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FERTILITY PREFERENCES AND ITS DETERMINANTS AMONG MARRIED WOMEN IN BADULLA DISTRICT

P.Godwin Phillip[1*],A. Thayaparan[2], & N.Neruja[3]
[123]*Department of Economics & Management, Vavuniya Campus of the University of Jaffna, Sri Lanka*
[*]*Corresponding author: paulinagodwin73@gmail.com*

Abstract

This study attempts to explore the determinants of fertility preferences amongmarried women in Badulla District. For this purpose, 150 married women with the child bearing age of 15-49 are selected on the basis of convenience sampling method and the relevant information were gathered through the structured questionnaires during the period of November 2018 to January 2019 in the Ella Ds Division of the district. The data were analyzed using descriptive statistics, chi-square test, binary probit model and marginal effects. Results of frequency reveal that, 66 percent of the married women do not prefer to have another child while 34 percent of them prefer to have an additional child. Chi-square results show that demographic and socio-economic factors are significantly associated with their preferences of fertility. Among these factors, use of family planning, fertility preference of the husband, household monthly earning, education of wife and husband have statistically associated with fertility preference of the married women in the study area.To identify the determinants of fertility preferences among the married women,probit model is employed and its results indicated that all demographic factors negatively impact on the preferences of fertility and amongsocio-economic factors excepthousehold monthly earning and wife's education, all others are significantly impact on the fertility preferences in the study. These findings may help to policy makers to implement the appropriate family planning programs in future.

Keywords: *Fertility preferences, demographic, socio-economic and cultural factors, child bearing*

1. Introduction

Fertility preference is one of the main issues among women employed in the country. However, labor plays a dual role in the economic process, such as the input of production and the source of earnings. Women's labor force participation is an essential aspect of Sri Lanka's growth and development, as it plays a major role in all development spheres and makes a substantial contribution to the country's economy. In addition, in the first quarter of 2020, women's labour force participation in Sri Lanka was estimated to be 33.3 percent (Sri Lanka Labor Force Survey, Quarterly Report-2020).

Even before policy decisions were made to implement family planning at the national level, Sri Lanka's fertility started to fall. In Sri Lanka, the fertility change started in the early 1960s. In 2016, Sri Lanka's fertility rate was 2 births per woman. Sri Lanka's fertility rate declined over time, from 4.7 births per woman in 1967 to 2 births per woman in 2016 (Sri Lanka Fertility Rate, 1960-2017). However, a small rise in total fertility rate (TFR) to 2.3 and 2.4 was found, respectively (Sri Lankan DHS -2006/07 and 2012 Population Census). The factors influencing the

likelihood of having a bigger family of more than two children suggests that women with a lower level of education were more likely to have a larger number of children than women with a higher level of education.

The majority of women in Badulla work in the labour market. According to the Sri Lanka Labor Force Survey, Annual Report-2017 with provincial and district level results, the district of Badulla reported an LFPR of 59.7% and a female labor force participation rate of 47.2 percent, respectively.Even though the TFR of the Badulla district was 2.3 per cent, which faced a fall in the TFR (SLDHS-2016). These findings indicate that increased female participation leads to increased average LFP as well as a significant decrease in fertility preferences over time. As a result, deciding whether to have the next child, how many children to have, and when to stop child bearing is challenging for women.

Women's labor force participation differs substantially by region, representing disparities in economic development, social norms, levels of education, fertility rates, and access to childcare and other supporting services. There are still large differences and gradual rates of decline in fertility among married women in the workforce.Normally, Women who work outside the home typically do not want to take any risks with their pregnancies, and they choose to space their births out and have less children.

Since, the concept of fertility preferences mostly related to the married women if they are in the labor force. But there are many factors determining and connecting with the fertility preferences of married women. Thus, identifying the other determinants of fertility preferences play a significant role in the demographic structure of Sri Lanka. In this background, find out the determinants of TFR is an important study in the Sri Lankan economy. There are a smaller number of studies have been done by the researchers in Sri Lanka related to this research. Even some researchers have done without econometrics models. Thus, to fulfill this research gap the researcher try to do the study related to determinants of fertility preferences among married women in Sri Lanka using econometrics model such as Probit model & Marginal effects.

2. Objectives

The primary objective of this study is to examine the determinants of fertility preferences among married women in Sri Lanka with Special Reference to Ella Ds Division in Badulla District.
The specific objectives are,

- To find out the relationship between fertility preferences of married women and their demographics and socio-economic characteristics.
- To examine the impact of demographics, socio and economics factors on fertility preferences among the married women.

3. Literature Review

3.1 Theoretical background

Becker and Lewis (1973) has studied about the Interaction between quantity and quality of children in Chicago and his study shows that highly educated women have a tendency to replace child numbers with child quality. Since child bearing and child caring are time-intensive, an increase in wage rate induces a negative substitution effect on the demand for children. It concluded that as having a higher income level implies there is higher opportunity costs associated with having children. Gary Becker's fertility theory holds that with higher income

people would purchase more children, the people behaving as they would in purchasing consumer durables. However, higher income groups frequently have fewer children.

Simmons (1985) has given information about the theories of fertility in New York. It explained major macro level approaches include the population theories of Malthus and of Marx and the demographic transition theory. According to Malthus, population growth reduces income. As income declines, couples begin to marry later. Subsequently, fertility begins to decline. In contrast, Neo Malthusian theory is more concerned with limited resources at the family level. According to this theory, high fertility depresses a family's living standard and fertility can be controlled by contraception as well as by late marriage. This theory ignores the economic value of children and treats children as consumption units. Micro economic theories seek to explain differences in fertility at the household level. The fertility decisions made by a couple are conceptualized in terms of market choices. The home economic model, as initially formulated by Becker, stresses the demand for children and treats children as consumption goods. According to this model, if a couple's income increases, they will increase the number and quality of their children. Becker and others later explained the model to recognize the stochastic component of fertility and the impact of external factors on fertility. The social determinants model recognizes that couples vary in regard to the value they place on children and that there are biological constraints on fertility. In addition, social determinants models use control variables such as religion and education.

Jolly &Gribble (1993) analyzed the approximate determinants of fertility in Sub Saharan Africa. They explained that the factors affecting fertility can be classified in to two groups: Background variables and intermediate or proximate variables. The former includes cultural, psychological, economic, social, health and environmental factors. The proximate determinants are those factors that have a direct effect on fertility. The background factors operate through the proximate determinants to influence fertility; they do not influence fertility directly.

Preference theory is a new concept to understanding the current and future outlines of women work and fertility in modern societies. The findings support the variability of women's desires, implying that preferences are the key determinants of fertility and jobs decisions (Population council,2003).

This theory is divided into two parts: the impact of fertility rate on the ratio of young adults to older adults, and the impact of relative numbers on wages and unemployment. Macunovich (2000) the primary consequence of cohort size (births) is the relative earnings of younger men in the labor force compared to older men. The Macunovich model analyzed the relationship between male relative income and female wage: an increase in male relative income leads to an increase in fertility, while an increase in female wages leads to downward pressureon fertility. In her model, she suggests that during a period of high male wages the opportunity cost relative to female wages is greater than the income effect. During this time the female income instead has a positive effect on fertility.The labor supply cyclical fertility model developed by Easterlin is based on two variables: family income and the opportunity cost of women's time: The model hypothesizes that couples in higher income brackets will have more children. They predict that females who earn more money will have fewer children because of the opportunity cost.

3.2 Empirical review

In literature several scholars have already addressed that, several factors have a strong impact on fertility desires. According to Oyediran and Isiugo-Abanihe (2002), this study examines the impact of husband-wife communication about fertility and family planning on fertility desires among marital dyads in the Yoruba towns of Ogbomoso and Lseyin, in Oyo state, Nigeria. Their explanation shows that, of all the variables considered,

spousal contact about family planning, husbands' and wives' ages, current family size, couples' education, and their degree of media exposure have a clear and meaningful impact on not having more children. According to the report, spousal contact about family planning is a significant precursor to fertility decline in Yorubaland.
The impacts of education and family planning programs on fertility are important in Indonesia have been found by the Angeles, Giulkey and Mroz (2003) indicate that Female schooling is a significant predictor of completed family size and the duration of the inter-birth period. The predicted decreases in fertility rates due to increased education usually outweigh the impact of most other factors, including variables used to assess the availability of family planning services.Based on these findings, some researchers have argued that initiatives to improve women's educational attainment could be the most successful way to encourage fertility reductions in developing countries.

Bankole &Audam (2011) have given information about the fertility preferences and contraceptive use among couples in Sub-Saharan Africa. For this purpose, using data from DHS this study revisits the issue of gender differences in fertility goals, and how these differences may contribute to the lack of substantial declines in fertility in the region. The results show that most spouses agreed with respect to their fertility preferences, whether in terms of desired number of children or desire for a future birth. When there were disagreements, men tended to want more children than their spouses. In most countries, contraceptive use among couples was not associated with differences in spouses' desires for a birth. However, for the few countries where a significant association was observed, couples were less likely to be using a method when the wife wanted to have more children and more likely to be using one when she wanted to stop childbearing. To ensure open and sustained use of contraception within a union, family planning programs must continue to involve men by helping them understand the importance of fewer and well-spaced births for the health of women and their children.

Utting& Bewley (2011) studied about the age and fertility in UK and his explanation shows that fertility starts to decline for women from about the age of 30, dropping down more steeply from the age of 35. As women grow older the likelihood of getting pregnant falls while the likelihood of infertility rises. Most women will be able to conceive naturally and give birth to a healthy baby if they get pregnant at 35 years old. After 35 years, the proportion of women who experience infertility, miscarriage or a problem with their baby increases. By the age of 40 only two in five of those who wish to have a baby will be able to do so. From a purely biological perspective, it's best to try to start a family before you're 35 years old. But Men can remain fertile for much longer than women. Even though male fertility also declines with age, it tends to happen gradually for men. The decline in male fertility can affect the health of the children they may go on to have. There is another important point to consider if you're trying for a baby when you're over 35. You have a higher chance of having a multiple pregnancy.

Wang (2014) has determined about the Fertility and Female Labor Force Participation: Evidence from the One-Child Policy in China and for this purpose, he used large data set from the population census and collected data was analyzed through the OLS regression. This study determination revealed that to empirically analyze the effect of fertility on female labor force participation, addressing the endogeneity problem with fertility in relation to labor supply is challenging. It shows that female labor force participation and fertility are always jointly determined. For example, if women's preferences for work are negatively correlated with their preferences for having more children, or If time and efforts spent on work discourage fertility, then the estimates of the effect of number of children on work outside home would be biased down. The bias could also go in the opposite direction: for example, some line of research has found that fertility in developing countries is determined through a collective bargaining process at the household level; and individuals with more bargaining power have more influence on the total number of children.

Pullum (1980) studied the descriptive analysis: the fertility preferences in Sri Lanka, and this study showed that stated preferences are analyzed adjusting for the respondent's current number of living children, the woman's current age, and the pattern of contraceptive use. Demographers have recently taken an interest in Sri Lanka as a result of a rapid decline in infant mortality, a more recent rapid decline in fertility. Because of the country's varied ethnic and religious communities, researching fertility preferences in Sri Lanka is intriguing. The greatest variations in fertility desires were observed in countries, sects, and ethnic groups, i.e., for variables which are fixed at birth. There was less variation on the basis of the characteristics achieved, such as schooling, the profession of the husband and the pattern of work. Interestingly, there was a rural preference for sons and an equally strong preference for daughters among urban citizens. The data also show that variables operating at the micro level have the greatest influence on family size preferences. The Hindus were the most successful religious group in achieving desired family size.

Maheswaran &Perara (2012) revealed that modern contraceptive technology has played a significant role in deciding family size. It also found a significant difference between the fertility desires and fertility decisions that exist especially among estate sector women. Though, the higher fertility preference exists among communities, the availability of modern contraceptive technology has lowered the fertility decision among married women. Furthermore, other factors, such as education, economic status and community level characteristics have a significant impact on fertility preference among married women in Sri Lanka. Moreover, still, the Muslim community has a high fertility preference as well as higher fertility. These findings suggest that modern contraceptive technology can be used to reduce fertility differences among communities.

Considering these researches most of the studies have been done related to the relationship between fertility preferences and female labor force participation or some other variables. Therefore, this study was focused to identify factors influencing on fertility preferences among married women.Since, the concept of fertility preferences mostly related to the married women who are in the labor force. In this background, finding out the determinants of TFR is an important study in Sri Lankan economy. There are few number of studies have been done by the researchers in Sri Lanka related to this research. Thus, to fulfill this research gap, the researchers attempted to do the study related with determinants of fertility preferences among married women in Sri Lanka using econometrics models. Even though there are some studies related to fertility preferences in Sri Lanka, it is hard to find out recent studies focusing particularly on fertility preferences of women employees. Further, fertility intention considered a reflection of subsequent fertility behavior. Therefore, the findings of this study could help in formulating policies in the future.

4. Methodology

This study has employed primary and secondary data where it necessary. The primary data were collected using convenience sampling method by issuing the questionnaire for 150 married women of Ella DS division in Badulla district. The study area was selected based on purposive random sampling method. In addition to this, sampling method and frequency analysis, chi-square test, Binary Probit model and marginal effects were also discussed. To identify the factors influencing on fertility preferences among married women, which has explained under the two main sub categories.

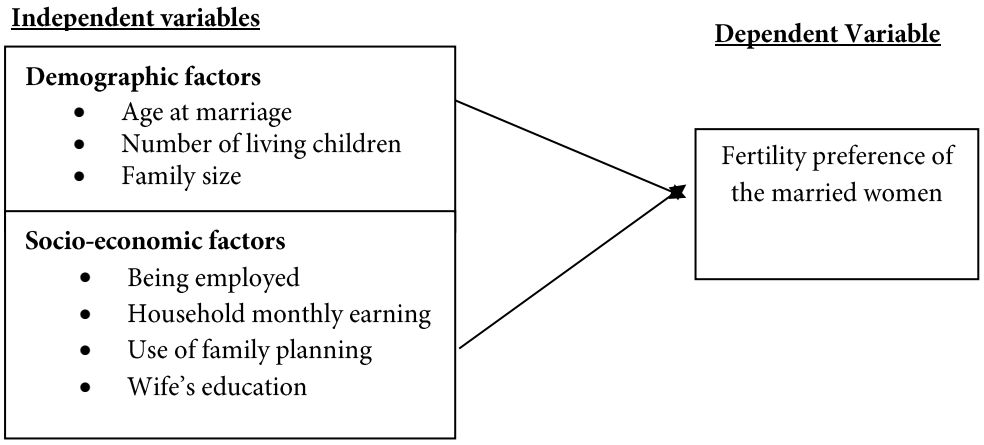

Figure 1: Conceptual framework

Source: Developed by researcher based on the previous research papers, 2019

Table 1: Definition of key analysis variables

Variables	Definition
Dependent Variables	
Fertility preference of the married women	1 for desire to have another child 0 for not desire to have another child
Independent Variables	
Age at marriage	Years
Number of living children	Numbers
Wife's education	Primary=1, secondary=2, higher=3
Use of family planning	If yes=1 otherwise 0
Ethnicity	Sinhala=1, Tamil=2, Muslim=3, others=4
Fertility preference of husband	If yes= 1 otherwise 0
Being employed	1 for labor force participant 0 for labor force not participant
Family size	Number of members
Household monthly earning	<20000 20000-50000 <50000

4.1 Binary Probit model

To identify the factors which are influencing on fertility preferences among the married women the binary Probit model was applied. If the dependent variable is binary in the form of zero or one binary Probit model is more appropriate than the multiple regression model.

The Probit model used in the study can be written as;

$$\Pr(Y = 1/X) = \emptyset(Z) = \emptyset(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \beta_8 x_8) (1)$$

Where, Yi = Fertility preference of the married women which has binary in nature, indicates that 1 for desire to have another child, 0 for not desire,Ø is standard normal cumulative distribution function, β1 to β8 are the effect on the Z-score of a unit change and X_1, X_2, X_3, X_4,X_5,X_6,X_7 and X_8 are the independent variables under each main sub categories and μ_i is error term.

5. Results and Discussions

This section describes the results derived from frequency statistics, chi-squared test and binary probit model.

5.1 Results of frequency statistics

In this study, it reveals that average age of the married women is nearly 21 years old. On the other hand, results of frequencies of the variables for fertility preference of the married women and ethnicity explained graphically in the chart and being employed, household monthly earning, use of family planning, wife's education and husband's education which was used in the study explained in the table as below.

Table 2: Frequency analysis for selected variables

Variables	Frequency	Percentage
Being employed		
Yes	75	50
No	75	50
Household monthly earning		
Less than Rs. 20,000	63	42.0
Between Rs. 20,000-50,000	76	50.7
Rs. 50,000 and above	11	7.3
Use of family planning		
Yes	123	82
No	27	18
Education of married women		
Primary	20	13.3
Secondary	107	71.3
Higher	23	15.3
Husband's education		
Primary	36	24.0
Secondary	99	66.0
Higher	15	10.0

Source: Author's calculation.

Based on the table, out of the 150 married women, exactly fifty percent of them are labor force participant and rests of the fifty percent of them are not participant in the labor market. At the same time, the majority of the married women are having the 50.7 percent of the household monthly earning which is in between the income group of Rs. 20,000-50,000 while 42.0 percent of them are in the income group of less than Rs. 20,000 and 7.3 percent of them are in the income group of Rs. 50,000 and above earning in their household. When considering the use of family planning of the married women it reveals that 82 percent of them are using anything of planning method in their household or tried in any way to delay or avoid getting pregnant while only 18 percent of them

are not. Through this part, it mainly identified about 13.3 percent of them have completed their primary education while majority of them have (71.3 percent) completed their secondary education and only 15.3 percent of them have completed their higher education level. In case of husband's education also the majority of them have completed their secondary education (66.0 percent) as like their counterparts while 24.0 and 10.0 percent of them have completed their primary and higher education level respectively.

Fertility preferences among the married women were measured that 66 percent of them do not desire to have one more child and 34 percent of them have an idea for another child in the research area.

5.2 Results of Chi- square test of the variables

The association between the fertility preferences of the married women and selected personal, socio-economic characteristics of the married women are explained by the chi-square test. According to the results of chi-square test, the variables of use of family planning and fertility preference of the husband under the personal factors, being employed and household monthly earning, education of women and husband under the socio-economic factors have statistically associate with two levels of fertility preference of the married women in the study area.

Table 3: Results of chi-square test

Variable	Desire to have (%)	Not desire (%)	$\varkappa 2$
(i) Personal factors			
Use of family planning	20.3	79.7	56.944*
Yes	96.3	3.7	
No			
Fertility preferences of husband	96.2	3.8	141.424*
Yes	0.0	100.0	
No			
(ii)Socio-economic factors			
Being employed	20.0	80.0	13.102*
Yes	48.0	52.0	
No			
Household monthly earning	27.0	73.0	5.766***
Less than Rs. 20,000	35.5	64.5	
Between Rs. 20,000-50,000	63.6	36.4	
Rs. 50,000 and above			
Education of married women	15.0	85.0	5.193***
Primary	34.6	65.4	
Secondary	47.8	52.2	
Higher			
Husband's education	16.7	83.3	7.821**
Primary	37.4	62.6	
Secondary	53.3	46.7	
Higher			
Ethnicity			
Sinhala	33.3	66.7	0.756
Tamil	34.4	65.6	

Muslim	35.7	64.3
Others	33.	66.7

Note: *, ** and *** represent 1%, 5% and 10% significant levels respectively.
Source: Author's calculation.

5.3 Results of Probit model and marginal effects

To identify the impact of personal factors on fertility preferences of the married women, Probit model and its marginal effects also estimated by the researcher in the study. Their estimated results of the Probit model and marginal effects are shown in table 4.

Table 4: Results of Probit model and marginal effects for the personal factors

Number of observations = 150 Pseudo R2 = 0.5625
LR chi2(3) = 108.17 Log likelihood = -42.07
Probability > chi2 = 0.0000

Variables	Estimated coefficients	Standard error	t- ratio	Marginal effects
Age at marriage	-0.128*	0.029	-4.39	-0.069*
Number of living children	-0.743*	0.256	-2.90	-0.114*
Family size	-0.449*	0.535	-3.81	-0.069**
Constant	6.93*	1.245	5.57	

Note: *& ** represents 1 & 5 percent significant level.
Source: Author's calculation

The above table reveals that as expected to the theory and some of the existing literature, age at marriage, number of living children and family sizeindicate that which have negative significant impact on the fertility preferences in the study area. The coefficient of the number of living children has negative sign reveals that the married women who have already number of living children, they have less probability to get one more child and it is statistically significant at the 1 percent level.

Table 5: Results of Probit model and marginal effects for the Socio-economic factors

Variable	Estimated coefficients	Std.Error	t-ratio	Marginal effects
Being employed	-0.978*	0.263	-3.71	-0.229*
Family size	-1.006*	0.180	-5.58	-0.236*
Use of family planning	-1.878*	0.560	-3.35	-0.454*
Household monthly earning				
Earning Between Rs.20,000-50,000	0.446	0.278	1.60	0.104
Earning Rs.50,000 and above	0.601	0.493	1.22	0.141
Wife's education				
Secondary	0.586	0.377	1.56	0.201
Higher	0.704	0.463	1.52	0.242
Husband's education				
Secondary	0.600**	0.288	2.08	0.206**

Higher	0.897**	0.444	2.02	0.308**
Constant	3.970*	0.777	5.10	

Note: * & ** represents 1 & 5 percent significant level.

Source: Author's calculation

The above results indicate that,the variables of being employed, family size and use of family planning have significant impact on fertility preferences of the married women and other two variables under the household monthly earning which are earning between Rs. 20,000-50,000 and Rs. 50,000 and above have insignificant impact on the fertility preferences of the married women in the study area as well as the husband who has completed their secondary and higher education levels indicates that which have significant impact on fertility preferences of the married women and other two variables of the secondary and higher education levels for the married women have insignificant impact on fertility preferences of the married women in the study area. The coefficients of the being employed of the married women has negative sign indicates that the women who are not in the labor force more probability to get one more child and it is statistically significant at the 1 percent level. Also, the family size of the married women shows negative sign which reveals that when the married women who have a greater number of family members in their household less probability to get an additional child and it is also statistically significant at the 1 percent level.

5. Conclusion and Recommendations

The main objective of this study was to determinants of fertility preferences of the married women in Sri Lanka with special reference to Ella DS division in Badulla district. This study showed that the average age of the married women is nearly 21 years old. According to the sample of 150 married women, 66 percent of them do not desire to have another child while 34 percent of them desire to have an additional child.

According to the results of chi-square test, the overall results conclude that variables of use of family planning and fertility preference of the husband under the personal factors, being employed and household monthly earning under the socio-economic factors and education of women and husband have statistically associate with two levels of fertility preference of the married women in the study area.

Results of the Probit model conclude that out of three variables of personal factors, all are statistically significant to determine the fertility preference of the married women apart from age at marriage while under the socio-economic factors also all are statistically significant apart from two levels of household monthly earning and husband's education up to secondary and higher are statistically significant to determine the fertility preference than the women's education.According to the results of marginal effect, it concludes that the women who have already number of children less probability to get one more child and the women who use family planning also less probability to become pregnancy under the personal factors.

Based on the discussion, major problem faced by the married women was their family responsibilities when deciding their maximum number of children within the household. In this study area, even though the married women who are either labor force participants or housewives have to think much more time about their intentions of fertility due to the family responsibilities within the household. Because, mostly they are working as a farmers or workers in the tea industry.

Following recommendations are suggested by the researcher especially for the policy makers regarding the working married women in the Ella study area.

- Government and private sector should take steps to improve child care facilities in working environments and formal rules and regulation should be established with regard to childcare facilities.
- Necessary activities and arrangements within the agricultural, tea industry and household should be mechanized and through that majority of the married women can minimize their workload.
- Government should take steps to enhance their awareness of family planning and establish proper counseling through the medical clinic at least once of month in order to empower the women.

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