female labor force participation. For example, she finds the effect of being married to be negative and significant only for religious women. For the different dimensions of religiosity she finds the participation in religious activities to have a positive impact on female labor force participation while controlling for intensity of belief, but this effect does not hold in the models with country-fixed effects. In relation to different denominations, she finds strong negative effects for Muslim and Hindu women compared to other denominations. The use of country-fixed effects allows the author to analyze the relationship between religion and labor force participation on the individual level while keeping country differences constant, but does not allow an analysis of the effect of religion on societal level.

A similar research design is used by Pastore and Tenaglia (2013) who use the EVS to analyze the influence of religion on female labor force participation in 47 European countries. They find Muslim women and to a smaller degree Orthodox women to be less likely and Protestant women to be more likely to be employed than women without any religious affiliation. Moreover, they estimate interaction effects between denomination and religiosity measured as activity and find small differences for Muslim and Orthodox women and stronger effects for Catholic and Protestant women who are less likely to work if they are religiously active.

Guetto et al. (2015) follow a completely different methodological approach. They use structural equation modeling to analyze the relation between religiosity, gender role attitudes, fertility and female labor market participation. In their models which they estimate separately for 17 European countries, they find a positive correlation of religiosity with fertility and housewifery, and a correlation between gender role attitudes and labor market decision. They find these correlations to be stronger in more traditional countries, i.e. the Catholic countries of Southern, Eastern and Central Europe, compared to the Scandinavian countries. Because of the different method used in this study, these results are only partially comparable to other studies.

To sum up, previous research design on religion and female labor force participation shows significant differences between religious groups and an impact of religiosity. In general, Muslim and Hindu women have lower female labor force participation; in relation to all other religious groups, the results depend on the sample and design of the study. No study is able to

distinguish individual-level effects from a country-level effects, which makes it impossible to answer the question whether there is an independent social norm effect of religion or religiosity. As described above, most studies on religion do not distinguish between possible confounding variables and mechanisms as well. This is even more relevant for studies that estimate the effect of religion since, as will be discussed in chapter 7 in more detail, religious denomination can be assumed to be exogenous to other variables such as education. Accordingly, studies which use education as a control variable underestimate the true causal effect of religion.

### **3.3. Culture and female labor force participation in MENA countries**

Previous research on the third research question whether culture can explain the low female labor force participation in MENA countries is rare. While there are some studies which analyze the role of culture for female labor force participation within one or more MENA countries (e.g. Spierings 2015; Spierings et al. 2010) only a few studies analyze female labor force participation in MENA countries in comparison to other countries with respect to culture. This research design is necessary to test whether culture is an explanatory factor for the low female labor force participation in MENA countries. For example, Spierings (2015) bases his research on the similar research question of why female labor force participation in Muslim countries is lower, on average, than that in the rest of the world but tests only variations within Muslim countries. Although this research design provides interesting and important insights into the variation of female labor force participation within predominantly Muslim countries and makes clear that those countries are very heterogeneous, he is not able to explain why female labor force participation in Muslim countries is lower, on average, than that in non-Muslim countries. For this purpose he would have required a sample which included non-Muslim countries as well.

The heterogeneous nature of the Islamic world is also part of the discussion about the role of culture in explaining female labor force participation in MENA countries. Several authors have questioned the assumption that the explanation for existing gender inequality in those countries is rooted in the predominance of Islam but instead stem from other cultural traditions.<sup>9</sup> There are only a few studies which try to test whether low female labor force participation can be explained by the predominance of Islam or other cultural heritage.

One of these studies – Bayanpourtehrani and Sylwester (2013) – does not explicitly focus on the MENA region and was already discussed above. They find that Islam cannot explain the low female labor force participation in the MENA region and conclude that cultural traditions other than Islam are likely to be responsible for the low female labor force participation in MENA.

One study which has an explicit focus on the MENA region is the study by Hayo and Caris (2013). Relying on identity economics by Akerlof and Kranton (2010)<sup>10</sup> this study investigates whether Islam or other cultural traditions explain the low female labor force participation in MENA countries. They use the fourth and fifth wave of the WVS which

---

<sup>9</sup> A more detailed insight into this debate is given in chapter 8.

<sup>10</sup> This approach is discussed in more detail in chapter 4.

includes seven countries from the MENA region. They use two different measurements to test different concepts of culture following the terminology of identity introduced by Akerlof and Kranton (2010): traditional identity is measured by the agreement with a statement on gender roles; religious identity is measured by denomination and religiosity. They apply a probit model with country-fixed effects and estimate the effect of religious identity and traditional identity on employment probability. They found women in MENA countries to be less likely to be employed than women in all other regions with the exception of South Asia after controlling for different individual characteristics. In addition, they find the expected effect of both measurements of identity: women who are more religious and Muslim women have a lower probability of being employed; the same is true for women with more traditional gender-role beliefs. Interactions between the two measurements of identity and the dummy for the MENA region show that traditional identity has a much stronger impact on female labor force participation in MENA countries and having a Muslim faith has a small positive impact in the MENA region. The authors interpret their results as evidence that “traditional cultural manifestation is a more meaningful explanation than religious identity” (p. 287). Although their results show that gender role attitudes have a stronger impact in the MENA region than in other regions and that this is not the case for religion, their research design and results are only partly suitable for answering the question of which cultural construct better explains the low female labor force participation in the MENA region. To answer this question it would have been necessary to test whether religious identity or traditional identity explains the low female labor force participation in MENA to a different amount; however, this is not tested by the authors.

Another research design is used by Korotayev et al. (2014) who test the relationship between Islam, Arab culture and female labor force participation on the macro level. They find that being a country within the Arab civilization is a much stronger explanatory factor for female labor force participation than being a Muslim country. Under control of the Arab civilization, the negative impact of Islam on female labor force participation becomes much smaller although a significant impact remains. In addition, they test whether the relation is affected by educational levels, fertility, and female life expectancy and find the effect of Arab culture on female labor force participation to be unaffected. Although the authors use a distinct geographical classification, the results that low female labor force participation in Arab countries is not explained by the predominance of Islam can be transferred to female labor

force participation in MENA countries since the overlap between these two classifications is very large.<sup>11</sup>

Overall, previous research indicates that culture plays an important role in explaining low female labor force participation. All previous studies find an impact of individual attitudes on female labor force participation. It is less clear whether there is an independent social-context effect or whether country differences stem from compositional differences. Regarding the role of religion, previous research found Muslim and Hindu women to be less likely to be employed than women of other denominations. When it comes to the explanation of female labor force participation in MENA countries, culture seems to play an important role, but Islam does not seem to be the single explanatory factor in that regard. Previous studies involving MENA countries lack a coherent research design which tests the impact of alternative explanations for the low female labor force participation in MENA countries. Similarly, most of the studies discussed do not provide a general theoretical framework and neglect considerations on the causal relationship between culture, female labor force participation, and potential control variables. This makes it necessary to develop an own theoretical framework in order to assess the impact of culture on female labor force participation which allows to consider the causal relation of these variables. This framework is presented in the next chapter.

---

<sup>11</sup> Following the usual definitions, all Arab countries are MENA countries but a few MENA countries, such as Iran, do not belong to the group of Arab countries.

## **4. Theoretical considerations**

In the preceding chapters it has been argued that previous research on the effect of culture on female labor force participation is not very systematized and most studies lack an explicit theoretical underpinning. In general, cultural explanations emphasize that culturally shaped social norms and attitudes are important for the explanation of female labor force participation (e.g. Lehrer 1995; Nordenmark 2004; Seguino 2011). Most studies which aim to explain the impact of culture on female labor force participation refer to the neoclassical model of labor supply and simply incorporate attitudes or social norms as additional terms into a rational choice model of decision making. This implementation of attitudes and social norms into the neoclassical model is often not made explicit even though there are certain extensions of the neoclassical model that are suitable for this purpose. These extensions are (i) identity economics developed by Akerlof and Kranton (2010), who include preferences and social norms into the neoclassical model, (ii) the preference theory developed by Catherine Hakim (2000) who, relying on the neoclassical model, developed a typology of different types of women, and (iii) bargaining approaches, which discuss the relevance of social norms and institutions in the framework of the neoclassic model. Furthermore, economic approaches of labor market discrimination give additional insights into the relevance of cultural factors. These approaches are used to develop a theoretical model for the explanation of the impact of culture on female labor force participation. In the first part of this chapter I discuss these approaches in more detail. In the second part of this chapter the implementation of culture in the general theoretical framework of female labor force participation is presented and hypotheses are derived which are tested in the empirical part of this thesis.

### **4.1. Approaches for explaining female labor force participation**

#### **4.1.1. The neoclassical model**

The neoclassical model proposes that the supply of female labor can be explained by a rational decision which is made within the household and depends on the utility of participation in the labor market and the utility of time spent at home. While the standard economic model of labor supply considers labor supply as a decision between work and leisure, the increase in the number of women entering the labor market has brought the role of household production into the discussion. The basic foundation of the neoclassical model of labor was set by Garry S. Becker (1965; 1991) and Jacob Mincer (1962), but has been further

elaborated by other economists (regarding the following, see Blau et al. 2014 chapter 3 & chapter 6).

Some underlying assumptions are made which are important for the understanding of the model: it is assumed that an individual's goal is to maximize one's own utility. Utility derives from the consumption of commodities, i.e. services and goods, which can be purchased on the market by using labor market earnings or which can be produced at home. Usually commodities require both purchased goods or services and home time<sup>12</sup>, which leaves the question of how to allocate the time between home and market most efficiently.<sup>13</sup> The model assumes that this decision is made within the family and that family members act altruistically in the sense that their goal is the maximization of the utility of the family as a unit. According to Becker (1991), commodity production is most efficient if family members specialize either in market or home production at least to some extent. The decision which family member – usually partners – specialize in which sphere depends on the respective comparative advantage. Since women have – according to the classic model – a tiny biological advantage in childrearing it is rational for them to specialize in home production. Even small initial advantages can hence cause a division of labor which reinforces itself over time through learning and different investment strategies.

Whether biology is the adequate explanation for the different investment strategies is strongly debated. According to Becker, the division of labor among members of the family is “determined partly by biological differences and partly by different experiences and different investment in human capital” (Becker 1991: 30). Although Becker admits that socialization plays a role for the division of labor, he justifies this with reference to the biological differences in men and women and the rational decision of parents to socialize their children according to these biologically determined gender roles. But even if one disagrees with the biological argument it can be argued that women have a comparative advantage in housework because girls and boys are in fact raised with different expectations and receive different training and education in our societies (Blau et al. 2014: 37). Accordingly, the female advantage in housework can assume to emerge through differences in socialization rooted in different gender roles. This view is also supported by other, more sociological, approaches

---

<sup>12</sup> For example food needs to be cooked, furniture needs to be arranged and maintained in the home, childcare services need to be carefully selected (Blau et al. 2014: 37).

<sup>13</sup> For the sake of convenience it is assumed that all nonmarket time is spent in the production of commodities, irrespective of whether this is classified as housework or leisure time, which is often difficult to distinguish and not important for the general idea of the approach; on the other hand it is important to note that the increase in women's labor market participation was not accompanied by a reduction of housework to the same extent, which left women with less leisure time (Blau et al. 2014: 92).

which emphasize the social constructions of gender roles and the relevance of “doing gender” (West and Fenstermaker 1995; West and Zimmerman 1987).

One way or the other, the economic model rests on the assumption that women have a comparative advantage in housework and that it is a rational decision for them to specialize in household production, whereas men specialize in market work. This must not mean a full specialization and total division of labor. The exact time allocation, i.e. how much time is spent by each partner carrying out market work or household production also depends on preferences for market- or home-produced goods (Blau et al. 2014).

For female labor force participation it can generally be assumed that women decide to participate in the labor market if the value of time spent in the market is higher than the value of time spent at home. Accordingly, female labor force participation depends on factors which influence the value of market time and non-market time. Important determinants for the value of non-market time are tastes and preferences, the demand for housework, such as the presence of small children, and the available income from other sources, such as the partner’s market income. Because of that, family status is important. Marital status determines whether alternative sources of income are available and children increase the care needs within a household (Blau et al. 2014). The value of market time is mainly influenced by the labor-market opportunity, i.e. the wage rate available in the labor market. The wage rate in modern societies is primarily determined by a person’s education. Different theories explain the link between education and wage rate (for an overview, see Bills 2003). According to the human capital theory (Becker 1964), education increases the productivity of employees, making them more valuable. By contrast, the signaling theory (Spence 1973) assumes that education is a signal for higher productivity for employers. While the exact theoretical mechanism behind the relationship between education and labor market outcome is still under discussion, empirical evidence for the positive impact of education on female labor force participation is overwhelming (England et al. 2012; Rubery et al. 1999).

#### **4.1.2. The relevance of preferences**

Two approaches have focused on the role of preferences for female labor force participation in more detail; one approach has a stronger economic background while the other has a stronger sociological background. The first approach is the identity theory by Akerlof and Kranton (2010). Building on the neoclassical model, Akerlof and Kranton (2010) introduce identity as an additional term into the rational decision process. In the classic model tastes and preferences are individual characteristics which are independent from the social context. Contrary to that assumption, identities differ from other tastes (e.g. the taste for bananas) in the sense that they are not pure individual characteristics but derive from social norms and, accordingly, depend on the social setting (Akerlof & Kranton 2010: 4). Identities can be understood as social categories which prescribe adequate behavior. Gender is an important aspect of identity which is coupled with some prescriptive behavior. According to the identity model, men and women lose utility when they behave against their identity. Similarly, people derive identity-related utility from others' action, which means that men suffer utility if women do not behave according to their prescribed behavior and vice versa. In case of female labor force participation, this means that, in societies in which traditional gender roles prescribe women to do the housework, women and men have utility if women do the housework and suffer utility in case they do not.

The second approach which explicitly focusses on the relevance of preferences for labor force participation stems from sociology. Nevertheless, the approach also relies on the neoclassical framework as an underlying theory of action. Although called a theory, the preference theory by Hakim (2000) is more of a typology that includes some assumptions about trends rather than a theory in the classic sense. According to Hakim, women differ with respect to their preferences and have different priorities regarding the conflict between family life and employment. Due to different historical changes women have to make a choice with regard to their lifestyle. While in the past economic necessity or relative affluence was the dominant force, nowadays preferences have become important for the explanation of female labor force participation and fertility decisions in rich societies. The historical changes which have allowed women to make a real choice between motherhood and employment have been the contraceptive revolution, which allowed women to control their fertility, and the equal opportunities revolution, which resulted in an institutional change. In addition, the shift from blue collar to white collar occupations and the creation of jobs for secondary earners offer women more job opportunities. These changes have been accompanied by a stronger

importance of lifestyle choices in modern societies, which further promoted decisions based on individual preferences.

Hakim distinguishes three groups of women according to their preferences: home-centered women, work-centered women and adaptive women. The first group prefers to be full-time homemakers after marriage; the second group has a preference for any activity other than motherhood in life and, in the case of a preference for work, this often results in full-time work over the life course. The last group of adaptive women prefers to combine employment and family. Their employment is strongly determined by the social and economic environment. These groups have conflicting interests and differ in their responsiveness toward policies.

Although Hakim's motivation for her approach is the insufficient explanatory power of institutional approaches for the explanation of country differences, she does not clearly explain how country differences can be explained in line with the preference theory. Hakim (2000) argues that the different groups of women react differently to policies and that the size of the different groups differs between countries, but the underlying reasons for these findings are not made clear. Her work contains even contradictory statements about those findings. At one point she argues that "in most societies, public policy is biased toward one group or another, by accident or by design, so that the exact percentages [of the preference groups] vary across societies" (Hakim 2002: 437) and that in Britain "public policy does not bias the distribution [of preferences]" (Hakim 2002: 437). This implies that she assumes that institutions shape preferences. Similarly she argues that "socialization processes [...] can either promote or reduce, encourage or ignore sex differences that emerge during childhood, and they may assign greater weight to masculine or feminine values" (Hakim 2000: 283) and that "cross-national comparison of work-lifestyle preferences display clearly the impact of social and cultural contexts on ideal models of the family and gender roles" (Hakim 2000: 286). Elsewhere she clearly rejects the idea that socialization influences preferences. According to Hakim (2000: 185ff), socialization cannot explain differences in preferences between women, since gender roles are the same for all girls. According to her, some psycho-physiological explanations are more promising. But her argumentation on this fails to convince, and the empirical evidence on the impact of biological factors on preferences is rather scarce (e.g. Fine 2010). Furthermore, this argumentation would not explain why the size of the different groups varies between countries. It is more likely that socialization

regarding gender roles differs between women both within and between countries and results in different preferences.

### **4.1.3. Bargaining approaches**

One important shortcoming of the neoclassical model is the fact that it disregards the power structure within the family. According to the neoclassical model, all family members are assumed to act altruistically and have a common preference. This is expressed by the fact that there is only one utility function within the household and different interests of family members are not accounted for (England and Folbre 2005). Bargaining approaches can be understood as a reaction to this critique by taking into account different interests of family members and permit individual agency of men and women within a household (Lundberg and Pollak 1996). Although mainly applied in order to explain the domestic division of labor, those approaches also give interesting insights for the logic of female labor force participation decisions. Relying on game-theoretic models, the division of labor is modeled as a solution of a bargaining game. In general it is assumed that people prefer to do less housework and that relative wages will affect bargaining power. Contrary to Becker's altruistic family members, partners with higher earning power are able to bargain to do less housework and, as a result, do less work overall and have more leisure time. For bargaining models the possibility of divorce plays an important role, since it is assumed that bargaining within a marriage is always conducted in the shadow of divorce. The threat point in these models is defined by the outside option each partner has in case of a divorce, which is influenced by skills valuable in the labor and marriage market (England and Folbre 2005). Since household skills are only partially transferable on the remarriage market<sup>14</sup>, it is assumed that couples specialize only incompletely because paid work acts as an insurance against divorce. These changing assumptions allow bargaining approaches to model household decisions more realistically and in accordance with empirical findings, which could not be explained by the classic approach. Besides this distinct view on processes on individual-level bargaining approaches implement the macro level by emphasizing the relevance of macro-level conditions such as social norms and institutions (e.g. Iversen and Rosenbluth 2010; Lundberg and Pollak 1996). Those macro-level conditions are assumed to shape the bargaining process within a household by defining

---

<sup>14</sup> For example, Iversen and Rosenbluth (2006) argue that while household skills in general could be sold on the remarriage markets, children stemming from a previous marriage reduce the position on the remarriage market (p.3).

the outside options. For example, Iversen and Rosenbluth (2010) argue that divorce rates within a society have an impact on female labor force participation.

#### **4.1.4. Labor demand and the relevance of discrimination**

The labor supply of women is also affected by the demand of female labor and processes of discrimination. Economists have developed different approaches to analyze discrimination (for an overview, see Blau et al. 2014 chapter 11). Two different kinds of discrimination can be distinguished, i.e. statistical discrimination and taste discrimination. Although gender differences in the labor market are most often explained by statistical discrimination, it can be argued that under certain conditions taste discrimination against women can play a role as well.

Statistical discrimination occurs when employers believe that, on average, women are less productive or less stable employees and treat individual women as if they conform to the average woman (Aigner and Cain 1977; Phelps 1972). The idea behind this argument is that employers need to make their hiring decisions based on uncertainty and incomplete information. Although this kind of discrimination occurs only if women are on average less productive than men, it can result in the discrimination of a single woman who is more productive than the average woman. Furthermore, in the case that productivity of women increases, for example due to educational expansion, it takes some time for employers to adjust their hiring behavior and, hence, this can be incorrect in the meantime (Blau et al. 2014).

Contrary to statistical discrimination, the origin of taste discrimination does not lie in differences in productivity between groups but stems from individual tastes for hiring specific groups independently of their productivity (Arrow 1973; Becker 1971). These tastes can be tastes of employers, co-workers or customers. Taste discrimination is a rational decision as well since it can be assumed that these tastes affect productivity and, accordingly, the profit of a company. In case of gender, taste discrimination can occur if an employer or co-worker has a taste for working with men or customers dislike to interact with women. This is likely to be the case especially in societies with strong social norms about gender segregation, for example in Saudi Arabia, where gender segregation in public is the legal norm and firms with customer contact, e.g. shops, are forced to hire either men or women only. But also in societies with less strict gender segregation, gender roles can make taste discrimination for employers on basis of gender worthwhile and rational (Blau et al. 2014).

Discrimination can also work indirectly in terms of a feedback effect. In the case that discrimination of women is widespread and persistent in a society, women have a lower incentive to invest in education (Arrow 1973). For female labor force participation these feedback effects are likely to be more important than direct discrimination, which is more relevant in explaining gender differences among those participating in the labor market, such as the wage gap and segregation.

#### **4.1.5. Summary**

To sum up, the neoclassical model states that labor force participation is a rational decision, depending on different factors that influence costs and benefits of labor force participation and the alternative option of being a housewife. In line with the neoclassical model, differences in those factors should explain differences in female labor force participation rates between countries. These are mainly individual-level factors, such as education, but also factors on the societal level which influence costs and benefits of female labor force participation. Discrimination, especially taste discrimination, can also result in a lower female labor force participation through feedback effects.

Identity economics explains how social norms and gender roles can be implemented in the economic model by influencing costs for women themselves and others in case of non-compliant behavior. Bargaining approaches broaden this perspective by including power structures within the household into the model and, hence, giving a first indication of the relevance of social norms. Bargaining power is defined by possible outside options which heavily depend on the possibility of divorce.

## 4.2. Culture and female labor force participation

As shown above, female labor force participation can best be understood as result of a rational decision depending on costs and benefits of female labor force participation. In a next step it is discussed how culture influences this decision. For this purpose a theoretical model based on the theories and approaches discussed above is developed and hypotheses are derived from this.

In the theoretical discussion it became clear that two cultural factors, i.e. preferences and social norms, influence female labor force participation. With respect to female labor force participation, preferences and social norms about the division of labor between paid work and family responsibilities among the sexes should be relevant. In the literature beliefs about the sexual division of labor have been described by using different phrases such as gender ideology, gender role attitudes or gender egalitarianism (for an overview, see Davis and Greenstein 2009). In the following the term gender-role belief is used to describe how strongly individuals support the sexual division of labor. A distinction is made between traditional gender-role beliefs that refer to the support of a family model under which women are primarily responsible for housework and childrearing and men are the primary earners (Cunningham et al. 2005). Contrary to that, less traditional or modern gender-role beliefs refer to attitudes according to which no sexual division of labor is taken as given in the sense that neither sex is more suited to any one task. The latter does not necessarily imply an implementation of an egalitarian division of labor between couples, but instead implies the disagreement of individuals with the belief of separate spheres for men and women regardless of their abilities and skills.

In line with that, it is assumed that people differ in their *preferences* for a sexual division of labor; they either have a preference for a traditional division of labor, i.e. that women are responsible for housework and childcare and men for wage work, or they have a preference for a division of labor depending on abilities and skills without taking gender into account. In the economic literature, preferences describe differences between individuals in their rank order of different alternatives for maximizing utility. Preferences have long been understood as exogenous and fixed characteristics of the individual independent of the social context (Akerlof and Kranton 2010).<sup>15</sup> Within the sociological literature, the term preference is relatively uncommon. Similar characteristics of individuals are more often described as desires, values, or interests (Freese 2009). In the following, a sociological understanding of

---

<sup>15</sup> However, for a different usage of preferences, see Pollak and Cotts Watkins (1993), Bowles (1998).

the term preference is used. It is assumed that gender-role beliefs and corresponding preferences are usually formed quite early in life but that they are not necessarily stable over the life course (Alwin et al. 1992; Vella 1994).

Contrary to the term preference, *social norm* is an inherently sociological term. Social norms can be understood as informal guidelines of behavior within a group or a society. They depend on the observation of the behavior of others and work through nonmaterial or material sanctions. For an individual a social norm can be described as socially “shared expectations that others will react to a given behavior in a way that is painful for oneself” (Elster 2009: 196). Accordingly, social norms toward traditional gender roles refer to the expectations of others that men and women follow a traditional family model with a gender-specific division of labor.

In the next section it is first shown how preferences and social norms influence the labor force decision. Beside a direct effect, social norms and preferences can work indirectly by influencing education and family formation decisions which in turn have an impact on labor force participation. This is discussed in the second part of the section. Finally it is discussed to which extent preferences play the same role for all women or for which groups of women preferences are likely to be especially important.

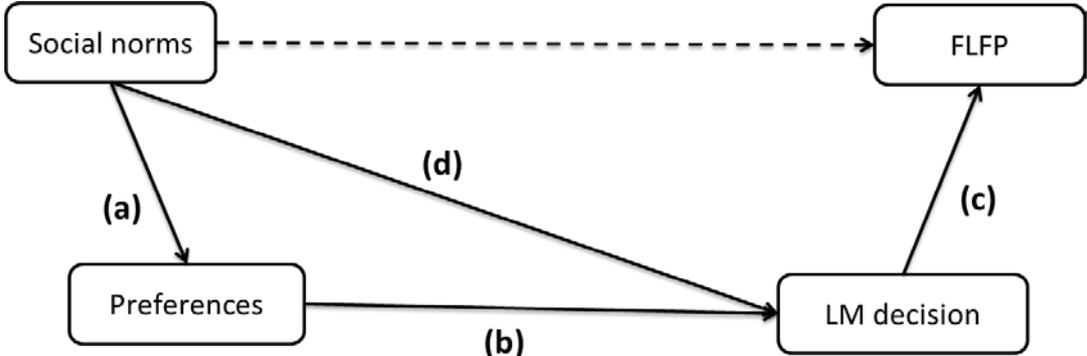
#### **4.2.1. The impact of culture on labor force participation**

In the following, female labor force participation is understood as a rational decision between participating in the labor market and being a full-time housewife depending on benefits and costs of the two alternatives. In line with a general understanding of sociology as methodological individualism, the impact of culture can be illustrated as shown in figure 4.1. Two pathways between social norms and female labor force participation (FLFP) can be distinguished. First of all, social norms have an impact on individual’s preferences (a). Contrary to Hakim (2000), it is assumed that this connection works mainly via socialization. Young girls learn from their parents, peers, and relevant others the appropriate gender roles in accordance with the dominant social norms and develop preferences in line with these gender roles (Cunningham 2001; Farré and Vella 2013; Platt and Polavieja 2016).

While those social norms can differ between different groups in society, the dominant gender role in a society is important as well and influences children and adolescents through the media and peers (Davis 2007). It is, however, important to mention that, in times of

globalization and international media consumption, this is not only true for an individual's own society, but the whole civilization or even worldwide. Nevertheless, it can be argued that the direct social context is the relevant social setting especially in times of early socialization (Fan and Marini 2000). In a next step, these preferences are transformed into the labor market participation decision, by influencing costs and benefits of this decision (b). In line with the neoclassical model and identity theory it can be argued that, for women with preferences for a traditional division of labor, participating in the labor market has additional costs because labor market participation is not in line with the identity of those women.

**Figure 4.1 The impact of culture on FLFP**



Accordingly, it is assumed that women with traditional gender-role beliefs are less likely to participate in the labor market compared to women with modern gender-role beliefs (*hypothesis 1*). This should, on the basis of simple logic of aggregation, result in a higher female labor force participation in countries with a predominance of social norms reflecting modern gender roles (c).

In addition, there is a second pathway which goes directly from social norms to the labor market decision independently of the individual's own preferences (d). Different mechanisms can explain this direct effect of social norms on the labor market decision. First, acting against the predominant social norms causes costs for individuals because the violation of social norms can cause immaterial costs through the avoidance or ostracizing of the violater (Elster 2009). Second, it can be argued that social norms have an influence on labor demand for women and influence the potential discrimination of women. In societies which strongly disapprove of women participating in the labor market, discrimination of women can discourage women from participating in the labor market even if they have a preference for participating in the labor market. Third, according to bargaining approaches it can be assumed that the decision to participate in the labor market is not necessarily made by women

themselves but result from a bargaining process within the household. In societies with the social norm of traditional gender roles it is very likely that women do not have the same bargaining power than in societies with modern gender roles since the possibility of divorce and the support for divorced women from the family or the society are lower. All of these processes can be linked to identity theory as well. As proposed by identity economics, women acting against the predominant gender role cause costs for others, such as the husband, whose identity is hurt if his wife works in societies which strongly disapprove of working women.

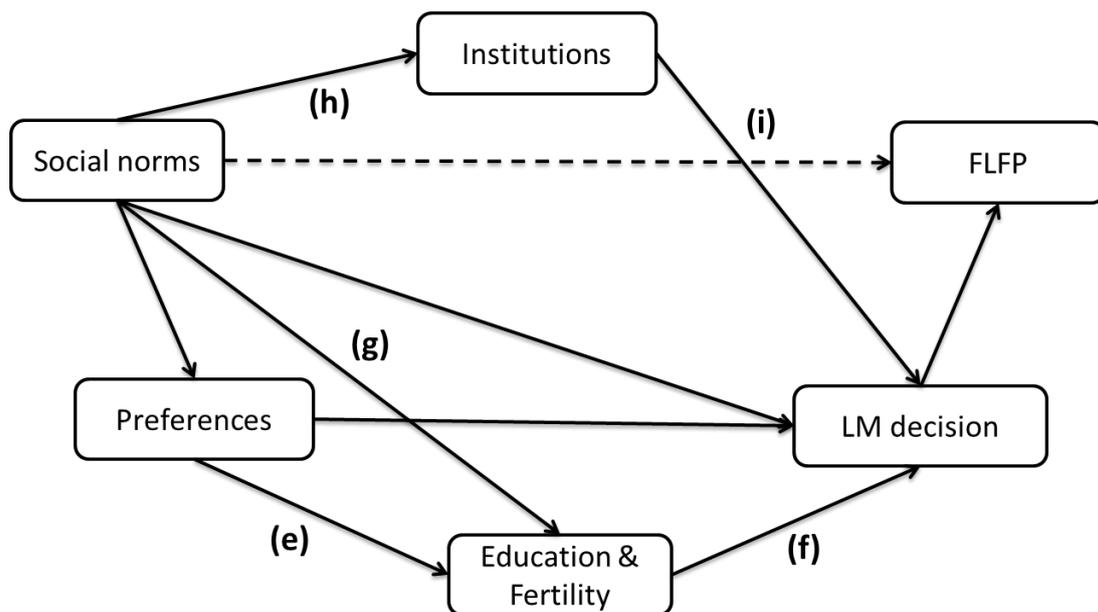
Accordingly, it is assumed that women who live in societies with a dominance of traditional gender roles are less likely to participate in the labor market than women living in societies where modern gender roles dominate (*hypothesis 2*). This effect is assumed to be independent from individual preferences. Again this relationship can be easily aggregated on the societal level (c).

It is important to note that, besides these theories which originate from the field of economics, there are other sociological or social-psychological approaches that have reached the same conclusion. Those approaches emphasize that cultural beliefs about gender play an important role in explaining gender differences. These beliefs define specific characteristics of men and women and expectations about their behavior. According to these approaches, cultural beliefs about gender can play a role for female labor force participation in two different ways (e.g. Ridgeway and Correll 2004). First, cultural beliefs can result in stereotypical expectations about women's abilities which, through processes of discrimination, lowers the utility of labor market participation for example by wage discrimination. Second, gender beliefs can bias an individual's expectation of their own competencies, which in turn can result in lower preferences for participating in the labor market in traditional societies compared to societies with a dominance of modern gender roles even in case women have high levels of human capital.

### 4.2.2. Mechanisms

Different mechanisms can underlie the relation between social norms and female labor force participation (e.g. Lehrer and Chen 2013). First of all, social norms regarding women's role in society can affect employment decisions directly by influencing the utility of labor force participation as well as via the discrimination of female employees as described above (see arrows (a) and (d) in figure 4.1). Furthermore, social norms have an impact on other determinants of female labor force participation on individual and societal level. In line with the neoclassical model, the most important factors influencing female labor force participation on individual level are education and care needs. Furthermore, many researchers have emphasized the role of institutions in explaining female labor force participation (see chapter 2.2.2). Those determinants of female labor force participation can, themselves, be influenced by social norms and preferences. This is displayed in figure 4.2.

**Figure 4.2 Mechanisms of the relationship between culture and FLFP**



As discussed above, the economic model assumes that individuals adapt their investment in human capital in line with their preferences. Accordingly, women with preferences for labor market participation should invest more in education than women with preferences for housewifery who plan to specialize in housework (Becker 1991). In line with this argument education should work as a mediating factor between preferences and labor market decision. Women with preferences rooted in traditional gender-role beliefs should invest less in

education (e). Education influences the benefits of labor market participation, with women with a lower level of education having lower benefits from labor market participation (f). In addition, it can again be argued that social norms regarding women's role in society should influence the educational decision independently from own preferences for different reasons (g). First, although educational participation is most often modeled as an individual decision, this assumption is not very convincing, especially in traditional societies. Here, parental gender-role beliefs but also the gender roles predominant within the surroundings, such as the extended family or the neighborhood, should influence the decision on how much education a girl receives. Second, also in terms of educational participation, processes of discrimination rooted in traditional gender roles are possible, for example in the form of institutionalized discrimination when it comes to the access to institutions of higher education (see Gebel and Heyne 2014).

A similar argument can be made for family formation (Smith-Lovin and Tickamyer 1978). Similar to educational and labor market participation, marriage and fertility decisions can be modeled as rational decisions depending on benefits and costs of these decisions (Becker 1991). In the neoclassic model, preferences are one factor among several in the cost-benefit calculation of people on whether to marry or have children, so that it can be assumed that preferences not only influence female labor force participation but also family formation (e). Similarly, Hakim (2003) argues that women with preferences rooted in traditional gender-role beliefs should be more likely to be married and have children than women with a strong career orientation.

Similarly, differences in social norms between societies should not only influence individual preferences but have a direct impact on family formation decisions as well (g). Social norms about the appropriate number of children, age of marriage and child birth as well as appropriate living arrangements are strongly related to social norms of gender roles and influences processes of family formation. The change of those social norms are seen as one important driving force of the so called second demographic transition, a demographic change observed in many Western countries after the second World War that resulted in declining birth rates and a postponement of child birth (Billari et al. 2006; van de Kaa 2002). Furthermore, marriage and child birth are decisions that depend strongly on other people such as (potential) partners and hence on attitudes toward the gender role of available partners (Fernández and Fogli 2009; McQuillan 2004).

It is important to note that both described mechanisms are problematic from a causal perspective. Although chronologically made prior to labor market entry, educational decisions can be understood (and are understood in the neoclassic model) in anticipation of future labor market participation (Blau et al. 2014). The relation is even more complex when it comes to family formation since there is no clear timing order. Several studies discuss the relationship between female labor force participation and fertility and try to determine the direction of causality (e.g. Angrist and Evans 1998; Budig 2003). Most authors conclude that female labor force participation and fertility can best be understood as joint decisions (for an overview, see Del Boca et al. 2008; Goldin 1990). Accordingly, women with preferences for housework should have higher fertility rates and since fertility is an important determinant of labor force participation by increasing the costs of participation, differences in family formation should partially explain the relation between traditional gender roles and female labor force participation.<sup>16</sup>

Accordingly, both educational and fertility decisions are not independent from preferences for labor market participation but are influenced by them. Women with preferences for labor market participation should earn higher educational degrees and have lower fertility rates than women with preferences for housework. These decisions directly influence the costs and benefits of labor market participation. Accordingly, the relation between gender-role beliefs and labor market participation should partially be mediated by education and fertility (*hypothesis 3*).

In addition to this mediating role of individual-level factors, it can be argued that there is an important mediating factor on societal level. Social norms can be assumed to shape institutions and policies of a country (h) and are important influential factors for female labor force participation (i) by influencing the costs of female labor force participation (Algan and Cahuc 2005; Fortin 2005; Seguino 2011).

Different kinds of institutions should play a role. As described above public childcare facilities should have a positive impact on female labor force participation since they offer women the possibility to combine their family responsibilities with work and hence lower the opportunity costs of labor market participation (Del Boca et al. 2008; Gornick et al. 1998). Furthermore, legal discrimination of women is relevant for labor market participation (Blau et al. 2014; Doepke et al. 2012). Despite a strong progress in the reduction of discrimination of

---

<sup>16</sup> While the theoretical argument about the correlation between fertility and female labor force participation is straightforward, empirical evidence shows that this correlation has changed into a positive one in Western countries since the 1980s (Ahn and Mira 2002; Brewster and Rindfuss 2000; Matysiak and Vignoli 2007).

women and the development of legal equality of men and women all over the world, legal gender differences are still widespread. For example, the Women, Business and the Law Report 2016 finds, that in 155 of 173 economies that are covered by the report, at least one law impedes women's economic opportunities compared to men (World Bank 2015). Important restrictions on female labor force participation are laws that prohibit women from working in specific jobs or under specific conditions (e.g. night shifts), and laws that discriminate against women in terms of registering a business or that restrict women in other activities necessary for (self-)employment, such as signing a contract or opening a bank account. But even discriminatory laws which are, at first sight, not related to work such as restrictions in movement can also hamper women's labor force participation (Assaad and Arntz 2005). Legal restrictions for women's employment hamper their participation since they increase the costs of labor force participation. Moreover, as suggested by bargaining approaches, the conditions of divorce play an important role for the bargaining power of women. Accordingly, the relation between social norms and labor market participation should partially be mediated by institutions that influence the benefits of labor market participation (*hypothesis 4*).

#### **4.2.3. Effect heterogeneity**

So far, it has been argued that differences in gender-role beliefs both on individual level and societal level contribute to differences in labor force participation. Although the abovementioned arguments for the relationship between gender-role beliefs and labor market participation should work universally, it can be argued that the strength of the relationship differs between societies. In line with Hakim's trend hypothesis it can be argued that individual preferences should become especially important where economic need is no longer the main driver of female labor force participation. Similarly, Charles and Bradley (2009) argue that gender-typical interests and choices are more relevant in advanced industrial societies because of a stronger emphasize of self-expression. Accordingly, individual gender-role beliefs should be stronger related to labor force participation in higher-developed societies (*hypothesis 5*). Contrary to that, social norms should lose their importance for individual decisions in more highly developed societies due to a trend toward individualization (e.g. Beck and Beck-Gernsheim 1994). Accordingly, social norms should be stronger related to labor force participation in lower-developed societies (*hypothesis 6*).

Besides these societal differences in the relevance of social norms and preferences it can be argued that there are differences between specific groups of women within one society. Social norms about female labor force participation most often refer to the labor force participation of wives and mothers (Uunk et al. 2005). For example, the female labor force participation of young unmarried women was already quite common before the increase in female labor force participation during the second part of the 20<sup>th</sup> century in Western countries despite quite traditional gender role beliefs (Blau et al. 2014). Accordingly, the impact of gender-role beliefs and social norms should be stronger for married women and women with children than for single women (*hypothesis 7*).

### 4.3. Conclusion

In this chapter, the theoretical foundation for the following analyses has been laid down. It has been argued that previous research often lacks a coherent theoretical underpinning. Relying on the neoclassic model of labor supply and enhancements to this approach through preference theory, identity economics, bargaining approaches as well as economic approaches of labor market discrimination it has been shown how culture can influence female labor force participation through different channels. Furthermore, it has been argued that, from a theoretical point of view, the effect of culture differs between countries and groups of women. The different hypotheses that have been derived are summarized in table 4.1.

**Table 4.1 Overview of the hypotheses**

<ol style="list-style-type: none"><li>1. Women with traditional gender-role beliefs are less likely to participate in the labor market compared to women with modern gender-role beliefs</li><li>2. Women who live in societies with a dominance of traditional gender roles are less likely to participate in the labor market than women living in societies where modern gender roles dominate</li><li>3. The relation between gender-role beliefs and labor market participation should partially be mediated by education and fertility</li><li>4. The relation between social norms and labor market participation should partially be mediated by institutions that influence the benefits of labor market participation</li><li>5. Individual gender-role beliefs should be stronger related to labor force participation in higher-developed societies</li><li>6. Social norms should be stronger related to labor force participation in lower-developed societies</li><li>7. The impact of gender-role beliefs and social norms should be stronger for married women and women with children than for single women</li></ol>
---

## 5. Data and method

Before the hypotheses derived in chapter 4 are empirically tested, this chapter presents the data and method used in the following analyses.

### 5.1. Data

The empirical analyses are based on cross-national data from the World Value Survey (WVS) and the European Value Study (EVS). The WVS is an international research project which has conducted six waves of nationally representative surveys in almost 100 countries since 1981 using a common questionnaire. The main topics of the WVS are values and human beliefs, but the survey also contains information about the social background and the employment status of the respondents, which makes the data the best available data for a worldwide comparison of female labor force participation. The EVS is the European equivalent of the WVS. Started in 1981 as well, the last wave of the EVS was conducted in 2008 in 47 countries and regions. Since both data sets have a similar design and are based on almost the same questionnaire it is possible to combine both data sets and hence get information for 113 countries worldwide.<sup>17</sup>

For the sample of analyzed countries the following strategy was applied: for every country I use the latest available survey either from the last two waves of the WVS or the last wave of the EVS. Some countries had to be excluded from the analysis due to missing variables on the individual level. To test or control for important differences between countries on macro level, additional information about the countries are used in the analysis. The availability of those macro-level indicators restricts the sample as well. Overall, the analysis relies on data from 83 countries where surveys have been conducted between 2004 and 2014 from different World regions. In the appendix (table A.1), a list of all countries, the year of the survey, the data source used and the number of observations per country can be found.

Since the topic of this thesis is women's labor force participation, the sample is restricted to women aged between 18 and 50. The lower age limit was given by the data, the upper age limit was chosen to make the sample more comparable between the countries, which differ strongly in terms of life expectancy and retirement age. Furthermore, students and retired women as well as women who stated their employment status as other have been excluded from the analysis. This leaves a sample of 36.317 women in 83 countries.

---

<sup>17</sup> More detailed information about the data such as codebooks can be found at the respective homepages: <http://www.europeanvaluesstudy.eu> and [www.worldvaluessurvey.org](http://www.worldvaluessurvey.org).

## 5.2. Operationalization

In the following, all variables used in the analysis in chapter 6 are described. An overview of the variables, their measurement and scales are given in the appendix (table A.2). This overview also includes variables used in the analyses in chapter 7 and 8, which are described in more detail in the respective chapters.

### Female labor force participation

The central and dependent variable of all following analyses is the labor market status of a woman. This variable was measured through a question about the actual labor market status. The respondent could indicate whether she was in paid employment (full-time, part-time, or self-employed), retired/pensioned, a housewife and not otherwise employed, a student, unemployed, or other. Accordingly, the labor market status builds on the self-assessment of the woman's own status. Based on this information the dependent variable *labor force participation* has been created as a contrast between being *active* in the labor market and being *inactive*. Women have been counted as inactive only if they declare themselves as being a housewife. Unemployed women and women in paid employment, including the self-employed, are counted as active in the labor force, independent of the kind and volume of their employment. This definition of labor force participation differs from previous research in several respects. Despite relying on an official definition of labor force participation as is used, for example, by the International Labour Organization (ILO), the information relies on the status declared by women themselves. Although less objective at first sight, this has the advantage from a comparative standpoint that official definitions are difficult to compare between societies.

Furthermore, the used measurement of being active in the labor force does not depend on the kind of employment as had been the case in a lot of previous research. The central contrast this thesis is interested in is between women who are inactive and women who are active in the labor force, no matter whether this activity is paid or not and irrespective of which sector women are active in. Accordingly, the classification used is quite similar to the definition of labor force used by the ILO, but differs from the classifications used in many previous studies. Previous research often restricted activity to paid non-agricultural labor force participation (e.g. Spierings 2015). The argument for this limitation is that consequences of female labor force participation for other life areas and empowerment are assumed to depend on paid employment outside the home which makes women independent from their families. Although this is an important and reasonable argument, this definition has several

disadvantages. First, the question emerges whether it is really reasonable to count women who work in the agricultural sector as inactive and group them together with inactive women who are not employed at all. While this makes sense under specific conditions it is less helpful in countries where women have the choice between activity in the agriculture sector and becoming full-time housewives. Furthermore, the WVS/EVS questionnaires do not make it possible to distinguish between paid and unpaid employment. While, in the official English questionnaire, being employed is restricted to being in paid employment, it is not clear how this has been translated in the country-specific questionnaires. For example, the German questionnaire does not add the adjective “paid” to the term “employment”. Furthermore, contrary to many previous studies, unemployed women are counted as being active in the labor market. This decision was made not only because it follows the official definition of the ILO, but also since being active in the labor market is a subjective decision made by women, whereas finding employment is determined by other factors which are not under the control of women (Khoudja and Fleischmann 2014).

To gain an impression of the comparability of this variable between the countries, table 5.1 shows the estimated female labor force participation rates from this variable in the WVS/EVS and the official ILO data for each country. For most countries the differences between those two measurements are negligibly small, but for a few countries significant differences exist. This seems to be the case mainly in low- and medium-developed countries, whereas differences for highly developed countries are quite small. Two countries show particularly strong differences, i.e. Burkina Faso – for which the female labor force participation according to the ILO is much higher than estimated with the WVS data – and Morocco – for which the WVS data shows a much higher number than the ILO data. Whether the statistics of the ILO or the information of the WVS are more plausible is an open question. It is possible that the differences stem from the different national definitions of labor force participation, which underlie the statistics of the ILO as well, and differ as to which amount domestic labor is included. This makes official figures of female labor force participation difficult to compare cross-nationally and should have a higher significance in countries with a higher share of agricultural or informal employment (e.g. Donahoe 1999; Psacharopoulos and Tzannatos 1989). Furthermore, the comparability of the figures is limited because, for several countries in the WVS/EVS, no information on sample weights is available. In the following analyses all countries are used. Nevertheless, a sensitivity analysis is conducted in which those countries with a deviation of more than 20 percentage points from the ILO data have been excluded from the analysis (see chapter 9).

**Table 5.1 Comparison of female labor force participation rates**

Country	WVS/EVS	ILO	Difference	Country	WVS/EVS	ILO	Difference
Albania	71	52	18	Latvia	76	71	6
Algeria	32	16	16	Lebanon	49	26	23
Armenia	49	58	-9	Libya	44	32	12
Austria	66	68	-3	Lithuania	75	66	9
Azerbaijan	57	68	-10	Luxembourg	64	59	6
Belarus	74	62	12	Macedonia	72	50	22
Belgium	72	61	12	Mali	44	44	0
Bosnia	65	39	25	Malaysia	72	47	25
Brazil	59	65	-6	Mexico	41	48	-7
Bulgaria	77	63	14	Moldova	64	47	16
Burkina Faso	36	80	-43	Morocco	86	27	59
Canada	76	73	3	Netherlands	77	74	3
Chile	56	55	1	New Zealand	80	72	8
China	76	70	6	Nigeria	56	48	8
Colombia	61	59	2	Norway	82	78	5
Croatia	72	59	13	Pakistan	3	25	-23
Cyprus	70	66	4	Peru	58	69	-11
Czech Rep.	68	61	7	Philippines	62	53	10
Denmark	80	77	3	Poland	66	60	6
Ecuador	52	58	-6	Portugal	82	69	13
Egypt	15	25	-10	Romania	51	57	-5
Estonia	77	72	5	Russia	69	68	1
Ethiopia	58	81	-23	Rwanda	80	88	-9
Finland	78	73	5	Serbia	69	55	14
France	74	65	8	Singapore	56	65	-9
Georgia	59	59	0	Slovakia	74	61	12
Germany	77	72	5	Slovenia	65	67	-2
Ghana	84	69	15	South Africa	71	49	22
Greece	54	56	-1	South Korea	62	54	8
Guatemala	48	44	3	Spain	68	67	1
Hong Kong	51	60	-9	Sweden	79	77	2
Hungary	73	55	18	Switzerland	76	77	-1
Iceland	88	81	7	Thailand	88	71	17
India	39	29	10	Trinidad and Tobago	71	59	12
Indonesia	49	52	-3	Tunisia	41	27	14
Iran	33	19	15	Turkey	20	32	-12
Iraq	17	16	1	Ukraine	67	62	5
Ireland	61	63	-2	United States	74	67	7
Italy	66	51	15	Uruguay	75	67	8
Jordan	13	17	-4	Uzbekistan	41	51	-10
Kazakhstan	65	74	-9	Yemen	12	26	-14
Kyrgyzstan	55	59	-4				

Source: WVS/EVS data; Own calculation & ILO (2016)

### **Preferences and social norms**

Social norms and preferences are the central independent variable. For the measurement of *preferences* on individual level a single item on gender-role attitude is used. For this purpose the possible answers to the statement “When jobs are scarce, men should have more rights to a job than women” has been dichotomized to distinguish between traditional and modern gender-role beliefs. The potential answers disagree and neither are combined to count as *disagreement*, whereas agree is coded as *agreement*. The formulation of the categories disagree and neither is not ideal, and it is not clear whether women who disagree with the statement have answered one or the other. What is sure, however, is that both answers indicate disagreement with the statement, which is sufficient for the use of the indicator in the analysis. Accordingly, all women who agree with the statement are counted as having a preference for a traditional division of labor whereas women who disagree with the statement are counted as having a preference for a modern division of labor. The statement was chosen because it is directly related to attitudes toward labor market participation of women and the importance of female labor force participation compared to male participation and hence a good indicator of attitudes toward the role of women regarding the division of labor.

A further advantage of the chosen item is that it is available in both the EVS and the WVS for all waves and all countries, which makes it possible to analyze the relationship in as many countries as possible. Nevertheless, the measurement of preferences via attitudes has been criticized (e.g. Hakim 2000). Preferences and attitudes do not necessarily correspond to each other. For example, it is possible that women approve of female labor force participation in general but, in relation to themselves, have a preference not to participate in the labor market. Although this argument is straightforward in Hakim’s argumentation, it is not that convincing in a theoretical model in which preferences are assumed to be strongly influenced by social norms via socialization. Furthermore, no other measurement for preferences is available in the data.

The same attitudinal measurement is used for creating a variable to measure the *social norm* about female labor force participation on country level. For this purpose the share of respondents who agree with the item “When jobs are scarce, men should have more rights to a job than women” within a country is used, which ranges from 0 - 1.<sup>18</sup> In order to facilitate interpretation, the share of agreement is transformed to a centered variable among the mean.

---

<sup>18</sup> Since sample weights are not available for all countries, unweighted average levels of support of traditional gender roles have been used.

## **Mechanisms**

As discussed in chapter 4.2, the relation between individual preferences and the decision to participate in the labor market should be partially mediated by education and fertility decisions on the individual level and institutions on the country level. To test this assumption, the educational level of the women is measured by a variable indicating the highest educational degree of a woman. *Education* in the WVS/EVS is measured on a 9 point scale differentiating between no formal education degree, incomplete and complete primary education, incomplete and complete secondary education either of the technical/vocational type or university-preparatory type and university education with and without a degree. To get a good comparable indicator of education, quite a broad index of education was used in the analysis which differentiated between *incomplete primary education* including both women without any education and women with an incomplete primary education, *primary education*, *incomplete secondary education*, *secondary education*, including both completed general and vocational secondary education as well as tertiary education without a degree and *university education* which includes women with university education with degree.

To measure *family formation* decisions, two different kinds of variables are used. First, family status is measured. This differentiates between *single women*, *married women* inclusive women who indicate that they live together with a partner, and women that are *divorced*, *separated*, or *widowed*. Second, the number of children a woman has is used as an indicator of fertility decisions and is included in the analysis as a categorized variable that differentiates between no children, one child, two children, and more than two children.

Three different kinds of *institutions* which are assumed to be important for female labor force participation and influenced by the culture of a country are measured, i.e. the availability of public childcare, the possibility of divorce, and restrictions to the mobility of women. The availability of *public childcare* is an indicator that shows whether a country provides or supports public childcare. The information stems from the World Bank's Women, Business and the Law Database from 2010 with the exception of the information for Cyprus, Iraq, Libya, Luxembourg, Malta, and Trinidad and Tobago which stem from the 2016 version since no earlier data for those countries are available. Although more detailed information about the extent of public childcare would be desirable, that information is not available for the sample used, and the indicator used is a good measurement in international comparison since the availability of public childcare is not self-evident. The two other measurements stem from the

OECD Social Institutions and Gender Database and were measured in 2014.<sup>19</sup> While the original indicators combine legal regulations with practices to evaluate gender inequality, for the purpose of the analysis the focus is placed only on legal regulations. The indicator *divorce* measures whether women have the same rights to initiate divorce than men or whether they have different rights, which is an important indicator for the bargaining power of women. In societies where women face stronger hurdles to get divorced, their bargaining power should be quite small. The indicator *mobility* measures whether women face restrictions in their freedom of movement, for example if women are not allowed to travel without their husband's permission. While this measurement seems quite unusual from a Western perspective, it is an appropriate instrument for legal restrictions of women's employment in a worldwide comparison since such legislation can be a strong barrier to work for women and exclude women from many professions for which travelling is essential. Although those measurements do not reflect all possible institutions which can hamper or promote female labor force participation, they cover different dimensions of institutions which should be important in the relation between culture and female labor force participation.

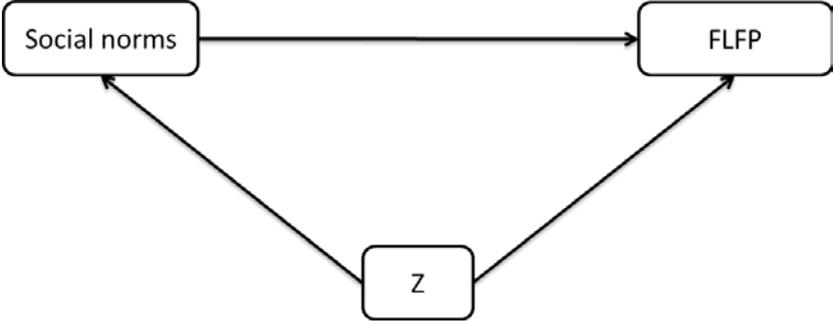
### **Control variables**

Since the aim of this thesis is to identify the impact of culture on female labor force participation, it is necessary to estimate the causal effect of culture as precisely as possible. Causality in this thesis is understood as counterfactual causality, which implies that the effect of  $x$  on  $y$  is causal if and only if the counterfactual observation is true. In the case of the effect of culture on female labor force participation this implies that the effect of culture on female labor force participation is causal if and only if female labor force participation would differ in case of a different culture. To identify the causal effect it is necessary to control for all factors which have a causal impact both on the independent and the dependent variable in order to make sure that the relationship between  $x$  and  $y$  is not confounded by another variable  $z$  (Morgan and Winship 2007). So far, the argumentation has ignored the complex relationship between the different variables and questions of causality both on individual and societal level. Figure 5.1 illustrates this point. If the causal effect of social norms on female labor force participation is estimated, all factors  $Z$  that influence both social norms as well as labor force participation need to be controlled for to exclude that the relationship between  $X$  and  $Y$  is confounded by  $Z$ .

---

<sup>19</sup> For many countries this means that the information is measured after the micro data is surveyed but no older information is available. This is not ideal since legal regulations in 2014 could differ from those at the time the data has been surveyed.

**Figure 5.1 Causal impact of social norms on FLFP on societal level**



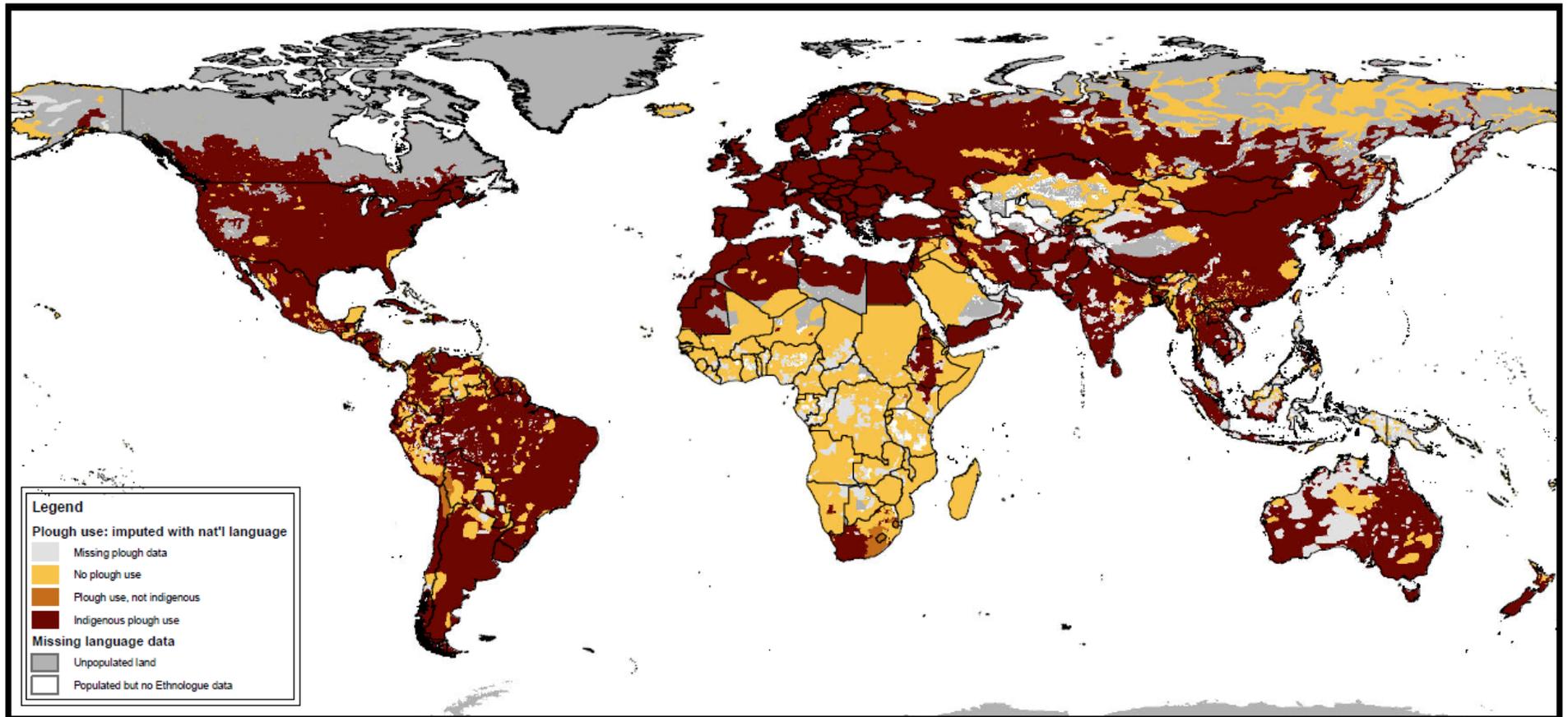
On societal level this applies especially to modernization. Modernization is an important factor to consider since it has been argued that both social norms and female labor force participation are influenced by the level of modernization. Accordingly, ignoring modernization could result in an overestimation of the relation between culture and female labor force participation. Different arguments about the relation between culture and (economic) development have been made within the literature. Modernization theory has argued that modernization is the driving force behind cultural change (Inglehart 1997). Contrary to that, some authors argue that the relationship between modernization and culture goes in the other direction and processes of modernization are driven by culture (e.g. Barro and McCleary 2003; Klasen 2000; Lagerlöf 2003). As discussed in chapter 2.2, modernization is seen as one driving force of rising female labor force participation. Relying on the neoclassical model of labor supply, this approach argues that important determinants for the decision to participate in the labor market like education and fertility has changed dramatically in the course of modernization (e.g. Goldin 1990). Accordingly, the level of *modernization* is used as a control variable. This is measured by the gross national product (GDP) per capita. To make the GDP per capita comparable across countries and different points in time, the GDP per capita taking into account purchasing power parities and measured in constant international dollars is used.

Besides modernization some other arguments have been made, which should be considered when estimating the impact of culture on female labor force participation. Alesina et al. (2013) have developed a theory relying on the work by Boserup (1970) according to which both gender role attitudes as well as female labor force participation developed differently in different regions depending on historical differences in *land-cultivation patterns*. They argue that these differences in the pre-industrial period resulted in differences in gender roles, which are still visible. In regions where plough cultivation has been practiced, men had an advantage

in agricultural work over women, since plough cultivation requires more body strength and is less compatible with childcare than shifting cultivation. This resulted in a specialization of men in agricultural work outside the home and a traditional division of labor. By contrast, in regions where shifting cultivation was practiced, which is mainly performed by using hand-held tools such as the hoe and the digging stick, women have been more strongly involved in agricultural work. These differences in agricultural technologies resulted in differences in social norms and gender roles with plough societies being more traditional than societies which practiced shifting cultivation. According to the authors, these differences can still be found in contemporary societies and are visible in cultural practices such as polygamy (more common in societies that use shifting cultivation) as well as the veiling and seclusion of women (more common in plough societies) (Giuliano 2015).

Alesina et al. (2013) show in their study that historical plough use is related to lower female labor force participation and more traditional gender-role attitudes in contemporary societies. Accordingly, plough use is an important confounding variable that influences both female labor force participation and social norms and needs to be controlled for in the analyses. Alesina et al. (2013) use ethnographic data on plough use for different ethnicities and estimate the fraction of the population currently living in a country with ancestors that traditionally used the plough. Since the original data of Alesina et al. (2013) are not available, a proxy is used to measure land cultivation patterns. As can be seen in the world map by Alesina et al. (2013), displayed in figure 5.2, Sub-Saharan Africa is the only world region in which consistently no plough (yellow) was used. Accordingly, a dummy measuring whether a country belongs to this region is used in the analyses as a proxy for historical land-cultivation patterns.

Figure 5.2 Historical plough use

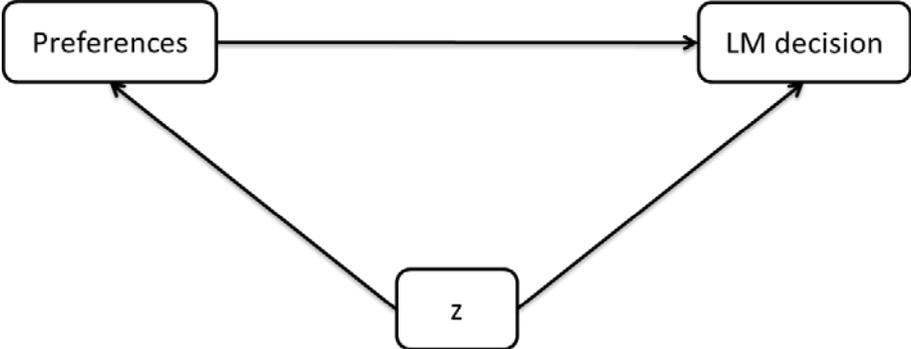


Source: Alesina et al (2013) Figure 3b: Missing language information imputed using the country's official language

A similar argument has been made with respect to the availability of natural resources. According to Ross (2008), high oil revenues result in a different path of economic development. The phenomenon is known as Dutch disease and implies a shift in the economy from the tradable sector to the non-tradable sector. According to Ross (2008) this resulted in economic growth that hindered women from entering the labor market and perpetuated more traditional gender roles in countries with high oil revenues.<sup>20</sup> Since it can be argued that this mechanism should also work for other *natural rents* like diamonds or copper (Norris 2009), an indicator that measures the total natural resource rents is used as control variable. These indicators reveal the total natural resource rents as a share of the GDP provided by the World Bank.

Similarly, it would be necessary to control for possible confounding variables *z* which have an impact on both preferences and female labor force participation on individual level. This is illustrated by figure 5.3.

**Figure 5.3 Causal impact of preferences on LM decision on individual level**



Given the assumption that preferences are developed via socialization primarily during childhood, the social origin should strongly influence preferences. In addition, it can be argued that the social origin has an effect on the decision to participate in the labor market independent from one’s own preferences. For example, it can be argued that having rich parents can influence this decision negatively through transmission of financial support and another source of income for the household even if starting a family of one’s own. Furthermore, the measurement of preferences used in this thesis need to be considered as less stable over the life course and could also be influenced by other factors, such as the attitudes or the income of the husband, which should also influence the labor force participation decision. Unfortunately, the data does not provide any information on social background or

---

<sup>20</sup> This argument is discussed in more detail in chapter 7.

household information beyond the marital status. Hence, it is not possible to control for those factors.

Despite thinking of education and family formation as possible mediating variables between preferences and labor force participation, both factors can also be thought of as control variables in case the idea of a stable and exogenous preference is refused. This would result in a slightly different interpretation of the result. Both possible interpretations will be discussed.

### **5.3. Method**

The thesis applies a quantitative comparative design. Quantitative analysis in country comparison has been the subject of several critiques over the last years (e.g. Ebbinghaus 2005; Ragin 2014). One central problem is that cross-national comparison rarely relies on random sampling, but cases are usually preselected by historical or geographical processes. In the case of the WVS/EVS, countries are not chosen by random selection but select themselves through participation in the research network. One precondition for participating in the surveys is the (financial) ability to conduct the survey. This results in the fact that low developed countries are clearly underrepresented in the data (see also Inglehart and Norris 2003). Although this selection in the sample is partly accounted for through the use of GDP as a control variable, statistical tests on the country level and generalizations of the results beyond the sample should be handled carefully. This holds true even more since the sample includes many countries which have a common history and are geographically close to each other, which violates another assumption of regression analysis through geographical autocorrelation (White et al. 1981).

The data used in the analysis are hierarchical clustered with individuals nested in countries. An appropriate method to deal with this kind of data is multilevel analysis. Two motivations for the choice of this method can be distinguished (Snijders and Bosker 2012; Steenbergen and Jones 2002). From a statistical point of view, the multilevel method considers the fact that individual observations within one country are not independent from each other, which violates one fundamental assumption of standard regression analysis. If the clustering of the data is ignored, standard errors of explanatory variables on country level are estimated incorrectly, which would result in more significant results than appropriate. Multilevel models account for this problem and give correct standard errors as well as information on the

dependence between the observations. This makes it possible to describe the clustering of the data and hence gives an indication of the importance of the social context.

Besides the statistical motivation there is a further substantive motivation for applying multilevel analysis. This kind of analysis allows estimating the effect of determinants on a dependent variable on individual level both on individual and country level simultaneously. Accordingly, it is possible to distinguish between composition and context effects. This means that it is possible to evaluate whether country differences emerge through a different composition with respect of specific individual characteristics or because the social context that differs between countries has an independent impact on individual outcomes. Given the topic of this thesis this allows for the testing of the different pathways of traditional gender norms described in the theoretical model, in which it has been argued that social norms can work by forming individual preferences and having a direct impact independent from individual preferences for the labor market decision. This can be analyzed through a stepwise modeling of the effects in the analyses by analyzing whether the impact of social norms on societal level disappears after controlling for individual gender-role beliefs. This would imply that the effect of social norm is a pure composition effect, i.e. that the relationship emerges because more women with traditional gender-role beliefs live in some countries compared to others. As described in the literature review, this feature has rarely been used by previous studies.

The dependent variable in the following analysis is whether or not a woman is active in the labor market. Most previous analyses of such dichotomous variables in sociology use logistic regression analysis which accounts for the specific distribution of this kind of variable. Over the last few years, some doubts have arisen regarding the use of this approach, especially when it comes to the comparison of effects across models (e.g. Mood 2010). One possible solution to this problem is the use of linear probability models. The use of this kind of models has the additional advantage over other suggested solutions, such as the use of average marginal effects, that interaction effects can be more easily modeled and interpreted. Accordingly, in the following analysis multilevel linear probability models are used. In addition, multilevel logistic regression models are estimated as sensitivity analysis and differences in the results are discussed in chapter 9.

The basic model used in the following analysis is a random-intercept model which is the simplest version of the multilevel model (Snijders and Bosker 2012). Formally it can be written as

$$Y_{ij} = \gamma_{00} + \gamma_{10}x_{ij} + \gamma_{01}z_j + U_{0j} + R_{ij}$$

with  $\gamma_{00}$  referring to the slope,  $\gamma_{10}x_{ij}$  referring to explanatory variables on the individual level and  $\gamma_{01}z_j$  referring to explanatory variables on the country level. The error term in the multilevel model is separated into an error  $U_{0j}$  referring to the error on a country level and  $R_{ij}$  referring to the error on individual level. Multilevel models differ from standard OLS-regression models mainly in the fact that the variance of the dependent variable is disaggregated into the variance on individual level and the variance on country level. This allows for the identification of the share of variance that stems from country differences compared to the share of variance arising from individual-level characteristics. This relation can be expressed by the Intra-Class-Correlation (ICC), which is the share of the variance on a country level depending on the whole variance. Formally the ICC can be written as:

$$\rho = \frac{\tau^2}{\tau^2 + \sigma^2}$$

whereas  $\tau^2$  refers to variance of error U on country level and  $\sigma^2$  refers to the variance of the error R on individual level.

Additionally to the random-intercept model, random-slopes models are estimated. The inclusion of random slopes makes it possible to test whether individual-level variables have the same impact in all countries or differ in their explanatory power between countries. In those models, it is not only the intercept that is allowed to differ between countries but also the slope of the variable of interest. Formally the random-intercept model can be written as:

$$Y_{ij} = \gamma_{00} + \gamma_{10}x_{ij} + \gamma_{01}z_j + U_{0j} + U_{1j}x_{ij} + R_{ij}$$

with the additional error term  $U_{1j}x_{ij}$  for the random slope.

With the help of cross-level interactions, explanations for such an effect heterogeneity can be tested. This modeling is necessary to test hypothesis 7, according to which the effect of preferences should be stronger in higher developed countries.

## **6. Culture and female labor force participation in international comparison**

In the third part of this thesis the empirical results are presented. In this chapter the theoretically-derived hypotheses presented in chapter 4 about the impact of culture on female labor force participation are tested. Starting with some descriptive results, the first part analyzes the impact of social norms and preferences on the female labor force participation decision. In the second part effect heterogeneity is analyzed the different mechanisms on individual and country level are tested. In the third an alternative interpretation of the mechanisms is discussed. The chapter closes some concluding remarks.

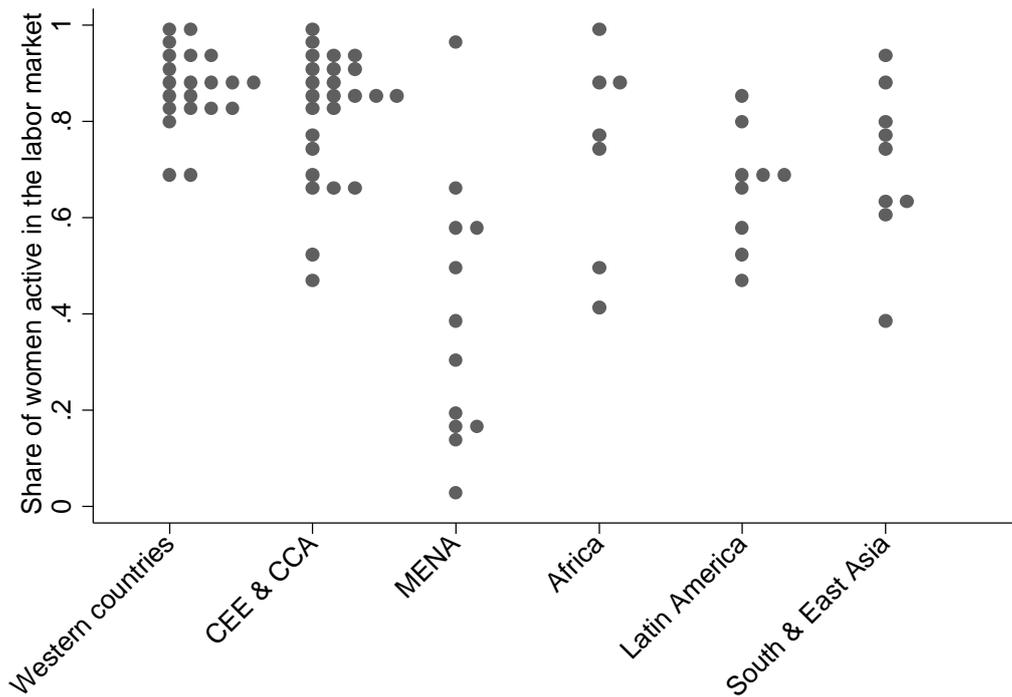
### **6.1. The impact of culture on female labor force participation**

#### **6.1.1. Descriptive results**

Before analyzing the relationship between gender role attitudes and female labor force participation in multivariate regression analysis, some descriptive analyses are presented. In a first step an overview of female labor force participation in all countries of the sample is provided using the data of the WVS/EVS. Figure 6.1 shows female labor force participation rates for each country of the used sample grouped by world regions.

The figure shows a similar pattern as the numbers provided by the ILO shown in the Figure 2.2 in chapter 2. Female labor force participation rates are on average highest in Western countries as well as in Eastern & Central European and Caucasian & Central Asian countries, followed by African, Asian and Latin American countries and much lower in MENA countries. Furthermore, the figure shows that the variance in female labor force participation between the countries is much higher outside the group of Western countries. In the following it is analyzed whether this variance can (partly) be explained by cultural factors.

**Figure 6.1 Female labor force participation of the sample grouped by regions**

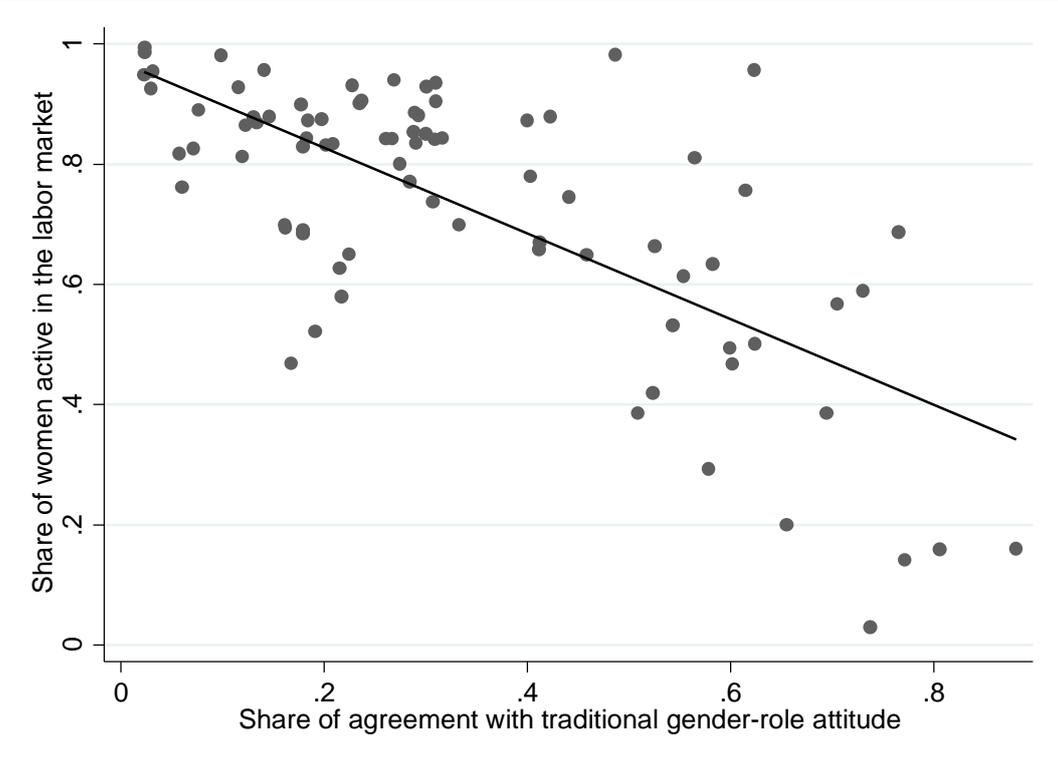


*Note:* Western countries include Western Europe, New Zealand, USA; CEE=Central and Eastern Europe; CCA=Caucasus and Central Asia.

*Source:* EVS/WVS data; own calculations.

Figure 6.2 shows the relationship between the social norm measured as average agreement with the gender role item and female labor force participation in a bivariate scatterplot. The expected negative relationship is clearly visible. In countries in which more people agree with the statement that men should have more rights to a job than women when those are scarce, women are less often active in the labor market than in countries, where people show a lower level of agreement with the statement. The figure also reveals that female labor force participation in countries with high levels of agreement with the statement varies more than in countries with low levels of agreement. Furthermore, the figure shows that there is a large variation in the average agreement with the statement. Although the majority of countries show a relatively low level of agreement with the statement, we find countries with high levels of agreement as well. Overall, the pattern is in line with hypothesis 2 according to which women are less likely to participate in the labor market in countries with a dominance of traditional gender-role beliefs than in countries with a dominance of modern gender-role beliefs. Whether this relationship emerges through differences in composition or is a context effect of social norms and whether the relationship is constant after controlling for important confounding variables, is tested in the next section.

**Figure 6.2 Social norms and female labor force participation**



Source: EVS/WVS data; own calculations.

### **6.1.2. The impact of social norms and gender roles**

To test the hypotheses derived in chapter 4, several random-intercept models are estimated. Table 6.1 shows the results. First, an empty model is estimated which does not contain any explanatory variables. This model gives an impression of the clustering of the data. The constant of the model shows that on average 73 percent of women are active in the labor market. The significant variances on both levels show that female labor force participation varies both between and within countries, which makes it important to account for the hierarchical data structure. The intraclass correlation coefficient, i.e. the share of variance on a country level in relation to the whole variance, of 0.24 indicates that 24 percent of the variation of the probability of being active in the labor market emerges through country membership. Next, the different explanatory variables are introduced stepwise. In model 1 and 2 the effects of social norms on country level and individual gender-role beliefs on the probability of being active in the labor market are tested in order to disentangle composition and context effects.

Both coefficients have the expected effect and are significant on a 1 percent level. The social norm effect in model 1 confirms the finding of the bivariate analysis: the higher the share of people with a traditional gender role within a country, the less likely it is for women to be active in the labor market. This effect becomes slightly smaller when controlling for the own gender-role belief in model 2. This finding reveals that the social-norm effect emerges not only through a different composition between the countries. The significant and powerful effect in model 2 means that living in a traditional society makes it less likely for women to be active in the labor market independently from the own gender-role belief. This finding contradicts the results arrived at by Steiber and Haas (2009) but is in line with Uunk (2015) who also found an independent social-norm effect. The size of the coefficient of 64 percentage points (controlling for the individual gender-role belief) refers to the difference between a country where nobody agrees with the statement and a country where everybody agrees with the statement. Although those societies do not exist in the sample, there is a strong variation of agreement with the statement between the countries which range from less than 3 percent agreement in the Scandinavian countries Denmark, Iceland, Sweden, and Norway to more than 80 percent agreement in the Arab countries Jordan and Egypt. That differences in the support of traditional gender roles contribute to the explanation of differences in labor force participation between societies can also be seen by the fact that the variance on country level is more than halved in the models that control for this factor. These

results are in line with hypothesis 2 according to which women living in societies with a dominance of traditional gender roles are less likely to participate in the labor market than women living in societies with a dominance of modern gender roles, independent from their own gender-role belief.

But it is not only the social context that is important. Women who have a traditional gender role have an 8 percentage point lower probability of being active in the labor market than women who have a modern gender role, which is in line with hypothesis 1. It is important to note that in this model the social context norm is holding constant. An additional analysis (not shown) reveals, that this effect does not change without controlling for the social norm on country level.

In model 3 macro-level control variables are introduced to rule out that the relationship between social norms and labor force participation is driven by modernization or resources of a country. The effect of the social norms of gender roles is slightly reduced by 2 percentage points to 62 percent when controlling for economic development, natural resource rents, and living in a Sub-Saharan African country as proxy for a shifting economy. This shows that the relation between social norms and labor market decisions is not explained by differences in the development or resource availability between countries. The economic development measured by GDP has no direct effect on female labor force participation; this also holds true for a specification of a non-linear relationship, in which, in addition, a squared term of the GDP has been introduced (not shown). This contradicts with the theoretical assumption of a U-shaped relationship between economic development and female labor force participation, but is in line with the current findings of Gaddis and Klasen (2014) who show that this relationship is not as robust as previously assumed. The availability of natural rents has no effect either. Living in a Sub-Saharan African country increases the probability of being active in the labor market by 10 percentage points holding individual gender roles, social norms, economic development and resources constant, but this effect is not statistically significant. Nevertheless, the direction of this effect is in line with the assumption of Alesina et al. (2013), according to which female labor force participation is higher in countries with a shifting cultivation tradition than in countries with plough cultivation.

**Table 6.1 Effect of social norms and gender roles on female labor force participation**

	<b>Model 0</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>	<b>Model 5</b>	<b>Model 6</b>
Social norm (country)		-0.71*** (-9.09)	-0.64*** (-8.18)	-0.62*** (-6.05)	-0.54*** (-5.54)	-0.53*** (-5.69)	-0.36*** (-3.79)
Traditional gender role (individual)			-0.08*** (-15.54)	-0.08*** (-15.54)	-0.06*** (-11.20)	-0.04*** (-8.40)	-0.04*** (-8.40)
<b>Macro - Level Controls</b>							
GDP				0.00 (0.27)	0.00 (0.04)	-0.00 (-0.28)	-0.00 (-0.18)
Natural rents				-0.00 (-0.48)	-0.00 (-0.96)	-0.00 (-1.02)	-0.00 (-0.58)
Africa				0.10 (1.49)	0.17*** (2.78)	0.15** (2.55)	0.13** (2.41)
<b>Mechanisms individual level</b>							
<i>Education (Ref. Secondary)</i>							
Less than primary					-0.23*** (-28.28)	-0.19*** (-23.75)	-0.19*** (-23.67)
Primary					-0.16*** (-19.77)	-0.12*** (-15.66)	-0.12*** (-15.59)
Incomplete secondary					-0.08*** (-12.93)	-0.06*** (-11.21)	-0.06*** (-11.22)
University					0.14*** (22.59)	0.13*** (21.55)	0.13*** (21.54)
<i>Family status (Ref. Single)</i>							
Married						-0.15*** (-23.09)	-0.15*** (-23.08)
Divorced/seperated						0.02** (2.00)	0.02** (2.00)

Widowed						-0.03**	-0.03**
						(-2.11)	(-2.11)
<i>Number of children (Ref. No children)</i>							
One child						-0.07***	-0.07***
						(-10.12)	(-10.15)
Two children						-0.08***	-0.08***
						(-11.08)	(-11.10)
More than two children						-0.10***	-0.10***
						(-13.84)	(-13.86)
<b>Mechanisms country level</b>							
Divorce legislation							-0.13**
							(-2.31)
Movement legislation							-0.13
							(-1.62)
Public childcare							0.12**
							(2.23)
Constant	0.73***	0.71***	0.75***	0.74***	0.77***	0.92***	0.83***
	(30.30)	(40.85)	(42.25)	(30.66)	(33.43)	(41.10)	(15.82)
Variance (Const)	0.05	0.02	0.02	0.02	0.02	0.02	0.02
Variance (Residual)	0.16	0.16	0.15	0.15	0.15	0.14	0.14
ICC	0.24	0.11	0.12	0.12	0.12	0.13	0.13
LL	-17888.37	-17859.69	-17739.35	-17738.18	-16783.76	-15675.86	-15668.01

Note: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01; z-statistics in parentheses.

Source: EVS/WVS data; own calculations.

### 6.1.3. Mechanisms

The analyses showed that both preferences and social norms have a significant effect on female labor force participation. In a next step, it is tested which mechanisms explain this relation. In model 4 and 5 (table 6.1) the mechanisms on individual level are tested. It has been theoretically argued that women with traditional gender-role beliefs have a lower level of education and higher fertility rate which are important determinants of female labor force participation. Accordingly, education and family formation should partially explain the relationship between individual gender-role beliefs and labor force participation. In model 4 the highest educational degree is introduced into the model. As expected, the effect of gender roles on individual level becomes smaller when controlled for education. The effect of education on the probability of being active in the labor market is as expected: women with higher levels of education are more likely to be active in the labor market than women with lower levels of education. When controlled for education, women with traditional gender roles are 6 percentage points less likely to be active in the labor market than women with modern gender roles. This effect is significant on a 1 percent level. Furthermore, while controlling for individual education the effect of social norms is reduced by 8 percentage points to a 54 percentage point lower probability of being active in the labor market for women living in countries where everyone agreed with the statement compared to women living in countries where nobody agreed with the statement. This points to a relation between social norms and individual education within a society. As theoretically argued, it is very likely that education does not only depend on one's own preferences but that, in societies with social norms against women's employment, girls receive less education than in societies without such norms (Gebel and Heyne 2014).

Furthermore, it was argued that family formation partly explains the relationship between individual preferences and labor force participation. Controlling in model 5 for the two aspects of family formation further reduces the effect of individual gender-role belief to a 4 percentage point difference between women with modern and women with traditional gender roles, which is in line with the assumption. The effects of the family formation variables are as expected: married women are less likely to be active in the labor market than single women. The same is true to a smaller degree for widowed women who have a smaller likelihood of being active in the labor market than single women but a higher probability than married women. Divorced/separated women show a 2 percentage point higher probability of being active in the labor market than single women. It is important to note that these effects

are controlled for the number of children. The effect of children holding marital status constant is straightforward: women with children are less likely to be active in the labor market than women without children. The small differences between the coefficients of the number of children, which are not significant as revealed by additional t-tests, show that the most important difference is between women with and without children irrespective of the number of children.

Those results confirm hypothesis 3 according to which the relation between gender role attitudes and labor market participation is partially explained by education and fertility. Nevertheless, even when controlling for these two mechanism gender role attitudes and social norms have a significant effect, which shows that there is an additional mechanism (or direct effect) as theoretically assumed. Interestingly, the coefficient for Sub-Saharan-African countries becomes stronger and significant when controlling for education. This means that women living in Sub-Saharan African countries have a 17 percentage point higher probability of being active in the labor market than women living in other countries, once their education and gender-role beliefs as well as economic development, resources, and social norms are controlled for.

In model 6 mechanisms on country level are tested. In this model, macro-level control variables as well as individual-level mechanisms are included as well. The three indicators which measure different institutions are introduced into the model. Restrictions of a woman's right to divorce and movement as well as the provision of public childcare are assumed to be influenced by social norms and have an impact on the participation of women in the labor market. Controlling for all three variables, the effect of social norms on country level is strongly reduced by 17 percentage points to a 36 percentage point difference between a country where nobody agrees with the statement and a country where everybody agrees with the statement. An example can illustrate the strength of this reduction: if we compare the country with the lowest agreement level with the statement (Iceland) and the country with the highest agreement level (Egypt) in the sample, controlling for the institutions implies a reduction in the predicted differences in labor force participation of 14 percentage points from a 45 to a 31 percentage point difference in the probability of being active in the labor market between Egypt and Iceland. The coefficients of the institutions show the expected effects. In countries where women do not have the same rights as men to initiate divorce they are 13 percentage points less likely to be active in the labor market than in countries where women have the same rights. Equally, in countries where women are legally restricted in their

mobility their likelihood of being active in the labor market is 13 percentage points lower than in countries where this is not the case. The effects are significant on a 5 and 11 percent level, respectively. Public childcare has the expected positive effect: in countries where the government supports or provides public childcare women are 12 percentage points more likely to be active in the labor market than in countries where childcare is not supported. The effect is significant on a 5 percent level. These results are in line with hypothesis 4 according to which the relation between social norms and labor market participation is partially mediated by institutions that influence the benefits of labor market participation. Nevertheless, even after controlling for institutions a powerful and significant effect of social norms can be found pointing to further mechanisms than the measured institutions for explaining the effect of social norms on female labor force participation.

Overall, all mechanism hypotheses can be supported by the findings. Differences in education, family formation, and institutions partly explain the relation between culture and female labor force participation. Nevertheless, after controlling for these mechanisms social norms on country level and gender-role beliefs on individual level have a significant effect on the likelihood of being active in the labor market. This is in line with the assumption that social norms and gender-role beliefs have an independent effect on the decision to participate in the labor market, i.e. that further mechanisms explain the relationship, as had been theoretically expected.

## 6.2. Effect heterogeneity

In the next step the hypotheses about effect heterogeneity are tested. It was theoretically argued that the impact of culture depends on economic modernization and differs for different groups of women. For this purpose different interaction terms are introduced into the model. Table 6.2 shows the results.

**Table 6.2 Impact of culture depending on development**

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
Social norm (country)	-0.62*** (-6.05)	-0.63*** (-6.08)	-0.54*** (-4.79)
Traditional gender role (individual)	-0.08*** (-10.58)	-0.09*** (-11.46)	-0.08*** (-10.57)
<b>Macro - Level Controls</b>			
GDP	0.00 (0.41)	0.00 (0.44)	0.00 (1.57)
Natural rents	-0.00 (-0.32)	-0.00 (-0.30)	-0.00 (-0.45)
Africa	0.08 (1.29)	0.08 (1.28)	0.10 (1.59)
<b>Interactions GDP</b>			
GDP*Gender role		-0.00*** (-3.40)	
GDP*Socia norm			0.01* (1.66)
Constant	0.73*** (30.53)	0.73*** (30.49)	0.75*** (27.15)
Variance (Const)	0.023	0.023	0.022
Variance (Gender Role)	0.002	0.002	0.002
Covariance Random Slope	0.000	0.000	0.001
Variance (Residual)	0.154	0.154	0.154
LL	-17718.44	-17712.97	-17717.12

Note: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01; z-statistics in parentheses.

Source: EVS/WVS data; own calculations.

In a first step it is tested whether individual gender roles and social norms differ between societies according to the level of economic modernization. Theoretically it was assumed that individual gender roles become more important and social norms lose their importance with increasing modernization. The following models are estimated without controlling for education, family formation, and institutions because these mechanisms are part of the total effect of individual gender roles and social norms on female labor force participation. Before the interaction terms are introduced, a model with random slope for the individual gender role

is estimated, to test whether the effect of individual gender-role beliefs varies between the countries (model 1). The random slope is significant and because the assumption of the random-slope model imply that 95 percent of the groups have a slope in the range between  $\gamma - 2\tau$  and  $\gamma + 2\tau$  we can calculate that in 95 percent of the countries the effect of gender role beliefs vary between 0.02 and -0.18 (Snijders and Bosker 2012). This shows that in most countries women with traditional gender roles have a lower probability of being active in the labor market than women with modern gender roles, but that the effect varies strongly between countries.

In model 2 a cross-level interaction between economic development measured as GDP per capita and gender role on individual level is introduced into the random-slope model. The interaction term is negative and significant on a 1 percent level. The main effect of the individual gender roles is a little bit stronger compared to the models without interaction term. Given the centered GDP measured, this means that in societies with average GDP, women with traditional gender roles have a 9 percentage point lower probability of being active in the labor market than women with modern gender roles. The negative interaction terms show that the higher the economic development of a country the stronger (more negative) the effect of individual gender roles on the probability of being active in the labor force participation becomes. This result is in line with hypothesis 5, according to which individual gender-role beliefs are more important for labor force participation in higher developed societies than in lower developed societies.

In a next step, the interaction between economic development and social norms is tested. It was hypothesized that social norms lose their influence in higher developed societies (hypothesis 6). Model 3 shows the results, which are in line with this hypothesis. The interaction term is positive and significant on a 10 percent level. The main effect of social norms shows that in societies with average development women are 54 percentage points less likely to be active in the labor market if all members of the society agree with the traditional gender role statement compared to a society where no one agrees with the statement. This effect is a little bit smaller than the social norm effect in the model without interaction term. The positive interaction term implies that the social-norm effect is less negative the higher the economic development of a society is. Accordingly, both hypotheses about the impact of economic development on the relationship between culture and female labor force participation can be supported. While, with increasing economic development, social norms

become less important, individual gender-role beliefs become more important for the decision to participate in the labor market.

Finally, interaction effects between family status and the cultural variables are introduced to test the hypotheses that cultural effects are stronger for married women and women with children. For this purpose a new variable *family status* is introduced which combines information of marital status and children. This variable distinguishes between the different marital statuses and whether a woman has children, regardless of the number of children. Above, we saw that the main divide is between women with and women without children and that additional children reduce the probability of being active in the labor market only slightly compared to one single child. Table 6.3 shows the results. The models used are random-slope models with country-level control variables. Model 1 shows the results of the basic model with the new family status variable. Married women with children have the lowest probability of being active in the labor market; their probability of being active in the labor market is 26 percentage points lower than for single women without children. Married women without children have a 16 percentage point lower probability followed by single women with children with a 12 percentage point lower probability and divorced/separated/widowed women with children with a 12 percentage point lower probability of being active in the labor market. Divorced/separated/widowed women without children show a 5 percentage point lower probability than single women without children. In model 2 the interaction between family status and social norm on country level is introduced. The main effect of social norms can now be interpreted as the effect of social norms for single women without children. For those women the probability of being active in the labor market decreases by 43 percentage points if they live in a society where everyone agrees with the statement that men should have more rights to jobs when those are scarce compared to single women living in countries where no one agrees with the statement.

**Table 6.1 Impact of culture depending on family status**

	Model 1		Model 2		Model 3	
Social norm (country)	-0.61***	(-6.16)	-0.46***	(-4.59)	-0.61***	(-6.15)
Traditional gender role (individual)	-0.06***	(-8.42)	-0.06***	(-8.41)	-0.01	(-1.11)
<b>Macro - Level Controls</b>						
GDP	0.00	(0.03)	0.00	(0.09)	0.00	(0.03)
Natural rents	-0.00	(-0.41)	-0.00	(-0.42)	-0.00	(-0.42)
Africa	0.07	(1.14)	0.07	(1.14)	0.07	(1.18)
<b>Family status (Ref. Single w/o children)</b>						
Married w/o children	-0.16***	(-17.72)	-0.16***	(-18.20)	-0.13***	(-12.87)
Other w/o children	-0.05**	(-2.30)	-0.05**	(-2.37)	-0.05**	(-2.22)
Single with children	-0.12***	(-10.90)	-0.08***	(-5.50)	-0.12***	(-9.70)
Married with children	-0.26***	(-48.74)	-0.26***	(-48.90)	-0.25***	(-39.56)
Other with children	-0.11***	(-12.70)	-0.11***	(-12.68)	-0.09***	(-9.42)
<b>Social norm*Family status</b>						
Married w/o children			-0.31***	(-8.09)		
Other w/o children			-0.13	(-1.51)		
Single with children			0.12	(1.54)		
Married with children			-0.19***	(-8.31)		
Other with children			-0.15***	(-3.76)		
<b>Preference*Family status</b>						
Married w/o children					-0.10***	(-5.01)
Other w/o children					0.02	(0.37)
Single with children					0.01	(0.27)
Married with children					-0.06***	(-4.82)
Other with children					-0.07***	(-3.47)

Constant	0.75***	(38.78)	0.91***	(39.26)	0.90***	(38.02)
Variance (Const)	0.02		0.02		0.02	
Variance (Gender Role)	0.00		0.00		0.00	
Covariance Random Slope	0.00		0.00		0.00	
Variance (Residual)	0.14		0.14		0.14	
LL	-16445.16		-16392.09		-16424.52	

**Note:** \* p<0.10, \*\* p<0.05, \*\*\* p<0.01; z-statistics in parentheses.

**Source:** EVS/WVS data; own calculations.

Highly significant interaction terms between the family variables and the social norm variable show that the effect of social norms is much stronger for married women without and with children as well as divorced/separated/widowed women with children than for single women. The strongest effect of social norms can be found for married women without children for whom the difference in the probability between countries with no agreement with the statement and countries with full agreement with the statement is 77 percentage points. For married women with children as well as divorced/separated/widowed women with children the difference is 65 and 61 percentage points, respectively. The interaction term for divorced/separated/widowed women without children is negative but not significant. Interestingly, the social norm effect is weaker for single women with children than for single women without children but this difference is not significant. Nevertheless, single mothers could be differently affected by social norms since economic necessities often force those women to work irrespective of social norms. The main effects of family status, i.e. the effect of family status for women living in societies where nobody agrees with the statement, shows that family status has the expected effect in countries where no cultural barriers against female labor force participation exists. The least likely to be active in the labor market in these countries are married women with children followed by married women without children.

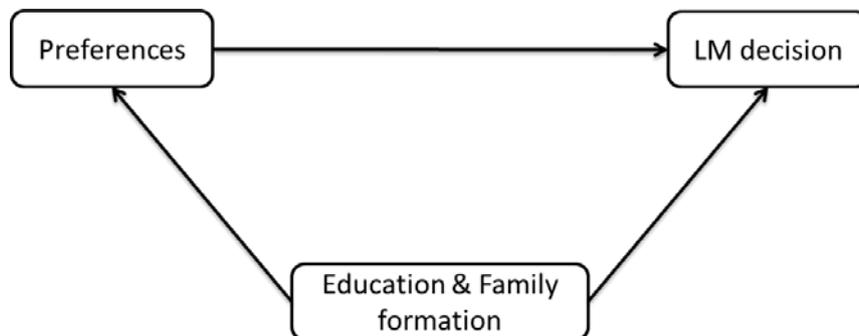
In model 3 the interaction between individual gender-role belief and family status is tested. Contrary to the results of the social-norm effect, the main effect of gender-role beliefs becomes very small and insignificant once interaction effects are introduced. This shows that individual gender-role beliefs have no effect for the decision to work for single women and that there is no difference in the probability of being active in the labor market between single women who agree with the statement and women who do not. Again we find the expected interaction effects. The interaction effect is strongest for married women without children followed by divorced/separated/widowed and married women with children. For all these groups, agreement with the statement has a significant negative effect on the probability of being active in the labor market. The difference in the probability of being active in the labor market between women with modern and traditional gender roles are 10 percentage points for married women without children, 6 percentage points for married women with children, and 7 percentage points for divorced/separated/widowed women with children. No significant effect of individual gender-role beliefs can be found for single women with children and divorced/separated/widowed women without children.

Overall these results are in line with hypothesis 7, according to which the impact of individual gender-role beliefs and social norms are stronger for married women and women with children than for single women and women without children. Single women without children show the highest probability of being active in the labor market and are least strongly affected by social norms and not affected by individual gender-role beliefs in their decision to participate in the labor market. The results show that social norms matter not only for women with children, but also for single women and married women without children. This aspect has often been neglected by previous research which focused solely on women with children. Surprisingly, social norms and individual preferences have the strongest effect on married women without children and a weaker effect on married women with children, a difference that is statistically significant on 1 percent level for social norms. A possible explanation for this result is that the data does not allow for a differentiation between the age of the children, and social norms usually address women with small children. By contrast, married women without children are probably largely young women who are expected to become mothers soon, which makes their employment more inappropriate in societies with traditional gender roles compared to women with adult children. Furthermore, these findings are in line with analyses for countries of the MENA region which shows marriage to be the crucial life course event for young women and that almost every marriage is followed by child birth shortly after (Gebel and Heyne 2014).

### 6.3. Alternative interpretation and causality

As discussed in chapter 5, it is assumed that the measurement of individual preferences by an item about gender roles is not only problematic because gender roles and preferences are not necessarily identical but also because attitudes are less stable over the life course than preferences. So far, the interpretation ignored this problem and results have been interpreted as if gender-role beliefs are an exogenous and stable construct and are developed prior to educational and family-formation decisions. Since this assumption can be questioned, this chapter discusses an alternative interpretation of the results. If one assumes gender-role beliefs to not be exogenous and stable over the life course, education and fertility are possible determinants of gender-role beliefs (e.g. Alwin et al. 1992, Fan and Marini 2000). Longitudinal studies, which study the change in attitudes over the life course, find that women become more egalitarian in their gender role attitudes with increasing education (e.g. Cunningham et al. 2005). Similarly, the literature has argued that marriage and child birth influences gender-role beliefs, but empirical evidence for a process of adaption of gender-role beliefs after family formation is mixed (e.g. Berrington et al. 2008; Cunningham et al. 2005; Evertsson 2013; Fan and Marini 2000; Schober and Scott 2012).

**Figure 6.3: Alternative causal relationship**



If these findings and arguments are considered, education and family formation are important control variables for analyzing the relation between gender roles and labor force participation, because they influence both gender-role beliefs and female labor force participation as displayed in Figure 6.3. What would this alternative interpretation mean for the main results of this chapter? First, the overall effect of social norms and individual gender roles would be smaller. In model 5 of table 6.1 this difference can be seen. The effect of social norms, while controlling for education and family formation, is reduced to a difference of 53 percentage points between women living in societies where no one agrees with the statement of

traditional gender roles and women living in societies where everybody agrees with the statement, compared to an effect of 62 percentage points difference without controlling for education and family formation (model 3 in table 6.1). The effect of individual gender-role beliefs while controlling for education and family formation is 4 percentage points compared to 8 percentage points without the control variables. Although both effects are smaller, social norms and individual gender-role beliefs have a significant effect on the probability of being active in the labor market while controlling for education and family formation. Second, given education and family formation as potential control variables, those should also be controlled for in the models which test the interaction effects. An additional analysis shows that controlling for education and family formation does not change the results substantially with the exception that the interaction between social norms and GDP is no longer significant and the significant interaction term between social norms and divorced/separated/widowed women with children disappears.

#### **6.4. Conclusion**

In this chapter, the central theoretical hypotheses have been tested. All of them were supported by the analysis. Culture has a strong and robust impact on the decision to participate in the labor market. Women who live in societies in which a traditional gender role is predominant are less likely to participate in the labor market than women living in societies with a lower approval of traditional gender roles. Similarly, the individual gender-role belief influences the probability of being active in the labor market. Women who agree with the statement that men should have more rights to a job than women if jobs are scarce are less likely to be active in the labor market than women who disagree with that statement. The social-norm effect is independent from the own gender-role belief, which shows the importance of social norms independent from the own gender-role belief. The multilevel analysis further reveals that a large share of variance of female labor force participation emerges from county differences. Controlling for social norms on country level reduced this variance significantly, which further emphasized the importance of social-norm differences in explaining differences in female labor force participation worldwide. Education and family formation are important mediating factors for the relation between culture and female labor force participation on individual level. The provision of childcare as well as the legal discrimination of women can partly explain the social–norm effect.

The effect of culture has been found not to be the same for all countries and for all women within countries. The social-norm effect found to be stronger in low developed countries while individual gender-role beliefs become more important in higher developed countries. This confirms the assumption made by Hakim (2000) that individual preferences play a more important role and assumptions derived by individualization theory that social norms lose their importance for individual decisions in higher developed societies. Furthermore, both individual gender roles as well as social norms are most important for married women with children. Single women without children are affected by social norms but not by individual gender-role beliefs.

In an additional section the measurement of gender roles for preferences was critically discussed and an alternative interpretation of the results was discussed. In the case that education and family formation are understood as control variables, the effect of individual gender roles and social norms is smaller but still significant and non-negligible. Another problem of causality cannot be solved that easily. It is not only the direction of the relation between education and family formation to individual gender-role beliefs that can be questioned but also the direction of the relation between labor force participation and gender-role beliefs. So far it was assumed that social norms and preferences have an impact on female labor force participation and not vice versa. But this assumption is only partially plausible. In the case that preferences are not stable over the life course, the experience of being employed can influence attitudes toward working women. Previous research emphasized that gender-role beliefs can also be a reaction to employment status and hence the observed relationship could emerge because employed women have less traditional attitudes than inactive women (e.g. Alwin et al. 1992; Corrigall and Konrad 2007). Similarly, social norms are not independent from social reality and the experience of high female labor force participation could change social norms in a society as well. One possible solution for these problems is to use a measurement for preferences and social norms that is exogenous to labor market participation. As will be discussed in the next chapter, this assumption is much more convincing for religious denominations than for attitudes.

## 7. The impact of religion on female labor force participation

As discussed in the introduction, analyzing the impact of religion on female labor force participation has two aims. First, religion is an important aspect of culture and the relevance of religion for people's actions and their living conditions is highly debated by both scientists and the public. The impact of religion on people's life and the society has concerned sociologists from the very beginning as can be seen by the work of some of its grounding fathers, such as Max Weber's *Protestant ethic and the spirit of capitalism* or Emile Durkheim's *Suicide*. While, in the course of modernization and the related processes of secularization in Europe, religion was assumed to lose its importance for social life, lacking secularization and the resurgence of religion outside Europe triggered a new debate on the relevance of religion (e.g. see Berger 1999; Stark and Iannaccone 1994).<sup>21</sup> Similarly, several events after the end of the Cold War, such as the rise of Islamic fundamentalism and terroristic attacks proclaimed in the name of religion, have provoked a public debate in Western countries about the relevance of religion and especially about Islam. Not least the rise of immigration into Western countries by people with a different religious background and especially from Muslim countries raised concerns about the impact of immigration on gender inequality in Western countries, particularly since Islam is often perceived as a barrier to gender equality (e.g. Diehl et al. 2009).

The second motivation for the analysis of religion on female labor force participation is a methodological one. The measurement of culture via denomination is much less problematic than culture via attitudes because the direction of causality on individual and societal level is more straightforward. While it cannot be ruled out that the relation between gender-role beliefs and female labor force participation found in the last chapter arises because women develop more egalitarian gender-role attitudes in case they are active in the labor market, reverse causality is quite unlikely in the case of religion. If religion is understood as belonging to a specific denomination, reverse causality would imply converting to a different faith after entering the labor market, which is a less realistic reaction to labor force participation. An important exception is abandoning one's faith and no longer belonging to any denomination, which can be imagined as a more plausible reaction to labor force participation.<sup>22</sup>

---

<sup>21</sup> For an overview of the revival of religion in the social science literature, see Sherkat and Ellison (1999); Iannaccone (1998).

<sup>22</sup> This is especially relevant in Germany, a country in which the membership in the Catholic or Protestant church is coupled with an income-related tax collected by the state. Hence, the entry into the labor market gives a financial incentive to officially leave the church and cease to be a member of a specific denomination (Birkelbach 1999).

Nevertheless, belonging to a specific denomination is quite stable over the life course and the share of people who change their denomination is quite low (Wilson and Sherkat 1994). Contrary to that religiosity, i.e. the intensity of belief, can be assumed to be less stable and be subject to the same methodological problems as gender role attitudes. Accordingly, the following analysis is restricted to religion as meant to belong to a specific denomination. In the following, the individual denomination is handled as exogenous to labor market participation and assumed to be stable over the life course. Hence, the analysis of the impact of religion on female labor force participation can give additional support for the importance of culture for female labor force participation.

The underlying assumption for the influence of religion on female labor force participation is that religion is an important source for social norms about the appropriate role of women in society in general and of sexuality and fertility in specific (e.g. Glass and Nath 2006; Khoudja and Fleischmann 2014; Sherkat 2000). This chapter therefore follows two aims. First, it is tested how far the results of the last chapter can be reproduced by using religion as an alternative measurement for social norms and individual preferences. Second, it is analyzed whether the relationship between religion and female labor force participation is explained by differences in gender-role beliefs between the different religious denominations. While many studies analyzed the relationship between religion and female labor force participation (e.g. Bayanpourtehrani and Sylwester 2013; H'madoun 2010) as well as between religion and gender role attitudes (e.g. Alexander and Welzel 2011), there are almost no studies which analyze whether the mechanism behind the relation between religion and female labor force participation are differences in gender-role beliefs like theoretically assumed.<sup>23</sup> Before those analyses are shown, some theoretically considerations are presented.

---

<sup>23</sup> One exception is Khoudja and Fleischmann (2014) who analyze the influence of religiosity on female labor force participation for different ethnic groups in the Netherlands and find gender role attitudes to explain the impact of religiosity on female labor force participation.

## 7.1. Theoretical considerations

Most studies argue that religion influences female labor force participation by shaping attitudes and social norms. Although all existing religious denominations have a traditional understanding of the division of labor between men and women, it is assumed that they differ with respect to their emphasis of the traditional gender roles in their actual interpretation.<sup>24</sup> International comparative studies have shown differences between members of different denominations in their approval of gender equality and found Muslim and Hindu women to have more traditional gender-role beliefs than women of other denominations (e.g. Adamczyk 2013; Alexander and Welzel 2011; Inglehart and Norris 2003). The aim of this chapter is not to discuss the belief systems of the different denominations in detail, but to show how religion as an alternative measurement of culture can influence female labor force participation. The specific content of religions and hence their power on the society is quite a complex issue, and previous results differ depending on the sample and measurement used. Furthermore, the differences described in the literature are not necessarily stable over time. For example, research in the U.S. shows that Catholic women used to have higher fertility rates than Protestant women, whereas fundamentalist Protestants show higher fertility rates nowadays (for an overview, see Sherkat and Ellison 1999). Accordingly, the hypotheses have not been formulated with respect to specific denominations and instead describe the impact of religion in terms of how traditional the understanding of denominations with respect to gender roles on female labor force participation is.

In general, the arguments about the impact of religion follow those made on the impact of preferences and social norms in chapter 4 with religion as the source of social norms and preferences. In line with the general theoretical model it can be assumed that religion influences female labor force participation on both levels, the individual and societal level. Most people belong to a specific denomination through intergenerational transmission by birth and grew up with the social norms of the denomination of their family (Kelley and De Graaf 1997). Accordingly, preferences can be assumed to be developed in line with a person's own denomination. Given the link between religion and gender-role beliefs, we can assume that women belonging to a denomination with a traditional interpretation of gender roles are less likely to participate in the labor market than women with a less traditional religious background (*hypothesis 1*); this is because, as has been described in the theoretical chapter,

---

<sup>24</sup> Several authors have criticized the idea that the large monotheistic religions differ in this respect with reference to the holy writings (e.g. Moghadam 2003), but from a sociological point of view it is more interesting whether they differ in their actual interpretation.

the benefits of labor force participation are lower for those women than for women with a less traditional belief.

Nevertheless, once children grow older, they are exposed to attitudes and values of other people in their surroundings, such as their peers, and the moral discourses of the society they live in through schooling, public debates, and media consumption (Kelley and de Graaf 1997). Accordingly, it can be assumed that preferences of women are influenced by the religion of the majority of the population as well. For example, research on gender-role attitudes of the second generation of immigrants shows that children of immigrants have less traditional gender role attitudes than their parents, but more traditional gender roles than their native counterparts (e.g. Diehl et al. 2009). Similarly, using a multilevel design Alexander and Welzel (2011) find that people in predominantly Muslim societies support patriarchal values more than people in other societies, regardless of their own religious belonging. Furthermore, irrespective of their own preferences, the predominant religion of the society in which a woman lives should influence her labor force participation. As explained in the theoretical chapter, the prevailing social norms in a society should influence female labor force participation directly through the higher costs incurred in case of non-conformity to these norms and processes of discrimination. Accordingly, it can be assumed that women living in countries with a predominantly traditional denomination are less likely to participate in the labor market than women living in countries with a predominantly less traditional denomination (*hypothesis 2*) independent from their own denomination.

It is important to note that religion does not only have an influence on values in its contemporary appearance but rather through its historical impact. Inglehart and Baker (2000) argue that differences linked with religion become part of a national culture that is transmitted even when the church loses its influence on society. Several countries experienced processes of secularization during the last century, with a significant share of the population no longer belonging to any denomination. Although people without religious belonging should be influenced by national religious culture as well, the processes of secularization should itself influence the values of a society and go hand in hand with more gender equality (Inglehart and Norris 2003). This makes it necessary to account for the grade of secularization in the analyses.

In addition, it can be assumed in line with the general theoretical model that the effect of religion is partly mediated by education and fertility decision on the individual level as well as by institutions on the country level the same way as argued in chapter 4. In the course of

educational expansion, religion as determinant of educational attainment is usually assumed to have lost its importance and studies that take the religious background into account are rare. Most research exists for the United States and focus on general differences in educational outcomes among members of different denominations without a specific focus on gender gaps (e.g. Lehrer 1999; Sherkat and Darnell 1999). Only a few studies analyze the impact of religion on gender differences in education internationally and find a larger gender gap in education in societies with a higher share of Muslim or Hindu inhabitants (Cooray and Potrafke 2011; Norton and Tomal 2009), those two denominations for which consistently more traditional gender-role beliefs have been found. From a theoretical perspective education should be strongly related to labor market participation and investment should depend on future labor market aspirations. Consequently, among members of denominations with traditional gender-role beliefs, investment in education for women should be lower.

The relevance of religion for the family is discussed more frequently in the literature than the influence of religion on education. Religious doctrines usually include family values (Mahoney et al. 2003) and several studies show the impact of religion on fertility (e.g. Adsera 2006; Morgan et al. 2002; Zhang 2008). Denominations differ in their norms which influence fertility directly, such as the use of contraception and the attitude toward abortion, as well as in their general family values which influence fertility indirectly, such as a positive evaluation of large families (McQuillan 2004). Since fertility is an important determinant of female labor force participation, differences in fertility rates should contribute to the explanation of the relationship between religion and female labor force participation. Taken together, it can be assumed that the negative relationship between traditional denominations and female labor force participation is partly explained by differences in education and fertility (*hypothesis 3*).

On the societal level it has been argued that religion influences the development of institutions that are supportive of or hinder female labor force participation (Haller and Hoellinger 1994). The influence of religion on family policies has been strongly debated with respect to Catholicism and Protestantism in Europe (e.g. Castels 1994; Minkenberg 2002), but religion has not only influenced the emergence of specific family policies, but also other regulations that are important when it comes to female labor force participation. This influence of religion has been most intensively discussed with respect to Islam and it is often argued that the institutionalization of the patriarchal interpretation of Islam are a barrier to gender equality (Kandiyoti 1988; Spierings 2014).<sup>25</sup> Accordingly, it can be assumed that the

---

<sup>25</sup> This aspect will be discussed in more detail in the next chapter.

relationship between religion and female labor force participation is partly explained by differences in institutions (*hypothesis 4*).

As described above, most studies assume that differences in approval of traditional gender-role beliefs are the explanation for the relationship between religion and female labor force participation (e.g. Glass and Nath 2006; Khoudja and Fleischmann 2014; Sherkat 2000). Accordingly, it should be possible to explain the relationship between religion and female labor force participation by differences in gender role attitudes among the different denominations (*hypothesis 5*). It is important to note that previous literature has suggested other possible channels through which religion can influence female labor force participation, for example the influence of religious networks (e.g. Lehrer and Chen 2013) or specific mechanisms in case of interreligious marriages (e.g. Kalmijn 1998; Sherkat 2004). Due to data limitations, those alternative mechanisms cannot be tested when estimating the effect of religion on labor force participation, but it is important to keep in mind that religion is only a rough proxy for gender-role beliefs.

## 7.2. Operationalization

The measurement of religion is based on the indication of the *individual denomination* in the WVS/EVS data by a country-specific question about the common denominations. It is distinguished between Buddhist, Catholic, Hindu, Jewish, Muslim, Orthodox, and Protestant women, as well as women who belong to another denomination, and women who stated that they have no denomination. Religious denominations are quite roughly defined by distinguishing only between the seven most frequent denominations in the world without taking into account the individual strands within a denomination or denominations which are comparatively small. For this purpose, several different categories have been grouped together. This is especially the case for Protestantism which comprises a plurality of strands. Although this rough differentiation has the disadvantage that it neglects existing differences between those strands within a religion, it is necessary in order to carry out a comparative analysis across countries since some subgroups, for instance several Protestant sects, exist only in a single country and are quite small.

The *predominant denomination of a country* was measured by using the information provided by respondents in the WVS/EVS regarding their individual denomination. If more than 50 percent of people in one country were of a specific denomination, this denomination was assumed to be the predominant and, accordingly, the formative denomination. This estimation has been performed by excluding respondents without any denomination since it is more relevant for the predominant culture of a country which denomination has been historically predominant than how many people still define themselves as members of such denomination. Countries without a clear majority have been grouped in a special category. Table 7.1 shows the classification of the countries with respect to religious heritage. The largest groups are 26 Catholic countries, followed by 21 Muslim and 14 Orthodox countries. The data contains 8 Protestant countries and 11 countries without a clear religious heritage. Furthermore, two predominantly Buddhist and one Hindu country are part of the sample. Since the only predominantly Hindu country in the sample is India, the effects for this variable are country-fixed effects for India.

As described above, several countries experienced a process of *secularization*, which is assumed to influence the relation between religion and female labor force participation since secularization goes hand in hand with a value change toward less traditional gender roles. Since the measurement of denomination on country level does not yet take this into account,

an additional variable measuring the share of people who do not belong to any denomination is used in the analyses to account for processes of secularization.

**Table 7.1: Classifications of countries by predominant religion**

<b>Catholic</b>	<b>Muslim</b>	<b>Orthodox</b>	<b>Protestant</b>	<b>Bhuddist</b>	<b>Hindu</b>	<b>Mixed</b>
Austria	Albania	Armenia	Denmark	China	India	Bosnia
Belgium	Algeria	Belarus	Finland	Thailand		Hong Kong
Brazil	Azerbaijan	Bulgaria	Germany			Latvia
Canada	Burkina Faso	Cyprus	Ghana			Netherlands
Chile	Egypt	Estonia	Iceland			Nigeria
Colombia	Indonesia	Ethiopia	New Zealand			Singapore
Croatia	Iran	Georgia	Norway			South Africa
Czech Rep.	Iraq	Greece	Sweden			South Korea
Ecuador	Jordan	Macedonia				Switzerland
France	Kazakhstan	Moldova				Trinidad & Tobago
Guatemala	Kyrgyzstan	Romania				United States
Hungary	Lebanon	Russia				
Ireland	Libya	Serbia				
Italy	Malaysia	Ukraine				
Lithuania	Mali					
Luxembourg	Morocco					
Mexico	Pakistan					
Peru	Tunisia					
Philippines	Turkey					
Poland	Uzbekistan					
Portugal	Yemen					
Rwanda						
Slovakia						
Slovenia						
Spain						
Uruguay						

*Source:* EVS/WVS data; own calculations.

The operationalization of all other variables used in the following analyses has already been described in chapter 5.2, and an overview of them is given in the appendix (table A.2).

### **7.3. Results**

#### **7.3.1. The impact of religion on female labor force participation**

In a first step the impact of religion on female labor force participation is tested. For this purpose the same analyses as in chapter 6 are performed using religion instead of attitudes as the independent variable. Several random-intercept models are estimated with labor market participation as the dependent variable. Table 7.2 shows the results. In a first step the effects of the predominant religious denomination of a country and the share of atheists within a country is estimated (model 1). In all countries women show a lower probability of being active in the labor market compared to women living in predominantly Protestant countries, although the effect is small and not significant for Buddhist countries. The strongest effect can be found for India (the only Hindu country), where women have a 51 percentage point lower probability of being active in the labor market than women living in predominantly Protestant countries followed by women living in predominantly Muslim countries for which the probability is 41 percentage points lower than for women living in Protestant countries. Both effects are significant on a 1 percent level. Additional t-tests show that the probability of being active in the labor market for women living in predominantly Muslim countries or in India is significantly lower than for women living in all other countries, but the differences between women living in Muslim countries and women living in India is not statistically significant. For women in both predominantly Orthodox and Catholic countries the probability of being active in the labor market is 14 percentage points lower than for women in Protestant countries, and women in countries with a mixed religious heritage show a 15 percentage point lower probability of being active in the labor market. An additional t-test shows that the difference between women living in Catholic and Orthodox countries and women living in countries with a mixed religious heritage is not statistically significant. As expected, the share of atheists in a country has a positive effect: The higher the share of atheists within a country, the more likely women are to be active in the labor market, but this effect is not statistically significant.

**Table 7.2 Effect of religion on female labor force participation**

	Model 1		Model 2		Model 3		Model 4		Model 5	
<b>Denomination country (Ref. Protestant)</b>										
Mixed	-0.15**	(-2.09)	-0.13*	(-1.85)	-0.13*	(-1.80)	-0.13*	(-1.88)	-0.12**	(-1.97)
Buddhist	-0.07	(-0.54)	-0.05	(-0.38)	-0.02	(-0.14)	0.02	(0.15)	0.13	(1.21)
Catholic	-0.14**	(-2.21)	-0.14**	(-2.22)	-0.12*	(-1.90)	-0.11*	(-1.89)	-0.11**	(-2.11)
Hindu	-0.51***	(-3.06)	-0.38**	(-2.26)	-0.27	(-1.61)	-0.26*	(-1.67)	-0.22	(-1.55)
Muslim	-0.41***	(-5.97)	-0.31***	(-4.50)	-0.28***	(-4.20)	-0.27***	(-4.34)	-0.17***	(-2.99)
Orthodox	-0.14*	(-1.94)	-0.14**	(-1.99)	-0.16**	(-2.29)	-0.14**	(-2.17)	-0.14**	(-2.53)
<b>Share of Atheists</b>	0.17	(1.58)	0.13	(1.23)	0.08	(0.74)	0.10	(0.98)	0.02	(0.25)
<b>Denomination individual (Ref. Protestant)</b>										
No religion			0.01	(0.84)	0.01	(1.11)	-0.01	(-0.59)	-0.01	(-0.58)
Buddhist			-0.03	(-1.30)	-0.02	(-0.75)	-0.02	(-0.73)	-0.01	(-0.65)
Catholic			0.00	(-0.19)	0.00	(-0.08)	0.00	(0.03)	0.00	(0.02)
Hindu			-0.18***	(-6.86)	-0.18***	(-6.83)	-0.15***	(-6.06)	-0.15***	(-6.06)
Jewish			0.07	(1.34)	0.04	(0.82)	0.04	(0.72)	0.04	(0.72)
Muslim			-0.12***	(-10.29)	-0.09***	(-7.94)	-0.08***	(-7.38)	-0.08***	(-7.34)
Orthodox			0.01	(0.82)	0.01	(1.06)	0.01	(0.60)	0.01	(0.58)
Other			-0.01	(-0.68)	0.00	(0.09)	-0.01	(-0.49)	-0.01	(-0.49)
<b>Mechanisms individual level</b>										
<i>Education (Ref. Secondary)</i>										
Less than primary					-0.23***	(-28.26)	-0.19***	(-23.60)	-0.19***	(-23.53)
Primary					-0.16***	(-20.03)	-0.12***	(-15.79)	-0.12***	(-15.75)
Incomplete secondary					-0.08***	(-13.03)	-0.06***	(-11.23)	-0.06***	(-11.22)
University					0.14***	(23.09)	0.13***	(21.86)	0.13***	(21.85)
<i>Family status (Ref. Single)</i>										
Married							-0.15***	(-23.05)	-0.15***	(-23.05)
Divorced/seperated							0.02**	(2.05)	0.02**	(2.05)

Widowed						-0.03**	(-2.09)	-0.03**	(-2.08)	
<i>Number of children (Ref. No children)</i>										
One child						-0.07***	(-10.27)	-0.07***	(-10.30)	
Two children						-0.08***	(-11.40)	-0.08***	(-11.42)	
More than two children						-0.10***	(-14.00)	-0.10***	(-14.02)	
<b>Mechanisms country level</b>										
Divorce legislation								-0.19***	(-3.35)	
Movement legislation								-0.18**	(-2.41)	
Public childcare								0.05	(0.97)	
Constant	0.93***	(16.58)	0.93***	(16.78)	0.94***	(17.14)	1.08***	(21.05)	1.03***	(14.82)
Variance (Const)	0.02		0.02		0.02		0.02		0.02	
Variance (Residual)	0.16		0.15		0.15		0.14		0.14	
ICC	0.11		0.12		0.12		0.13		0.13	
LL	-17860.15		-17755.02		-16775.91		-15656.77		-15644.99	

Note: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01; z-statistics in parentheses.

Source: EVS/WVS data; own calculations.

In the next model, individual denomination is additionally introduced. The results show that Hindu and Muslim women have a lower probability of being active in the labor market compared to Protestant women, regardless of the country context. The effects are significant on a 1 percent level. Muslim women have a 12 percentage point lower probability and Hindu women a 18 percentage point lower probability of being active in the labor market compared to Protestant women. Additional t-tests show that Muslim and Hindu women have a significant lower probability of being active in the labor market than all other women. The difference between Muslim and Hindu women is statistically significant on a 5 percent level. Jewish women have a 7 percentage point higher probability of being active in the labor market and Buddhist women a 3 percent lower probability than Protestant women, but those effects are not significant. There are no differences in the probability of being active in the labor market between Protestant women and women of Catholic, Orthodox or other denomination or women without any denomination. This finding confirms hypothesis 1, according to which labor market participation of women should differ depending on their individual denomination.

Controlling for denomination on individual level reduces most country-level effects of religion only slightly. The effects of living in a Muslim country and India are reduced by 10 and 13 percentage points, respectively, but are still strong and significant. This implies that the social context is important, regardless of a woman's own religious denomination. Women living in Protestant countries have a higher probability of being active in the labor market than women living in non-Protestant countries, regardless of their own denomination. These results confirm hypothesis 2 according to which female labor force participation depends on the religious heritage of a country. Similar to the results of the impact of culture measured in terms of gender role attitudes, the social context has an effect that is independent from individual denomination. It is important to note that the effects are estimated without additional control variables since it is assumed that religion is exogenous and not influenced by those factors used as control variables in chapter 6.

In model 4 – 6 possible mechanisms on individual and country level are tested. The impact of those variables on female labor force participation has already been discussed in the previous section; what is of particular interest here is whether controlling for those variables changes the effects of religion. Controlling for education decreases the effect of living in India from 38 to a 27 percentage point lower probability of being active in the labor market compared to women living in Protestant countries, and this effect is no longer significant. This indicates

that a share of the lower employment probability in India can be explained by lower levels of education of Indian women. The effect for women living in Catholic and Muslim countries is slightly reduced and the effect for women living in Orthodox country slightly increases after controlling for education. On individual level, the effect for Muslim women decreases by 3 percentage points to a 9 percentage point lower probability of being active in the labor market compared to Protestant women. Similarly the non-significant positive effect for Jewish women decreases. Contrary to that, the individual-level effect for Hindu women is not changed by controlling for education.

Controlling for marital status and number of children further reduces some effects slightly. Hindu women show in this model a 15 percentage point lower probability of being active in the labor market (compared to 18 percentage points without controlling for family status), Muslim women a 8 percentage point lower probability (compared to 9 percentage points difference). Hypothesis 3, according to which the impact of religion on labor force participation is partially mediated by education and family formation decisions, is only weakly confirmed since, with exception of the country effect for India, the effect of religion both on individual and country level are only slightly influenced under control of education and family formation.

The last model tests whether institutions explain the relation between religion and labor force participation. For this purpose, the same measurements of institutions are used as in chapter 6. Controlling for institutions strongly reduces the country-level effects of living in a Muslim country and weakly reduces the effect of living in India. Controlling for the provision of public childcare and the legal discrimination of women, the effect of living in a Muslim country decreases to 17 percentage points compared to 27 percentage points without controlling for the institutional variables. This implies that lower female labor force participation of women living in predominantly Muslim countries can partially be explained by institutions and legislations that are a barrier to female employment. The effect for women living in India is reduced to 22 percentage points. This confirms hypothesis 4, according to which the relationship between religion and female labor force participation is partly explained by differences in institutions. Interestingly, the effect of the share of people without denomination in a country, which has already been decreased under controlled for education, strongly decreases under the control of institutions which hints to a relationship between secularization and institutions that hinder or promote female labor force participation.

### **7.3.2. Religion, gender roles, and female labor force participation**

Overall, the results show that religion has a strong effect on the probability of being active in the labor market. In general, the effects of this analysis are very similar to the effects found in the analysis for the impact of gender-role attitudes on labor force participation. This raises the question whether the impact of religion on female labor force participation is indeed mediated by differences in gender-role attitudes as theoretically expected. Before it is directly tested whether gender role attitudes explain the effect of religion on female labor force participation, it is first tested whether the relationship between religion and gender role attitudes found in previous studies can be confirmed with the data used in this thesis as well.

For this purpose, a multilevel analysis on gender role attitudes is performed. The dependent variable is the agreement with the item “When jobs are scarce, men should have more rights to a job than women”, which has been used in the chapter 6 to measure gender-role attitudes. Again, a linear probability model is estimated and no additional control variables are used since it is assumed that religious denomination is an exogenous variable. The results are presented in table 7.3. The empty model shows that on average 27 percent of women agree with the statement. A significant variation on country level and an ICC of 20 percent show the relevance of the social context for the agreement with the statement.

In model 1, the effect of the religious tradition of the country is tested holding the share of atheists living in a country constant. The coefficients show strong effects. Women living in predominantly Protestant countries have a much lower probability of agreeing with the statement than women living in all other countries. The effect is strongest for Muslim countries, where women show a 42 percentage point higher probability of agreeing with the statement than women living in Protestant countries, followed by women in India with 33 percentage points, women in Buddhist countries with 26 percentage points, women in Orthodox countries and countries with mixed religious heritage with 14 percentage points and women in Catholic countries with a 9 percentage point higher probability to agree with the statement than women living in Protestant countries. With the exception of the effect for Buddhist countries, all coefficients are significant at least on a 5 percent level. Additional analyses show that the differences between women living in Muslim countries and women living in all other countries are statistically significant (with the exception of women living in India), but the differences between the other groups of countries are not statistically significant.

**Table 7.3 Impact of religion on gender role attitudes**

	Model 0		Model 1		Model 2	
<b>Denomination country (Ref. Protestant)</b>						
Mixed			0.14**	(2.56)	0.13**	(2.45)
Buddhist			0.26***	(2.69)	0.26***	(2.79)
Catholic			0.09*	(1.95)	0.10**	(2.05)
Hindu			0.33**	(2.55)	0.28**	(2.22)
Muslim			0.42***	(7.98)	0.35***	(6.68)
Orthodox			0.14***	(2.60)	0.13**	(2.54)
<b>Share of Atheists</b>			-0.22***	(-2.72)	-0.20**	(-2.52)
<b>Denomination individual (Ref. Protestant)</b>						
No religion					-0.01	(-0.69)
Buddhist					-0.01	(-0.55)
Catholic					0.00	(-0.43)
Hindu					0.06**	(2.13)
Jewish					0.00	(0.03)
Muslim					0.09***	(6.98)
Orthodox					0.00	(0.08)
Other					0.01	(0.61)
Constant	0.27***	(12.00)	0.09**	(1.99)	0.08**	(2.01)
Variance (Const)	0.04		0.01		0.01	
Variance (Residual)	0.16		0.16		0.16	
ICC	0.20		0.06		0.06	
LL	-18880.75		-18835.78		-18793.98	

Note: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01; z-statistics in parentheses.

Source: EVS/WVS data; own calculations.

The share of atheists in the country of living has – as expected – a negative effect. If we compare women who live in a country in which nobody belongs to a religious denomination and women who live in a country where everybody belongs to a religious denomination, the latter group has a 22 percentage point higher probability of agreeing with the statement. Although these extreme values cannot be found in the data, there exist several countries in which all respondents belong to a religious denomination and countries where more than 50 percentage of respondents do not belong to a denomination. Controlling for the religious heritage of a country and the share of atheists, the variance on country level strongly decreases, which shows the importance of religion for the explanation of country differences in gender role attitudes as well.

In the second model, the impact of the individual denomination in addition to the country tradition is estimated. The results show that, compared with Protestant women, Hindu and Muslim women have a significant higher probability of agreeing with the statement regardless

of the country context. The probability of agreeing with the statement is 6 percentage points higher for Hindu women and 9 percentage points higher for Muslim women than for Protestant women. These effects are significant on a 5 and a 1 percent level, respectively. Women of other denominations show no significant differences compared to Protestant women. Surprisingly, women without any religious belonging do not show a significant lower agreement with the statement. Controlling for individual denominations slightly reduces the effect of religious tradition on country level. Nevertheless, the effect of religious tradition is significant and strong when controlling for individual denomination and can accordingly be interpreted as a social-norm effect, i.e. regardless of one's own religious belonging the country context has an important impact on individuals' attitudes toward women's employment.

In a next step it is tested whether this relationship between religion and gender role attitudes explains the impact of religion on female labor force participation as theoretically expected (hypothesis 5). Table 7.4 shows the results. For this purpose three models are estimated which show the effect of religion and whether this effect changes after controlling for attitudes on country and individual level. The results for model 2 in table 7.4 show that the predominant gender-role attitudes in a country explain the effect of religious heritage on labor force participation on country level to a significant extent. Controlling for the average approval of traditional gender roles, all coefficients of religious heritage on country level decrease and lose their significance in comparison to model 1. This also holds true for the strong effects of living in a predominantly Muslim country or in India. Controlling for social norms women living in Muslim countries show a 10 percentage point lower probability of being active in the labor market than women living in Protestant countries, compared to a 31 percentage point difference in model 1 without controlling for the social norm. Similarly, the effect of the share of atheists within a country is reduced. Contrary to that, controlling for attitudes on the individual level does not change the relationship between religion and labor force participation on individual level as model 3 shows.

**Table 7.4 Religion, attitudes, and female labor force participation**

	Model 1		Model 2		Model 3	
<b>Denomination country (Ref. Protestant)</b>						
Mixed	-0.13*	(-1.85)	-0.06	(-0.81)	-0.06	(-0.84)
Buddhist	-0.05	(-0.38)	0.09	(0.69)	0.08	(0.68)
Catholic	-0.14**	(-2.22)	-0.09	(-1.50)	-0.09	(-1.51)
Hindu	-0.38**	(-2.26)	-0.22	(-1.35)	-0.22	(-1.37)
Muslim	-0.31***	(-4.50)	-0.10	(-1.11)	-0.11	(-1.18)
Orthodox	-0.14**	(-1.99)	-0.05	(-0.78)	-0.06	(-0.82)
<b>Share of Atheists</b>	0.13	(1.23)	0.03	(0.27)	0.03	(0.28)
<b>Denomination individual (Ref. Protestant)</b>						
No religion	0.01	(0.84)	0.01	(0.87)	0.01	(0.81)
Buddhist	-0.03	(-1.30)	-0.03	(-1.32)	-0.03	(-1.36)
Catholic	0.00	(-0.19)	0.00	(-0.18)	0.00	(-0.22)
Hindu	-0.18***	(-6.86)	-0.18***	(-6.85)	-0.18***	(-6.71)
Jewish	0.07	(1.34)	0.07	(1.35)	0.07	(1.35)
Muslim	-0.12***	(-10.29)	-0.12***	(-10.20)	-0.12***	(-9.70)
Orthodox	0.01	(0.82)	0.01	(0.87)	0.01	(0.86)
Other	-0.01	(-0.68)	-0.01	(-0.66)	-0.01	(-0.62)
<b>Attitudes</b>						
Country level			-0.45***	(-3.32)	-0.38***	(-2.81)
Individual level					-0.08***	(-14.96)
Constant	0.93***	(16.78)	0.82***	(13.20)	0.84***	(13.65)
Variance (Const)	0.02		0.02		0.02	
Variance (Residual)	0.15		0.15		0.15	
ICC	0.12		0.12		0.12	
LL	-17755.02		-17749.84		-17638.34	

Note: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01; z-statistics in parentheses.

Source: EVS/WVS data; own calculations.

Accordingly, hypothesis 5 can only partly be confirmed: while differences in social norms between countries explain a large share of the religious effect on country level, differences in individual preferences do not account for the lower probability of labor force participation found for Muslim and Hindu women.

#### **7.4. Conclusion**

This chapter of the thesis started with two motivations. First, it was argued that religion is an important part of culture, and hence the impact of religion on female labor force participation is of substantial interest. Second, it was argued that religion is a less problematic measurement of culture from a methodological perspective. Whereas it cannot be ruled out that the relationship between attitudes and female labor force participation emerges through a causal impact of female labor force participation on attitudes of individuals and social norms in a society, this direction of causality is less convincing in the case of religious denomination. Accordingly, the results can be interpreted as a confirmation of the central results of chapter 6. Culture has an impact on female labor force participation. Again the multilevel analysis revealed that the social context matters independently from individual characteristics. In detail, the analyses showed that women living in Catholic, Muslim, and Orthodox countries have a lower probability of being active in the labor market than women living in Protestant countries regardless of their own denomination. Differences in institutions can partly explain the lower probability of being active in the labor market for women living in Muslim countries. On individual level it was found that Muslim women and Hindu women, regardless of the religious denomination of the country they live in, have a lower probability of being active in the labor market than women of other religious denominations. Differences in education and fertility explain these differences only to a small degree.

It has been argued that attitudes should be an important mechanism that explains the impact of religion on female labor force participation. For this purpose, the impact of religion on attitudes was tested. Similarly to previous results, I found Hindu and Muslim women to exhibit a stronger approval of traditional gender-role beliefs. Furthermore, social context matters here as well. Women living in countries with a predominantly Protestant tradition have been found to exhibit the lowest approval, women living in countries with a predominantly Muslim tradition exhibit the highest approval with the statement on traditional gender roles, regardless of their own denomination. The analyses of female labor force participation revealed that attitudes only partially explain the impact of religion on female labor force participation. While the social-norm effect of religious heritage on country level could fully be explained by differences in social norms, the impact of individual denomination on female labor force participation is not explained by different preferences of women. This finding points to the fact that mechanisms other than those described drive the

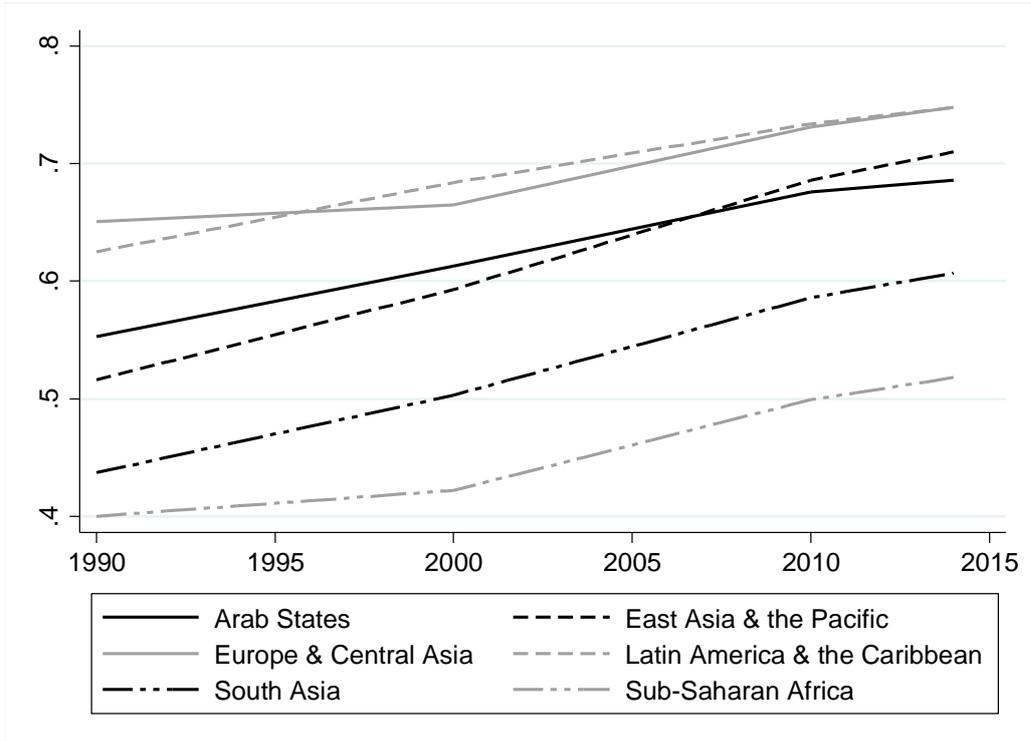
relationship between religion and female labor force participation on individual level, for instance religious networks or the influence of significant others such as a person's partner.

Several authors have criticized studies that use religion to explain gender inequality, often with a specific focus on Islam. One important argument put forward by these critics is that most denominations are more diverse than captured by the broad differentiation used in this analysis and that there is a wide variation of interpretations and regulations within single denominations (e.g. Chadwick and Garrett 1995; Pfau-Effinger 2000; Spierings 2014). While the different strands within a denomination usually have a common ground and similar beliefs, differences in beliefs between the strands do exist and can result in different consequences for gender equality. Unfortunately, the design of the study does not allow a distinction between subgroups of denomination which are often small and exist only within one country. Furthermore, some important differentiations, such as between the different school of laws of Islam, have not been possible given the available data. Accordingly, this chapter could analyze only broad differences without taking peculiarities between the different strands of denominations into account. Nevertheless, a question that is related to this debate is discussed and analyzed in the next chapter, namely whether it is indeed Islam or other cultural factors that prevent women from entering the labor market in the MENA region.

## 8. Culture and female labor force participation in MENA

Although the international comparison of female labor force participation shows a lot of variation both between and within regions, one clear pattern does stand out. As described in detail in chapter 2, female labor force participation in the countries of the Middle East and North Africa (MENA) is extremely low compared to other countries and regions.<sup>26</sup> This finding is especially striking when the stage of development in those countries is considered. This can be illustrated by comparing some indicators of development which are used by international organizations such as the United Nations or the World Bank to compare regions and countries in their stage of development. Figure 8.1 shows trends in the human development index (HDI) for six world regions provided by the United Nations Development Programme (UNDP).

**Figure 8.1 Trends in human development in different World regions**



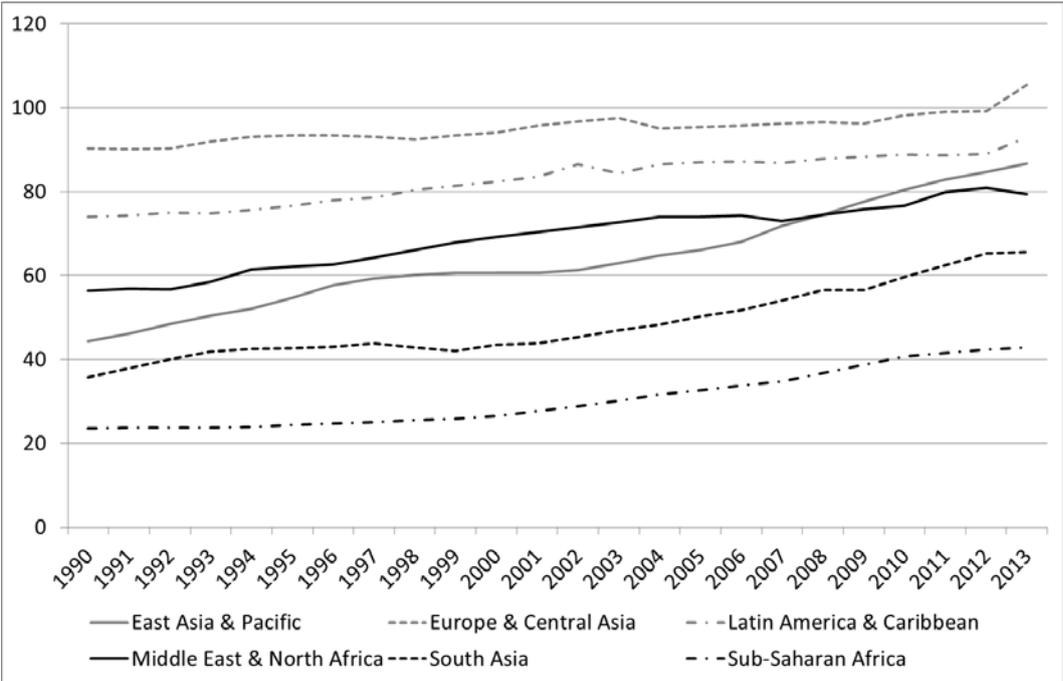
Source: UNDP (2015); Own illustration.

<sup>26</sup> Similar low female labor force participation rates can be found in South Asia. Some arguments for the explanation of low female labor force participation in MENA can be applied to South Asia as well, but since just one country of this region, i.e. India, is available in the WVS, this chapter is restricted to the explanation of low female labor force participation in MENA.

The HDI is a measurement of human development which combines life expectancy, average years of schooling, and gross national income per capita into an index of development. The figure shows that the HDI has increased in all world regions since 1990. The HDI for the Arab States, a classification almost congruent with the MENA countries, shows no deviation from this general development and increased from 0.55 to 0.69 since 1990. In 2014 the HDI of the Arab States ranges below the development in Latin America & the Caribbean, Europe & Central Asia; it is a little bit lower than in East Asia and Pacific but much higher than in South Asia and Sub-Saharan Africa.

A similar pattern can be found when comparing trends in educational achievement and fertility between the different world regions, two measures which are – according to the modernization theory – assumed to be strongly related to changes in female labor force participation (Blau et al. 2014; Goldin 1990). Figure 8.2 shows the female enrollment rate in secondary education for the different world regions since 1970. While in 1970 the female enrollment rate in Europe and Central Asia was already quite high and increased to almost 100 percent during the last 40 years, all other world regions started from a much lower level and show a strong increase during this period. The female enrollment rate in secondary education in countries of the MENA region increased from less than 50 percent in 1970 to around 80 percent in 2012 and is only fractionally smaller than in East Asia and Pacific.

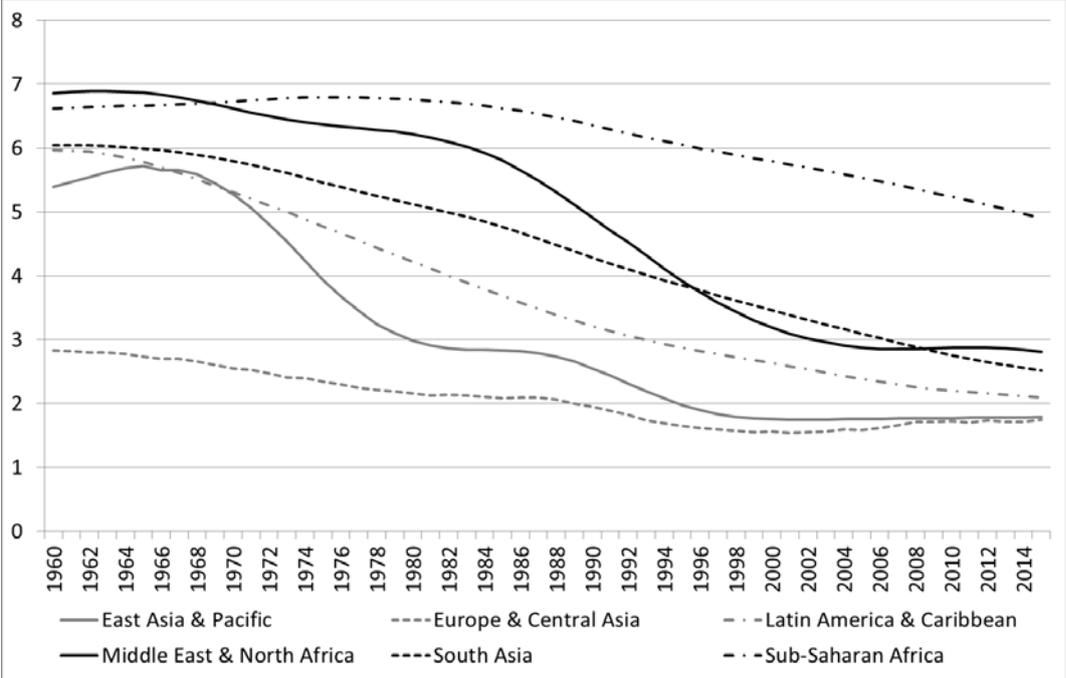
**Figure 8.2 Gross enrollment rates of women, secondary education**



Source: World Bank (2016b); Own illustration

A similar picture can be found in relation to the development of fertility rates. Figure 8.3 shows the total fertility rate for different world regions since 1960. The lowest fertility rate in 1960 can be found in Europe and Central Asia, where fertility decreased only slightly in the following years. In all other world regions a strong decrease starting from much higher levels since the 1960s can be observed. Sub-Saharan Africa shows a much slower decrease than the other countries. The countries of the MENA region showed a strong decrease, starting especially in the 1980s. While until 1983 the fertility rate in MENA was on average more than 6 children per woman, this value decreased to less than 4 children by 1995 and less than 3 children by 2003.

**Figure 8.3 Total fertility rates in different World regions**



Source: World Bank (2016a); Own illustrations

Although it is important to note that those figures show only broad trends based on average numbers and hide important variations within the regions, the general picture is astonishing. Despite a strong increase in educational attainment and a sharp decline in fertility rates, female labor force participation remains at a very low level, which begs the question of how this development can be explained. A possible explanation for this paradox might be culture. Before it is empirically tested whether cultural factors can explain the low female labor force participation in the MENA region, different theoretical arguments about low female labor force participation in the region are described in more detail and related to the general theoretical framework developed in chapter 4.

## **8.1. Theoretical considerations**

Previous research has offered different possible explanations for the low female labor force participation in MENA countries. Two different debates about the origins of low female labor force participation in MENA dominate the literature. First, while several authors refer to the role of cultural factors (e.g. Clark et al. 1991), other authors (e.g. Ross 2008) deny the role of cultural factors and instead argue that oil resources prevented the structural changes of the labor market observed in other world regions in the course of modernization. This discussion is strongly related to the general discussion about the role of structural versus cultural factors in explaining female labor force participation as described in chapter 2. Among those authors referring to cultural factors as an explanation for prevailing gender inequality in the MENA region in general and for low female labor force participation in particular, there is no agreement about the source of gender inequality. While some authors see the source of gender inequality in the predominance of Islam in the region (e.g. Inglehart and Norris 2003) others deny that Islam per se can explain the specific situation in the region and see the roots of gender inequality in other cultural peculiarities, especially in the continuing existence of the patriarchy in those countries (e.g. Charrad 2001; Moghadam 2003). In the following, those arguments are presented in more detail.

### **8.1.1. Cultural explanations**

In line with the general theoretical model developed in chapter 4, it should be possible to explain low female labor force participation in the MENA region by the predominance of traditional gender roles (*hypothesis 1*). This would imply that the MENA region is characterized by more traditional gender roles than other regions. In line with the model developed in chapter 4, social norms that prevent women from entering the labor market affect women's decision to participate in the labor market through different pathways. Besides an effect of individual preferences on the traditional division of labor, social norms on country level should influence the low female labor force participation even of those women who disagree with the traditional role of women as being a housewife.

The role of traditional gender norms is also emphasized by those authors who see the root of persisting gender inequality in the region in the predominance of Islam (e.g. Inglehart and Norris 2003). As already described in chapter 7, those authors argue that Islam in its actual interpretation endorses more traditional gender roles than other religious traditions. As the

results in chapter 7 showed, Muslim women and women living in predominantly Muslim societies indeed exhibit more traditional attitudes, although those attitudes only partially explain the relationship between Islam and female labor force participation. Nevertheless, Muslim women and women living in predominantly Muslim societies have been found to have lower female labor force participation than other women. Most of the MENA countries are predominantly Muslim with small minorities of other denominations. Given the fact that Islam has a negative impact on female labor force participation, it should be possible to explain low female labor force participation in MENA countries by the predominance of Islam (*hypothesis 2*).

Several authors have criticized the idea that religion is the source of gender inequality. For the MENA region, it has been argued that traditions much older than Islam are the reason for the predominance of traditional gender roles in those countries (e.g. Hayo and Caris 2013). Most of those authors see the root of gender inequality in the persistence of the patriarchy. Patriarchal societies historically existed in different forms in many countries throughout Europe and Asia. The MENA region belongs to the so-called patriarchal belt (Caldwell 1978; 1982), a region spanning from the MENA region in the West, includes Central Asia and reaches as far as South Asia in the East. Cultural traditions in this region predate the existence of specific religions and cut across Hinduism, Confucianism and Islam. According to Kandiyoti (1988), the patriarchal belt is characterized by patrilocally extended households in which the senior man has authority over everyone else in the family, the subordination and control of women, son preference, as well as restrictive codes of behavior for women (see also Littrell and Bertsch 2013; Moghadam 2004). While, in the course of modernization, the gender system changed in many parts of the world, it has been argued that the patriarchy continues to govern gender structures in the MENA region, because tribal structures and kin-ordered networks persisted and influenced the state-building process.<sup>27</sup> This resulted in a modernization of the patriarchy and the implementation of patriarchal structures into the modern state. These “neopatriarchal” states consolidate the status of women in MENA societies (Charrad 2001; Moghadam 2003). According to this alternative explanation, low female labor force participation in MENA countries is not explained by Islam but by the predominance of patriarchal structures, which prescribe specific behaviors to women and are expressed in the legal discrimination of women.

---

<sup>27</sup> For an overview on different views on the development of the patriarchy, see Moghadam (2004).

This argument is quite similar to the argument made in the general theoretical model, according to which institutions are one important mechanism of how traditional gender norms are translated into low female labor force participation. As we saw in chapter 6, institutions that support or prevent women from participating in the labor market indeed have a strong influence on labor market participation and explain part of the relation between traditional gender norms on societal level and female labor force participation. Accordingly, it should be possible to explain low female labor force participation in the MENA region by the institutional structures that prevent women from participating in the labor market (*hypothesis 3*).

### **8.1.2. Structural explanations**

Contrary to that, some authors have challenged the view that cultural factors are the reason for low gender equality more generally. According to Ross (2008), low female labor force participation in the region is a consequence of a specific economic development rooted in oil resources and the respective revenues of the states. According to Ross (2008), economic growth has different consequences for gender equality. While economic growth in general increases women's participation in the labor market, growth that stems from oil and mineral extractions hinders women from entering the formal labor market. An oil boom has two impacts on the economy of a country. First, the real exchange rate rises through the wealth produced by oil sales, which makes the import of tradable goods cheaper. Second, it increases the demand of non-tradable goods such as construction and retail services. In summary, oil wealth results in a shift from the tradable sector to the non-tradable sector, a phenomenon known as the "Dutch disease". This has an influence on wages as well, which rise in the non-traded sector and decrease in the traded sector. Given the gender-specific labor market segregation typical in all countries (Anker 1998), this influences the demand for male and female labor differently. Since women are largely employed in the traded sector in developing countries, their wages decrease. Contrary to that, wages of men rise in the non-traded sector resulting in an income effect, i.e. the reservation wages of married women increase, which makes their labor force participation less beneficial. Additional subsidies by the government which are a typical feature of oil-rich countries increase the non-labor income for women (Dhillon and Yousef 2009). Overall, household income increases and wages for women decrease, which makes labor market participation of women less likely. Although not all MENA countries possess significant oil resources, those countries indirectly benefited from

the oil boom through remittances made by migrant workers who had been sent into neighboring oil-rich countries (World Bank 2013a).<sup>28</sup> According to this argument it should be possible to explain low female labor force participation in MENA countries by high oil revenues in the region (*hypothesis 4*).

It is important to note that the results arrived at by Ross himself are only partially in line with his hypothesis. Ross (2008) tests his hypothesis using macro-level data for 169 countries for the years 1960 to 2000. Employing both fixed-effect regression and cross-national models he finds a significant and strong impact of oil rents on female labor force participation when controlling for income and share of working-age population. In the cross-national model Ross additionally controls for the share of Muslims within a country, whether a country had a communist legal system at some point since 1960, and whether a country belongs to the MENA region. Ross finds a positive effect for communist countries and a negative effect for MENA countries, but no independent effect for Islam.<sup>29</sup> Interestingly, the introduction of oil rents into this model reduces the MENA effect only slightly. Accordingly, already in the original analyses undertaken by Ross (2008) there is no evidence that oil rents explain low female labor force participation in MENA countries to a significant extent. Furthermore, Ross argues that his findings would imply that “[...] female status in the Middle East can be partly explained by the region’s oil wealth, but not by its Islamic culture or traditions” (2008: page 115). This interpretation is highly questionable since his table shows that the introduction of the Islam variable explains the MENA coefficient to the same extent as oil rents, which would be more in line with the interpretation that oil rents are as important as Islam in explaining female labor force participation in the MENA region. Furthermore, a critique of the method used as well as a replication showing that his findings are mainly driven by the low female labor force participation and high oil rents of the countries of the Arabian Peninsula (Groh and Rothschild 2012) further calls into question Ross’ central conclusions.

All these different arguments do not necessarily exclude each other. Most authors agree that the legal discrimination of women, which is more widespread in the MENA region than in other world regions (OECD 2014; World Bank 2015), is related to the dominance of Islam in the constitutions and the codes of law in the MENA countries. With a few exceptions, Islam is a state religion in those countries and family codes are based on Islamic law in most countries, which results in a discrimination of women in terms of inheritance, parental authority, and the

---

<sup>28</sup> Unfortunately, it is not possible to measure this indirect effect of the oil boom on neighboring countries of oil-rich countries for the oil-poor countries in the MENA region.

<sup>29</sup> Unfortunately, the models presented by Ross (2008) do not provide any information on whether he finds an Islam effect without controlling for the MENA region.

right to divorce (Esposito 2001; Kelly and Breslin 2010). Furthermore, several authors argue that oil revenues have reinforced the patriarchal gender contract by making a state-sanctioned persistence of the patriarchy possible (Haghighat-Sordellini 2010; Moghadam 2003).

### **8.1.3. Effect heterogeneity**

Finally, the question remains of how to explain the untypical pattern of modernization in the MENA region. As discussed in chapter 4, traditional gender norms should also work through educational and fertility decisions. The neoclassical model would predict that women's education is low and fertility rate is high in societies with traditional gender roles. As we have seen above, this does not seem to be the case in the MENA region where educational expansion and a decrease of fertility rates can be observed. In case of education it has been argued that a different evaluation of the benefits of education can explain this paradox. While the neoclassical model assumes that people invest in their education in order to increase their future labor market outcomes, education in the MENA region is seen as an important investment for the marriage market and for becoming a good mother (e.g. Amin and Al-Bassusi 2004; Lloyd et al. 2003; Read and Oselin 2008). Although several studies show that education has the expected positive impact on female labor force participation within the MENA region (Chamlou et al. 2011; Gündüz-Hoşgör and Smits 2008; Ogawa and Tansel 2005), the question emerges whether education has a different effect on female labor force participation in MENA than in other regions. Given the pronounced educational expansion without an increase in female labor force participation, it can be assumed that education has a lower impact on labor force participation in the MENA region than in other world regions (*hypothesis 5*).

A similar argument can be made about fertility. Despite a decrease fertility rates over the past few decades and in contrast to Western countries, marriage and childbirth are still universal in most countries of the MENA region (Rashad et al. 2005; Salem 2015). From a theoretical point of view this could result in a less strong relationship between family formation and female labor force participation in MENA countries (*hypothesis 6*).

## 8.2. Operationalization

To test the different explanatory factors for the low female labor force participation in MENA countries, a new variable is introduced into the analysis which indicates whether a country is part of the MENA region or not.<sup>30</sup> In the sample used in the analysis, 12 countries of the MENA region are available. Social norms on country level and individual preferences are measured the same way as in the chapter before. To test whether Islam explains low female labor force participation in the MENA region, new variables indicating whether a country is predominantly Muslim and, on individual level, whether a woman is Muslim are used. Those variables build on the variables measuring religious denomination in the previous chapter. For the measurement of *legal discrimination*, previously used variables are utilized as well. Gender differences in terms of the right to divorce as well as restrictions in women's mobility are two important institutions that influence female labor force participation as explained in chapter 4 and are widespread in the classic patriarchy. Finally, additionally to rents stemming from natural resources, which have been used in chapter 6, the share of GDP stemming from oil rents is used to make the analyses more comparable to those of Ross (2008). All other variables used in the analyses have already been described in chapter 4 and are summarized in the appendix (table A.2).

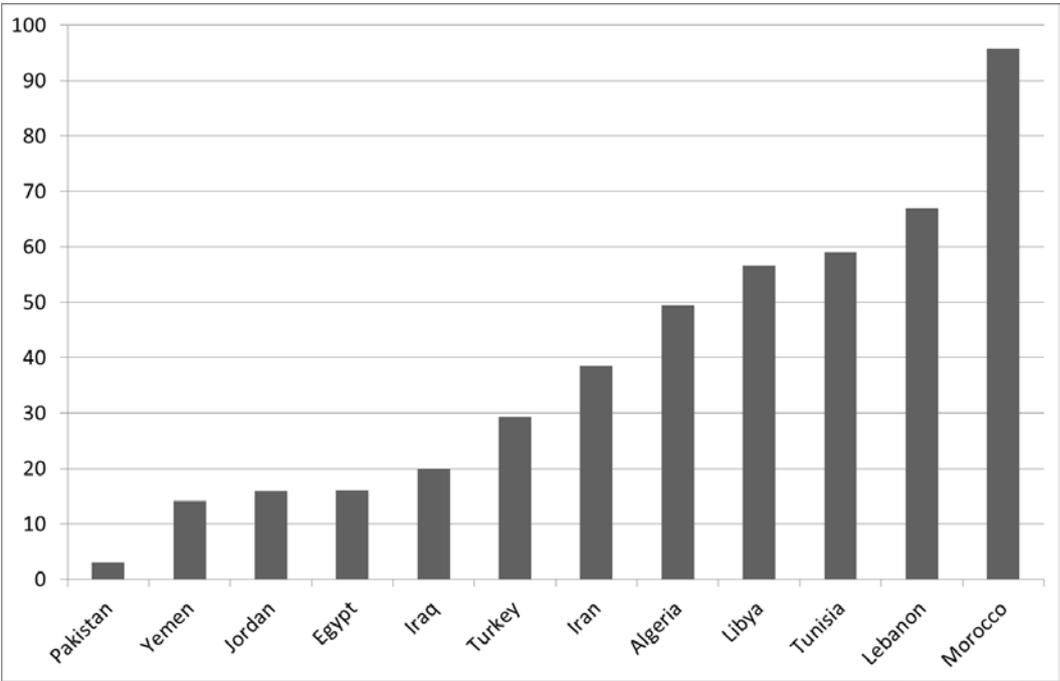
---

<sup>30</sup> The classification of the MENA region varies slightly between scholars and international organizations with respect to some countries. Cyprus and the Caucasus countries such as Azerbaijan are not classified as MENA countries in this thesis, while Turkey is classified as a MENA country. This approach was chosen because the aim was to group those countries into the MENA region which show a similar and comparable situation in terms of women. The social norms and legal situation of women and the institutions in the countries of the Caucasus region are strongly influenced by the strong historical bounds to the Russian Empire and their time as part of the Soviet Union, which makes them quite different from the classic MENA countries (Haghighat-Sordellini 2010).

**8.3. Results**

Figure 8.4 shows the average female labor force participation in the MENA countries estimated by the data of the WVS/EVS. At 34 percent, female labor force participation in the MENA countries is on average much lower than in the other countries in the sample where on average 78 percent of women are active in the labor market. The figure displays that there is a strong variation in female labor force participation in the MENA countries with countries such as Pakistan, Yemen, Jordan, Egypt, Iraq, and Turkey with very low female labor force participation rates below 30 percent and countries such as Libya, Tunisia, and Lebanon with more than 50 percent of women active in the labor market. An extreme case is Morocco where 96 percent of the women in the sample state that they are active in the labor market. This number is quite unrealistic. The ILO provides a female labor force participation rate of 27 percentage in 2011 for Morocco, and the figure provided by the Moroccan statistical institute is quite similar at 26 percent. Nevertheless, in the following analysis Morocco is part of the analyses; the sensitivity analyses performed in the next chapter will show whether this deviation influences the results.

**Figure 8.4 Percentage of women active in the labor market in MENA countries**



Source: EVS/WVS data; own calculations.

### 8.3.1. Cultural explanations

In the following, the different explanations for the low female labor force participation in the MENA region are tested. To begin with the different cultural explanations are tested separately (see Table 8.1). The first model estimates the difference between the probability of being active in the labor market for women living in a MENA country compared to women living in other countries in the sample. This model confirms the bivariate finding that female labor force participation is much lower in countries of the MENA region than in other countries. The probability of being active in the labor market for women living in MENA countries is 40 percentage points lower than for women living in other countries. In the second model, the explanation of the general theoretical model developed in chapter 4 is tested according to which low female labor force participation in the MENA region is explained by the predominance of traditional gender role attitudes. Models 2 to 4 test this assumption. After controlling for traditional gender roles on country and individual level the MENA effect is reduced to 0.2, implying that around half of the MENA effect is explained by the predominance of more traditional attitudes in those countries (model 4). Interestingly, this seems to be particularly a result of the prevalence of traditional social norms on country level and not of a stronger approval of traditional gender roles by the women on individual level. Models 2 and 3, in which traditional gender role attitudes are tested separately on country and individual level, show that women living in the MENA region have a 37 percentage point lower female labor force participation than women living outside the MENA region when controlling for individual gender roles (model 3). The reduction of the MENA effect in this model is quite small. Contrary to that, controlling for gender roles on country level without controlling for individual gender-role beliefs already reduces the MENA to 0.2 (model 2). Overall, hypothesis 1 can be only partially confirmed. Low female labor force participation in MENA can be partially explained by the predominance of traditional gender roles. Nevertheless, when controlling for gender role attitudes, women in MENA countries have a 20 percentage point lower female labor force participation than women living in other countries, implying that traditional gender roles cannot fully explain the low female labor force participation in the region.

**Table 8.1: Cultural explanations for low female labor force participation in MENA**

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>	<b>Model 5</b>	<b>Model 6</b>	<b>Model 7</b>	<b>Model 8</b>	<b>Model 9</b>
<b>MENA</b>	-0.40*** (-7.68)	-0.20*** (-3.26)	-0.37*** (-7.37)	-0.20*** (-3.27)	-0.25*** (-3.57)	-0.31*** (-6.05)	-0.23*** (-3.32)	-0.24*** (-3.10)	-0.03 (-0.39)
<b>Attitudes</b>									
Social norm country		-0.50*** (-5.13)		-0.43*** (-4.40)					-0.31*** (-2.73)
Gender role belief individual			-0.08*** (-15.72)	-0.08*** (-15.54)					-0.08*** (-15.04)
<b>Religion</b>									
Muslim country					-0.17*** (-3.06)		-0.09 (-1.54)		0.02 (0.34)
Muslim individual						-0.12*** (-12.66)	-0.12*** (-12.38)		-0.11*** (-11.66)
<b>Legal discrimination</b>									
Divorce restrictions								-0.12 (-1.48)	-0.12 (-1.63)
Movement restrictions								-0.23** (-2.36)	-0.19** (-2.20)
Constant	0.79*** (39.56)	0.74*** (37.80)	0.81*** (41.89)	0.77*** (39.07)	0.81*** (40.08)	0.81*** (42.27)	0.82*** (40.66)	0.79*** (41.57)	0.79*** (33.83)
Variance (Const)	0.03	0.02	0.03	0.02	0.02	0.03	0.02	0.03	0.02
Variance (Residual)	0.16	0.16	0.15	0.15	0.16	0.15	0.15	0.16	0.15
ICC	0.16	0.11	0.17	0.12	0.11	0.17	0.12	0.16	0.12
LL	-17866.1	-17854.68	-17743.05	-17734.32	-17861.66	-17786.31	-17785.15	-17862.02	-17662.5

Note: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01; z-statistics in parentheses.

Source: EVS/WVS data; own calculations.

In a next step the explanatory power of Islam is tested. Although the MENA region is often perceived as the central point of the Muslim world, the majority of the worldwide Muslim population lives in countries outside the MENA region. Several countries with a significant share of the Muslim population outside the MENA region are included in the sample. Overall, there are 21 countries with a Muslim majority, among them all 12 MENA countries, four Caucasus countries and Albania, two Asian countries (Indonesia, Malaysia) and two African countries (Mali, Burkina Faso). With the exception of the Lebanon, where the share of Muslims is only 55 percent, all other MENA countries in the sample have a Muslim population of more than 90 percent.<sup>31</sup>

Models 5 to 7 test hypothesis 2 according to which low female labor force participation in MENA countries is explained by the predominance of Islam. Controlling for living in a predominantly Muslim country and being Muslim, the MENA effect is reduced to 23 percentage points (model 7). Again, the reduction of the MENA effect emerges mainly from the predominance of Islam on country level and not by the higher share of Muslim women in those countries, as can be seen by comparing the MENA effect of models 5 and 6. Living in a Muslim country reduces the probability of being active in the labor market by 17 percentage points irrespective of a woman's own denomination compared to women living in non-Muslim countries controlling for living in the MENA region. The MENA effect in this model is reduced to 25 percent. If individual religious denomination is controlled for, the MENA effect is only reduced to 31 percent (model 6). Being Muslim reduces the probability of being active in the labor market by 12 percentage points controlling for living in the MENA region. If religion is controlled for on both levels simultaneously, the Muslim-country effect decreases to 9 percentage points and becomes insignificant, which indicates that living in a predominantly Muslim country after controlling for the MENA region and individual denomination has only a small (and insignificant) impact on the decision to participate in the labor market. Overall, it can be concluded that the low female labor force participation in the MENA region is partly explained by the dominance of Islam on the country level which is in line with hypothesis 2. Nevertheless, a significant and strong MENA effect remains which hints to the fact, that Islam is not the whole story. Furthermore, the analyses reveal that the strong negative effect of living in a predominantly Muslim country reported in the previous chapter can be attributed to the MENA region.

---

<sup>31</sup> These estimations of the share of Muslims within the MENA countries based on the WVS/EVS data corresponds quite well with other sources of religious denomination of the region, e.g. the numbers given by the CIA World Factbook (see <https://www.cia.gov/library/publications/the-world-factbook/>).

In model 8 hypothesis 3 is tested, according to which low female labor force participation in MENA countries is explained by the prevalence of the patriarchy, which is visible in the legal discrimination of women. The relevance of legal discrimination in the MENA region can also be seen in the distribution of the variables in the sample. All countries which are classified as restricting the movement of women are part of the MENA region, although not all countries of the MENA region in the sample restrict the mobility of women. Similarly, outside the MENA region only one country, i.e. Thailand, is classified as granting women a different right to divorce whereas this is the case in 8 out of the 12 MENA countries. In the multilevel analyses, the effects of both indicators of legal discrimination are negative, although the effect of divorce restrictions is not significant. Controlling for the existence of those institutions reduces the MENA effect to a 24 percentage point lower probability of being active in the labor market. Again, we can conclude that legal discrimination significantly reduces the MENA effect, which is in line with hypothesis 3 but cannot fully explain the low female labor force participation in MENA countries.

As discussed above, the different explanations are not necessarily exclusive but more likely to act together. Hence, in model 9 all cultural explanatory variables are tested simultaneously. Controlling for gender role attitudes, religion, and legal discrimination, the negative effect for living in a MENA country becomes very small and insignificant. The effect of average gender role attitudes in the country becomes smaller in this model, which points to the relationship between social norms and institutions already found in chapter 6. Similarly, the effect of living in a predominantly Muslim country is further reduced. Overall, it can be concluded that all cultural hypotheses can partly be confirmed. All three factors explain the MENA effect to a significant and quite similar amount, but only all three factors together explain the MENA effect completely.

### 8.3.2. Structural explanations

In a next step, the alternative explanation of oil revenues is tested. The central question is whether oil rents are able to explain the MENA effect as has been proposed by several authors (*hypothesis 4*). Furthermore, despite the good explanatory power of the cultural factors, oil rents are important to include in the model from a causal perspective. According to modernization theory, oil rents are an important factor that should be controlled for because it is assumed to influence both female labor force participation and gender role attitudes. Table 8.2 shows the results. Model 2 estimates the effect for living in a MENA country and the extent of natural resources. Controlling for natural rents, the probability of being active in the labor market for women living in a MENA country is slightly reduced to 37 percentage points compared to women living in other countries. The effect of natural resources is negative, as expected; i.e. the higher the share of GDP stemming from natural rents, the less likely women are to be active in the labor market. Nevertheless, the availability of natural resources explains only a small share of the low female labor force participation. To make sure that these results, which differ from the results of Ross (2008), do not emerge due to the different measurement of resources, a measurement which only accounts for the share of GDP from oil rents instead of all natural rents is estimated. This alternative measurement produces the same results, which is not surprising since both indicators are strongly correlated. Accordingly, hypothesis 4, according to which low female labor force participation in the MENA region can be explained by oil revenues can clearly be rejected.

In a next step, the general explanatory factors proposed by the modernization theory are tested. Model 3 shows that when controlling for GDP, the effect of natural resources loses its significance and the MENA effect is slightly reduced. In models 4 and 5 education and family formation is controlled for in order to test the assumption of classic modernization theory according to which development and related changes in education and fertility should explain differences in female labor force participation (see for this argument for the MENA region e.g. Tansel (2002)). When controlling for GDP, natural rents, as well as education the MENA effect is reduced to 0.28, meaning that lower labor force participation can indeed be partially explained by structural differences between the MENA region and other countries. Additional control for family formation indicators has no additional effect for the explanation of the MENA effect.

**Table 8.2 Structural explanations for low female labor force participation**

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>	<b>Model 5</b>	<b>Model 6</b>
<b>MENA</b>	-0.40*** (-7.68)	-0.37*** (-6.88)	-0.34*** (-6.60)	-0.28*** (-5.46)	-0.29*** (-6.13)	-0.04 (-0.55)
<b>Natural rents</b>		-0.00** (-2.04)	0.00 (-1.42)	-0.00* (-1.71)	-0.00* (-1.75)	0.00 (0.18)
<b>GDP</b>			0.00*** (2.71)	0.00* (1.70)	0.00 (1.39)	0.00 (-0.16)
<b>Education (Ref. Secondary)</b>						
Less than primary				-0.23*** (-28.84)	-0.19*** (-24.03)	-0.19*** (-23.18)
Primary				-0.16*** (-20.31)	-0.12*** (-15.96)	-0.12*** (-15.44)
Incomplete secondary				-0.08*** (-13.27)	-0.07*** (-11.43)	-0.06*** (-11.05)
University				0.14*** (23.21)	0.13*** (21.98)	0.13*** (21.41)
<b>Family status (Ref. Single)</b>						
Married					-0.15*** (-23.29)	-0.15*** (-23.04)
Divorced/seperated					0.02** (2.05)	0.02* (1.93)
Widowed					-0.03** (-2.16)	-0.03** (-2.16)
<b>Number of children (Ref. No children)</b>						
One child					-0.07*** (-10.17)	-0.07*** (-10.17)
Two children					-0.08*** (-11.28)	-0.08*** (-11.16)

More than two children					-0.10*** (-14.15)	-0.10*** (-13.65)
<b>Attitudes</b>						
Social norm country						-0.25** (-1.98)
Gender role belief individual						-0.04*** (-8.12)
<b>Religion</b>						
Muslim country						0.00 (-0.01)
Muslim individual						-0.07*** (-8.20)
<b>Legal discrimination</b>						
Divorce restrictions						-0.10 (-1.50)
Movement restrictions						-0.16* (-1.86)
Constant	0.79*** (39.56)	0.81*** (35.66)	0.79*** (34.29)	0.82*** (35.57)	0.97*** (45.02)	0.95*** (38.37)
Variance (Const)	0.03	0.03	0.02	0.02	0.02	0.02
Variance (Residual)	0.16	0.16	0.16	0.15	0.14	0.14
ICC	0.16	0.16	0.11	0.12	0.13	0.13
LL	-17866.1	-17864.07	-17860.55	-16852.55	-15714.12	-15637.86

Note: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01; z-statistics in parentheses.  
Source: EVS/WVS data; own calculations.

In the last model the cultural factors are additionally introduced into the model, i.e. structural and cultural explanations are estimated simultaneously. In this model the MENA effect is again very small and insignificant, but to control both for structural as well as cultural factors does not reduce the MENA effect more strongly compared to the model with cultural factors only. The strength of the coefficients of the cultural factors are slightly reduced in this model compared to the cultural model without structural factors, which points to a relationship between cultural and structural factors like the relationship between preferences and education already found in chapter 6.

Overall, it can be concluded that culture is an important aspect of the explanation of low female labor force participation in the MENA region. Structural factors and especially natural/oil rents explain the gap between MENA and other regions only to a small extent, whereas the combination of different cultural factors can fully explain differences in female labor force participation between MENA countries and other countries.

### **8.3.3. Effect heterogeneity**

In a last step, hypotheses 5 and 6 are tested, according to which the effects of education and family formation differ between the MENA region and other regions. It was argued that it can be assumed that the effect of education is smaller in MENA countries because education is an important resource for the marriage market and not for the labor market. Similarly, it was argued that family formation should matter less in MENA countries for labor market participation, since family formation in these countries is still universal. These findings would also explain why female labor force participation has not risen in the MENA countries despite educational expansion and a decline in fertility. In model 1 of table 8.3 the effect of education and the interaction between education and MENA is estimated. GDP and natural resources are controlled for since, according to modernization theory, they can be assumed to influence both educational participation and female labor force participation. The results of model 1 show that, contrary to the expectation formulated in hypothesis 5, education does not have a smaller effect but instead a stronger effect in MENA countries compared to other countries. With the exception of women with low levels of education, for whom no significant interaction effect can be found, all interaction effects show that education has a stronger impact in MENA than in other countries.

**Table 8.3 Impact of education and family formation in MENA countries**

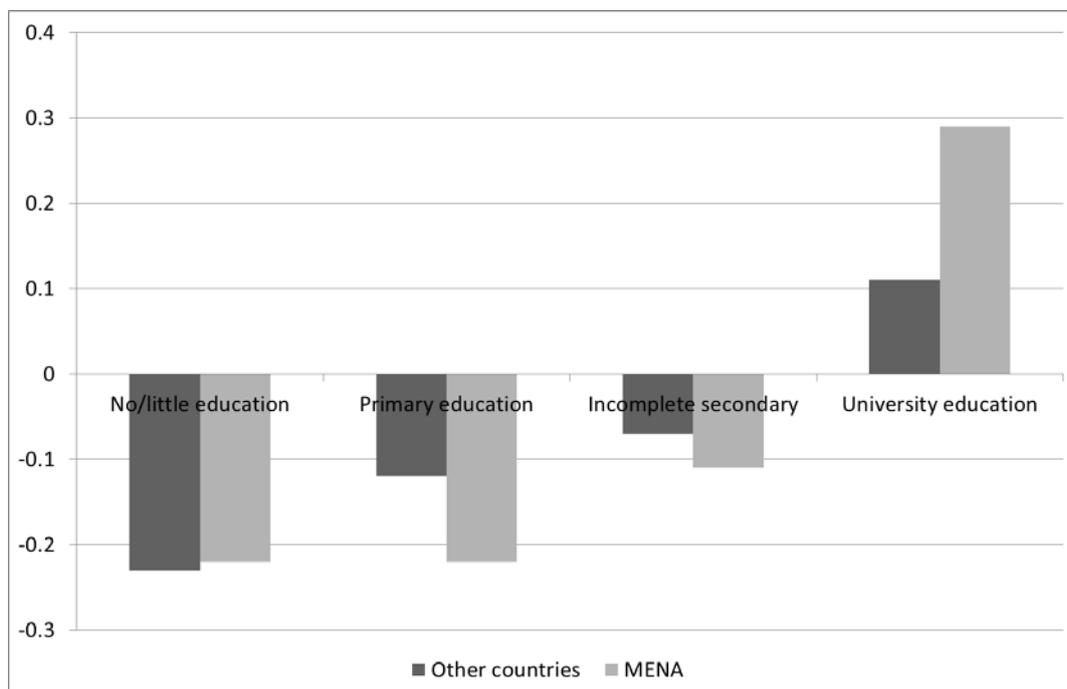
	<b>Model 1</b>		<b>Model 2</b>	
<b>MENA</b>	-0.29***	(-5.62)	-0.26***	(-5.24)
<b>Natural rents</b>	-0.00*	(-1.73)	-0.00*	(-1.78)
<b>GDP</b>	0.00*	(1.79)	0.00	(1.44)
<b>Education (Ref. Secondary)</b>				
Less than primary	-0.23***	(-21.01)	-0.20***	(-25.03)
Primary	-0.12***	(-13.05)	-0.13***	(-16.49)
Incomplete Secondary	-0.07***	(-11.19)	-0.07***	(-11.60)
University	0.11***	(16.85)	0.13***	(22.19)
<b>MENA*Education (Ref. Secondary)</b>				
Less than primary	0.01	(0.62)		
Primary	-0.10***	(-5.83)		
Incomplete secondary	-0.04**	(-2.40)		
University	0.18***	(10.86)		
<b>Family status (Ref. Single w/o children)</b>				
Married w/o child			-0.13***	(-13.60)
Other w/o child			-0.01	(-0.57)
Single with child			-0.08***	(-7.18)
Married with child			-0.23***	(-37.91)
Other with child			-0.07***	(-7.43)
<b>MENA*Family status (Ref. Single w/o children)</b>				
Married w/o child			-0.10***	(-4.49)
Other w/o child			-0.08	(-1.48)
Single with child			-0.01	(-0.07)
Married with child			-0.05***	(-3.86)
Other with child			-0.01	(-0.55)
Constant	0.82***	(36.01)	0.97***	(44.32)
Variance (Const)	0.02		0.02	
Variance (Residual)	0.15		0.14	
ICC	0.12		0.13	
LL	-16746.5		-15721.1	

Note: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01; z-statistics in parentheses.

Source: EVS/WVS data; own calculations.

Figure 8.5 displays the impact of education on labor force participation in MENA and other countries. The figure shows the probability of women being active in the labor market depending on different educational degrees in MENA countries and other countries compared to women with secondary education. The stronger education effect in MENA is especially pronounced for women with a university education. While women who received tertiary education outside the MENA region have an 11 percentage point higher probability of being active in the labor market than women with secondary education, for women living in MENA countries this effect is 29 percentage points. This finding clearly contradicts hypothesis 5.

**Figure 8.5 Impact of education on female labor force participation in MENA**

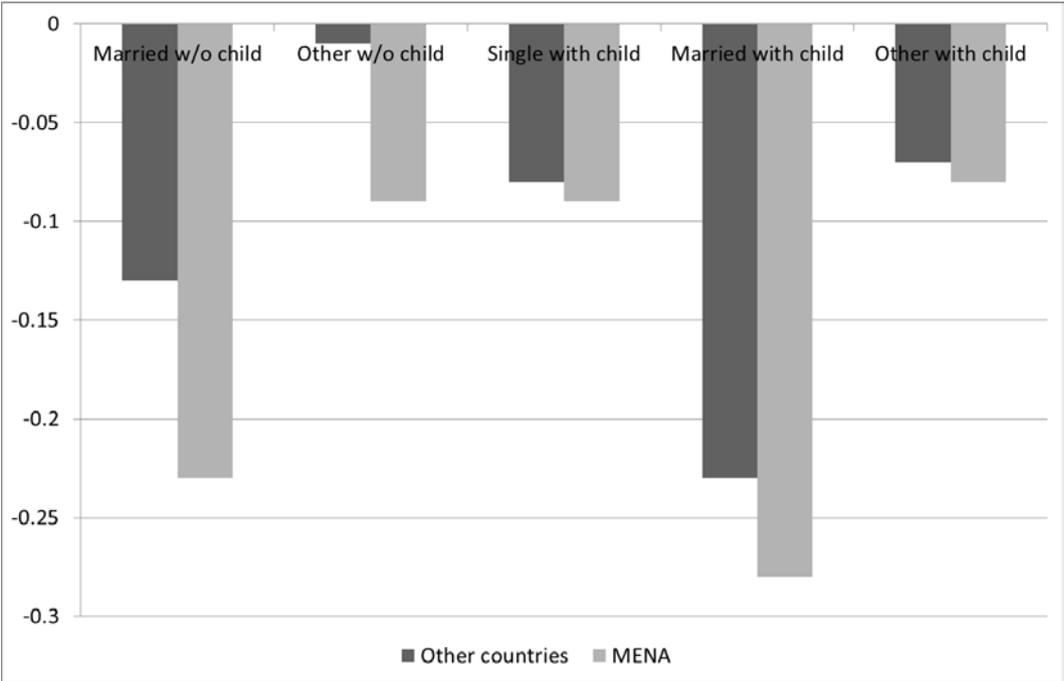


*Note:* Reference group: women with secondary education.

*Source:* EVS/WVS data; own calculations.

Model 2 in table 8.3 tests whether family formation has a different effect in MENA countries than in other countries. Similarly to the results found for education, the interaction terms show that family formation matters not less but more in MENA countries; significant interaction terms can be found for married women with and without children. Figure 8.6 illustrates this finding. The interaction effect is especially strong for married women without children. While married women without children outside the MENA region show a 13 percentage point lower labor force participation than single women, married women without children in the MENA region have a 23 percentage point lower probability of labor force participation than single women in MENA. This finding contradicts hypothesis 6, according to which the effects of family formation should be lower in MENA than in other countries. Possible explanations for those contradictory findings are discussed in the conclusion of this chapter.

**Figure 8.6: Impact of family formation on female labor force participation in MENA**



*Note:* Reference group: single women without children.  
*Source:* EVS/WVS data; own calculations.

#### **8.4. Conclusion**

International comparison reveals that female labor force participation in countries of the Middle East and North Africa is the lowest in a worldwide comparison. Despite increasing educational participation and decreasing fertility rates, female labor force participation has not increased as has been observed in other world regions with a similar level of development. In this chapter it was tested whether culture offers an alternative explanation to modernization for this pattern. Previous arguments made in the literature have been related to the general theoretical model developed in chapter 4. According to the model developed in this thesis, culture affects female labor force participation through two channels: social norms and preferences. For the explanation of low female labor force participation this would imply that social norms in MENA countries are very traditional and prevent women from participating in the labor market. One argument found in the literature is that these traditional social norms are related to the predominance of Islam in the region. Other authors argue that the reference to religion is not sufficient, but that other cultural traditions and especially the prevalence of the patriarchy are responsible for the persistence of gender inequality in the MENA region. An alternative view is offered by those authors who hold structural factors, especially the availability of oil rents, responsible for a different path of modernization.

The empirical test of those arguments reveals three important insights. First, structural factors offer only an insufficient explanation of the low female labor force participation in MENA countries in an international comparison. This holds especially true with regard to the explanatory power of oil rents, for which no evidence was found in the data. It is important to note that an ideal test of the hypothesis would require data which also included information of remittances made by migrant workers sent by non-oil producing neighboring countries. But given the other failed attempt to replicate the findings of Ross (2008) by Groh and Rothschild (2012), the explanatory power of oil can be assumed to be low. Instead, cultural factors explain a large share of the difference in female labor force participation between MENA and other world regions. All of the three cultural factors identified in the previous literature can explain a large share of the low female labor force participation in MENA, but no single factor seems to be solely responsible for the low female labor force participation. The overall MENA effect can only be explained when all cultural factors are controlled for simultaneously. This result suggests that the low female labor force participation in MENA countries is explained by a combination of the predominance of traditional gender roles, Islam, as well as existing legal restrictions to women's employment. Third, the multilevel

analyses showed that the social context is especially important. The analyses showed that individual preferences and religion provided less useful explanations than social norms and institutions on the societal level.

Finally, it was analyzed whether education and family formation as important determinants of female labor force participation play a different role within the MENA region. This question emerges because, despite educational expansion and a decrease in fertility rates, female labor force participation in the MENA region has remained at a consistently low level which contradicts the assumptions of classic modernization theory, according to which educational expansion and decreasing fertility rates are important drivers of the increasing female labor force participation. It has been argued that there are good reasons for the assumption that both factors matter less in the MENA region. Contrary to these arguments, the analyses clearly reveal that the opposite is true. Education and family formation have a stronger effect in MENA countries than in other countries. A possible reason for the strong effect of university education in the MENA countries is the very restricted labor market for women. Women in MENA countries are mainly employed either in agricultural jobs and as unpaid family helpers or in the very attractive public sector (e.g. Gebel and Heyne 2013). The shrinking of the public sector in the course of the liberalization of the market and structural adjustment programs following the oil crises has restricted labor-market opportunities for women in particular and should result in a strong selection of highly educated women into the labor market (Assaad and El Hamidi 2009). The strong influence of family formation, especially marriage, can be better related to cultural explanations. As shown in chapter 6, social norms and preferences are more important for the labor-market participation of married women and women with children than for single women. Given the predominance of very traditional gender-role attitudes in these countries (Inglehart and Norris 2003), married women face much stronger barriers on the labor market than single women in the MENA region.

It is important to note that these results are average findings for the 12 MENA countries in the sample of the WVS/EVS data. Previous research has emphasized that the MENA region is very diverse in terms of economic, structural, and cultural factors (e.g. Charrad 2001; Spierings 2015) and those variations are only partially reflected in the sample of the WVS data. For example, none of the oil-rich countries of the Arab Peninsula, which are well known for very low levels of gender equality, is included in the analyses. Furthermore, differences between groups of women could only partially be reconsidered and the analyses showed that female labor force participation in the MENA region differs strongly by education and family

status. Other important differences such as social background are likely to play a role as well (Moghadam 2003).

Overall, we can conclude that no single factor – such as the predominance of Islam – is responsible for the explanation of low female labor force participation in the MENA region, but rather that this is due to a combination of different cultural factors. As Haghghat-Sordellini (2010) have argued previously “a complex relationship of social customs, Sharia, civil law influenced by Western European legal precedents and the influence of the relatively recent influx of oil wealth determines women’s roles in the Arab societies, and that although Islam is a powerful cultural, religious, and political force it certainly is not the sole factor contributing to the subjugation of women’s rights in the MENA region” (p.20). This evaluation has been confirmed by my results.

## 9. Sensitivity analyses

In a next step the results of several sensitivity analyses are presented, which test whether the results depend on the specification of the models or the sample used. This is necessary on the one hand since the quality of the data has often been questioned. On the other hand, the additional analyses are meant to ensure that the results do not depend on the method used in the analyses. Three different kinds of sensitivity analysis are performed: an analysis of potential outliers, an analysis excluding countries with a strong deviance of female labor force participation rates from official data, and an alternative specification of the models using logistic multilevel regressions. For the latter two sensitivity analyses several analyses of this thesis are performed again with the alternative specification, and results can be found in the appendix. In this chapter, these results are not presented in detail, but only procedure and important differences in relation to the previous results are discussed.

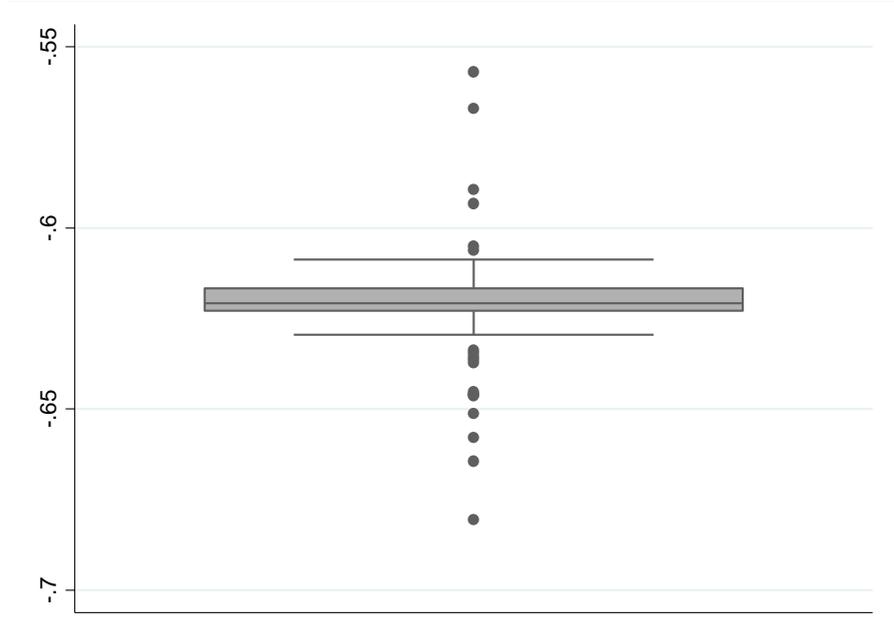
### 9.1. Are the results driven by outliers?

Previous research has emphasized that a quantitative analysis of cross-country data is quite sensitive to outliers, i.e. that effects of country characteristics are often driven by single countries (Van der Meer et al. 2010). To exclude this, an additional analysis of the central analyses is performed which aims to show how strong the coefficients vary if single countries are excluded from the analysis, a strategy also known from estimating  $\delta\beta$  to identify outliers in traditional regression analyses. These analyses are performed only for the models testing the central hypotheses, and the focus is on the effects of the variables that are of interests only.

In a first step it is shown how strong the effect of social norms and preferences measured by gender-role attitudes varies. For this purpose, model 3 shown in table 6.1 is estimated 83 times excluding each country once. This model estimates the effect of social norms and gender roles on the probability of being active in the labor market when controlling for natural rents, GDP, and living in Sub-Saharan Africa. In this model the difference between societies in which everyone agrees with the traditional gender role statement and societies in which no one agrees with the statement is 62 percentage points if all countries of the sample are included. The analyses for potential outliers reveal that the effect of social norms ranges between -0.68 and -0.56 depending on the countries included in the analyses. Figure 9.1

shows the distribution of the effect. It can be seen that the range of the great majority of effects is extremely small with only a few outliers within the above described range.

**Figure 9.1 Distribution of the social-norm effect**

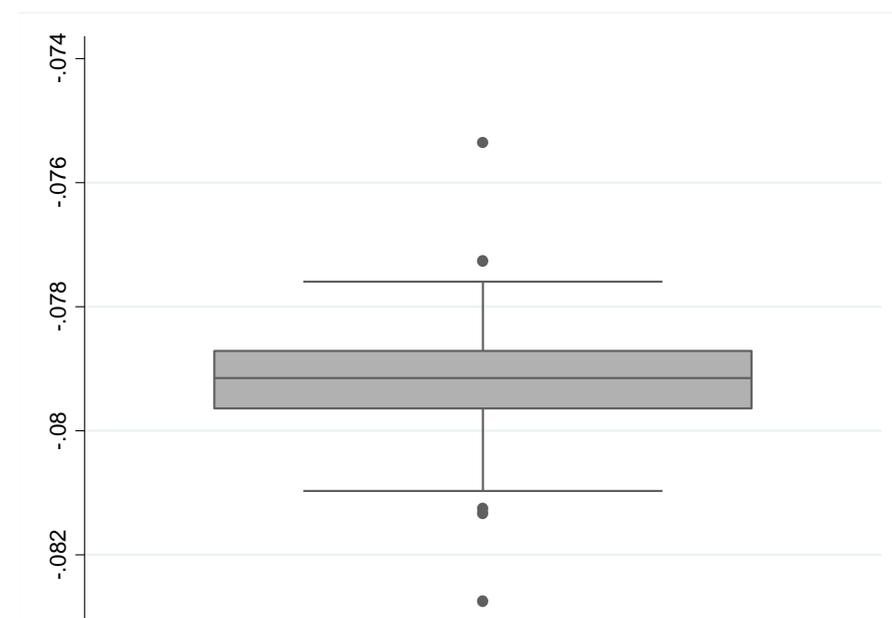


*Note:* Boxplot for the distribution of the social norm effect in 83 different samples.  
*Source:* EVS/WVS data; own calculations.

Nevertheless, the central conclusion does not depend on outliers. Even if we would rely on the lowest estimation of -0.56 we would conclude that the social norm of the society has a strong effect on the labor force participation of women.

For the effect of individual gender-role beliefs similar results can be found. In the model relying on the full sample, the effect of gender-role beliefs on individual level was estimated as an 8 percentage point lower probability of being active in the labor market for women with traditional gender-role beliefs compared to women with modern gender-role beliefs. The outlier analysis shows that this effect varies between a value of -0.075 and a value of -0.083 (see figure 9.2), a range which leaves no room for different interpretations depending on the sample.

**Figure 9.2 Distribution of the preference effect**



*Note:* Boxplot for the distribution of the preference effect in 83 different samples.  
*Source:* EVS/WVS data; own calculations.

For the results of chapter 7 – the influence of religion on female labor force participation – outlier analyses were performed as well. Again, the focus is on the central result, i.e. the effect of religion without controlling for potential mechanisms. The model tested is model 2 from table 7.2 in which religious denomination is estimated on country and individual level while controlling for the share of people without denomination. Table 9.1. shows the results. For each coefficient both the estimated value of the model of the full sample as well as the range of the coefficient is shown. It can be seen that, for most coefficients, the maximal deviance is 2 percentage points, and this would not result in a substantially different interpretation of the results.

**Table 9.1 Distribution of the effects of religion**

	Full sample	Min	Max
<b>Denomination country (Ref. Protestant)</b>			
Mixed	-0.13	-0.15	-0.11
Buddhist	-0.05	-0.18	0.08
Catholic	-0.14	-0.16	-0.12
Hindu	-0.38	-0.40	-0.36
Muslim	-0.31	-0.33	-0.29
Orthodox	-0.14	-0.16	-0.12
<b>Share of Atheists</b>	0.13	0.09	0.19
<b>Denomination individual (Ref. Protestant)</b>			
no rel	0.01	0.00	0.01
Buddhist	-0.03	-0.05	0.00
Catholic	0.00	-0.07	0.00
Hindu	-0.18	-0.20	-0.15
Jewish	0.07	0.05	0.10
Muslim	-0.12	-0.14	-0.10
Orthodox	0.01	0.00	0.02
Other	-0.01	-0.02	0.00

*Source:* EVS/WVS data; own calculations.

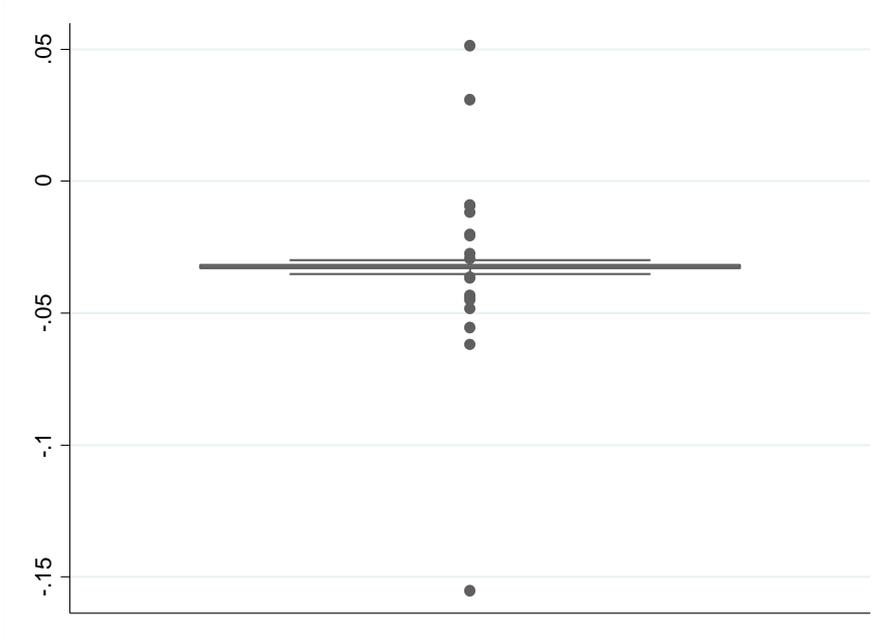
One exception is the effect of living in a Buddhist country for which two extreme values can be found. If Thailand is excluded from the sample the model shows an 18 percentage point lower probability of being active in the labor market for women living in predominantly Buddhist countries compared to women living in predominantly Protestant countries. If China is dropped from the sample, the probability for women living in Buddhist countries is 8 percentage points higher than for women living in Protestant countries, but it is important to note that both coefficients are not significant. If these two extreme values are ignored, the range of the coefficient lies between -0.07 and -0.04. The reason for these two extreme values is that China and Thailand are the only two available predominantly Buddhist countries in the sample. Furthermore, China has an extremely high number of respondents without a religious belonging. The estimated Buddhist effect is hence an average effect for China and Thailand, and dropping one of the countries from the sample leaves a country-fixed effect. Accordingly, the effect of living in a Buddhist country is hardly transferable to other Buddhist countries. For the Hindu effect only 82 different estimates are available since excluding the only Hindu country in the sample (India) makes the effect inestimable. The effect of the share of people without denomination varies between 9 percentage points and 19 percentage points. Given the

scale of this variable and the variation in the data (range from 0-0.85; sd=0.19), this range is not as large as it first seems.

The deviations of the individual-level effects are small as well. This is also true for the two relevant effects, the probability of being active in the labor market for Hindu and Muslim women, for which the estimated coefficient under exclusion of specific countries varies only slightly. Again we would not come to a substantially different conclusion with a different sample.

Finally, the results of the last empirical chapter about the low female labor force participation in the MENA region are investigated with respect to outliers. For this purpose the cultural model, which fully explains the MENA effect in the full sample, i.e. while controlling for religion, attitudes, and institutions, is estimated 83 times excluding each country once. As can be seen in figure 9.3 the majority of the results lie within a very small range of values, the 10<sup>th</sup> percentile is -0.037, the 90<sup>th</sup> percentile 0.029, but the exclusion of a few countries produces some more deviating results.

**Figure 9.3 Distribution of the MENA effect**



*Note:* Boxplot for the distribution of the MENA effect in 83 different samples.  
*Source:* EVS/WVS data; own calculations.

After excluding Morocco from the sample, the MENA effect in this model is significant on a 10 percent level and shows a 16 percentage point lower probability of women living in the MENA region of being active in the labor market than women living outside the MENA region. This is related to the fact that female labor force participation in Morocco as estimated by the WVS data is very high and, accordingly, the gap in labor force participation between MENA and other regions is higher when Morocco is excluded. Since the female labor force participation in Morocco estimated by the WVS data strongly deviates from the official numbers, the impact of excluding Morocco from the sample is discussed in more detail in part 2 of this chapter. All other estimations of the MENA effect are not significant and hence would result in the same conclusions as those made in chapter 8.

## **9.2. Do the effects depend on the sample used?**

In a second step it is tested whether the results change if the sampling of countries is restricted to those countries with highly plausible values on the dependent variable. As discussed in chapter 5, for a few countries the female labor force participation rate estimated from the WVS/EVS data differs strongly from the female labor force participation rates provided by the ILO. While it is not clear which estimation is more realistic, in the following it is analyzed whether the central results of this thesis depend on those countries. For this purpose, all countries for which the estimated female labor force participation from the data of the WVS/EVS deviates by more than 20 percentage points from the numbers provided by the ILO are excluded from the analysis. The analyses are replicated with this smaller sample: 9 countries have been excluded from the analyses, which leave 31,684 observations in 74 countries. The detailed results can be found in the appendix (table A.3 – A.11); in the following only those results that differ from the results presented are described.

The impact of culture on female labor force participation measured as gender-role attitude is found to be a little bit stronger if those countries are excluded. This is especially the case for the social-norm effect after controlling for all possible mechanisms. While controlling for education, family status, and institutions, the effect of social norms is reduced to -0.36 in the full sample, in the smaller sample this effect is only reduced to -0.47 (controlling for natural rents, GDP, and living in Sub-Saharan Africa). This seems to be related to the effect of institutions in the smaller sample. Contrary to the full sample, the effect of divorce legislation is very weak and insignificant. Furthermore, the effect of the control variable of living in Sub-Saharan Africa increases strongly. Controlling for gender roles on an individual and a country

level as well as for natural rents and GDP, women living in Sub-Saharan countries are found to be 22 percentage points more likely to be active in the labor market than other women. No significant effect has been found in this model using the whole sample. This strong deviation emerges because, in the reduced sample, three Sub-Saharan African countries are excluded (Burkina Faso, Ethiopia, and South Africa) and only four Sub-Saharan countries remain (Ghana, Mali, Nigeria, Rwanda) in the data.

The interaction analyses for differences in the effects of social norms and gender roles depending on level of economic development show no substantially different results for the reduced sample. The effects for both the main effect of social norms and individual preferences, respectively, and for the interaction terms are stronger and in line with the hypotheses in the case of the reduced sample. The same is true for the interaction between family status and social norms/gender roles, respectively.

For the analyses of the relevance of religion, only small deviations are found. The strongest deviations are found for model estimating the effect of religion on country level without controlling for individual denomination, in which a few effects are stronger in the reduced sample. Without control variables women living in Muslim countries have a 43 percentage point lower probability of being active in the labor market compared to women living in predominantly Protestant countries (compared to 41 percentage points in the full sample). Similarly to the group of Sub-Saharan African countries the group of Muslim countries differs between the full and the reduced sample. Nevertheless, the effects of the mechanisms show a similar reduction of the effect so that the substantial conclusions drawn from these analyses still stand. The analyses of the effect of religion on gender-role attitudes as well as the test whether attitudes are the central mechanism behind the relationship of religion and labor force participation show very similar results in the reduced sample.

As has already been described above, one MENA country in the sample, namely Morocco, has a very high and quite unrealistic female labor force participation rate according to the WVS data. Furthermore, Lebanon and Pakistan are excluded in the reduced sample. This raises the question how robust the results for the MENA analyses excluding those countries are. The analyses of the reduced sample reveal that the MENA effect is stronger in all models. The pure MENA effect without control variables in the reduced sample shows a 46 percentage points lower probability of being active in the labor market for women living in MENA countries compared to women living in other countries compared to 40 percentage points in the full sample. Controlling for the possible explanatory factors reduces the MENA

effect in a similar way as in the full sample; however, again the effect of the institutions does not explain as much of the effect in the reduced sample as it does in the full sample. After controlling for restrictions in the right to divorce and movement, women in MENA countries have a 36 percentage point lower probability of being active in the labor market compared to a 24 percentage point lower probability in the full sample. Controlling for all cultural factors (i.e. attitudes, Islam, institutions) leaves a MENA effect of -15 percentage points, which is significant on a 10 percent level. A similar picture emerges for the explanatory power of the structural factors. The higher MENA effect is reduced by controlling for natural resources, GDP, and education in a similar amount as in the full sample. Moreover, the interaction analysis reveals the same conclusion: education and family formation has a stronger effect on female labor force participation in the MENA region than in other regions. The interaction terms show even higher values in the reduced sample. For example, the likelihood for married women without children to participate in the labor market is 30 percentage points lower for women in the MENA region than for single women in the reduced sample, whereas in the full sample this value is 23 percentage points (compared to 13 percentage points for women outside the MENA region in both samples).

Overall, three conclusions can be derived from the analyses of the reduced sample. First, the general results of the effect of culture are very robust and even stronger if cases with implausible values on the dependent variable are excluded. Second, the effect of the institutions become weaker and cannot explain as much of the cultural effect in the reduced sample as in the full sample. This points to the fact that institutions play a different role in different countries and are more important in those countries which are excluded in the reduced sample. Third, excluding Morocco from the analyses with an extreme implausible value on the dependent variable leaves an MENA effect of a 15 percentage point lower probability of being active in the labor market for women living in MENA countries than for women living in other countries, also after controlling cultural and structural factors. Nevertheless, the central conclusion that culture plays an important role in the explanation of low female labor force participation hold true since the analyses show that the cultural factors explain a large share of the MENA effect and much more than the structural factors.

### **9.3. Are the effects stable using logistic regression?**

Finally, to test whether the results depend on the chosen method of linear probability models, all central models are estimated, in addition, as logistic multilevel models. Detailed results of these analyses can be found in the appendix (table A.12-A.14). Overall, only very small deviations in the analyses can be found if logistic regression and average marginal effects are used instead of linear probability models. The only important difference can be found for the variance distribution of the models. In the empty model of the female labor force participation, the ICC in the logistic specification is 0.36 compared to 0.24 in the linear specification. This would mean that, according to the logistic specification, even 36 percentage points of the variance in labor force participation depends on differences between countries. Controlling for gender-role attitudes on both levels the variance on the country level is almost halved in the linear specification, but since the variance on the individual level is fixed in the multilevel logistic estimation this is reflected by a smaller relative change of the ICC to 0.23. Furthermore, the MENA effect is stronger. Using the logistic specification, women living in MENA countries have a 47 percentage point lower probability of being active in the labor market compared to women living in other countries. The social-norm effect is slightly stronger in the logistic specification and explains a higher share of the lower labor force participation in MENA. Controlling for social norms, women in MENA countries have a 16 percentage point lower probability of being active in the labor market compared to a reduction from 40 to 20 percentage points in the linear specification.

Overall, it can be concluded that the sensitivity analyses show no substantially different results. Accordingly, the central conclusions of the analyses of the impact of culture on female labor force participation hold true. In the next chapter, these are also discussed in light of some limitations of the study that could not have been solved with the help of the sensitivity analyses.

## 10. Conclusion

The central aim of this thesis was to examine whether cultural factors contribute to the explanation of differences in female labor force participation in international comparison. Although female labor force participation increased in most countries over the past few decades, a large variation in the rates of female labor force participation between countries can be observed. Furthermore, one world region – namely the countries of the Middle East and North Africa – show no increase in female labor force participation at all. Previous research explaining these differences usually relies on modernization theory and explains differences in female labor force participation with different levels of modernization and related social changes like educational expansion. However, this approach has failed to explain the strong differences in female labor force participation between countries in general and between countries with similar levels of development in particular. Institutionalist approaches have tried to solve the paradox of differences in female labor force participation among highly developed countries but cannot explain the strong variation of female labor force participation among developing countries where only rudimentary welfare systems exist. This has raised the question whether the cultural approach is more suited to explain female labor force participation in an international comparison. Although many previous studies refer to this approach, there is no general theory which is used to explain the impact of culture on female labor force participation. For this purpose a theoretical model was developed in this thesis. Relying on the neoclassical model of labor supply and extending this model with insights from identity economics, preference theory, bargaining approaches, as well as economic models of labor market discrimination it has been argued that culture can influence female labor force participation via social norms and preferences. Several hypotheses about this relationship were derived and empirically tested. Using the World Value Survey data complemented by the European Value Study for 83 countries this thesis analyzed the impact of social norms and preferences using two different measurements of preferences and social norms, namely gender-role attitudes and religious denominations. The sample included both developed as well as developing countries which allowed for a truly international comparison which has rarely been achieved in previous research. Furthermore, it was analyzed whether cultural factors can explain the low female labor force participation in the MENA region compared to other countries.

Overall, it can be concluded that culture is relevant for explaining differences in female labor force participation in an international comparison. First, I found individual preferences to

influence women's labor force participation decision. Women with more traditional gender-role beliefs are less likely to participate in the labor market. Similarly, Muslim and Hindu women – the denominations with the strongest agreement with traditional gender-role statements – are less likely to participate in the labor market than women of other denominations. A part of the relationship between individual preferences measured by attitudes and female labor force participation could be explained by differences in education and family formation. Those results can be either interpreted as mechanisms, i.e. women with preferences for a traditional division of labor invest less in education and are more likely to be married and have children or as control variables, i.e. education and family formation influence both preferences and the labor force participation decision. In this case the true causal effect of preferences is smaller but still existent and significant. An even stronger argument for a causal impact of preferences on women's labor force participation is the result of the analyses of the impact of preferences as measured by religious denominations. Contrary to gender-role attitudes, individual denominations are less likely to be influenced by individuals' labor market experience as well as possible confounding variables and accordingly more likely to be exogenous to the labor force participation decision.

Second besides this direct impact of individual preferences on female labor force participation, culture as social context seems to be even more important. It has been argued that culture can influence the decision to participate in the labor market via social norms independent from women's own preferences. The use of multilevel models and information on the country and individual level allowed disentangling the context effect of social norms from an effect emerging from a different composition of women with preferences for a traditional division of labor. The analysis revealed that there exist strong effects of social norms on women's labor force participation decision that are independent from individual preferences. Women living in countries with a stronger average agreement with traditional gender roles are less likely to be active in the labor market than women living in countries with a lower agreement independent from their own gender-role belief. Similarly, the predominant religious denomination of the country has a strong impact. Women living in Hindu and Muslim societies show a much lower probability to participate in the labor market than women living in other countries independent of their individual denomination. Similarly, differences between women living in predominant Orthodox or Catholic countries and women living in predominant Protestant countries were revealed with women living in Protestant countries having the highest probability of being active in the labor market. Theoretically it has been argued that institutions are a potential mechanism behind this relationship on the

macro level. The analyses show that a large share of the social norm effect disappears after controlling for institutions which are assumed to influence female labor force participation such as the provision of public childcare, restrictions on women's right to divorce and limitations on women's mobility. The explanatory power of institutions can be found for both measurements of social norms – aggregated attitudes as well as the religious heritage of a country.

The detailed analysis of possible explanations for the low female labor force participation in MENA countries revealed that the strong negative effect of living in a Muslim country is mainly driven by the MENA region – a finding which is in line with previous research by Bayanpourtehrani and Sylwester (2013). Furthermore, the analyses showed that no single cultural factor such as the predominance of Islam is responsible for the low female labor force participation in this region but that a common consideration of the predominance of Islam, traditional gender role attitudes, and legal institutions rooted in the patriarchy can account for the effect. Contrary to that, structural factors that have been proposed by previous research such as modernization and oil rents are not suitable to explain the low female labor force participation in the MENA region.

It has also been shown that the impact of culture varies between societies. While the effect of social norms has been found to diminish with increasing development, individual preferences become more important in higher developed societies. This is in line with arguments made by Hakim (2000) about the growing importance of preferences in highly developed countries as well as with the general assumption of the individualization thesis that social norms lose their influence in higher developed societies. Furthermore, individual characteristics matter for the impact of culture. Social norm effects and individual preferences have been found to be stronger for married women and women with children than for single women without children. Nevertheless social norms, but not individual gender roles, influence the labor force participation for single women as well. This finding shows that unmarried women and women without children are also affected by the social context in their decision to participate in the labor force – an aspect that has been rarely highlighted in previous studies which often focus solely on mothers. Surprisingly and contrary to expectation, both education and family formation matters more in MENA countries than in other countries. It has been argued that possible explanations for this finding lay in the decline of labor market opportunities for women through the shrinking of the public sector and the predominance of very traditional gender-role beliefs in those countries which often address mothers.

Overall, most hypotheses could be supported by the results. Nevertheless some hypotheses could only partially be supported. While it has been argued that the central mechanism for the impact of religion are differences in gender-role attitudes this could only be confirmed for the effect of social norms on the country level and not for preferences on the individual level. Whether this result emerges due to the used measurement of gender-role attitudes or whether different mechanisms lay behind the relation between religion and female labor force participation could not be addressed in this thesis. Previous literature had argued that religion influences peoples' behavior not only via their own beliefs but also via their social networks (e.g. Lehrer and Chen 2013). Especially in case of labor force participation, the relevance of social networks is well known (Granovetter 1974) and hence could influence the benefits of labor force participation for specific religious groups.

Beyond that the sensitivity analyses showed that most results are very robust, in case a different sample is used or logistic instead of linear probability models are estimated. The strongest deviations in these additional analyses could be found for the explanatory factors for the low female labor force participation in MENA countries, but even in this case the central conclusion that cultural factors contribute to the low female labor force participation in those countries still holds. Nevertheless it is important to note, that the conclusions of this thesis are restricted to the sample of countries investigated and a generalization of these results is problematic given the fact that the WVS/EVS is not a random sample. It is important to note in this context that the variation in the institutional variables used in this analysis is rather small and only a few countries in the full and the reduced sample have the respective institutions. Accordingly, the result that institutions are one potential mechanism explaining how culture influences female labor force participation should be handled with caution. It cannot be ruled out that part of the social context effect emerges through differences in institutions for which no data are available in international comparison. Furthermore with the method used in this thesis it was not possible to explore the causal relationship between culture and institutions and to rule out that institutions influence social norms and not vice versa. Further historical qualitative research is necessary to determine how culture has influenced the development of institutions that, respectively, influence social norms and female labor force participation nowadays. A further important limitation of this thesis is that the analyses have been restricted to quite a simple dichotomy between labor force participation and being a housewife. Besides differences in labor force participation between men and women, other gender differences exist in the labor market, which are important for women's empowerment, such as labor market segregation and the gender wage gap. Whether

those gender differences can be explained by similar mechanisms routed in culture can only be suspected and would need further investigation.

Despite those limitations, overall three central conclusions can be derived from the analyses: First, culture is relevant to the explanation of female labor force participation. All analyses showed a very robust impact of cultural factors. That those influences arose solely due to spurious correlation can, in my opinion, be ruled out for several reasons. First of all, the relationship between culture and female labor force participation is relatively stable when controlling for possible factors that could produce such a correlation like modernization. Second, the analysis of religion showed similar results to the analyses of attitudes and is, as has been argued, less problematic from a causal perspective since the religious tradition of a country as well as of an individual can be assumed to be exogenous to female labor force participation and many possible other influential factors.

Second, the social context is very important. The effects of social norms and religious traditions at the country level have been found to be strong and more than pure composition effects. In some analyses those factors seem to be even more important than individual characteristics. Overall, the inclusion of cultural factors explains half of the variance in female labor force participation between countries which shows the importance of those factors. Furthermore, these results show the importance of multilevel analyses, which is the only method which enables the researcher to distinguish between composition and context effects. How exactly the social context influences individual behavior could not be addressed in detail in the thesis and is left to future research. Given the data at hand it was only possible to estimate the social context on the country level and to show that this effect is partly mediated by institutions. It is very likely that different mechanisms on different levels contribute to this effect like effects of the family, the community, or the region on the meso level. Future research should try to disentangle different possible channels of how culture is translated into individual decisions.

This brings me to my third conclusion. The importance of the social context is not only interesting from a methodological point of view but also from a theoretical perspective. This is because it questions some of the assumptions of the neoclassical model, which focuses mainly on the individual level and conceptualizes female labor force participation as an individual decision. This approach most often neglects the social context or includes it only in form of individual or household preferences. The results of this thesis clearly show that the

explanation of female labor force participation without inclusion of the social context is insufficient.

The findings of this thesis are also interesting from a policy perspective. Given the high share of immigrants who have been moving from more traditional countries into Western countries over the past few years, the question emerges which social context is relevant for their behavior. The analyses have revealed that part of the social-norm effect but also the MENA effect can be explained by differences in institutions. This would indicate that the institutional context, which changes for immigrants directly after migration, matters. The effect of social norms has not, however, been fully explained by differences in the analyzed institutions and the results clearly showed the importance of individual preferences for the decisions to participate in the labor market. These findings points to potential difficulties for integrating female immigrants from countries with a predominance of traditional gender roles into the labor markets of Western countries.

Overall it can be concluded that culture matters for the explanation of female labor force participation and hence the postulation made by Hakim (2000) and Pfau-Effinger (2000) that approaches that aim at explaining differences in female labor force participation need to include cultural explanatory factors, is strongly supported by this thesis.

## Literature

- Adamczyk, Amy (2013) "The effect of personal religiosity on attitudes toward abortion, divorce, and gender equality - Does cultural context make a difference?" *Euramerica* 43(1):213-53.
- Adsera, Alicia (2006) "Religion and changes in family-size norms in developed countries" *Review of Religious Research* 47(3):271-86.
- Ahn, Namkee, and Pedro Mira (2002) "A note on the changing relationship between fertility and female employment rates in developed countries" *Journal of Population Economics* 15:667-82.
- Aigner, Dennis J., and Glen G. Cain (1977) "Statistical theories of discrimination in labor markets" *ILR Review* 30(2):175-87.
- Aizer, Anna (2010) "The gender wage gap and domestic violence" *The American Economic Review* 100(4):1847-59.
- Akerlof, George A., and Rachel E. Kranton (2010) *Identity economics: How our identities shape our work, wages, and well-being*. Princeton: Princeton University Press.
- Albrecht, James W., Per-Anders Edin, and Susan B. Vroman (2000) "A cross-country comparison of attitudes towards mothers working and their actual labor market experience" *Labour* 14(4):591-608.
- Alesina, Alberto, Paola Giuliano, and Nathan Nunn (2013) "On the origin of gender roles: women and the plough" *Quarterly Journal of Economics* 128(2):469-530.
- Alexander, Amy C., and Christian Welzel (2011) "Islam and patriarchy: How robust is Muslim support for patriarchal values?" *World Values Research* 4(2):40-70.
- Algan, Yann , and Pierre Cahuc (2005) "The roots of low European employment: Family culture?" *CEPR Discussion Paper No. 5169*: Centre for Economic Policy Research.
- Algan, Yann, Christian Dustmann, Albrecht Glitz, and Alan Manning (2010) "The economic situation of first and second-generation immigrants in France, Germany, and the United Kingdom" *The Economic Journal* 120:F4-F30.
- Alwin, Duane F. , Michael Braun, and Jacqueline Scott (1992) "The separation of work and the family: Attitudes towards women's labour force participation in Germany, Great Britain, and the United States" *European Sociological Review* 8(1):13-37.
- Amin, Sajeda, and Nagah H. Al-Bassusi (2004) "Education, wage work, and marriage: Perspectives of Egyptian working women" *Journal of Marriage and Family* 66:1287-99.
- Amin, Shahina, and Imam Alam (2008) "Women's employment decisions in Malaysia: Does religion matter?" *The Journal of Socio-Economics* 37(6):2368-79.
- Angrist, Joshua D., and William N. Evans (1998) "Children and their parents' labor supply: Evidence from exogenous variation in family size" *The American Economic Review* 88(3):450-77.
- Anker, Richard (1998) *Gender and jobs: sex segregation of occupations in the world*. Geneva: International Labour Office.
- Antecol, Heather (2000) "An examination of cross-country differences in the gender gap in labor force participation rates" *Labour Economics* 7:409-26.
- Antecol, Heather (2003) "Why is there cross-country variation in female labor force participation rates? The role of male attitudes toward family and sex roles" *Working paper Series*: Claremont McKenna College.
- Arrow, Kenneth J. (1973) "The theory of discrimination" Pp. 3-33 in *Discrimination in labor markets*, edited by Orley Ashenfelter and Albert Rees. Princeton: Princeton University Press.

- Assaad, Ragui, and Melanie Arntz (2005) "Constrained geographical mobility and gendered labor market outcomes under structural adjustment. Evidence from Egypt" *World Development* 33(3):431-54.
- Assaad, Ragui, and Fatma El Hamidi (2009) "Women in the Egyptian labor market. An analysis of developments. 1988-2006" Pp. 219-58 in *The Egyptian labor market revisited*, edited by Ragui Assaad. Cairo: The American University in Cairo Press.
- Barro, Robert J., and Rachel M. McCleary (2003) "Religion and economic growth across countries" *American Sociological Review* 68(5):760-81.
- Bayanpourtehrani, Ghazal, and Kevin Sylwester (2013) "Female labour force participation and religion: A cross-country analysis" *Bulletin of Economic Research* 65(2):107-33.
- Beck, Ulrich, and Elisabeth Beck-Gernsheim (1994) *Riskante Freiheiten: Individualisierung in modernen Gesellschaften*. Frankfurt am Main: Suhrkamp.
- Becker, Gary S. (1964) *Human capital. A theoretical and empirical analysis, with special reference to education*. New York: Columbia University Press.
- Becker, Gary S. (1965) "A theory of the allocation of time" *The Economic Journal* 75(299):493-517.
- Becker, Gary S. (1971) *The economics of discrimination*. Chicago: The University of Chicago Press.
- Becker, Gary S. (1991) *A treatise on the family*. Cambridge, Mass.: Harvard University Press.
- Berger, Peter L. (1999) *The desecularization of the world resurgent religion and world politics*. Washington, DC: Ethics and Public Policy Center.
- Berrington, Ann, Yongjian Hu, Peter W.F. Smith, and Patrick Sturgis (2008) "A graphical chain model for reciprocal relationships between women's gender role attitudes and labour force participation" *Journal of the Royal Statistical Society* 171(1):89-108.
- Bick, Alexander, and Nicola Fuchs-Schündeln (2012) "Taxation and labor supply of married women across countries: A macroeconomic analysis" *CEPR Discussion Paper No. DP9115*.
- Billari, Francesco C., Aart C. Liefbroer, and Dimiter Philipov (2006) "The postponement of childbearing in Europe: Driving forces and implications" *Vienna Yearbook of Population Research* 4:1-17.
- Bills, David B. (2003) "Credentials, signals, and screens. Explaining the relationship between schooling and job assignment" *Review of Educational Research* 73(4):441-69.
- Birkelbach, Klaus (1999) "Die Entscheidung zum Kirchnaustritt zwischen Kirchenbindung und Kirchensteuer: Eine Verlaufsdatenanalyse in einer Kohorte ehemaliger Gymnasiasten bis zum 45. Lebensjahr" *Zeitschrift für Soziologie* 28(2):136-53.
- Blau, Francine D., Marianne A. Ferber, and Anne E. Winkler (2014) *The economics of women, men, and work*. Boston, Mass.: Pearson.
- Blau, Francine D., Lawrence M. Kahn, Albert Yung-Hsu Liu, and Kerry L. Papps (2013) "The transmission of women's fertility, human capital, and work orientation across immigrant generations" *Journal of Population Economics* 26(2):405-35.
- Blossfeld, Hans-Peter, and Sonja Drobnič (2001a) *Careers of couples in contemporary societies: from male breadwinner to dual earner families*. Oxford: Oxford University Press.
- Blossfeld, Hans-Peter, and Sonja Drobnič (2001b) "A cross-national comparative approach to couples' careers" Pp. 3-50 in *Careers of couples in contemporary societies: from male breadwinner to dual earner families*, edited by Hans Peter Blossfeld and Sonja Drobnič. Oxford: Oxford University Press.
- Boeckmann, Irene, Joya Misra, and Michelle J. Budig (2014) "Cultural and institutional factors shaping mothers' employment and working hours in postindustrial countries" *Social Forces* 93(4):1301-33.

- Boje, Thomas P., and Anders Ejrnæs (2012) "The relationship between family policy regime and women's labour market participation in Europe" *International Journal of Sociology and Social Policy* 32(9/10):589-605.
- Boserup, Ester (1970) *Woman's role in economic development*. New York: St. Martin.
- Bowles, Samuel (1998) "Endogenous preferences: The cultural consequences of markets and other economic institutions" *Journal of Economic Literature* 36:75-111.
- Brewster, Karin L., and Ronald R. Rindfuss (2000) "Fertility and women's employment in industrialized nations" *Annual Review of Sociology* 26:271-96.
- Brines, Julie (1994) "Economic dependency, gender, and the division of labor at home" *American Journal of Sociology* 100(3):652-88.
- Budig, Michelle J. (2003) "Are women's employment and fertility histories interdependent? An examination of causal order using event history analysis" *Social Science Research* 32(3):376-401.
- Caldwell, John C. (1978) "A theory of fertility: From high plateau to destabilization" *Population and Development Review* 4(4):553-77.
- Caldwell, John C. (1982) *Theory of fertility decline*. London and New York: Academic Press.
- Castels, Francis G. (1994) "On religion and public policy: Does Catholicism make a difference?" *European Journal of Political Research* 25:19-40.
- Chadwick, Bruce A., and H. Dean Garrett (1995) "Women's religiosity and employment: The LDS experience" *Review of Religious Research* 36(3):277-93.
- Chamlou, Nadereh, Silvia Muzi, and Hanane Ahmed (2011) "Understanding the determinants of female labor force participation in the Middle East and North Africa region: The role of education and social norms in Amman" *AlmaLaurea Working Papers: AlmaLaurea*.
- Charles, Maria (2008) "Culture and inequality: identity, ideology, and difference in 'Postscriptive Society'" *The ANNALS of the American Academy of Political and Social Science* 619(1):41-58.
- Charles, Maria, and Karen Bradley (2009) "Indulging our gendered selves? Sex segregation by field of study in 44 countries" *American Journal of Sociology* 114(4):924-76.
- Charrad, Mounira M. (2001) *States and women's rights: the making of postcolonial Tunisia, Algeria, and Morocco*. Berkeley: University of California Press.
- Chiswick, Barry R. (1999) "Are immigrants favorably self-selected?" *The American Economic Review* 89(2):181-85.
- Clark, Roger, Thomas W. Ramsbey, and Emily Stier Adler (1991) "Culture, gender, and labor force participation: A cross-national study" *Gender and Society* 5(1):47-66.
- Cloin, Mariëlle, Saskia Keuzenkamp, and Janneke Plantenga (2011) "A matter of culture and cost? A comparison of the employment decisions made by mothers with a lower, intermediate and higher level of education in the Netherlands" *Work, Employment & Society* 25(3):468-86.
- Contreras, Dante, and Gonzalo Plaza (2010) "Cultural factors in women's labor force participation in Chile" *Feminist Economics* 16(2):27-46.
- Cooray, Arusha, and Niklas Potrafke (2011) "Gender inequality in education: Political institutions or culture and religion?" *European Journal of Political Economy* 27(2):268-80.
- Cornwell, Christopher M., Karen L. Tinsley, and Ronald S. Warren Jr. (2003) "Religious background and the labour supply and wages of young women". Athens, GA: University of Georgia.
- Corrigall, Elizabeth A., and Alison M. Konrad (2007) "Gender role attitudes and careers: A longitudinal study" *Sex Roles* 56(11):847-55.

- Cunningham, Mick (2001) "The influence of parental attitudes and behaviors on children's attitudes toward gender and household labor in early adulthood" *Journal of Marriage and Family* 63(1):111-22.
- Cunningham, Mick (2008) "Changing attitudes toward the male breadwinner, female homemaker family model: Influences of women's employment and education over the lifecycle" *Social Forces* 87(1):299-323.
- Cunningham, Mick, Ann M. Beutel, Jennifer S. Barber, and Arland Thornton (2005) "Reciprocal relationships between attitudes about gender and social contexts during young adulthood" *Social Science Research* 34(4):862-92.
- Davis, Shannon N. (2007) "Gender ideology construction from adolescence to young adulthood" *Social Science Research* 36(3):1021-41.
- Davis, Shannon N., and Theodore N. Greenstein (2009) "Gender ideology: Components, predictors, and consequences" *Annual Review of Sociology* 35(1):87-105.
- De Giusti, Giovanna, and Uma Sarada Kambhampati (2015) "Women's work choices in Kenya: The role of social institutions and household gender attitudes" *Feminist Economics* 22(2):87-113.
- Del Boca, Daniela, Silvia Pasqua, and Chiara Pronzato (2008) "Motherhood and market work decisions in institutional context: a European perspective" *Oxford Economic Papers* 61:i147-i71.
- Dhillon, Navtej, and Tarik Yousef (2009) "Introduction" Pp. 1-10 in *Generation in waiting. The unfulfilled promise of young people in the Middle East*, edited by Navtej Dhillon and Tarik Yousef. Washington, DC: Brookings Institution Press.
- Dieckhoff, Martina, Vanessa Gash, and Nadia Steiber (2015) "Measuring the effect of institutional change on gender inequality in the labour market" *Research in Social Stratification and Mobility* 39:59-75.
- Diehl, Claudia, Matthias Koenig, and Kerstin Ruckdeschel (2009) "Religiosity and gender equality: comparing natives and Muslim migrants in Germany" *Ethnic and Racial Studies* 32(2):278-301.
- Doepke, Matthias, Michèle Tertilt, and Alessandra Voena (2012) "The economics and politics of women's rights" *Annual Review of Economics* 4(1):339-72.
- Donahoe, Debra A. (1999) "Measuring women's work in developing countries" *Population and Development Review* 25(3):543-76.
- Drobnič, Sonja, Blossfeld Hans-Peter, and Gotz Rohwer (1999) "Dynamics of women's employment patterns over the family life course: A comparison of the United States and Germany" *Journal of Marriage and Family* 61(1):133-46.
- Ebbinghaus, Bernhard (2005) "When less is more: Selection problems in large-N and small-N cross-national comparisons" *International Sociology* 20(2):133-52.
- Ekert-Jaffe, Olivia, and Haya Stier (2009) "Normative or economic behavior? Fertility and women's employment in Israel" *Social Science Research* 38(3):644-55.
- Elster, Jon (2009) "Norms" Pp. 195-217 in *The Oxford handbook of analytical sociology*, edited by Peter Hedström and Peter Bearman. Oxford: Oxford University Press.
- England, Paula, and George Farkas (1986) *Households, employment, and gender: A social, economic and demographic view*. New York: Aldine.
- England, Paula, and Nancy Folbre (2005) "Gender and economic sociology" in *The handbook of economic sociology*, edited by Neil J. Smelser and Richard Swedberg. Princeton, N.J.; New York: Princeton University Press Russell Sage Foundation.
- England, Paula, Janet Gornick, and Emily Fitzgibbons Shafer (2012) "Women's employment, education, and the gender gap in 17 countries" *Monthly Labor Review* April:2-12.
- Esping-Andersen, Gøsta (1990) *The three worlds of welfare capitalism*. Cambridge: Polity Press.
- Esposito, John L. (2001) *Women in Muslim family law*. New York: Syracuse.

- Evertsson, Marie (2013) "The importance of work: Changing work commitment following the transition to motherhood" *Acta Sociologica* 56(2):139-53.
- Fan, Pi-Ling, and Margaret Mooney Marini (2000) "Influences on gender-role attitudes during the transition to adulthood" *Social Science Research* 29(2):258-83.
- Farré, Lúdia, and Francis Vella (2013) "The intergenerational transmission of gender role attitudes and its implications for female labour force participation" *Economica* 80(318):219-47.
- Feldmann, Horst (2007) "Protestantism, labor force participation, and employment across countries" *American Journal of Economics and Sociology* 66(4):795-816.
- Fernandez, Raquel (2007) "Women, work, and culture" *NBER Working Paper No. 12888*.
- Fernández, Raquel, and Alessandra Fogli (2009) "Culture: An empirical investigation of beliefs, work, and fertility" *American Economic Journal* 1(1):146-77.
- Fine, Cordelia (2010) *Delusions of gender: how our minds, society, and neurosexism create difference*. New York: W.W. Norton.
- Fortin, Nicole M. (2005) "Gender role attitudes and the labour-market outcomes of women across OECD countries" *Oxford Review of Economic Policy* 21(3):416-38.
- Freese, Jeremy (2009) "Preferences" Pp. 94-114 in *The Oxford handbook of analytical sociology*, edited by Peter Hedström and Peter Bearman. Oxford: Oxford University Press.
- Friedrichs, Jürgen, and Alexandra Nonnenmacher (2014) "Die Analyse sozialer Kontexte" *Kölner Zeitschrift für Soziologie und Sozialpsychologie. Sonderheft* 66:1-16.
- Gaddis, Isis, and Stephan Klasen (2014) "Economic development, structural change, and women's labor force participation" *Journal of Population Economics* 27(3):639-81.
- Gebel, Michael, and Stefanie Heyne (2014) *Transitions to adulthood in the Middle East and North Africa. Young women's rising?* New York: Palgrave Macmillan.
- Giavazzi, Francesco, Fabio Schiantarelli, and Michel Serafinelli (2009) "Culture, policies and labor market outcomes" *IZA DP No. 4558*. Bonn: IZA.
- Giuliano, Paola (2015) "The role of women in society: from preindustrial to modern times" *CESifo Economic Studies* 61(1):33-52.
- Glass, Jennifer, and Leda E. Nath (2006) "Religious conservatism and women's market behavior following marriage and childbirth" *Journal of Marriage and Family* 68:611-29.
- Goldin, Claudia (1990) *Understanding the gender gap. An economic history of American women*. Oxford: Oxford University Press.
- Goldin, Claudia (2006) "The quiet revolution that transformed women's employment, education, and family" *AEA Paper and Proceedings*.
- Goldin, Claudia, and Lawrence F. Katz (2002) "The power of the pill: Oral contraceptives and women's career and marriage decisions" *Journal of Political Economy* 110(4):730-70.
- Gornick, Janet C. , Marcia K. Meyers, and Katherin E. Ross (1998) "Employment of mothers: A cross-national study" *Social Science Quarterly* 79(1):35-54.
- Granovetter, Mark S. (1974) *Getting a job*. Chicago: University of Chicago Press.
- Groh, Matthew, and Casey Rothschild (2012) "Oil, Islam, women, and geography: A comment on Ross (2008)" *Quarterly Journal of Political Science* 7(1):69-87.
- Grunow, Daniela, Silke Aisenbrey, and Marie Evertsson (2011) "Familienpolitik, Bildung und Berufskarrieren von Müttern in Deutschland, USA und Schweden" *Kölner Zeitschrift für Soziologie und Sozialpsychologie* 63(3):395-430.
- Guetto, Raffaele, Ruud Luijkx, and Stefani Scherer (2015) "Religiosity, gender attitudes and women's labour market participation and fertility decisions in Europe" *Acta Sociologica* 58(2):155-72.
- Gündüz-Hoşgör, Ayşe, and Jeroen Smits (2008) "Variation in labor market participation of married women in Turkey" *Women's Studies International Forum* 31(2):104-17.

- H'madoun, Maryam (2010) "Religion and labor force participation of women". Antwerp, Belgium: University of Antwerp.
- Haas, Barbara, Nadia Steiber, Margit Hartel, and Claire Wallace (2006) "Household employment patterns in an enlarged European Union" *Work, Employment & Society* 20(4):751-71.
- Haghighat-Sordellini, Elhum (2010) *Women in the Middle East and North Africa. Change and continuity*. New York: Palgrave Macmillan.
- Haghighat, Elhum (2005) "Neopatriarchy, Islam and female labour force participation: A reconsideration" *International Journal of Sociology and Social Policy* 25(10/11):84-105.
- Hakim, Catherine (2000) *Work-lifestyle choices in the 21st century: Preference theory*. Oxford: Oxford University Press.
- Hakim, Catherine (2002) "Lifestyle preferences as determinants of women's differentiated labor market careers" *Work and Occupations* 29(4).
- Hakim, Catherine (2003) "A new approach to explaining fertility patterns: Preference theory" *Population and Development Review* 29(3):349-74.
- Haller, Max, and Franz Hoellinger (1994) "Female employment and the change of gender roles: The conflictual relationship between participation and attitudes in international comparison" *International Sociology* 9(1):87-112.
- Hayo, Bernd, and Tobias Caris (2013) "Female labour force participation in the MENA region: The role of identity" *Review of Middle East Economics and Finance* 9(3):271-92.
- Heineck, Guido (2002) "Does religion influence the labour supply of married women in Germany?" *DIW-Diskussionspapiere, No. 278*.
- Himmelweit, Susan, and Maria Sigala (2004) "Choice and the relationship between identities and behaviour for mothers with pre-school children: Some implications for policy from a UK study" *Journal of Social Policy* 33(3):455-78.
- Hochschild, Arlie R. (1989) *The second shift*. New York: Penguin Books.
- Hummelsheim, Dina, and Jochen Hirschle (2010) "Mother's employment: cultural imprint or institutional governance?" *European Societies* 12(3):339-66.
- Iannaccone, Laurence R. (1998) "Introduction to the Economics of Religion" *Journal of Economic Literature* 36(3):1465-95.
- ILO (1982) *Resolution concerning statistics of the economically active population, employment, unemployment and underemployment, adopted by the Thirteenth International Conference of Labour Statisticians*. Geneva: International Labour Office.
- ILO (2016) *Key indicators of the labour market. Ninth edition*. Geneva: International Labour Office.
- Inglehart, Ronald (1997) *Modernization and postmodernization: Cultural, economic, and political change in 43 societies*. Princeton: Princeton University Press.
- Inglehart, Ronald, and Wayne E. Baker (2000) "Modernization, cultural change, and the persistence of traditional values" *American Sociological Review* 65(1):19-51.
- Inglehart, Ronald, and Pippa Norris (2003) *Rising tide. Gender equality and cultural change around the world*. Cambridge: Cambridge University Press.
- Iversen, Torben, and Frances Rosenbluth (2006) "The political economy of gender: Explaining cross-national variation in the gender division of labor and the gender voting gap" *American Journal of Political Science* 50(1):1-19.
- Iversen, Torben, and Frances Rosenbluth (2008) "Work and power: The connection between female labor force participation and female political representation" *Annual Review of Political Science* 11(1):479-95.

- Iversen, Torben, and Frances Rosenbluth (2010) *Women, work, and politics the political economy of gender inequality*. New Haven Yale University Press.
- Iversen, Torben, Francis Rosenbluth, and David Soskice (2005) "Divorce and the gender division of labor in comparative perspective" *Social Politics* 12(2):216–42.
- Jackson, Robert M. (1998) *Destined for equality: The inevitable rise of women's status*. Cambridge: Harvard University Press.
- Kalmijn, Mathijis (1998) "Intermarriage and Homogamy: Causes, Patterns, Trends" *Annual Review of Sociology* 24:395-421.
- Kalter, Frank, and Irena Kogan (2014) "Migrant networks and labor market integration of immigrants from the former Soviet Union in Germany" *Social Forces* 92(4):1435-56.
- Kan, Man Yee (2007) "Work orientation and wives' employment careers. An evaluation of Hakim's preference theory" *Work and Occupations* 34(4):430-62.
- Kandiyoti, Deniz (1988) "Bargaining with patriarchy" *Gender & Society* 2(3):274-90.
- Kangas, Olli, and Tine Rostgaard (2007) "Preferences or institutions? Work family life opportunities in seven European countries" *Journal of European Social Policy* 17(3):240-56.
- Kanji, Shireen (2011) "What keeps mothers in full-time employment?" *European Sociological Review* 27(4):509-25.
- Kelley, Jonathan, and Nan Dirk De Graaf (1997) "National context, parental socialization, and religious belief: Results from 15 nations" *American Sociological Review* 62(4):639-59.
- Kelly, Sanja, and Julia Breslin (2010) *Women's rights in the Middle East and North Africa*. New York: Freedom House.
- Khoudja, Yassine, and Fenella Fleischmann (2014) "Ethnic differences in female labour force participation in the Netherlands: Adding gender role attitudes and religiosity to the explanation" *European Sociological Review* 31(1):91-102.
- Klasen, Stephan (2000) "Does gender inequality reduce growth and development? Evidence from cross-country regressions" *Sonderforschungsbereich 386, Paper 212*: University of Munich.
- Klasen, Stephan, and Francesca Lamanna (2009) "The impact of gender inequality in education and employment on economic growth: New evidence for a panel of countries" *Feminist Economics* 15(3):91-132.
- Kogan, Irena (2007) *Working through barriers: host country institutions and immigrant labour market performance in Europe*. Dordrecht: Springer.
- Korotayev, Andrey V., Leonid M. Issaev, and Alisa R. Shishkina (2014) "Female labor force participation rate, Islam, and Arab culture in cross-cultural perspective" *Cross-Cultural Research* 49(1):3-19.
- Kremer, Monique (2007) *How welfare states care. Culture, gender and parenting in Europe*. Amsterdam: Amsterdam University Press.
- Lagerlöf, Nils-Petter (2003) "Gender inequality and long-run growth" *Journal of Economic Growth* 8:403-26.
- Lalive, Rafael, and Josef Zweimüller (2009) "How does parental leave affect fertility and return to work? Evidence from two natural experiments" *The Quarterly Journal of Economics* 124(3):1363-402.
- Lancee, Bram (2012) *Immigrant performance in the labour market: Bonding and bridging social capital*. Amsterdam: Amsterdam University Press.
- Lehrer, Evelyn L. (1995) "The effects of religion on the labor supply of married women" *Social Science Research* 24(3):281–301.
- Lehrer, Evelyn L. (1999) "Religion as a determinant of educational attainment: An economic perspective" *Social Science Research* 28:358–79.

- Lehrer, Evelyn Lilian, and Yu Chen (2013) "The labor market behavior of married women with young children in the U.S.: Have differences by religion disappeared?" *Discussion paper series: Forschungsinstitut zur Zukunft der Arbeit*.
- Lewis, Jane, and Ilona Ostner (1994) *Gender and the evolution of European social policies*. Bremen: Zentrum für Sozialpolitik.
- Littrell, Romie Frederick, and Andy Bertsch (2013) "Traditional and contemporary status of women in the patriarchal belt" *Equality, Diversity and Inclusion: An International Journal* 32(3):310–24.
- Lloyd, Cynthia B, Sahar El Tawila, Wesley H Clark, and Barbara S. Mensch (2003) "The impact of educational quality on school exit in Egypt" *Comparative Education Review* 47(4):444-67.
- Lundberg, Shelly, and Robert A. Pollak (1996) "Bargaining and distribution in marriage" *The Journal of Economic Perspectives* 10(4):139-58.
- Macmillan, Ross, and Rosemary Gartner (1999) "When she brings home the bacon: Labor-force participation and the risk of spousal violence against women" *Journal of Marriage and Family* 61(4):947-58.
- Mahoney, Annette, Kenneth I. Pargament, Aaron Murray-Swank, and Nichole Murray-Swank (2003) "Religion and the sanctification of family relationships" *Review of Religious Research* 44(3):220-36.
- Mammen, Kristin, and Christina Paxson (2000) "Women's work and economic development" *The Journal of Economic Perspectives* 14(4):141-64.
- Mandel, Hadas, and Moshe Semyonov (2006) "A welfare state paradox: State interventions and women's employment opportunities in 22 countries" *American Journal of Sociology* 111(6):1910-49.
- Matysiak, Anna, and Stephanie Steinmetz (2008) "Finding their way? Female employment patterns in West Germany, East Germany, and Poland" *European Sociological Review* 24(3):331-45.
- Matysiak, Anna, and Daniele Vignoli (2007) "Fertility and women's employment: A meta-analysis" *European Journal of Population / Revue européenne de Démographie* 24(4):363-84.
- McQuillan, Kevin (2004) "When does religion influence fertility?" *Population and Development Review* 30(1):25-56.
- Mincer, Jacob (1962) "Labor force participation of married women" Pp. 63-97 in *Aspects of labor economics*, edited by H.G. Lewis. Princeton, N.J.: Princeton University Press.
- Minkenberg, Michael (2002) "Religion and public policy: Institutional, cultural, and political impact on the shaping of abortion policies in Western democracies" *Comparative Political Studies* 35(2):221-47.
- Moghadam, Valentine M. (2003) *Modernizing women. Gender and social change in the Middle East*. Boulder, CO: Rienner.
- Moghadam, Valentine M. (2004) "Patriarchy in transition. Women and the changing family in the Middle East" *Journal of Comparative Family Studies* 35(2):137-62.
- Mood, Carina (2010) "Logistic regression: Why we cannot do what we think we can do, and what we can do about it" *European Sociological Review* 26(1):67-82.
- Morgan, S. Philip, Sharon Stash, Herbert L. Smith, and Karen Oppenheim Mason (2002) "Muslim and non-Muslim differences in female autonomy and fertility: Evidence from four Asian countries" *Population and Development Review* 28(3):515-37.
- Morgan, Stephen L., and Christopher Winship (2007) *Counterfactuals and causal inference methods and principles for social research*. Cambridge: Cambridge University Press.
- Morrison, Andrew, Dhushyanth Raju, and Nistha Sinha (2007) "Gender equality, poverty and economic growth" *Policy Research Working Paper No. 4349*. Washington: World Bank.

- Nieuwenhuis, Rense, Ariana Need, and Henk Van Der Kolk (2012) "Institutional and demographic explanations of women's employment in 18 OECD countries, 1975-1999" *Journal of Marriage and Family* 74(3):614-30.
- Nordenmark, Mikael (2004) "Does gender ideology explain differences between countries regarding the involvement of women and of men in paid and unpaid work?" *International Journal of Social Welfare* 13:233-43.
- Norris, Pippa (2009) "Petroleum patriarchy? A response to Ross" *Politics & Gender* 5(04):553.
- Norton, Seth W., and Annette Tomal (2009) "Religion and female educational attainment" *Journal of Money, Credit and Banking* 41(5):962-86.
- O'Neil, Mary Lou, and Mehmet Huseyin Bilgin (2013) "Religion as a factor influencing Turkish women's decisions to work" *Journal of International Women's Studies* 14(3):163-73.
- OECD (2014) "Social institutions and gender index 2014 synthesis report". Paris: OECD.
- OECD (2015) "Labour force statistics". Paris: OECD.
- Ogawa, Keiichi, and Aysit Tansel (2005) "Transition from education to labor market in Turkey" *Journal of International Cooperation Studies* 12(3):113-43.
- Orloff, Ann Shola (1993) "Gender and the social rights of citizenship: The comparative analysis of gender relations and welfare states" *American Sociological Review* 58(3):303-28.
- Padavic, Irene, and Barbara Reskin (2002) *Women and men at work*. London: Sage.
- Pastore, Francesco, and Simona Tenaglia (2013) "Ora et non labora? A test of the impact of religion on female labor supply" *IZA Discussion Paper*. Bonn: The Institute for the Study of Labor (IZA).
- Pettit, Becky, and Jennifer Hook (2005) "The structure of women's employment in comparative perspective" *Social Forces* 84(2):779-801.
- Pfau-Effinger, Birgit (2000) *Kultur und Frauenerwerbstätigkeit in Europa: Theorie und Empirie des internationalen Vergleichs*. Opladen: Leske + Budrich.
- Phelps, Edmund S. (1972) "The statistical theory of racism and sexism " *The American Economic Review* 62(4):659-61.
- Platt, Lucinda, and Javier Polavieja (2016) "Saying and doing gender: Intergenerational transmission of attitudes towards the sexual division of labour" *European Sociological Review* (in press).
- Polavieja, Javier G. (2015) "Capturing culture: A new method to estimate exogenous cultural effects using migrant populations" *American Sociological Review* 80(1):166-91.
- Pollak, Robert A., and Susan Cotts Watkins (1993) "Cultural and economic approaches to fertility: Proper marriage or mesalliance?" *Population and Development Review* 19(3):467-96.
- Psacharopoulos, George, and Zafiris Tzannatos (1989) "Female labor force participation : an international perspective" *The World Bank research observer* 4(2):187-201.
- Ragin, Charles C. (2014) *The comparative method moving beyond qualitative and quantitative strategies*. Berkeley: University of California Press.
- Rashad, Hoda, Magued Osman, and Farzaneh Roudi-Fahimi (2005) "Marriage in the Arab world". Washington, DC: Population Reference Bureau.
- Read, Jennan Ghazal (2004) "Cultural influences on immigrant women's labor force participation: The Arab-American case" *International Migration Review* 38(1):52-77.
- Read, Jennan Ghazal, and Sharon Oselin (2008) "Gender and the education-employment paradox in ethnic and religious contexts: The case of Arab Americans" *American Sociological Review* 73(2):296-313.

- Ridgeway, Cecilia L., and Shelley J. Correll (2004) "Unpacking the gender system: A theoretical perspective on gender beliefs and social relations" *Gender & Society* 18(4):510-31.
- Rønsen, Marit, and Marianne Sundström (2002) "Family policy and after-birth employment among new mothers - a comparison of Finland, Norway and Sweden" *European Journal of Population* 18:121-52.
- Rosenfeld, Rachel A., and Gunn Elisabeth Birkelund (1995) "Women's part-time work: a cross-national comparison" *European Sociological Review* 11(2):111-34.
- Ross, Michael L. (2008) "Oil, Islam, and women" *American Political Science Review* 102(1):107-23.
- Rubery, Jill, Mark Smith, and Colette Fagan (1999) *Women's employment in Europe trends and prospects*. London: Routledge.
- Salem, Rania (2015) "Changes in the institution of marriage in Egypt from 1998 to 2012" *ERF Working Paper No 911*. Cairo: ERF.
- Schober, Pia, and Jacqueline Scott (2012) "Maternal employment and gender role attitudes: dissonance among British men and women in the transition to parenthood" *Work, Employment & Society* 26(3):514-30.
- Schwarz, Peter (2012) "Tax disincentives and female employment in Organisation for Economic Co-operation and Development (OECD) countries" *Journal of European Social Policy* 22(1):17-29.
- Seguino, Stephanie (2000) "Accounting for gender in Asian economic growth" *Feminist Economics* 6(3):27-58.
- Seguino, Stephanie (2011) "Help or hindrance? Religion's impact on gender inequality in attitudes and outcomes" *World Development* 39(8):1308-21.
- Sherkat, Darren E. (2004) "Religious intermarriage in the United States: trends, patterns, and predictors" *Social Science Research* 33(4):606-25.
- Sherkat, Darren E. (2000) "'That they be keepers of the home': The effect of conservative religion on early and late transitions into housewifery" *Review of Religious Research* 41(3):344-58.
- Sherkat, Darren E., and Alfred Darnell (1999) "The effect of parents' fundamentalism on children's educational attainment: Examining differences by gender and children's fundamentalism" *Journal of the Scientific Study of Religion* 38(1):23-35.
- Sherkat, Darren E., and Christopher G. Ellison (1999) "Recent developments and current controversies in the sociology of religion" *Annual Review of Sociology* 25:363-94.
- Sieverding, Maia (2012) "Gender and generational change in Egypt" *US Berkeley Electronic Theses and Dissertations*. Berkeley: University of California.
- Smith-Lovin, Lynn, and Ann R. Tickamyer (1978) "Nonrecursive models of labor force participation, fertility behavior and sex role attitudes" *American Sociological Review* 43(4):541-57.
- Snijders, Tom A. B., and Roel J. Bosker (2012) *Multilevel analysis: an introduction to basic and advanced multilevel modeling*. Los Angeles: Sage.
- Spence, Michael (1973) "Job market signaling" *Quarterly Journal of Economics* 87(3):355-74.
- Spierings, Niels (2014) "How Islam influences women's paid non-farm employment: Evidence from 26 Indonesian and 37 Nigerian provinces" *Review of Religious Research* 56(3):399-431.
- Spierings, Niels (2015) *Women's employment in Muslim countries. Patterns of diversity*. Basingstoke: Palgrave MacMillan.
- Spierings, Niels, Jeroen Smits, and Mieke Verloo (2010) "Micro- and macrolevel determinants of women's employment in six Arab countries" *Journal of Marriage and Family* 72(5):1391-407.

- Stähli, Michéle Ernst, Jean-Marie Le Goff, René Levy, and Eric Widmer (2009) "Wishes or constraints? Mothers' labour force participation and its motivation in Switzerland" *European Sociological Review* 25(3):333-48.
- Stam, Kirsten, Ellen Verbakel, and Paul M. de Graaf (2013) "Do values matter? The impact of work ethic and traditional gender role values on female labour market supply" *Social Indicators Research* 116(2):593-610.
- Stark, Rodney, and Laurence R. Iannaccone (1994) "A supply-side reinterpretation of the "secularization" of Europe" *Journal of the Scientific Study of Religion* 33(3):230-52.
- Steenbergen, Marco R., and Bradford S. Jones (2002) "Modelling multilevel data structures" *American Journal of Political Science* 46(1):218-37.
- Steiber, Nadia, and Barbara Haas (2009) "Ideals or compromises? The attitude-behaviour relationship in mothers' employment" *Socio-Economic Review* 7(4):639-68.
- Steiber, Nadia, and Barbara Haas (2012) "State of the art. Advances in explaining women's employment patterns" *Socio-Economic Review* 10(2):343-67.
- Stier, Haya, Noah Lewin-Epstein, and Michael Braun (2001) "Welfare regimes, family-supportive policies, and women's employment along the life-course" *American Journal of Sociology* 106(6):1731-60.
- Tansel, Aysit (2002) "Economic development and female labor force participation in Turkey: Time-series evidence and cross-section estimates" *METU/ERC Working Paper No. 02/3*.
- Treas, Judith, and Sonja Drobnič (2010) *Dividing the domestic: men, women, and household work in cross-national perspective*. Stanford: Stanford University Press.
- UNDP (2015) "Human development report". New York: United Nations Development Programme.
- Uunk, Wilfred (2015) "Does the cultural context matter? The effect of a country's gender-role attitudes on female labor supply" *European Societies* 17(2):176-98.
- Uunk, Wilfred, Mathijis Kalmijn, and Ruud Muffels (2005) "The impact of young children on women's labour supply: A reassessment of institutional effects in Europe" *Acta Sociologica* 48(1):41-62.
- van de Kaa, Dirk J. (2002) "The idea of a Second Demographic Transition in industrialized countries" *Paper presented at the Sixth Welfare Policy Seminar of the National Institute of Population and Social Security, Tokyo, Japan, 29 January 2002*.
- van der Lippe, Tanja, and Liset van Dijk (2002) "Comparative research on women's employment" *Annual Review of Sociology* 28(1):221-41.
- Van der Meer, Tom, Manfred Te Grotenhuis, and Ben Pelzer (2010) "Influential cases in multilevel modeling: A methodological comment" *American Sociological Review* 75(1):173-78.
- Vella, Francis (1994) "Gender roles and human capital investment: The relationship between traditional attitudes and female labour market performance" *Economica* 61(242):191-211.
- West, Candace, and Sarah Fenstermaker (1995) "Doing difference" *Gender & Society* 9(1):8-37.
- West, Candace, and Don H. Zimmerman (1987) "Doing gender" *Gender & Society* 1(2):125-51.
- Wharton, Amy S. (2012) *The sociology of gender. An introduction to theory and research*. Chichester: John Wiley & Sons Ltd.
- White, Douglas R., Michael L. Burton, and Malcolm M. Dow (1981) "Sexual division of labor in African agriculture: A network autocorrelation analysis" *American Anthropologist* 83:824-49.
- Wilson, John, and Darren E. Sherkat (1994) "Returning to the fold" *Journal for the Scientific Study of Religion* 33(2):148-61.

- World Bank (2013a) "Jobs for shared prosperity. Time for action in the Middle East and North Africa". Washington, DC: The World Bank.
- World Bank (2013b) "Opening doors. Gender equality and development in the Middle East and North Africa" *MENA Development Report*. Washington, DC: World Bank.
- World Bank (2015) "Women, business, and the law 2016". Washington, DC: The World Bank.
- World Bank (2016a) "Fertility rate, total (births per woman)". Washington, DC: World Bank.
- World Bank (2016b) "School enrollment (% gross); United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics". Washington, DC: World Bank.
- Zhang, Li (2008) "Religious affiliation, religiosity, and male and female fertility" *Demographic Research* 18:233-62.
- Ziefle, Andrea, and Markus Gangl (2014) "Do women respond to changes in family policy? A quasi-experimental study of the duration of mothers' employment interruptions in Germany" *European Sociological Review* 30(5):562-81.

## Appendix

Table A.1: Sample of countries .....	158
Table A.2: Overview operationalization .....	159
Table A.3: Effect of culture on FLFP (restricted sample).....	161
Table A.4: Impact of culture depending on development (restricted sample).....	163
Table A.5: Impact of culture depending on family status (restricted sample) .....	164
Table A.6: Effect of religion on FLFP (restricted sample) .....	166
Table A.7: Impact of religion on gender role attitudes (restricted sample) .....	168
Table A.8: Interrelation between religion, attitudes, and FLFP (restricted sample).....	169
Table A.9: Cultural explanations for low FLFP in MENA (restricted sample).....	170
Table A.10: Structural explanations for low FLFP (restricted sample) .....	171
Table A.11: Impact of education and family formation in MENA (restricted sample).....	173
Table A.12: Effect of social norms and gender roles on FLFP (logistic regression).....	174
Table A.13: Impact of religion on FLFP (logistic regression).....	176
Table A.14: Cultural explanations for low FLFP in MENA (logistic regression).....	178

**Table A.1: Sample of countries**

<b>Country</b>	<b>N</b>	<b>Year</b>	<b>Source</b>	<b>Country</b>	<b>N</b>	<b>Year</b>	<b>Source</b>
Albania	427	2008	EVS	Latvia	434	2008	EVS
Algeria	330	2013	WVS	Lebanon	315	2013	WVS
Armenia	374	2011	WVS	Libya	660	2014	WVS
Austria	432	2008	EVS	Lithuania	385	2008	EVS
Azerbaijan	329	2011	WVS	Luxembourg	415	2008	EVS
Belarus	432	2011	WVS	Macedonia	316	2008	EVS
Belgium	369	2009	EVS	Malaysia	470	2012	WVS
Bosnia	453	2008	EVS	Mali	443	2007	WVS
Brazil	590	2014	WVS	Mexico	760	2012	WVS
Bulgaria	304	2008	EVS	Moldova	399	2008	EVS
Burkina Faso	453	2007	WVS	Morocco	418	2011	WVS
Canada	649	2006	WVS	Netherlands	355	2012	WVS
Chile	275	2011	WVS	New Zealand	202	2011	WVS
China	559	2012	WVS	Nigeria	604	2011	WVS
Colombia	443	2012	WVS	Norway	258	2008	EVS
Croatia	402	2008	EVS	Pakistan	503	2012	WVS
Cyprus	298	2011	WVS	Peru	391	2012	WVS
Czech Rep.	342	2008	EVS	Philippines	415	2012	WVS
Denmark	327	2008	EVS	Poland	216	2012	WVS
Ecuador	419	2013	WVS	Portugal	367	2008	EVS
Egypt	1,473	2008	WVS	Romania	381	2012	WVS
Estonia	375	2011	WVS	Russia	576	2011	WVS
Ethiopia	520	2007	WVS	Rwanda	599	2012	WVS
Finland	265	2009	EVS	Serbia	373	2008	EVS
France	382	2008	EVS	Singapore	581	2012	WVS
Georgia	455	2009	WVS	Slovakia	296	2008	EVS
Germany	457	2013	WVS	Slovenia	219	2011	WVS
Ghana	557	2012	WVS	South Africa	1,185	2013	WVS
Greece	349	2008	EVS	South Korea	300	2010	WVS
Guatemala	414	2004	WVS	Spain	294	2011	WVS
Hong Kong	313	2005	WVS	Sweden	231	2011	WVS
Hungary	347	2008	EVS	Switzerland	314	2008	EVS
Iceland	212	2009	EVS	Thailand	310	2013	WVS
India	348	2014	WVS	Trinidad&Tobago	301	2011	WVS
Indonesia	596	2006	WVS	Tunisia	307	2013	WVS
Iran	1,057	2007	WVS	Turkey	564	2011	WVS
Iraq	435	2012	WVS	Ukraine	381	2011	WVS
Ireland	292	2008	EVS	United States	488	2011	WVS
Italy	318	2009	EVS	Uruguay	260	2011	WVS
Jordan	446	2014	WVS	Uzbekistan	653	2011	WVS
Kazakhstan	625	2011	WVS	Yemen	403	2014	WVS
Kyrgyzstan	532	2011	WVS				

Source: WVS/EVS; Own calculation

**Table A.2: Overview operationalization**

Variable	Measurement	Categories/Scale
Labor force participation	Activity status	0 = inactive 1 = active
Preferences	Agreement with traditional gender role	0 = disagree 1 = agree
Social norm	Share of agreement within country	0 – 1
Education	Highest education degree	1 = incomplete primary 2 = primary 3 = incomplete secondary 4 = secondary 5 = university
Family status	Marital status  Number of children	1 = single 2 = married + living together 3 = divorced/separated/widowed  0 = without children 1 = one child 2 = two children 3 = more than two children
Family status II	Combination of marital status and number of children	1 = single without children 2 = married without children 3 = other without children 4 = single with children 5 = married with children 6 = other with children
Institutions	Support or provision of public childcare  Different rights to divorce than men  Restrictions in mobility	0 = not available 1 = available  0 = no 1 = yes  0 = no 1 = yes
Modernization	GDP per capita	GDP in 1000 international \$
Land cultivation patterns	Living in Sub-Saharan Africa	0 =no 1 = yes
Natural rents	Natural resource rents as percentage of GDP	0 – 100
Individual denomination	Individual denomination	1 = no religious denomination 2 = Buddhist 3 = Catholic 4 = Hindu

		5 = Jewish 6 = Muslim 7 = Orthodox 8 = Protestant 9 = Other denomination
Religious heritage of the country	Dominant religious denomination without respondent that have no denomination	1 = no clear majority 2 = Buddhist 3 = Catholic 4 = Hindu (India) 5 = Muslim 6 = Orthodox 7 = Protestant
Secularization	Share of people without religious denomination (“atheists”)	0 – 1
MENA	Living in a country of the MENA region	0 = no 1 = yes
Legal discrimination	Different rights to divorce than men	0 = no 1 = yes
	Restrictions in mobility	0 = no 1 = yes

**Table A.3: Effect of culture on FLFP (restricted sample)**

	<b>Model 0</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>	<b>Model 5</b>	<b>Model 6</b>
Social norm (country)		-0.72*** (-9.49)	-0.64*** (-8.43)	-0.68*** (-6.77)	-0.61*** (-6.79)	-0.61*** (-6.98)	-0.47*** (-4.97)
Traditional gender role (individual)			-0.09*** (-15.48)	-0.09*** (-15.48)	-0.06*** (-11.07)	-0.04*** (-8.31)	-0.04*** (-8.32)
<b>Macro - Level Controls</b>							
GDP				0.00 (0.08)	-0.00 (-0.09)	-0.00 (-0.61)	-0.00 (-0.37)
Natural rents				-0.00 (-0.13)	-0.00 (-0.52)	-0.00 (-0.62)	-0.00 (-0.41)
Africa				0.22*** (3.12)	0.30*** (4.67)	0.28*** (4.58)	0.26*** (4.38)
<b>Mechanisms individual level</b>							
<i>Education (Ref. Secondary)</i>							
Less than primary					-0.24*** (-26.03)	-0.20*** (-22.44)	-0.20*** (-22.34)
Primary					-0.16*** (-18.34)	-0.12*** (-14.59)	-0.12*** (-14.55)
Incomplete Secondary					-0.08*** (-12.17)	-0.07*** (-10.76)	-0.07*** (-10.76)
University					0.14*** (21.82)	0.13*** (20.72)	0.13*** (20.71)
<i>Family status (Ref. Single)</i>							
Married						-0.15*** (-20.81)	-0.15*** (-20.80)
Divorced/seperated						0.02** (2.24)	0.02** (2.24)

Widowed						-0.01 (-0.89)	-0.01 (-0.88)
<i>Number of children (Ref. No children)</i>							
One child						-0.08*** (-10.25)	-0.08*** (-10.27)
Two children						-0.08*** (-10.66)	-0.08*** (-10.68)
More than two children						-0.10*** (-13.15)	-0.10*** (-13.17)
<b>Mechanisms country level</b>							
Divorce legislation							-0.03 (-0.49)
Movement legislation							-0.15** (-2.17)
Public childcare							0.09* (1.92)
Constant	0.74*** (29.98)	0.70*** (41.75)	0.73*** (43.17)	0.72*** (31.40)	0.73*** (35.81)	0.89*** (43.95)	0.82*** (17.76)
Variance (Const)	0.04	0.02	0.02	0.02	0.01	0.01	0.01
Variance (Residual)	0.16	0.16	0.16	0.16	0.15	0.14	0.14
ICC	0.20	0.11	0.11	0.11	0.06	0.07	0.07
LL	-16010.13	-15980.65	-15861.31	-15856.64	-15001.23	-14044.23	-14039.04

Note: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01; z-statistics in parentheses.

Source: EVS/WVS data; own calculations.

**Table A.4: Impact of culture depending on development (restricted sample)**

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
Social norm (country)	-0.68*** (-6.76)	-0.68*** (-6.80)	-0.62*** (-5.90)
Traditional gender role (individual)	-0.09*** (-10.60)	-0.09*** (-11.22)	-0.09*** (-10.59)
<b>Macro - Level Controls</b>			
GDP	0.00 (0.31)	0.00 (0.29)	0.00 (1.52)
Natural rents	-0.00 (-0.02)	0.00 (0.01)	-0.00 (-0.03)
Africa	0.21*** (2.93)	0.21*** (2.91)	0.24*** (3.31)
<b>Interactions GDP</b>			
GDP*Gender role		-0.00*** (-3.00)	
GDP*Social norm			0.01* (1.66)
Constant	0.71*** (31.48)	0.71*** (31.44)	0.73*** (28.80)
Variance (Const)	0.017	0.017	0.016
Variance (Gender Role)	0.002	0.002	0.002
Covariance Random Slope	0.001	0.001	0.001
Variance (Residual)	0.158	0.158	0.158
LL	-15842.99	-15838.69	-15841.67

Note: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01; z-statistics in parentheses.

Source: EVS/WVS data; own calculations.

**Table A.5: Impact of culture depending on family status (restricted sample)**

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
Social norm (country)	-0.68*** (-6.94)	-0.45*** (-4.51)	-0.68*** (-6.93)
Traditional gender role (individual)	-0.07*** (-8.29)	-0.07*** (-8.23)	0.01 (0.71)
<b>Macro - Level Controls</b>			
GDP	-0.00 (-0.30)	-0.00 (-0.21)	-0.00 (-0.27)
Natural rents	-0.00 (-0.11)	-0.00 (-0.19)	-0.00 (-0.12)
Africa	0.20*** (2.92)	0.20*** (2.95)	0.20*** (2.95)
<b>Family status (Ref. Single w/o children)</b>			
Married w/o children	-0.17*** (-17.21)	-0.17*** (-17.96)	-0.13*** (-11.89)
Other w/o children	-0.06*** (-2.63)	-0.06*** (-2.79)	-0.06** (-2.23)
Single with children	-0.14*** (-11.66)	-0.12*** (-6.76)	-0.13*** (-9.97)
Married with children	-0.27*** (-45.39)	-0.27*** (-45.93)	-0.25*** (-36.07)
Other with children	-0.11*** (-11.96)	-0.11*** (-12.04)	-0.09*** (-8.46)
<b>Social norm*Family status</b>			
Married w/o children		-0.41*** (-9.96)	
Other w/o children		-0.18* (-1.94)	
Single with children		-0.05 (-0.61)	
Married with children		-0.29*** (-11.32)	
Other with children		-0.20*** (-4.77)	
<b>Preference*Family status</b>			
Married w/o children			-0.14*** (-6.28)
Other w/o children			-0.01 (-0.23)
Single with children			-0.02 (-0.67)
Married with children			-0.09*** (-6.66)
Other with children			-0.09*** (-4.27)

Constant	0.90*** (39.90)	0.91*** (40.42)	0.89*** (38.83)
Variance (Const)	0.016	0.016	0.016
Variance (Gender Role)	0.002	0.002	0.002
Covariance Random Slope	0.000	0.000	0.000
Variance (Residual)	0.147	0.146	0.147
LL	-14738.52	-14657.93	-14707.71

*Note:* \* p<0.10, \*\* p<0.05, \*\*\* p<0.01; z-statistics in parentheses.  
*Source:* EVS/WVS data; own calculations.

**Table A.6: Effect of religion on FLFP (restricted sample)**

	Model 1	Model 2	Model 3	Model 4	Model 5
<b>Denomination country (Ref. Protestant)</b>					
Mixed	-0.17** (-2.55)	-0.15** (-2.28)	-0.15** (-2.40)	-0.15** (-2.44)	-0.14** (-2.53)
Buddhist	-0.07 (-0.65)	-0.05 (-0.46)	-0.02 (-0.24)	0.01 (0.12)	0.08 (0.84)
Catholic	-0.14** (-2.51)	-0.14** (-2.56)	-0.12** (-2.26)	-0.11** (-2.21)	-0.11** (-2.43)
Hindu	-0.51*** (-3.42)	-0.36** (-2.45)	-0.24* (-1.71)	-0.24* (-1.77)	-0.20 (-1.57)
Muslim	-0.43*** (-6.88)	-0.32*** (-5.05)	-0.30*** (-5.06)	-0.29*** (-5.15)	-0.20*** (-3.71)
Orthodox	-0.15** (-2.28)	-0.15** (-2.29)	-0.17*** (-2.84)	-0.15*** (-2.60)	-0.15*** (-2.98)
<b>Share of Atheists</b>	0.19** (2.00)	0.15 (1.57)	0.11 (1.21)	0.12 (1.41)	0.07 (0.89)
<b>Denomination individual (Ref. Protestant)</b>					
No religion		0.01 (0.89)	0.01 (1.03)	-0.01 (-0.60)	-0.01 (-0.60)
Buddhist		-0.03 (-1.20)	-0.02 (-0.62)	-0.01 (-0.62)	-0.01 (-0.54)
Catholic		0.00 (0.25)	0.00 (0.22)	0.00 (0.21)	0.00 (0.20)
Hindu		-0.19*** (-6.41)	-0.19*** (-6.52)	-0.16*** (-5.79)	-0.16*** (-5.79)
Jewish		0.06 (1.06)	0.03 (0.47)	0.01 (0.20)	0.01 (0.20)
Muslim		-0.13*** (-9.45)	-0.10*** (-7.19)	-0.09*** (-6.68)	-0.09*** (-6.65)
Orthodox		0.01 (0.57)	0.01 (0.59)	0.00 (0.06)	0.00 (0.02)
Other		-0.01 (-0.80)	-0.00 (-0.29)	-0.02 (-1.01)	-0.02 (-1.01)
<b>Mechanisms individual level</b>					
<i>Education (Ref. Secondary)</i>					
Less than primary			-0.24*** (-26.10)	-0.20*** (-22.37)	-0.20*** (-22.26)
Primary			-0.16*** (-18.70)	-0.12*** (-14.80)	-0.12*** (-14.75)
Incomplete Secondary			-0.08*** (-12.28)	-0.07*** (-10.77)	-0.07*** (-10.77)
University			0.14*** (22.29)	0.13*** (21.00)	0.13*** (20.99)
<i>Family status (Ref. Single)</i>					
Married				-0.15***	-0.15***

				(-20.76)	(-20.75)
Divorced/seperated				0.02**	0.02**
				(2.33)	(2.34)
Widowed				-0.01	-0.01
				(-0.89)	(-0.88)
<i>Number of children (Ref. No children)</i>					
One child				-0.08***	-0.08***
				(-10.44)	(-10.46)
Two children				-0.08***	-0.08***
				(-11.00)	(-11.03)
More than two children				-0.11***	-0.11***
				(-13.37)	(-13.39)
<b>Mechanisms country level</b>					
Divorce legislation					-0.12**
					(-1.96)
Movement legislation					-0.19***
					(-2.73)
Public childcare					0.05
					(0.87)
Constant	0.93***	0.93***	0.93***	1.08***	1.04***
	(18.72)	(18.91)	(19.96)	(24.36)	(15.79)
Variance (Const)	0.02	0.02	0.02	0.01	0.01
Variance (Residual)	0.16	0.16	0.15	0.14	0.14
ICC	0.11	0.11	0.12	0.07	0.07
LL	-15978.9	-15891.8	-15008.8	-14039.4	-14030.5

Note: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01; z-statistics in parentheses.

Source: EVS/WVS data; own calculations.

**Table A.7: Impact of religion on gender role attitudes (restricted sample)**

	<b>Model 0</b>	<b>Model 1</b>	<b>Model 2</b>
<b>Denomination country (Ref. Protestant)</b>			
Mixed		0.14** (2.44)	0.13** (2.36)
Buddhist		0.26*** (2.77)	0.26*** (2.79)
Catholic		0.09** (1.99)	0.10** (2.07)
Hindu		0.32** (2.54)	0.28** (2.22)
Muslim		0.43*** (8.09)	0.37*** (6.88)
Orthodox		0.16*** (2.97)	0.16*** (2.88)
<b>Share of Atheists</b>		-0.24*** (-2.98)	-0.22*** (-2.71)
<b>Denomination individual (Ref. Protestant)</b>			
No religion			-0.01 (-0.69)
Buddhist			-0.01 (-0.23)
Catholic			-0.01 (-0.54)
Hindu			0.05* (1.68)
Jewish			0.01 (0.10)
Muslim			0.07*** (5.01)
Orthodox			0.00 (0.11)
Other			-0.01 (-0.37)
Constant	0.26*** (10.92)	0.09** (2.05)	0.09** (2.09)
Variance (Const)	0.04	0.01	0.01
Variance (Residual)	0.16	0.16	0.16
ICC	0.20	0.06	0.06
LL	-16127.64	-16086.33	-16063.11

Note: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01; z-statistics in parentheses.

Source: EVS/WVS data; own calculations.

**Table A.8: Interrelation between religion, attitudes, and FLFP (restricted sample)**

	<b>Model 1</b>		<b>Model 2</b>		<b>Model 3</b>	
<b>Denomination country (Ref. Protestant)</b>						
Mixed	-0.15**	(-2.28)	-0.08	(-1.25)	-0.09	(-1.28)
Buddhist	-0.05	(-0.46)	0.08	(0.70)	0.08	(0.68)
Catholic	-0.14**	(-2.56)	-0.10*	(-1.79)	-0.10*	(-1.80)
Hindu	-0.36**	(-2.45)	-0.22	(-1.49)	-0.22	(-1.52)
Muslim	-0.32***	(-5.05)	-0.12	(-1.37)	-0.12	(-1.45)
Orthodox	-0.15**	(-2.29)	-0.06	(-0.86)	-0.06	(-0.92)
<b>Share of Atheists</b>	0.15	(1.57)	0.04	(0.45)	0.04	(0.47)
<b>Denomination individual (Ref. Protestant)</b>						
no rel	0.01	(0.89)	0.01	(0.91)	0.01	(0.80)
Buddhist	-0.03	(-1.20)	-0.03	(-1.24)	-0.03	(-1.25)
Catholic	0.00	(0.25)	0.00	(0.26)	0.00	(0.21)
Hindu	-0.19***	(-6.41)	-0.19***	(-6.41)	-0.19***	(-6.29)
Jewish	0.06	(1.06)	0.06	(1.07)	0.06	(1.08)
Muslim	-0.13***	(-9.45)	-0.13***	(-9.37)	-0.13***	(-8.99)
Orthodox	0.01	(0.57)	0.01	(0.61)	0.01	(0.61)
Other	-0.01	(-0.80)	-0.01	(-0.78)	-0.01	(-0.82)
<b>Attitudes</b>						
Country level			-0.42***	(-3.32)	-0.34***	(-2.70)
Individual level					-0.08***	(-15.06)
Constant	0.93***	(18.91)	0.82***	(14.78)	0.85***	(15.29)
Variance (Const)	0.02		0.02		0.02	
Variance (Residual)	0.16		0.16		0.16	
ICC	0.11		0.11		0.11	
LL	-15891.78		-15886.65		-15773.61	

**Note:** \* p<0.10, \*\* p<0.05, \*\*\* p<0.01; z-statistics in parentheses.

**Source:** EVS/WVS data; own calculations.

**Table A.9: Cultural explanations for low FLFP in MENA (restricted sample)**

	<b>Model 1</b>	<b>Model 4</b>	<b>Model 7</b>	<b>Model 8</b>	<b>Model 9</b>
<b>MENA</b>	-0.46*** (-8.74)	-0.25*** (-4.19)	-0.29*** (-4.19)	-0.36*** (-4.33)	-0.15* (-1.72)
<b>Attitudes</b>					
Social norm country		-0.38*** (-4.20)			-0.30*** (-2.81)
Gender role belief individual		-0.09*** (-15.48)			-0.08*** (-15.14)
<b>Religion</b>					
Muslim country			-0.06 (-1.12)		0.04 (0.75)
Muslim individual			-0.13*** (-11.18)		-0.12*** (-10.60)
<b>Legal discrimination</b>					
Divorce restrictions				-0.02 (-0.25)	-0.00 (-0.07)
Movement restrictions				-0.20** (-2.01)	-0.17** (-2.08)
Constant	0.79*** (43.07)	0.77*** (42.23)	0.81*** (44.55)	0.79*** (44.20)	0.79*** (36.44)
Variance (Const)	0.02	0.02	0.02	0.02	0.01
Variance (Residual)	0.16	0.16	0.16	0.16	0.16
ICC	0.11	0.11	0.11	0.11	0.06
LL	-15983.93	-15853.44	-15917.43	-15981.84	-15795.09

Note: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01; z-statistics in parentheses.

Source: EVS/WVS data; own calculations.

**Table A.10: Structural explanations for low FLFP (restricted sample)**

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>	<b>Model 5</b>	<b>Model 6</b>
<b>MENA</b>	-0.46***	-0.42***	-0.40***	-0.33***	-0.34***	-0.15*
	(-8.74)	(-7.46)	(-7.48)	(-6.26)	(-6.85)	(-1.85)
<b>Natural rents</b>		-0.00	-0.00	-0.00	-0.00	0.00
		(-1.64)	(-0.94)	(-1.30)	(-1.32)	(0.44)
<b>GDP</b>			0.00***	0.00**	0.00*	-0.00
			(3.10)	(2.23)	(1.73)	(-0.04)
<b>Education (Ref. Secondary)</b>						
Less than primary				-0.24***	-0.20***	-0.20***
				(-26.56)	(-22.69)	(-21.80)
Primary				-0.16***	-0.12***	-0.12***
				(-18.86)	(-14.86)	(-14.39)
Incomplete Secondary				-0.08***	-0.07***	-0.07***
				(-12.53)	(-10.98)	(-10.57)
University				0.14***	0.13***	0.13***
				(22.43)	(21.13)	(20.54)
<b>Family status (Ref. Single)</b>						
Married					-0.15***	-0.15***
					(-21.01)	(-20.75)
Divorced/seperated					0.02**	0.02**
					(2.29)	(2.18)
Widowed					-0.01	-0.02
					(-0.94)	(-0.96)
<b>Number of children (Ref. No children)</b>						
One child					-0.08***	-0.08***
					(-10.32)	(-10.33)
Two children					-0.08***	-0.08***
					(-10.90)	(-10.75)
More than two children					-0.11***	-0.10***
					(-13.46)	(-13.00)
<b>Attitudes</b>						
Social norm country						-0.24*
						(-1.95)
Gender role belief individual						-0.04***
						(-8.18)
<b>Religion</b>						
Muslim country						-0.01
						(-0.09)
Muslim individual						-0.08***
						(-7.05)
<b>Legal discrimination</b>						
Divorce restrictions						0.02
						(0.29)
Movement restrictions						-0.14*

Constant	0.79*** (43.07)	0.81*** (38.54)	0.78*** (36.76)	0.81*** (38.09)	0.97*** (47.88)	(-1.75) 0.95*** (41.51)
Variance (Const)	0.02	0.02	0.02	0.02	0.02	0.01
Variance (Residual)	0.16	0.16	0.16	0.15	0.14	0.14
ICC	0.11	0.11	0.11	0.12	0.13	0.07
LL	-15983.9	-15982.6	-15978.1	-15071.8	-14085.7	-14020

*Note:* \* p<0.10, \*\* p<0.05, \*\*\* p<0.01; z-statistics in parentheses.

*Source:* EVS/WVS data; own calculations.

**Table A.11: Impact of education and family formation in MENA (restricted sample)**

	<b>Model 1</b>		<b>Model 2</b>	
<b>MENA</b>	-0.33***	(-6.26)	-0.25***	(-4.98)
<b>Natural rents</b>	-0.00	(-1.31)	-0.00	(-1.37)
<b>GDP</b>	0.00**	(2.39)	0.00*	(1.82)
<b>Education (Ref. Secondary)</b>				
Less than primary	-0.21***	(-17.19)	-0.21***	(-23.23)
Primary	-0.11***	(-11.26)	-0.12***	(-15.05)
Incomplete Secondary	-0.08***	(-10.83)	-0.07***	(-11.00)
University	0.11***	(16.50)	0.13***	(21.32)
<b>MENA*Education (Ref. Secondary)</b>				
Less than primary	-0.04**	(-2.10)		
Primary	-0.13***	(-6.72)		
Incomplete Secondary	-0.03*	(-1.67)		
University	0.20***	(10.73)		
<b>Family status (Ref. Single w/o children)</b>				
Married w/o children			-0.13***	(-12.25)
Other w/o children			-0.01	(-0.46)
Single with children			-0.09***	(-7.54)
Married with children			-0.22***	(-34.32)
Other with children			-0.06***	(-6.07)
<b>MENA*Family status (Ref. Single w/o children)</b>				
Married w/o children			-0.17***	(-7.03)
Other w/o children			-0.12**	(-2.23)
Single with children			-0.04	(-0.43)
Married with children			-0.11***	(-7.45)
Other with children			-0.07**	(-2.39)
Constant	0.80***	(38.53)	0.96***	(46.82)
Variance (Const)	0.02		0.02	
Variance (Residual)	0.15		0.14	
ICC	0.12		0.13	
LL	-14958.2		-14059.4	

Note: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01; z-statistics in parentheses.

Source: EVS/WVS data; own calculations.

**Table A.12: Effect of social norms and gender roles on FLFP (logistic regression)**

	<b>Model 0</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>	<b>Model 5</b>	<b>Model 6</b>
Social norm (country)		-0.70*** (-9.60)	-0.63*** (-8.51)	-0.60*** (-6.00)	-0.51*** (-5.38)	-0.50*** (-5.55)	-0.36*** (-3.59)
Traditional gender role (individual)			-0.08*** (-12.14)	-0.08*** (-11.90)	-0.05*** (-9.07)	-0.04*** (-6.77)	-0.03*** (-6.73)
<b>Macro - Level Controls</b>							
GDP				0.00 (0.31)	0.00 (0.08)	-0.00 (-0.25)	-0.00 (-0.26)
Natural rents				-0.00 (-0.36)	-0.00 (-0.79)	-0.00 (-0.89)	-0.00 (-0.73)
Africa				0.10* (1.72)	0.15*** (3.28)	0.14*** (2.92)	0.13*** (2.79)
<b>Mechanisms individual level</b>							
<i>Education (Ref. Secondary)</i>							
Less than primary					-0.26*** (-16.39)	-0.20*** (-15.51)	-0.20*** (-15.25)
Primary					-0.16*** (-13.37)	-0.12*** (-11.39)	-0.11*** (-11.13)
Incomplete Secondary					-0.08*** (-10.86)	-0.07*** (-9.97)	-0.07*** (-9.80)
University					0.12*** (14.93)	0.12*** (15.46)	0.12*** (14.42)
<i>Family status (Ref. Single)</i>							
Married						-0.17*** (-16.81)	-0.16*** (-15.61)
Divorced/seperated						-0.00	-0.00

Widowed						(-0.05)	(-0.05)
						-0.06***	-0.05***
						(-4.31)	(-4.27)
<i>Number of children (Ref. No children)</i>							
One child						-0.08***	-0.08***
						(-10.18)	(-9.97)
Two children						-0.09***	-0.08***
						(-10.78)	(-10.55)
More than two children						-0.10***	-0.09***
						(-11.37)	(-11.09)
<b>Mechanisms country level</b>							
Divorce legislation							-0.13*
							(-1.68)
Movement legislation							-0.06
							(-0.62)
Public childcare							0.12*
							(1.77)
Variance (Const)	1.84	0.99	1.00	0.97	1.00	1.08	0.96
ICC	0.36	0.23	0.23	0.23	0.23	0.25	0.23
LL	-17490.76	-17466.09	-17357.23	-17356	-16457.35	-15263.66	-15259.38

Note: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01; average marginal effects; z-statistics in parentheses.

Source: EVS/WVS data; own calculations.

**Table A.13: Impact of religion on FLFP (logistic regression)**

	Model 1		Model 2		Model 3		Model 4		Model 5	
<b>Denomination country (Ref. Protestant)</b>										
Mixed	-0.17***	(-3.10)	-0.17***	(-3.07)	-0.18***	(-3.08)	-0.18***	(-3.11)	-0.17***	(-3.34)
Buddhist	-0.06	(-0.90)	-0.07	(-0.84)	-0.05	(-0.64)	-0.03	(-0.43)	0.03	(0.51)
Catholic	-0.13***	(-3.97)	-0.15***	(-4.05)	-0.14***	(-3.68)	-0.14***	(-3.52)	-0.14***	(-3.74)
Hindu	-0.54**	(-2.28)	-0.40*	(-1.71)	-0.27	(-1.31)	-0.26	(-1.37)	-0.23	(-1.33)
Muslim	-0.45***	(-7.34)	-0.34***	(-5.83)	-0.33***	(-5.60)	-0.32***	(-5.76)	-0.21***	(-3.93)
Orthodox	-0.15***	(-3.40)	-0.18***	(-3.57)	-0.21***	(-3.91)	-0.20***	(-3.71)	-0.20***	(-4.11)
<b>Share of Atheists</b>	0.12	(1.07)	0.08	(0.71)	0.02	(0.21)	0.04	(0.41)	-0.03	(-0.30)
<b>Denomination individual (Ref. Protestant)</b>										
No religion			0.01	(1.00)	0.02	(1.44)	0.00	(0.15)	0.00	(0.16)
Buddhist			-0.03	(-1.17)	-0.01	(-0.49)	-0.00	(-0.13)	-0.00	(-0.06)
Catholic			-0.00	(-0.31)	-0.00	(-0.19)	-0.00	(-0.13)	-0.00	(-0.14)
Hindu			-0.19***	(-5.75)	-0.18***	(-5.79)	-0.14***	(-4.97)	-0.13***	(-4.92)
Jewish			0.08	(1.52)	0.06	(0.99)	0.05	(0.92)	0.05	(0.92)
Muslim			-0.14***	(-8.84)	-0.10***	(-6.70)	-0.09***	(-6.28)	-0.08***	(-6.24)
Orthodox			0.01	(0.90)	0.02	(1.28)	0.01	(1.01)	0.01	(0.99)
Other			-0.01	(-0.69)	0.00	(0.13)	-0.01	(-0.59)	-0.01	(-0.58)
<b>Mechanisms individual level</b>										
<i>Education (Ref. Secondary)</i>										
Less than primary					-0.27***	(-17.47)	-0.21***	(-15.89)	-0.20***	(-15.91)
Primary					-0.17***	(-13.96)	-0.12***	(-11.61)	-0.12***	(-11.41)
Incomplete Secondary					-0.09***	(-11.02)	-0.07***	(-10.03)	-0.07***	(-9.88)
University					0.13***	(13.33)	0.13***	(15.10)	0.12***	(14.39)
<i>Family status (Ref. Single)</i>										
Married							-0.18***	(-17.00)	-0.17***	(-16.00)

Divorced/seperated	-0.00	(-0.02)	-0.00	(-0.02)
Widowed	-0.06***	(-4.31)	-0.06***	(-4.28)
<i>Number of children (Ref. No children)</i>				
One child	-0.09***	(-10.22)	-0.08***	(-10.08)
Two children	-0.09***	(-10.94)	-0.09***	(-10.77)
More than two children	-0.10***	(-11.38)	-0.10***	(-11.19)
<b>Mechanisms country level</b>				
Divorce legislation			-0.23***	(-2.83)
Movement legislation			-0.13	(-1.33)
Public childcare			0.05	(0.80)

*Note:* \* p<0.10, \*\* p<0.05, \*\*\* p<0.01; average marginal effects; z-statistics in parentheses.

*Source:* EVS/WVS data; own calculations.

**Table A.14: Cultural explanations for low FLFP in MENA (logistic regression)**

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>	<b>Model 5</b>
<b>MENA</b>	-0.47*** (-6.12)	-0.16* (-1.82)	-0.22** (-2.05)	-0.26** (-2.03)	0.01 (0.08)
<b>Attitudes</b>					
Social norm country		-0.46*** (-4.28)			-0.35*** (-2.83)
Gender role belief individual		-0.08*** (-11.44)			-0.07*** (-11.09)
<b>Religion</b>					
Muslim country			-0.10 (-1.38)		0.03 (0.47)
Muslim individual			-0.13*** (-9.37)		-0.11*** (-9.12)
<b>Legal discrimination</b>					
Divorce restrictions				-0.15 (-1.21)	-0.14 (-1.34)
Movement restrictions				-0.20 (-1.32)	-0.14 (-1.14)

*Note:* \* p<0.10, \*\* p<0.05, \*\*\* p<0.01; average marginal effects; z-statistics in parentheses.  
*Source:* EVS/WVS data; own calculations.