

PhD THESIS DECLARATION

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Culture and Female Labor Force Participation. The Middle East and North Africa, With a Closer Look at Iran

PhD in | PUBLIC POLICY AND ADMINISTRATION

Cycle | 30th

Student's Advisor | PAOLA PROFETA

Calendar year of thesis defence | 2020

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Abstract

The thesis analyses the impact of contextual level and individual level culture on female labor force participation (FLFP) in the Middle East and North Africa (MENA) region. The primary purpose of this study is to look at FLFP from a new perspective and to investigate the effect of cultural factors on the level of labor force participation empirically. In this study, the effects of different elements on FLFP in three different geographic areas are investigated. First, the working behavior of women all over the world with different cultural beliefs and attitudes is examined, to investigate the differences between the MENA region and the rest of the world. Second, in order to isolate the role of culture, the working behavior of Iranian women belonging to different ethnicities is investigated. Next, to measure the persistence of culture and to eliminate any possible institutional effects, the impact of culture on FLFP decisions among Iranian immigrants in Canada (Toronto) is examined. The first two sections are based on data from the World Value Survey (WVS) using a cross-sectional approach. The last part uses data collected by the author on Iranian immigrants in Toronto, due to the lack of data in the field.

This study finds the meaningful impact of culture, especially patriarchy attitudes on women's economic activities. The findings show that although the educational level, family situation, and religiosity are highly associated with FLFP, personal attitudes are the most critical elements in women's economic activity, and the existence of strong patriarchy attitudes is the critical factor of the low level of female market activities. The adverse effect of the strength of the patriarchy attitudes on women's market activity shows that women with strong patriarchy attitudes are less likely to be active full time in the market.

The main policy implication of the findings of this study is the necessity of the existence of customized policies according to people's preferences, attitudes, and social identity. While investing in infrastructure and expanding facilities are essential and positively affects female market activities, but understanding differences in cultural values, beliefs, and norms are crucial for reaching policy results.

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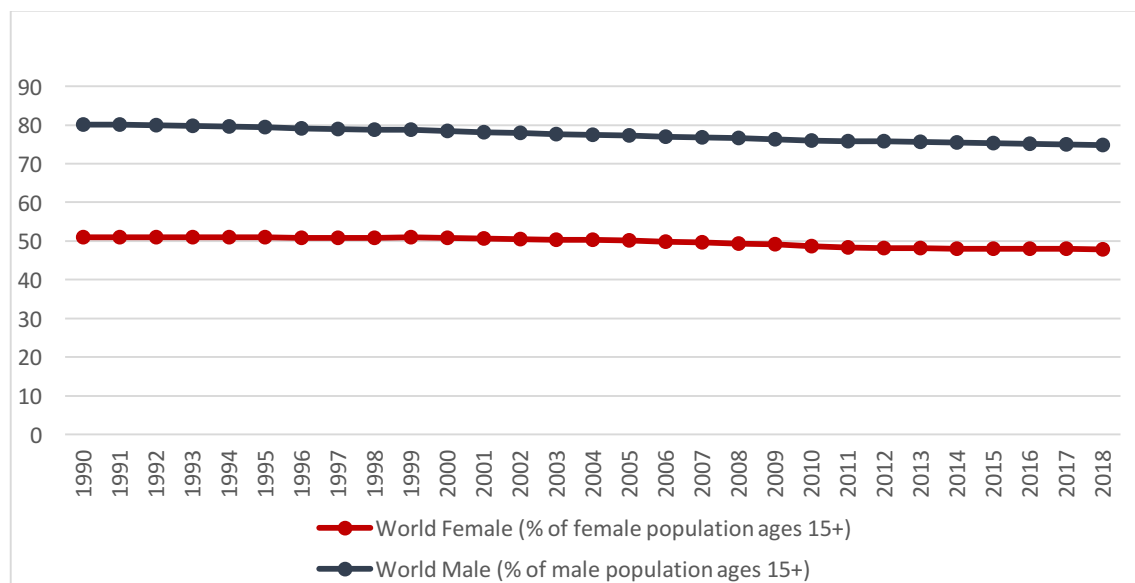
CHAPTER ONE

Introduction

Background

Labor Force Participation (LFP) rate, which is the labor force (employed + unemployed) divided by the total adult population (excluding people in the military or prison), has changed significantly in almost all countries around the world since the 1950s. Most adult men in all countries work for pay, but this is not true for women. Figure.1 shows the LFP trend in the world. As it is shown in the Figure, on average, men are more active in the labor market than women.

Figure 1 World Labor Force Participation (modeled ILO estimation)



Although on average the gender gap in labor force participation rate, which is the difference between male and female labor force participation rates, is visible in all countries, it also varies from 64.59% for Yemen, to 37.5% for Sri Lanka, to 11.28% for Austria, and -2.67 for Burundi in 2017¹. To understand the reasons behind these differences, finding, analyzing, and evaluating the potential elements that have an impact on market behavior, especially for women, is necessary. To

¹ The World Bank Data, World Development Indicators

do so, a comprehensive platform that provides the opportunity to distinguish important factors, investigate their possible relationship, and their potential effects on outcomes are essential. Till now, based on the author's knowledge, there is no such a platform. Although scholars have tried to investigate the effects of various elements on female labor market activities, until now, studies have distinguished influential factors just by trial and error following theories related to labor force participation. The problem with this kind of analysis would be the factors that have a meaningful impact on economic activities differ by context. This problem becomes noticeable when a situation in countries with characteristics other than western countries, where most samples of analyzing have come from, is investigated. For example, countries in the Middle East and North Africa region (MENA) show different patterns regarding their FLFP compare to countries in other regions. Based on what happened in western countries, the increase in FLFP is expected; but no noticeable changes have been seen through many years in almost every country in the MENA region. Another possible difficulty that can be happened by analyzing FLFP without any platform and by explaining the situation through the outcomes is the risk of missing essential factors and their effects on the outcome. Therefore, in this study, a new theoretical framework is suggested to look at the situation through different lenses and try to explain the condition not from the endpoint but the start point.

The primary purpose of this study is to look at female labor force participation (FLFP) from a new perspective and to investigate the effect of cultural factors on the level of labor force participation empirically. This study is divided into five main parts. First, in this section, by a comprehensive literature review, a platform, based on psychology and economic theories, is introduced by the author. Second, in chapter 2, based on the suggested platform, the effects of different elements on FLFP are investigated to try explaining differences in FLFP across countries around the world, especially the low level of FLFP in MENA. Next, in chapter 3, in order to isolate the role of culture, the effect of cultural factors on FLFP within a country, which is Iran in this study, is investigated. Iran provides a unique opportunity in the MENA region for this research. Iran is one of the biggest countries in the region, with seven main ethnic groups with different cultural beliefs, attitudes, and norms within the country. In chapter 4, to measure the persistence of culture and to eliminate any possible institutional effects, the impact of culture on FLFP decisions among Iranian immigrants in Canada (Toronto) is investigated. As the necessary data

for this chapter is not available, the data is collected by the author through a questionnaire. In the end, in chapter 5, a conclusion and discussion are presented.

This research tries to fill the gap in the literature by suggesting a platform for distinguishing the critical elements and their effects on women's market behavior, from values to behavior. The influence of attitudes, social norms, and perceived behavioral control, in both micro-level and macro-level, on people market activities are studied. Moreover, until now, all studies in the MENA region was limited to Arab countries with their specific cultural traits and institutions, and no one has done any study on a non-Arab country in the region. Based on the author's knowledge, this study is the first to evaluate the effect of cultural beliefs on FLFP within a country in the MENA region. Furthermore, this study would have the advantage of providing a case from a country in the MENA region, Iran, an important country in the Middle East, which is a non-Arab Muslim country with a shortage of research studies.

Literature Review

As the subject of this research is investigating the relationship between culture and female labor force activity, two strands of literature reviews are discussed. The first strand is the human values related literature in psychology. Second, economic literature related to labor force participation, especially female market activities, will be discussed.

Before proceeding, the definitions of the main terms are necessary. Generally, people think of *culture* as a shared understanding, knowledge, and practice. Based on Webster dictionary, culture is “the integrated pattern of human knowledge, belief, and behavior that depends upon the capacity for learning and transmitting knowledge to succeeding generation;” and “the customary beliefs, social forms, and material traits of racial, religious, or social group; and the set of shared attitudes, values, goals, and practices that characterizes an institution or organization.” As it was mentioned, culture is a combination of values, beliefs, traits, and behaviors. In the social sciences since their beginning, values have been a central concept. Values played a crucial role in explaining personal and social change and organization by both Durkheim (1897/1964) and Weber (1905/1958). Furthermore, values are used to describe individuals, societies, and cultural groups, and to clarify motivational bases for attitudes and behavior, and to trace changes over time.

Shalom H. Schwartz, in a series of studies (Schwartz 1992, 1994, Schwartz et al. 2012), has developed the *Theory of Basic Human Values*. He has defined the fundamental values that all people in all cultures recognize. Schwartz (1994) defines "values as desirable trans-situational goals, varying in importance, that serve as guiding principles in the life of a person or other social entity." Based on his suggestions, values have different characteristics: "1) they serve the interest of some social entity, 2) they can motivate action – giving it direction and emotional intensity, 3) they function as standards for judging and justifying action, 4) they are acquired both through socialization to dominant group values and through the unique learning experience of individual" (Schwartz 1994). The theory recognizes ten motivationally separate types of values and indicates the dynamic relations among them². Some values are compatible (e.g., security and conformity) while some conflict with one another (e.g., power and benevolence)³. Based on the theory, the "structure" of values states to these relations of congruence and conflict among them. Studies show

² For more details see Appendix A

³ For more details, see Appendix A

that values are structured in similar modes across different cultural groups, and this implies that there is a universal organization of human motivations. Thus, the difference between individuals and groups is about the relative importance they attribute to the values; that is, individuals and groups have different values "priorities" or "hierarchies."

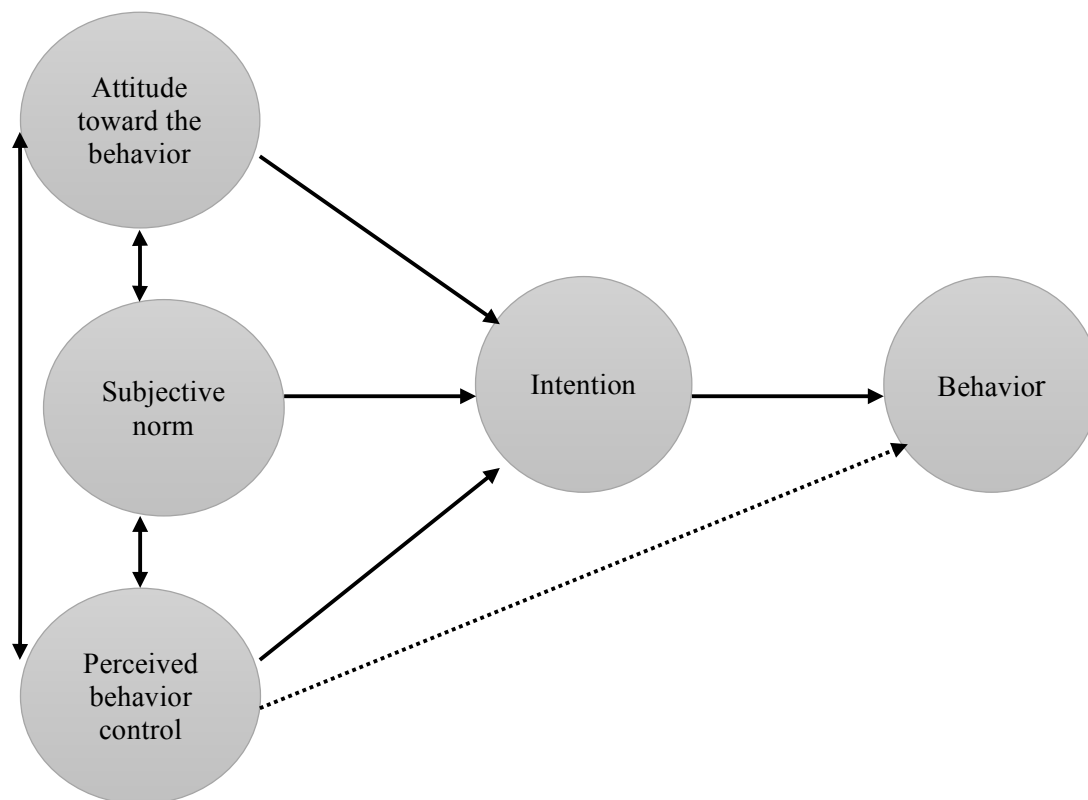
Behavior is another critical element in each culture. Always, in order to explain behavior, people refer to beliefs, norms, and attitudes. It is useful to distinguish these terms by their definitions. According to Schwartz (2012), their main difference is in their measurement scale. While *values* are principles with different levels of importance which guide an individual in life (Schwartz 2012), *beliefs* are ideas about the truth of the objects in particular ways and vary in how confident the person is that the objects are real. Schwartz (2012) describes that "unlike values, beliefs refer to the subjective probability that a relationship is true, not to the importance of goals as a guiding principle in life."

Norms can be defined as rules and standards that tell a society or group members how they should behave. They are social expectations and advise behaviors with precise consequences. Norms vary on a scale of how much an individual agrees or disagrees that people should act in some specific ways. A member of society accepts or rejects them based on his/her values (Schwartz 2012).

Values underlie attitudes. *Attitudes* are evaluations of objects, either specific such as food or abstract such as situations. They vary on a negative/positive scale. An individual evaluates objects such as situations, events, behaviors, and people towards the goals he/she values, if the objects protect or support the achievement of the goals, the attitudes are positive. On the other hand, if the objects threaten or hinder values, the attitudes are negative. Attitude is a linkage between values and behavior.

Explaining human behavior is a tough task. It can be approached at different levels, from physiological processes to social institutions. *The Theory of Planned Behavior* (TPB) (Ajzen 1985) is the theory at the intermediate level that helps to explain many empirical studies. Based on the theory, a central factor is the individual's intention (motivation) to perform a behavior. Intentions capture motivations that affect behavior; they indicate how much effort one person is willing to exert and how hard the person wants to try to perform the behavior. As a general rule, "the stronger the intention to engage in a behavior, the more likely it should be its performance" (Ajzen 1991). The following Figure shows the theory in the form of a structural diagram.

Figure 2 Ajzen structural diagram of the Theory of Planned Behavior



As it shows in the Figure, the theory of planned behavior suggests three conceptually independent elements of intention. The attitude toward the behavior refers to "the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question" (Ajzen 1991). Subjective norm refers to "the perceived social pressure to perform or not to perform the behavior" (Ajzen 1991). The last element of intention is the degree of perceived behavioral control, which refers to "the perceived ease or difficulty of performing the behavior and it is assumed to reflect experience as well as anticipated impediments and obstacles" (Ajzen 1991). The concept of behavioral control (ability) has been suggested in different literature in the form of "facilitating factors" (Sobol 1963, Triandis 1977), "the context of opportunity" (Sarver 1983), "resources" (Liska 1984), or "action control" (Kuhl 1985). Perceived behavioral control is a crucial element in the theory of planned behavior. Based on the theory, behavioral intention, together with perceived behavioral control, directly can be used to predict behavioral achievement. Two main reasons for this hypothesis are first, by holding intention constant, higher perceived behavioral control leads

to a higher probability of the behavioral achievement. Second, perceived behavioral control can be seen as actual behavioral control. For sure, the accuracy depends on some factors which lead to the accurate perceptions, some of the main factors are having relatively comprehensive information about the behavior, the stabile environment without any changes in resources and less unfamiliar or new elements in the situation.

The combination of Ajzen's theory of planned behavior and Schwartz's theory of fundamental human values can be an excellent platform to distinguish the necessary elements in the process of any behavioral achievement. Moreover, the platform can be a helpful guideline for evaluating the effect of each element in the behavioral achievement. Thus, by combining these two theories, the *Attitude- Behavior platform* is proposed for looking at the behavior of females in the economic market, and for finding out the main elements in different parts of the process to analysis better the effect of each factor. Figure 3 is a basic model that shows the logic of the process based on the theory of planned behavior and the theory of basic human values.

Figure 3 The logic of the Value- Behavior process

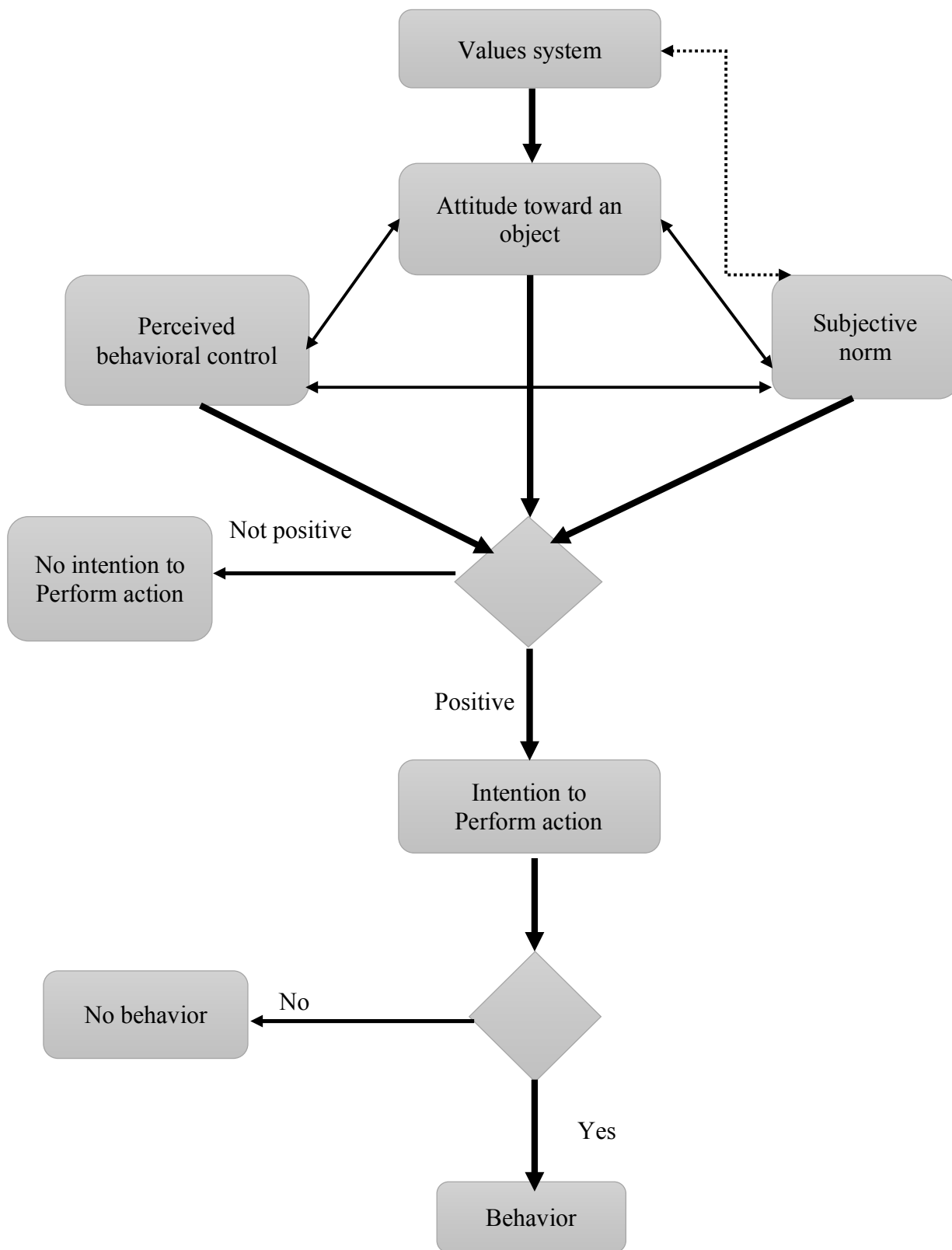


Figure 3 can be a baseline for evaluating the factors that affect female labor force participation. By definition, Labor Force Participation (LFP) is a "measure of the population of a country's working-age population that engages actively in the labor market, either by working or looking for work; it indicates the size of the supply of labor available to engage in the production of goods and services, relative to the population at working age."⁴ The breakdown of the labor force by sex, male and female, and age provides a profile of the distribution of the labor force within a country. The LFP rate is the number of the labor force as a percentage of the working-age population. Subsequently, the FLFP rate is the percentage of women in the labor force within a country, which is an essential benchmark of women's empowerment and useful indicator of women's status within a society.

The main theories that have been tried to explain the decision of female economic activities are Mincer's "Work-Leisure Choice Theory," Mincer and Becker's "Household Production Theory," and "Human Capital Theory" by Schultz and Becker.

Work-Leisure Choice Theory

The neoclassical model of labor supply was used to explain the female labor supply decision in the early 1960s. The Work-Leisure Choice Theory assumes that suppliers of labor in an economy are rational people who try to maximize their utilities by deciding on how much time to devote to market activities compares to leisure. Mincer (1962), with the use of the model, analyzed women's market activities decision by the trade-off associated with the opportunity cost by choosing one alternative over another one. The opportunity cost is related to the amount of income that the market is willing to pay the woman outside the home. Later, Psacharopoulos and Tzannatos (1989) added the wage rate to the model and explained that since the choice is based on the wage rate, the higher is the wage rate, the more attractive work becomes and less appealing leisure turns out to be. Thus, a higher wage may encourage more people to join the labor market, while the opportunity cost of not working will be high, and working with higher wage gives a higher rate of return compare to leisure.

Household Production Theory and Time allocation Theory

Following Mincer's work, Becker and Mincer developed the Household Production Theory, which is the household production, consumption, and household time allocation. Based on the household production theory, families are both producers and consumers of goods. In order

⁴ ILO

Tesi di dottorato "Culture and Female Labor Force Participation. The Middle East and North Africa, With a Closer Look at Iran" di MALLAK SAHAR

discussa presso Università Commerciale Luigi Bocconi-Milano nell'anno 2020

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to maximize the utility, families allocate not only income and collection of services and goods they both produce and use, but also time. The definition of household production based on this theory is the production of services and goods by the household members, using their unpaid labor and their capital, for their consumption. Traditionally within a household, women are more likely to assume home-based production activities such as cooking, cleaning, and caring for children.

Later, Ehrenberg and Smith (2012) added different elements to the model of The Household Theory. The assumption for the first model is the similarity of market production and household production. Accordingly, work can be defined as the creating of both household and market production, and the decision is just choosing between leisure and work. The new model makes the difference between the time spent at home for leisure and the time for household production activities such as cleaning and cooking. Based on this model, work is not the same for household production and market activities. Finally, the third model assumes that work is a choice between three different categories: market work, household work, and leisure.

While Backer's studies suggest that family members have shared preferences and there is an only one utility function within a household, *bargaining approach* proposes that the division of labor within a household that also affects female labor force participation is an outcome of a bargaining game between individual agency of men and women within a household (Lundberg and Pollak, 1996). Bargaining power between family members, increases by the opportunity of waged work outside of a home, with an effect of macro-level conditions such as institutions and social norms.

Human Capital Theory

Human capital is a collection of various qualities, such as knowledge, talents, skills, abilities, experience, training, intelligence, and judgment. The original idea of human capital goes back to Adam Smith in the 18th century. In the modern era, Mincer (1958) used the term; then Becker published a book, "Human Capital" in 1964, which became a standard reference for many years. Becker explained the similarity between physical means of production and human capital that one can invest in them through medical treatment, education, and training, and get outcomes based on the rate of return on them. Therefore, human capital is a resource of production, and any additional investment will produce extra output. The theory stresses the impact of education and training in increasing an individual's productivity and in expanding the chance of higher occupational status and higher earnings. Therefore, in order to improve career opportunities and

get more income, individuals develop their capacities through investment in their human capital, mainly with education and training.

With the use of the human capital theory, many scholars have analyzed the relationship between education and female labor force participation, especially for married women. Studies show that the existence of the relationship between education and women's market activities. The relationship is a U-shape relationship with a high rate of participation for illiterate women and women with university graduation degrees, but low for women at the primary and secondary education level. Moreover, based on the U-shape relationship, Schultz (1961) explains the positive relationship between wage rate and education. He explains that low wages for women with low educational level and the high level of their labor force participation can be justified by their need to earn some income for survival.

The Economic of Discrimination Theory

Another element that can be used in analyzing female labor market activities is discrimination. The most apparent neoclassical explanation of discrimination is based on the Economics of Discrimination Theory by Becker (1955). Based on his model, employers hold a "taste for discrimination," which means that some people do not want to come into contact or work with minority groups, which is especially members of other racial groups or with women (Becker, 1971). The only explanation is a "taste" or preference against people from disadvantaged groups.

Later, economists have developed another kind of discrimination that is "statistical discrimination," which happens when employers believe that, on average, women are less stable or less productive employees and treat each woman as if they match exactly to the average woman (Aigner and Cain 1977, Phelps 1972). As a result of discrimination, minority workers (women) may have to "compensate" employers by accepting a lower wage for similar productivity or, being more productive at a given wage.

Identity Theory and Preference Theory

Two approaches, *Identity Theory* and *Preference Theory*, focus more on the role of preferences on labor force participation decisions. Akerlof and Kranton (2010) introduce identity as an essential element that affects the process of decision-making. Unlike the classical model that assumes preferences are individual characteristics, based on Identity Theory, preferences drive from social norms and depend on the social setting. Each has an identity that placed that person in a particular social group with a particular behavior, and acting according to the prescribed behavior

increases utility and against it leads to utility lost. One of the fundamental aspects of identity is gender. Thus, in societies with specific gender roles, both men and women have utility when they follow prescribed behavior and suffer utility in case anyone them do not act according to the expected behavior.

In the same line of reasoning, Preference Theory developed by Hakim (2000) suggests that women have to choose between family life and market activities, and they are different in their preferences: home-centered women, work-centered women, and adaptive women. The first group always choose housework, the second group always prefers market activities, and the third group tries to find the best combination of housework and employment. The social and economic environment has a noticeable impact on adaptive women's market activities decisions.

Based on the mentioned theories, many scholars have tried to explain the pattern of women's market activities around the world, mainly with the focus of *the level of economic development*, women's *educational attainment*, and *demographic factors*. Although the work-leisure choice model and household production theory try to explain FLFP in a specific point of time, to analyze the trend of women's market activities, scholars have looked at the relationship between the economic development process and labor force participation in several countries. Sinha (1967) suggested the U-shape relationship between female labor participation and economic development, with high rates of female labor force participation in poor countries and advance economics, but low rates in developing countries. The logic behind this curve is that in poor countries, agricultural activities are the main among economic activities in a country, but during the primary stages of industrialization, agriculture loses its importance as the main women's employer. Moreover, in the industrial stage, economic activities are mainly in factories, which are mostly men working environments. Later, by economic growth, service sectors expand, and women are back into the labor market. Many scholars have confirmed the U-shape pattern of FLFP in the development process (Schultz 1961; Psacharopoulos and Tzannatos 1989; Goldin 1994, Mammen and Paxson 2000; Sackey 2005, Fatima and Sultana 2009).

Educational Attainment

Some scholars believe that economic growth is correlated with increases in female access to education. Education would increase the likelihood of female participation in the labor market by increasing the possibility of getting white-collar jobs (Tsani et al. .2012). Based on Human

Capital Theory, just as physical capital that increases economic efficiency, human capital (education) improves the efficiency and productivity of the people. Thus, education raises the wage-earning potential and increases the opportunity cost of having and caring for children. Accordingly, based on theory, educated women are more likely to participate in the labor market.

Demographic Factors

Age, marital status, and a number of children are other vital factors that can not be neglected on female labor force participation. Following the bargaining approach and identity theory, married women are less likely to be active in the labor market. Many empirical studies have proven this conclusion. For example, many developing countries such as Pakistan, consider married women are the responsible person for household activities such as cooking, washing, and cleaning (Psacharopoulos and Tzannatos 1989; Khadim and Akram 2013). With respects to marital status, single women are more likely to work based on their needs because they are the only income-earner of the household. Moreover, as they do not have a possibility of sharing home-production responsibilities, they are more likely to make trade-offs work with leisure.

Concerning time, children and work make concurrent requirements, the more time devoted to one, the less would be presented for the other one, especially when there is no public childcare available. Thus, the number of children is expected to impact negatively the FLFP. Household income is another factor that should affect FLFP. On the one hand, wealthier women are more financially able to outsource home-production services and goods. However, on the other hand, as wealth eliminates the need for work, the effect of wealth on FLFP depends on personal values and attitudes towards work. By considering the level of household income and the number of children in lower-income households, the number of children should negatively affect FLFP, as more children lead to more financial pressure.

Cultural Factors

Among all elements that affect FLFP, cultural factors have been less investigated. It can be partly due to the difficulty of forming a causal relationship because of endogeneity issues, and partly due to the difficulty of finding reliable data related to cultural values. Just in recent years, scholars have tried to explain the variation among FLFP in different countries by cultural elements. Studies show the significant correlation between attitudes and economic outcomes. For example, by using Australian data, Vella (1994) shows that attitudes are correlated with the extent of

women's market activities.

Moreover, studies show that women's occupational choices could be influenced by gender stereotypes in a society (England 1992, Charles and Grusky 2004). Social norms and attitudes about women's role in the labor market could force women to choose low-wage occupations or not work. Results from a cross-country study indicate that the beliefs about working hours of mothers have an impact on women in societies, women are more likely to work full-time when they believe that mothers should work full-time (Albrecht et al. 2000). With a similar conclusion, Fortin (2005) shows that in countries where women are seen mainly as housewives, women tend to have worse economic market activities. Furthermore, studies reveal that mother's attitudes towards working women have a correlation with her daughter's market activity decisions (Farre and Vella 2007). Using survey questions in Germany, Dohmen, Falk, Huffman, Sunde (2008) show that a child's propensity to trust and his/her risky behaviors such as migration, participation in sports, smoking, and risk in occupational choices are positively correlated with parental attitudes.

The Attitude- Behavior Platform of Female Labor Force Participation

Based on the proposed platform on factors that might have an effect on each of the three elements, personal attitudes, subjective norms, and perceived behavioral control can be investigated. Following on all mentioned theories, Figure 4 shows the proposed platform for the attitude-behavior process of female labor force participation. As shown in the Figure, and following Ajzen's theory of planned behavior and Schwartz's theory of basic human values, the main driven forces for market activities are attitudes toward work, subjective norm, and perceived behavior control. Attitudes toward work, which is based on personal values, is the central element in this process (Theory of basic human values by Schwartz and Preference Theory by Hakim). Subjective norms are related to social norms, which in this context, define the role of females and their identity in a society (Identity Theory by Akerlof and Kranton). Perceived behavior control can be divided into two levels: micro-level and macro-level. The micro-level includes personal and demographic characteristics such as marital status, number of children, and the household income. The macro-level can be seen as formal institutions and any laws that might affect FLFP, such as tax laws and discrimination.

Due to the specific effect of age on attitudes towards subjects, age has a separate place in the platform. Although values could be the same in a lifetime, attitudes towards an object would

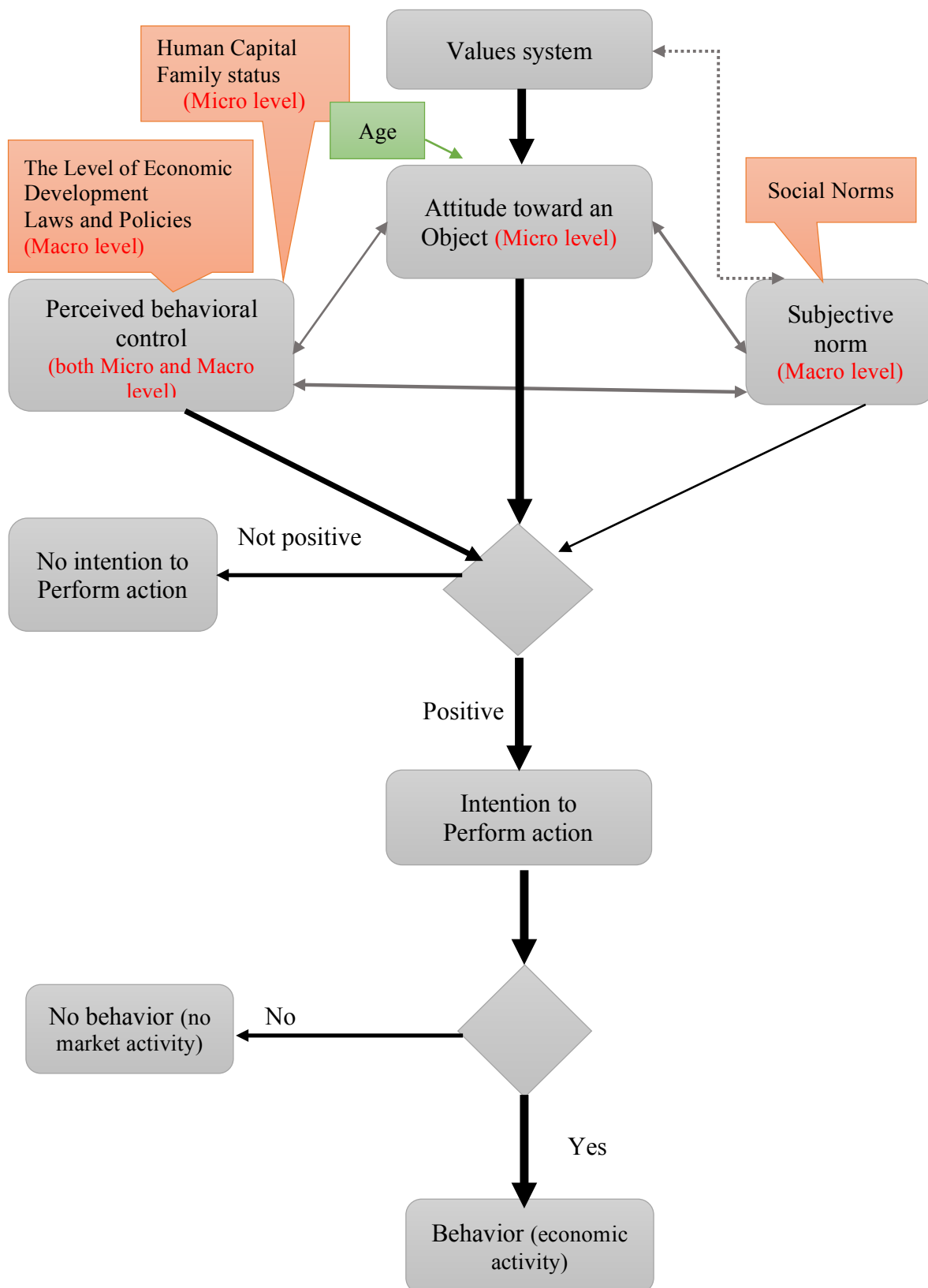
vary depending on age and personal stage of life; and thus, the intention to perform an action and consequently behavior would be different.

The colors, the thickness, and the direction of arrows reflect the strength and direction of the influence. As it is shown in the Figure, the strongest path is from personal attitudes toward work toward economic activities. Women with strong positive attitudes are more likely to participate in the economic market. In this process, perceived behavioral control could have very important and significant effects. In one hand, when people with positive attitudes believe that they do not have any control, either due to their situation such as existence of children in a household (personal level), or due to environmental factors such as existence of discriminated laws, depends on their personal characteristics, the less likely to be active in labor market.

On the other hand, women without any positive attitude towards working, with the effects of perceived behavioral control, might get an intention to work. For example, in low-income households, the need not the attitudes force a person to join the labor market. The arrow between attitude and perceived behavioral control shows the effect of these elements on each other.

Subjective norm (social norms) also can lead to intention to work, but its strength is smaller than two other factors (personal attitudes and perceived behavioral control). For example, in the absence of positive personal attitudes towards work, strong positive social norms toward working women could affect women's intention for joining the economic market. Subjective norms and personal attitudes affect each other.

Figure 4 The proposed Attitude- Behavior Platform of Female Labor Force Participation



CHAPTER TWO

MENA Region

Abstract: Using the World Value Survey (WVS) data, this chapter investigates the main reason behind the low level of female labor force participation (FLFP) rate in the Middle East and North Africa (MENA) region. This study finds that although the educational level, family situation, and religiosity are highly associated with FLFP, the existence of strong patriarchy attitudes is the important factor of the low level of female market activities in the region.

Introduction

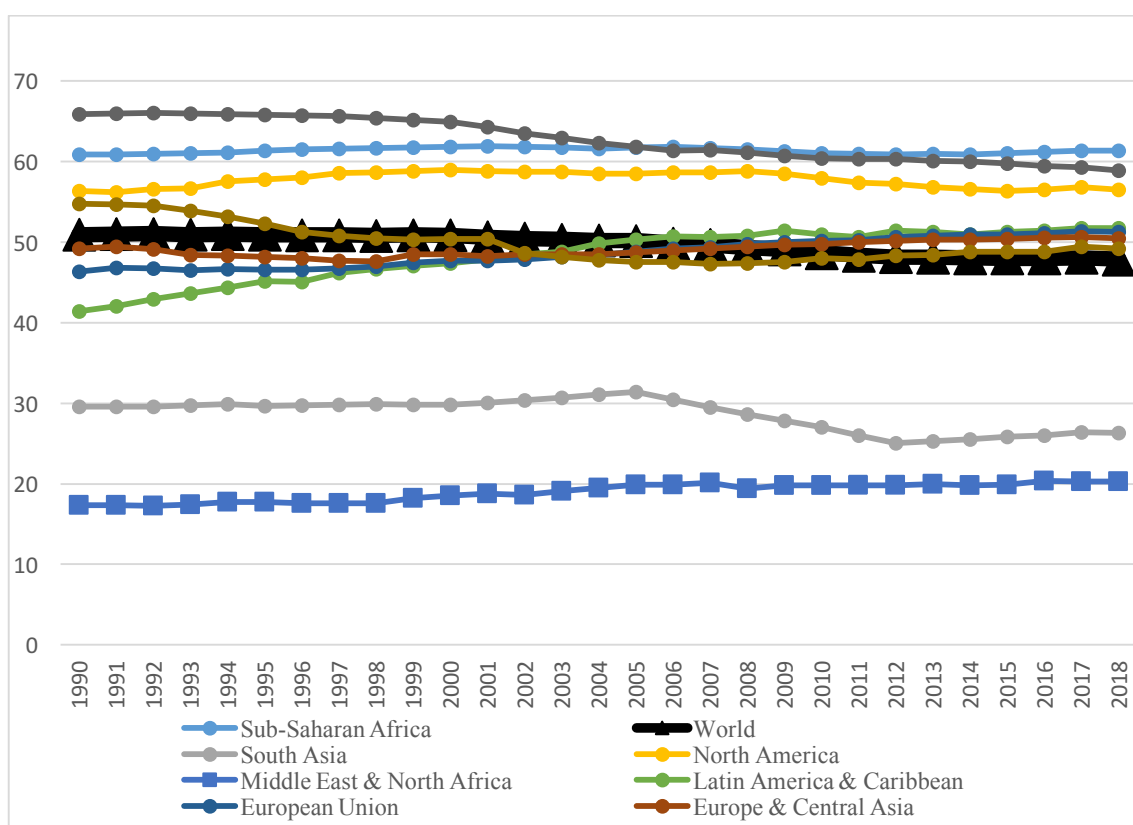
The growing integration of women into the labor market has been happening in several countries around the world, with a point in participation arising during the phase after World War II (Souza, 2009). The mentioned trend not only has formed the job market in an international environment but also has changed the structure of the traditional family. The association between the rise of female labor force participation and the economic structure is an essential aspect for understanding the changes in gender situations that have happened in many countries. Generally, by entering the labor force and getting paid formal employment by women, some changes can occur, which includes more flexible work hours, growth in employment services, and new patterns of industrial relations (Daly & Rake, 2003).

Furthermore, after World War II, many transformations have happened that had an impact on gender relationships and family structure. Several countries worldwide have experienced the reduction on fertility rates, the increase in the divorce rate, the growth of participation in the labor market of married women with children (Souza, 2009), and the traditional household model, which was characterized by male head of household and the male breadwinner model, has been changed. Esping-Anderson (2009) believes that changes such as fewer children for women and a higher age at their first child related to women's new position in societies.

However, the mentioned trend is not valid for the whole world. Despite massive changes in development indicators such as a decrease of fertility rate, improvement in female health issues,

and an increase in female literacy rate in the Middle East and North Africa region (MENA⁵), the rate of female participation in economic activities in MENA has not experienced meaningful changes over the last three decades. Figure 5 shows the FLFP rate in all regions around the world. As it is shown in the figure, the FLFP rate is the lowest in the MENA region and displays no meaningful increase over the last 30 years.

Figure 5 Labor Force Participation rate, female (% of female population ages 15+)
(modeled ILO estimation)



Source: World Development Indicators

What is, if any, the role of culture on female labor force participation (FLFP) rates⁶ in the Middle East and North Africa (MENA) region? Would it be possible to explain, at least in part,

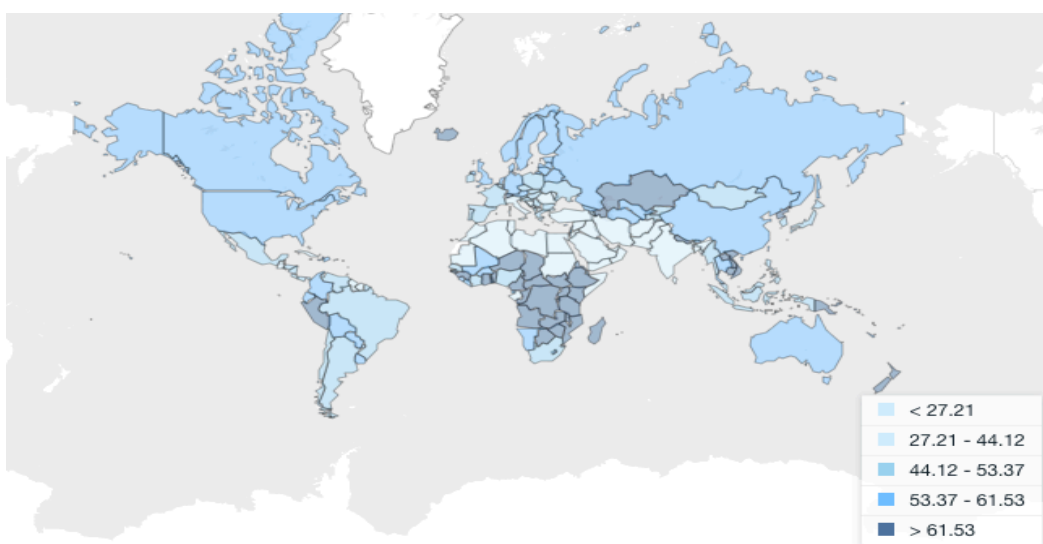
⁵ MENA countries are (UNICEF): Algeria, Bahrain, Djibouti, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, State of Palestine, Sudan, Syrian Arab Republic, Tunisia, United Arab Emirates, Yemen

⁶ The number of females who has formal economic activities in society as a percentage of the working-age population in that society

the low level of FLFP in the MENA region by differences in attitude towards work, gender roles, and the level of patriarchy?

Many studies on FLFP (UNDP 2009; The World Bank 2011; ILO 2012; OECD 2012) and the international statistics of FLFP (The World Bank Development Indicators) show the MENA region has the lowest rate of FLFP compare to other regions in the world. The low level of FLFP rate in the MENA region, which was 20.6 in 2017⁷ provides an opportunity to investigate the effect of different factors on women's labor supply decisions.

Figure 6 The level of female labor force participation worldwide

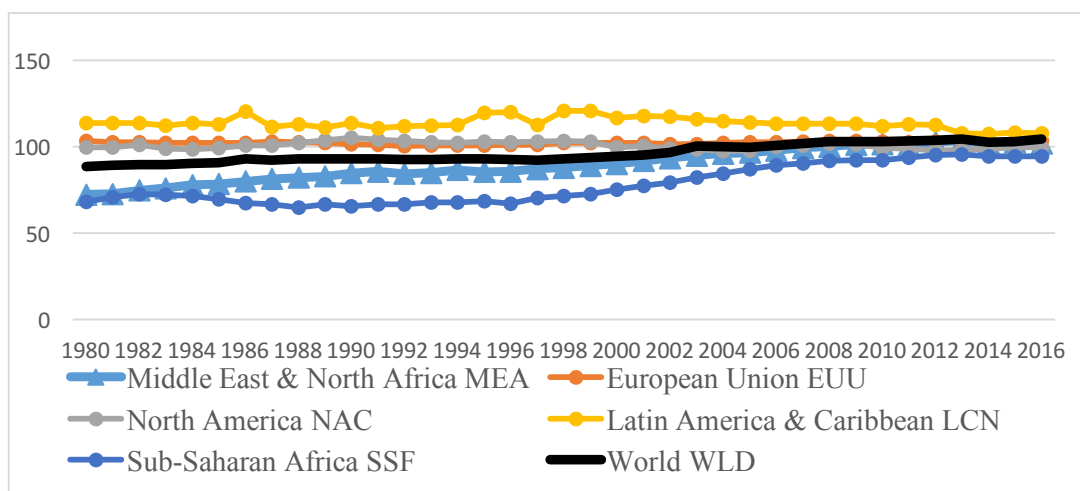


Source: World Development Indicators

The following figures show changes in development indicators around the world. In the MENA region, female school enrolment in all levels, primary, secondary, and tertiary, has increased in 40 years. There is no gender gap in school enrolment at the primary level; at the secondary level, the pattern is almost the same as the world, and at the tertiary level, female school enrolment in the MENA region is even a bit more than the world average.

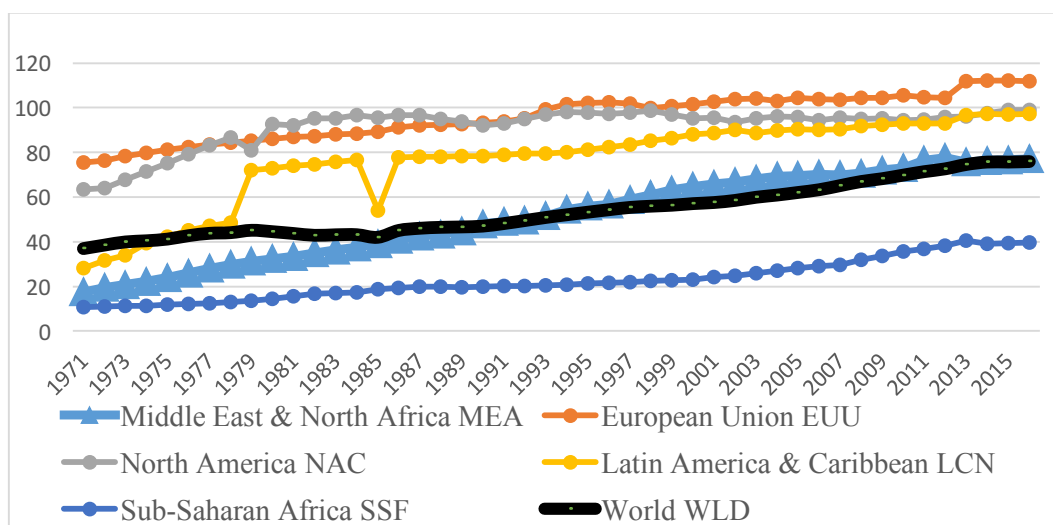
⁷ ILO estimation

Figure 7 School enrollment, primary (gross), Gender Parity Index(GPI)

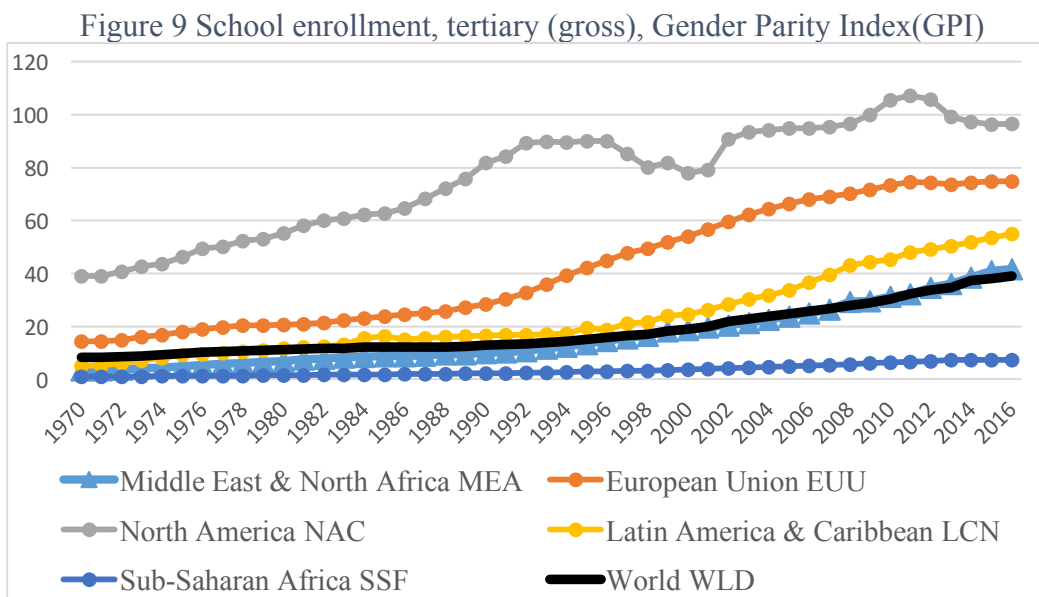


Source: World Development Indicators

Figure 8 School enrollment, secondary (gross), Gender Parity Index(GPI)



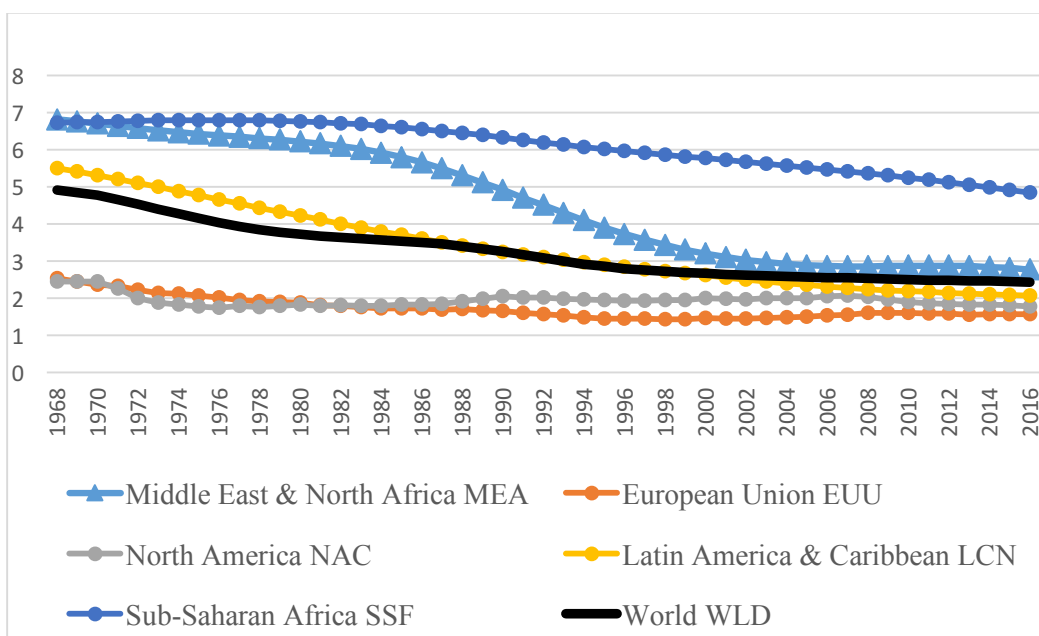
Source: World Development Indicators



Source: World Development Indicators

Moreover, the fertility rate in the MENA region shows a sharp decline, from 6.8⁸ in 1968 to 2.8 in 2016, which is more than in other regions around the world.

Figure 10 Fertility rate, total (births per woman)



Source: World Development Indicator

⁸ World Development Indicators

Improvements in human capital and development indicators on the one hand and no changes in FLFP rate, on the other hand, have made a puzzling situation on FLFP in the MENA region (Etemad Moghadam, 2009; The World Bank 2011). Researchers have tried to explain the low level of FLFP in the MENA region. Frequent topics of research are the influence of religion (Sharabi, 1988; World Bank, 2004; H'madoun, 2010) and the effect of formal institutions on FLFP rates (Solati, 2016). Here, attention is often given to barriers that are imposed on women's access to public spheres and their labor market activities. However, until now, the puzzle of FLFP in the MENA region has not solved completely, and just a few of the hypotheses have been tested. Therefore, the focus of this empirical study is to investigate the effect of culture on women's decision to join the labor force.

This chapter tries to shed more light on the reasons behind the low level of female labor force participation (FLFP) rate in the Middle East and North Africa (MENA) region. The rest of this chapter is organized as follows: the next section gives a brief literature review on female market activities in the MENA region. Then in the empirical study section, hypothesis, data, model, and result will be discussed. In the end, discussion and conclusion present the summary of this chapter and the main findings.

Literature Review

Chapter one gives a comprehensive literature review on factors that affect the level of female market activities. By looking at the proposed attitude-behavior platform of female labor force participation, the influential elements in two levels, micro-level, and macro-level is argued. Following the discussion, perceived behavior control, which includes items such as the level of economic development in a country and discrimination laws at the macro level and demographic characteristics and human capital factors at the micro-level, could have a significant effect on economic activity decisions. In this part, the literature review is in the strand of the impact of attitudes, both on micro-level (personal attitude) and macro-level (social norms) on female economic outcomes. The topic of the relation between women's work behavior and their attitudes towards work has been in sociological research agenda, but just in recent years, some economists have started to investigate the possible effect of attitudes and cultural beliefs on economic activities (Himmelweit and Sigala, 2004; Algan and Cahuc, 2007). Generally, people think of culture as a

shared understanding, knowledge, and practice. Based on Webster dictionary, culture is “the integrated pattern of human knowledge, belief, and behavior that depends upon the capacity for learning and transmitting knowledge to succeeding generation;” and “the customary beliefs, social forms, and material traits of racial, religious, or social group; and the set of shared attitudes, values, goals, and practices that characterizes an institution or organization.” Alesina and Giuliano have a series of studies on the effect of cultural traits at the micro-level on market activities. Based on their findings, personal attitudes towards family members have a relationship with economic outcomes, and societies with stronger family ties have more home production, more family business firms, and less female labor force participation rates (Alesina and Giuliano, 2010, 2011b, 2013). Some scholars (Antecol, 2000, 2003; Uunk, 2015; Fortin, 2005) show that egalitarian gender-role attitudes have a strong positive association with female employment rates and the gender pay gap.

Some scholars have suggested that one of the main characteristics of the MENA region that can negatively influence FLFP is the existence of patriarchal values and structural patriarchy in that region (Lobban, 1998; Ghanim, 2009; Moghadam, 2003, Solati 2017). Based on Webster dictionary, patriarchy means "social organization marked by the supremacy of the father in the clan or family, the legal dependence of wives and children, and the reckoning of descent and inheritance in the male line, in general control by men of a disproportionately large share of power." Micheal Mann's (1986) works suggest that in patriarchy societies, power is held by male heads of households, and there is a clear separation between the public and private sphere. In the public sphere, power is shared among male patriarchs, and no female holds any formal public position of ideological, economic, political, and military power. John Caldwell (1982) argues that North Africa, Muslim Middle East (including Turkey), South Asia, Central Asia, and China belong to "the patriarchal belt." This belt characterized by the low status of women, low age of girls at their first marriage, son preference, high maternal and infant mortality, strict sexual division of labor, low female labor force participation, and low female political participation (Moghadam, 2003; Moghadam, 2012; Litrell and Bertsch, 2013). Dildar (2015) studies the role of social conservatism as a constraint for women's labor force participation by evidence from Turkey. Her results show that both religiosity and patriarchal norms are associated negatively with women's market activities.

Although some scholars have tried to look at different countries, literature mainly tends to focus on western societies, with their similarities in social norms and personal attitudes. Due to this fact, and based on findings, FLFP in the MENA region appears as a puzzle, low female labor force participation with high development indicators. MENA region has its unique characteristics: most of the countries in the MENA region have a high percentage of natural resources (primary oil), and Islam is a dominant religion in that region. Some believe that religion (Islam) (Sharabi 1988; Psacharopoulos and Tzannatos 1989; Inglehart and Norris 2003; H'madoun 2010) is the key factor stopping women from entering economic environments in the MENA region. However, some other scholars consider cultural identity (Hayo and Tabias 2013) is the main factor. By using the identity economic approach, Hayo and Tabias' (2013) work shows that identity affects women's market activities. Based on their findings, Muslim women do not participate in economic activities less than non-Muslim women in the MENA region, but those with stronger identity have a lower probability of entering the market. Furthermore, by following Hakim's preference theory, which indicates that some women have chosen to be housewives and the reasons for male and female employment gap is partly due to the existence of "home-centered" women, some scholars explain that in the Muslim world, because of the importance of the family life within Muslim cultural context, women choose to stay at home, and they prefer to spend time on their families. So the low level of female labor force participation is not due to an obstacle for entering the economic market, but it is based on personal choice.

In contrast, Moghadam (1998) summarizes all factors stopping women from economic activities like the traditional sexual division of labor and household inequalities, strong gender ideology in the society, physical and social infrastructure, regulatory framework and the legal system, policies and economic conditions. Moreover, Ross (2008) believes that the financial situation in the MENA region, which is due to the existence of oil, can be seen as the main factor that prevents women from participating in the labor market. According to him, high oil revenues result in a different path of economic development. By using an economic condition called the "Dutch Disease", which is a transformation of the economy away from the "trader sector" (manufacturing and agriculture) to "non-trader sector" (construction and services) (Corden and Neary 1982), Ross suggests that different kinds of economic growth can affect gender relations differently. When economic growth is due to industrialization, it draws women in the labor force and brings out the changes related to modernization in gender relations. However, when economic

growth comes from oil extraction, usually industrialization does not happen and can even be discouraged by causing the Dutch Disease. Thus, based on Ross's suggestion, in oil-producing countries, women's unearned income is high, and they do not desire to replace leisure with work.

Empirical Study

Based on the theoretical studies, the central hypothesis in this research is, "*Cultural beliefs influence the supply side of female labor force participation and have a meaningful relationship on the female labor force participation's decision.*" The following platform and several sub-hypotheses are considered for testing the primary hypothesis:

Sub-Hypothesis 1:

"Personal traditional attitudes (Patriarchy personal attitudes and attitudes towards Family) affect negatively female market activities."

Sub-Hypothesis 2:

"Social norms affect negatively female market activities."

Sub-Hypothesis 3:

"Discrimination laws in a country harm female market activities."

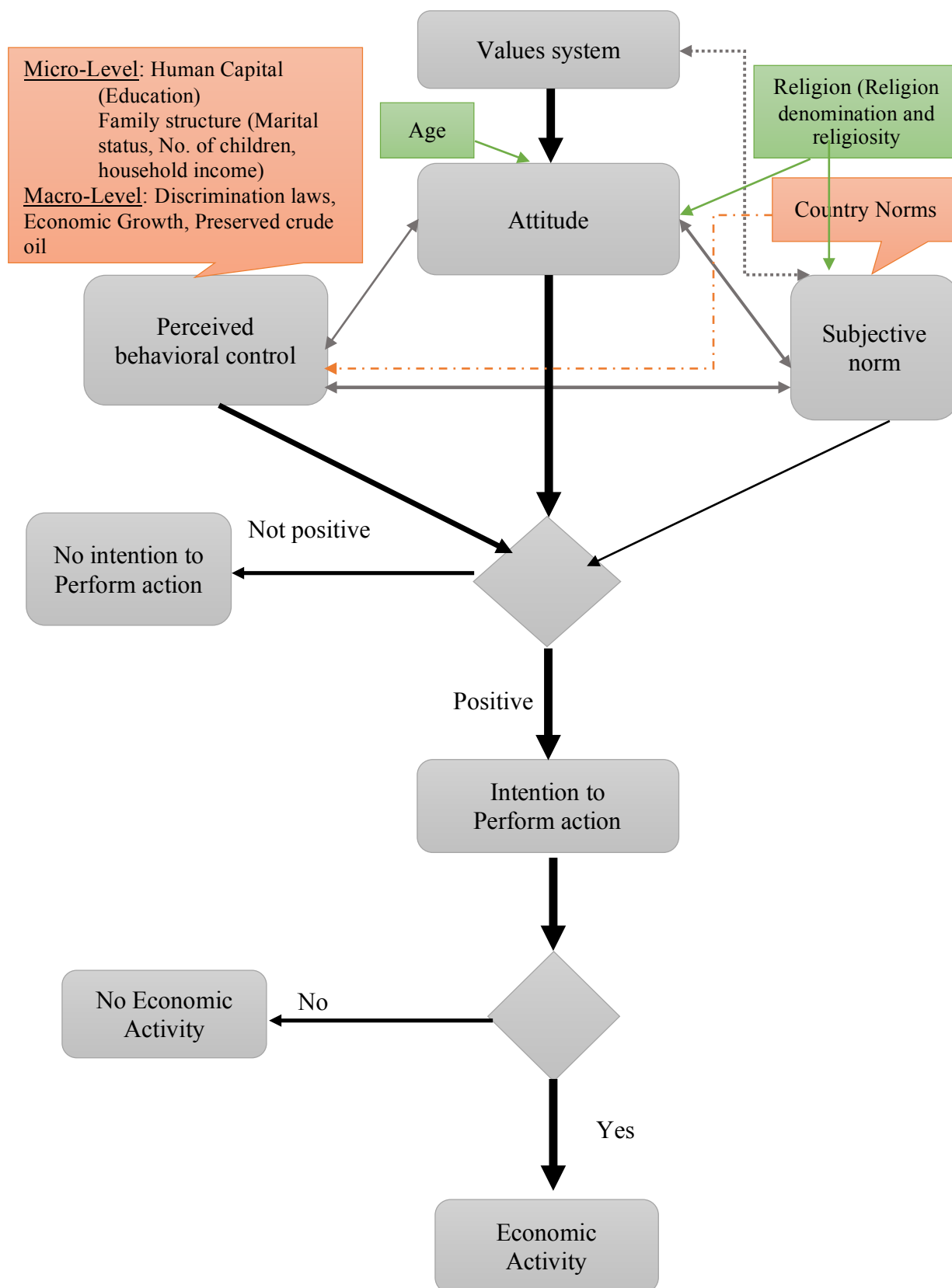
Sub-Hypothesis 4:

"Human capital has a positive impact on female market activities."

Sub-Hypothesis 5:

"Number of children has a negative impact on women's economic activities."

Figure 11 The proposed Attitude- Behavior Platform of Female Labor Force Participation-MENA



Data Description

The following data sources are used to test the hypotheses and to investigate the role of different elements in economic behavior empirically:

- *The World Value Survey (WVS)*: data from all six waves, 1981-1984, 1990-1994, 1995-1998, 1999-2004, 2005-2009, and 2010-2014. This study covers all countries in six waves of WVS⁹.
- *The World Bank*
- *OECD Gender Institutions and Development Database 2014 (GID-DB)*
- *UNDP*
- *Gender, Institutions, and Development Database (GID-DB)* is a database of critical data on gender-based discrimination in social institutions. It covers 160 countries and contains information on legal, cultural, and traditional practices that discriminate against women and girls.
- *International Energy Statistics*¹⁰

Variables

Dependent Variable

The dependent variable in this study is labor force participation. This variable is on the self-assessment through a question about the actual employment status. The respondents could answer by choosing one from different categories as "full-time, part-time, self-employed, retired, a housewife, student, unemployed or other." A dummy variable for labor force participation takes the value "1" in case the respondent is full-time, part-time, self-employed, or unemployed, and takes the value zero in case the respondent is household. According to ILO, the working-age population is the population above the legal working age, which might be different from one country to another one. Moreover, the retirement age would be different in various countries. Women in their working-age from 24 to 55 are chosen to capture the effect of different factors on female market activities in the best possible way.

⁹ The list of countries can be found in Appendix B

¹⁰ <https://www.eia.gov/beta/international/data>

To gain a sense of how the female participation rate that was calculated from WVS is reliable, Table 1 shows the official FLFP rates from ILO and UNDP and the one from WVS data for each country. For most countries, the differences are small, and the rate that was calculated from WVS data is reliable. Just for a few countries such as Burkina Faso, Ethiopia, and Zambia, the difference is noticeable.

Table 1 The difference between Female Labor Force Participation rates from the World Value Survey, ILO, and UNDP

Country	FLFP			Difference	Difference
	ILO	UNDP	WVS	(WVS-ILO)	(WVS-UNDP)
Albania	50.28	48.67	47.23	-3.05	-1.44
Algeria	12.94	14	36.75	23.81	22.75
Argentina	47.86	47.47	47.3	-0.56	-0.17
Armenia	48.24	50.19	40.07	-8.17	-10.12
Australia	55.63	56.84	60.58	4.95	3.74
Azerbaijan	58.3	59.21	54.22	-4.08	-4.99
Bahrain	36.56	39.03	50	13.44	10.97
Bangladesh	27.09	28.53	18.08	-9.01	-10.45
Belarus	54.8	56.1	68.17	13.37	12.07
Bosnia		37.8	43.72		5.92
Brazil	50.87	51.31	48.12	-2.75	-3.19
Bulgaria	48.6	48.24	50.27	1.67	2.03
Burkina Faso	66.42	63.82	20.46	-45.96	-43.36
Canada	59.57	60.24	60.58	1.01	0.34
Chile	39.14	42.82	40.97	1.83	-1.85
China	68.61	66.67	74.99	6.38	8.32
Colombia	44.63	49.35	41.87	-2.76	-7.48
Croatia	45.9	45.69	48.57	2.67	2.88
Cyprus	51.95	53.42	52.18	0.23	-1.24
Czech Rep.	51.3	50.81	67.44	16.14	16.63
Dominican Rep.	47.77	49.27	54.55	6.78	5.28
Ecuador	51.03	49.98	47.58	-3.45	-2.4
Egypt	21.07	21.61	13.66	-7.41	-7.95
El Salvador	44.81	45.53	34.41	-10.4	-11.12
Estonia	53.89	54.51	67.39	13.5	12.88
Ethiopia	73.3	74.64	31.09	-42.21	-43.55
Finland	56.33	56.14	54.39	-1.94	-1.75
France	49.05	49.7	55.58	6.53	5.88
Georgia	57.12	56.95	31.06	-26.06	-25.89
Germany	50.14	51.32	57.39	7.25	6.07
Ghana	73.08	73.49	59.59	-13.49	-13.9
Guatemala	41.53	41.56	43.96	2.43	2.4
Hong Kong	50.26	51.27	51.39	1.13	0.12
Hungary	42.93	43.92	49.93	7	6.01
India	33.21	30.94	26.63	-6.58	-4.31

Indonesia	49.78	49.94	45.59	-4.19	-4.35
Iran	13.95	14.17	18.6	4.65	4.43
Iraq	12.79	14.74	12.61	-0.18	-2.13
Israel	47.16	54.98	60.31	13.15	5.33
Italy	36.4	37.29	50.34	13.94	13.05
Japan	49.32	49.06	59.55	10.23	10.49
Jordan	12.95	13.43	7.74	-5.21	-5.69
Kazakhstan	65.24	65.34	65.76	0.52	0.42
Kuwait	45.02	46.38	70.65	25.63	24.27
Kyrgyzstan	53.48	52.4	48.84	-4.64	-3.56
Latvia	52.26	52.6	60.07	7.81	7.47
Lebanon	20.68	21.4	41.97	21.29	20.57
Libya	25.01	25.62	36.29	11.28	10.67
Lithuania	53.07	53.39	47.34	-5.73	-6.05
Macedonia	42.37		41.92	-0.45	41.92
Malaysia	44.96	45.89	57.52	12.56	11.63
Mali	40.97	46.74	21.92	-19.05	-24.82
Mexico	39.78	41.2	39.35	-0.43	-1.85
Moldova	45.67	42.92	51.2	5.53	8.28
Montenegro	43.2	43.02	43.44	0.24	0.42
Morocco	25.16	25.16	74.85	49.69	49.69
Netherlands	53.15	54.61	59.27	6.12	4.66
New Zealand	58.09	59.34	68.68	10.59	9.34
Nigeria	48.03	48.78	49.69	1.66	0.91
Norway	59.96	60.28	76.96	17	16.68
Pakistan	17.69	19.3	8.01	-9.68	-11.29
Palestine	17.9	14.35		-17.9	-14.35
Peru	60.09	63.28	40.87	-19.22	-22.41
Philippines	47.65	48.22	36.96	-10.69	-11.26
Poland	49.75	49.55	55.85	6.1	6.3
Puerto Rico	34.85		46.68	11.83	
Qatar	45.25	48.64	40.65	-4.6	-7.99
Romania	53.39	51.01	46.37	-7.02	-4.64
Russia	55.97	56.55	65.01	9.04	8.46
Rwanda	85.84	86.05	67.75	-18.09	-18.3
Saudi Arabia	16.72	18	17.72	1	-0.28
Serbia	46.76	44.99	51.94	5.18	6.95
Singapore	52.79	54.85	52.19	-0.6	-2.66
Slovakia	52.92	52.07	68.81	15.89	16.74
Slovenia	52.25	52.25	53.23	0.98	0.98
South Africa	44.68	44.88	41.96	-2.72	-2.92
South Korea		49.49	47.83		-1.66
Spain	43.07	46.48	38.41	-4.66	-8.07
Sweden	59.49	59.85	73.19	13.7	13.34
Switzerland	58.89	59.42	63.04	4.15	3.62
Tanzania	81.69	81.43	48.06	-33.63	-33.37
Thailand	65.93	65.14	81.74	15.81	16.6
Trinidad and Tobago	48.64	49.72	52.07	3.43	2.35
Tunisia	23.75	24.11	29.14	5.39	5.03
Turkey	28.01	28.77	21.35	-6.66	-7.42
Uganda	64.42	65.07	52.74	-11.68	-12.33
Ukraine	50.53	49.74	57.56	7.03	7.82
United States	57.72	57.19	62.71	4.99	5.52

Tesi di dottorato "Culture and Female Labor Force Participation. The Middle East and North Africa, With a Closer Look at Iran"
di MALLAK SAHAR

discussa presso Università Commerciale Luigi Bocconi-Milano nell'anno 2020

La tesi è tutelata dalla normativa sul diritto d'autore (Legge 22 aprile 1941, n.633 e successive integrazioni e modifiche).

Sono comunque fatti salvi i diritti dell'università Commerciale Luigi Bocconi di riproduzione per scopi di ricerca e didattici, con citazione della fonte.

Uruguay	51.79	53.02	51.6	-0.19	-1.42
Uzbekistan	51.55	52.38	31.78	-19.77	-20.6
Venezuela	47.52	48.59	39.98	-7.54	-8.61
Viet Nam	72.78	73.05	66.92	-5.86	-6.13
Yemen	14.96	12.13	8.01	-6.95	-4.12
Zambia	72.35	71.81	24.41	-47.94	-47.4
Zimbabwe	72.21	74.2	45.43	-26.78	-28.77

Source: WVS, own calculation, ILO & UNDP the average from 1980 to 2014

Other Variables

Personal Attitudes

Attitudes at the micro-level are calculated by two indices, patriarchy attitudes index and attitudes towards family index.

Patriarchy Attitudes Index:

To measure patriarchal attitudes, respondents' answers to questions from WVS data that suited to imply support for patriarchy preferences, in the line of the subordination of women to men, are used. The chosen questions, represent patriarchy in the domains of the labor market, political environment, and education, include:

- (i) *Preference of men to women in the job market*: “When jobs are scarce, men should have more right to a job than women” (agree, disagree or neither)
- (ii) *Men and women abilities in a political environment*: “On the whole, men make better political leaders than women do” (four scales, from “strongly agree” to “strongly disagree”)
- (iii) *Education*: “A university education is more important for a boy than for a girl” (four scales, from “strongly agree” to “strongly disagree”)

Patriarchal Attitudes index: to get an index, principal components analysis (PCA)¹¹ method is used. As principal components are most meaningful when all variables are measured in the same units; first, the variables are re-coded in a way that the higher indicates stronger patriarchy attitudes. Next based on PCA method I extract the first principal component from the whole dataset¹². The resulted data is the patriarchy attitudes index at the micro-level.

Attitudes Towards Family Index:

Attitudes towards family and the strength of family relationships in society are investigated to measure the strength of family ties. The following question is chosen from WVS:

- *The importance of Family*: “How important family is in a person's life” (four scales, from "very important" to "not important at all.")

¹¹ For more details, please check Appendix E

¹² For more details, please check Appendix E

- *Make parents Proud*: “One of my main goals in life has been to make my parents proud” (four scales, from "strongly agree" to "strongly disagree")

Attitudes towards Family index: To get the strength of attitudes towards family, I use the principal component analysis method. First, I re-code variables in a way that the higher indicates stronger attitudes towards family. The first principal component is called attitudes towards family index at an individual level¹³.

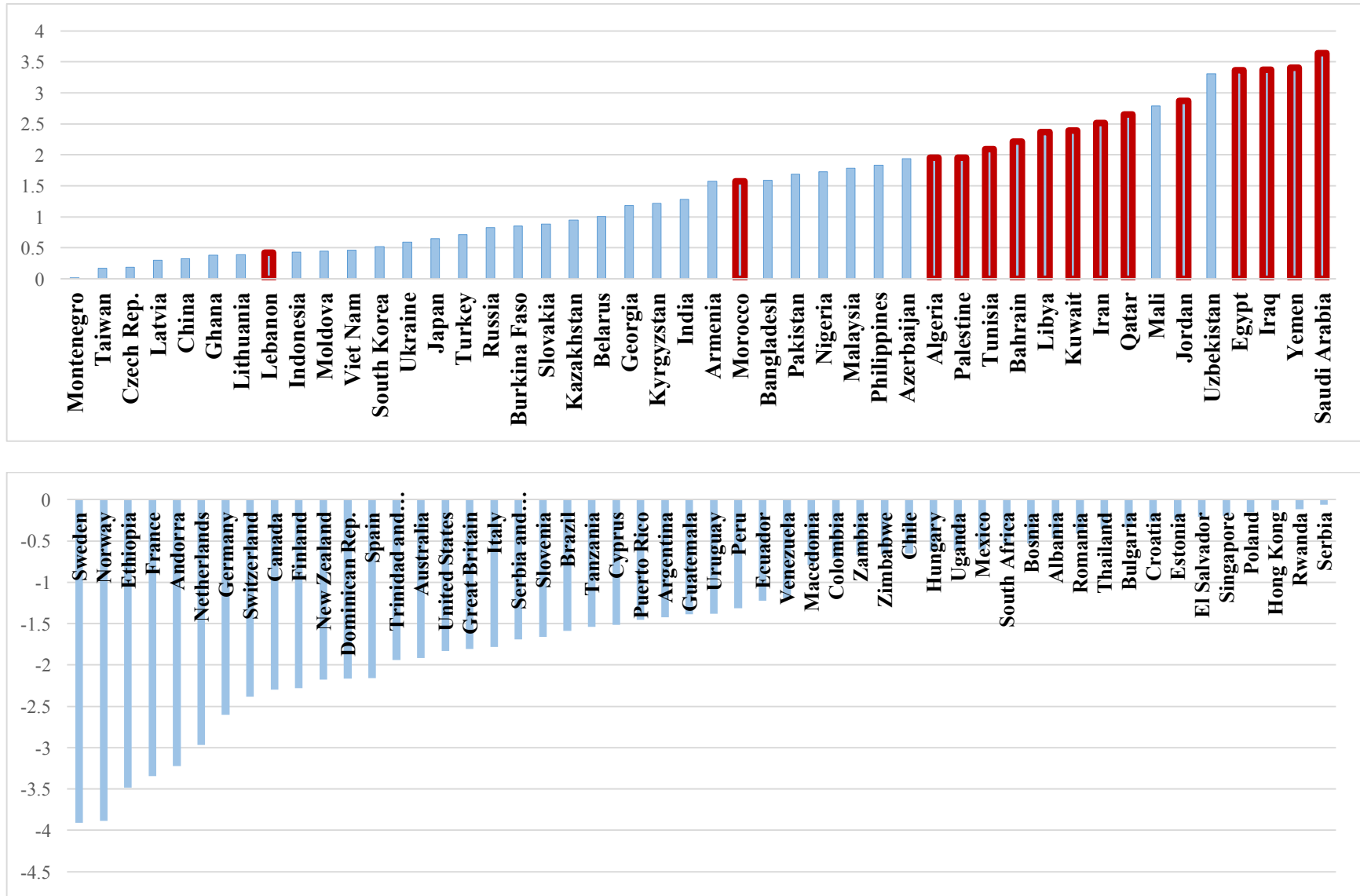
Subjective Norms:

Variables related to patriarchy attitudes and attitudes towards family is collapsed by country to get subjective norms (social norms) indices. Then based on PCA, the first principal component in each category is calculated, which are patriarchy social norms and social norms towards family at the country level.

To have a comparison of the strength of patriarchy attitudes among countries in the world, Figure 12 presents the value of patriarchy index at the country level, which is measured by respondents' answers to WVS questions. As was mentioned before, the higher the number, the stronger the attitudes in the country. Countries in the MENA region are marked in red. As it shows in bellow figure, all countries in the MENA region lie in the highest range with strong patriarchy values. Instead, Northern European countries, France, Switzerland, and Australia have very weak patriarchy attitudes.

¹³ For more info, see Appendix E

Figure 12 The Strength of Patriarchy Attitudes around the World



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Perceived Behavioral Control:

Micro Level:

As it was mentioned in the literature review, economic models of labor supply suggest people make a rational choice, and an individual participates in the labor market when the market wage is more than the reservation wage. Thus, variables that capture individual socioeconomic characteristics (individual demographic factors and human capital characteristics) have to be included in our estimation. These variables in this study at the individual level are *marital status*, *the number of children*, *the highest level of education*, and *the level of household income*.

Literature suggests that higher education leads to a higher wage; thus, measures of schooling are included in the estimation equation. The question which captures the highest educational level attained by the respondent is chosen. This question has eight categories; respondents with no formal education is a base group. Moreover, based on literature, age and its quadratic term have a U-shape effect on labor supply, and an individual is more likely to be active in the labor market during the period of the life cycle while the wage is comparatively high. To capture marginal household productivity, which is expected to be more for women who are married and (or) with children, two categorical variables are included. First, the one which captures the marital status is chosen. By re-coding the categories, zero (base group) captures when an individual is single/never married. The variable gets the value of “1” when an individual is separated or divorced, and “2” when the respondent is married (or living together as married). Second, the variable that shows the number of children is chosen, and it gets a number from “0” (base group) to “4” to capture the number of children (4 means four or more children). To obtain the scale of family income a categorical variable based on the following question is included in the equation

- On this card is a scale of income on which “1” indicates the "lowest income decline" and “10” the "highest-income decline" in your country. “We would like to know in what group your household is. Please, specify the appropriate number, counting all wages, salaries, pensions, and other income that come in.”

To better understand the level of household income on women's market activity, levels of income re-coded in three categories: the lowest group in regards to family income, an average level

and a group which is considered as high in family income scale (the one in the lowest scale is a base group).

Macro Level:

GDP per capita

Based on the literature, the level of modernization can affect women's formal market behavior. For this study, GDP per capita for each country is a mean of its GDP per capita for years of participation in WVS.

Discriminatory Family Code

Rules, regulations, and formal institutions influence citizens' economic activities in a country. Among all rules, family laws can strongly affect female labor force participation decisions. Discriminatory family codes include a parental authority (in marriage and after divorce), inheritance (widows and daughters), and divorce. Their scale is from "0" means "no discrimination" to "1," which means "totally discriminated family code" in a country.

Crude Oil Proved Reserved

As it was mentioned in the literature review, Ross (2008) and some other scholars believe that the existence of oil is the main reason for the low level of female labor force participation in the MENA region. Data on countries' oil reserved is added in the test to investigate scholars' suggestions on the effect of oil on FLFP.

Religion:

According to literature, religion can affect market activity decisions. As mentioned before, many scholars believe that Islam, which is a dominant religion in the MENA region, is the main factor behind the low level of female labor force participation rate. In order to investigate only the effect of patriarchal values and family ties, not other variables, I control for religion. The following question from the WVS data are chosen to capture the religious denomination of respondents:

- (i) "Do you belong to a religion or religious denomination? If yes, which one?" (Code answer due to the list, Code "0", if respondent answers to have no denomination)

Religiosity index is used to capture the importance of religion in a person's life. Following questions show the strength of religiosity:

- (ii) "Independently of whether you attend religious services or not, would you say you are a religious person, not a religious person, a convinced atheist?"
- (iii) "How important is God in your life? Ten scales, "10" means "very important" and "1" means "not at all important"
- (iv) "How important in Religion in your life?"

Religiosity index is the first principal component of above questions¹⁴.

Control for time and countries' weight:

In order to capture any effect of time, I control for waves in the analysis (variable S002 in WVS data). Moreover, to make any impact of different numbers of respondents for various counties, the weight variable (S017) in the regression is added.

To have a better understanding of variables, Table 2 shows descriptive statistics of variables:

Table 2 Descriptive Statistics

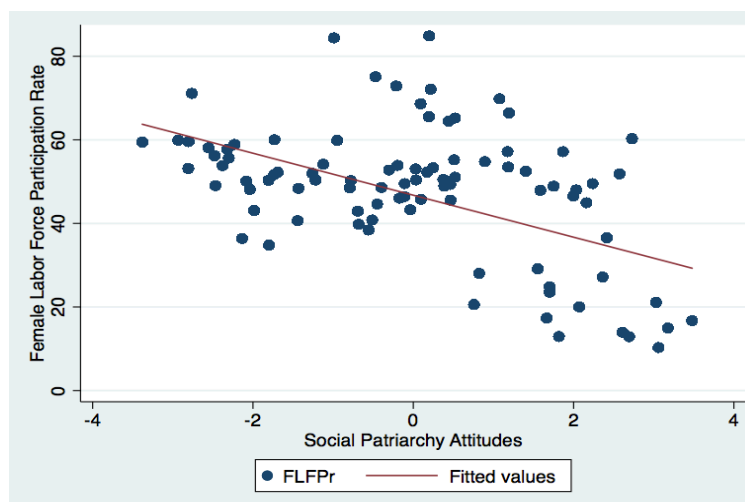
Variable	Obs	Mean	Std.Dev.	Min	Max
FLFP	104000	.654	.476	0	1
Patriarchy Attitudes	98007	0	1.281	-1.405	2.496
Attitudes towards Family	95386	0	1.052	-8.574	.877
Patriarchy Social Norms	113000	.066	1.626	-3.565	3.48
Social Norms towards Family	113000	.051	1.129	-6.272	2.326
Age	114000	37.814	8.977	24	55
Age square	114000	1510.5	700.818	576	3025
Religiosity	100000	0	1.431	-5.319	1.206
Religious Denomination	108000	NA	3.3	0	10
Education	105000	4.485	2.464	0	8
Marital Status	113000	NA	.734	0	2

¹⁴ For more details see Appendix E

Number of Children	109000	1.972	1.324	0	4
Household	104000	1.791	.646	1	3
Income level					
Divorce laws	111000	.223	.358	0	1
Inheritance laws	113000	.348	.375	0	1
Parental Authority laws	113000	.237	.37	0	1
Crude Oil Proved Reserves	114000	171.204	2214.984	0	30000
GDP per Capita	113000	11981.64	14626.72	240.334	72943.19
MENA	114000	.131	.337	0	1
Country	114000	467.066	260.208	8	914
Wave	114000	4.286	1.39	1	6
Country weight (S017)	114000	.984	.413	.056	32.251

Figures 13 and Figure 14 show the relationship between attitudes at the macro-level, which was calculated based on WVS data and the female labor force participation rate obtain from ILO, around the world. The expected negative relationship is visible. In countries with high patriarchy social norms, women are less active in the labor market. Instead, in those countries with weak patriarchal attitudes, more women are economically active in the labor market.

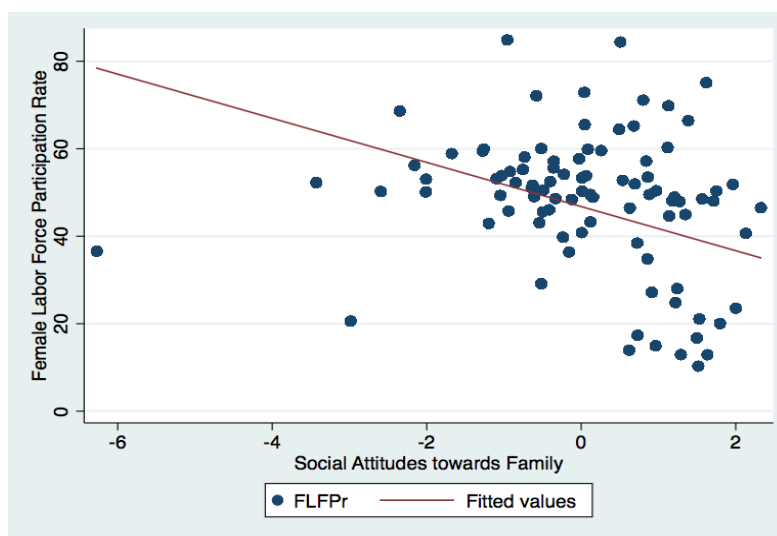
Figure 13 Female labor force participation and Patriarchy values, Worldwide



Data: Patriarchy Attitudes, author's calculation from the World Value Survey
 Female Labor force participation rate from the World Development Indicators

The noticeable negative association between social attitudes towards family and female labor force participation rate is visible. In countries with stronger social norms towards the importance of family, women's formal market activity is less than those countries with weak social norms towards the importance of family.

Figure 14 Female labor force participation and Family, worldwide



Data: Attitudes towards Family, author's calculation from the World Value Survey
Female Labor force participation rate from the World Development Indicators

Model

The data used in this research analysis are on different levels, hierarchically clustered with individuals nested in countries. One of the best methods to work with this kind of data is multilevel analysis. There are two main reasons for choosing the multilevel analysis method: first, from the statistical point of view, the independence of individual measures is an essential assumption in general regression analysis, and the violation of this assumption leads to biased results. Individual observations within one country are not independent (uncorrelated) of each other, and we expect to see similar behavior within a person in a country compare to people between different countries. Therefore, we have fewer independent observations. Without adjustment, the standard errors are underestimated, and the probability of Type 1 errors are high. Regression with a multilevel model provides better standard errors compare to standard regression analysis. Second, measurements of individuals' outcomes of micro-level processes may reflect the context (macro) in which the processes operate. The multilevel analysis allows estimating the effect of independent variables

on a dependent one both on individual and country-level simultaneously, and it will enable to investigate how individuals behave in general (at the micro-level) and how individuals behave in the specific context (the macro level). Thus, in this research, based on hypothesized and samples, multilevel regression is the best model.

As the outcome in this research is dichotomous outcome, I use the Multilevel Logistic Model (MLM Logistic). With the dichotomous outcome variable $Y_{ij} \sim \text{Bernoulli}(\pi_{ij})$, then the logit link function is:

$$\eta_{ij} = \beta_0 + \beta_1 x_{ij} + \beta_2 x_j + \varepsilon_j + \sigma_i$$

Where $\eta_{ij} = (\pi_{ij} / (1 - \pi_{ij}))$, π_{ij} denoted the probability that the i^{th} individual in the j^{th} 2nd level cluster has a market activity $\pi_{ij} = P(Y_{ij} = 1)$, x_{ij} denotes the vector of individual-level variables, x_j denotes the vector of the second level variables. Moreover, β_0 refers to the slop, β_1 denoted the vector of regression parameters for the individual-level variables, β_2 denotes the vector of regression parameters for the second level variables (country level).

Result

First, to prepare the data and to facilitate the interpretation, predictor variables are grand-mean centered. Next, different variables are added stepwise to the model to capture their effects. Multilevel logistic regression results are shown in Table 3. Model 1 is an empty multilevel logistic model (null model), which aims to estimate the log-odds of being active in the labor force, while including no predictors. While there is no predictor in this model, the coefficient corresponds to the overall log-odds of being active in the labor force for a typical woman belonging to an ordinary country. It means that women have, on average, around 72% chances of being active in the labor market across all countries.

Intra-Class-Correlation (ICC) is the measure of the degree to which individuals share common behavior and experiences due to their level of interactions. The following formula can calculate ICC:

$$\text{ICC} = \frac{\text{Level 2 residual variance}}{\text{Level 1 residual variance} + \text{Level 2 residual variance}}$$

As the variance can be only positive, ICC is necessarily between 0 and 1, which indicates the proportion of the total residual variance that is due to cluster effect and between-group variance. Table 3 shows the ICC in the null model is 0.28, which means that 28 percent of the total individual differences in female labor force participation is due to the country-level characteristics.

In Model 2, personal attitude indices are added to the null model. As the results show, both patriarchy attitudes and attitudes towards family are negatively related to the likelihood of falling into being active in the labor market group; stronger attitudes lead to less likelihood of being active in the formal labor market. By adding subjective norms variables in Model 3, personal attitudes keep their significant effects on the female labor force. Moreover, both patriarchy social norms and social norms towards family show a significant negative impact on women's market activity. However, patriarchy social norms lose its meaningful impact by adding religiosity and religious denomination in model 4. Results indicate that some religious denominations such as Buddhism, Hindu, and Muslim are negatively related to the likelihood of falling into being active economically group, and women with these religious beliefs are less likely to be active in the formal market. Also, religiosity has a negative impact on female labor force participation; women with strong religious beliefs are less likely to participate in the formal economic market.

Model 5 investigates the influence of perceived behavioral control elements, in both micro and macro level, on female labor force participation. Results indicate that when the level of education is higher than elementary school, education is positively related to the likelihood of falling into women economically active group, and higher the level of education leads to a greater likelihood of being active in the formal economic market. Marital status shows a negative effect on women's economic behavior: divorced/separated/widowed women and married women compared to single women are less likely to participate in the labor force. Moreover, results indicate that the number of children is negatively related to women's market behavior; more children in a family lead to less likelihood of falling into the working women group. This result is significant for any number of children in a family compare to no child.

Another critical element at the micro-level in the perceived behavioral control section is the level of household income. As it is shown in the table, higher household income is positively related to the likelihood of participate in the labor force. Women in families with a medium or high level of household income are more likely to be active in the economic market. Macro level variables in the perceived behavioral control section show different effects. While discriminated

laws regarding divorce and inheritance indicate no meaningful impact on women's market behavior, discriminated laws related to parental authority show a significant impact on women's labor force. Women are less likely to participate in the labor force in societies where discriminated parental authority laws exist. Countries' level of growth (GDP per capita) and reserved crude oil shows no significant impact on women's market activity. Moreover, being in the MENA region shows no meaningful impact on female labor force participation.

Model 6 is a complete model with all variables in three main sections, personal attitudes, subjective norms, and perceived behavioral control. Results in the table show that ICC is 0.2; although it decreases compare to the null model, it still shows 20 percent of the variation in women market activity is among countries and related to countries' characteristics. In the complete model, subjective norms (social norms relate to patriarchy and family) show no more meaningful impact on women's economic activities. Likewise, personal attitudes towards the importance of family and family ties are not significantly related to the female labor force. The only element in attitudes and social norms that shows a meaningful negative impact on patriarchy attitudes, women with strong patriarchy attitudes are less likely to participate in the labor force. The increase of one unit in patriarchy attitudes index leads to a change of -0.103 in the overall log-odds of being active women; this means that when personal patriarchy attitudes increase by one unit, women are 0.9 less likely to participate in labor force instead of not working across all countries. Likewise, the increase of one unit in religiosity leads to a change of -0.122 in the overall log-odds of being active in the economic market. In the complete model, among all religious denominations, just Hinduism and Islam show a negative impact; Hindu and Muslim women are less likely to work in the formal market. Perceived behavioral control elements in both micro and macro level show the same impact as before, the level of education and household income level are positively related to FLFP, marital status, and the number of children negatively impacts FLFP. Among macro-level elements in perceived behavioral control, still, just discrimination parental authority laws are negatively related to women's market activity.

Table 3 Multilevel Logistic Regression

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Personal Attitudes							
Patriarchy Attitudes		-0.228*** (-31.65)	-0.227*** (-31.47)	-0.210*** (-27.66)		-0.103*** (-11.64)	-0.0930** (-3.14)
Attitudes towards Family		0.0309*** (-3.53)	-0.0296*** (-3.38)	-0.00254 (-0.27)		0.0108 (0.99)	0.0148 (0.93)
Subjective Norms							
Patriarchy Social Norms			-0.210*** (-3.67)	-0.0969 (-1.66)		-0.00767 (-0.08)	0.144 (1.24)
Social Norms towards Family			-0.236** (-3.23)	-0.207* (-2.47)		-0.100 (-1.01)	-0.125 (-0.99)
Age				0.00179 (0.20)		0.158*** (14.29)	0.159*** (14.41)
Age square				-0.000157 (-1.34)		-0.00177*** (-12.67)	-0.00179*** (-12.79)
Religiosity				-0.153*** (-15.84)		-0.122*** (-10.90)	-0.118*** (-10.45)
Religious Denomination (Ref. No Religious Denomination)							
Buddhism				-0.135* (-2.00)		-0.134 (-1.74)	-0.128 (-1.63)
Christian				0.0407 (0.43)		0.0487 (0.45)	-0.0301 (-0.26)
Evangelical				-0.0995 (-1.48)		0.0285 (0.38)	-0.000679 (-0.01)

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Hindu	-0.724*** (-8.30)	-0.596*** (-6.12)	-0.615*** (-6.25)
Jew	-0.0312 (-0.19)	-0.175 (-0.97)	-0.202 (-1.09)
Muslim	-0.663*** (-13.11)	-0.453*** (-7.98)	-0.445*** (-7.65)
Orthodox	0.120* (2.08)	0.119 (1.88)	0.115 (1.81)
Protestant	0.0447 (0.98)	0.0650 (1.23)	0.0465 (0.85)
Roman Catholic	-0.0198 (-0.54)	-0.0185 (-0.43)	-0.0311 (-0.70)
Other	0.0787 (1.57)	0.185** (3.16)	0.180** (3.04)
Perceived Behavioral Control			
Micro Level			
Education (Ref. No formal education)			
Incomplete elementary education	0.114 (1.87)	0.109 (1.77)	0.108 (1.67)
Completed (Compulsory) elementary education	0.315*** (5.54)	0.310*** (5.41)	0.304*** (5.39)
Incomplete secondary: Technical school	0.592*** (9.49)	0.602*** (9.59)	0.612*** (9.69)
Complete secondary: Technical school	1.034*** (18.22)	1.039*** (18.19)	1.032*** (18.11)
Incomplete secondary: Uni-prep school	0.779*** (12.39)	0.787*** (12.44)	0.784*** (12.40)
Complete secondary: Uni-prep school	1.074***	1.074***	1.069***

	(18.50)	(18.31)	(18.01)
Some university without a degree	1.530***	1.527***	1.522***
	(22.33)	(21.87)	(20.57)
University with a degree	2.092***	2.121***	2.116***
	(34.13)	(34.10)	(33.80)
Marital Status			
(Ref. Single/Never married)			
Divorced/Separated/Widowed	-0.398***	-0.482***	-0.481***
	(-7.85)	(-8.54)	(-8.50)
Married/Living together as married	-1.448***	-1.474***	-1.480***
	(-34.49)	(-32.11)	(-32.16)
Number of Children			
(Ref. No Child)			
1 Child	-0.456***	-0.527***	-0.530***
	(-11.62)	(-12.17)	(-12.19)
2 Children	-0.547***	-0.674***	-0.680***
	(-14.72)	(-16.15)	(-16.22)
3 Children	-0.616***	-0.769***	-0.772***
	(-15.61)	(-17.16)	(-17.16)
4 or more Children	-0.757***	-0.961***	-0.961***
	(-18.68)	(-20.63)	(-20.53)
Household Income Scale			
(Ref. Lowest level)			
Average level	0.113***	0.0744**	0.0730**
	(5.28)	(3.17)	(3.10)
High level	0.344***	0.242***	0.243***
	(10.49)	(6.66)	(6.65)
Macro Level			
Discrimination Laws			

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Divorce laws	-0.130 (-0.28)	-0.185 (-0.40)	-0.414 (-0.92)
Inheritance laws	0.256 (0.55)	0.614 (1.35)	0.531 (1.20)
Parental Authority laws	-1.352** (-2.72)	-1.094* (-2.16)	-1.223* (-2.50)
GDP per Capita	0.00000996 (1.47)	-0.00000175 (-0.19)	-0.0000300* (-2.13)
Proven Crude Oil Reserves (Billi)	-0.0000190 (-0.59)	-0.00000563 (-0.18)	-0.00000514 (-0.17)
MENA	-0.380 (-0.85)	-0.243 (-0.55)	-0.0558 (-0.13)
Patriarchy Attitudes*Education			0.00806* (2.19)
Attitudes towards Family*Education			0.0162*** (3.44)
Patriarchy Social Norms*GDP per Capita			-0.0000142* (-2.46)
Social Norms towards Family*GDP per Capita			0.000000365 (0.04)
Religious Denomination*Patriarchy Attitudes			
Buddhism*Patriarchy Attitudes			-0.0510 (-0.87)
Christian*Patriarchy Attitudes			0.0925 (1.12)
Evangelical*Patriarchy Attitudes			-0.0487

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Hindu*Patriarchy Attitudes							(-0.73)
							0.0242
							(0.36)
Jew*Patriarchy Attitudes							-0.230
							(-1.59)
Muslim*Patriarchy Attitudes							-0.0393
							(-1.08)
Orthodox*Patriarchy Attitudes							0.00943
							(0.22)
Protestant*Patriarchy Attitudes							-0.0340
							(-0.81)
Roman Catholic*Patriarchy Attitudes							-0.0135
							(-0.41)
Other*Patriarchy Attitudes							0.0580
							(1.30)
Wave control				Yes	Yes	Yes	Yes
Country Weight				Yes	Yes	Yes	Yes
Constant	0.941***	0.949***	0.932***	1.162***	2.263***	-0.356	-0.313
	(8.22)	(8.82)	(10.08)	(5.75)	(15.04)	(-1.37)	(-1.20)
Random-effect							
_cons	0.126	0.0569	-0.0978	-0.160*	-0.0605	-0.0992	-2.199***
	(1.74)	(0.78)	(-1.34)	(-2.15)	(-0.80)	(-1.28)	(-15.82)
lns1_1_2							-2.442***
_cons							(-11.25)
lns1_1_3							-0.142
_cons							(-1.81)

ICC	0.28	0.25	0.2	0.18	0.21	0.2	0.19
AIC	111028.1	89382.05	89356.04	82127.81	76361.23	63341.75	63237.99
BIC	111047.2	89419.49	89412.21	82322.81	76538.11	63670.99	63713.55
N	103738	85924	85924	79678	69254	69254	69254

statistics in parentheses

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

In Model 7, interaction terms introduced to investigate whether the effect of essential factors is the same for different groups or not. Although in logistic regression, the value, the sign, and the significance of the product term is likely to be biased (Kolasinski & Siegel, 2010; Sommet & Morselli, 2017), in the lack of better approach, many scholars rely on the simple significance – of-the-product-term approach (Sommet & Morselli, 2017). Result in Model 7 show that the effect of personal attitudes on women's economic behavior is not the same for women with different level of education. The result is in line with previous works that the impact of traditional attitudes on labor force participation varies among women with different their level of education. Moreover, the results indicate that the impact of patriarchy social norms on FLFP varies in countries with different economic growth levels. This result also confirms the previous works that the level of modernization influences the effect of social norms on women's market behavior.

The same test is run, but just for those waves in WVS data that include more countries from the MENA region, to investigate more accurately the relationship between different elements on FLFP for countries in the MENA region. Because except for one variable, results are similar to model 7, the table of results is shown in Appendix C. The only difference which is essential to be mentioned, is the change in the direction of Attitudes towards family on women's market activity. In the sample from all six waves, after controlling for different variables, the effect of attitudes towards family losses its significant negative effect. However, in the analysis from wave 4, 5, and 6, the impact of attitudes towards family is significant and positive on FLFP; this means that a higher level of attitudes towards family leads to a greater likelihood of falling into the working group for women. This result is in contrast to the results of previous research that confirm greater family ties are negatively related to the likelihood of being active in labor force participation. One of the explanations is that, in this study, I use data from wave 6, which includes many countries from the MENA region. Thus, the result can be more accurate than previous works.

Discussion and Conclusion

The central objective of this study is to investigate the low level of female labor force participation in the Middle East and North Africa region (MENA). Despite massive changes in development indicators such as a decrease in the fertility rate, improvement in female health issues,

and an increase in female literacy rate in the MENA region, the rate of female participation in economic activities has not experienced meaningful changes over the last three decades. In this chapter, with the suggested platform, the effect of cultural beliefs, attitudes, social norms, and perceived behavioral controls on the female labor force participation rate in all countries is investigated.

The results from the multilevel logistic regression show that, although perceived behavioral control variables such as the level of education, family status, and the level of household income have a strong association with the level of FLFP, but the main reason for the low level of FLFP in MENA can be associated to the high level of women patriarchy attitudes. All countries in the MENA region have high patriarchy social norms, and that can partly explain the low level of women's market activities.

Intra-Class-Correlation from the results, which measures the proportion of the total residual variance that is due to between-group variance, even after controlling for different variables, is 0.19, which means 19 percent of the absolute difference is due to the country effects. This result indicates the relevance of the country and other societal boundaries for better understanding the supply side of labor market activities.

The findings of this research have policy implications too. Political decisions must be built by appropriate analysis. This study provides the new platform to analyze the effects of different elements on female market activities at both the micro and macro levels. Politicians should always consider the fact that citizens' economic decisions may depend on both their context and individual preferences. To reach a desirable outcome, attention on both is necessary.

CHAPTER THREE

Iran

Abstract: The labor force participation of Iranian women has been very low, and the gender gap between men and women economic market activities has been broad in Iran. Despite a massive improvement in development indicators, the level of female market activity stays low in all provinces in Iran. In this study, using data from the WVS, Statistic Center of Iran, the effect of personal attitudes, social norms, and perceived behavioral control elements on women's economic behavior is investigated. The findings show the meaningful impact of patriarchy attitudes on women's economic activities.

Introduction:

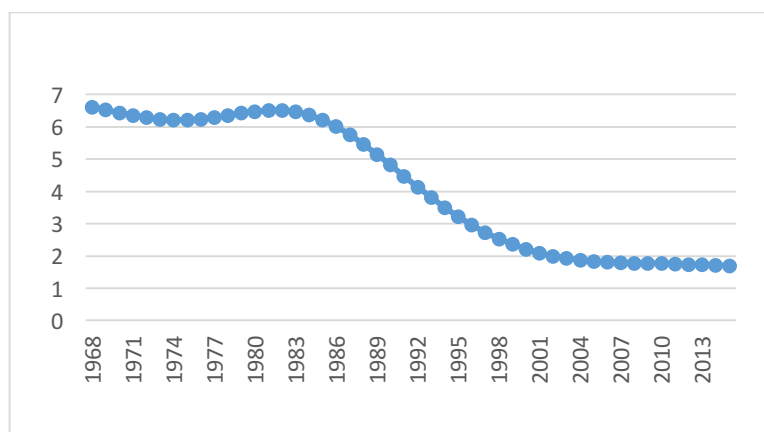
Female labor force participation (FLFP) rate, which is the first and the most crucial factor in exploring female economic activities in any society, has not improved in the past forty years in some countries, especially countries in the Middle East and North Africa (MENA) region, despite massive changes in development indicators. As it was mentioned in the previous chapter, scholars have tried to explain the reason behind the low level of FLFP in the MENA region. Oil production, economic discrimination, religion (which mainly is Islam in the MENA region), and mostly, they have focused on culture as the main subject. Many believe that cultural values and different social norms in different societies are the key factors behind the low rate of female economic activities, and more traditional values lead to less economic activity decisions among women in society. Investigating the effect of attitudes and norms is particularly essential, especially in countries with diverse ethnic groups. Countries in the MENA region and particularly Iran is an interesting example of ethnic diversity.

Iran locates in the Middle East, by 81,828, 495 (2018) population, and the land area of 1, 648,195 (sq. km) ranks number 2 in the Middle East and North Africa (MENA) region (after Egypt) and number 18 in the world. The Middle East has a vast diversity and a very large of ethnic, language and religious fractionalization measures in the world; with a average score of 0.453 for ethnic fractionalization, the average score of 0.330 for Language fractionalization and the average score of 0.346 for religious one (Alesina at al. (2003), Table 3). The larger the score is, the more

diversity there is. Fractionalization measures for Iran are 0.6684 for ethnic, 0.7462 for language, and 0.1152 for religious (Alesina et al. (2003), Table A1). Thus, Iran is more diverse in ethnic and language compared to other countries in the Middle East but less diverse in religious. Iran is a multi-ethnic nation with different ethnic groups includes Persian (the largest ethnic group in Iran), Azerbaijani, Baluchs, Gilaks and Mazani, Lurs, Kurds, Turkmen, Nomads, Qaghqaie, Bakhtiyari, and Turkic tribes¹⁵. Iran has a mix of a different culture, and many different languages are spoken in the country.

Iran has experienced a massive improvement in development indicators, and women in Iran, like in other countries in the MENA region, have achieved significant progress in different indicators such as a rapid reduction in fertility rate and increases in literacy rate. Figure 15 shows that the total fertility rate has declined noticeably from 7.1 in 1965 to 1.72 in 2017, which is the lowest in the MENA region.

Figure 15 Fertility rate, total (births per woman), Iran



Source: World Development Indicators

Furthermore, the literacy rate in Iran has increased in the past 40 years for both males and females, especially for women in all parts of Iran. Figure 16 shows the literacy rate trend in Iran and in the world. The rate for both males and females have reached the world average in recent years.

¹⁵ Iran Chamber Society

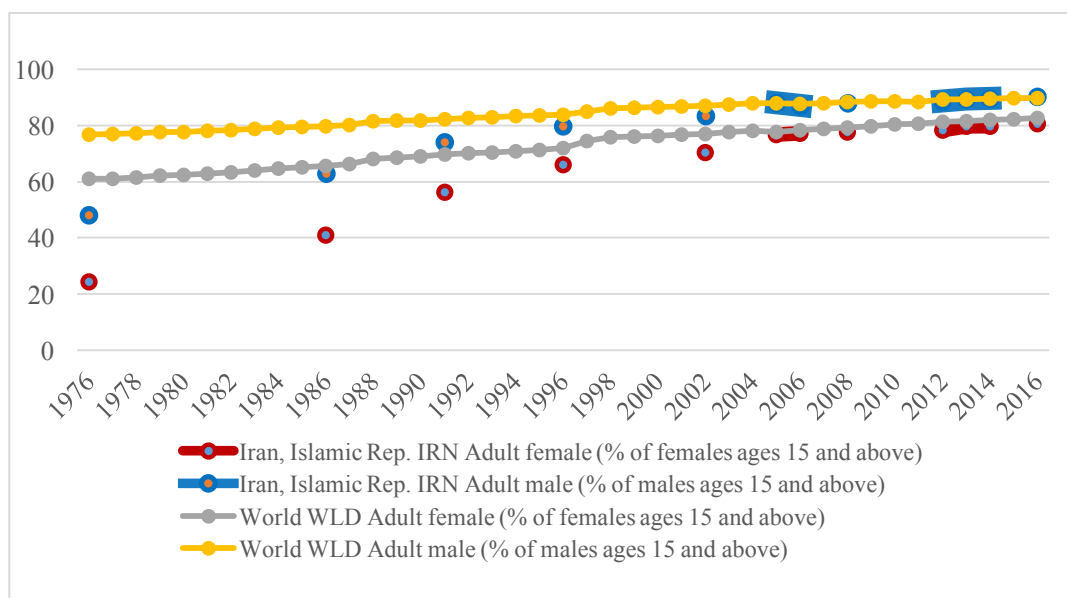
Tesi di dottorato "Culture and Female Labor Force Participation. The Middle East and North Africa, With a Closer Look at Iran" di MALLAK SAHAR

discussa presso Università Commerciale Luigi Bocconi-Milano nell'anno 2020

La tesi è tutelata dalla normativa sul diritto d'autore (Legge 22 aprile 1941, n.633 e successive integrazioni e modifiche).

Sono comunque fatti salvi i diritti dell'università Commerciale Luigi Bocconi di riproduzione per scopi di ricerca e didattici, con citazione della fonte.

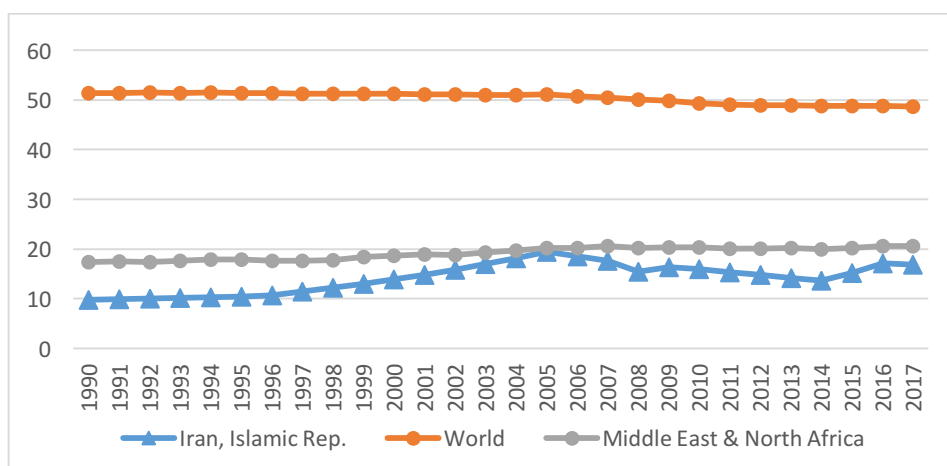
Figure 16 Literacy rate, Iran and World



Data from the database: World Development Indicators

Despite all improvements, FLFP rates have stayed approximately at the same level during all these years. Figure 17 shows that the female labor force participation in Iran, except for few years that is equal to the average in the Middle East and North Africa, mainly the rate is even lower than the average in the MENA region, which is the lowest among all region around the world.

Figure 17 Labor force participation rate, female (% of female population ages 15+) (modeled ILO estimate)



Source: World Development Indicators

To better understand the reasons behind the low level of FLFP rate in Iran, in this chapter, based on the proposed platform in chapter one, the effect of different elements in FLFP among different ethnic groups is investigated. The rest of this chapter is organized as follows: first, a brief background for Iran is presented to explain the reasons why Iran is a unique sample of analysis. Then in an empirical study part, data, model, and the result are discussed. In the end, the discussion and conclusion are explained.

Background:

Iran is a country at the juncture of the Middle East and Western Asia, sharing borders with seven countries, including Afghanistan, Armenia, Azerbaijan, Iraq, Pakistan, Turkey, and Turkmenistan. It also borders the Caspian Sea, the Persian Gulf, and the Gulf of Oman. Iran is the second-largest economy in the Middle East and North Africa after Saudi Arabia, with an estimated Gross Domestic Product (GDP) in 2016 of US\$412.2 billion¹⁶. Moreover, Iran has the second largest population of the region after Egypt, with an estimated 78.8 million¹⁷ people in 2015¹⁸, who lives in 31 provinces in Iran.

Iran consists of 31 provinces (Ostan in Farsi), which are governed by a local center. Minister of Interior appoints the provincial authority head (Ostandar). Figure 18 is the map of the Iran provinces.

¹⁶ The World Bank

¹⁷ The World Bank

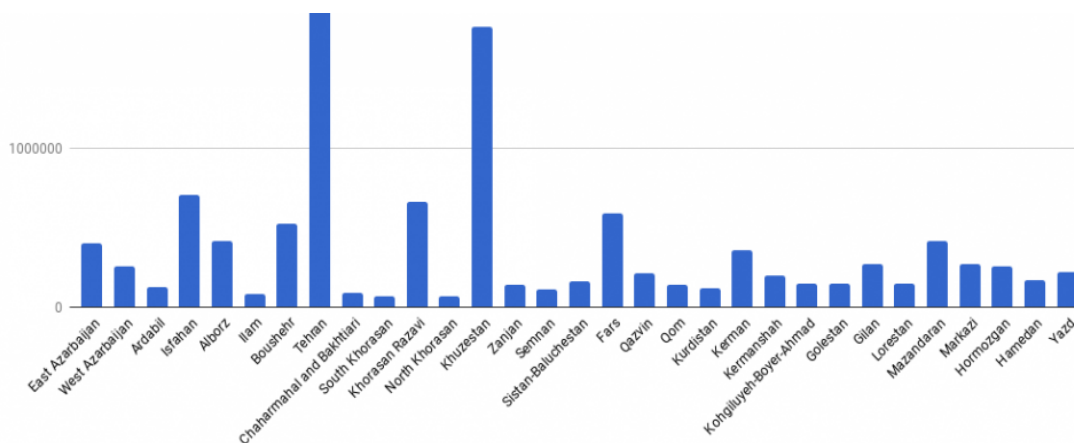
¹⁸ Based on Central Bank of Iran the population was 80.9 million in 2017

Figure 18 Iran Provinces



Based on the Ministry of Cooperatives, Labor, and Social Welfare's report for fiscal 2015-16, Iran's provinces' share of GDP is different: Tehran province, wherein lies the capital city (Tehran) usually contributes the most to the economy, both exclusive and inclusive of oil. Ilam's GDP share was the smallest excluding oil, and South Khorasan contributed the least among all Iran provinces, including oil production. Moreover, Buser's GDP per capita was the biggest, and Sistan-Baluchestan's GDP per capita was the smallest among all provinces in Iran. Figure 19 shows the provincial share of GDP in 2015-16.

Figure 19 Provincial Share of GDP, Iran 2015-2016

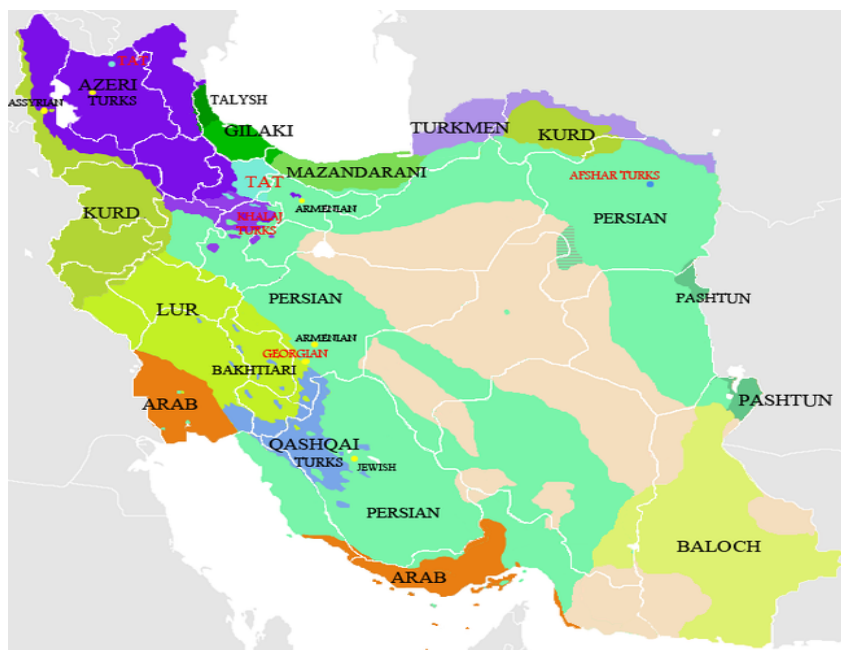


Iran Ethnic Groups

Iran's location and being on the Silk Road is one of the main reasons that it "has always been the host of diverse ethnic groups" (Amanolahi, 2005). An ethnic group is a group that regards itself or is regarded by others as a specific community with definite characteristics that differentiate the group from the surrounding community. Ethnicity is shared characteristics such as language, religion, culture, and traditions, which contribute to a person or group's identity. Ethnicity is a term to explain the difference between humans rather than race. Ethnicity resides in members' belief that they are different from others, and members of a social group mostly define symbolic markers of that difference, such as forms of dress, food habits, and language or dialog. Moreover, in relationships with outsiders, ethnicity group members try to preserve and reproduce group boundaries.

In Iran, seven major ethnic groups live: Persians (Fars), who constitute 51% of Iran's population, Iranian Azari (Turks) (24%), Gilakis and Mazanis (Shomali) (8%), Iranian Kurds (7%), Iranian Arabs (2%), Lurs (2%), Baluchs (2%), and others (3%). Each ethnic group has its language, cultural values, social norms, dress codes, and region of residence in Iran. Although an official language in Iran is Farsi (Persian) and everyone has to know how to speak and read in Farsi, but each ethnic group uses its language in informal activities. Figure 20 shows different ethnic groups and their region of residence in Iran.

Figure 20 Iran Ethnic Groups Map



Persians (Fars) are Muslim Shia and the majority of the population and dominate the central government of Iran. Persians mainly live in the central part of Iran in provinces such as Fars, Kerman, Esfahan, Tehran, Markazi, and Qom. Iranian *Turks* (Azaris) are the second largest ethnic group that speaks Turkish, which is different from Istanbul Turkish. They are among the oldest of the Aryan race (Rashidvash, 2013a), who plays a vital role in Iranian history from the 11th century. Moreover, they have had a powerful impact on Iran's political, economic, and social situation from the 15th century. Turk people mostly live in an area between the Caspian Sea and Lake Urumia, and from the latitude of Tehran in the south to the Republic of Azerbaijan in the north. In general, they live in the north and north-western Iran in Ardebil, Zanjan, West Azerbaijan, and East Azerbaijan provinces. Iranian *Kurds* who are Muslim Sunni, live mainly across five countries in the Middle East: Turkey (45%), Iraq (20%), Iran (20%), Syria (5%), Armenia (5%), and 5% in other countries. Iranian Kurds consider themselves descendants of Medes, who resided in Iran since 1000 BC, which is one of the three main Iranian tribes with Persians and Parthians. Kurdish population has resided in the Zagros Mountains (one of the two mountains in Iran) in the western regions of the Iranian plateau (Farhud et al., 1991) in provinces of Kurdistan, Kermanshah, and West Azerbaijan. A small group of Kurds moved to the north and north-east provinces such as Golestan and Khorasan. Iranian *Arabs* mostly live along the Persian Gulf, in southern provinces

of Khuzestan and Hormozgan. *Lurs* live in the mountainous areas in the southwest of Iran. Their language is Lurish, which is the closest to Archaic and Middle Persian (Coon, 2005). Baluchs who are Muslim Sunni, live in Sistan and Baluchestan speak Baluchi, a western Iranian language (Elfenbein, 1988). *Shomalis* (Gilakis and Mazanis) are Muslim Shia who live along the Caspian Sea.

Gender and Family Policies after the Iranian Revolution

Policies in Iran after the Revolution can be viewed in three different periods: *the highly ideological 1980s, the period of liberalization (1990-2005) in the time of Presidents Hashemi Rafsanjani (1989-1997) and particularly Mohammad Khatami (1997-2005), and the neo-fundamentalist era of Mahmoud Ahmadinejad (2005-2013)*¹⁹. The first period, which is the decade after the 1979 revolution, is characterized by Islamization and its related policies, and the war economy. In this period, based on Islamization policies, veiling became compulsory for women, sex segregation in public places and schools happened, The Family Protection Act of 1967 of the Pahlavi was replaced by a sharia-based family laws, which rejected the right to initiate divorce for women and restored men's unilateral right to divorce and polygamy, and abortion became strictly prohibited (Moghadam 2013). "Islamic Cultural Revolution" 1980 which led to the shutting down of universities for two years, gave the government the opportunity for introducing the Islamic dress code, rewriting all textbooks, and establishing ideological criteria for faculty and students. As the results of mentioned policies along with an eight-year war with Iraq, which led to large numbers of war widows, population, poverty, and gender inequality indicators grew fast.

The end of the long and costly war with Iraq in 1988, and the death of Ayatollah Khomeini in 1989, who was a charismatic religious and revolutionary leader, along with the results of the policies of the first decade after the revolution, highlighted the need for a different development strategy in the country. In the second period, which can be called as a liberalization and reform period (Moghadam 2013), any restrictions on women's education and employment was removed, the Women's Social and Cultural Council was introduced to report and study problems on women's economic, social, and legal situation, and new family planning policy that encouraged smaller families was initiated. University admission of women increased considerably during this period

¹⁹ For the comprehensive review, please see Moghadam, Valentine M. 2013. "Modernizing Women: Gender and Social Change in the Middle East."

of liberalization and reform. By 2001, women held 57 percent of total enrollment at the university level. During the second term of Khatami's presidency, an environment was even more encouraging to female participation in higher education. Moreover, the results from the World Value Survey in Iran found increasing societal support for women's education and disagreement with the statement that "university education is more important for a boy than a girl."

The Ahmadinejad period began with the feminist movement but continued as a neo-fundamentalist approach to women's issues. The government concerned over declining fertility, late marriage, and women's higher enrollment in universities, which led to the preparation of a highly controversial draft Family Protection Bill. In 2009 a Special Council for the Development and promotion of Humanities was established to manage Islamization of all disciplines. In 2011, many professors were fired, and many forced to retire because they did not support the new policies. Each university would impose its own restriction on women's enrollment, and the most considerable constraints were in engineering and its sub-fields.

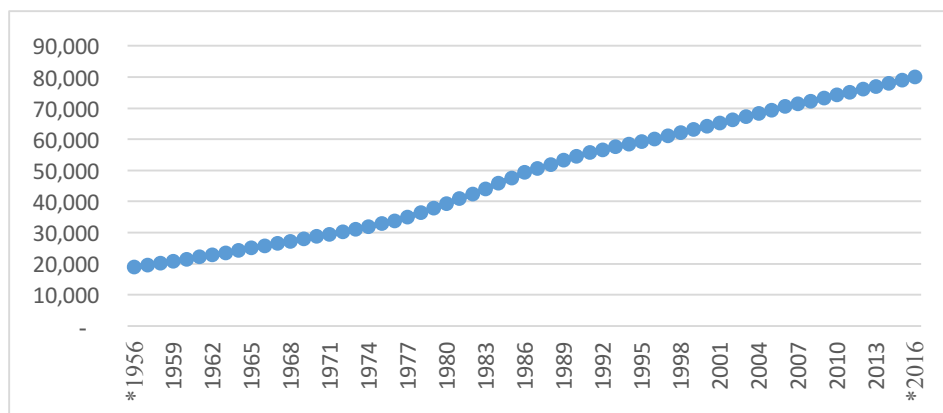
In general, besides all policies and changes during different periods in Iran, fertility policies and education attendance has faced vivid changes, thus looking at them in more details, provides a better understanding of the situation for identifying and evaluating possible influential factors on FLFP in Iran.

Fertility Trend

Iran experienced dramatic demographic change during the 20th century, and its population has increased 254 percent during last fifty years²⁰. As in Figure 21 shows, the Iran population was 20m in 1956 and reached more than 70m in 2016. Iran was among the first countries, which promoted family policies in its development program to control the population in 1966. Iran's Family Planning Program (FPP) can be seen in four different phases, with significant changes in the government's policy in each period.

²⁰ The World Bank

Figure 21 Iran Population (in thousands)



Source: Statistical Centre of Iran

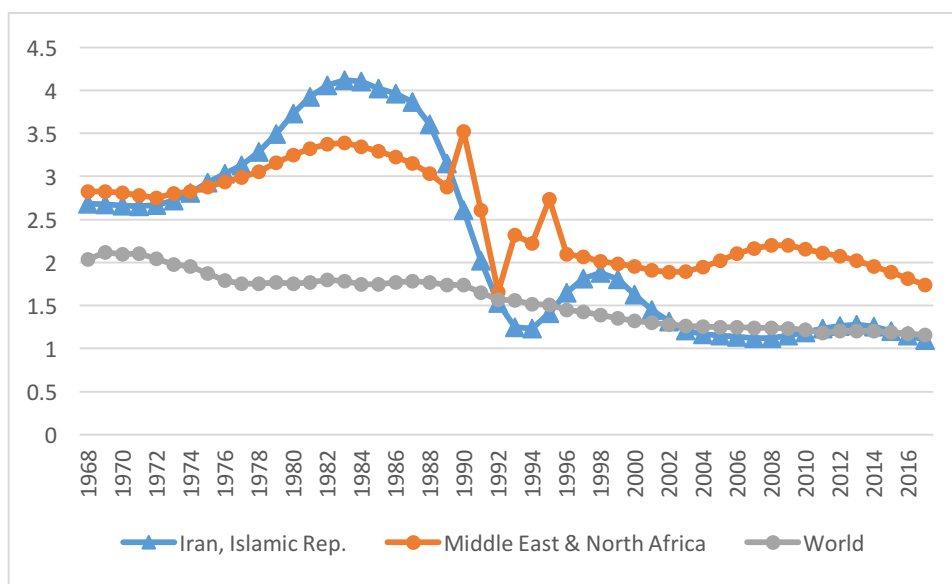
1966-1979: Iran's first family planning program was introduced before the revolution, under Shah Mohammad Reza Pahlavi, in the Ministry of Health in 1967. The program was recognized as a human right policy with emphasizing on its benefits for individuals and society. The program's primary objectives were improving the status of women by encouraging female employment and reforming divorce laws and hastening economic growth.

Despite the disagreement of religious conservatives of using birth control, women, especially those who lived in cities, were using oral contraceptive pills to control the number and spacing of their children. The new law in 1973 that went to effect in 1976 loosened the restriction on female and male sterilization. The government also used mass media in the mid-1970s to promote family planning program.

1979-1989, The Islamic Revolution and Pronatalism: Days after the Islamic Revolution, family planning program, which was viewed as Western innovation and was associated with the royal family, was canceled. Especially during the war with Iraq, between 1980 and 1988, the spiritual leader of Iran, Ayatollah Khomeini, believed a large population was a comparative advantage for the country and pushed population growth to reach "an army of 20 million" of "soldiers for Islam." The government also changed many rules and adopted new policies such as allowance for each child, food stamps, and food subsidies for larger families.

Seven years after the revolution, in 1986, Iran's population reached around 50 million from 28 million in 1968, with half of the population below 15 years old. Figure 22 shows that Iran's population growth rate was 4 percent annually at that time, which was the highest in the world.

Figure 22 Population Growth (annual %)



Data from a database: Health Nutrition and Population Statistics

1989-2000, Restoring Family planning program: When war with Iraq ended in 1988, the government focused on drafting the first national development program after the revolution. Job shortage, crowded cities, and the economic situation forced the government to see rapid population growth as a severe obstacle toward economic and social improvement. Expert advocacies underlined the importance of reintroduction of family policy in order to fix war damages and weaken the economy. Moreover, committed professionals on health sectors emphasized on health benefits of the family planning program. Due to a religious structure of society, the fatwa²¹ was issued by Imam Khomeini stating: "contraception was not inconsistent with Islam tenets, as long as it did not jeopardize the health of the couple, and was used with the informed consent of the husband." (Mehryar AH, 2000). As a result, by December 1989, Iran renewed its family policy with the main goals of limiting family size to three children, discouraging childbearing for women under 18 or older than 35, and encouraging women to wait for a minimum of three years between pregnancies. In 1990, the High Judicial Council stated that vasectomies were consistent with Islamic values, which led to the social acceptance of vasectomies once more. The government allocated resources to make sure that all the married couples had access to a wide variety of modern contraceptives free of charge. Besides, in the same year, an intensive population awareness

²¹ A religious statement by a highly ranked clergyman

campaign was introduced, which led to spreading the message of "fewer children, better life" through mass media and new courses on population, family planning and mother and child health care in schools.

Moreover, the government put mandatory premarital contraceptive counseling for couples to teach them both different methods for controlling family size. The involvement of men was one of the strengths of the family program. Iran is the only country in the world, which needs both women and men, before receiving a marriage license, to take a class on modern methods of contraception. Furthermore, in 1993, the government passed the law to restrict maternity leave after third child and money saved from restriction maternity leaves were used in education programs. A 2001 report showed a great success of Iran's family program that led to a decrease in the fertility rate from seven in 1986 to less than three in 2001. Reports showed that more than half of the married Iranian women used modern contraception methods. By 2011, 82 percent of Iranian women were controlling their fertility, with more than 70 percent using modern methods. Iranian men also have participated in limiting family size by using condoms, which have become almost as famous as birth control pills. It is worth mentioning that the only condom factory in the Middle East region is located in Iran.

The speed and level of decline in fertility was beyond any expectation, and it happened all around the country, in different provinces, and rural and urban areas²². In Iran's first development plan, the target for total fertility per woman was 4.1 by 2011. However, by 2000, the fertility rate declined by 2.0, half of the targeted goal. Significantly decreased level of childbearing, as well as increased child and maternal health, made Iran a role model around the world, and the Minister of Health was awarded by the World Health Organization (WHO) in 2001, for Iran's effective and successful FP programs.

Iran's family program produced other results that improved health indicators in the country. With more than 15,000 "health houses" and mobile clinics that provided health services to four-fifths of Iran's rural population, there was universal access to health care and family planning in Iran, which helped reduction in the level of unwanted pregnancies. Distributing freely birth control methods, including pills and condoms, led to a small gap between the level of CPR in the urban and rural areas. Moreover, health networks helped in the reduction of infant mortality rate, which

²² Fertility rates for all provinces can be found in Appendix

led to the demand for fewer births. The infant mortality rate was 114 per 1000 live births in 1975 that changed to 64 per 1000 in 1985 and 34 in 1994.

As mentioned before, one of the primary missions of the revolution was serving the poor. By 1996, 93 percent of urban and 70 percent of rural households had access to the piped water, electricity, radio, television with national TV networks, which also allowed spreading the family planning information widely through the media that was in the government policies.

Based on mentioned policies and due to the fact that, unlike western countries, decline in fertility did not happen due to programs with encouraging female employment objectives and improving the status of women aims, but happened based on particular situation of the country, I expect "*that the number of children does not show the meaningful impact on FLFP in Iran*" (*Hypothesis 1*)

Education

At the time of the Islamic Revolution in Iran, Ayatollah Khomeyni asked women to participate in protests to support the revolution. As a result, religious people and traditional women started to participate in public places. Moreover, the Islamic revolution happened in 1979, intending to serve the poor. Consequently, after the revolution, all schools became public and free of charge. By investing in building educational facilities all around the country in all levels of education (primary, secondary, and tertiary), free adult literacy programs, access to free education increased significantly across the country even in small towns and villages and during the Iran-Iraq war (Majbouri, 2010). Table 4 presents the increase in literacy rate for men and women.

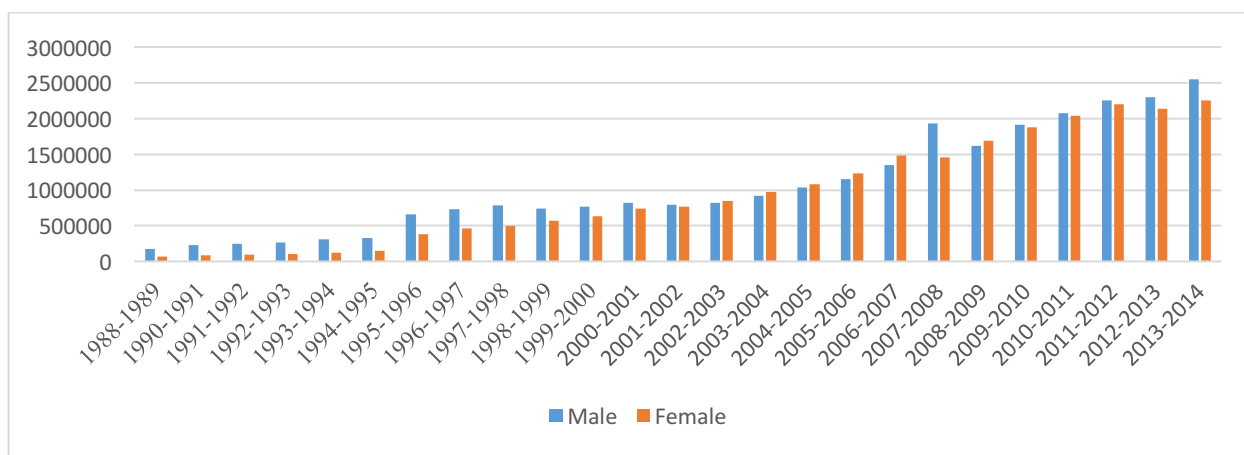
Table 4 Literacy rate 1966-2006, Men and Women, Iran

Sex	Literacy Rate %					
	1966	1976	1986	1991	1996	2006
Men	39.12	58.87	71.02	80.64	84.66	88.74
Female	17.41	35.48	52.07	67.06	74.21	80.34
Population	28.68	47.49	61.78	74.07	79.51	84.61

Source: Statistical Centre of Iran

The supply of university education was always behind the demand in Iran. This issue became severe after the baby boom in the early 80s in the country. In Iran to enter universities, a national examination is required for all students. Unlike many countries, the quality of public universities, which offer free education is higher in Iran. Thus, for students to enter public universities, the intense competition was required, and just 10% of the total could enter to free high-quality public universities. People who went to primary schools in the 80s needed university education in the 90s. In the mid-80s, non-profit universities (Azad University) were founded in the country to solve the shortage supply problem. Azad Universities rapidly expanded in many cities around Iran. Additionally, previous limitations for women to enter some specific fields of study such as mining engineering and agriculture engineering were removed in the early 1990s. The result of all the mentioned changes was a significant increase in educational attainment, especially for women (Figure 23). The enrollment percentage of women to public universities which was around 30% in the early 90s increased to 66% in 2003²³.

Figure 23 Number of University Students by Gender, Iran



Number of Azad university students was included since 1995
Source: Statistical Centre of Iran

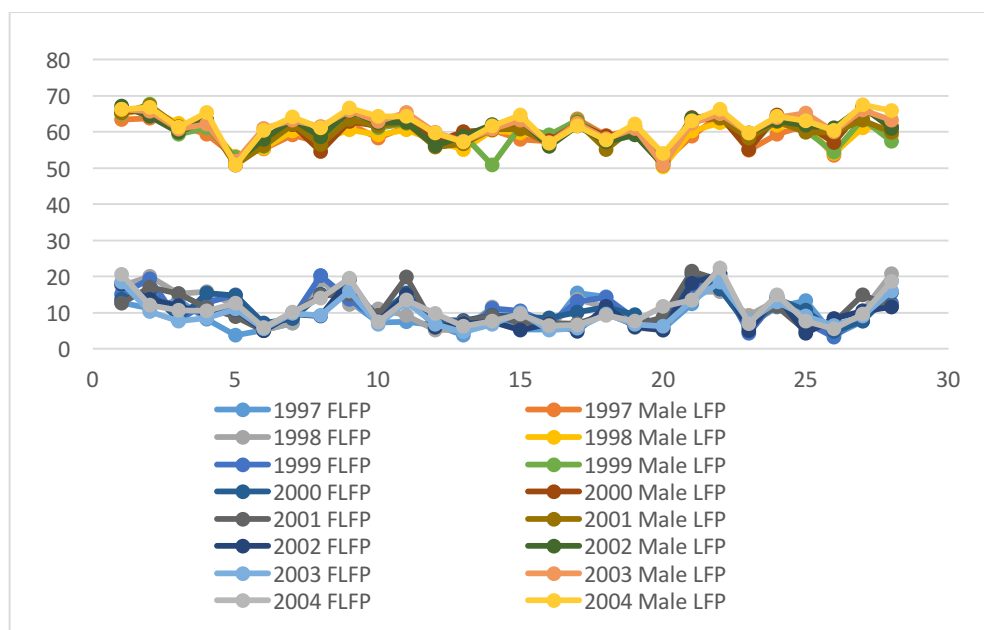
Based on the mentioned issues, the rise of the female literacy rate has not happened as a result of modernization and economic growth, especially a few years after the revolution, and during the war, changes have occurred among families with traditional beliefs who followed

²³ Statistical Center of Iran

Ayatollah Khomeyni's orders. Thus, it is expected *that the attitude towards girls' education does not have a meaningful impact on FLFP (Hypothesis 2)*

Figure 24 shows the labor force participation for males and females in different provinces in Iran from 1997 to 2004. As it shows, although the level of the labor force in different provinces is not the same huge gap exists in all of them between female, male labor force participation rates. Moreover, no significant increase can be found in women's activities despite improvement in other development indicators.

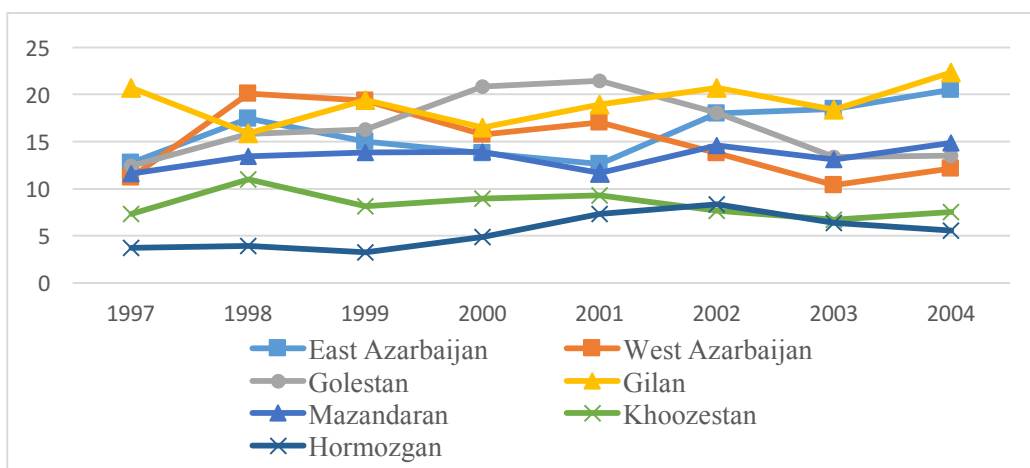
Figure 24 Labor Force Participation rate, Male and Female, Iran, Different Provinces



Source: Statistical Centre of Iran

The rate of male labor force participation is somehow the same around the country, but although the FLFP rate is low in all provinces, there is a considerable difference in around the country in different provinces. As shown in Figure 25, the FLFP rate varies from 5 in Hormozgan (Arabs) to 22 in Gilan (Gilakis). The mentioned characteristics provide a unique opportunity to study cultural effects on economic outcomes.

Figure 25 Female Labor Force Participation rate, Iran, selected provinces.



Source: Statistical Centre of Iran

Empirical Study

Following previous parts, to clarify the reasons behind the low level of FLFP rates across different regions in Iran and to understand the differences among them, the hypothesizes in this section are as follows:

Hypothesis 1:

"The number of children does not have a meaningful impact on FLFP in Iran."

Hypothesis 2:

"The attitude towards girls' education does not have a meaningful impact on FLFP."

Hypothesis 3:

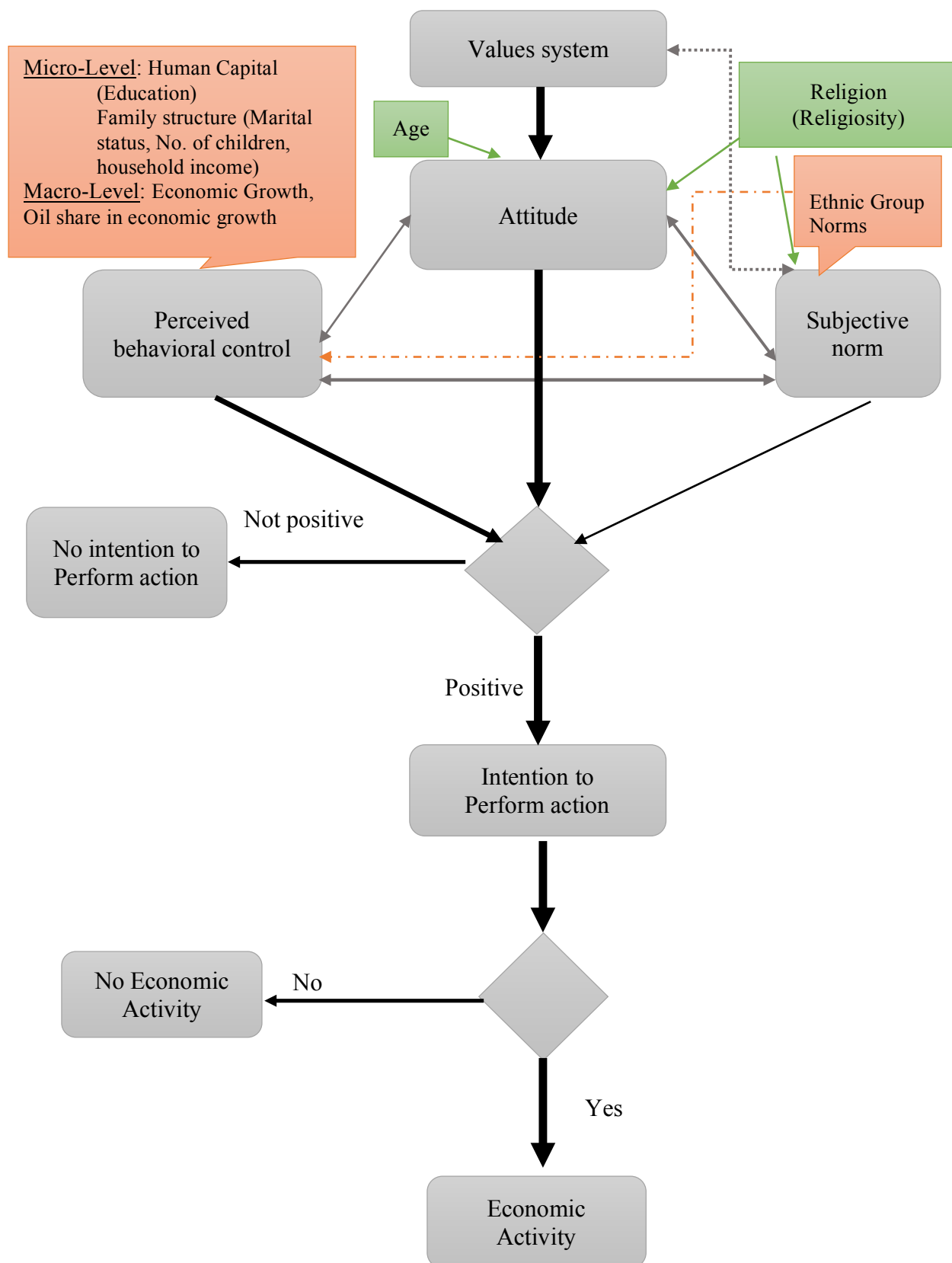
"The personal attitudes have an impact on female labor force participation, the stronger traditional attitudes, lower the chance for a woman of being active in the labor force."

Hypothesis 4:

"Social norms affect women's formal economic activities; women who live in societies with strong traditional norms are less likely being active in the labor force."

Following the general proposed platform for women's economic behavior, the platform for women's market activities in Iran is shown in Figure 26.

Figure 26 The proposed Attitude- Behavior Platform of Female Labor Force Participation - Iran



Data Description

Following data sources are used to test the research hypothesis:

- The World Value Survey: initiate data on Iran was gathered just in two waves of WVS, in wave four and five, just those two waves are used in this chapter
- Statistical Center Iran (SCI):
- The World Bank

The Statistical Center of Iran provides all demography and population indicators such as fertility rate, literacy rates at different levels, the rate of labor force participation, marriage, and divorce in different provinces. Civil Registration Department was established in the solar year 1297 (A.D.1918) to register vital events. Registration of birth, death, marriage, and divorce by the department stipulated established an organization responsible for the collection of information on the country's population. The department implemented the first national census of population and housing in 1956. Different kinds of surveys are annually executed in different Socio-economic areas such as Population sample survey, Household budget survey, Agricultural survey, and Manufacturing Establishments Census.

Variables

Dependent Variable

The dependent variable in this study is female labor force participation. This variable is on the self-assessment through a question about the actual employment status. The respondents could answer by choosing one from different categories as "full-time, part-time, self-employed, retired, a housewife, student, unemployed or other." Based on the definition of labor force participation, a dummy variable for labor force participation takes the value 1 in case the respondent is full-time, part-time, or self-employed, and unemployed. It takes the value zero in case the respondent is household. According to ILO, the working-age population is the population above the legal working age, which is 15. Moreover, in Iran, the retirement age is 65. Thus, due to the objective of this research, the sample is restricted to women aged between 15 and 65, focusing on working-age people.

Personal Attitudes

Patriarchy Attitude Index:

In this study, by using micro-level data from the World Values Survey, questions related to patriarchy attitudes, with a maximum number of respondents are used, to estimate the influence of culture on labor force participation:

- *Preference of men to women in the job market:* When jobs are scarce, men should have more right to a job than women (agree, disagree or neither)
- *Men and women abilities in a political environment:* On the whole, men make better political leaders than women do (five scales, from “strongly agree” to “strongly disagree” and neither)

First, by re-coding and rescaling the variables, the three-scale answers show the strength of patriarchy beliefs, higher means stronger beliefs. Second, the first principal component is chosen as a patriarchy attitudes index²⁴.

Attitudes towards Family Index:

To measure the strength of family ties, attitudes towards family, and the strength of family relationships in society is investigated. The following question is chosen from WVS to get a maximum number of respondents:

- *The importance of Family:* “How important family is in a person's life” (four scales, from "very important" to "not important at all."

Variable coded in a way that higher means stronger attitudes toward the importance of family.

Moreover, in order to test Hypothesis 2, the question regarding attitude towards education is separately investigated:

- *Education:* “A university education is more important for a boy than for a girl” (four scales, from “strongly agree” to “strongly disagree”)

²⁴ For more details, see Appendix E

Like other personal attitudes indices, variable recoded the higher means stronger traditional beliefs.

Subjective Norms:

By collapsing each variable related to different personal attitudes at the micro-level by ethnic group (details regarding ethnic groups are available in the ethnic group section and Table 5), one attitude variable is reached for each ethnic group at the macro level. Next based on principal components analysis (PCA) method I extract the first principal component from the whole dataset²⁵.

Ethnic Groups:

A dummy variable is created to find out whether ethnicity affects the level of female market activities or not. In WVS, there is not any question regarding ethnicity. The only question that helps to allocate approximately respondent's ethnicity is a question that gets information about the region of the interview: "the region where the interview was conducted," so each respondent's region of the interview is known. In Iran, the region of residence is the primary defining characteristics of ethnicity, and each ethnicity has its region of residence, cultural factors, language, clothes, and foods²⁶ (Amanolahi, 2005). Table 5 shows the percentage of the different ethnic groups and the language in each province of Iran. As it shows, most of the provinces have a dominant ethnicity group as residences (just Khuzestan and Golestan has two ethnicity group with a closed percentage).

²⁵ For more details, see Appendix E

²⁶ Amanolahi (2005) describes that biological factors are not the distinguishing characters of ethnicity in Iran, and he focuses on ethnicity as a cultural phenomenon in Iran.

Table 5 The percentage of different ethnicity group each province of Iran

Province	Fars	Turk	Kurd	Arab	Balooch	Lor	Shomali	Others
IR: Ardabil	0.011	0.985	0.004	0	0	0	0	0
IR: East azarbayjan	0.014	0.982	0.002	0	0	0	0	0.002
IR: West azarbayjan	0.008	0.764	0.217	0	0	0	0	0.011
IR: Bushehr	0.923	0.01	0	0.041	0	0.021	0	0.005
IR: Chaharmahal	0.307	0.122	0	0	0	0.566	0	0.005
IR: Fars	0.8	0.1	0	0	0	0.08	0	0.02
IR: Qhom	0.648	0.263	0.02	0.03	0	0.004	0.004	0.03
IR: Gilan	0.045	0.079	0.009	0.002	0	0	0.864	0
IR: Golestan	0.414	0.04	0	0	0.04	0	0.476	0.03
IR: Hamadan	0.242	0.596	0.101	0	0	0.051	0	0.01
IR: Hormozgan	0.85	0	0.01	0.04	0.06	0.01	0.01	0.02
IR: Ilam	0	0	0.874	0	0	0.109	0	0.017
IR: Isfahan	0.844	0.071	0	0.01	0	0.061	0	0.013
IR: Kerman	0.978	0.009	0	0.003	0.005	0	0.002	0.003
IR: Kermanshah	0.043	0	0.943	0.002	0	0.007	0	0.005
IR: Khozestan	0.32	0.025	0.01	0.337	0	0.303	0	0.005
IR: South Khorasan	0.993	0	0	0	0.007	0	0	0
IR: North Khorasan	0.278	0.206	0.461	0	0	0	0.033	0.022
IR: Khorasan	0.9	0.04	0.04	0.003	0.003	0	0.002	0.012
IR: Boyer Ahmad	0.036	0.05	0	0	0	0.907	0	0.007
IR: Kordestan	0.006	0.004	0.99	0	0	0	0	0
IR: Lorestan	0.046	0.003	0.005	0.005	0	0.92	0.003	0.018
IR: Markazi	0.733	0.211	0.013	0.007	0	0.016	0.007	0.013
IR: Mazandaran	0.08	0.02	0.001	0	0	0	0.89	0.009
IR: Ghazvin	0.41	0.53	0.04	0	0	0	0.02	0
IR: Semnan	0.921	0.015	0.008	0	0	0.001	0.046	0.008
IR: Sistan and Balouchestan	0.33	0	0.004	0	0.65	0	0	0.016
IR: Tehran	0.59	0.303	0.018	0	0.001	0.021	0.055	0.012
IR: Yazd	0.995	0	0	0.005	0	0	0	0
IR: Zanjan	0.011	0.989	0	0	0	0	0	0

By choosing the highest ethnicity group in each province, the country is divided into seven main ethnicity groups Persian, Turk (Azari), Kurd, Arab, Baluchi, Lor, and Shomali. Table 6 shows major ethnicity groups in Iran with their predominant provinces.

Table 6 Iran's Major Ethnic Groups and their predominant provinces

Province	Ethnic Group
Alborz, Isfahan, Boushehr, Tehran, South-Khorasan, Razavi-Khorasan, Semnan, Fars, Qhom, Kerman, Markazi, Hormozgan, Yazd	Persian
Ardabil, East Azarbaijan, West Azarbaijan, Zanzan, Qazvin, Hamedan	Turk (Azari)
Ilam, Kermanshah, Kurdistan, Kermanshah, North Khorasan	Kurd
Khuzestan	Arab
Chaharmahal and Bakhtiyari, Kohgiluyeh and Boyer Ahmad, Lorestan	Lor
Sistan and Baluchestan	Baluchi
Gilan, Mazandaran, Golestan	Shomali

Perceived Behavioral Control:

Micro Level:

Standard variables such as *marital status*, *number of children*, *the level of family income*, and *the highest level of education* are included in the analysis as the micro-level perceived behavioral control variables. Two categorical variables are included to capture household productivity: first, the one which captures the marital status and it equals to zero (base group) when an individual is single/never married. It gets the value of 1 when an individual is separated (or divorced), and 2 when the respondent is married (or living together as married). Another variable is the number of children; it gets a number from 0 (base group) to 8 to capture the number of children. Another categorical variable is included in the equation to capture the scale of family income, which has three categories, people in the lowest group in regards to family income, an average group and a group which is considered as high in family income scale (the one in the lowest scale is a base group).

Macro Level:

Perceived behavioral control variables at the macro-level are the ones that capture the economic development of provinces:

GDP per capita for each ethnic group:

Statistical Center Iran published data on GDP per capita for different provinces in Iran. The average for each ethnicity is calculated to get a variable at an ethnic group level.

Share of Oil in GDP per capita for each ethnic group:

As Iran is a country with high crude oil reserved, the share of oil in GDP per capita for each province is found from the Statistical Center Iran database. Next, to get a variable at the ethnic group level, the average of the share of the oil in GDP per capita for different provinces in each ethnicity group is calculated.

Religion:

In order to investigate the effect of attitudes separately, *religion* is controlled. The question regarding religious denomination is not chosen from WVS data since more than 99 percent of respondents are Muslim. For religiosity index, the following questions are chosen:

- “Independently of whether you attend religious services or not, would you say you are a religious person, not a religious person, a convinced atheist?” Three scales
- “How important is God in your life?” Ten scales, "10" means "very important" and "1" means "not at all important"
- “How important is Religion in your life?” 4 scales, from “very important” to “Not at all important”

First, all answers re-code in a way that the higher indicates, the stronger religious beliefs, then the first principal component is chosen as a religiosity index²⁷.

²⁷ For more details, see Appendix E

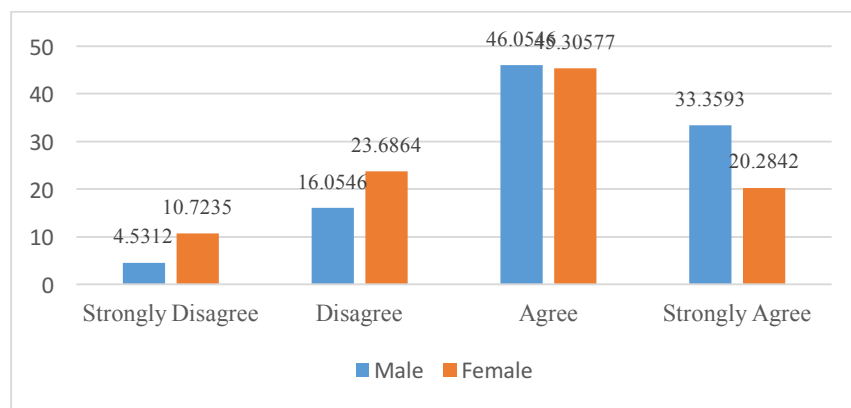
The following table shows descriptive statistics of variables:

Table 7 Descriptive Statistics - Iran

Variable	Obs	Mean	Std.Dev.	Min	Max
FLFP	1934	.401	.49	0	1
Ethnic Group	2448	2.391	2.086	1	7
Age	2448	31.197	11.714	15	65
Education	2374	4.556	2.493	0	8
Marital Status	2438	NA	.942	0	2
Number of Children	2428	1.709	1.971	0	8
Household Income	2308	5.071	1.862	1	3
Religiosity	2281	.086	1.072	-8.351	.666
Patriarchy Attitudes	2273	-.229	1.219	-2.495	.867
Attitudes towards Family	2440	3.94	.286	1	4
Attitudes toward girls' Education	2389	2.302	.955	1	4
Patriarchy Norms (Ethnic Group level)	2448	-.002	1.358	-2.934	3.72
Family Norms (Ethnic Group level)	2448	3.929	.026	3.829	3.986
Province GDP per capita	2448	1.24e+08	1.44e+08	6590000	4.68e+08

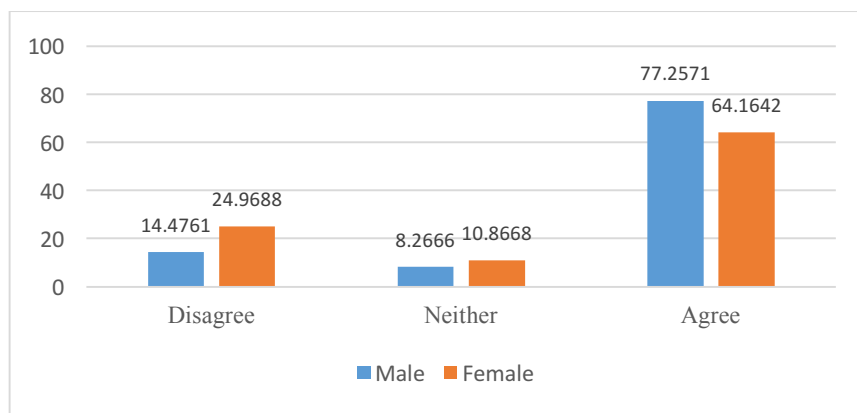
To get a better vision of personal attitudes in Iran, Figure 27 shows the number of respondents for each categorical question in WVS. As it is shown in figures, men and women have the same pattern in their responses. In the question regarding political participation, both men and women do agree the most with the sentence, and there is not a big difference between men and women in their responses.

Figure 27 Responses to Women Political Participation Question - Iran



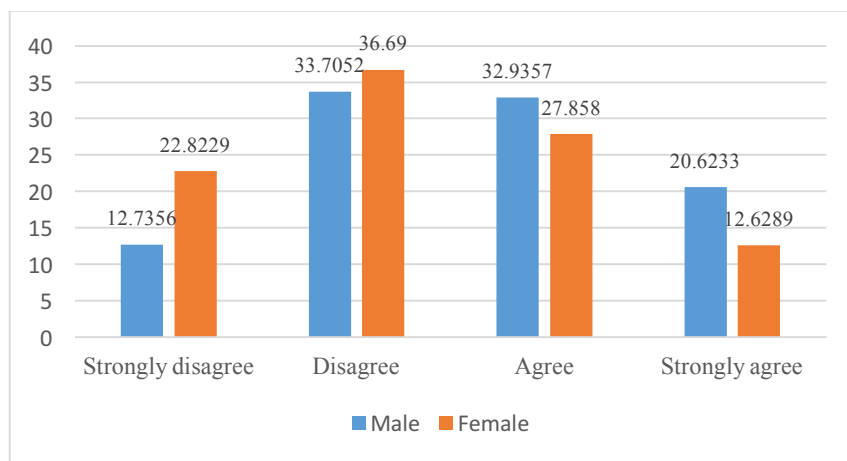
Moreover, in response to economic participation, again, the majority of men and women respondents do agree with the sentence.

Figure 28 Responses to Women Economic Participation Question - Iran



The following figure show responses to the educational attendance question. As was expected, the general pattern of responses is different compare to other questions, in a sense that the majority in both genders disagree with the sentence. However, still, the pattern between men and women is the same: both groups disagree the most with the sentence.

Figure 29 Responses to Girls' Education Question - Iran



Model

The data used are on different levels, hierarchically clustered with individuals nested in ethnic groups. One of the best methods to work with this kind of data is multilevel analysis. There are two main reasons for choosing the multilevel analysis method: first, from the statistical point of view, the independence of individual measures is an essential assumption in general regression analysis, and the violation of this assumption leads to biased results. Individual observations within one country are not independent (uncorrelated) of each other, and we expect to see similar behavior within a person in a province compare to people between different provinces. Therefore, we have fewer independent observations. Without adjustment, the standard errors are underestimated, and the probability of Type 1 errors are high. Regression with a multilevel model provides better standard errors compare to standard regression analysis. Second, measurements of individuals' outcomes of micro-level processes may reflect the context (macro) in which the processes operate. The multilevel analysis allows estimating the effect of independent variables on a dependent one both on individual and ethnic groups level simultaneously, and it allows to investigate how individuals behave in general (at the micro-level) and how individuals behave in the specific context (the macro level). Thus, in this research, based on hypothesis and samples, multilevel logistic regression is the best model. The influence of contextual factors on market activities has been considered necessary in recent years.

As the outcome in this research is dichotomous outcome, I use the Multilevel Logistic Model (MLM Logistic). With the dichotomous outcome variable $Y_{ij} \sim \text{Bernoulli}(\pi_{ij})$, then the logit link function is:

$$\eta_{ij} = \beta_0 + \beta_1 x_{ij} + \beta_2 x_j + \varepsilon_j + \sigma_i$$

Where $\eta_{ij} = (\pi_{ij} / (1 - \pi_{ij}))$, π_{ij} denoted the probability that the i^{th} individual in the j^{th} 2nd level cluster has a market activity $\pi_{ij} = P(Y_{ij} = 1)$, x_{ij} denotes the vector of individual-level variables, x_j denotes the vector of the second level variables. Moreover, β_0 refers to the slop, β_1 denoted the vector of regression parameters for the individual-level variables, β_2 denotes the vector of regression parameters for the second level variables (ethnicity level).

Result

To test the hypotheses derived in the previous part, several models are estimated. Table 8 shows the results²⁸. First, the empty multilevel logistic model is estimated. As it was mentioned before, the main difference between simple model and multilevel model is that the log-odds, which is the outcome variable (FLFP) equals one instead of zero is allowed to vary from one cluster to another. Empty model (Null model) provides the opportunity to estimate the log-odds of working of women, while including no predictors. A general constant term (fixed intercept) corresponds to the overall log-odds of FLFP, for a typical woman belonging to a typical ethnic group. As it is shown in the table, the log-odds of working equal to -0.217. Thus, by calculating the average probability, women have, on average, 44% chance of working across all ethnic groups. The intraclass correlation coefficient, which is the share of the variance in the ethnic group level to the total variance, is almost 0.03; it means that 3 percent of the variation in the working of women emerges through the ethnic group. Although this number is not so high, as we are analyzing the sub-culture is a country, a huge number can not be excepted. As this variation can be meaningful, different explanatory variables are added stepwise in the multilevel logistic model.

In Model 2, personal attitudes that are elements in the micro-level are added in the model. Patriarchy attitudes, attitudes towards the importance of family, and attitudes towards girls' education are added; results are in line with the hypothesis, the stronger the attitudes, the lower female market activities. Moreover, the result of the attitude towards girl's education effect on FLFP confirms the hypothesis that in Iran, attitudes towards education acts differently compared to other cultural and traditional beliefs and shows no meaningful impact on women's market activity. By adding personal attitudes in the model, still, the results show that 3 percent of the variation among female market activities is due to ethnicity group-level characteristics. In Model 3, elements related to the subjective norms are added. The result is in contradiction with the hypothesis that expects the meaningful impact of social norms on women's labor force. There is no significant direct effect of any social norms (ethnic group norms) on female market activities. In Model 4, age (and age squared) and religiosity are added to the model. Based on the theoretical part, these elements should impact on female's economic activities. The results confirm the

²⁸ Different interactions are tested, but none of them show significant effects. Thus, the table show results without any interaction terms.

hypothesizes and show the significant influence of age and religiosity on market activities; more religious women are less likely to be active in the labor market. Although adding age and religiosity has not had a meaningful impact on subjective norms factors. However, there is no more significant of personal attitudes towards girl's education on women's market activities, that confirms the hypothesis which is expected the different impact of this element compared to two other elements in personal attitudes part.

Model 5 and Model 6 test the influence of perceived behavioral control on women's work on micro and macro levels. Education at a higher level has a strong and positive impact on market activity, and women with higher education (university attendance) are more likely to participate in the labor force. A low level of education does not show any meaningful impact on work. It might be due to the fact that finishing elementary school is compulsory in Iran for both men and women. Education at the secondary level shows different effects on labor force: women with secondary technical education, either complete or incomplete, are more likely to be active in the economic market. However, just complete secondary education in non-technical schools shows a significant positive effect compared to no formal education on female labor force across different ethnicity groups. Another critical element in perceived behavioral control is marital status. Results confirm previous works and show the meaningful impact of marital status on women's economic activities, divorced (separated/widowed), and married women are less likely to be active in the labor force compare to single women. Following the hypothesis, the effect of the number of children on the female labor force should be ambiguous in Iran, and there is no expectation of seeing the same trend between the female labor force and their number of children. The results somehow confirm this hypothesis. As it shows in the table, having two children instead of one, results in a change of -0.632 in the overall log-odds of working for women. Also, having four children compare to three has a significant negative impact on working. The results show no meaningful influence on other numbers of children. The level of household income is another crucial element in the micro-level of the perceived behavioral control part, which, based on theory, some impacts on economic activities might be seen. Based on the analysis, the medium level household income has a negative impact on women's labor force compared to a low level of income, but a high level of income does not show any meaningful effect. Moreover, by adding the macro-level factors on perceived behavioral control, the result has not been changed. Both GDP

and the share of oil in GDP at ethnic group level show no meaningful effect on women's economic activities.

Model 7 is a complete model with all personal attitudes, subjective norms, and perceived behavioral control elements. After adding all variables, results show a very small (almost zero) intraclass correlation coefficient, which means the regression could be run with a level logit model. Apart from that, there are some changes compare to previous models in the effect of variables on female market activity. At the micro-level, just patriarchy attitudes show a significant adverse effect. Even the impact of attitudes towards family is still negative, but there is no more meaningful impact on women's economic behaviors.

Moreover, the sign of the attitudes towards girls' education has changed, and that confirms the hypothesis regarding no meaningful effect of this attitude on behavior in Iran. Subjective norms still do not show any significant impact on women's market behavior, and that is in contradiction with the hypothesis that women are less likely to be active in societies with more patriarchy and traditional norms. Moreover, social norms regarding the importance of family show no impact on the market behavior of women. The effect of perceived behavioral control factors has not been changed by adding all variables. The vital issue in model 7 is that the effect of religiosity on economic behavior disappeared after controlling for all other variables. This result can be very important, that in Iran, not the strength of religiosity but the strength of personal patriarchy attitudes play essential roles in the market behavior of women.

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Table 8 Multilevel Logistic Regression

	Multilevel Logistic Regression (coeff)						
	Null Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Personal Attitudes (Micro)							
Patriarchy Attitudes		-0.244*** (-5.55)		-0.144** (-2.94)			-0.135* (-2.18)
Attitudes towards Family		-0.523** (-2.95)		-0.399* (-1.97)			-0.443 (-1.80)
Attitudes towards girls' Education		-0.130* (-2.40)		-0.0981 (-1.63)			0.145 (1.86)
Subjective Norms (Macro)							
Patriarchy Social Norms			-0.106 (-1.24)	-0.120 (-1.32)			0.309 (1.75)
Social Norms towards Family			1.317 (0.40)	3.896 (1.07)			5.589 (0.63)
Social Norms towards girls' Education			0.907 (0.85)	1.166 (1.01)			-1.652 (-1.64)
Perceived Behavioral Control							
Micro level							
Education (Ref. No Formal education)							
Incomplete elementary					0.200 (0.56)	0.194 (0.54)	0.0203 (0.05)
Completed (Compulsory) elementary					-0.329 (-0.99)	-0.334 (-1.01)	-0.460 (-1.28)
Incomplete secondary: Technical					0.999** (2.70)	0.998** (2.71)	0.809* (2.00)
Complete secondary: Technical					1.221***	1.221***	1.050**

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Incomplete secondary: Non-Technical	(3.30)	(3.31)	(2.61)
	0.525	0.519	0.464
	(1.51)	(1.50)	(1.20)
Complete secondary: Non-Technical	1.181***	1.173***	0.996**
	(3.67)	(3.65)	(2.79)
Some university without a degree	2.421***	2.413***	1.913***
	(4.57)	(4.56)	(3.30)
University with a degree	3.348***	3.339***	3.275***
	(9.45)	(9.44)	(8.45)
Marital Status (Ref. Single/Never married)			
Divorced/Separated/Widowed	-1.044**	-1.046**	-1.021*
	(-2.80)	(-2.81)	(-2.38)
Married/Living together as married	-2.208***	-2.207***	-2.262***
	(-9.73)	(-9.72)	(-9.18)
Number of Children (Ref. No Child)			
1 Child	-0.393	-0.395	-0.386
	(-1.72)	(-1.73)	(-1.56)
2 Children	-0.632**	-0.637**	-0.742**
	(-2.69)	(-2.71)	(-2.72)
3 Children	-0.258	-0.267	-0.224
	(-1.00)	(-1.03)	(-0.73)
4 Children	-0.668*	-0.670*	-0.772*
	(-2.08)	(-2.09)	(-2.01)
5 Children	-0.580	-0.587	-0.438
	(-1.51)	(-1.52)	(-0.99)
6 Children	-0.431	-0.434	-0.109
	(-0.98)	(-0.98)	(-0.23)

7 Children					-0.389	-0.384	-0.0494
					(-0.64)	(-0.64)	(-0.08)
8 Children					-0.319	-0.330	-0.509
					(-0.56)	(-0.58)	(-0.79)
Household Income level (Ref. Lowest level)							
Medium level					-0.403*	-0.401*	-0.384*
					(-2.44)	(-2.42)	(-2.19)
High level					-0.259	-0.245	-0.284
					(-1.04)	(-0.98)	(-1.06)
Macro level							
GDP						-1.91e-09	-8.06e-09
						(-0.75)	(-1.31)
Share of Oil in GDP						-0.000368	0.0259
						(-0.07)	(1.64)
Age					-0.182***		0.0482
					(-6.00)		(1.04)
Age Squared					0.00164***		-0.000763
					(3.95)		(-1.25)
Religiosity					-0.258***		-0.0965
					(-4.63)		(-1.36)
Wave control					Yes	Yes	Yes
Constant	-0.217	2.062**	-7.125	-9.915	3.708***	3.836***	-13.77
	(-1.56)	(2.84)	(-0.51)	(-0.65)	(4.96)	(5.00)	(-0.39)
Random-effects							
_cons	-1.164**	-1.134**	-1.259***	-1.234***	-1.483**	-1.562**	-13.12

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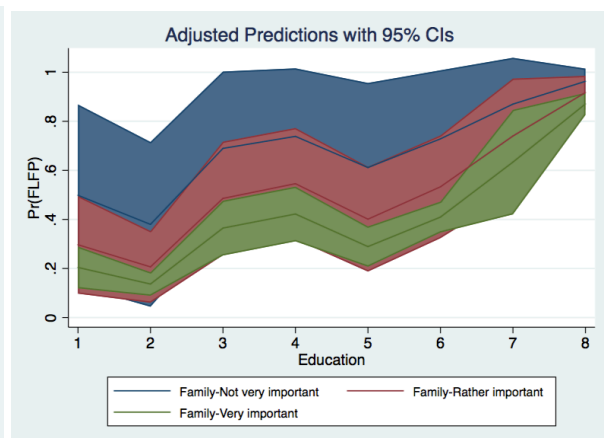
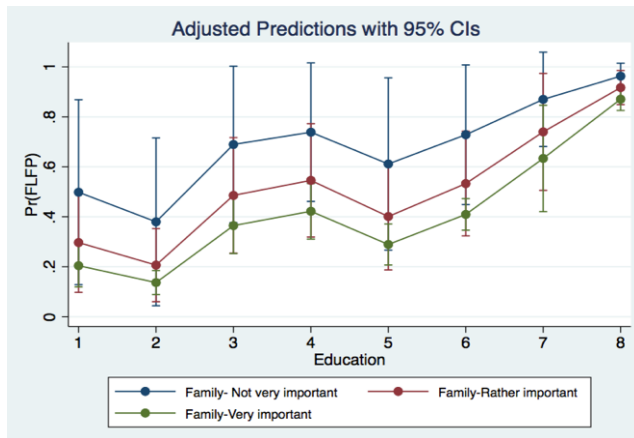
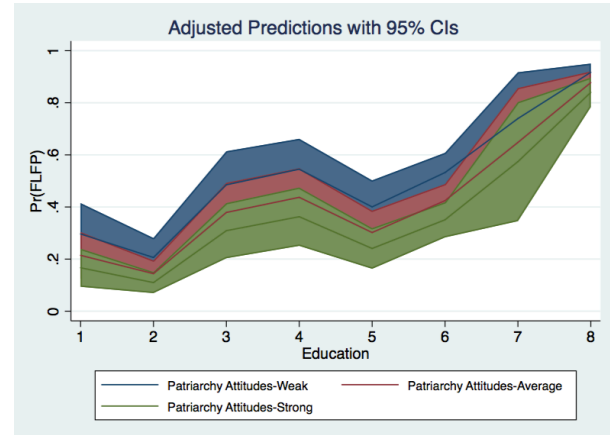
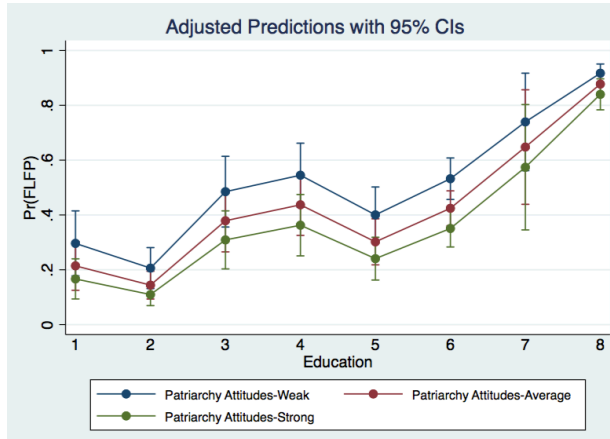
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	(-3.27)	(-3.08)	(-3.61)	(-3.34)	(-2.62)	(-2.60)	(-0.00)
ICC	0.0287	0.0305	0.0248	0.025	0.0154	0.013	1.22E-12
AIC	2590.518	2338.53	2589.189	2002.457	1630.1	1646.199	1425.561
BIC	2601.652	2365.969	2622.593	2067.54	1756.446	1821.985	1607.869
N	1934	1786	1934	1675	1796	1796	1575
statistics in parentheses							
* p<0.05 ** p<0.01 *** p<0.001							

To get a better idea of the effect of different elements of the economic behavior of women, the calculation of the predicted probabilities are beneficial. Table 9 shows the results of the predicted probabilities of being active in the formal market at different levels of personal patriarchy attitudes and different educational attendance levels. Patriarchy attitudes are categorized into three groups: weak (1), medium (2), and strong (3). The educational attendance level is the same as the WVS data at eight levels. Other variables are fixed at their means.

Table 9 Predicted Probabilities

	Delta-method				[95% Conf.	Interval]
	Margin	Std. Err.	z	P>z		
Education level						
#Patriarchy						
Attitudes						
1 1	0.2964532	0.0604455	4.9	0	0.1779822	0.4149241
1 2	0.2145096	0.0455173	4.71	0	0.1252973	0.3037219
1 3	0.1667695	0.0373317	4.47	0	0.0936007	0.2399382
2 1	0.2061928	0.0381237	5.41	0	0.1314718	0.2809139
2 2	0.1440888	0.0258744	5.57	0	0.0933758	0.1948017
2 3	0.1098297	0.0206599	5.32	0	0.069337	0.1503225
3 1	0.4850117	0.0657984	7.37	0	0.3560492	0.6139741
3 2	0.3790271	0.0579856	6.54	0	0.2653774	0.4926768
3 3	0.30908	0.0539818	5.73	0	0.2032777	0.4148823
4 1	0.5451311	0.0595335	9.16	0	0.4284475	0.6618148
4 2	0.4371612	0.0569283	7.68	0	0.3255837	0.5487387
4 3	0.3627529	0.0571048	6.35	0	0.2508296	0.4746763
5 1	0.4003155	0.0519194	7.71	0	0.2985553	0.5020756
5 2	0.3019858	0.0428083	7.05	0	0.218083	0.3858886
5 3	0.2407442	0.0398346	6.04	0	0.1626699	0.3188186
6 1	0.5322338	0.0386423	13.77	0	0.4564963	0.6079712
6 2	0.4244347	0.0324374	13.08	0	0.3608585	0.4880109
6 3	0.3508424	0.0345006	10.17	0	0.2832224	0.4184623
7 1	0.7394071	0.0907194	8.15	0	0.5616004	0.9172138
7 2	0.6477539	0.1065397	6.08	0	0.4389399	0.8565678
7 3	0.5740603	0.1166094	4.92	0	0.34551	0.8026105
8 1	0.9170486	0.0171023	53.62	0	0.8835287	0.9505685
8 2	0.8775249	0.0218164	40.22	0	0.8347655	0.9202843
8 3	0.8400303	0.0288455	29.12	0	0.783494	0.8965665



The results in Table 9 show that, in all eight educational attendance levels, being all other variables at their means, stronger patriarchy attitudes lead to a lower probability of being active in the formal economic market. As an example, among women who completed secondary technical school, those with weak patriarchy attitudes have a 54 percent probability of joining the formal market activities. However, this probability decreases to 44 percent for women with average patriarchy attitudes, and 36 percent for women with strong patriarchy attitudes. By looking at high educational level (university attendance with degree), the results show the probabilities increase to 92 percent for women with weak patriarchy attitudes, to 88 percent for average, and 84 percent for women with extreme patriarchy attitudes. Predicted probabilities and the confidence intervals

are also shown. As it shows in figures, the predicted probability was for patriarchy attitudes are more accurate than the predicted probability for attitudes towards family.

Discussion and Conclusion

The labor force participation of Iranian women is very low, and the gender gap between men and women's economic market activities has been broad in Iran. Despite a massive improvement in development indicators in Iran, such as reduction of maternal and infant mortality rates, a sharp reduction of the fertility rate, and a rise in female education, the level of female market activity stays low in the country. These trends are visible in all provinces in Iran. Different ethnicity groups live in Iran, which has their region. The FLFP rate is quick low in all provinces, but the meaningful differences can be seen across different ethnic groups.

In this study, using data from the WVS, Statistic Center of Iran, and Logit model, the effect of cultural beliefs, personal attitudes, subjective norms, and perceived behavioral control on female market activities were investigated. While results show no meaningful impact of social norms on women's market behavior, findings show the significant effect of personal patriarchy attitudes on women's economic activities. Women with stronger patriarchy attitudes are less likely to participate in the labor market. The effect of education and marital status was significant on labor force participation of women, and the results are in line with other studies: a higher level of education increases the chance of being active in the formal market, but divorced and married women have less chance compared to single women to participate in the labor force.

The main policy implication of the findings of this study is the necessity of the existence of customized policies according to people's preferences and their social identity. While investing in infrastructure and expanding educational facilities are very important and positively affects female market activities, but understanding differences in cultural values, beliefs, and norms are essential for reaching policy results.

CHAPTER FOUR

Iranian Immigrants in Canada

Abstract: This study tries to shed more light on the effect of cultural beliefs and attitudes on immigrant women's economic activity. As the employment rate of Iranian women ranks among the lowest in Canada, this research investigates potential explanations for this issue using data from a survey of Iranian immigrants who live in Toronto. Results show that personal attitudes are the most critical elements in Iranian women's economic activity.

Introduction

Most adult men in all countries work for pay, but this is not true for women. The gender gap in labor force participation rate (LFPR), which is the difference between male and female labor force participation rates, varies from 64.59% for Yemen to 37.5% for Sri Lanka, to 11.28% for Austria, and -2.67 for Burundi in 2017²⁹. Besides differences in labor market institutions and human capital across countries, other factors, which can be seen as cultural factors, play essential roles in a variety of female labor force participation rates (FLFPR). Cultural factors such as differences in beliefs regarding women's roles in societies and preferences for the family structure have become one of the crucial subjects in explaining the existing differences across countries in labor market outcomes.

However, the separation between the effects of culture from the effects of institutions and economic factors is the main challenge of cultural analysis. Due to this difficulty, mostly economic scholars avoid studying culture. However, the advantage of "portability" of culture compare to institutions and other economic factors, and the chance of inter generationally cultural transmission provides the opportunity of studying immigrants or their descendants to isolate some aspects of culture.

Studies on immigrants and cultural effects on their economic activities show that women's economic activity varies by nativity due to variation in household resources, women's human capital characteristics, and their cultural beliefs and preferences (Reimers, 1985; Stier, 1991; Stier and Tienda, 1992; Yamanaka and McClelland, 1994; Greenless and Saenz, 1999; Read, 2004).

²⁹ The World Bank, World Development Indicators

Tesi di dottorato "Culture and Female Labor Force Participation. The Middle East and North Africa, With a Closer Look at Iran" di MALLAK SAHAR

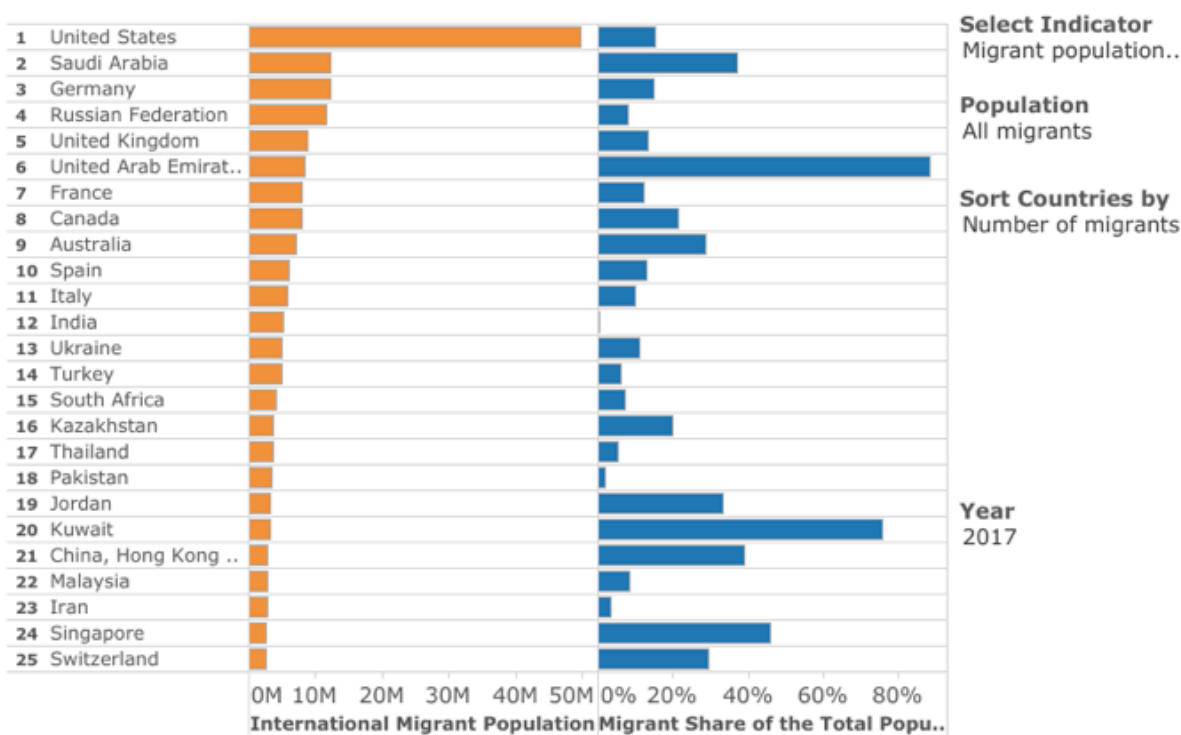
discussa presso Università Commerciale Luigi Bocconi-Milano nell'anno 2020

La tesi è tutelata dalla normativa sul diritto d'autore (Legge 22 aprile 1941, n.633 e successive integrazioni e modifiche).

Sono comunque fatti salvi i diritti dell'università Commerciale Luigi Bocconi di riproduzione per scopi di ricerca e didattici, con citazione della fonte.

Although, in recent years, the research on migrant labor market activities has expanded considerably, there are many gaps in the literature. Mainly studies focus on the United States as a country of destination on evaluating the impact of cultural values on female market activities (Blau, F. 2015; Schoeni, R. 1998; Fernandez, R. & Fagoli, A., 2005). Although the United States is the country with the highest number of migrants per year, there is a need to empirically assess the cultural values and preferences effect on female labor force supply in other destination countries as well.

Figure 30 International Migrant Population and Migrant Share of Total Population
Top 25 Countries of Destination, 2017



Source: Migration Policy Institutions (MPI) Data Hub

In this part, I use the "epidemiological approach" to investigate the cultural effects on economic outcomes. The epidemiological approach "attempts to separate culture from the environment by studying the outcomes of individuals whose cultures potentially differ, but is a common economic and institutional setting."³⁰ This approach is based on the fact that a) cultural beliefs are transmitted from parents to their children; b) immigrants cultural beliefs reflect the

³⁰ Fernandez 2011

culture in place of origin; c) people in the same country or the same geographical area, experience similar formal and economic institutional environment. The assumption is that individual with different culture and different preferences chooses to act differently in an equal environment.

The central objective of this study is to investigate whether the effects of traditional attitudes on immigrants' source origin ethnic groups are visible in observed variation in their behavior in the host country. Mainly, this study investigates the effect of cultural attitudes related to patriarchal gender dynamics and women's responsibilities in their families on immigrants' economic activities. The rest of this chapter is organized as follows: the next section gives a background on human migration, next brief literature review on immigrant women's behavior is explained. Then in the empirical study section, hypothesis, data, model, and result will be discussed. In the end, discussion and conclusion present the summary of this chapter and the main findings.

Background

Human migration is not a modern phenomenon; its history went back to the earliest periods of human history. Before proceeding, a definition of international migrants is useful. The 1998 United Nations Recommendations on Statistics of International Migration, Revision 1, define an *international migrant* as “any person who changes his or her country of usual residence”³¹. Based on recommendations, the definition of the country of usual residence is “that in which the person has a place to live where he or she normally spends the daily period of rest”³². It has also been emphasized that people who travel abroad “for purposes of recreation, holiday, business, medical treatment or religious pilgrimage” are not among international migrants since the country of usual residence has not been changed. Based on The Recommendations, long-term migrants and short-term migrants have different definitions. The definition of a long-term migrant is “a person who moves to a country other than of his or her usual residence for a period of at least a year (12 months) so that the country of destination effectively becomes his or her new country of usual residence”³³. Short-term migrants are “persons who move to a country other than that of their usual residence for at least three months but less than a year”³⁴.

³¹ UN DESA 1998, P.9

³² Ibid.

³³ Ibid. P.10

³⁴ Ibid

Besides many opportunities that migration provides to states and societies, both for countries of origin and destination countries, it also brings some policy and political challenges in the modern era. Migration profits in countries of origin are poverty reduction, reduction of unemployment and underemployment, and in destination countries, are adding more workers to the economy, accordingly increasing GDP (the gross domestic product) of the host countries. However, the challenges of migration include safe migration, integration, border management, and displacement. Because international migration is a complex phenomenon that affects social, economic, and security aspects of daily lives in an era of growing globalization, the migration and its related issues have become one of the high-priority subjects by many politicians, governments, and the public throughout the world. The effect of migration on human development, economic prosperity, and safety and security is so high that its inclusion in policy agenda is unavoidable.

The international migrant population has increased in size globally, but somehow it is stable as a proportion of the world's population. As it is shown in Table 10, the number of international migrants has increased a bit, from 2.3% of the world's population in 1970 to 3.3% of the world's population in 2015.

Table 10. International Migrants, 1970-2015

Year	Number of Migrants	Migrants as a % of world's population
1970	84,460,125	2.30%
1975	90,368,010	2.20%
1980	101,983,149	2.30%
1985	113,206,691	2.30%
1990	152,563,212	2.90%
1995	160,801,752	2.80%
2000	172,703,309	2.80%
2005	191,269,100	2.90%
2010	221,714,243	3.20%
2015	243,700,236	3.30%

Source: UN DESA, 2008 and 2015a

Besides the size of the immigrants' population, the source regions for immigrants have changed a lot, especially for North America. The source regions have shifted from the mainly European before the 1970s to mainly Asian for Canada and the US and Latin American and Asian for the US³⁵. Thus, the new composition of the population is different in their values, traditions, and culture, which brings issues regarding economic and cultural assimilation.

According to Merriam Webster Dictionary, *culture* is a) "the customary beliefs, social forms, and material traits of a racial, religious, or social group; (and) the set of shared attitudes, values, goals, and practices that characterizes an institution or organization."; b) the integrated pattern of human knowledge, belief, and behavior that depends upon man's capacity for learning and transmitting knowledge to succeeding generations". The main focus here is the differences in culture, which is the systematic differences in beliefs and preferences of people who are geographically or socially are different groups. Beliefs and preferences can affect the behavior in the sense that either the individual acts based on his/her preferences or beliefs. It can also be the preferences or values of the society that an individual has interacted with. Thus, an individual's behavior can be influenced by these values either by punishments or rewards based on the actions.

Literature review

Over the past two decades, many scholars have studied the differences in immigrant women's economic activities ((Reimers, 1985; Stier, 1991; Stier and Tienda, 1992; Yamanaka and McClelland, 1994; Greenless and Saenz, 1999; Antecol, 2000; Read, 2004; Guiso, Sapienza, and Zingales, 2004; Alesina, Algan, Cahuc, and Giuliano, 2010; Gevrek, Gevrek, and Gupta, 2012; Neuman, 2018). The results of these studies show that female labor force participation has notable variation among the different ethnic populations.

Scholars have tried to explain the variation of FLFP. One of the primary explanations is the differences in human capital characteristics (Jasso and Rosenzweig, 1990; McAllister, 1995; Farley, 1996; Kahn and Whittington, 1996; Livingston and Kahn, 2002). Based on this line of explanations, differences in human capital, such as different educational level for different ethnic groups, is a key factor that affects the level of female labor force participation. Another line of explanation emphasizes the importance of family conditions and their effect on women's labor

³⁵ United Nation Population Division

supply decisions (Tienda and Glass, 1985; Greenless and Saenz, 1999). Scholars following this reasoning explain that family conditions, such as the level of household income (Stier and Tienda, 1992), the presence of children (Tienda and Glass, 1985), and family structure has a significant effect on the level of immigrant women's market activity. Culture and differences in values and preferences among different ethnic groups are other factors that influence women's labor force supply, which has got less attention to compare to other lines of reasoning till a few years ago. Lack of informative and comprehensive data and the challenge regarding the separation between the effects of culture from the effects of institutions and economic factors are the main reason with fewer studies in this line of reasoning.

The advantage of "portability" of culture compare to institutions and other economic factors, and the chance of inter generationally cultural transmission provides the opportunity of studying immigrants or their descendants to isolate some aspects of culture. This does not mean that culture, institutions, and economic factors are independent of one another, but studying immigrants in a country of destination allows them to evaluate some cultural effects in isolation from other economic factors and institutions.

The “epidemiological approach” (Fernandez, 2008), “attempts to separate culture from the environment by studying the outcomes of individuals whose cultures potentially differ, but is a common economic and institutional setting.”³⁶ This approach is based on the fact that a) cultural beliefs are transmitted from parents to their children; b) immigrants cultural beliefs reflect the culture in place of origin; c) people in the same country or the same geographical area, experience similar formal and economic institutional environment. The assumption is that individual with different culture and different preferences chooses to act differently in an equal environment.

The first study used the epidemiological approach was the paper by Carroll, Rhee, and Rhee (1994), in which they studied the effect of cultural factors on saving rates among first-generation immigrants in Canada. They found no significant effect of immigrant's region on their saving patterns. Later, the focus on cultural issues, have shifted toward women related subjects such as fertility rates, gender attitudes, and female labor force participation. The main reason for this issue was the significant changes in attitude toward women in many countries, specially developed ones.

³⁶ Fernandez 2011

Source country cultural factors and migrants' cultural behaviors

Scholars have studied various immigrants' cultural behavior and tried to explain them by cultural characteristics of immigrant's origin. Research on the *living arrangements* of second-generation immigrants from Northern and Southern Europe in the United States shows that children of immigrants to the United States copy the family living arrangements of their country of origin, with the closer parent-child ties in Southern Europe (Giuliano, 2007). Cultural factors could be the primary motive for this situation, as they all live in an environment with the same unemployment benefits and same macroeconomic conditions. Moreover, Almond, Edlund, and Milligan (2009) examine the effect of culture on son preference. By studying Asian immigrants to Canada, they want to find out the reason behind the above standard sex ratios in Asian countries, especially China and India. Their study shows that, if there was no son in the family, the sex ratios of Asian immigrants rise with the number of children. Thus, the reason behind the issue was not economic factors; the only explanation would be cultural values and preferences because those immigrants are neither live in sex discriminated society nor are poor.

Other studies suggest the *gender roles* in source countries have effects on immigrant women's behavior in the destination country. Blau (1992) shows the impact of source country fertility rates on immigrant women's fertility behavior in the United States. Guinnane, Moehling, and O'Grada (2006) study the marital fertility of Irish Americans' behavior in the United States in 1910. They show that Irish-Americans continued to have large families, which could be explained just by the characteristics of the population. Fernandez and Fogli (2009) show that culture, which is proxied with total fertility rates and female labor force participation from the second-generation American women's country of ancestry, has a significant positive effect on work and fertility behavior.

Source country cultural factors and migrants' economic activities

Reimers (1985) examines the effect of ethnicity in married women's labor market activities in the United States, and by using ethnic dummy variables, she shows that ethnic background matters. Antecol (2000) studies labor force participation in the country of the ancestry of immigrants in the United States. She finds that ethnicity affects the labor force participation inter-ethnic gender gap for first-generation immigrants and second and higher-generation immigrants

(who are grouped). Guiso, Sapienza, and Zingales (2004) study movers within Italy and investigate the impact of civic capital on financial development. By using two dummy variables, one for the individual's origin and one for the individual's place of residence, they find out that people from provinces with higher civic capital, tend to invest more in stocks, have easier access to loans, and rely more on checks than cash for settling transactions.

Alesina, Algan, Cahuc, and Giuliano (2010) investigate the effect of family ties on economic outcomes. Their results show that the second-generation Americans who inherit stronger family ties from their country of origin, tend to have a higher unemployment probability, lower geographic mobility, lower hourly wages, and support stricter labor market regulation. Frank and Hou (2015) show that the division of labor within Canadian immigrant households is influenced by the country of origin's gender roles- female/male secondary education ratio and female/male labor activity ratio. Gevrek, Gevrek, and Gupta (2012) examine the effect of culture on labor market outcomes of second-generation immigrant women in Canada. By using total fertility rates and relative female labor force participation in the county of ancestry as cultural proxies, they show that culture has a significant effect on the number of hours worked by second-generation women with immigrant parents. Moreover, Neuman (2018) shows women's labor force participation of immigrants in Sweden is in line with the level of female LFP in their source country; women from a high (low) level of FLFP rates countries, also show high (low) labor market activities in Sweden. However, based on Neuman's study results, the effect is not persistence and diminishes with the length of residence in Sweden.

Empirical Strategy, Datasets, and Sample Selections

Canada, with its ten provinces³⁷ and three territories³⁸, is located in the northern part of North America. Covering 9.98 million square kilometers (including its waters), Canada is the second-largest country in the world, after Russia. Canada has three oceans as a border: from the Pacific Ocean in the west to the Atlantic Ocean in the east and the Arctic Ocean in the north. Eleven provinces out of thirteen border one of three oceans, just two provinces (Alberta and Saskatchewan), are landlocked.

³⁷ Ontario, Quebec, Nova Scotia, New Brunswick, Manitoba, British Columbia, Prince Edward Island, Saskatchewan, Alberta, Newfoundland and Labrador

³⁸ Northwest Territories, Yukon, Nunavut

Canada is a diverse ethnicity country. With its different immigration laws, Canada has 21.9% of the Canadian population reported as landed immigrants or permanent residents in Canada (Census 2016, Statistics Canada). Before the Liberal government announced the new immigration law that was welcoming one million immigrants over the next three years in 2017, immigration has ranged around 230000 per year. In 2017, the number of immigrants reached 300,000, and it rose to 310,000 in 2018, with a projection of 330,000 in 2019 and 340,000 in 2020.

According to the 2017 Report to Parliament on Immigration³⁹, the total permanent residents admitted in 2016, by top 10 source countries is 296,346. Iran ranks 7th with the number of 6,483 permanent residents admitted. According to data from Census 2016, the Iranian immigrant population ranks 10th among all immigrant populations in Canada. Table 11 shows the trend in the period of immigration and the number of immigrants. Although these statistical numbers do not reflect the exact population of specific origin, they are the most reliable source of information available for analysis of immigrants. Many populations were omitted due to not finalized residential status. According to Iran National Organization for Civil Registration in 2012, Canada ranked 3rd as a destination for Iranian immigrants by 410,000 immigrants, following the United States by 1,450,000 immigrants and the United Arab Emirates by 800,000 immigrants⁴⁰.

Table 11 Immigrant population by place of birth, a period of immigration, 2016 counts, both sexes, age (total), Canada, 2016 Census – 25% Sample data

	Period of Immigration						
	Total immigrant population	Before 1981	1981 to 1990	1991 to 2000	2001 to 2005	2006 to 2010	2011 to 2016
Place of birth	7540830	1941505	915555	1486660	928940	1056095	1212075
India	668565	79420	58945	146720	116545	119745	147190
China	649260	56670	50885	148960	140605	123125	129015
Philippines	588305	47080	49940	110605	65725	126150	188810
United Kingdom	499120	347310	47690	31190	18845	29635	24450
United States	253715	107840	27630	28655	23095	33435	33060
Italy	236635	219930	6765	3375	1485	2105	2980
Hong Kong	208935	47840	56275	88850	6120	4885	4975
Pakistan	202255	11505	8120	52380	52950	35820	41480

³⁹<https://www.canada.ca/en/immigration-refugees-citizenship/corporate/publications-manuals/annual-report-parliament-immigration-2017.html>

⁴⁰<https://www.sabteahval.ir>

Viet Nam	169250	38990	60010	37975	9610	11455	11210
Iran	154420	3955	19840	37585	23975	26995	42070
Poland	146470	33300	61600	37475	4970	4965	4165
Germany	145840	100005	11855	11465	6210	10010	6300
Portugal	139450	92610	29055	9740	1820	2735	3485
Jamaica	138345	54790	25310	27240	8895	9620	12500
Sri Lanka	131995	3345	21730	55110	20965	19355	11495

Source: Statistics Canada – Census 2016

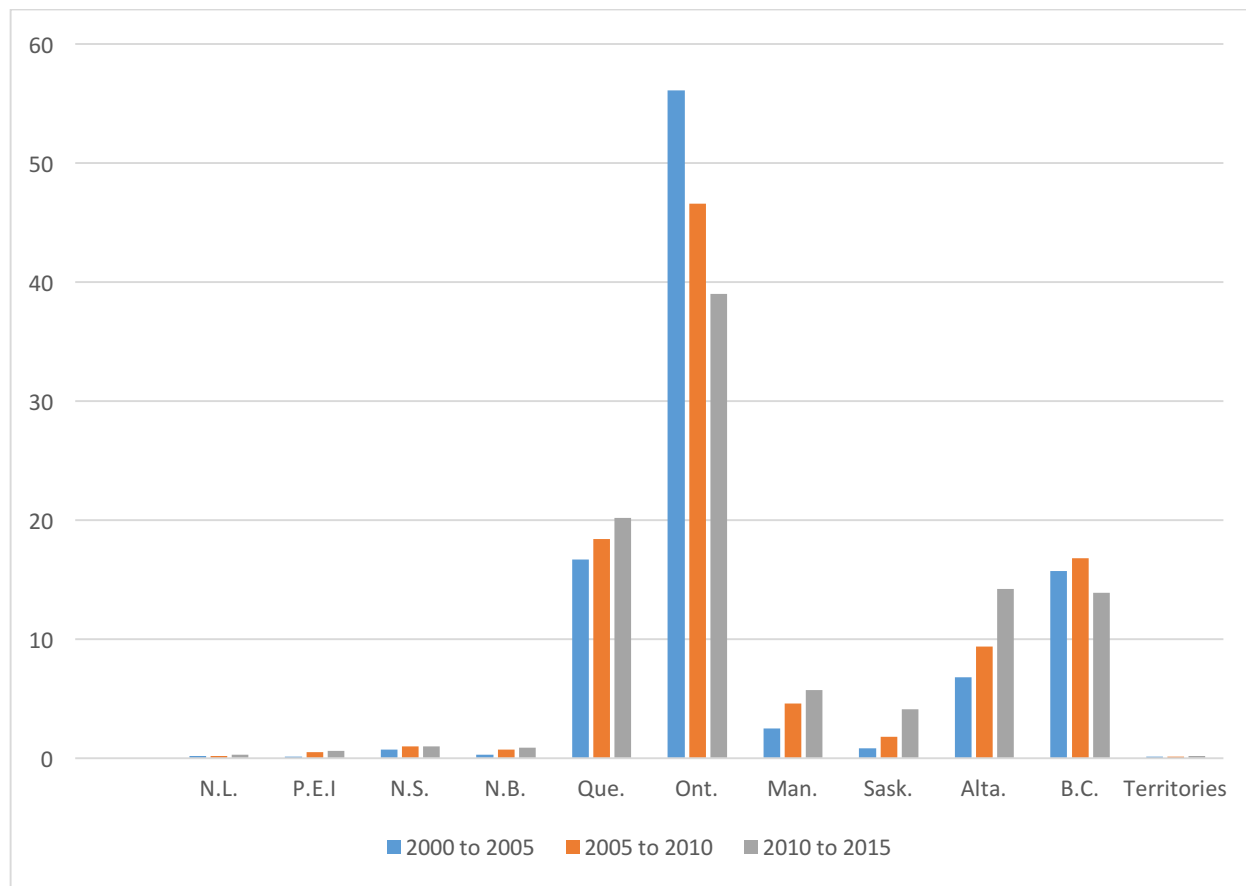
As shown in the above table, Canada is a destination for many immigrant groups. Compare to other nationalities, Iranian counts the newcomers to Canada. Before 1981, there were just 3955 Iranian immigrants in Canada, around 0.2% of total immigrants in Canada. This number increased to 2.5% from 1991 to 2000. The main factor was the Iranian revolution in 1979. After the revolution, due to different issues such as the political situation, Iran-Iraq war, different periods of international sanctions⁴¹ (which has been imposed since 1979 by The United States and has followed by other countries), and the economic situation, Iranians have found Canada a right destination for immigration. Moreover, after the revolution, the United States government put more restrictions on Iranian immigrants, which encouraged Iranian even more than before to choose Canada as their destination.

During the last few years, the number of Iranian immigrants in Canada has increased. As the influential factors, the recent sanctions ("since 2006, the UN Security Council has adopted some resolutions requiring Iran to stop enriching uranium with nuclear proliferation purposes"⁴²) against Iran, the unstable economic situation as a result of sanction and its mismanagement, and lowering hope for a better future has had a significant impact. Furthermore, the new Canada immigration law plays a vital role in increasing the number of Iranian immigrants to Canada. Canadian provinces do not have the same attractions for immigrants. As shown in the following figure (Figure 31) Ontario ranks the first province among all provinces in Canada for immigrants.

⁴¹ <https://www.state.gov/e/eb/tfs/spi/iran/index.htm>

⁴² <https://www.consilium.europa.eu/en/policies/sanctions/iran/>

Figure 31 Provincial and Territorial Distribution of Immigrants for Three Immigration Periods (July to June), Canada, 2000 to 2015



Source: Immigration, Refugees, and Citizenship

Like other nationalities, Iranian immigrants prefer Ontario and mainly Toronto as a destination. Table 12 shows the cities in Canada with more than 150 recent Iranian immigrants in 2016. As shown in the table, Toronto has three times more Iranians compare to Montreal, which is the second destination for Iranians. This number decreases by 0.2 for the third city (Vancouver) in 2016.

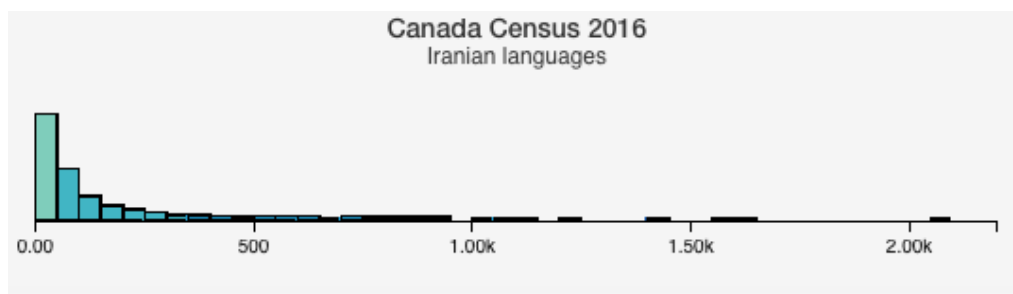
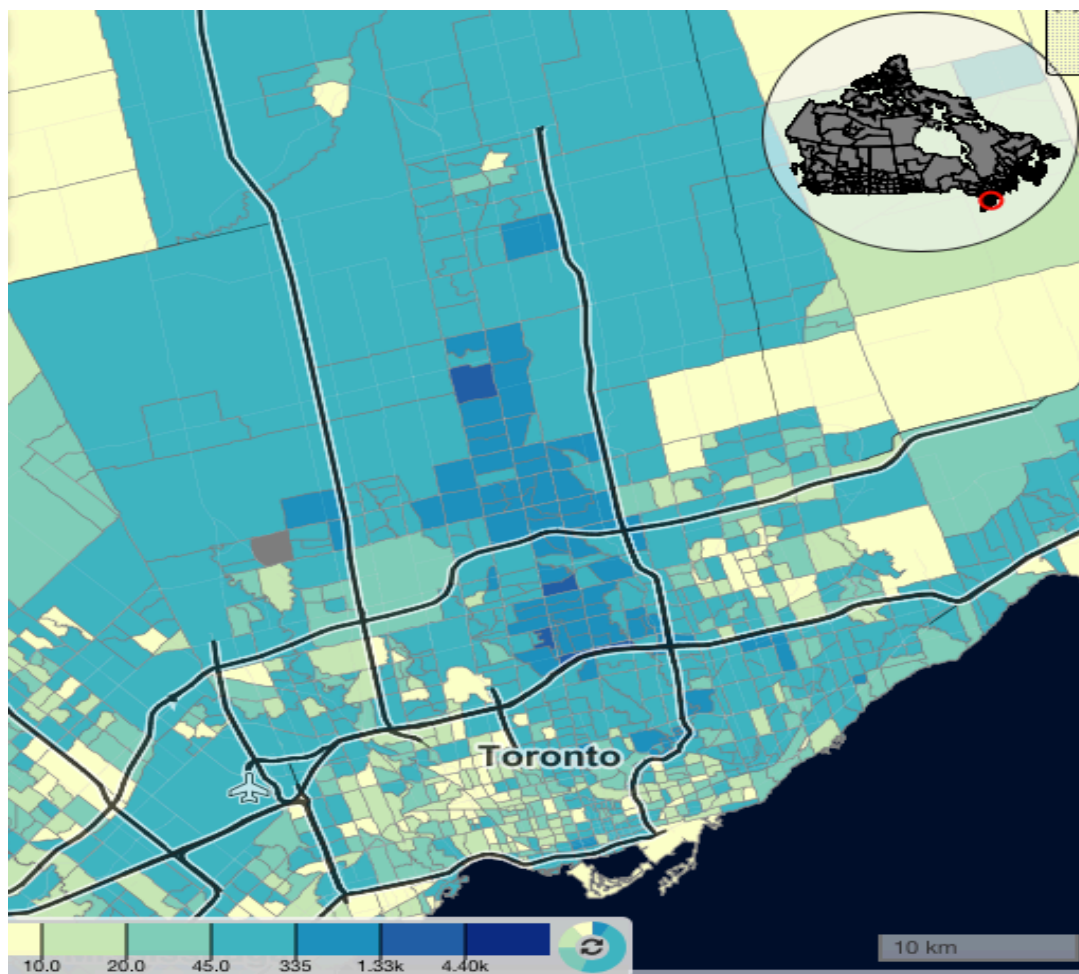
Table 12 Cities in Canada with More than 150 Iranian Immigrants 2016

Region	Iranian		
	Total	Male	Female
Canada	154,425	77,970	76,455
Toronto	45,540	23,000	22,535
Montreal	15,120	7,460	7,660
Vancouver	9,385	4,880	4,500
Calgary	8,345	4,335	4,010
Ottawa	6,845	3,435	3,405
Edmonton	4,165	2,175	1,990
Hamilton	1,975	980	1,000
London	1,795	895	900
Winnipeg	1,570	835	735
Halifax	1,175	675	500
Kitchener	975	500	475
Windsor	830	435	395
Quebec	610	285	325
Guelph	610	300	315
Kingston	580	335	240
Victoria	530	245	290
Regina	355	190	165
Fredericton	330	160	170
Barrie	315	155	165
Nanaimo	315	160	155
Oshawa	275	135	135
Sherbrooke	255	125	130
Abbotsford	195	115	80
Thunder Bay	190	100	90
St. Catharines	180	110	70

Source: Census 2016

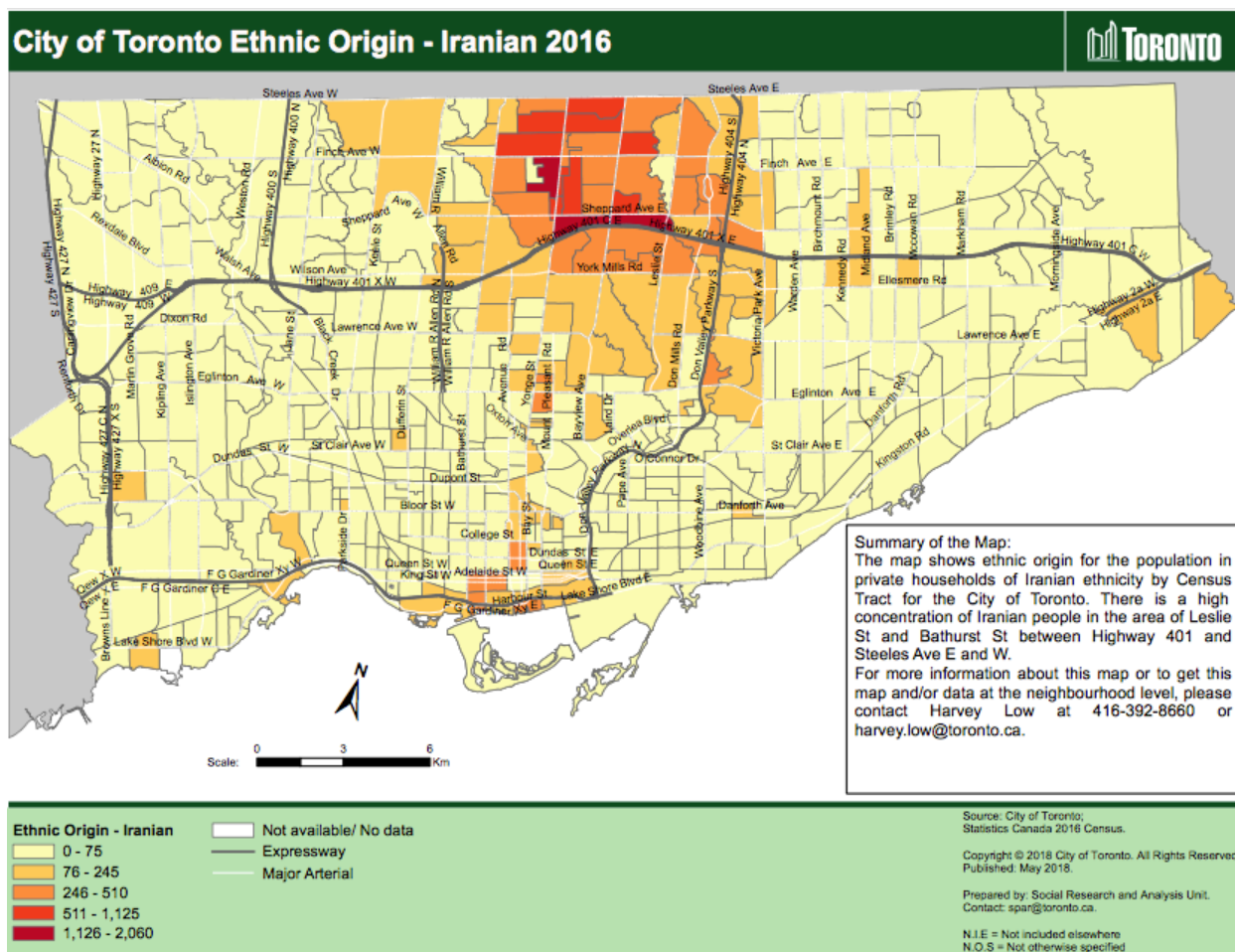
Based on Table 12, as the number of Iranian immigrants is the most in Toronto, the city provides an excellent opportunity to investigate the labor force activity of immigrants in Canada. To show how the Iranian population is distributed inside urban areas in Toronto, finding their residential areas is necessary. Figure 32 and Figure 33 show the size and location of the Iranian community based on two factors, language speaking and ethnic origin from Census data 2016.

Figure 32 Distribution of Iranian Immigrants based on Language speaking, Toronto 2016



Source: Canada Census 2016

Figure 33 Distribution of Iranian Immigrants based on Ethnic Origin, Toronto 2016



Source: the City of Toronto, Statistics Canada 2016 Census

Immigrant groups in Canada have a different level of labor force activity. This difference is even more noticeable in women's market activities. Table 13 shows the labor force participation of visible minority groups in Toronto from 1996 to 2016. In 1996, while labor force activity for immigrant men from West Asia (Afghanistan and Iran) is on average with other immigrants' groups, the level of women labor force activity is less than any other group. In 2001, the West Asian female labor force activity was the least among all minority groups in Toronto again. Although their participation increased in the year 2006 and 2016, still stayed among the lowest compared to the rest.

Table 13 Labor Force Activity, Visible Minority Groups, for the Population 15 Years and Over, Toronto

Visible minority groups	Participation rate							
	1996		2001		2006		2016	
	Male	Female	Male	Female	Male	Female	Male	Female
Total - Population by visible minority groups	73.6	61.3	74.8	63.1	74	63.1	71.2	61.7
Total visible minority population [1]	70.5	58.7	73.6	62.3	73.6	62.6	70.5	60.7
Chinese	62.3	52.4	65.8	56.8	67.2	59.3	63.9	56.3
South Asian [2]	74.3	56.6	77.1	59.1	77.1	59.5	73.8	57.9
Black	73.8	65.4	76.6	70.6	74.6	69.1	69.6	65.4
Filipino	73.6	72.3	78.4	74.1	77.2	74.8	75.8	74.6
Latin American	74.6	58	80.7	66.5	79.8	66.4	77.8	66
Southeast Asian [3]	69.5	52.9	74.9	60.7	72.8	62.7	69.5	62.4
Arab							67.7	49.8
West Asian [4]	71.4	47.6	73.6	51.8	72.6	53.9	69.4	53.5
Korean	64.7	53.2	67	55.9	63	50.9	66.2	55.6
Japanese	68.9	53.1	65.8	53.6	67.5	56	65.7	57.8
Visible minority, n.i.e. [5]	78.7	68.8	77.3	67.6	76.7	66.4	73	65.4
Multiple visible minority [6]	73.4	66.5	73.3	69	75.9	69	70.8	66
Not a visible minority [7]	75	62.4	75.5	63.6	74.2	63.4	71.9	62.8

Source: Statistics Canada - Census

Note

[1] The Employment Equity Act defines visible minorities as 'persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in color'.

[2] For example, 'East Indian', 'Pakistani', 'Sri Lankan', etc.

[3] For example, 'Vietnamese', 'Cambodian', 'Malaysian', 'Laotian', etc.

[4] For example, 'Afghan', 'Iranian', etc.

[5] The abbreviation 'n.i.e.' means 'not included elsewhere'. Includes respondents who reported a write-in response such as 'Guyanese', 'West Indian', 'Kurd', 'Tibetan', 'Polynesian', 'Pacific Islander', etc.

[6] Includes respondents who reported more than one visible minority group by checking two or more mark-in circles, e.g., 'Black' and 'South Asian'.

[7] Includes respondents who reported 'Yes' to the Aboriginal identity question (Question 18) as well as respondents who were not considered to be members of a visible minority group.

Quantitative Analysis

Due to the limited time, resources, and workforces, the sample in this section is just an experimental sample and can not be claimed that it is the true representative of the Iranian population in Toronto. However, the effort of selecting the sample and collecting data was to choose a sample as close as to the real Iranians living in Toronto.

Sampling:

Target Population: As it was mentioned in previous parts, Toronto is a city of a maximum number of Iranian migrant in Canada. To get the best possible sample of Iranian immigrants in Canada with different characteristics, Iranians who live in Toronto is chosen as a target population.

Survey Population: included all Iranian immigrants (first generation or second generation) aged 15+ years living in Toronto, Canada, who can speak or read either Farsi or English. The survey observation was collected over five months, from mid of November 2018 to the Mid of April 2019.

Sampling Methods:

In this research, due to the nature of the population, nonprobability sampling methods are used (Kish, 1965), which includes Snowball Sampling or Respondent Driven Sampling (RDS), Time-Location Sampling (TLS), and Judgmental (Purposive) Sampling.

Snowball Sampling or Respondent Driven Sampling (RDS): Snowball sampling was originally developed for studying networks by Goodman (1961). RDS was specially developed to makes inferences on certain hard-to-reach groups by Heckathorn and colleagues (Heckathorn, 1997). The network structure of a target population is the critical element of these methods. Based on the primary assumption that all people of the target population are related through social links, every member of the target population can be reached with the recommendation chain of other members of the target population, and people have a positive probability of being included in the sample. Also, based on the methods' assumption, the chance of selection of a respondent is not affected by whom the referee has been selected. In these methods, the first stage is choosing a number of individuals of the target population (seed or initial respondents). Next, every respondent is asked to mention an additional person of the target population. In this research, 15 initial respondents are chosen among family and friends who live in Toronto.

Both RDS and snowball sampling depend on the extreme full network connectivity assumption. While most of the time, immigration happens through the chain process, some isolated people within the target population exists. For example, some professions and immigrants with

strong family ties are among the isolated population. Thus, both methods suffer from the selection issues: migrants with more connections to the migrant community are over-represented.

Time-Location Sampling (TLS): This sampling method is used to sample sub-population by the assumption of the possibility of reaching and covering the target population through random sampling of predefined locations at different times. First, "centers of aggregation," which are non-residential locations where the target population concentrates, is prepared. Next, final respondents are selected randomly through the random selection of centers of aggregation. In this research, different parts of Toronto that Iranian people live the most were prepared, which was explained in detail in previous parts. Next, in those parts of the city, the list of the main shopping malls, restaurants, supermarkets, health centers, travel agencies, and beauty salons was prepared. In the end, final respondents were chosen randomly from the random selection of centers of aggregation during different times of the day, both during working days and weekends, within two months.

Judgmental (Purposive) Sampling: in this method, the sample members are chosen only based on the researcher's knowledge and judgment. In this research, to minimize non-coverage error, some places are chosen to reach a population that might not be chosen from other sampling methods. The judgment is based on the assumption that religious people might have unique characteristics that leads to the low probability of finding them in public places or through non-religious initial respondents. Thus, the list of religious places with their programs' schedules is prepared. The list includes the main mosques, churches, and religious-cultural centers in Toronto⁴³. Then, final respondents are chosen at each location during the scheduled event.

Survey:

Questions in the survey were chosen from standard questions from The World Value Survey to capture not only cultural beliefs, values, and norms, but also the economic activities of immigrants in Toronto. The WVS questions were chosen to provide the opportunity for comparing the results with previous parts in this research. The survey covers individual demographic characteristics, gender roles attitudes, patriarchy beliefs, and religious questions in the WVS. Moreover, to find out the ethnic group of individuals, three more questions were added in the survey: the respondent's place of birth, the respondent's mother's place of birth, and the respondent's father's place of birth.

⁴³ Toronto Iranian Christian Church, Muslim Association of Canada (Masjid Toronto), Imam Ali Islamic Centre, Imam Mahdi Islamic Centre.

Furthermore, the question about the year of immigration in Canada was added to capture the effect of the length of living as an immigrant in other countries on other individual characteristics.

The survey was prepared both in English and in Farsi⁴⁴. The reason for using the Farsi version of the survey was providing more opportunities for various respondents to fill the survey. The primary assumption was the possibility of English language deficiency, especially among immigrants who went to Canada based on family status or who were over 50 years old at the time of immigration. The mentioned groups might have sufficient speaking skills, but not advanced reading skills, which increases the risk of non-respondent people.

Data collection:

Data collection in this part of the research can be divided into three phases: *phase one* with the very low response rate: during the first month, the survey was available just in an online format. I prepared two separate links, one for the English version and one for the Farsi one. Moreover, I prepared two QR codes, one for each survey to make it easier for people to reach the questionnaires by just using the code reader app. However, the response rate was very low, and just 40 submitted forms within a month. Different factors were involved in the issue. The main one was the issue of trust. Even with a paragraph at the beginning of the survey which explained the privacy of data, people's main concern was the final usage of their information (there is not any question regarding name, address, telephone number, or any other sensitive and private personal information). Another negative feedback was about the graphic design of the form. Following the studies' results that graphic cover design has positive effects on response rates⁴⁵Flags for both countries, Iran and Canada, were added at the header. However, these flags increased people's concern about my affiliation with governments. In total, in this phase, the main issues were: trust, people's concern on my background and affiliation, and the traceability of imported information in their computers by their Internet Service Provider (ISP).

Phase two: Following my experience from phase one, I printed the survey without any header, 400 Farsi version, and 50 in English to be distributed among Iranian in different places. With a few questions that needed handwriting and based on the assumption that printed forms

⁴⁴ Survey can be reached by entering to:

https://docs.google.com/forms/d/e/1FAIpQLSf_rGKaVbrkd8UGQGOxzwEZbmpKVNS_RNGCewPVsapr3ad2Q/viewform?usp=sf_link

⁴⁵Grembowski (1985) found that the response rate was higher for a cover that had more salience to the questionnaire recipients.

should have reduced the feeling of traceability of the information, a higher response rate was expected compared to phase one. In this phase, based on the TLS method, final respondents were chosen from various centers of aggregation. First, the question about their country of origin was asked, next the form was given to Iranian people. In contrast to the expectation, the response rate was low: just 10 in 10 days. The main issues in phase two were: the length of the questionnaire that made it difficult to be filled at the same distribution in a short time in public places.

Phase three: following the experiences from phase one and phase two, in phase three, the easy return techniques⁴⁶ were used. Printed forms were distributed in public places such as restaurants, shops, supermarkets, health clinics, and the collection time were arranged at respondents' convenient place and time. The response rate in this phase was very high. Around 90% of the people who accepted to get the form, returned the filled one. The distribution strategy was the combination of different methods: network and peer sampling and TLS.

Empirical Study

Following previous sections, the hypothesis in this chapter are as follows:

Hypothesis 1:

"personal attitudes related negatively to the likelihood of market activities for women."

Hypothesis 2:

"Ethnic Traditional Social norms have a negative effect on women's formal economic activities; more traditional social norms lead to less likelihood of being full-time active in the labor force."

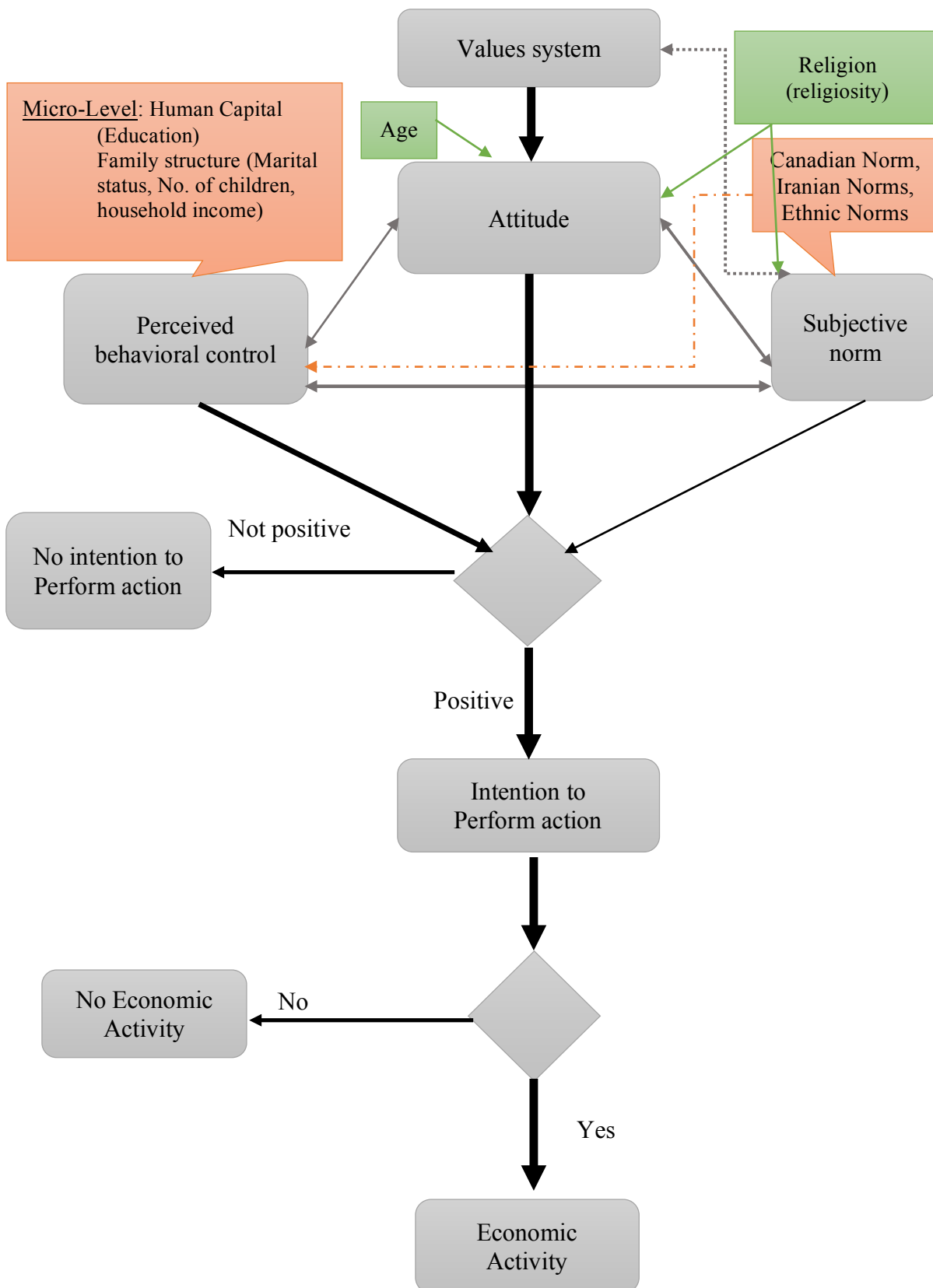
Hypothesis 3:

"Religious has an impact on women's market activity; women with stronger religious beliefs are less likely to be active full-time in the formal labor market."

Following other chapters, Figure 34 the proposed platform for this section:

⁴⁶ Four experiments (Dillman 1978, Dillman & Moore 1983) have consistently shown that a modest increase in response, from 2-4%, can be obtained by using stamped return envelopes.

Figure 34 The proposed Attitude- Behavior Platform of Female Labor Force Participation



Tesi di dottorato "Culture and Female Labor Force Participation. The Middle East and North Africa, With a Closer Look at Iran" di MALLAK SAHAR discussa presso Università Commerciale Luigi Bocconi-Milano nell'anno 2020 La tesi è tutelata dalla normativa sul diritto d'autore (Legge 22 aprile 1941, n.633 e successive integrazioni e modifiche). Sono comunque fatti salvi i diritti dell'università Commerciale Luigi Bocconi di riproduzione per scopi di ricerca e didattici, con citazione della fonte.

Variables

Dependent Variable

The question from the survey which asks about the employment status is used to investigate the market behavior of Iranian immigrants in Toronto. The dependent variable is a binary variable that takes the value of one in case the respondent replies full-time employment and 0 otherwise. Full-time employment is chosen due to the situation of immigrants that there is more possibility for temporary employment due to their needs. Thus, to capture economic behavior that is not totally based on a particular situation, full-time employment is chosen. Moreover, to get a better idea of the effects of various factors on women's market behavior and to capture their different impact on male and female, the analysis is run on both gender, male and female separately, aged from 17 to 68.

Personal Attitudes

Patriarchy Attitudes Index:

To capture personal patriarchy attitudes towards working, a question which shows the most the related attitudes is chosen:

- *Preference of men to women in the job market:* "When jobs are scarce, men should have more right to a job than women (agree, disagree or neither)"

The variables are re-coded in a way that the higher indicates stronger patriarchy attitudes, and the results are the Patriarchy Attitudes Index.

Attitudes towards Family:

A few questions in the survey could capture people's attitudes towards family. The following question is chosen to capture the maximum variation among respondents⁴⁷:

- "In your opinion, how important are each of the following traits in a woman? – Protect her Family" (five-scale from "not at all important" to "very important")

The variables are re-coded in a way that the higher indicates stronger attitudes towards family, and the results are the Attitudes towards Family Index.

⁴⁷ The question which is used in other chapters is: "How important family is in a person's life." Almost all of the respondents in Toronto answered "very important," so there is not any variance between answers.

Subjective Norms:

Iranian people who live in Toronto get the influence of different social norms: Iranian social norms, Ethnic's social norms, and Canadian social norms. Since they all live in Toronto, two factors of three are the same for everyone (Iranian social norms and Canadian social norms). With the assumption that the effect of these two factors is the same for everyone, only the ethnic's social norms are different among Iranian people in Toronto, so just this factor is added in the analysis. To capture the effect of ethnic norms, two indices that were calculated in chapter 3 are used. As a result, two indices for subjective norms are calculated: Ethnic Patriarchy Norms and Ethnic Norms towards Family.

Perceived Behavioral Control:

As all respondents live in Toronto, they all face the same perceived behavioral control factors at the macro-level, and the differences are just in the micro-level variables: their human capital differences and family structures. Thus, the highest level of education, marital status, the number of children, and the level of household income is added in the analysis.

Religiosity:

The level of religiosity to investigate how people's religious beliefs affect their economic behaviors is used, which is captured by the following question:

- “For each of the following, indicate how important it is in your life. Would you say it is: Religion” (five-scale from “not at all important” to “very important”)

The variables are re-coded in a way that the higher indicates, the more religiosity.

Table 14 shows descriptive statistics for variables in this analysis.

Table 14 Descriptive Statistics

Variable	Obs	Mean	Std.Dev.	Min	Max
Full-time employment	269	.58	.494	0	1
Patriarchy Attitudes	274	1.49635	.7762414	1	3
Ethnic Patriarchy Norms	281	1.496299	.0807412	1	2
Attitudes towards Family	257	3.494	.674	1	4
Ethnic Norms towards Family	279	3.512	.139	3.25	4
Household Income Level	257	2.066	.507	1	3
Education	271	8.716	.905	3	9
Marital Statues	267	2.521	.787	1	3
Number of Children	273	1.128	1.112	0	4
Age	266	43.496	11.288	17	68
Age Square	266	2018.872	1097.128	289	4624
Religiosity	274	1.96	1.104	0	4

Model

As the dependent variable is a market activity of women, which takes the value of zero and one, the logit model that is suitable to investigate the relationship between binary response probability and explanatory variables, is used in this section. Due to the fact that the number of observation is small (120 for women and 103 for men) to capture small sub-culture effects by multilevel logistic model⁴⁸, the single level logit model is used in this part:

$$\text{Logit}(P(Y=1 | x_1, \dots, x_k)) = \beta_0 + \beta_1 x_1 + \dots + \beta_k x_k$$

Result

Table 15 shows the results⁴⁹ for the logit regression model⁵⁰. As mentioned before, for better investigating the effect of various elements on market behavior, men and women are analyzed separately. Results show that personal attitudes have statistically significant effects on women's market activities, but two different attitudes in this sample have impacts on different direction: patriarchy attitudes are negatively related to the likelihood of falling into having a full-time job group of women, and it means that higher the level of patriarchy attitudes leads to less likelihood falling into working full-time group for women. Also, the odds ratio for patriarchy attitudes is less than one, which indicates the negative effect of patriarchy attitudes on having a

⁴⁸ In multilevel modeling, sufficient sample size is one of the first indications that is needed to accurately estimate small fixed effects with small small intercept variance (Schoeneberger, 2016)

⁴⁹ Different interactions were tested in the model, but none of them showed any significant effect; thus the regression without any interaction terms is shown here

⁵⁰ To see the results of Goodness-of-fit see Appendix F

full-time job for women, and changing one unit in patriarchy attitudes leads to a change of likelihood of falling in a full-time working group for woman by 0.486. However, the effect of attitudes towards family is in another direction: attitudes towards family are positively related to the likelihood of falling into having a full-time job for women, and it means that women with stronger attitudes towards family are more likely to work full-time in a formal labor market. Results at odds ratio column in the table show one unit change in attitudes towards family lead to a change of falling in the full-time working group for women by 2.572.

Another element that is expected to influence women's market activity is subjective norms. However, results show no significant impact of subjective norms on women's full-time employment. Both ethnic patriarchy norms and ethnic norms towards family have no meaningful impact on women's full-time formal market activity. Moreover, results display a statistically significant effect just for the level of household income on women's full-time market behavior, and other elements of perceived behavioral control do not show any meaningful impact. Based on this analysis, household income at the medium level is positively related to the likelihood of falling into having a full-time job group for women, and one unit change in household income level leads to 6.610 changes in women's chance of having a full-time job. As it was mentioned before, other elements in perceived behavioral control such as the highest level of education, the number of children, and the marital status do not show any meaningful effect on women's full-time employment in the formal labor market.

Although results show no significant impact of age on women's market behavior in this study, they suggest a meaningful negative impact of religiosity on women's full-time market behavior. A higher level of religiosity leads to less likelihood of falling into working full-time, and one unit change in religiosity leads to a 0.558 change in the chance of working full-time for women.

Results from the same table show the different effects of various factors on working full-time in the formal market for men. The only significant effect that is also not very big, with the odds ratio close to 1, is the negative impact of age square on full-time working.

Table 15 Logit Regression

	Women		Men	
	Logit coeff	Odds ratio	Logit coeff	Odds ratio
Personal Attitudes				
Patriarchy attitudes	-0.722*** (-0.263)	0.486*** (-0.128)	-0.0894 (-0.248)	0.914 (-0.227)
Attitudes towards Family	0.945** (-0.41)	2.572** (-1.055)	-0.339 (-0.387)	0.712 (-0.276)
Subjective Norms				
Ethnic Patriarchy Norms	-2.864 (-2.594)	0.057 (-0.148)	-5.248 (-3.411)	0.00526 (-0.0179)
Ethnic Norms towards Family	-0.983 (-2.184)	0.374 (-0.817)	-1.096 (-1.939)	0.334 (-0.648)
Perceived Behavioral Control				
Education (Ref. Complete primary school)				
Complete secondary: university-preparation school	0.275 (-1.04)	1.316 (-1.369)	-2.02 (-1.648)	0.133 (-0.219)
University degree	-2.12 (-1.337)	0.12 (-0.16)	-0.0266 (-1.313)	0.974 (-1.279)
Marital Status (Ref. Single/Never married)				
Widowed/Separated/Divorced	1.26 (-1.256)	3.526 (-4.428)	0.406 (-1.19)	1.5 (-1.785)
Married/Living together as married	-0.381 (-0.78)	0.683 (-0.533)	0.442 (-0.887)	1.556 (-1.381)
Number of Children (Ref. No Child)				
1 Child	-0.132 (-0.698)	0.876 (-0.612)	1.091 (-0.804)	2.977 (-2.395)
2 Children	-0.648 (-0.765)	0.523 (-0.4)	0.757 (-0.855)	2.131 (-1.821)
3 Children	-2.142 (-1.596)	0.117 (-0.187)	0.157 (-1.06)	1.17 (-1.239)
4 or more Children	-0.494 (-2.421)	0.61 (-1.477)	-1.163 (-1.424)	0.312 (-0.445)
Household Income Level (Ref. Low level)				
Medium	1.889* (-1.133)	6.610* (-7.492)	0.491 (-0.814)	1.634 (-1.33)
High	1.34 (-1.255)	3.821 (-4.794)	1.473 (-1.119)	4.361 (-4.879)

Age	0.245 (-0.176)	1.278 (-0.225)	0.279 -0.179	1.322 (-0.237)
Age Square	-0.00236 (-0.00204)	0.998 (-0.00204)	-0.00339* -0.00181	0.997* (-0.0018)
Religiosity	-0.583** (-0.274)	0.558** (-0.153)	0.298 (-0.258)	1.348 (-0.348)
Constant	2.292 (-12.07)	9.891 (-119.4)	11.05 (-12.32)	62,891 (-774852)
Observations	120	120	103	103

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

To understand better the effect of attitudes on economic behavior, the predicted probability is calculated. Following table shows the probability of having full-time job for women is 0.533 in average.

Predictive margins Number of obs = 120
 Model VCE : OIM
 Expression : Pr (Full-Time Employee), predict()

	Delta-method					
	Margin	Std.Err.	z	P>z	[95%Conf.	Interval]
_cons	.5333333	.0374301	14.25	0.000	.4599717	.606695

Table 16 shows the predicted probability of having a full-time job for women with different patriarchy attitudes levels. As it is shown in the table, women with weak patriarchy attitudes who disagree with the sentence, "When jobs are scarce, men should have more right to a job than women" have a higher probability of having a full-time job (0.65). The chance of being active full-time in the labor market decreases to 0.28 for women who neither agree or disagree with the sentence and reaches its minimum (0.11) for women with strong patriarchy attitudes.

Table 16 Predicted Probabilities

	Delta-method					
	Margin	Std.Err.	z	P>z	[95%Conf.	Interval]
Job Scarce						
Disagree	.6568151	.0585098	11.23	0.000	.5421381	.7714921
Neither	.2785121	.0807785	3.45	0.001	.1201891	.436835
Agree	.1081365	.0718102	1.51	0.132	-.0326088	.2488819

The following graphs display the predicted probability for different categories of patriarchy attitudes. The model predicted the most the behavior of women with low patriarchy attitudes.

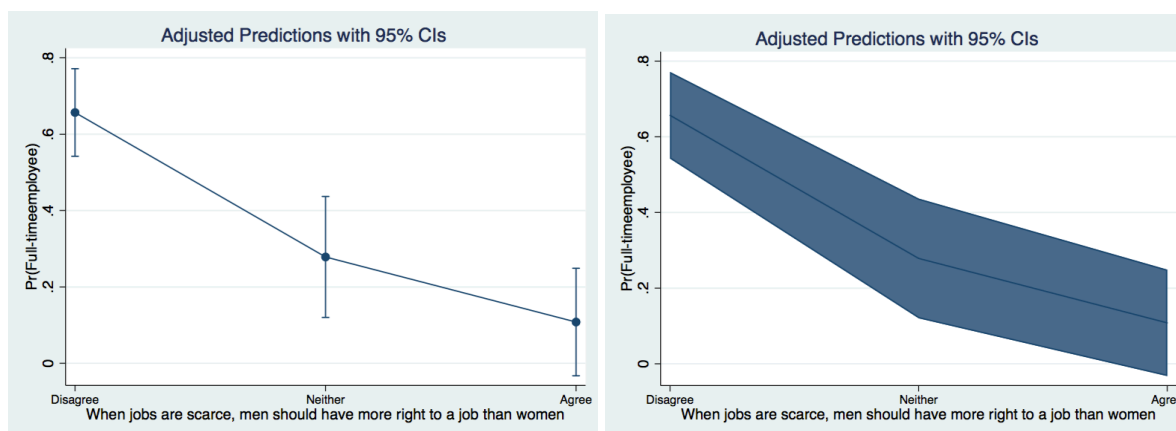
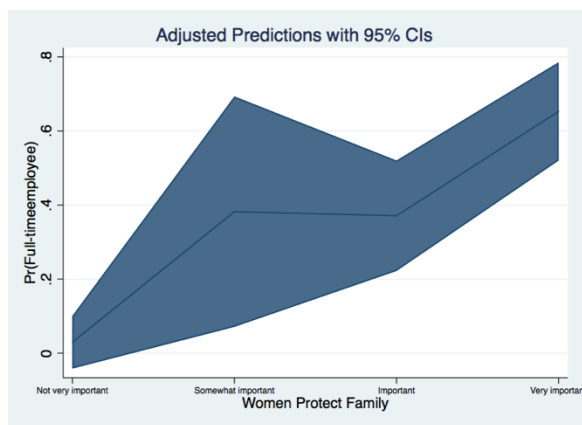
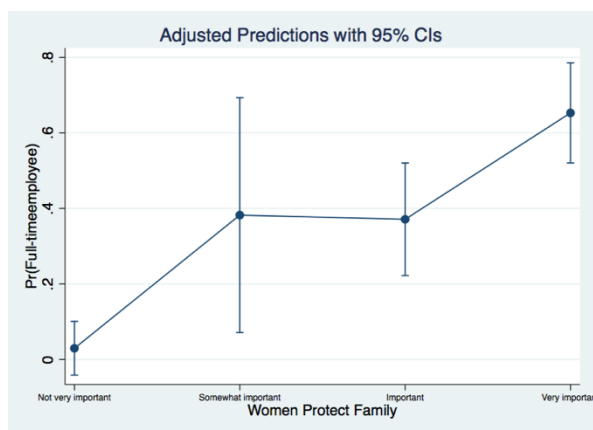


Table 17 shows the predicted probability of working full-time for women with different attitudes towards family. In this analysis, women with weak attitudes towards family have a low chance (0.03) to work full-time in the labor market. Stronger the attitudes towards family, the higher the chance is to be active full-time in the labor market. The highest chance, which is around 0.65, is for women with the strongest attitudes towards family. Results also indicate that the relationship is not linear; the difference of probability of full-time being active for women with weak attitudes and one unite stronger is about 0.35, but that is around 0.28 for other categories.

Table 17 Predicted Probabilities

	Delta-method					
	Margin	Std.Err.	z	P>z	[95%Conf.	Interval]
Women Protect Family						
Not very important	.0294179	.0362518	0.81	0.417	-.0416343	.1004701
Somewhat important	.3822774	.1587331	2.41	0.016	.0711663	.6933885
Important	.371127	.0760588	4.88	0.000	.2220545	.5201995
Very important	.6529428	.0677001	9.64	0.000	.5202531	.7856325

The following figures show the predicted probability graphically. The model does not predict well the women's market behavior in the second category of attitudes towards family.



Discussion and Conclusion

Results indicate the significant effect of cultural beliefs and personal attitudes on women's market behavior. However, the effect is different between different attitudes in this study, while patriarchy attitudes are negatively related to women's market activity, attitudes towards family show a positive effect on women's market behavior. The negative effect of patriarchy attitudes on women's market activity shows that women with strong patriarchy attitudes are less likely to be active full time in the market. This result is in line with previous studies that show that traditional beliefs negatively affect immigrant FLFP.

On the other hand, attitudes toward family show a positive impact on women's market activity. This positive effect partly can be explained by the family migration model proposed by Baker and Benjamin (1997). Based on the model, women primarily take dead-end jobs to finance their husband's human capital investments, but as husband's labor market outcomes improve, they reduce their labor supply or drop out of the market. This effect might be more visible for first-generation immigrants as they are more likely to suffer in different degrees, such as the ability to speak the host country language and the necessity of obtaining educational degrees from the host country. As it is mentioned in previous parts, compared to other nationalities, Iranian counts the newcomers to Canada. Thus, based on this explanation, for the first-generation immigrants, stronger attitudes towards the importance of family and more emphasis on the women's role as family protectors, leads to a higher likelihood of being economically active in the formal labor market.

Religiosity and the level of religious beliefs indicate a negative impact on women's full-time employment, Iranian immigrant women with higher religiosity are less likely to be to active full-time in the labor market. This finding is in line with previous studies that discovered women with stronger religious beliefs often have lower employment rates compared to women with weaker religious beliefs (Hertel and Hughes, 1987; Lehrer, 1995; Hartman and Hartman, 1996; Read, 2004).

Another essential factor with a significant effect on immigrant women's economic activity is the level of household income. The positive effect shows women with higher household incomes are more likely to participate in the labor force; an increase of one unit in household income level

results in a change of 1.889 in the log-odds of being full-time active in the labor market. Based on the literature, families with higher income and higher social status have more resources to find suitable jobs. Moreover, a woman with higher family income and higher social class is more likely to be self-employed, which is a common phenomenon, especially among Iranian women who were above average in social class and had more than household income before moving to Canada.

In contrast to the hypothesis, ethnic norms show no meaningful impact on women's economic activity. This result can be due to the fact that capturing sub-cultural belief effects is more complicated, and new variables with more accuracy are needed to detain the small variation among different ethnic groups.

As was expected, following the results, none of the variables that have a significant effect on women's market activity, show a meaningful impact on men's economic activities.

Conclusion

The thesis analyses the impact of contextual level and individual level culture on female labor force participation (FLFP) in the Middle East and North Africa (MENA) region. The primary purpose of this study is to look at FLFP from a new perspective and to investigate the effect of cultural factors on the level of labor force participation empirically. In this study, the effects of different elements on FLFP in three different geographic areas are investigated: the MENA region, Iranian belonging to different ethnicities in Iran, Iranian immigrants belonging to different ethnicities in Toronto, Canada.

Despite massive changes in development indicators such as a decrease in the fertility rate, improvement in female health issues, and an increase in female literacy rate in the MENA region, the rate of female participation in economic activities has not experienced meaningful changes over the last three decades in the region. The results from the analysis of the effects of different elements on FLFP rate in the MENA region show that, although perceived behavioral control variables such as the level of education, family status, and the level of household income have a strong association with the level of FLFP, the main reason for the low level of FLFP in MENA can be associated to the high level of women patriarchy attitudes. All countries in the MENA region have high patriarchy social norms, and that can partly explain the low level of women's market activities in the region.

Findings of the analysis of the working behavior of Iranian women belonging to different ethnicities show the meaningful effect of personal attitudes on women's economic activities. The results are significant regardless of the place of living; Iranian women in Iran and Iranian immigrant women in Toronto, Canada, have similar economic behavior based on their preferences and attitudes. The results show the significant effect of personal patriarchy attitudes on market activities; women with stronger patriarchy attitudes are less likely to participate in the labor market.

The findings of this research have policy implications. Political decisions must be built by appropriate analysis. This study provides the new platform to analyze the effects of different elements on female market activities at both the micro and macro levels. Politicians should always consider the fact that citizens' economic decisions may depend on both their context and individual preferences. To reach a desirable outcome, attention on both is necessary. The main policy implication of the findings of this study is the necessity of the existence of customized policies

according to people's preferences and their social identity. While investing in infrastructure and expanding educational facilities are very important and positively affects female market activities, but understanding differences in cultural values, beliefs, and norms are essential for reaching policy results.

Although the results of this research show no significant impact of ethnic norms on women's economic activity, this does not mean that there is no effect. The result can be due to the fact that capturing the effects of sub-cultural beliefs is more complicated; some new variables with more accuracy are needed to detain the small cultural variation among different ethnic groups. Thus, future work should develop some different indices to capture sub-cultural small differences and to expand the current findings to a more representative sample of people with various ethnic groups. Moreover, as the number of immigrants with different ethnicity and various cultural background is increasing worldwide, finding the influential factors, evaluating, and analyzing them is an inevitable task for researchers.

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Appendix A

Figure 35 Theoretical model of relations among the motivational types of value

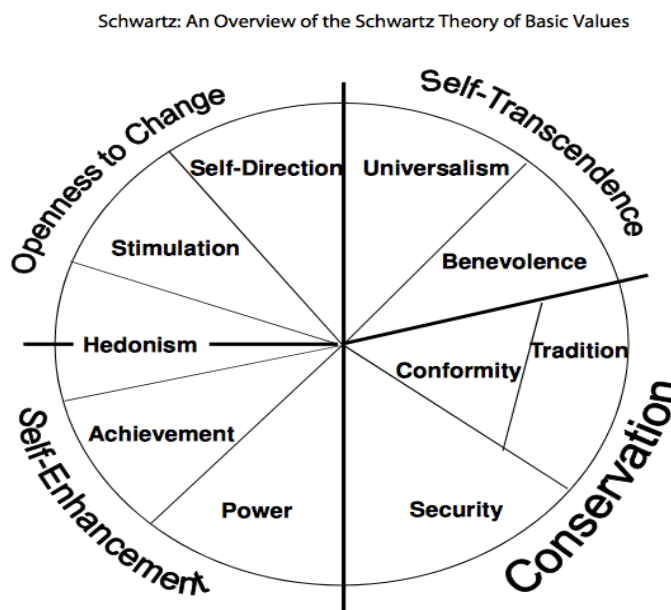
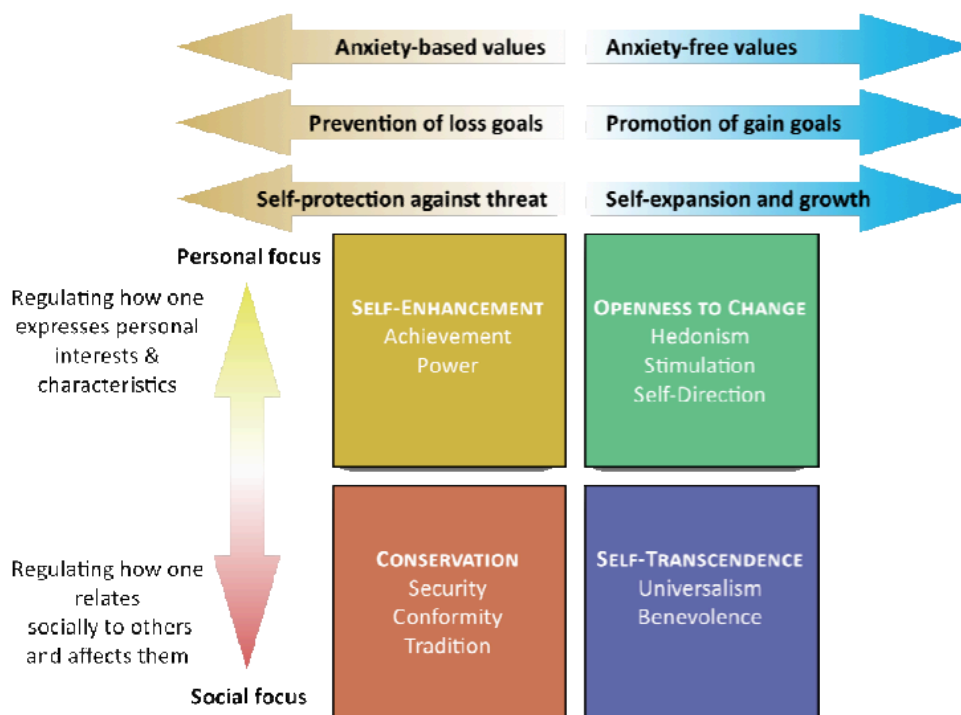


Figure 36 Dynamic underpinnings of the universal value structure



Appendix B

List of countries from WVS by the wave:

Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
Argentina	Argentina	Albania	Albania	Andorra	Algeria
Australia	Belarus	Argentina	Algeria	Argentina	Azerbaijan
Finland	Brazil	Armenia	Argentina	Australia	Argentina
Hungary	Czech Republic	Australia	Bangladesh	Brazil	Australia
Japan	Chile	Azerbaijan	Bosnia	Bulgaria	Bahrain
Mexico	China	Bangladesh	Canada	Canada	Armenia
South Africa	India	Belarus	Chile	Chile	Brazil
South Korea	Japan	Bosnia and Herzegovina	China	China	Belarus
Sweden	Mexico	Bulgaria	India	Taiwan	Chile
United States	Nigeria	Colombia	Indonesia	Colombia	China
	Poland	Croatia	Iran	Cyprus	Taiwan
	Russian Federation	Czech Republic	Iraq	Ethiopia	Colombia
	Slovakia	Chile	Israel	Finland	Cyprus
	South Africa	China	Japan	France	Ecuador
	South Korea	Dominican Republic	Jordan	Georgia	Estonia
	Spain	El Salvador	South Korea	Germany	Georgia
	Switzerland	Estonia	Kyrgyzstan	Ghana	Palestine
	Turkey	Finland	Mexico	Guatemala	Germany
		Georgia	Moldova	Hong Kong	Ghana
		Germany East	Montenegro	Hungary	Hong Kong
		Germany West	Morocco	India	India
		Great Britain	Nigeria	Indonesia	Iraq
		Hungary	Pakistan	Iran	Japan
		India	Peru	Iraq	Kazakhstan
		Japan	Philippines	Italy	Jordan
		Latvia	Puerto Rico	Japan	South Korea
		Lithuania	Saudi Arabia	Jordan	Kuwait
		Macedonia	Serbia	South Korea	Kyrgyzstan
		Mexico	Singapore	Malaysia	Lebanon
		Moldova	Viet Nam	Mali	Libya
		Montenegro	South Africa	Mexico	Malaysia
		New Zealand	Zimbabwe	Moldova	Mexico

Tesi di dottorato "Culture and Female Labor Force Participation. The Middle East and North Africa, With a Closer Look at Iran" di MALLAK SAHAR

discussa presso Università Commerciale Luigi Bocconi-Milano nell'anno 2020

La tesi è tutelata dalla normativa sul diritto d'autore (Legge 22 aprile 1941, n.633 e successive integrazioni e modifiche).

Sono comunque fatti salvi i diritti dell'università Commerciale Luigi Bocconi di riproduzione per scopi di ricerca e didattici, con citazione della fonte.

Nigeria	Spain	Morocco	Morocco
Norway	Turkey	Netherlands	Netherlands
Pakistan	Uganda	New Zealand	New Zealand
Peru	Macedonia	Norway	Nigeria
Philippines	Egypt	Peru	Pakistan
Poland	Tanzania	Poland	Peru
Puerto Rico	United States	Romania	Philippines
Romania	Venezuela	Russia	Poland
Russian Federation		Rwanda	Qatar
Serbia		Viet Nam	Romania
Slovakia		Slovenia	Russia
Slovenia		South Africa	Rwanda
South Africa		Spain	Singapore
South Korea		Sweden	Slovenia
Spain		Switzerland	South Africa
Sweden		Thailand	Zimbabwe
Switzerland		Trinidad and Tobago	Spain
Taiwan		Turkey	Sweden
Turkey		Ukraine	Thailand
Ukraine		Egypt	Trinidad and Tobago
United States		Great Britain	Tunisia
Uruguay		United States	Turkey
Venezuela		Burkina Faso	Ukraine
		Uruguay	Egypt
		Serbia and Montenegro	United States
		Zambia	Uruguay
			Uzbekistan
			Yemen

Appendix C

Table 18 Multilevel Logistic Regression - MENA

	Model 1	Model 2
Personal Attitudes		
Patriarchy Attitudes	-0.108*** (-10.81)	-0.0982*** (-8.80)
Attitudes towards Family	0.0305* (2.37)	0.0347** (2.65)
Subjective Norms		
Patriarchy Social Norms	-0.0782 (-0.74)	-0.111 (-1.09)
Social Norms towards Family	-0.0585 (-0.53)	-0.0763 (-0.72)
Age	0.148*** (11.87)	0.149*** (11.95)
Age square	-0.00167*** (-10.62)	-0.00168*** (-10.70)
Religiosity	-0.0997*** (-7.48)	-0.0997*** (-7.42)
Religious Denomination (Ref. No Religious Denomination)		
Buddhism	-0.0997 (-1.21)	-0.0962 (-1.17)
Christian	-0.0262 (-0.22)	-0.0387 (-0.33)
Evangelical	-0.0406 (-0.46)	-0.0423 (-0.48)
Hindu	-0.552*** (-4.80)	-0.554*** (-4.82)
Jew	-0.230 (-1.17)	-0.225 (-1.15)
Muslim	-0.485*** (-7.53)	-0.493*** (-7.64)
Orthodox	0.131 (1.72)	0.130 (1.71)
Protestan	0.0945 (1.50)	0.0926 (1.47)
Roman Catholic	0.00705 (0.14)	0.00898 (0.18)
Other	0.230*** (3.40)	0.224*** (3.31)

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Perceived Behavioral Control

Micro Level

Education (Ref. No formal education)		
Incomplete elementary education	-0.125*	-0.158**
	(-2.06)	(-2.58)
Completed (Compulsory) elementary education	-0.190***	-0.229***
	(-3.87)	(-4.59)
Incomplete secondary: Technical school	-0.183***	-0.225***
	(-3.37)	(-4.08)
Complete secondary: Technical school	0.00975	-0.0230
	(0.24)	(-0.56)
Incomplete secondary: Uni-prep school	-0.471***	-0.499***
	(-9.35)	(-9.84)
Complete secondary: Uni-prep school	-0.444***	-0.461***
	(-11.45)	(-11.85)
Some university without degree	-0.222***	-0.229***
	(-3.81)	(-3.94)
Marital Status		
(Ref. Single/Never married)		
Divorced/Separated/Widowed	-0.519***	-0.514***
	(-8.11)	(-8.01)
Married/Living together as married	-1.488***	-1.486***
	(-28.56)	(-28.50)
Number of Children		
(Ref. No Child)		
1 Child	-0.487***	-0.492***
	(-9.89)	(-9.98)
2 Children	-0.632***	-0.641***
	(-13.29)	(-13.46)
3 Children	-0.706***	-0.715***
	(-13.83)	(-13.99)
4 or more Children	-0.882***	-0.888***
	(-16.71)	(-16.80)
Household Income Scale		
(Ref. Lowest level)		
Average level	0.0606*	0.0628*
	(2.27)	(2.34)
High level	0.220***	0.224***
	(5.19)	(5.29)
Macro Level		
Discrimination Laws		
Divorce laws	-0.252	-0.489

	(-0.54)	(-1.07)
Inheritance laws	0.689	0.612
	(1.45)	(1.34)
Parental Authority laws	-1.022*	-1.146*
	(-2.00)	(-2.33)
GDP per Capita	-0.00000190	-0.0000335*
	(-0.20)	(-2.32)
Proven Crude Oil Reserves (Billi)	-0.00000502	-0.00000567
	(-0.16)	(-0.19)
MENA	-0.135	0.0862
	(-0.30)	(0.20)
Patriarchy Attitudes#Education		0.0175***
		(4.47)
Attitudes towards Family#Education		0.0101*
		(1.98)
Attitudes towards Family#Household income scale		-0.0154
		(-0.80)
Patriarchy Social Norms#GDP per Capita		-0.0000155**
		(-2.66)
Social Norms towrads Family##GDP per Capita		-0.000000748
		(-0.09)
Wave control	Yes	Yes
Country Weight	Yes	Yes
Constant	0.0439	-0.215
	(0.16)	(-0.73)
Random-effects	-0.0950	-0.143
_cons	(-1.17)	(-1.77)
N	54591	54591

t statistics in parentheses

* p<0.05

Appendix D

Table 19 Total Fertility rate, Iran, Province

Province Year	2001	2006	2008	2009	2010	2011
<i>Total</i>	1.97	1.8	1.98	2.02	2	1.8
East Azarbayejan	1.97	1.8	1.9	1.9	1.9	1.7
West Azarbayejan	2.32	2.0	2.23	2.2	2.2	2.0
Ardebil	1.88	1.7	1.76	1.7	1.7	1.8
Esfahan	3.07	1.6	3.14	1.5	1.6	1.5
Alborz	-	1.5	-	-	1.4	1.4
Ilam	1.69	1.9	1.69	1.6	1.6	1.7
Bushehr	2.14	2.3	2.2	2.1	2.2	2.1
Tehran	3.99	1.4	3.93	1.4	1.4	1.4
Chaharmahal & Bakhtiari	2.16	2.1	2.27	2.4	2.2	2.0
South Khorasan	2.49	2.6	2.27	2.2	2.3	2.5
Khorasan-e-Razavi	6.44	2.1	6.39	2	2	2.0
North Khorasan	0	2.2	2.25	2.3	2.2	2.2
Khuzestan	2.58	2.2	2.44	2.5	2.2	2.1
Zanjan	1.91	1.9	2	1.9	1.9	1.8
Semnan	3.38	1.7	3.26	1.6	1.7	1.6
Sistan & Baluchestan	7.14	4.1	6.88	3.7	3.6	3.6
Fars	5.48	1.8	5.03	1.8	1.9	1.6
Qazvin	1.66	1.8	1.65	1.6	1.6	1.6
Qom	1.77	1.9	1.86	1.7	1.9	1.9
Kordestan	1.96	1.9	1.84	1.8	1.8	1.8
Kerman	4.12	2.4	4.02	1.9	1.9	2.1
Kermanshah	1.78	1.8	1.65	1.7	1.7	1.6
Kohgiluyeh & Boyerahmad	2.26	2.3	2.25	2.2	2.1	2.2
Golestan	1.97	2.1	2.19	2.2	2.2	2.0
Gilan	1.43	1.4	1.26	1.2	1.2	1.3
Lorestan	1.92	1.9	1.89	1.2	1.2	1.8
Mazandaran	2.77	1.4	2.81	2	1.9	1.4
Markazi	1.4	1.7	1.48	1.5	1.5	1.6
Hormozgan	2.84	2.5	2.54	2.5	2.6	2.4
Hamedan	1.9	1.7	1.86	1.9	1.9	1.6
Yazd	1.94	2.0	1.96	1.9	2	2.1

Source: Statistical Centre of Iran

Appendix E

Principal Component Analysis (PCA)

In order to measure attitudes and to make an index, PCA is used. PCA is a mathematical technique for “extracting those few orthogonal linear combinations of the variables that capture the common information most successfully” (Flimer and Lant 2001). It can be said that “from an initial set of n correlated variables, PCA creates uncorrelated indices or components where each component is a linear weighted combination of the initial variables” (Vyas and Kumaranayake 2006).

One generally used criteria to find the number of principle components that hold the significant amount of variances in the data set, to reflect a large amount of the information contained in the original data set, is the eigenvalue on criterion (Hatcher 1994). Based on this criterion, any principal component with a corresponding eigenvalue more than one, have to be chosen.

Chapter 2 – the World and MENA Region

Country Level:

Attitudes towards Family:

Principal components/correlation Number of obs = 340,072

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	1.29512	.590232	0.6476	0.6476
Comp2	.704884	.	0.3524	1.0000

Principal components (eigenvectors)

Variable	Comp1	Comp2	Unexplained
Country Family is important	0.7071	0.7071	0
Country Make Parents Proud	0.7071	-0.7071	0

Patriarchy Index:

Principal components/correlation Number of obs = 340,072

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	2.64704	2.4061	0.8823	0.8823
Comp2	.240935	.128906	0.0803	0.9627
Comp3	.112029	.	0.0373	1.0000

Principal components (eigenvectors)

Variable	Comp1	Comp2	Comp3	Unexplained
Job Scarce (Country level)	0.5793	-0.5377	0.6126	0
Men are better political leaders (Country level)	0.5893	-0.2430	-0.7705	0
University is more important for boys (Country level)	0.5631	0.8074	0.1761	0

Individual Level:

Patriarchy Index:

Principal components/correlation Number of obs = 98,007

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	1.64095	.907662	0.5470	0.5470
Comp2	.733293	.10754	0.2444	0.7914
Comp3	.625753	.	0.2086	1.0000

Principal components (eigenvectors)

Variable	Comp1	Comp2	Comp3	Unexplained
Job Scarce	0.5722	-0.6238	0.5324	0
Men are better political leaders	0.6060	-0.1159	-0.7870	0
University is more important for boys	0.5526	0.7730	0.3117	0

Attitudes towards Family:

Principal components/correlation Number of obs = 95,386

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	1.10744	.214884	0.5537	0.5537
Comp2	.892558	.	0.4463	1.0000

Principal components (eigenvectors)

Variable	Comp1	Comp2	Unexplained
Family is Important	0.7071	0.7071	0
Make Parents Proud	0.7071	-0.7071	0

Religiosity index:

Principal components/correlation Number of obs = 100,259

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	2.04837	1.44619	0.6828	0.6828
Comp2	.602173	.252711	0.2007	0.8835
Comp3	.349462	.	0.1165	1.0000

Principal components (eigenvectors)

Variable	Comp1	Comp2	Comp3	Unexplained
Religious Person	0.5260	0.8451	0.0956	0
God is Important	0.6082	-0.2952	-0.7368	0
Religion is Important	0.5944	-0.4457	0.6693	0

Chapter 3 - IranEthnic Level

Patriarchy index:

Principal components/correlation Number of obs = 4,999

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	1.86935	1.73871	0.9347	0.9347
Comp2	.130647	.	0.0653	1.0000

Principal components (eigenvectors)

Variable	Comp1	Comp2	Unexplained
Men are better political leaders (Ethnic level)	0.7071	0.7071	0
Job Scarce (Ethnic level)	0.7071	-0.7071	0

Individual level

Principal components/correlation Number of obs = 2,395

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	1.28606	.572124	0.6430	0.6430
Comp2	.713938	.	0.3570	1.0000

Principal components (eigenvectors)

Variable	Comp1	Comp2	Unexplained
Job Scarce New	0.7071	0.7071	0
Men are better political leaders	0.7071	-0.7071	0

Religiosity index:

Principal components/correlation Number of obs = 2,281

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	1.32033	.433559	0.4401	0.4401
Comp2	.886772	.0938741	0.2956	0.7357
Comp3	.792898	.	0.2643	1.0000

Principal components (eigenvectors)

Variable	Comp1	Comp2	Comp3	Unexplained
God Important	0.5373	0.7642	0.3567	0
Religion Important	0.6258	-0.0777	-0.7761	0
Religious Person	0.5654	-0.6403	0.5200	0

Appendix F

Chapter 4

To get an idea that how good the model could predict the market behavior of women, the following test is done, which show the correspondence between observed group membership and group membership that is predicted based on the model.

Logistic Goodness-of-fit:

Classified	True		Total
	D	~D	
+	49	19	68
-	15	37	52
Total	64	56	120

Classified + if predicted $\text{Pr}(D) \geq .5$
 True D defined as FullTimeEmployee != 0

Sensitivity	Pr(+ D)	76.56%
Specificity	Pr(- ~D)	66.07%
Positive predictive value	Pr(D +)	72.06%
Negative predictive value	Pr(~D -)	71.15%
False + rate for true ~D	Pr(+ ~D)	33.93%
False - rate for true D	Pr(- D)	23.44%
False + rate for classified +	Pr(~D +)	27.94%
False - rate for classified -	Pr(D -)	28.85%
Correctly classified		71.67%

Results show that from 64 women that are observed to fall into full-time working group, 49 women are predicted correctly, so the accuracy of the group is 76.56%. by looking at individuals who do not work full-time, the model predicted 37 out of 56 correctly, so the accuracy of this group is 66.07%. thus, the overall accuracy is about 71.67% that is acceptable.