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Original Article

Education's impact on fertility: The case of King Saud University Women, Riyadh

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ABSTRACT

Background: Saudi Arabia has a less favorable position to demographic transition due to the traditions, culture, and norms. But with modernization, urbanization and industrialization leading to educational improvement and lifestyle changes, values of children erodes. Thus, a study to investigate the value of education on fertility, entertained to capture this mere fact, specifically to analyze the role of education on fertility; variations created; economic variables; and contraception.

Methods: This is based on a random sample drawn from a Riyadh based university, taking ever married Saudi Arabian women employees. Linear regression, logistic regression, one-way ANOVA, and chisquare analyses were carried out to depict the role of education on number of children and other related variables.

Results: Education has high predictive value on age at marriage, age of husband at marriage, ideal family size, and contraceptive use; although not predictive, it creates variations on number of children, years lived with husband and intended number of children. Education's association with economic variables – type of job, home ownership, and income as well as age of contraceptive users shows its prominence as a catalyst in the future of fertility in the Kingdom.

Conclusions: Thus, the improving educational levels at current pace shall bring down fertility remarkably warranting attention, policy measures and population programs to retain it above the replacement level.

1. Introduction

Education has been explained as 'the best contraceptive', thus expecting a great impact on fertility decline. But it operates differently on populations, works out not only to reduce fertility but also to pave way for demographic transition. Its effect depends upon the socio-economic and developmental conditions. It proved to be a strong determinant of fertility in certain developing country populations but not yet proved to be strong in certain others, for example, Saudi Arabia. Such low impacts may be due to the economic conditions – per capita income, modern life style, religious traditions and customs, and low population pressure. However, Saudi Arabia and other Arab countries foster a pronatalist policy that discourages birth control measures – both natural and program methods.

Theoretically, education is preceded by the change in life style, including livelihoods. A change from traditional agricultural based livelihood to modern service based livelihood creates an importance to education, which in turn increases the cost of bringing up children. Simultaneously, reduces the economic values or contributions of children to the household agriculture/livestock; at the same time, increases the importance of involvement in academic activities to upgrade qualifications and employment and career aspirations. This, in turn, delays family formation endeavors such as marriage, child births, home purchase, and others. Such involvements influences fertility of community, society, and the state.

States like Saudi Arabia, attach taboos to birth control measures but are moving towards modern life style characterised by service oriented employment, independent apartment based nuclear family, entertainment boosted by Hyper Mall based shopping and hobbies, educational pursuits outside of the Kingdom, and so on. This

Abbreviations: ANOVA, Analysis of Variance; SPSS, Statistical Package for Social Sciences; Ph.D., Doctor of Philosophy.

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is a change from the traditional to most modern life style comparable with that of the Western countries. But restricted by the traditions, customs, religious beliefs, and parental control creating a confusion in line with fertility decisions and reproductive behaviors. Such conflicts may divert the effect of education on fertility. Coupled with this is the favourable attitude to high fertility as a solution to reduce expatriate labor [1,2].

Fertility, as explained, is influenced by a combination of economic, social and anthropological factors. Education influence fertility negatively that illiterate women tend to have larger number of children [3]. In addition, mortality decline is explained as an underlying cause of fertility decline even though government policy, contraceptive availability, education, ideation, and culture are influencers [4] However, a link between fertility stalls and discontinuities in the improvement of education has been established [5]. Moreover, birth chances are more likely to be concentrated among less educated women, despite the increase in education levels, as evidenced from China [6].

Education, in the Saudi Arabian context, has found to influence fertility both positively and negatively [7,8]. However, educational upliftment along with economic opportunities of women, improved access to reproductive health information, services at schools, health campaigns, and involvement of men in family planning decision making have an impact on fertility [9]. In addition, age and employment; maternal age, level of education, family size and breastfeeding; age of mother, age at marriage, and education were proved to be significant influencers of birth interval [10–12].

It is presumed that Saudi Arabian women education has not started impacting upon their fertility behavior rather operates indirectly through employment and contraception. This route shall establish a strong impact on fertility in the near future unless compromised by deterioration of school quality and the shift in the age pattern of enrolment [13]. Also important in this context is the women's autonomy – a significant predictor of birth-to-conception intervals, after adjusting for demographic and socioeconomic factors, with higher autonomy positively associated with larger birth to conception intervals [14]. However, Saudi Arabia, a high fertility but declining mortality in high socio-economic conditions [15], shows a less favourable position for transition according to female education and infant mortality rates as improved female education has not yet been reflected in significant fertility decline [16]; consanguinuity in marriage might have played a role [17,18].

2. Objectives

Education's predictive value on fertility is examined by engaging a special group of ever married women working in an academic institution in Saudi Arabia. The specific objectives of the study are

- To analyze the impact of education on fertility determinants – age at marriage, age of husband at marriage, ideal number of children, and contraception
- To explain the variations created by education on fertility determinants – number of children, infants deaths, years lived with marriage and intended number of children
- To assess the value of education on economic variables influencing fertility – type of job, houseownership and income

3. Methodology

This study is carried out at King Saud University, the biggest and oldest university in the Kingdom, located in Riyadh, the most populous city, by taking a random sample of ever married women employed either in academic jobs or in non-academic jobs (Table 1). There were 26,975 staff members in the university, as of 2014; out of which 11,390 were ever married (6481 males and 4909 females). Saudi staff constitutes 59.0% (6676) whereas the Non Saudi constitutes 41.0% (4714).

Table 1
Distribution of Ever married King Saud University Staff.

Category	Male	Female	Total
Saudi			
Academic	1624	1243	2867
No Academic	1929	1880	3809
Total	3553	3123	6676
Non Saudi			
Academic	1772	311	2083
No Academic	1156	1475	2631
Total	2928	1786	4714
Total			
Academic	3396	1554	4950
No Academic	3085	3355	6440
Total	6481	4909	11,390

In order to ensure a confidence level of 95 with a margin of error of 5 for the 3123 Saudi native ever married women members of the university staff, the desired sample works out to be 343 (refer http://www.raosoft.com). Adopting a simple random sampling method, sampling elements were selected from the women's campus of the King Saud University (under the Ministry of Higher Education, Government of Saudi Arabia), covering both academics and non-academics. This study made use of a structured tool to collect information such as (i) background data, the independent variables; (ii) marital history; (iii) birth history; and (iv) ideal and actual family size. In addition, the tool incorporates a number of cultural and socio-economic variables hypothesized to play a role in fertility, especially in the cultural context, taking into account the special characteristics of the sample that differentiate it from the general population. The self-administered tools (questionnaires) were supplied to the respondents by a trained field investigator, during January-March 2015. Scrutinized and finalized data has edited, coded, computerized and analyzed using SPSS 20.

4. Results

Education, the best contraceptive, undergone examination along fertility indicators employing a linear regression method, which obtained R square values of 0.039 (age at first marriage), 0.032 (age of husband at first marriage) and 0.015 (ideal number of children), reflecting its importance. The first two indicators have a positive coefficient (β), which indicates a relationship that "increasing education increases the age at marriage and thus age of husband at marriage", thus reducing the years of reproductive life. This result confirms with universally accepted theories that education influence fertility through age at marriage. Reductions in the reproductive span (years of effective marital life), of course, reduces the number of conceptions. On the other hand, there is a declining ideal number of children with increasing educational levels, a negative β value. All the three variables have β values significant; thus reflecting the value of education (see Tables 2 and 3).

It is believed that education of a woman leads to birth spacing/control, thus influencing fertility level. Education of women of this special group predicts likelihood of contraception, significantly and positively, at the tune of 1.388 times per unit, as revealed by logistic regression analysis. It means that education has a good predictive value in the use of contraception. Thus, encouraging education promotes contraception, even under strong religious faiths and restrictions of birth control as is prevalent in the Kingdom.