

Fertility and female labor supply in Saudi Arabia: The case of Jeddah Western Region

Halah Essam Alattas
Department of Economics
King Abdulaziz University, Saudi Arabia

Keywords

Labor Supply, Labor Force, Fertility, Logistic regression

Abstract

Objective: Over a period of fifty years, the ratio of female participation in the labor force of Saudi Arabia is extremely low. This exposition is an effort to examine the affiliation among female fertility and labor supply in the Kingdom of Saudi Arabia. **Methods:** The data for this research was gathered through a questionnaire circulated between the employed and unemployed females in Jeddah; situated in the western region. **Results:** By implementing the binary logistic deterioration, factors which were related to fertility did not illustrate numerical implication on the likelihood of females taking part in the labor market. However, factors which were associated with, education, husbands' income, age and family income had major considerable impact on female taking part in the Saudi labor market. **Conclusion:** It has been concluded that there is higher affiliation present between fertility and female labor supply.

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1. Introduction

Female participation in the labor market plays a key role in economic development. The Kingdom of Saudi Arabia (SA), as a developing economy, relies mainly on men rather than women to achieve its development objectives. In fact, Saudi females represent only 20% of the total workforce (Survey, 2012). The Kingdom of Saudi Arabia usually plays an important role at the global level because of having the largest oil reserves in the world. Oil revenues and petrochemical exports are the dominant part of the economy. However, Saudi Arabia does not have sufficient micro level data that are capable to reveal microeconomic reality. For instance, this study has been faced with number of limitations in the data needed such as; number of children per woman, children ages, children gender, cost of baby-sitting and cost of nursery. Accordingly, the main contribution of this study is the survey conducted by the author to ask specific questions to employed and unemployed female who are married, divorced or widower. The survey covers questions related to personal characteristics, income questions, and fertility (children) questions. The study has employed the logistic regression model, in which the dependent variable is the female labor supply in the labor market. The results have shown that factors related to fertility do not show statistical significance on the odds of females participating in the labor market (Al Omran, 2010).

It is also a fact that the participation of female individuals in labour market is a significant indicator of female's empowerment and status in Arab society. It should be increased in Saudi Arab for better economic future. It has been observed in last few decades that Saudi Arabia along with other middle eastern countries have focused on female education in order to reduce illiteracy from Arab world (Patterson, K., 2013). On the contrary, previous data from different surveys on female employment in Saudi Arab illustrated that the rate of women

workers was lesser than men labor due to ignorance of women in employment quota (Qureshi, R., 2014, pp. 144-155). Lack of female education is not the only barrier for low extent of women labor in Saudi market, but also there are some other factors that influence women's economic participation such as huge segmentation and discrepancy in labor markets, and traditional or cultural values of the people of Saudi Arab. So, it is needed to review policies and strategies regarding female participation in labor market of Saudi Arab.

There are many reasons for low fertility rate of women in Saudi Arab such as late marriages, increased rate of abortion, and higher cost of living. These factors affect negatively on the fertility rate of women. Apart from that, some complications have been found in Saudi women concerning infertility. These complications include unhealthy food, high blood pressure, unsuitable environment, obesity and smoking (Alfarraj, D.A., Somily, A.M., Alssum, R.M., et al, 2015). As a result, infertility rate in Saudi women gradually increases that impact pessimistically on Saudi population.

2. Saudi Labor Market Characteristics

Major uniqueness of market in Saudi labor is that the level of youth participation is very high and their age ranges between 25 to 29 and 30 to 34 years old as it is illustrated in Figure 1.

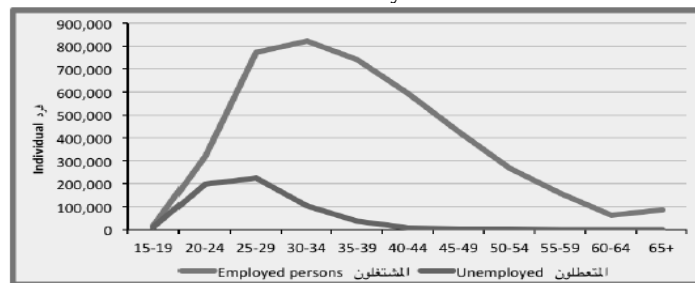


Figure 1: Saudi labor force by age groups

* Source: (survey, 2012) Cdi1s.gov.sa

Secondly, number of emigrant workers in Saudi labor especially in the private sector is very high; however in private sectors, 90% of workers are non Saudis. Rationale behind this aspect is that Saudi government permits low-priced employment visas, which lead to a great flood of overseas workers. Figure 2 depicts emigrant workers, who were symbolized for approximately 55% of the total labor market in 2012 year. This condition led to a general dejection in the standard level of earnings and efficiency.

Thirdly, the rate of idleness in Saudi Arabia is getting increased among the youngsters of age (15-29 years) within the population, which has a considerable effect on the economic and social country hazard.

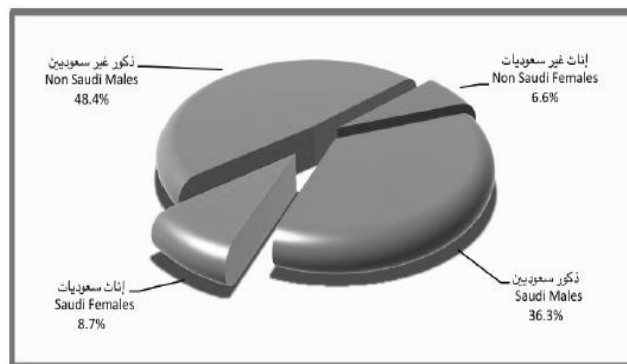


Figure 2: Distribution of Saudis and non-Saudis population in labor force by sex

* Source: (survey, 2012) Cdi1s.gov.sa

Fakeeh (2009) and Al Omran (2010) shared the identical analysis regarding the market of Saudi labor. It has been evaluated by both studies that a significant ratio of unemployed population is related to the age group of 20-25 years among male population and 25-29 years among female population (Figure 3). Furthermore, job seekers, as a fresher, are more expected to acquire jobs, which require low-level skill set. Such jobs are usually filled by foreigners, who are mostly hired at lower salary range. This strong rivalry between foreigners and local is not sheltered by the policies of the government yet.

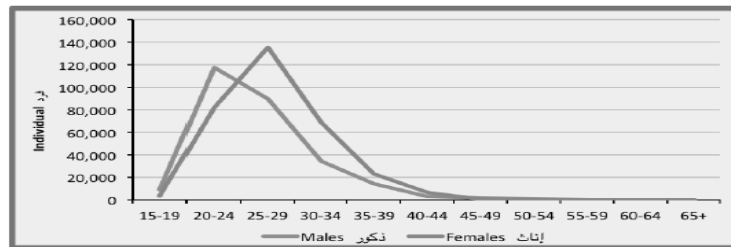


Figure 3: Saudis unemployed by age groups

*Source: (survey, 2012) cdiss.gov.sa

Another major exceptional feature, related to the market of Saudi labor, is the less involvement of female workers in the labor force. It has been evaluated that there is only 12% rate of female involvement within a labor force. This rate, in contrast to further countries such as OECD, is extremely low (Figure 4). This aspect, inexpensively, would damage the labor force as whole (Ministry of labor of the kingdom of Saudi Arabia, 2009).

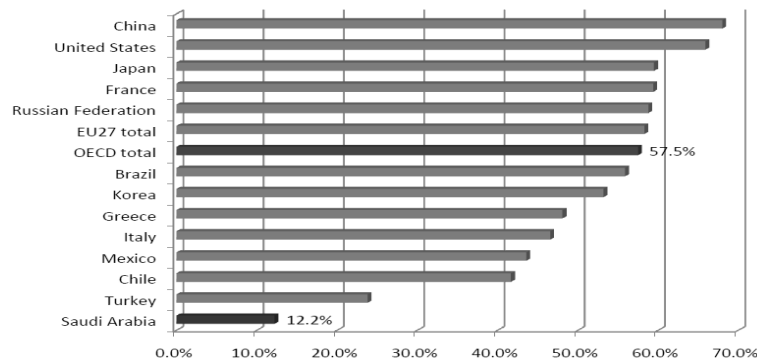


Figure 4: Percentage of Female participation rate in the Saudi labor market

*Source: Alomran, 2010

2.1 Female Employment and Unemployment in the Labor Market

According to the survey of Saudi labor force, unemployment is considered as "The share of the labor force that is without work but available for and seeking employment". Similarly, the contribution rate is usually identified as "The proportion of the population ages 15 and older that is economically active: all people who supply labor for the production of goods and services during a specified period"

It has been further evaluated that the population of Saudi Arabia is comprised of 45% of the female individuals with the literacy rate of 79%. However, female population merely represented only 12% of the labor force during 2006 and 2009. On the contrary, the representation of male individuals accounts for 61% of the total labor force. As it is reflected in Figure 5, the standard rate of unemployment continued to be steady during 2000 to 2009; rate of female unemployment improved from about 18%, which was calculated in 2000 to 28% in 2009. However, these figures involved a decreased percentage of employment to inhabitants.

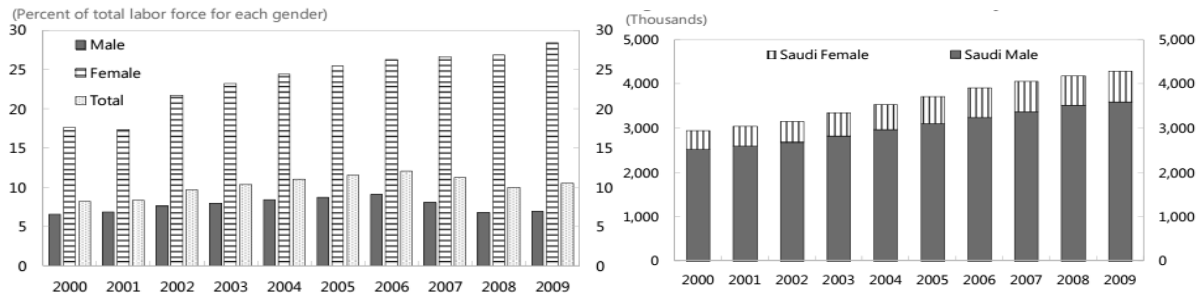


Figure 5: Unemployment Rates for Saudi Nationals Aged 15+ by Gender, 2000-09

* Source: (Ghada Fayad, 2012)

It is an alarming situation for the government of Saudi Arab. The significance of women is crucial in every walk of life. Specifically in Arab world including Saudi Arab, it is necessary for the ministry of labour to make their efforts in order to minimize the huge difference between male and female labor participation.

2.2 Obstacles Faced by Females in the Labor Market

Females in Saudi Arab have been facing obstacles in labor market for many years. These issues are related to lack of opportunities for females, intolerant behaviour of males, ineffective political system, and supremacy of males. On the other hand, business women of Saudi Arab are more educated and competent as compared to men. In Addition, they are playing a vibrant role in the development of economy (Welsh, D.H., et al. 2014, pp. 758-762). Al-Dehailan (2007) has mentioned about the aspects that lead to be deficient in the contribution of Saudi women in the work force along with their consequences on the economic and social factors. The study proved that the shortage of female involvement is one of the major distinctiveness in Saudi labor market that critically influences the structure of labor market. In order to conduct this study, questionnaires were circulated among unemployed and employed women in Saudi during the era of Feb-Jun 2004. Study recommended that peoples' approach in the direction of working women should alter since the religion of Islam never barred women from taking part in the work force. Furthermore, policies of government should be concentrated to alleviate barriers by giving facilities that help out women to be engaged more in the market of labor (Figure 6).

In a review conducted by Porteous, et al. (2010), it has been evaluated that the complications tackled by the females of Saudi Arabia from the perspective of employer, can be put into a form of group in regards of three dissimilar types. First, complexities tackled by women during the course of job/work. Second, complexities faced because of the social outlooks. Thirdly, difficulties faced by female labor work force because of their physical status.

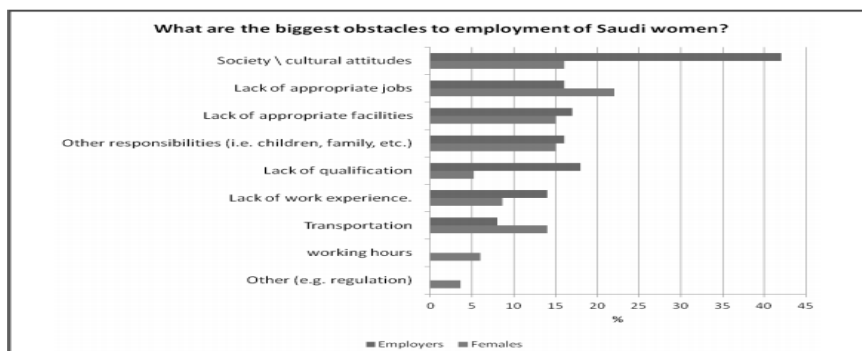


Figure 6: What are the biggest obstacles to employment of Saudi women?

*Source: (Scott-Jackson et al., 2010)

According to 42% of employers, societal or cultural attributes are major obstacles, which are faced by female individuals; however, 22% of female chose “lack of appropriate job” as the most contributing factor. Additional findings of the study indicated that a large number of female individuals (around 73%) favored to work in a “female only place of work” rather than to work in diverse environments. Majority of females showed their wish to work in flexible conduct, such as to work as a part-time employee in order to create a balance between work life and family (Khraif, 2001).

2.3 Female Work and Fertility

It is obvious that pregnant women face difficulties while working in organization. These women are concerned with their occupation in order to get money and support family. There is a strong relationship between female worker and fertility rate particularly in case of Jeddah, Saudi Arab (Upadhyay, U.D., Gipson, J.D., Withers, M., et al, 2014, pp.111-120). It has been evaluated that there is a decline in female fertility rate from 3.46 during the year 2006 to 3.03 during 2012 (table 1). Involvement of females in the work force is extensively growing from 12.7 to 14.6 during the similar years. Khraif (2001) has observed the most significant features that concluded the productivity and fertility level among Saudi women. As a whole, study has found an overall decrease in the productivity and fertility rate in women of Saudi Arabia. This is because of the Islamic religion that it does not permit sexual relationships before getting married. The level of education is considered to be the second most significant factor that has a strong impact on fertility, in which the raise in educational level relatively decreases the rate of fertility, considerably. Shockingly, the study has revealed no major consequence of fertility on female work force contribution. For instance, a female is usually allowed to take 2 months complete salaried maternity leave when she gives birth and also the accessibility of concern to child by either comprehensive family or a nanny.

Year	Female participation in the labor force	Total Fertility Rate	Mean age of child bearing
2006	12.7	3.46	29.5
2007	14.0	3.39	29.4
2008	12.8	3.31	29.3
2009	11.8	3.24	29.2
2010	12.2	3.17	29.2
2011	12.8	3.1	29.1
2012	14.6	3.03	29

Table 1: Fertility and female participation rates in the Saudi labor force

*Source: compiled by the author from different surveys in cdic.gov.sa

Factors related to culture play a vital role in increasing the participation rate during the year of 2006. It has been evaluated that the rate was increased from 12% to 16% during 2012 (Cornelius Fleischhaker, 2013). Majority of factors have been witnessed as the associated factor with the decline rate of fertility. However, participation in labor workforce in Saudi Arabia stayed at lower rate when they were compared with emerging groups in different countries (Figure 7).

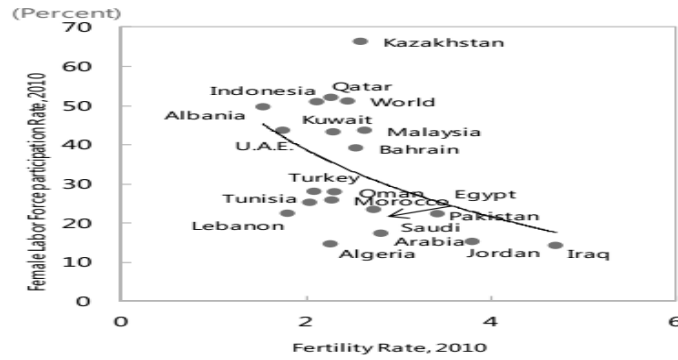


Figure 7: Fertility rates and female labor force participation among emerging countries
*IMF report, 2013

2.4 Females and Education

Saudi Arabia has introduced plans to improve the access towards advance education for the females. In the consideration to this, “The Princess Noura bint Abdul Rahman University” for women has been established by the government, which is planned to develop into the world’s biggest center of advanced education for females (Ministry of Higher Education, 2010)

Furthermore, scholarship program for women was also introduced, which is known as the King Abdullah Foreign scholarship program. This scholarship program allowed Saudi students to go abroad for studies in the world’s best universities for attaining Bachelors, Master, and Doctorate degrees along with medical fellowship. These educational disciplines have been selected depending on the economic necessities of private and government sector. Moreover, this program is also maintained to execute the labor needs of the market within regions of Saudi as well as industrial cities. Objective of the program is to target competent Saudi youngsters to take play vital role in all developmental fields of the country.

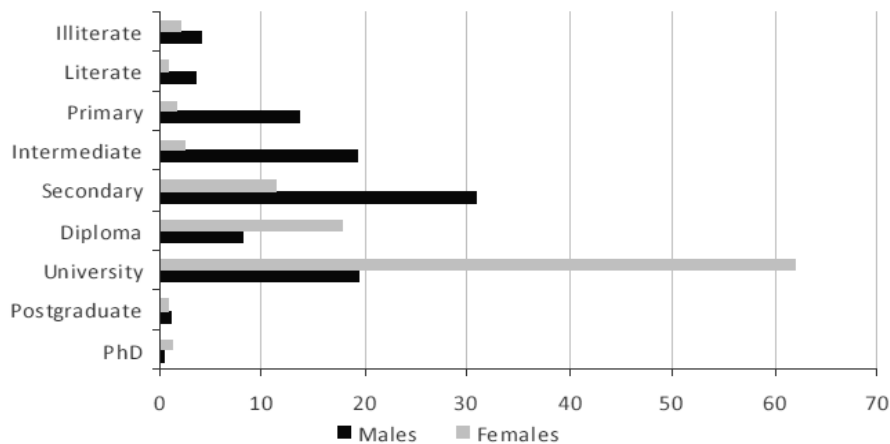


Figure 8: Distribution of Saudi labor force by education level in 2008 (%)
*Source: (Al-masah, 2010)

Regardless of the fact to facilitate women, the contribution of female labor in Saudi Arabia is extremely low. However, progression of females in obtaining higher degrees in education is greater than males. This difference can be seen clearly in the above Figure 8. Females who are employed; 93% of them have university degree or a secondary extent in contrast to 60% of men who are working. However, high level learning of females is not finely depicted on the economic activities of Saudi Arabia. Reason behind this aspect is that the Saudi

female individuals are restricted in their role within the economy and extremely intense (85.8%) in the segment of education specifically administration and training (Al-masah, 2010).

3. Methodology and survey design

This research has been done through the questionnaires, which were distributed among the participants in order to obtain the primary data. Questionnaire has been reevaluated and revised by different experts, and they converted it into Arabic for the ease of local population. Both type of questions were included in the questionnaire, close ended as well as the open ended. Open ended questions were included to give participants a free hand in expressing their thoughts.

Target audience of this questionnaire was the females who were employed and unemployed. There were 37 different sections, which covered 3 dissimilar primary sections. These sections were marital status, educational qualification, status of employment and age. Unemployed females were asked questions related to the reasons of unemployment. Second section consisted of the questions related to the income of husband, and some questions related to the measurement of luxury life such as: cars, drivers and housekeepers. Third and the last section consisted of the set of questions, which were asked about the fertility troubles. There were few more questions which asked about the children under the age of 3 and their nursery cost as well.

3.1 Sample Size and Location

Sample of this study covered the jobless females who were divorced, married, or widowed within the circumstances of Mecca specifically in the Jeddah city situated in the western part of Saudi Arabia. It can be understood that the sample was a true representation Saudi population as a whole, since Saudi, agreed, and is moderately homogenous in conditions of religion, language, ethnicity and societal affiliation (Al-Dehailan, 2007). Consequently, segment of the population relativity symbolized the population as a whole. Distribution of the survey has been done on private and public institutions, such as: Labor Office, Etisal International Co., the Faculty of Economics and Administration plus the Science Faculty at King Abdul-Aziz University in Jeddah, The survey has been dispersed mutually in private and public institutions, such as: the Labor Office, Alahli Bank and Etisal International Co. Questionnaire was also posted on Twitter and Facebook pages with some strict requirements which have to followed in order to fill the questionnaire.

3.2 Model specification

The study has employed a model of binary choice in which two values of variables exist. One is for the female unemployment and other is for the female employment. Most popular tool to measure the relationship between the categorical independent and dependent variable was Logistic Regression. This model can be characterized in two different sets: multinomial or binominal logistic regression. Study follows logit model because the dependent variable takes two values either 0 or 1 (employment status).

3.3 Data analysis

This study has implemented SPSS software in order to analyze the data, which was collected through the questionnaires. Most significant relationship between variables has been presented by using two approaches that is, chi square and cross-tabulation. As it is mentioned in the table 2 below, total respondents were 768 out of which 402 females are unemployed and remaining 366 are employed.

	Frequency	Percent	Valid Percent	Cumulative Percent
Employed	366	47.5	47.7	47.7
Valid not employed	402	52.2	52.3	100.0
Total Missing System Total	768	99.7	100.0	
	2	.3		
	770	100.0		

Table 2: Frequency of Employment Status

3. Results

According to the analysis of data, three variables were responsible to increase the factor of unemployment in Saudi female, which mainly include younger children, income of husband, and marital status. Now these three variables reflected that divorced or widowed females, who have a less chance to be employed, are less likely to be employed. Moreover, those females, who have effective salary, are less likely to be employed as well. Females who have child of less than three of age have also a less chance to be employed.

	B	S.E.	Wald	Df	Sig.	Exp(B)
Step1 ^a Age*	-.223	.078	8.160	1	.004	.800
Marital	.134	.264	.257	1	.612	1.143
Education qualification*	-.463	.112	17.121	1	.000	.629
No of cars car driver(1)	-.019	.129	.022	1	.883	.981
housekeepers(1)	-.241	.269	.797	1	.372	.786
Husband income*	-.553	.252	4.823	1	.028	.575
Family income*	.584	.097	36.294	1	.000	1.793
Resident status	-.624	.069	82.190	1	.000	.536
Infertility problems(1)	-.560	.242	5.358	1	.021	.571
Birth control live with parents(1)	-.084	.369	.051	1	.821	.920
children(1)	-.507	.245	4.264	1	.039	.603
children below3years	-.211	.238	.786	1	.375	.810
Constant	-.094	.346	.075	1	.785	.910
	.073	.276	.069	1	.793	1.075
	6.408	1.131	32.109	1	.000	606.657

Table 3: Variables in the Equation

This can be written as:

Logit (P) = 6.4 -.223Age+.134Marital-.46edu-.019nocar - .241cardriver-.553h.k+.584 H.income-.624 F.income - .560R.type - .084I.problem -.507 B.C - .211livpar- .094children + .073 childrenbelow3.

This analysis needs to be contextualized in terms of the form the data was coded. The dependent variable was coded as 1: employed; 2: not employed. According to the results, older women have a greater chance to be employed as compared to young women. For each added year, the probability of unemployment among female is 0.8, and as a result of that probability of grown-up women to employed increases. Related outcomes are acquired for the education of the person. Seven different degrees were used to code this variable. According to the results of this variable women who are educated more are less unwaged. The coefficient proposes that the

alteration of a women being unwaged with an added degree is 60% of the possibility of being jobless with the preceding degree.

Cars, which were mentioned by the individuals, also caused a negative impact on the possibility of unemployment. Each additional car, which is owned by the female, decreased the unemployment rate around 1.9%. This variable not only illustrated a minor impact on the chance unemployment; but, it is also not statistically significant. Women who have housekeepers also cause a negative impact on probability of unemployment and it is as lower as 55.3%.

On the other hand, females who have husbands with a higher salary are less likely to be employed. According to the results, addition of every unit in the husband's salary chances of not participating in the labor force increases around 1.8 units. However, the income of the family has a contrary impact on the contribution in the work force for each added financial element in the wages of the family decreases the chance of employment around 62%. Residential status also causes an impact on the unemployment of females. Those females who live in rented houses have a greater chance to employ.

Primary objective of this research is to assess the problems related to fertility, which becomes barrier in the labor market participation. According to the results, females with infertility problems have a less probability to be unemployed and their probability of being unwaged is 0.92 greater as compared to those whose are employed. In a comparable approach the utilization of methods related birth control also appears to have an effect on the lessening of the odds of being unwaged. Those females who are using the methods of birth control has a minimum chance to be engaged in any sort of work, i.e. such females have 0.603 times fewer chance to be employed.

Women who live with their parents are 0.81 times less possible to be employed. This proved that females, who are with their families, are more jobless than employed but no statistical implication has been identified. Women, who don't have any children, have 0.91 times less chance to be employed. However, this variable displayed no implication statistically. Similarly, those women who have child whose age is less than 3 years are 1.075 times more unemployed than other women.

In spite of the outcomes illustrated in Table9, few variables unable to show their importance significantly on the probability of participation of females in a labor market. This case is related to the number of cars; marital status; the presence of infertility troubles; the actuality that the women have a driver; the actuality that the female has children of less than 3 years; if the women is living with her parents live with the parents.

4.1 Presentation and Interpretation of Empirical Results

Logistic regression model made it possible to understand the involvement of several variables to one dichotomous dependent variable. Dependent variable in this case was women involvement in labor market.

Model Summary	-2Loglikelihood	Cox&SnellRSquare	Nagelkerke R Square
Model Summary	565.346 ^a	.354	.473

Table 4: Model Summary

* Source: logistic regression output from SPSS

With respect to clarification supremacy of the selected model, some vital information has been displayed by the Table 5. Information related to R2 analysis has been supplied by the table. According to this table 35.4% of the difference in the participation in labor market by females has been clarified. Moreover, the statistics provided by the Nagelkerke R Square proved that there is an existence of relationship between the prediction and the predictors of around 47.3%.

Step	Chi-square	Df	Sig.
1	13.898	8	.084

Table 5: Hosmer and Lemeshow Test

* Source: logistic regression output from SPSS

Hosmer and Lemeshow Test (HL) also proved that this model is perfect for this study. Significance of 8.4% was shown by this test as it is mentioned in Table 11. This information proves that there is no statistical importance. However, it is imperfect but still comes out to be fine fit.

5. Discussion

Findings, which are related to the problems of infertility in women, does not illustrated any statistical significance between the variables such as having children who are below 3 years of age and fertility in female. Khraif (2001) has also identified a major impact of fertility on the supply of labor. This might be credited to numerous features. First, housekeepers are appointed by the females of Saudi Arabia to help them in the execution of their routine tasks related to home. Furthermore, the facilitation of female works in several factors by Saudi labor law. For example, according to Labor (2005), "A female worker shall be entitled to a maternity leave for the four weeks immediately preceding the expected date of delivery and the subsequent six weeks"; also, "When a female worker returns to work following a maternity leave, she shall be entitled, in addition to the rest periods granted to all workers, to a rest period or periods not exceeding in aggregate one hour a day for nursing her infant". Entire these aspects would assist work of female work if they don't have children.

6. Conclusion

This study has investigated the connection between female labor supply in Saudi Arabia and fertility within a region of Jeddah. This has been done to go after the review of the literature among delegated countries. There was a lack of data from the perspective of Saudi workforce; therefore, the questionnaire was made and spread among the participants to collect the data which is required. Binary Logistic Regression model has been applied; in which supply of female labor in the market has been selected as the dependent variable. Hence, the value of dependent variable has been divided into employed and unemployed population. The outcomes, yet, point out that aspects connected to fertility, such as: troubles connected to fertility, to have children of fewer than 3 years age and to have children simply. There was no numerical significance on the probability of participation in regards of females in the labor market. On the side, factors which were associated to education requirement, husband's income and family income age have the major impact on the participation of female labor market. After analyzing the causes of infertility and low female participation in labor market of Saudi Arab, it has concluded that women should have to play their role in building economy. The significance of women in labor market of Saudi justifies by the advancement in traditional norms and values. Moreover, the government of Saudi should consider this challenge as primary issues and work

accordingly. The consequences of this research would draw attention to some barriers and determinations of the participation of female in the market of labor. The understanding of these determinations will certainly assist the women and policy makers to simplify the tactics of improvement. However, this idea of investigation can be explained as the first program to examine, in detail, problems of micro economic that can influence the engagement of female in the labor force. Therefore, this study encourages that more studies should be done on similar topic.

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