Female Labor Market Participation and Socioeconomic Development: Disentangling the U-Shaped Hypothesis

Kasrin, Zein and Smolny, Werner

Institute of Economic Policy, Ulm University

August 2019

Female Labor Market Participation and Socioeconomic Development: Disentangling the U-Shaped Hypothesis

Zein Kasrin[a] and Werner Smolny[b]

Institute of Economic Policy, Ulm University

August 2019

Abstract

The U-shaped hypothesis of the relation between economic development and female labor market participation has been a main framework for analyzing female labor market patterns. However, it mixes up two dimensions of development: the increase in income level and the development of social norms from traditional to modern. We disentangle the U-shaped hypothesis by explicitly accounting for social norms within the socioeconomic development process. This allows for a richer analysis of female labor market participation in countries which have developed more in one of the development dimensions rather than the other. To demonstrate, Saudi Arabia is a rich and traditional country while many countries in Eastern Europe are relatively poor and modern. We hypothesize implications of these 'rather one-sided' development scenarios on female labor market participation outcomes. We then test this framework on a regional level for Egypt and Germany and find family formation to be much more detrimental for female employment in the rich and traditional regions.

JEL Classification: B55, J16, R11, I25.

Keywords: Female Labor Market Participation, Socioeconomic Development, Social Norms, Germany, Egypt.

[a] Corresponding Author. Email: zein.kasrin@alumni.uni-ulm.de.
[b] Email: werner.smolny@uni-ulm.de.

*We are grateful for comments on the paper from Tino Conrad, Prof. Dr. Guenter Lang, Dr. Sheena Crawford and Rayan Mohamed. The paper also benefited from comments received at the 2017 Annual BAGSS conference in Bamberg.

1. Introduction

Many studies examining the relationship between female labor market participation (FLMP) and the level of economic development found it to be U-shaped (Psacharopoulos and Tzannatos 1989; Goldin 1995; Mammen and Paxson 2000). Explanations for this relationship were then formulated in the so-called U-shaped hypothesis by Goldin (1995). High FLMP in developing countries reflects a high necessity to work unpaid on family fields to contribute to household income. FLMP drops in middle stages of development due to the shift from work on family fields to wage work, which is mainly performed by men. As the country further develops, FLMP rises due to rising female education levels, higher employment opportunities in the white-collar sector in addition to advancements in females' social and legal status (Goldin 1995).

The factors influencing a female's decision to join the labor market are more complex in reality and cannot only be measured by the level of per capita income. This is one reason why the U-shaped hypothesis does not seem to apply for many countries (Verick 2014). We believe that this is because another important dimension, governed by social norms, influences the participation decision. Although there is abundant literature on the influence of gender norms on FLMP, how gender norms influence FLMP in the context of economic development is lacking.

To tackle this research gap, we propose a macrolevel model that disentangles the U-shaped hypothesis. The model considers two dimensions, the income level and the type of social norms. Socioeconomic development implies that along with higher income levels, social norms towards female work change from traditional to modern. The objective is to use the model to explore how socioeconomic development moderates microlevel labor market participation determinants.

The model is also useful for analyzing FLMP on a regional level. We utilize it to examine the influence of individual and household participation determinants across different regional contexts within Egypt and Germany. Our study contributes to the social economics literature, which examines how individual behavior is affected by social and aggregate-level factors (Costa-Font and Macis 2017). The use of social economics within the labor market literature is relatively new and still limited for both developing and developed countries. The growing literature on this topic showed significant effects of macrolevel contexts, given by different welfare systems and country level variables, on the participation decision (Cipollene et al. 2014; Spierings et al. 2010; Bussemakers et al. 2017; Steiber et al. 2016).

The paper is organized as follows. Section 2 develops the macrolevel model for analyzing socioeconomic development and its effect on FLMP. This is followed by an overview of the regional socioeconomic development indicators for Egypt and Germany and the regional placement for each country based on the macrolevel model. In Section 3, a literature review on FLMP determinants on the microlevel and the more recent studies which also incorporate the macrolevel context are presented. Section 4 explains the research hypotheses on the moderating effects of the macrolevel context on the

microlevel determinants of FLMP for Egypt and Germany, while Section 5 describes the datasets used in the estimations and presents the estimation methodology. The empirical results and discussion for Egypt and Germany are presented in Section 6. The conclusion is presented in Section 7.

2. Macrolevel Model

According to Goldin (1995), the adult female's labor market participation across the economic development process is U-shaped. At the initial stages of development, countries are poor and the economy is based on elementary agricultural production, mainly performed in family farms. Females participate to a large extent in the labor force at this stage, sometimes as paid laborers but more often in unpaid family work. As income levels increase due to the industrialization process brought about by new technology, FLMP falls, creating the downward portion of the U-shaped curve. Industrialization shifts the locus of production from the family farm to manual wage employment in agriculture, industry, construction and transportation. Such jobs are usually taken by men due to social stigma against married female participation in manual labor. Higher income levels from male wage employment also lead to an income effect, which serves to reduce a married female's necessity to work and FLMP. Male education levels rise at this development stage, while female education levels remain low.

The upward portion of the U-shaped curve reflects countries at much higher stages of development and economic prosperity. High income levels at this stage fuel female schooling, expanding the supply of educated workers with secondary education. This comes hand in hand with advancements in females' social and legal status. Higher per capita income levels in this stage also highlight a structural transformation of the economy reflected by a shrinking agriculture sector and an expansion of the service sector. Although income levels reduce the necessity to work, the high supply of educated females along with a high demand of labor in the service sector lead to an increase in FLMP and wage employment (Goldin 1995).

Our macrolevel model takes the U-shaped hypothesis between economic development and FLMP as a starting point. The U-shaped hypothesis acknowledges the influence of social norms in the initial phase of industrialization, where the shift from unpaid family work in family fields to wage work is dominated by men due to social barriers against female work outside the household context. With the shift to a highly developed country, the hypothesis focuses on economic motivations on the demand side (higher job opportunities in the white-collar sector) and on the supply side (higher female education, lower fertility, greater legal and social rights) to explain rising FLMP (Goldin 1995; Duflo 2012; Verick 2014).

The specific influence of social norms on FLMP after the industrialization phase is not examined in the U-shaped hypothesis. This is because the hypothesis assumes that traditional social norms become modern with higher economic development. The assumption is unrealistic as a country can develop economically and remain rather traditional. Or social norms could become less traditional, but a country can remain relatively poor. This has important implications on FLMP; Turkey and India have much

lower FLMP compared with other countries at a similar economic development stage, while China's FLMP is higher (Verick 2014; Dildar 2015).

The influence of culture and social norms in shaping economic phenomena has long been acknowledged by prominent founders in the economics, political science and sociology fields, including Adam Smith, John Stuart Mill and Max Weber (Guiso et al. 2006). Max Weber emphasized how differences in the rationalization of religious values between Christianity and far Eastern religions (Hinduism in India and Confucianism in China) influenced socioeconomic development. He explained that religious values inherent in Christianity encouraged the development of capitalism in the West, while religious values inherent in Hinduism and Confucianism resulted in other socioeconomic structures for India and China (Weber 1930).

Other works by Gramsci (1949) and Polanyi et al. (1957) underlined the importance of dominant culture or non-economic factors such as religion and government on the structure and functioning of the economy. Although such prominent works were highly influential in political science and sociology after World War II, they were largely ignored by economists, who focused their analysis on rational choice decision making (Costa-Font and Macis 2017; Guiso et al. 2006). Due to a large dissatisfaction of many economists with the purely individualistic neoclassical model of the rational-choice behavior, social economics as a field of research started to grow and flourish.

Whereas the rational-choice approach views social phenomena as an aggregation of individuals' behavior, social economics acknowledges that individuals are embedded in a social context and subject to various social values and norms which influence their behavior (Costa-Font and Macis 2017). A prominent work in this vein is the model developed by Akerlof and Kranton (2000) which introduced the concept of identity in an individual's utility function, to endogenize the influence of preferences on economic decisions.

Identity, defined as a person's sense of self, is based on belonging to a social category with a set of norms guiding behavior. Not abiding by the social norms leads to a drop in a person's utility since it causes anxiety and discomfort, while following the norm enforces individual identity and raises utility. A married females' identity is traditionally tied to be a caring mother who sacrifices her career aspirations to raise her children in a good manner. If a married woman decides to work, she is challenging the gender norm of how she should behave to be a 'good' or 'model' mother. This causes distress in her identity and leads to a fall in utility.

We incorporate the influence of social norms within the macrolevel context to better explain the microlevel FLMP decision. Traditional societies are defined as those where social norms are strictly defined with respect to gender roles in the society; a married female is responsible for homemaking and child-rearing, while the man is responsible for money making. This often correlates with conservative religious views and leads to a drop in female labor market participation after marriage.

Table 1. *Socioeconomic development and its influence on FLMP*

	Traditional	**Modern**	
Poor	MENA	Eastern Europe	*High*
Rich	Saudi Arabia	North & Central Europe	*Low*
	Low	*High*	

On the other hand, modern societies are defined as those where social norms are not strictly defined with respect to gender roles. This leads to a large acceptability towards female employment after marriage in modern societies. The movement from the traditional male breadwinner model to a dual-family earning model is also usually reflected by the legal and institutional framework.

The development path of countries based on the macrolevel model is shown in table 1. Socioeconomic development is given by the diagonal section of the model, moving from poor and traditional to rich and modern. In poor traditional countries such as the Middle East and North Africa (MENA) region, there is a high necessity to work. Most female participation is concentrated in unpaid family work on agricultural household farms in rural regions, while female wage employment is concentrated in urban regions. In rich and modern countries such as Germany and Sweden, high per capita income and modern social norms lead to high FLMP, due to advancements in female education and abundant female-friendly employment opportunities. This is despite the low necessity to work due to high per capita income levels. The diagonal section of the model hence demonstrates the development path based on the U-shaped hypothesis.

The innovation of our model lies in its ability to explain development paths given by the off-diagonal sections of the macrolevel model. The macrolevel context in these countries is expected to have large moderating effects on microlevel FLMP determinants due to the combination of low or high necessity to work with traditional or modern social norms. In traditional and rich societies, like Saudi Arabia, the necessity to work is low and the social norms are against female work, leading to very low FLMP. While in relatively poor and modern countries such as the previously socialist countries of Eastern Europe, the necessity to work is high and the modern social norms encourage female work, leading to high FLMP.

In addition to its usefulness in classifying socioeconomic development levels *across* countries, the model can be used to analyze regional socioeconomic variations *within* a country. We expect regional differences in socioeconomic development within a country to create similar FLMP patterns to the one presented in table 1. Egypt and Germany provide a good setting to test such hypotheses given significant regional differences in both income levels and type of social norms within both countries. The socioeconomic differences by region for Egypt are shown in table 2.

Table 2. *Contextual Socioeconomic Indicators for Egypt by Region*

	Upper Egypt	Lower Egypt	Metropolitan
Income per capita (median)	2528	2550	3250
Ownership of farm(s) by household	0.25	0.21	0.01
Female Labor Market Participation Rate	0.30	0.44	0.26
Female Illiteracy Rate	0.40	0.28	0.15
Percentage of Muslims	0.91	0.98	0.93
Percentage of Christians	0.09	0.02	0.07

Source: ELMPS 2012. Income per capita is measured in Egyptian Pounds (LE) per 3 months.

Compared to other regions in Egypt, Upper Egypt has the lowest average income levels and the highest percentage of households owning a farm. Only 30 percent of females in this region engage in paid work, with the rest being unpaid family workers on family fields. These statistics reflect the highly rural nature of this region. Development problems in Upper Egypt are aggravated by the fact that it hosts 50 percent of the population and is the poorest region in Egypt (World Bank 2012a). In fact, 60 percent of the poor people and 80 percent of the extremely poor people live in this region. Upper Egypt is also home to the largest concentration of Coptic Christians in the country, and both Christians and Muslims maintain very conservative norms in terms of gender, age and family honor (World Bank 2012b). The low socioeconomic development lead female illiteracy rates in this region to reach 40 percent. Upper Egypt is therefore the most socially conservative region in Egypt.

Lower Egypt has historically been more developed than Upper Egypt due to its proximity to major ports on the Mediterranean Sea and its location on the Nile Delta. The region also represents the main agricultural production zone of the country thanks to the Nile Delta's very fertile soils (Alfiky et al. 2012). The higher development level in this region compared with Upper Egypt is reflected by the education and employment situation of females; 34 percent of female employment is in paid work and female illiteracy rates are lower, at 28 percent. Given that 21 percent of households own a farm and 70 percent of female participation is in unpaid family work reflects the fact that a significant part of Lower Egypt is still rural.

Table 3. *Macrolevel Model for Egypt*

	Traditional	In Between	Modern	
Poor	*Upper Egypt*			High
In Between		*Lower Egypt*		
Rich			*Metropolitan Egypt*	Low
	Low		High	

The metropolitan areas of Greater Cairo Governorate, Alexandria, Port Said and Suez are the most developed regions, with large manufacturing and service sectors. These regions had the highest per capita income in 2012 (4563 LE per three months) and only a negligible percent of households own a farm. Moreover, 85 percent of female employment is in paid work and female illiteracy rates are the lowest in Egypt, at 15.5 percent. In terms of population distribution, only 19 percent of the total population lives in the Metropolitan regions (World Bank 2012a). This makes metropolitan areas the least traditional with respect to female work. The three regions on the Egyptian map are shown in figure 1 of the appendix.

The placement of the regions within the macrolevel model for Egypt is shown in table 3. The metropolitan regions are less traditional and rich and Upper Egypt is conservative and poor. The 'in between' region is Lower Egypt, being closer in proximity to Upper Egypt. Since the poorer regions are also conservative, while the richer regions are less traditional, Egypt's socioeconomic development is represented by the diagonal section of the macrolevel model in table 1.

Germany is also characterized by differences in socioeconomic development by region, as shown in table 4. East Germany should clearly be analyzed separately due to the socialist system that existed there after World War II and until 1990. One of the main objectives of the German Democratic Republic (GDR) was to increase married females' employment through supporting a dual-earning family model (Dorbritz 2008). This was facilitated by macrolevel policies that shifted the social norms from traditional and Christian based values to modern and Atheist.

The GDR encouraged a fast and full-time return of mothers to the labor market through stipulating short maternity leaves and providing state-subsidized daycare centers and kindergartens, which increased female full-time employment rates (Schober and Spiess 2015). High full-time employment rates of East German women remain prevalent after decades of German reunification. As shown in table 4, 61 percent of the share of female employment in East Germany in 2012 is in full-time work, the highest in Germany.

Table 4. *Contextual Socioeconomic Indicators for Germany by Region*

	East	Northwest	South
Income per capita (median)	1800	2300	2400
Female Unemployment Rate	0.18	0.08	0.04
Female Labor Market Participation Rate	0.83	0.76	0.77
Share of Females in Full-time Employment	0.61	0.41	0.41
Percentage of Catholics	0.05	0.34	0.50
Percentage of Protestants	0.22	0.43	0.31
Percentage of Atheists	0.73	0.24	0.19

Source: SOEP 2012. Income per capita measured in Euros per month for 2012.

East Germany lags behind in terms of income and development compared with the other regions. Table 4 shows that the average monthly per capita income is almost 700 euros lower in the East compared with the South and the Northwest regions. The female unemployment rate is also highest in the East at 18 percent. High unemployment rates in the East reflect a series of structural labor market problems in this region since German reunification, whose effects were most detrimental for female employment. In terms of the population distribution, 21 percent live in the East (Peukert and Smolny 2011).

The South and Northwest regions were part of West Germany after World War II and maintained their religious affiliation and the relatively traditional social norms given by the male breadwinner model (Dorbritz 2008). The traditional ideology was reflected in employment policies that put females in a disadvantaged position compared with males and encouraged women's exclusive role as homemaker. For example, instead of actively recruiting women as a response to labor shortages, as was done in the East, the West German state relied on importing guest-workers to preserve the main role of females as homemakers (Adler and Brayfield 1997). Various family tax provisions were also introduced in favor of high income single-earner families (Cooke 2006). Differences in social norms regarding childcare between East and West Germany remain evident. Descriptive statistics from the Statistisches Bundesamt (2012) showed that the day care attendance rate of children under 3 years was only 22 percent in West Germany compared with being 49 percent in East Germany.

Table 4 shows that 41 percent of females are employed in full-time work in both the South and Northwest regions, highlighting the lower labor market attachment compared with females in the East. Nevertheless, Northwest and South Germany differ in the composition of religious belief, with a Catholic majority in the South and a Protestant majority in the Northwest region. The South represents Germany's industrial hub for automotive, electronics, software development and mechanical engineering industries. The region has the highest median per capita income of 2400 euros and the lowest female unemployment rate of 4 percent. South Germany makes up 26.7 percent of the total population.

The median income per capita in the Northwest region is only 100 euros lower than in the South, with the unemployment rate being 4 percent higher. The Northwest region is Germany's banking, financial and foreign direct investments center, in addition to having a prominent chemical and pharmaceutical industry. The Northwest is the largest region in terms of population distribution, hosting 51 percent of the population (Peukert and Smolny 2011). The three regions on the German map are shown in figure 2 of the appendix.

As the level of economic development along with the historical ideology and type of religious affiliation in each of the three regions had varying socialization effects on the importance of employment for females, table 5 shows the regional placement of Germany based on the macrolevel model. The South is rich and relatively traditional, while the East is less rich and less traditional. Northwest Germany is the 'in between' region but is closer to the South than to the East. We expect microlevel participation determinants to vary the most between East and South Germany, since these regions represent the off-diagonal sections of our model in table 1.

Table 5. *Macrolevel Model for Germany*

	Traditional	In Between	Modern	
Poor			*East Germany*	*High*
In Between		*Northwest Germany*		
Rich	*South Germany*			*Low*
	Low		*High*	

3. Literature Review

Neoclassical theories on FLMP consider the influence of individual and household factors on the female participation decision. Mincer (1962) models the participation of married women as dependent on the woman's potential market wage and on the husband's income. An increase in the husband's income reduces a female's incentive to join the labor market through the income effect and leads to lower FLMP. In addition to marriage, the presence of children increases the opportunity cost of participation, as females typically need to spend more time in child-rearing. This leads to a drop in FLMP if substitution for mother's care is not available (Mincer 1962).

Becker (1981) contends that a gendered division of labor provides an optimal allocation of family time. He hypothesizes that marriage gains increase when the wage gaps between potential spouses rise, since it maximizes the gains from market and nonmarket specialization. Utility maximization in the household model implies that the spouse that spends more time in performing household tasks (usually given by females) should specialize in non-market activities, while the other spouse should specialize in market work. This household production model became known as the household specialization model (Becker 1981).

Based on the human capital theory, female participation in the labor market should increase with education since it increases a female's earning potential in the labor market compared with household work, leading to a higher substitution effect (Becker 1962; Mincer 1975). In addition to the human capital argument, higher education enforces values of financial independence, self-development and critical thinking. Such values lead employment to become a core component in an educated female's identity (Bussemakers et al. 2017).

Empirical analysis on FLMP for Egypt found marriage to be the main factor behind lower FLMP, while human capital had the highest positive effect on wage work employment (Assaad and El-Hamidi 2001; Assaad 1997). Empirical literature on how macrolevel context moderates microlevel participation determinants is more limited and mostly recent.

A study by the World Bank (2012b) examines the influence of socioeconomic and cultural factors on young women's and men's employment in Upper Egypt compared to other regions using both empirical and qualitative methods.[1] The study highlights that the conservative social norms impede advancements in female education and employment, although the degree varied by social class. Females coming from the higher wealth quantiles were more likely to continue education and to be employed. University education is crucial for finding a job in the government sector in Upper Egypt, which provides family-friendly working conditions and tenured employment and social security. The characteristics of

[1]The study uses a mixed method approach through an empirical analysis of the 2009 Survey of Young People in Egypt (SYPE), a nationally representative household survey for young people (aged 15-29), in addition to 30 focus groups and 20 in-depth interviews (World Bank 2012b).

government sector employment therefore mitigate the negative influence of social norms on female employment in conservative regions.

Since continuing education and high-quality employment are connected to wealth, most women in Upper Egypt are limited to work in private sector jobs (such as shopkeeper), with long hours and low pay. This is because private sector employment in Upper Egypt is concentrated in micro-sized enterprises that do not provide employment contracts (Kasrin and Lang 2012). Since these job types are socially not acceptable after a woman marries, many females who worked in such jobs explained that they will exit the labor market after marriage (World Bank 2012b).

For Germany, Adler and Brayfield (1997) empirically examine differences in work values and attitudes toward employment for East and West German women, seven months after German reunification. As region of residence reflects differences in past exposure and political ideology, it is used as a rational to test how differences in macrolevel context influence female work attitudes. The study showed that East German women assign more importance to paid work and to the social, financial and cognitive dimensions of jobs compared to West German women. These attitudes were reflected in actual employment decisions, as shown in a more recent study by Hanel and Riphahn (2012) about maternal employment differences between East and West German mothers over time (1996 to 2004).[2] The study showed that maternal employment rates (in full or part-time work) are 12.8 percent higher on average in the East compared with the West (Hanel and Riphahn 2012).

Another part of the literature incorporated macrolevel context in the study of FLMP for a sample of countries. A study by Spierings et al. (2010) for the MENA region examines how level of urbanization and traditional social norms moderate the influence of human capital on FLMP.[3] Higher education was shown to be more important for participation in poorer and more traditional areas. Similar results using a larger sample of countries were shown by Bussmakers et al (2017). This implies that highly educated females in poor conservative areas are less pressured to act in accordance with patriarchal social norms.

Cipollene et al. (2014) test whether type of welfare system influences microlevel FLMP determinants for a sample of EU countries. The countries were divided into four groups: Southern (Spain, Italy, Greece, Portugal), Social Democratic (Sweden, Finland, and Denmark), Liberal (United Kingdom), and Continental (Austria, Belgium, France, Germany, Netherlands, Ireland, and Luxemburg). While the presence of children was negative for FLMP across all regions, marriage had a larger negative influence on FLMP in the country groups with more traditional prescriptions on female roles, given by Southern

[2]The empirical analysis is performed using the German micro census survey (Mikrozensus), which is an annually administered survey that interviews about one percent of all German households.
[3]The authors estimated wage work participation determinants on the individual, household and district level for Algeria, Egypt, Jordan, Morocco, Syria & Tunisia.

and Continental countries as compared with Liberal and Social Democratic countries (Cipollene et al. 2014).

4. Research Hypotheses

We contend that a female's participation and employment decision is shaped by a region's norms, which influences acceptability towards female work, in addition to a region's level of income, which influences a female's necessity to work. We test this argument empirically by examining whether the developed macrolevel context for Egypt and Germany moderates microlevel participation and employment determinants. The microlevel determinants are given by a female's human capital and family status (marriage and the presence of children). The hypotheses for Egypt will be first presented, followed by the hypotheses for Germany.

With respect to family status, the traditional characterization of Egypt means that the male-breadwinner model is the dominant household form after marriage. Therefore, wage work participation is likely to drop after marriage in all regions. However, marital status should not influence participation in unpaid family in Upper and Lower Egypt due to the high necessity to work in family fields for both married and unmarried women. Such work types are also socially acceptable as they occur within the household context. As marriage is the decisive factor behind formal labor market exit, children should play a lower negative influence on wage work participation in all regions in varying degrees.

The negative effect of children on wage work participation is hypothesized to be lower in Upper Egypt compared with the metropolitan regions for two reasons. First, there is a higher necessity for females to contribute to family income in Upper Egypt. Second, it is the social norm for other family members (siblings, aunts or grandmothers) who typically live nearby or in the same household to perform child-rearing while mothers work. Children in the school age are also able to stay with their relatives after school until the mother gets back from work. In metropolitan regions, the areas are larger, so extended families do not necessarily live near each other. Moreover, given that most internal migration in Egypt is from rural to metropolitan regions means that the extended family of many of those in metropolitan regions do not necessarily live in the same region. This means that the only option for many females in the metropolitan regions is to use child-care facilities, which are relatively expensive and not wide-spread in all regions.

Human capital accumulation should increase FLMP and wage employment across all macrolevel contexts in varying magnitudes. The highest influence of education should occur in the poor and traditional region of Upper Egypt, as higher education facilitates finding a waged job with good conditions in the government due to the scarcity of qualified labor in this region. The female-friendly conditions in the government sector lead to high social acceptability towards such employment. In the metropolitan areas, privatization policies initiated in the 1990s led to shrinking government sector job openings and a creation of limited job openings in the formal private sector. At the same time, there is

a high supply of females with the necessary education level to compete for jobs. Shrinking opportunities and higher labor supply increase the importance of family connections for finding a job, and lead to a lower influence of higher education on employment probability compared with Upper Egypt (Kasrin 2019). The following hypotheses on family status and education level will hence be tested for Egypt:

H1: Marriage is not detrimental for unpaid family work in Upper and Lower Egypt.

H2: Marriage is negative for wage employment probability in all regions of Egypt

H3: Children have a higher negative effect on wage employment probability in the metropolitan regions compared with Upper Egypt.

H4: Higher education is more important for wage employment probability in Upper Egypt compared with the metropolitan regions.

In Germany, the rich and relatively traditional norms in the South are likely to be reflected by a high negative influence of marriage on FLMP, particularly on full-time employment. Since the modern norms prevalent in East Germany lead female employment to be as important as homemaking, marriage should not affect employment. The presence of children should be negative for full-time employment in both regions due to child-rearing purposes but is expected to have a higher influence for South Germany given the relatively traditional norms and the lower necessity to work. Finally, lower income levels and higher unemployment rates in the East could lead to a higher importance of human capital on full-time employment compared with the South. The following hypotheses will be therefore tested for Germany:

H5: Marriage is negative for participation and full-time employment probability in South Germany.

H6: Children are more negative for full-time employment probability in South compared with East Germany.

H7: Higher education is more important for full-time employment probability in East compared with South Germany.

5. Dataset Description and Empirical Model

The dataset used for Egypt is the Egypt Labor Market Survey (ELMPS) of 2012, which constitutes the third round of the ELMPS, a nationally representative panel survey covering various labor market characteristics of individuals and households over time. The ELMPS 2012 covered 12,060 households and 49,186 individuals. For detailed information on the ELMPS 2012, see Assaad and Krafft (2013). Descriptive statistics of the variables used in the analysis for the whole sample by region are shown in table 6.

The mean values of female labor market participation and waged work by region for Egypt demonstrate the diagonal sections of the macrolevel model. In the poor and conservative region of Upper Egypt, FLMP rates are high and mainly concentrated in unpaid family work. Higher socioeconomic development in metropolitan regions is reflected by a large concentration of the female work force in waged work or paid employment.

Examining the characteristics of the total sample highlights that a larger percentage of women in the more traditional regions of Upper and Lower Egypt are married and have children under 12 compared with females living in the metropolitan areas. Over 23 percent of females have university education in the metropolitan regions compared with only 8 percent for Upper Egypt, while vocational secondary education is the highest attained degree in all regions. Having a minimum of vocational secondary education allows finding a socially acceptable job in the government sector.

Table 6. *Descriptive Statistics for Egyptian Females by Region*

	Upper Egypt	*Lower Egypt*	*Metropolitan*
Dependent Variables			
Female Labor Market Participation	0.30	0.44	0.26
Waged Work	0.08	0.12	0.185
Explanatory Variables			
Age	32 (13.17)	34 (13.16)	36 (13.90)
Family Status			
Married	0.69 (0.46)	0.73 (0.44)	0.63 (0.48)
Children under 12	0.43 (49)	0.46 (0.49)	0.35 (0.48)
Education			
General Secondary or Less	0.68 (0.46)	0.55 (0.49)	0.47 (0.50)
Vocational Secondary	0.23 (0.42)	0.33 (0.47)	0.29 (0.45)
University	0.08 (0.28)	0.13 (0.33)	0.24 (0.43)
Observations	6166	5868	3075

Source: ELMPS 2012. Sample Age (15-64).

The dataset used for Germany is the 2012 wave of the German Socioeconomic Panel (SOEP). SOEP is a nationally representative panel survey initiated in 1984 and performed annually. The objective of the survey is to study developments in labor market characteristics, quality of life, health situation and various other socioeconomic aspects of around 11,000 households and 30,000 persons. For more detailed information about SOEP, see Wagner et al. (2007). Descriptive statistics of the variables used in the analysis for the whole sample by region are shown in table 7.

Average female labor market participation and full-time employment rates are highest in East Germany, with 83 percent and 38 percent, and lowest in South Germany, with 77 percent and 28 percent. These differences highlight the combined influence given by the off-diagonal scenarios of our macrolevel model. The higher necessity to work coupled with modern social norms lead to higher female labor market attachment in the East compared to the richer and more traditional region of the South.

Statistics for the total sample show that a higher percentage of women is married and has children under 16 in the South compared with the East. 24 percent of females in the East attained a university degree, compared with 19 percent in the South. Over 60 percent of the sample has a vocational training degree in all regions, reflecting the high importance of the vocational training track (Duale Ausbildung) for employment in the German labor market.

Table 7. *Descriptive Statistics for German Females by Region*

	East	*NorthWest*	*South*
Dependent Variables			
Female Labor Market Participation	0.83	0.76	0.77
Full-time Employment	0.38	0.27	0.28
Explanatory Variables			
Age	43 (11.88)	42 (11.47)	42 (11.34)
Family Status			
Married	0.51 (0.50)	0.55 (0.50)	0.57 (0.49)
Children under 16	0.49 (0.50)	0.53 (0.50)	0.55 (0.50)
Education			
Without tertiary education	0.10 (0.29)	0.17 (0.38)	0.13 (0.34)
Vocational Training	0.66 (0.47)	0.61 (0.49)	0.67 (0.47)
University	0.24 (0.43)	0.21 (0.41)	0.19 (0.40)
Observations	2254	4597	2720

Source: SOEP 2012. Sample Age (18-64).

The empirical models asses the influence of the explanatory variables on the female labor market probability and employment probability by region within each country. The first model examines the influence of the microlevel variables on female labor market participation. For Egypt, the variable is one if a female engages in wage, unpaid or subsistence work or is unemployed in the last seven days prior to the survey. For Germany, the variable is one if the female engages in full-time, part-time, irregular employment or is unemployed in the last seven days of the survey. It should be noted that unemployment statistics are largely understated in Egypt, since many jobseekers are not motivated to register as unemployed as they do not receive unemployment benefits.

The second model estimates the probability of wage employment for Egypt; the dummy variable is one if a female engages in regular wage work and zero otherwise. For Germany, the second model estimates full-time participation probability and is measured by a dummy which is one if a female works full-time, and zero otherwise.

The empirical models are estimated using the binary probit model. In the first model, female labor market participation probability is estimated by,

$$Prob(Participation_{ik} = 1|x_{ik}) = \Phi(x_{ik}'\beta) \tag{1}$$

which represents the probability that female i in region k participates in the labor force within Egypt or Germany, and x_i is a vector of the explanatory variables given by family status, education level and age in its polynomial from (used as a control variable) of female i in region k.

The second model for Egypt and Germany will be estimated by the following equations, respectively,

$$Prob(Wage\ Work_{ik} = 1|x_{ik}) = \Phi(x_{ik}'\beta) \tag{2}$$

$$Prob(Full\ time\ employment_{ik} = 1|x_{ik}) = \Phi(x_{ik}'\beta) \tag{3}$$

where equation 2 estimates the probability of female i in region k within Egypt to engage in regular wage work, and equation 3 estimates the probability of female i in region k within Germany to engage in full-time employment. The vector of explanatory variables x_{ik} in equations 2 and 3 is the same as the one presented in equation 1.

6. Estimation Results & Discussion

Tables 8 and 9 show the estimation results for FLMP and wage employment probability by region for Egypt, respectively. The results of the control variables are shown in tables 12 and 13 of the appendix. Marginal effects of the probit coefficients will be analyzed for a reference female and discussed in the text. The reference for which these marginal effects are computed is a 32 year old female with a vocational secondary education, who is not married and has no children under 12.

The results show that marriage is not significant for the participation decision in Upper Egypt but negative for wage employment. This reflects the high need to work to engage in unpaid and subsistence work, which is socially acceptable given that it occurs in a household context and confirms hypothesis 1. The conservative social norms in Upper Egypt, however, create a barrier against wage work for married females, reducing it by 10 percent. After accounting for the influence of marriage, the presence of children does not reduce employment probability further. The social norm of keeping children with other family members living in the same household or nearby in rural regions, in addition to the higher necessity to work is likely to explain this result.

In metropolitan regions, marriage reduces wage employment probability by 16.8 percent, while the presence of children has an additional negative effect of 10 percent. The relatively traditional norms along with a lower necessity to work explain the negative effects of family formation on employment. Moreover, many mothers are not able to keep their children with other family members due to living in far proximity or having the extended family living in other regions. The results of family status by region hence confirm hypotheses 2 and 3. It should be noted that although the metropolitan regions are relatively rich, they are characterized by high income inequality. However, since the variable measuring wage work includes only those females engaged in regular wage work, it reflects females coming from medium to high social classes.[4]

[4]Women from poor families in Metropolitan regions are concentrated in independent and irregular paid work forms. Examples are females working as home servants and those providing services or products which require a skill (e.g. making henna tattoos).

Table 8. *Probit Results for FLMP by Region for Egypt*

	Upper Egypt	Lower Egypt	Metropolitan
Family Status			
Married	-0.016	0.004	-0.592***
	(0.049)	(0.050)	(0.072)
Children under 12	0.035	-0.081*	-0.383***
	(0.045)	(0.046)	(0.076)
Education			
General Secondary or Less	-0.287***	-0.677***	-1.024***
	(0.043)	(0.090)	(0.137)
University	0.775***	0.412***	0.504***
	(0.067)	(0.056)	(0.066)
Mean Y	0.30	0.44	0.26
Observations	6166	5868	3075
Pseudo R^2	0.09	0.08	0.21
Log Likelihood	-3437	-3687	-1388

Notes: 1. Standard errors of the parameters in parentheses. *** $p < 0.01$; ** $p < 0.05$; *p <0.1.
2. Reference group for the educational categories is Vocational Secondary.

Table 9. *Probit Results for Wage Employment by Region for Egypt*

	Upper Egypt	Lower Egypt	Metropolitan
Family Status			
Married	-0.338***	-0.313***	-0.472***
	(0.089)	(0.070)	(0.077)
Children under 12	0.038	-0.019	-0.362***
	(0.081)	(0.065)	(0.083)
Education			
General Secondary or Less	-1.443***	-1.003***	-0.889***
	(0.092)	(0.062)	(0.080)
University	1.232***	0.860***	0.480***
	(0.075)	(0.062)	(0.070)
Mean Y	0.08	0.12	0.185
Observations	6166	5868	3075
Pseudo R^2	0.42	0.24	0.22
Log Likelihood	-1004	-1687	-1148

Notes: 1. Standard errors of the parameters in parentheses. *** $p < 0.01$;** $p < 0.05$; *p <0.1.
2. Reference group for the educational categories is Vocational Secondary.

With respect to education, higher human capital is most significant for wage employment in Upper Egypt, increasing wage employment probability by a significant 46 percent. This effect is higher than the positive effect of 19 percent found for the metropolitan regions. Females with university education in Upper Egypt can find a suitable job in the government sector due to a scarcity of highly qualified females. On the other hand, females with lower education levels are highly disadvantaged, as they are forced to take jobs in the informal private sector which is not a socially acceptable employment form. This explains why females with below than vocational secondary levels have 21 lower probability to be wage employed compared to the reference group. Due to more formal private employment options available in the metropolitan regions, in addition to the less traditional social norms, the negative effect of lower education on female employment probability is 5 percent lower compared with Upper Egypt. The results of the human capital determinants by region confirm hypothesis 4.

The results for Egypt reflect variations in regional FLMP rates for a country with relatively traditional social norms and varying income levels. Marriage and children are negative for employment probability in metropolitan regions due to the lower necessity to work, relatively traditional social norms and the difficulty of keeping children with other family members should a female decide to work. In Upper Egypt, although marriage creates a barrier towards employment, the presence of children does not as working mothers are able to keep their children with other family members. Higher education is also more essential for female employment in the less developed regions since working in the government sector is the only socially acceptable employment form. These results complement the findings of the World Bank (2012b) study for Upper Egypt.

Table 10. *Probit Results for FLMP by Region for Germany*

	East	Northwest	South
Family Status			
Married	-0.235***	-0.601***	-0.628***
	(0.076)	(0.051)	(0.069)
Children under 16	-0.280***	-0.504***	-0.525***
	(0.089)	(0.053)	(0.076)
Education			
No higher education	-0.345***	-0.314***	-0.380***
	(0.107)	(0.057)	(0.083)
University	0.070	0.234**	0.126*
	(0.107)	(0.066)	(0.075)
Mean Y	0.83	0.76	0.77
Observations	2254	4586	2717
Pseudo R^2	0.11	0.13	0.13
Log Likelihood	-912	-2159	-1284

Notes: 1. Standard errors of the parameters in parentheses. *** $p < 0.01$; ** $p < 0.05$; *$p < 0.1$.
2. Reference group for the educational categories is Vocational Training.

Table 11. *Probit Results for Full time Employment by Region for Germany*

	East	Northwest	South
Family Status			
Married	0.018	-0.540***	-0.704***
	(0.068)	(0.049)	(0.058)
Children under 16	-0.801***	-1.104***	-1.182***
	(0.071)	(0.051)	(0.067)
Education			
No higher education	-0.768***	-0.541***	-0.567***
	(0.126)	(0.067)	(0.097)
University	0.540***	0.444***	0.397***
	(0.065)	(0.051)	(0.073)
Mean Y	0.38	0.27	0.28
Observations	2254	4586	2717
Pseudo R^2	0.11	0.17	0.19
Log Likelihood	-1345	-2206	-1225

Notes: 1. Standard errors of the parameters in parentheses. ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$.
2. Reference group for the educational categories is Vocational Training.

The estimation results for FLMP and full-time employment probability of German females are shown in tables 10 and 11, respectively, while the results for the control variables are shown in tables 14 and 15 of the appendix. Marginal effects of the probit coefficients will be analyzed for a reference female and discussed in the text. The reference for which these marginal effects are computed is a 32 year old female with vocational training, who is not married and has no children under 16.

Marriage and children reduce FLMP probability by 20 percent and 16 percent in South Germany. For East Germany, the influence is much smaller, at 6 percent and 7 percent for marriage and children, respectively. The differences in the influence of macrolevel context on microlevel determinants between the South and the East can be most evidently seen by examining the role of marriage on full-time employment probability in both regions in table 11.

Being married is insignificant for full-time employment probability in the East, while reducing employment probability by 26 percent in the South. The relatively traditional social norms in the South combined with the lower need to work result in higher part-time participation that allows balancing work and household responsibilities. This is different for East German women, where modern social norms encourage high FLMP and full-time employment. Many females in the East also have to work out of economic necessity. These results are largely in-line with hypothesis 5.

Both East and South German females need to reduce full-time work for child-rearing purposes. However, the effect is 8 percent higher for females in the South compared with the East. This result confirms hypothesis 6 and is in line with the results of Hanel and Riphahn (2012). In terms of human capital, higher education is more important for the full-time employment probability in East compared with South Germany. Females with a university education have 20 percent higher employment probability in the East, compared with 11.5 percent for the same group of females in the South. Given that the difference in the magnitude of the education effect between both regions is not large., the human capital results do not confirm hypothesis 7.

7. Conclusions

The U-shaped hypothesis attributes female labor market participation patterns to depend on a country's per capita income level, which leads to inaccurate predictions for some countries. We develop a macrolevel model which additionally accounts for the influence of social norms on female labor market participation behavior. We use the model to examine how macrolevel context, on a regional level, moderates individual and household employment determinants for Egyptian and German females in 2012. Three regions are identified for each country: Metropolitan, Lower Egypt and Upper Egypt for Egypt and South, Northwest and East for Germany. The empirical analysis adds to the young labor market literature which examines the influence of macrolevel context on microlevel participation determinants (Cipollene et al. 2014; Spierings et al. 2010; Bussemakers et al. 2017; Steiber et al. 2016).

Egypt's socioeconomic development is given by the diagonal section of the macrolevel model: the richer metropolitan regions are also less traditional, while the poorer areas of Upper Egypt are conservative. This leads to higher participation rates in Upper Egypt which are mainly concentrated in unpaid family work, and to lower participation rates in metropolitan regions which are mainly concentrated in paid employment. The female labor supply patterns for Egypt hence confirm the downward portion of the U-shaped hypothesis on a regional level.

On the microlevel, the results confirm the negative influence of marriage on wage employment across all regions, reflecting the prevalence of traditional social norms across Egypt. The influence of children, however, varied by macrolevel context; married females in the metropolitan regions further reduced their wage work employment by 10 percent, yet this factor did not further reduce employment in Upper Egypt. The higher need to work for females in Upper Egypt along with the social norm of keeping children with other family members who typically live nearby explains this result.

The macrolevel context also had an important moderating effect on the influence of education level on employment. Higher education increased a female's employment probability by a significant 46 percent in Upper Egypt, compared with an increase of 19 percent for females in metropolitan regions. The scarcity of females with higher education in Upper Egypt provides a golden ticket for finding socially acceptable jobs in the government sector. Higher competition for jobs in the metropolitan regions, along with a high supply of females with the necessary education, creates a lower influence of human capital for employment success. In these regions, family and social connections play an additional important role on employment success.

Germany's socioeconomic development is given by the off-diagonal sections of the macrolevel model: the relatively traditional regions are also those with the highest income levels, given by South Germany, while the less traditional regions are also poorer, given by East Germany. Female labor market

participation rates are therefore higher in the East than the South, at 83 percent and 77 percent, respectively.

The off-diagonal scenarios of our model are predicted to have the largest differences in microlevel participation determinants due to the twin combination of higher or lower necessity to work with traditional or modern social norms. The empirical results confirm the hypotheses; marriage is insignificant for participation and full-time work in East Germany while having a large negative effect on both labor market decisions in South Germany, especially full-time employment. More precisely, our results show that being married does not influence a female's full-time participation probability in the East, while it leads to a drop of full-time employment probability in the South by a significant 26 percent. Females with young children are also 10 percent more likely to be employed full-time in the East compared with the South.

The results for Germany confirm that the twin combination of lower income levels coupled with modern social norms in the East lead to a negligible influence of family formation on full-time employment. Conversely, the rich and traditional context in the South makes family formation detrimental for full-time employment. This explains why over 60 percent of the share of female employment in the East is in full-time work, compared with only 40 percent in the South in 2012. Interestingly, the results also confirm that the modern norms toward female employment in East Germany remain prevalent after more than two decades of German reunification.

In conclusion, this paper provides significant evidence to the thesis that female labor market participation decisions should be examined in connection with the socioeconomic context in both developing and developed countries. The off-diagonal sections of our macrolevel model show particularly large moderating effects on female labor market determinants which go beyond the U-shaped hypothesis arguments. The validity of the model can be tested in future research using other countries and regions.

Appendix

Figure A1. *Map of Egypt*[5]

Source: Courtesy of the University of Texas Libraries, The University of Texas at Austin

Figure A2. *Map of Germany by Federal State*[6]

Source: Courtesy of Öffentlichkeitsarbeit Bundeszentralamt für Steuern (BZSt)

[5]Upper Egypt is the southernmost section of the country that extends from Aswan to the area south of Cairo. Lower Egypt is the northernmost section of the country extending from the north of Cairo and along the Nile Delta to the Mediterranean Sea. The Metropolitan regions include Greater Cairo Governorate, Alexandria, Suez and Port Said.

[6]The South Germany region includes Baden-Württemberg and Bavaria, the Northwest region includes Saarland, *Note:* Standard errors of the parameters in parentheses. *** $p < 0.01$; ** $p < 0.05$; *p <0.1.Rhineland-Palatinate, Hesse, North Rhine-Westphalia, Bremen, Hamburg, Schleswig-Holstein, the East Germany region includes Thuringia, Saxony, Saxony-Anhalt, Brandenburg, Mecklenburg-Vorpommern. Berlin is excluded from the analysis.

Table 12. *Probit Results for FLMP by Region for Egypt*

	Upper Egypt	Lower Egypt	Metropolitan
Const.	-3.596***	-2.265***	-14.632***
	(1.130)	(0.157)	(2.378)
Age			
A	0.283**	0.124***	1.558***
	(0.137)	(0.009)	(0.274)
A^2	-0.010*	-0.001***	-0.607***
	(0.005)	(0.001)	(0.011)
A^3	0.0001*		0.001***
	(0.0001)		(0.0001)
A^4	-1.40E-06**		-6.54E-06***
	(6.97E-07)		(0.066)
Mean Y	0.30	0.44	0.26
Observations	6166	5868	3075
Pseudo R^2	0.09	0.08	0.21
Log Likelihood	-3437	-3687	-1388

Table 13. *Probit Results for Wage Employment by Region for Egypt*

	Upper Egypt	Lower Egypt	Metropolitan
Const.	-5.964***	0.762	-16.32***
	(0.399)	(0.792)	(3.384)
Age			
A	0.283**	-0.257***	1.682***
	(0.137)	(0.068)	(0.377)
A^2	-0.010*	0.009***	-0.065***
	(0.005)	(0.001)	(0.015)
A^3	0.0001*	-9.62E-05***	0.001***
	(0.0001)	(1.56E-05)	(0.0002)
A^4	-1.40E-06**		-7.35E-06***
	(6.97E-07)		(1.63E-06)
Mean Y	0.08	0.12	0.19
Observations	6166	5868	3075
Pseudo R^2	0.42	0.24	0.22
Log Likelihood	-1004	-1687	-1148

Table 14. *Probit Results for FLMP by Region for Germany*

	East	Northwest	South
Const.	2.344	-16.458***	-4.341***
	(1.480)	(2.822)	(0.388)
Age			
A	-0.243**	1.710***	0.301***
	(0.115)	(0.308)	(0.021)
A^2	0.009***	-0.062***	-0.003***
	(0.002)	(0.012)	(0.0002)
A^3	-0.0001***	-0.001**	
	(2.19E-05)	(0.0002)	
A^4		-6.52E-06***	
		(1.24E-06)	
Mean Y	0.83	0.76	0.77
Observations	2254	4586	2717
Pseudo R^2	0.11	0.13	0.13
Log Likelihood	-912	-2159	-1284

Table 15. *Probit Results for Full time Employment by Region for Germany*

	East	Northwest	South
Const.	-3.114***	-20.110***	-17.339***
	(0.436)	(3.567)	(4.122)
Age			
A	0.172***	1.949***	1.883***
	(0.021)	(0.377)	(0.447)
A^2	-0.002***	-0.068***	-0.072***
	(0.0002)	(0.014)	(0.017)
A^3		0.0010***	0.001***
		(0.0002)	(0.0002)
A^4		-6.3E-06***	-7.33E-06***
		(1.42E-06)	(1.78E-06)
Mean Y	0.38	0.27	0.28
Observations	2254	4586	2717
Pseudo R^2	0.11	0.17	0.19
Log Likelihood	-1345	-2206	-1225

References

Adler, M.A. and Brayfield, A. (1997). Women's Work Values in Unified Germany: Regional Differences as Remnants of the Past. *Work and Occupations*, *24*(2): 245-266.

Alfiky, A., Kaule, G. and Salheen, M. (2012). Agricultural Fragmentation of the Nile Delta; A Modeling Approach to Measuring Agricultural Land Deterioration in Egyptian Nile Delta. *Procedia Environmental Sciences,* 14: 79-97.

Akerlof, G. A. and Kranton, R. E. (2000). Economics and Identity. *Quarterly Journal of Economics, 115*(3): 715-753.

Assaad, R. (1997). The Effects of Public Sector Hiring & Compensation Policies on the Egyptian Labor Market. *The World Bank Economic Review*, *11*(1): 85-118.

Assaad, R. and El-Hamidi, F. (2001). Is All Work the Same? A Comparison of the Determinants of Female Participation and Hours of Work in Various Employment States in Egypt. *The Economics of Women and Work in the Middle East and North Africa*, 4: 117-150.

Assaad, R. and Krafft, C. (2013) The Egypt Labor Market Panel Survey: Introducing the 2012 Round. *IZA Journal of Labor & Development* 2(1): 8.

Becker, G.S. (1981, 1991). A Treatise on the Family. Cambridge, London: Harvard University Press.

Becker, G.S. (1962). Investment in Human Capital: A Theoretical Analysis. *Journal of Political Economy*, *7*(5, part 2): 9-49.

Bundeszentralamt für Steuern (BZSt), 2014, *Map of Germany by Federal State.* Available at: https://www.steuerliches-info-center.de/DE/FinanzverwaltungDerLaender/finanzverwaltungderlaender_node.html;jsessionid=7CC1FA61F984BF17EF534E5A583CA752.live6832. Courtesy of Öffentlichkeitsarbeit Bundeszentralamt für Steuern (BZSt).

Bussemakers, C., van Oosterhout, K., Kraaykamp, G. and Spierings, N. (2017). Women's Worldwide Education–Employment Connection: A Multilevel Analysis of the Moderating Impact of Economic, Political, and Cultural Contexts. *World Development*, 99: 28-41.

Cipollone, A., Patacchini, E. and Vallanti, G. (2014). Female Labour Market Participation in Europe: Novel Evidence on Trends and Shaping Factors. *IZA Journal of European Labor Studies*, 3: 18.

Cooke, L. P. (2006). Policy, Preferences, and Patriarchy: the Division of Domestic Labor in East Germany, West Germany, and the United States. *Social Politics: International Studies in Gender, State & Society*, *13*(1): 117-143.

Costa-Font, J. and Macis, M. eds., (2017). Social Economics: Current and Emerging Avenues. Cambridge and London: The MIT Press.

Dildar, Y. (2015). Patriarchal Norms, Religion, and Female Labor Supply: Evidence from Turkey. *World Development*, 76: 40-61.

Dorbritz, J. (2008). Germany: Family Diversity with Low Actual and Desired Fertility. *Demographic Research*, 19: 557-598.

Duflo, E. (2012). Women Empowerment and Economic Development. *Journal of Economic Literature*, *50*(4): 1051-79.

Egypt Labor Market Panel Survey, ELMPS 2012. OAMDI, 2016. Labor Market Panel Surveys (LMPS), http://erf.org.eg/data-portal/. Version 2.2 of Licensed Data Files; ELMPS 2012. Egypt: Economic Research Forum (ERF).

German Socio-Economic Panel (SOEP), Data for Years 1984-2014, Version 31.1, 2012, http://dx.doi.org/10.5684/soep.v31.

Goldin, C. (1995). The U-Shaped Female Labor Force Function in Economic Development and Economic History. In: T.P. Schultz, eds. *Investment in Women's Human Capital and Economic Development*, University of Chicago Press: 61-90.

Gramsci, A. (1949). *Il materialismo storico e la filosofia di Benedetto Croce*. Torino: Einaudi.

Guiso, L., Sapienza, P. and Zingales, L. (2006). Does Culture Affect Economic Outcomes? *Journal of Economic Perspectives*, *20*(2): 23-48.

Hanel, B. and Riphahn, R.T. (2012). The Employment of Mothers– Recent Developments and their Determinants in East and West Germany. *Jahrbücher für Nationalökonomie und Statistik*, *232*(2): 146-176.

Kasrin, Z. (2019). Female Labor Market Participation and Economic Development: Empirical Studies for Egypt and Germany. *PhD Dissertation*, Ulm University, Germany.

Kasrin, Z. and Lang, G. (2012). Estimating the Beveridge Curve of Egypt: An Econometric Study for the Period 2004 to 2010. *Review of Middle East Economics and Finance, 8*(3): 1-16.

Mammen, K. and Paxson, C. (2000). Women's Work and Economic Development. *Journal of Economic Perspectives*, *14*(4): 141-164.

Mincer, J. (1975). Education, Experience, and the Distribution of Earnings and Employment: an Overview. In: F. Juster, eds. *Education, Income, and Human Behavior*, NBER: 71-94.

Mincer, J. (1962). Labor Force Participation of Married Women: A Study of Labor Supply. In: *Aspects of Labor Economics*, Princeton University Press: 63-105.

Polanyi, K., Arensberg, C. M. and Pearson, H. W. (1957), eds. *Trade and Market in the Early Empires: Economies in History and Theory.* Chicago: Henry Regnery Company.

Psacharopoulos, G. and Tzannatos, Z. (1989). Female Labor Force Participation: An International Perspective. *The World Bank Research Observer*, *4*(2): 187-201.

Peukert, C. and Smolny, W. (2011). Interregional Migration in Germany: Characteristics and Effects for Regions and Migrants. *University of Ulm Discussion Paper*.

Schober, P.S. and Spiess, C.K. (2015). Local Day Care Quality and Maternal Employment: Evidence from East and West Germany. *Journal of Marriage and Family*, *77*(3): 712-729.

Spierings, N., Smits, J. and Verloo, M. (2010). Micro-and Macrolevel Determinants of Women's Employment in Six Arab Countries. *Journal of Marriage and Family*, *72*(5): 1391-1407.

Statistisches Bundesamt. (2012). Statistiken der Kinder und Jugendhilfe: Kinder und Tätige Personen in Tageseinrichtungen und in Öffentlich Geförderter Kindertagespflege am 01.03.2012. Wiesbaden: Federal Statistical Office of Germany.

Steiber, N., Berghammer, C. and Haas, B. (2016). Contextualizing the Education Effect on Women's Employment: A Cross-National Comparative Analysis. *Journal of Marriage and Family*, *78*(1): 246-261.

University of Texas Libraries. *Egypt (Small Map)*, 2016. Available at: https://legacy.lib.utexas.edu/maps/egypt.html. Courtesy of the University of Texas Libraries. The University of Texas at Austin.

Verick, S. (2014). Female Labor Force Participation in Developing Countries. *IZA World of Labor*, 87.

Wagner, G., Joachim R. F, and Jürgen, S. (2007). The German Socio-Economic Panel Study (SOEP) - Scope, Evolution and Enhancements. *Schmollers Jahrbuch*, *127*(1): 139-169.

Weber, M. (1930). The Protestant Ethic and the Spirit of Capitalism. London and New York: Routledge Classics.

World Bank. (2012a). Arab Republic of Egypt. Reshaping Egypt's Economic Geography: Domestic Integration as a Development Platform, Volume 1. Middle East and North Africa Region: Document of the World Bank.

World Bank. (2012b). Reclaiming their Voice: New Perspectives from Young Women and Men in Upper Egypt. Report No. 71674. Middle East and North Africa Region: Document of the World Bank.