Global Journal of Economics and Business (GJEB)

Volume.12, Issue.4, pp: 524-532 Article 8
Aug (2022)

Methodological Analysis of Period Fertility in Saudi Arabia for 2018

Ayman Mahgoub

College of Business Administration, Prince Sattam Bin Abdulaziz University, Al Kharj, Kingdom of Saudi Arabia

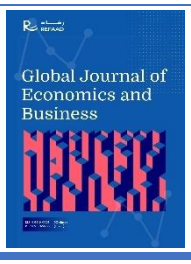
am.mohammed@psau.edu.sa

Received: 21/5/2022 Revised: 6/6/2022 Accepted: 19/6/2022

DOI: https://doi.org/10.31559/GJEB2022.12.4.8

رفـــاد REFAAD
www.refaad.com

المجلة العالمية للاقتصاد والأعمال
Global Journal of Economics and Business (GJEB)
Journal Homepage: https://www.refaad.com/Journal/Index/2
E-ISSN 2519-9293 | P-ISSN 2519-9285



Methodological Analysis of Period Fertility in Saudi Arabia for 2018

Ayman Mahgoub
College of Business Administration, Prince Sattam Bin Abdulaziz University, Al Kharj, Kingdom of Saudi Arabia
am.mohammed@psau.edu.sa

Received: 21/5/2022 **Revised:** 6/6/2022 **Accepted:** 19/6/2022 **DOI:** https://doi.org/10.31559/GJEB2022.12.4.8

Abstract: The exact measurement and evaluation of indicators of period fertility in a multiracial society could help explain disparities. The aim of this paper is to develop a methodological and analytical attempt to systematically analyse period fertility and discuss differentials in its levels and patterns between domestic and expatriate women in Saudi Arabia as far as available data allow. The data used were obtained from official sources published by the General Authority for Statistics in the Household Health Survey 2018, and then the quantitative calculation was used to calculate fertility indicators. Estimated period fertility indicators started from the simplest rates to the more complex ones, with adequate illustration of the advantages and disadvantages of each of them. The purpose was to establish fertility differentials and historical patterns. The paper consistently shows that the fertility of expatriates in Saudi Arabia is lower than the fertility of Saudi domestic women; however, the reason for this disparity is not established, as the sufficient influence of contraceptive practices has not been confirmed. It is also revealed that the fertility transition that has been taking place since the early eighties will continue, but it will result in precautions in the future.

Keywords: *person years; period fertility; natural fertility; Total Fertility Rate; fertility indicators; reproductivity.*

1. Introduction

In demography, the word fertility means the number of live births that a woman achieves during her lifetime (Burch, 2017). Of course, in Muslim countries, this process entails the institution of marriage. Fertility is different conceptually from fecundability, which means that a woman is biologically capable of producing children, but for one reason or another, she is not fertile (Thomas, 2018). Thus, the precise measurement of the period of fertility for any population is crucial, perhaps to two decimal places, before any attempt to analyse its determinants can be made (Carmichael, 2016). In Saudi Arabia, all measures of fertility are available, but with different methodologies and varying accuracy (Khraif, 2001).

The level of fertility in the world varies greatly by country, culture and socio-economic conditions, as well as by individual characteristics such as age (Yeung, 2022). In general, more industrialized and economically developed societies have lower fertility than less developed agricultural societies (Thasineku, 2019). Also, within countries, in general, more educated and higher income groups have lower fertility than less educated lower income groups (Cohen, 2021). Historically, as groups within countries have improved their standards of living, nations have become more economically developed, health conditions have improved, morbidity and mortality rates have decreased, and fertility has declined due to the adoption of fertility-restricting behaviors, such as limiting sexual relations or marriage, practicing contraception, and resorting to induced abortion (Thompson, 2022). This sequence of events has been observed in Western industrial societies over the past two centuries, and in developing regions in the past half century (Hazazy, 2018). The process is often referred to as the demographic transition, and it comprises the main theoretical basis for research conducted by demographers, sociologists, anthropologists, epidemiologists, economists, and others, on the determinants and consequences of national mortality and fertility levels (Alwulayi, 2020).

Demographic indicators in the Kingdom of Saudi Arabia, especially fertility rates are estimated based on fertility levels in neighboring regions and countries (Khraif, 2001). This might result in unrepresentative estimates because fertility rates tend to change from one region/country to another (Salam, 2013). This is due to the scarcity of data on fertility in Saudi Arabia. This increases the need for reproductive data and more studies and research in

this field to understand reproductive behaviors in the Kingdom of Saudi Arabia and to identify accurate indicators of the current fertility rate and future trends. Based on the foregoing, several questions arise that need to be addressed. What is the fertility rate in the Kingdom of Saudi Arabia? How the rate varies across regions of Saudi Arabia? How much do Saudi women give birth to an average and how it varies by regions? Is fertility increases or decreases overtime?

In this paper, we attempt to provide a systematic measurement of period fertility to two decimal places for all rates and explain the conceptual meaning of these rates in a scholarly way. This is done for both domestic Saudi women and for non-Saudi female residents, and the tempo of period fertility is considered. Additionally, the historical pattern of period fertility is analysed, and comparisons of the practice of family planning by the two population groups are investigated.

2. Materials and Methods

This study depends entirely on secondary data officially published by the Saudi General Authority for Statistics, with special reference to the tables provided by the Household Health Survey 2018. The tables on which our analysis is based are as follows:

- Total population in Saudi Arabia.
- Saudi and non-Saudi age and sex distribution.
- Age-related specific fertility rates in Saudi Arabia.
- Total fertility by administrative region in Saudi Arabia.
- Contraceptive prevalence among females of reproductive age.

The study focuses on period fertility alone because the Household Health Survey 2018 does not provide data on cohort fertility. We attempt to introduce measures of period fertility in a systematic way by starting with crude measures and moving towards more refined one; we also indicate measurement methodologies and the pros and cons of each method. In addition, we discuss the disparities between rates for Saudis and non-Saudis and the role of contraceptive use in influencing these disparities.

3. Conceptuality of fertility indicators in demographic literature

Fertility is different conceptually from fecundability, which means that a woman is biologically capable of producing children but, for some reason, she is not fertile (Burch, 2003). From the experience of human populations, the maximum number of children per woman is approximately 17 births on average if no fertility control is ever practised. However, no population has ever recorded this figure, and the maximum number of children recorded never surpassed 15 children or dropped below 0.83 children. Thus, the precise measurement of period fertility for any population is crucial.

Demographers differentiate conceptually between a ratio and a rate. According to (Newell, 1990), "a ratio is simply any number divided by any other number". For instance, the dependency ratio equals the total number of young and old people divided by the working population multiplied by 100. A rate, on the other hand, resembles the way in which a certain event occurs in a specified period of time, thus entailing the definition of exposure years to the forces of that event. The grasp of a period rate, therefore, involves some imagination because it is synthetic rather than real. For example, as we shall see later in this paper, the total fertility rate is an imaginative concept of the fertility performance of a cohort of women, as they produce children along a historical age scale if they live and follow the same natality regime (Shryock & Seigel, 1980).

Even more imaginative is the concept of "person years", which is frequently used by demographers. For example, as women proceed in life and give birth, some of them die in the process; since these women contribute to fertility at each age, their exact years of survival within their age group must be considered which, although important, is usually difficult to grasp; thus, demographers instead use the concept of "mid-year" as a proxy for the total number of women in an age group. A more detailed explanation of the mid-year concept is found in Smith (2013).

The growth reproduction rate (GRR) and net reproduction rate (NNR) are also synthetic measures and are more imaginative than total fertility. These two measures represent what is called in demography "reproductivity". This term refers to the concept of replacement in dealing with female births rather than all births. Two very important concepts are also related to these two measures, namely, the mean age of fertility distribution and the mean age of childbearing, which are not similar.

One concept that is frequently used is that of fecundability. This concept relates to the physiological ability to conceive, i.e., the statistical probability of conception in a menstrual cycle. Fecundability is particularly important in the statistical modelling of the process of family building and in the estimation of the effectiveness of family planning programmers (Newell, 1986).

A population in which no deliberate attempt is made to limit the number of births is said to experience "natural fertility". This very important and widely used concept was first identified and named by Louis Henry

(1972). Such a measure of fertility is a biological indicator, and its magnitude depends on social norms related to family planning, breastfeeding and weaning practices. There is no fertility-limiting behaviour that is in any way dependent on the number of children already born (Bongaarts, 2002).

4. Measures of Period Fertility in Saudi Arabia in 2018

4.1. The Child/Woman Ratio

This ratio is defined as follows:

$$\text{C/W } \boldsymbol{Ratio} = \frac{\boldsymbol{Children\ age\ 0-4}}{\boldsymbol{Women\ aged\ 15-49}}$$

From appendix tables 1, 2, and 3 (Saudi population by age groups and sex), the C/W ratios are calculated, as seen in table (2) below.

Table (1): Child/Woman Ratio in Saudi Arabia

Population	Child/Woman (C/W)
Saudi Women	0.3897
Non-Saudi Women	0.2105
Total Population of Women in Saudi Arabia	0.3576

Source: Household Health Survey, Saudi Arabia, 2018

It is clear that the C/W ratio is higher for Saudi women than for non-Saudi women, but the ratio for both is low compared to that of other Arab and Asian countries. The usefulness of the ratio, however, arises from the fact that it requires only information on the composition of the population by age and sex. No data on births are needed at all. This makes this calculation particularly useful when using census data. Obviously, it is an extremely crude measure; in broad terms, if fertility is high, then the child/woman ratio will be high, but if fertility is low, then the ratio will be low. The ratio is, however, quite sensitive to reporting errors and to the level of infant mortality; therefore, it is dangerous to use the ratio to compare populations with substantially different levels of infant and child mortality or where the underreporting of young children is a problem.

4.2. The Crude Birth Rate

This is a simple and notorious indicator that is determined from the following equation:

$$\text{CBR} = \frac{\boldsymbol{Births\ in\ year}}{\boldsymbol{Population\ at\ mid-year}} * \mathbf{1000}$$

From Tables 1, 2, and 3 of the Household Health Survey of Saudi Arabia from 2018 (Saudi population by age groups and sex), crude birth rates are calculated, as seen in Table (2) below.

Table (2): Crude Birth Rates

Population	Child/Woman (C/W)
Saudi Women	17.9
Non-Saudi Women	8.2
Total Population of Women in Saudi Arabia	**14.3**

Source: Household Health Survey, Saudi Arabia, 2018

Once again, there is a marked differential between the outcome for national Saudi women and that for expatriate women. The CBR range that has been observed in the human population is between 10 and 50; thus, the rate for national Saudi women is slightly above the international average while that for non-Saudi women is below the international average.

The inclusion of all ages and sex makes the measure crude. Comparisons are not logical, as births are not related to females at risk. However, three reasons are usually cited for the importance of this calculation. First, it is easy to grasp. Second, the data requirements and calculations are simple because what is needed consists of the total population and one year of birth information. Third, if one subtracts the CDR from the CBR, then he or she obtains what is called the rate of natural increase. To see the usefulness of the CBR, consider the location of Saudi Arabia in the international fertility regimes portrayed in figure 1. It is clear that the CBR for non-Saudi women is closer to the world minimum while that for Saudi women is close to the world maximum.

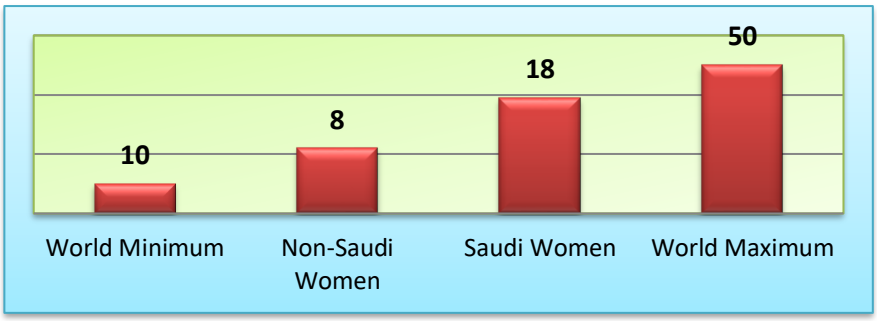


Figure (1): Comparisons of the CBR for Saudi and non-Saudi women with World Bounds
Source: Based on table 2

4.3 Age-Specific Fertility Rate (ASFR)

The definition of ASFR is as follows:

$$\text{ASFR} = \frac{\textit{Births in year to women aged } x}{\textit{Women aged } x \textit{ at mid-year}}$$

Often, although the ASFR is calculated per thousand women and seven age ranges of rates are calculated, as seen in Table 3, single-year rates are also common. Here, they are calculated per woman. Note that there is a big jump in the data requirements. Specific fertility rates are given in the Household Health Survey of Saudi Arabia for 2018 for both Saudi women and the total population of women; however, it is easy to observe that the lower range of ASFR for the total population of Saudi women is an indication of the lower fertility rate among non-Saudi women. As previously reflected in the child/woman ratio and the crude birth rate, the age-specific fertility rates for all women are lower at all ages than those for Saudi women. However, although the age-specific fertility distributions for Saudi and non-Saudi women are different in regard to level, they look similar in pattern. Both distributions have a late peak, indicating that both Saudi and non-Saudi women achieve approximately 50% percent of their fertility by age 31, with similar dispersion. See Figure (2).

Table (3): ASFRs for the Total Population of Women and Saudi Women

Age Groups	ASFR for Saudi Women	ASFR for Total Population of Women
15 - 19	0.0076	0.007384
20 - 24	0.0615	0.066228
25 - 29	0.1113	0.099686
30 - 34	0.1244	0.104826
35 - 39	0.1091	0.073272
40 - 44	0.0421	0.02569
45 - 49	0.0097	0.007149

Source: Household Health Survey, Saudi Arabia, 2018

As reflected in Figure (2), the ASFR is lower for all women than for Saudi women in all age groups, except, perhaps the younger age groups (15-19 and 20-2); however, the shapes of the two curves are astonishingly identical. They tend to show regular features, i.e., a rapid rise to a peak in the early or mid-twenties and a gradual decline to very low levels after age 40. These regularities make the ASFRs amenable to mathematical modelling.

The major inconvenience of ASFRs stems from the fact that they are not single numbers but rather a set of seven rates. As such, comparisons become a little complex. Fortunately, this problem can be overcome by summarizing them by using the total fertility rate.

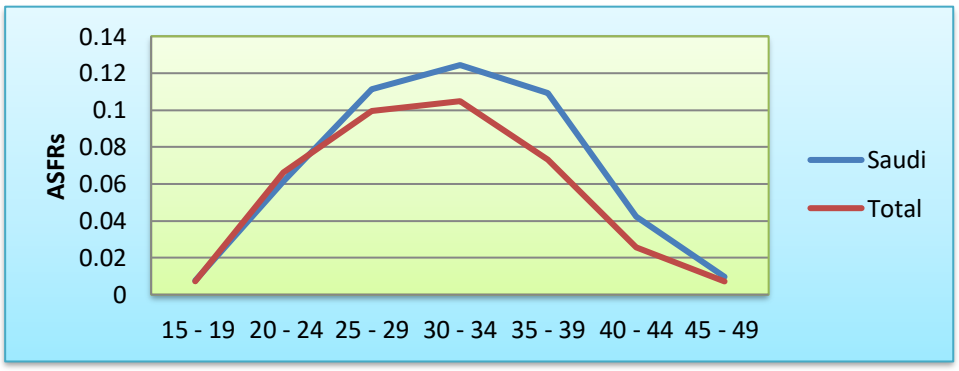


Figure (2): Comparisons of ASFRs for Saudi and non-Saudi Women
Source: Household Health Survey, Saudi Arabia, 2018

4.4 Total Fertility Rate (TFR)

Sometimes, this is called the total period fertility rate (TPFR), and the TFR is the mathematical sum of the ASFRs. However, there are some complications related to the average age interval. Thus, it is necessary to multiply the five-year rate by five. Second, the TFR is almost always expressed per woman, whereas ASFRs are often expressed per 1,000. If that is the case, then it is necessary to divide by 1,000.
The formula is thus as follows:

$$\text{TPFR}=\frac{Sum\ of\ ASFRs*5}{1{,}000}$$

The total fertility rates for Saudi women and the total population of women are calculated from Table 3 as 2.33 and 1.92, respectively. It then becomes very clear that the fertility of indigenous Saudi women is higher than that of expatriate women by 0.41 children per woman. This is a very high differential because for every 1000 women, Saudi females have 410 children more than non-Saudi women do. Before we discuss the reasons for such a large disparity, we first look at the variation in TFR by region in Saudi Arabia.

As shown in Fig. (3) below, the TFR for all women is consistently lower than that of Saudi women, which is an indication that expatriate women have a lower total fertility. If TFR=2 is taken as a cut-off point, we notice that in all regions, the TFR of Saudi women is greater than 2.0, except for in Jazan, Al-Baha and Al-Jouf. In contrast, the TFR for the total population of women is lower than 2 for all regions except for Tabuk, the Northern Borders and Najran.

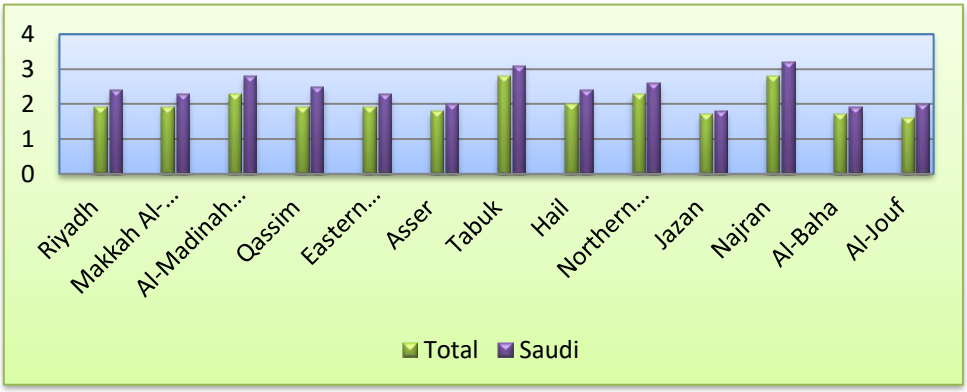


Figure (3): Comparisons of TFR for Saudi and non-Saudi Women by Region
Source: Household Health Survey, Saudi Arabia, 2018

4.5 Measures of Reproductivity

Reproductivity considers the extent to which one generation of females reproduces itself. It addresses two important measures of period fertility, namely, the gross and net reproduction rates, and two-time measures of period fertility, namely, the mean of the age-specific fertility distribution and the mean age of childbearing.

4.5.1. The Gross Reproduction Rate (GRR)

This measure is very similar to the total fertility rate (TFR), except that it considers only females rather than all births. It is calculated in the same way as the TFR but uses female age-specific fertility rates (Keyfitz, 2005). As shown in Table (4), the GRR for Saudi women is 1.14 (0.2271*5) children per woman.

Table (4) Gross and Net Reproduction Rates for Saudi Females

Age Group	Saudi Females ASFRs	Exact Age	lx	5Lx	Female Births in the Stationary Population	Midpoint of Age Group	Average Female Births	Average Female Births in the Stationary Population
(1)	(2)	(3)	(4)	(5)	(6) = (2)x(5)	(7)	(8)= (2)x(7)	-
15 - 19	0.0037	15	0.9991	4.995	0.0185	17.5	0.0648	0.324
20 - 24	0.0300	20	0.9989	4.965	0.1489	22.5	0.675	3.35
25 - 29	0.0543	25	0.9871	4.911	0.2667	27.5	1.468	7.334
30 - 34	0.0607	30	0.9774	4.867	0.2954	32.5	1.973	9.6
35 - 39	0.0532	35	0.9695	4.967	0.2642	37.5	1.995	9.907
40 - 44	0.0205	40	0.9091	4.318	0.0885	42.5	0.871	3.761
45 - 49	0.0047	45	0.8183	-	-	47.5	0.223	-
Total	**0.2271**				**1.0822**		**7.2698**	**34.276**

Source: Household Health Survey, Saudi Arabia, 2018

The gross reproduction rate is understood as the average number of female births by a woman who has reached age fifty with constant ASFRs. Remember that the GRR, like the TFR, is a period rate and therefore has nothing to do with any real cohort. Instead, it considers a hypothetical, synthetic cohort, as illustrated earlier. A GRR= 1.0 means that the female population is approximately replacing itself, while a GRR= 2.0 may be taken to imply that the population is doubling itself within a generation; that is, each woman is producing, on average, two daughters. However, it is important to be very careful in the interpretation of the GRR, not only because it is a measure of period fertility but also because it does not consider mortality between the ages of 15 and 50. Thus, a GRR > 1.0 is essential for a woman to substitute herself although this depends on the extent of mortality. The same applies to the TFR of course; i.e., a figure of over 2.0 is required to ensure that in the long term, the population maintains its size.

Similarly, the GRR for all women in Saudi Arabia is 0.94 children. The results suggest that every 100 Saudi women are replacing themselves with 114 daughters while every 100 non-Saudi women are replacing themselves with only 94 daughters. This explains the differential between the two groups in an intrinsic way.

Obviously, all the daughters will not survive to substitute their mothers, and all mothers will not live to the end of their fertile years. This impact of mortality is controlled for in the next measure, namely, the net reproduction rate.

4.5.2 The Net Reproduction Rate (NRR)

Basically, the net reproduction rate (NRR) is the GRR adjusted by mortality. This adjustment is done by multiplying each ASFR for daughters by the probability of surviving to that age and then summing and multiplying by five (Alho & Spencer, 2006). The NRR is always slightly less than the GRR, and the difference is dependent on mortality. The probability of surviving to a certain age x is referred to as lx, so the calculation of the NRR requires both female ASFRs and a life table (Skiadas & Skiadas, 2018). Note that a precise life table for females for the year in question is not essential; any reasonable estimate is adequate. The calculations for Saudi Arabia in 2018 are shown in Table 9.2 and are based on a life table that was calculated from age-specific death rates extracted from 2017.

In Table 4, the NRR for Saudi females is 1.082 (sum of column 6). The difference of 0.06 children was a result of the female mortality in 2018. Calculated in the same way, the NRR for the total population of women (including non-Saudi women) is 0.90. The fertility timing of Saudi and non-Saudi women was almost the same, as the mean childbearing periods calculated from Table 4 were close for the two groups, i.e., 31 and 32 years, respectively. This is because, as indicated earlier, the shapes of the age-specific fertility curves for the two groups are similar with moderate skewness and kurtosis.

5. Explaining the differential

To date, the evidence points to a marked difference in the fertility performance of Saudi and non-Saudi females that indicates higher fertility levels among Saudi women. The Saudi Household Survey from 2018 did not provide predisposing variables with which to analyse the determinants of the differential except, perhaps, one variable. This variable reflects the data relating to the prevalence of the use of modern contraceptives for Saudi women who are currently married and that of the total population of women, which is classified by age groups of women in the reproductive period (Table 5).

Although the table apparently seems to support the hypothesis that family planning practises in Saudi Arabia have played an important role in the fertility transition that has been gaining momentum in Saudi Arabia since 1984, it also explains partially some of the effect of family planning on the fertility differential, as 33% of non-Saudi women are current users of contraceptive methods compared to 30% of Saudi women (Salam, 2013).

Table (5): Contraceptive Prevalence Rates by Age Group

Age Group	Total Population of Women	Saudi Women
15 - 19	15.0	12.0
20 - 24	22.4	20.7
25 - 29	31.8	32.1
30 - 34	34.6	33.6
35 - 39	36.1	33.1
40 - 44	37.8	33.1
45 - 49	24.7	21.9
Total	**32.9**	**30.4**

To investigate the root causes of the differential, one needs to examine the marriage patterns present in the two groups, particularly age at marriage; however, this is beyond the scope of this paper. Nevertheless, the fact that has emerged from this research thus far is that the total fertility for both Saudi and non-Saudi women has been declining for the last three decades.

To carry the analysis a step further, we looked at the historical pattern of the TFR for the period 1960 – 2016, as provided by the Saudi Household Survey for 2018. Time series for Saudi and non-Saudi women are not available

separately; instead, they are available for the total population of women in Saudi Arabia only. Table (6) suggests that the total fertility in Saudi Arabia has been declining continuously since 1983.

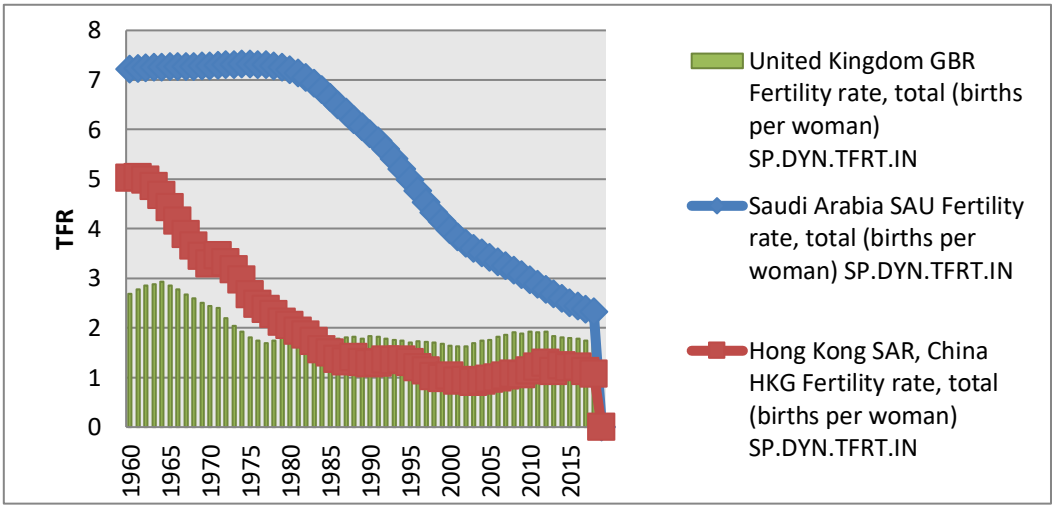


Figure (4): Fertility Transition in Saudi Arabia, the UK and Hong Kong for the 1960-2018 Period

Comparing the fertility transition in Saudi Arabia with that of the United Kingdom and Hong Kong for the same period, we notice the following:

- When the fertility transition started to decline in Hong Kong and later in Saudi Arabia, the trend had already gained great momentum in the UK. The decline started in Saudi Arabia at the beginning of the eighties, i.e., from slightly more than 7 children in 1960 to 2.3 children in 2018, when the TFR in the UK was less than 3.0.
- The transition in Hong Kong started slightly earlier than 1960 but proceeded at a faster pace, thereby surpassing the UK transition and reaching the replacement level in 2018.
- The transitions in the UK and Hong Kong witnessed ups and downs in the process, while the fertility rate was steadily decreasing in Saudi Arabia, which suggests that the data for Saudi Arabia has been somewhat graduated or smoothed.
- The transitions in Saudi Arabia and the UK have been influenced by migrants in both countries, but the migrant fertility rate in the UK suggests a convergence with the domestic population (Hazazy, 2018) while that in Saudi Arabia shows the opposite as the fertility rate of non-Saudi women is already consistently lower than that of domestic women.
- While a further decline in the fertility rate of domestic Saudi women is feasible, any further decline or transition in the fertility of non-Saudi, UK and Hong women would lead to a negative trend in population growth. This means that a second demographic transition in these countries would eventually lead to dwindling population size (Caldwell, 2007).

6. Conclusion

The methodological study attempted in this paper aimed to investigate period fertility in Saudi Arabia and has actually raised more questions than answers. It has been consistently shown that the fertility of expatriates in Saudi Arabia is lower than the fertility of Saudi domestic women; however, the reason for the disparity was not established, as the sufficient influence of contraceptive practises has not been confirmed. The replacement level analysis showed us that the expatriate population will dwindle in size if fertility continues to decline among this population. However, the fertility transition that has been taking place in Saudi Arabia is suggestive of further decline before the transition is complete. It is, however, paramount for the Saudi statistical authorities to provide needed information regarding predisposing variables that influence differential fertility between domestic and expatriate women, especially since the majority of expatriate women come from countries where the fertility rate is exceptionally high and no evidence of such a transition has, thus far, been noticed in these countries.

Acknowledgements:

The author would like to thank the Deanship of Scientific Research, Prince Sattam Bin Abdulaziz University, Saudi Arabia.

The author also extends thanks to the General Authority for Statistics in the Kingdom of Saudi Arabia for providing him with the data for this paper.

References

1. Alho, J., & Spencer, B. (2006). *Statistical demography and forecasting*. Springer Science & Business Media.
2. Alwulayi, S. A. (2020). *Social and Demographic Drivers Impacting Family Planning and Family Size in Buraydah City*, Saudi Arabia.
3. Bongaarts, J. (2002). The end of the fertility transition in the developed world. *Population and development review*, 28(3), 419-443. https://doi.org/10.1111/j.1728-4457.2002.00419.x
4. Burch, T. K. (2003). Demography in a new key: A theory of population theory. *Demographic research*, 9, 263-284. https://doi.org/10.4054/demres.2003.9.11
5. Burch, T. K. (2017). *Fundamentals of Demographic Analysis*: Concepts, Measures, and Methods.
6. Caldwell, J. C. (2007). *Demographic transition theory*. Springer Science & Business Media.
7. Carmichael, G. A. (2016). *Fundamentals of demographic analysis: Concepts, measures and methods*. Cham, Switzerland: Springer.
8. Cohen, P. N. (2021). *Hard times and falling fertility in the United States*.
9. Hazazy, M. (2018). *Statistical Analysis on the Trends and Determinants of Birth Rate in the Kingdom of Saudi Arabia* (Doctoral dissertation, Morgan State University).
10. Henry, L. (1972). *On the Measurement of Human Fertility: Selected Writings of Louis Henry*. Amsterdam; New York: Elsevier Publishing Company.
11. Keyfitz, N. (2005). *Applied mathematical demography*. Springer.
12. Khraif, R. M. (2001). *Fertility in Saudi Arabia: levels and determinants*. In XXIV General Population Conference, Salvador, Brazil (pp. 18-24).
13. Newell, C. (1990). *Methods and models in demography*. Guilford Press.
14. Newell, C. (Ed.). (1986). A *manual of formal demography. London School of Hygiene and Tropical Medicine*, Centre for Population Studies.
15. Salam, A. A. (2013). Nuptiality and fertility in Saudi Arabia: An appraisal of census data. *Middle East Fertility Society Journal*, 18(3), 147-153. https://doi.org/10.1016/j.mefs.2013.04.006
16. Shryock, H. S., & Siegel, J. S. (1980). *The methods and materials of demography* (Vol. 2). Department of Commerce, Bureau of the Census.
17. Skiadas, C. H., & Skiadas, C. (Eds.). (2018). *Demography and health issues: Population aging, mortality and data analysis*. (Vol. 46). Springer.
18. Smith, D. P. (2013). *Formal demography*. Springer Science & Business Media.
19. Thasineku, O. C. (2019). Estimation of Fertility Levels and Trends in Nepal. JMC Research Journal, 8(1), 53-63. https://doi.org/10.3126/jmcrj.v8i1.43079
20. Thomas, R. K. (2018). *Concepts, methods and practical applications in applied demography*: an introductory textbook. Springer.
21. Thompson, O. (2022). Selected Fertility and Racial Inequality. *Journal of Human Resources*, 0221-11481R2. https://doi.org/10.3368/jhr.0221-11481r2
22. Yeung, W. J. J. (2022). *Fertility. In Demographic and Family Transition in Southeast Asia (pp. 45-60)*. Springer, Cham.

رفاد REFAAD
www.refaad.com

المجلة العالمية للاقتصاد والأعمال
Global Journal of Economics and Business (GJEB)
Journal Homepage: https://www.refaad.com/Journal/Index/2
E-ISSN 2519-9293 | P-ISSN 2519-9285

التحليل المنهجي لخصوبة الفترة في المملكة العربية السعودية لعام 2018

أيمن محجوب
كلية إدارة الأعمال- جامعة الأمير سطام بن عبد العزيز-الخرج- المملكة العربية السعودية
am.mohammed@psau.edu.sa

DOI: https://doi.org/10.31559/GJEB2022.12.4.8 **قبول البحث:** 2022/6/19 **مراجعة البحث:** 2022/6/6 **استلام البحث:** 2022/5/21

الملخص:

القياس الدقيق وتقييم مؤشرات فترة الخصوبة في مجتمع متعدد الأعراق يمكن أن يساعد في تفسير الاختلافات. الهدف من هذه الورقة هو تطوير منهجية لتحليل مؤشرات خصوبة الفترة بشكل منهجي ومناقشة الفروق في مستوياتها وأنماطها بين النساء السعوديات وغير السعوديات في المملكة العربية السعودية بقدر ما تسمح به البيانات المتاحة. تم الحصول على البيانات المستخدمة من مصادر رسمية نشرتها الهيئة العامة للإحصاء في مسح صحة الأسرة 2018، ومن ثم تم استخدام المنهج الكمي لحساب مؤشرات الخصوبة. بدأت مؤشرات الخصوبة المقدرة بالفترة من أبسط المعدلات إلى المعدلات الأكثر تعقيدًا، مع توضيح كافٍ لمزايا وعيوب كل منها. تظهر الورقة باستمرار أن خصوبة الوافدين الي المملكة العربية السعودية أقل من خصوبة المرأة السعودية، ولكن لم يتم إثبات سبب هذا الاختلاف، حيث لم يتم تأكيد التأثير الكافي لممارسات منع الحمل. كما تم الكشف عن انتقال ديمغرافي بسبب انخفاض الخصوبة منذ أوائل الثمانينيات إلى وقتنا الحالي، أيضًا متوقع انتقال ديمغرافي أخر في المستقبل. بناء على الاستمرارية في المعدلات المنخفضة للخصوبة.

الكلمات المفتاحية: سنوات شخص؛ خصوبة الفترة؛ الخصوبة الطبيعية؛ معدل الخصوبة الكلي؛ مؤشرات الخصوبة؛ الإنجابية.