



Association between labor force participation rates and the total fertility rate in Iran: gender aspect

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The influence of economic growth on the Total Fertility Rate (TFR) has been widely discussed and demonstrated in many research papers. The labor force participation rate and the unemployment rate as economic indicators play an important role in the TFR dynamics. Different studies have shown that fluctuations in female and male labor force participation rates have either positive or negative impacts on the TFR. In this study, we aim to investigate if there is any positive or negative correlation between female and male labor participation rates and the TFR in Iran. We applied time-series analysis for the period 1991–2019. We used secondary data from official bodies such as Iran's Ministry of Cooperatives Labor and Social Welfare, the World Bank data, the International Bank for Reconstruction and Development, the International Development Association, the Statistical Center of Iran, and the United Nations Department of Economic and Social Affairs Population Dynamics to explain the trends in labor force participation rates, unemployment rates, and the TFR. We also applied Pearson correlation analysis and regression analysis to measure the strength and direction of these relationships. The results of the study show that the female labor force participation rate has a negative correlation ($r = -0.783$, $\text{sig.} = 0.000$), and the male labor force participation rate has a positive correlation with the TFR ($r = 0.827$, $\text{sig.} = 0.000$). Men's unemployment seems to have a negative correlation ($r = -0.366$, $\text{sig.} = 0.050$), and women's unemployment seems to have no correlation with the TFR. Considering the economic problems in Iran, more women will enter the labor market in the nearest future, therefore they postpone their marriage and the TFR will continue to decline.

Keywords: total fertility rate; TFR; labor force participation rate; female labor force participation rate; male labor force participation rate; unemployment; Iran

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Взаимосвязь между коэффициентами участия в рабочей силе и суммарным коэффициентом рождаемости в Иране: гендерный аспект

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Научная статья
Полный текст на английском языке

Влияние экономического роста на суммарный коэффициент рождаемости (СКР) широко обсуждалось и демонстрировалось во многих исследовательских работах. Уровень экономической активности и уровень безработицы как экономические индикаторы играют важную роль в динамике СКР. Различные исследования позволили сделать вывод о том, что колебания показателей экономической активности женщин и мужчин имеют положительное или отрицательное влияние на СКР. В данной статье рассматривается вопрос о наличии какой-либо положительной или отрицательной корреляции между показателями участия женщин и мужчин в рабочей силе и СКР в Иране. Для исследования был использован анализ временных рядов за период 1991–2019 гг. Для объяснения тенденций в уровне экономической активности, уровне безработицы и СКР в качестве материала исследования привлекались вторичные данные официальных органов, таких как Министерство кооперативов, труда и социального обеспечения Ирана, данные Всемирного банка, Международного банка реконструкции и развития, Международной ассоциации развития, Статистического центра Ирана и Департамента по экономическим и социальным вопросам ООН по динамике народонаселения. Для измерения силы и направления этих отношений применялся также корреляционный анализ Пирсона и регрессионный анализ. Результаты исследования показывают, что коэффициент участия женщин в рабочей силе имеет отрицательную корреляцию, а коэффициент участия мужчин в рабочей силе имеет положительную корреляцию с СКР. Вероятно, мужская безработица имеет отрицательную корреляцию, а женская безработица положительно коррелирует с СКР, т. к. в Иране мужчины являются основными кормильцами в семьях. Принимая во внимание экономические проблемы в Иране, можно предположить, что в ближайшее время на рынок труда выйдет больше женщин, поэтому они откладывают брак. В результате ожидается снижение СКР.

Ключевые слова: суммарный коэффициент рождаемости; СКР; коэффициент участия в рабочей силе; коэффициент участия женщин в рабочей силе; коэффициент участия мужчин в рабочей силе; безработица; Иран

ИНФОРМАЦИЯ ОБ АВТОРАХ

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Introduction

The United Nations (UN) estimates show that the global population is likely to increase from 7.7 billion in 2020 to 9,7 billion in 2050, and 10.8 billion by 2100 (medium variant) [1]. *"The total fertility rate (TFR) is the average number of children women would bear if they survived to the end of reproductive life and have the same probability of child-bearing in each age interval as currently prevails across the population"* [2]. Therefore, the TFR is a major determinant of the population growth rate. The global average TFR fell from about 5.02 in 1960 to just under 2.4 in 2015–2020. The UN medium projections show that the TFR in all countries will fall to the replacement level (2.1) by the end of the century, and then during the upcoming decades (2095–2100) it will reach 1.94 which means an important change in the global fertility trends [3]. The relation between economic development and fertility over time and across regions and countries is widely discussed in many research papers, however, the results are contradictory. The reason is that many factors are influencing fertility such as women's age, employment status and position, education, and the number of children [4]. Each country has its own specific, unique, and inclusive TFR over a period of time. However, traditionally, countries with lower levels of economic development tend to have higher fertility rates.

Employment and labor force participation are among the main indicators of economic development. Therefore, in many articles, the relation between fertility and employment or labor force participation is widely discussed. A couple's employment is directly and indirectly correlated with fertility. Men's employment as the main breadwinners greatly affects fertility [5]. However, the role of women's employment and female labor force participation is less obvious and differs across the countries of the world, because every country has different social and family policies which may change during the lifetime. In addition, women's role through decades has greatly changed and transformed. Although women face additional obstacles to their participation in the labor market, over the last years, global changes and economic downturns have increased women's labor force participation around the world. In 2019, female labor force participation rate was just about 47 % and the male labor force participation rate was 74 % which shows gender disparities in access to employment. Despite gender disparities in access to employment, the number of women entering the labor market in different economic sectors (especially in low- and middle-income countries) has increased [6].

Since women's role in families and societies is changing, the interest in finding a correlation between fertility and women's employment in different countries has increased. Although in many high-income and developed countries the results of correlation analysis between fertility and women's employment have been contradictory, there has always been some evidence of a negative correlation between them. The mean age at first birth in many countries is increasing, people postpone their childbearing which results in a lower fertility rate in the future, as it is now below the replacement level in many developed countries. On the other hand, many research papers show a positive correlation between women's labor force participation rate and fertility rate [7], since women having job can support the family needs and cover the costs of rearing and nurturing children, fertility tends to increase. However, in many developing and underdeveloped countries such as

Iran, where socio-economic equality between men and women is still not realized, the correlation between the TFR and labor force participation is yet to be examined more precisely.

Iran's fertility has been decreasing over all provinces and all age groups since 1980. Fertility has decreased from 6.2 births per woman in 1980–1985 to 3.7 in 1990–1995. Based on the United Nations Population Division's statistics in the medium variant projection, Iran's TFR is estimated to fall from 2.1 in 2015–2020 to 1.9 in 2050–2055, and 1.8 in 2095–2100. Iran's population is projected to fall from 84.0 million in 2020 to 65 million in 2100, according to the low variant estimates [8], which warns the Iranian government about a huge change in the population structure. In the near future, due to the economic uncertainties, Iranians will postpone their first marriage and first birth which will result in the TFR falling below the replacement level, and cultural and traditional belief to marry early and have the first baby soon after marriage would fade [9].

The study aims to investigate if there is any correlation between female and male labor participation rates and the TFR in Iran. In addition, it examines the trends in Iran's TFR from 1991 to 2019 and whether there is a negative or positive relationship between labor force participation and unemployment rates with fertility. The applicability of the work lies upon the fact that Iran's TFR is continuously decreasing as the country is experiencing severe economic losses and crises due to the sanctions. Every year more people are losing their jobs and become unable to cover the costs of the daily needs, therefore families postpone their marriages and childbearing.

Literature Review

The decision to have or not to have children from a demographic point of view is based on individual desires which are very important for the society and population structure of the countries. Therefore, demographers and sociologists work on different incentives to encourage or discourage people to have children. However, having more children and an increase in fertility depends on many socio-economic factors, such as GDP, GDP per capita, economic growth, unemployment rates, taxes, etc., therefore we can see a large number of articles discussing the influence of different socio-economic factors on fertility in low-, middle- and high-income countries.

Fertility was initially analysed based on economic theory by Becker, 1960 [10]. Although many studies have shown different relationships between fertility and labor force participation, the understanding of fertility and labor force participation has changed through different studies. Fertility is defined as the number of births observed during a period [11]. In 1978, Smith-Lovin and Tickamyer defined fertility as the currently existing number of children and labor participation as the number of accumulated years in employment [12] and Cramer explained labor force participation as the number of hours worked [13].

The expansion of women's labor force participation represents a major change in women's status in the society and shifts fertility and family formation [14]. If in the past a lower fertility rate was associated with higher women's employment, today lots of research prove a positive correlation between women's employment rate and fertility in industrialized and pre-industrialized agricultural countries [15]. In recent decades in developed and developing countries, the influences of socio-economic factors on fertility have been obvious. Women's roles in different socio-economic contexts have changed the fertility patterns

in many countries. For example, in the 1960s and 1970s, the female employment and fertility rates showed a significant negative correlation [16] that complies with Becker's theory that in 1960 showed the importance of parents' income and child-rearing, in other words, this theory shows a negative relationship between female employment and fertility [10]. Many research papers show that economic downturns especially unemployment are correlated with fertility that affects male and female childbearing decisions. Unemployment, GDP, and other macroeconomic indicators are confirmed to have an influence on childbearing decision-making [17]. A research paper about the fertility rates in the OECD countries also shows that couples' unemployment rate is one of the most important factors in the childbearing decision-making process [18].

Economic uncertainties, insecurity, and instability negatively affect the fertility rate and induce the inability to have a child. Therefore, when unemployment increases uncertainty about the income leads to a negative shift in fertility rates and family formation [19]. For example, in developed northern European countries where the unemployment rate is low and labor markets are open to enter or exit, fertility rates are about the replacement level. On the other hand, in countries with higher unemployment rates and weaker labor policies fertility rate is lower [20]. But in developing or underdeveloped countries with different socio-economic and cultural characteristics, the effects of the unemployment rate on fertility are yet to be examined more precisely.

Generally, researchers mostly pay special attention to the relation between fertility and female employment, because the relationship between female unemployment and fertility is unclear due to different social and family policies and it changes over the life-course of individuals. However, men's employment role as the primary source of family income is considered to be an important determinant in couples' childbearing decisions [21]. Many gender-based research papers show contradictory results. In many studies, it is shown that there is a significant negative correlation between male unemployment and a couple's fertility decision. In countries where gender gaps exist, men's unemployment can increase child-rearing involvement and reduce the negative association between employment and fertility which means an increase in male employment can increase fertility. In a work about fertility and childbearing in France, it is observed that only men's long-term unemployment affects fertility which means that men's unemployment has a very strong negative impact on childbearing decisions because men are the main breadwinners [5], and couple's decision not to have a child is the result of the income lost by a man [22]. On the contrary, in Denmark it is shown that men's unemployment has no significant impact on first births [23]. In different studies, still, men's unemployment is mostly confirmed to have a negative impact on fertility. In European countries first birth rates reduce as male employment reduces [24].

Whereas different studies show contradictory results, we can still conclude that in countries where men are the main breadwinners and the labor market is more open toward male workers, unemployed women tend to have a higher first-birth rate. But in countries where women's employment is widespread, there is a negative correlation between unemployment and fertility, which means labor markets and institutional contexts play an important role in a relationship between unemployment and fertility [21]. Therefore, in the most recent years, the intense impact of the economic crisis on labor markets has increased male and female unemployment rates in most countries and showed a high degree of contradiction in the gender gaps in unemployment that can be explained by factors such as education, contracts, market segregation, etc. [25].

The ability of women to do both childbirth and work combined has been one of the issues of sociologists. The relationship between fertility and female employment rate is widely discussed in socio-demographic and economic research papers [26]. From an economic point of view, women's wages and employment rates can negatively affect the fertility rate. The opportunity cost of having a child therefore may take the form of a foregone income, status and also interrupts the female's career growth and benefits [27], in addition, it results in the loss of future higher income, non-pecuniary benefits, and recognition for women. The opportunity cost among mothers is much higher than among childless women, because of their job deterioration, therefore, they are more vulnerable and have higher opportunity costs [28]. Where there is a difference in wages and specialization of men and women, the opportunity cost for women with higher wages is much more than for women with lower wages [29].

Because of different policies, cultures, religions, ages, etc., women's economic activities and their employment status show contradictory results in industrialized high income and pre-industrialized low-income countries. In many developed countries such as Germany, Finland, the UK, and some French regions there is a positive relationship between women's unemployment and the first birth [30]. On the other side, in Sweden there is a negative impact of women's unemployment on fertility [31]. When women are provided with opportunities in education and employment, they may face a conflict of interests between their career and home responsibilities. As women face the same opportunities as men, they restrict the number of children that results in lower fertility. [32-33]. In many traditional countries, where due to the characteristics of the society the role of a mother and a wife does not comply with education improvements, the fertility rate tends to decrease [34].

Since there are difficulties in keeping the balance between work and parenting duties, there is a negative relationship between fertility and female employment [35]. Women with higher education who are participating in the labor force, have a higher fertility rate because they earn higher wages and can afford to pay for childcare which can lead to having more children [36]. However, in the long run, an increase in female wages can negatively affect the fertility rate especially among women aged 20–34 [37]. For instance, in Japan, as female wages rise, it negatively affects fertility, and as women's income increases, they tend to substitute their work for children [38]. However, in Scandinavian countries, women's income and labor market position positively correlate with fertility [39].

Nevertheless, although there have been serious changes in the role of women in society and labor marker, gender discrimination in hiring or firing women persist, especially during pregnancy. There is a huge gender gap between men and women where women lag behind men in employment, income, and job positions. In many developing and underdeveloped countries, women's equal rights in employment are not realized and recognized. The number of children can negatively affect female labor force participation in Spain, France, and Italy, but it is positively correlated to female employment in the UK, Netherlands, and Germany [40]. There is a also two-sided relationship between fertility and female employment which means that female labor force participation affects fertility and vice versa [13].

Women's earned income and economic empowerment play an important role in women's autonomy and their fertility reduction [41]. Since women are employed, they have independent income sources, which means their dependency on their husbands or other family members is reduced. The reduction in dependency gives women bargaining

power in the family in the childbearing decision and their reproductive preferences [42]. However, in low- and middle-income countries the share of women in the informal economy is much higher than the share of men which gives them less job security and stability [43] with more disadvantages in their income and earnings, therefore their bargaining power to have higher or decent income is less. In many Asian, African, and Middle Eastern countries, informal and poorly paid jobs with very long working hours negatively affect women's bargaining power and autonomy [44]. For example, in Bangladesh, women's employment does not give them autonomy over their husbands, and they are considered as "contributing family workers" [45].

An increase in women's employment, in early 1960–1980 in Europe and North America led to a decline in the fertility rates below the replacement levels [44]. In Latin America also, an increase in women's employment decreases the fertility rate. However, the employment rates in Africa and Asia are much more diverse and vary significantly across the countries. In these regions, there is more employment in the informal labor market and an increase in female employment over time is very small. In addition, fertility trends in these regions vary greatly and show moderate declines. Behrman and Gonalons Pons showed that in the four aforementioned regions, as women's employment increases fertility declines but the magnitude of this correlation is considerably smaller in Europe and North America. In different economic sectors, the fertility rate and employment also correlate differently; for example, women's agricultural employment is positively correlated with the TFR but in the non-agricultural sector the relation between women's employment and the TFR is negative.

It is also shown that interpreting the correlation between employment and fertility needs an explanation of external factors that make women's employment and fertility move in the same directions [46] these factors are social norms, institutional role, educational attainment, women's age, the number of births, place of births (either urban or rural), the Human Development Index (HDI), etc. For example, in countries where the HDI is higher fertility tends to decline which shows a negative correlation [47]. Moreover, child-care facilities as an institutional determinant or as a socio-cultural structure in different regions or municipalities are believed to play an important role in fertility rates since thanks to them employed mothers are less concerned about the childcare, therefore they can retain their jobs and are able to support their families financially [48], which leads to an increase in fertility.

Methodology

To find out connections between the male and female labor force participation rate in Iran, we applied a time-series analysis for the period 1991–2019, because it includes the period when international economic and financial pressure on Iran increased significantly. Since a financial downturn provides an excellent opportunity to examine the relationship between economic growth and fertility [49], we chose particularly the labor force participation rate and the unemployment rate as economic indicators to examine the TFR. We tried to find out a link between male and female labor force participation rate fluctuations and the TFR at the macro level to verify whether our results are compatible with previous works. In this study, we used secondary data from official bodies such as Iran's Ministry of Cooperatives Labor and Social Welfare, the World Bank data, the International Bank for Reconstruction and Development (IBRD), the International Development Association

(IDA), the Statistical Centre of Iran and the United Nations Department of Economic and Social Affairs Population Dynamics. Time-series analysis is very useful in predictions and hypothetic conditions; however, it is unable to explain casualty. To measure the strength and direction of linear relationships between male and female labor force participation rates and unemployment rates, the total labor participation, and the total unemployment rates with the TFR, we used bivariate Pearson correlation analysis. Moreover, we used regression analysis to estimate the relationship between female and male labor force participation rates as independent variables with the TFR as the dependent variable.

Discussion and Results

Iran's population has been continuously increasing over the past years. Based on the 2016 Census, Iran's population was 79,9 million people, out of which men and women made 50,7 % and 49,3 % respectively (in 2021 Iran's population is around 84,3 million people) [50]. With the growth of the population, women's role in society has significantly changed. Although in Iranian families the man (father) is usually considered as the head of the family or breadwinner, under certain conditions, this responsibility falls on women. In the last few decades, women in Iran have been experiencing gender discrimination in job opportunities, social rights, income inequalities, etc., however, they have also been experiencing the pressure to cover their daily life expenditures. The financial struggle in Iranian families due to the economic downturn mostly caused by international sanctions has increased the number of female-headed families. Table 1 shows the number of households based on the gender of the heads of the households and the number of people in every household.

Table 1

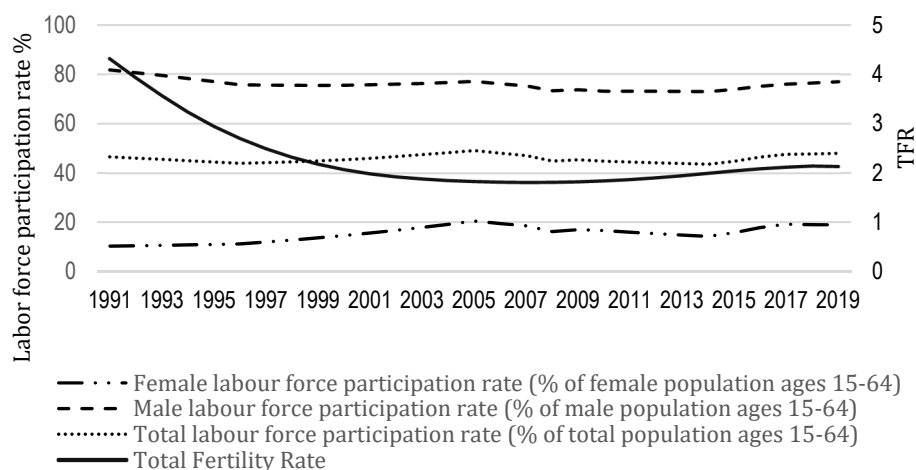
Number of households based on the gender of the heads of the households and the number of people in every household from 1996–2016¹

Year	Gender of the head member of the household	Total	1 person	2 persons	3 persons	4 persons	5 persons	6 persons	7 persons and more
1996	Men	11,350,622	198,399	1,213,724	1,822,460	2,154,677	1,883,885	1,511,853	2,565,624
	Women	1,037,321	349,021	189,224	154,404	124,301	90,937	59,539	69,895
2006	Men	15,711,642	311,613	2,307,295	3,684,238	4,043,339	2,534,708	1,391,084	1,439,365
	Women	1,641,044	591,526	342,624	289,744	194,067	112,572	58,080	52,431
2011	Men	18,562,409	473,342	3,259,915	5,269,671	5,323,419	2,526,055	1,076,023	633,984
	Women	2,548,072	1,038,569	617,812	455,220	243,772	112,833	51,144	28,722
2016	Men	21,067,737	686,764	4,154,085	6,346,293	6,452,935	2,380,953	694,654	352,053
	Women	3,061,753	1,359,553	833,892	520,327	220,183	82,059	29,160	16,579

¹Iran's household statistics // Ministry of Cooperatives Labor and Social Welfare URL: <https://ssicenter.mcls.gov.ir/> (Date of access: 14.08.2021)

The table above presents the number of households in the country based on the General Census of population and housing during 1996–2016. Accordingly, the number of ordinary male-headed households in 2016 was more than 21 million, and the number of female-headed households was more than 3 million. The table also shows that from 1996 up to 2016 the number of male-headed households increased by almost 2 times, while the number of female-headed households increased by almost 3 times. In other words, the share of female-headed families is around 12 % of the total number of households in the country. In 2018, in Iran, almost 23,8 million people were employed, out of which 46 % were self-employed and 54 % were wage and salary earners by private, cooperative, and public sectors. However, among those who are employed, the access to wage and salary jobs was very unequal, men occupied more than 81 %, and women just 19 % of wage and salaried jobs. In other words, for every woman in the country, about 4 men are paid by private cooperative and public sectors. A study of statistics in major economic sectors shows that in 2018, the longest average working hours a week are related to the service sector (45 hours and 12 minutes), industry sector (42 hours and 30 minutes), and agriculture (37 hours and 12 minutes). The average weakly working hours for men in agricultural, industrial, and service sectors are 39:54, 44:42, and 47:24 hours respectively and the average weakly working hours for women in agricultural, industrial, and service sectors are 27, 30:12, and 36 hours a week respectively [51].

Based on statistics by the UN, Iran's TFR has fallen from 6.9 in 1950 to below replacement level in 2020 (TFR=2.09); the forecast by the UN statistics service shows that Iran's TFR will continue to decrease. Iran's TFR will reach 1.9 in 2050 and 1.8 in 2100 [52]. Graph 1 shows that since 1991 the TFR in Iran has decreased from 3.92 to 2.13 in 2019.



Graph 1. Labor force participation rate and TFR, Iran, 1991-2019¹

Men's labor force participation rate decreased from 80,5 % in 1991 to 76,8 % in 2019, and women's labor has increased from 10.27 in 1991 to 18.9 in 2019. However, the

¹Source: Iran's labor force participation rate // The World Bank data, IBRD. IDA URL: <https://data.worldbank.org/country/iran-islamic-rep> (Date of access: 14.08.2021)

total labor force participation rate changed slightly from 46,5 % in 1991 to 48 % in 2019. Employer’s limited financial resources and inability to pay for men have encouraged more women to enter the labor market, and since families struggle with financial problems, the role of women in family financial planning has become greater individually or beside other male family members. In addition, with an increase in the number of divorces (171,246 divorces) a decrease in the number of marriages (519,250 marriages) [53] – in other words, for 3 marriages there is 1 divorce – more women (including widows, divorced women, and immigrant wives) are coming out of the men’s financial support and coverage that makes women start searching for jobs.

Dealing with sanctions has brought a huge loss to Iran’s economy. In the last decades, Iran has experienced negative GDP growth rates for several years, based on the World Bank statistics, the GDP growth rate of Iran has significantly decreased to -6,7 % in 2019. GDP per capita current US\$ has decreased to 5,550 US\$ and GDP per capita PPP has decreased to 12,937 US\$ in 2019. In addition, the inflation rate has drastically increased from 7,6 % in 1990 to 40 % in 2019. This means Iran is dealing with huge economic problems besides an unfavorable social atmosphere. However, one of the main problems is the high unemployment rate in the country [54].



Graph 2. Unemployment Rate and TFR, Iran, 1991–2019¹

Graph 2 illustrates that men’s unemployment rate (percentage of the male labor force) since 1991 has been steady. However, women’s unemployment rate (percentage of the female labor force), although it has decreased from 24 % in 1991 to 18 % in 2019, is still very high. Inability to find a dream job (because of the gender priority), gender discrimination in the society and job environments, unequal payment, and sexual harassments are the main reasons for the high women’s unemployment rate. Because of that

¹Iran’s unemployment rate // The World Bank data, IBRD. IDA URL: <https://data.worldbank.org/country/iran-islamic-rep> (Date of access: 14.08.2021)

women are either unable to find the desired job or have to leave their current jobs even without getting paid.

In this research, we consider a variable significant, if its significance level is less than 0.05. Therefore, based on this significance level, the results of bivariate correlation for 1991–2019 in Table 2 shows that the Female Labor Participation Rate “FLPR” (15–64 years old) has a significant negative correlation with the TFR (Pearson correlation (r) = -0.783, and Sig. (2-tailed) = 0.000), as the FLPR increases, and more women enter the labor market the TFR will decrease. On the other hand, as the Male Labor Participation Rate “MLPR” (15–64 years old) has a significant positive correlation with the TFR (Pearson correlation (r) = 0.827, and Sig. (2-tailed) = 0.000), as more men are entering the labor market or employed, the TFR will increase. However, the Total Labor Participation Rate “TLPR” (15–64 years old) has shown no correlation with the TFR (Pearson Correlation (r) = -0.123, and Sig. (2-tailed) = 0.524).

Table 2

**Bivariate correlation (Pearson correlation)
between labor force participation rate, unemployment and TFR¹**

Indicators		TFR	FLPR (15–64 years old)	MLPR (15–64 years old)	TLPR (15–64 years old)	Female Unemp- loyment	Male Unemp- loyment	Total Unemp- loyment
TFR	Pearson Correlation	1	-.783**	.827**	-.123	.205	-.366	-.415*
	Sig. (2-tailed)		.000	.000	.524	.287	.050	.025
	N	29	29	29	29	29	29	29
FLPR (15–64 years old)	Pearson Correlation	-.783**	1	-.386*	.671**	.035	.449*	.559**
	Sig. (2-tailed)	.000		.039	.000	.857	.014	.002
	N	29	29	29	29	29	29	29
MLPR (15–64 years old)	Pearson Correlation	.827**	-.386*	1	.422*	.163	-.237	-.274
	Sig. (2-tailed)	.000	.039		.023	.400	.216	.151
	N	29	29	29	29	29	29	29
TLPR (15–64 years old)	Pearson Correlation	-.123	.671**	.422*	1	.118	.239	.304
	Sig. (2-tailed)	.524	.000	.023		.542	.213	.109
	N	29	29	29	29	29	29	29
Female Unemployment)	Pearson Correlation	.205	.035	.163	.118	1	.472**	.651**
	Sig. (2-tailed)	.287	.857	.400	.542		.010	.000
	N	29	29	29	29	29	29	29
Male Unemployment)	Pearson Correlation	-.366	.449*	-.237	.239	.472**	1	.946**
	Sig. (2-tailed)	.050	.014	.216	.213	.010		.000
	N	29	29	29	29	29	29	29
Total Unemployment)	Pearson Correlation	-.415*	.559**	-.274	.304	.651**	.946**	1
	Sig. (2-tailed)	.025	.002	.151	.109	.000	.000	
	N	29	29	29	29	29	29	29

Although there is no significant relationship found between the female unemployment rate and the TFR (Pearson correlation (r) = 0.205, and Sig. (2-tailed) = 0.287), the

¹ Analyzed by author for this study

male unemployment rate has a significant negative relationship with the TFR (Pearson correlation (r) = -0.366, and Sig. (2-tailed) = 0.050) which means that when more men get unemployed the TFR tends to fall. The total unemployment rate also has a significant negative relationship with the TFR (Pearson correlation (r) = -0.415, and Sig. (2-tailed) = 0.025), which explains that as unemployment in the country rises the TFR falls.

Moreover, our regression analysis confirms that the FLPR (15–64 years old) has a significant negative relationship with TFR (P-value = 0.000, t = -10.188, β = -0.545, Std. Error = 0.011), which means that when the FLPR rises, the TFR falls. In addition, it also shows that the MLPR has a significant positive relationship with the TFR (P-value = 0.000, t = 11.517, β = 0.616, Std. Error = 0.016), that is the TFR increases if the male labor force participation rate increases (table 3).

Table 3

Regression Analysis of TFR and labor force participation rate¹

Model	Std. Error	Standardized Coefficients Beta	t	p-value
1 (Constant)	1.308		-7.737	.000
FLPR15 to 64 years old	.011	-.545	-10.188	.000
MLPR 15 to 64 years old	.016	.616	11.517	.000

Regression and bivariate correlation analysis show that the results of this study are compatible with the previous research, which proved a negative relationship between the female labor force participation rate and the TFR, and a positive relationship between the male labor force participation rate and the TFR.

Table 4

Model Summary³

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.968a4	.937	.932	.17473

Iran’s traditional society and family formation practice still regard men as breadwinners, and the economic and financial responsibilities as men’s duties. The model summary Table 4 confirms that our regression model fits the data, R-square = 93,7 % shows that our predictors of MLPR and FLPR are highly fitted with our regression model and explain the effects of the predictors of the TFR.

Conclusion

The aim of this paper was to investigate whether there is any negative or positive correlation between the male and female labor force participation rates with the total fertility rate in Iran. In this study we found out that the level of female labor force participation

¹ Analyzed by author for this study

² Dependent Variable: Total Fertility Rate

³ Analyzed by author for this study

⁴ Predictors: (Constant), MLPR15to64yearsold, FLPR15to64yearsold

has a negative correlation with the TFR: as more women enter the labor market and the female labor force participation rate increases, the TFR tends to decrease. Also, there is a positive relationship between the male labor force participation rate and the TFR: as the male labor force participation rate increases, the TFR tends to increase. Since many research papers have shown both negative and positive relationships between the female and male labor force participation rates with the TFR, the results of this study are in compliance with those works that describe the situation in the societies where men are the main breadwinners in families.

The traditional way of life in Iranian families pushes men into taking jobs because in most families men are the heads of the households. But over the past decades, the role of women is changing. As the economic situation in the country gets worse, families need more members to be employed in order to be able to cover their living costs. However, with the economic crisis in Iran, as inflation and unemployment rise, more employers are closing down their businesses, or employ people who demand lower wages and salaries. Therefore, more women who are perceived as demanding lower job payments are entering the labor market. Subsequently, their financial role in the families and their autonomy as the head of the household or beside the men are changing. As a result, as far as families need financial support, more women will sacrifice their education, families, and their dreams to find a job. Hence, they postpone their marriage and since in Iran, having a child out of marriage is not accepted by families, society and religion, childbearing will decrease and the TFR will continue to fall.

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