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Domestic Violence, Family Structure and Women's Childbearing Preference: Evidence from Sri Lanka

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Abstract: Over the past decades, most of the countries in the world have undergone unprecedented demographic changes, such as childbearing preferences. This has been a basis for a large array of research; however, studies so far have focused a little on the impacts of domestic violence and family structure on childbearing preferences which is the overall aim of this study. A logistic regression model was developed using a large data set (8,776) that represents different residential sectors (urban, rural, and estate) in Sri Lanka. Results indicate that women in an extended family structure are more likely to prefer another child than women in a nuclear family. The disaggregated analysis indicates the heterogeneity in childbearing preferences. Precisely, the experience of domestic violence shows a negative impact in rural and urban sectors. The findings suggest providing appropriate programs on reducing family violence, alleviating poverty and encouraging women's education, to achieve healthy population growth and SDGs.

***Keywords*:** domestic violence, family structure, population growth, Sri Lankan Demographic and Health Survey

JEL Code: J11, J12, J13

1. Introduction

Over the past decades, most countries in the world have undergone unprecedented demographic changes which became evident with indicators such as trends in fertility, family structure, mortality, migration, urbanization, and population aging. Particularly, most developing countries experienced remarkable declines in total fertility rates [The total fertility rate is defined as the number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with current age-specific fertility rates. In this paper, we will use "total fertility rate" interchangeably with "fertility" and "fertility rate."] (Lerch, 2018), falling from an average of 5 children per woman in 1960 to an average of 2.5 in 2015 (de Silva & Tenreyro, 2018). Nevertheless, fertility level changes are not homogenous across the world; while some countries such as Japan show a declining trend, others such as Sub-Saharan African countries show increases (Adjei & Billingsley, 2017; Lam, 2009). Such factors would be important considerations in future economic development and economic planning.

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Theoretical analyses argue that high population growth exerts pressure on limited natural resources, reduces private and public capital formation and creates social problems. Higher population growth, if not managed properly, often leads to increasing poverty, additional strain on scarce resources, and increased government expenditure on basic facilities (Atanda et al., 2012; Berry, 2014). On the other hand, researches indicate the positive effects of higher population growth such as economies of scale and specialization, higher labor supply as well as higher demand for goods and services resulting in higher economic growth (Chang et al., 2014; Klasen & Lawson, 2007). In a recent study, the impact of population growth on demand for land and economic development have been explored (Tong & Qiu, 2020). The actual evidence on the association between growth rates of population and per capita income does not lead to a single conclusion. However, desirable population growth should be maintained to achieve sustainable economic growth (Bongaarts, 2016). Research evidence suggests that population growth should be neither extremely high nor too low. Nevertheless, national policies on population growth management are considered as important and integral elements of sustainable development.

One of the major determinants of population growth is women's childbearing preferences. According to previous studies, women's childbearing preferences have been changed due to different demographic and socio-economic factors such as the wealth of the household, education level, participation of the labor force, ethnicity, religion, age, the occurrence of child mortalities and stillbirths, number of living children, and employment status of husband (Campbell & Campbell, 1997; Weerasinghe & Parr, 2002; Dibaba, 2009; Matsumoto & Yamabe, 2013; Fagbamigbe & Adebowale, 2014; Perera, 2017). Some developing countries show sex preference in their childbearing preferences (Makino, 2018; Hesketh et al., 2011; Diamond-Smith & Rudolph, 2018). Empirical evidence in Nepal shows that domestic violence increases the risk of having a preterm baby (Pun et al., 2019). However, studies so far have focused a little on the impacts of domestic violence and family structure on childbearing preferences. Hence, this study sought to find the factors affecting the childbearing preferences of ever-married women in childbearing age with special emphasis on family structure and experience of domestic violence.

The majority of existing studies have considered national-level data and conclusions have been generalized for the whole country, ignoring the demographic and spatial differences. The present study emphasizes on both at the national level as well as for the different residential sectors: i.e. rural, urban, and estate sectors [Estate sector comprises of agricultural community: Urban sector: All areas administered by Municipal and Urban councils constitute the urban sector. Rural sector: All areas administered by Municipal and Urban councils constitute the urban sector. Estate sector: Estate sector consists of all plantations which are 20 acres or more in extent and with ten or more resident laborers.]. This study was based on data obtained from a secondary source namely Sri Lankan Demographic and Health Survey (SLDHS) conducted in 2016 which represents the entire country, with different ethnicities, age categories and wealth categories.

This research will explore how domestic violence and family structure affect the childbearing preferences of ever-married women of childbearing age in Sri Lanka, and the results can be generalized to all developing countries. Goal 5 under the Sustainable Development Goals (SDGs**)** emphasizes achieving gender equality and empowering all women and girls and targets to end all forms of discrimination against all women and girls everywhere and to eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation. The results of this research would be therefore useful in policy formulation to achieve gender equality to achieve SDGs. The results could also provide insights into changes in family structure (Wijesundara, 2020). Moreover, these results will suggest further development in the data collection process for the Department of Census and Statistics.

The rest of the paper is organized as follows; the next section provides a comprehensive review of empirical studies relevant to this research topic. Section 3 briefly discusses the data collection procedure, sample selection, and empirical models. The results are presented next followed by conclusion and policy recommendations.

2. Factors affecting childbearing preferences

So far empirical research investigated a number of sociodemographic factors that affect women's childbearing preferences (Weerasinghe & Parr, 2002; Matsumoto & Yamabe, 2013; Fagbamigbe & Adebowale, 2014; Perera, 2017).

The level of household wealth is likely to correlate with education. Educated women are more likely to earn

a higher income, participating in the labor force which may likely impact their childbearing preferences. However, Weerasinghe and Parr (2002) found a negative correlation between household wealth and marital fertility in Sri Lanka. The decline in fertility of wealthy women may be explained in terms of the rising opportunity costs of parental time, and lesser reliance on children for support at the old age of the wealthier parents (Basten & Verropoulou, 2015). Research evidence indicates that the number of years of women's education delays their marriage, lowers their childbearing preferences and finally reduces the number of childbirths (Weerasinghe & Parr, 2002; Adjei & Billingsley, 2017; Perera, 2017). Participation of a woman in the labor force will correlate with the level of her wealth but it may also impact her fertility. For example, women engaged in agricultural activities may consider children as an asset (Weerasinghe & Parr, 2002). Contradictorily, women involved in the non-agricultural sector who are to be away from their household may have lesser preferences for more children who have less time available to look after children (Basten & Verropoulou, 2015). The women's education on marital fertility, is strongly influenced by the husband's education (Cleland & Germán, 1988; Adjei & Billingsley, 2017). Hence, husbands' education, as well as employment status, highly influence on the fertility rate and collective decisions taken within the family. Research shows husbands' unemployment status influence on curtailing the intentions to have more children (Basten & Verropoulou, 2015).

Urbanization has been put forward as an explanation for the decline in fertility, as rural areas have historically had much higher fertility rates than urban (Weerasinghe & Parr, 2002). Rural dwellers often have higher fertility rates which result in the large family which is considered as a useful asset for their socio-economic activities including farming. Both women living in the rural sector and the estate sector had higher fertility than women living in the urban sector in Sri Lanka (Fagbamigbe & Adebowale, 2014; de Silva & Tenreyro, 2017). However, despite the fact, rural or urban, Dax and Fischer (2018) pointed out that population growth is declining in Europe.

The number of children in a household is substantially different among different religious and ethnic groups (Pew Research Center, 2015). Evidence in Sri Lanka shows Muslim women have higher fertility preferences than other ethnic groups (Perera, 2017).

Age at first marriage has a major effect on childbearing because women who marry early have, on average, a longer period of exposure to becoming pregnant and a greater number of lifetime births (Fagbamigbe & Adebowale, 2014; Perera, 2017). Women's current age also is a significant determinant of fertility levels as relatively older women had higher fertility levels than younger women. In Japan, the younger generation desires fewer children, which may be the reason underlying Japan's low population growth rate (Matsumoto & Yamabe, 2013; Fagbamigbe & Adebowale, 2014).

Nevertheless, reproductive transition influence on household decision-making and social status positively (Reed, 2021). The decline in fertility is often discussed as being part of a shift away from the number of children towards quality, as demonstrated by the increase in education levels around the world. According to studies, women with a large number of surviving sons and daughters are more likely to limit childbearing (Dibaba, 2009; de Silva & Tenreyro, 2017).

Despite the number of kids in the household, parents may continue to have births till they reach their preferred gender composition (Hank, 2007; Hesketh et al., 2011).

The existence of gender preferences, therefore, leads to higher fertility than would be the case in their absence (Bairagi & Langsten, 1986; de Silva, 1993; Campbell, 1997; Bongaarts, 2001; Dibaba, 2009; Jayachandran, 2017; Kugler & Kumar, 2017; Perera, 2017). In fact, in Latin America, Colombia, Trinidad and Tobago there is a slight tendency to prefer girls over boys. Among individual countries, preference for son is highest in India, with a daughter-to-son ratio of 2.6. This ratio is much lower for countries such as Bangladesh, Nepal, and Turkey (Bongaarts, 2001). Son preference is a common socio-cultural norm in many South Asian countries, including India (Stash, 1996; Jayaraman et al., 2009). Previous research has shown the negative effects of son preference, such as increased female child mortality and poor health of girls compared to boys, including access to preventive care (Pande & Astone, 2007). The demographic consequences of son preference includes the slowing of transition towards achieving a low fertility pattern, as couples bear children till they have sons (Das Gupta & Bhat, 1997; Clark, 2000); and increased use of sex-selective abortion and female infanticide (Sudha & Rajan, 1999; Purewal, 2018). Consequently the differences in sex ration may increase the violence against women (Diamond-smith & Rudolph, 2018).

The replacement effect is strongest in populations where the deliberate control of fertility is extensive. Although deliberate replacement is more prevalent in the later stages of the fertility transition, it is never complete, and most

studies find that only up to half of the dead children are replaced. Women who experienced child mortality may want more children to replace those who died (Bongaarts, 2001; Dibaba, 2009).

Violence is a barrier to women's empowerment and threatens the health of women as well as their children. Violence against women has been recognized globally as a fundamental human rights violation (Emenike et al., 2008). Domestic violence by an intimate partner affects one-third of women worldwide. This is considered a hidden problem because most women do not reveal their sufferings for various reasons such as culture, fear of retaliation, concern for children, shame, and internalizing the violence among themselves. It is also a growing burden on the country's healthcare system, social system, and economy (SLDHS, 2016). Violence against women has significant economic costs in terms of expenditures on service provision, lost income for women and their families, decreased productivity, and negative impacts on future human capital formation. The UN Declaration on the Elimination of Violence Against Women defines 'Violence against women' as "any act of gender-based violence that results in, or is likely to result in, physical, sexual, or psychological harm or suffering to women, including threats of such acts, coercion, or arbitrary deprivation of liberty, whether occurring in public or in private life." In Sri Lanka, regardless of demographic background, women are highly susceptible to domestic violence. This is in part due to the perception that a husband may be justified in beating his wife (United Nations Development Programme, 2012). A significant association between physical/emotional/sexual abuse of women and negative reproductive health outcomes such as terminated pregnancies and infant mortality was identified (Emenike et al., 2008; Duvvury et al., 2013; Pun et al., 2016; World Health Organization, 2018). However, studies have not focused yet on the impact of domestic violence on the fertility rate.

Pregnancy and childbearing in Japan have been traditionally supported by members of a large families, especially mothers and grandmothers (Matsumoto & Yamabe, 2013). A similar situation can be observed in most of the Asian countries as the relationship with extended family members in Asian countries is stronger. However, the structure of the family is rapidly changing in developing countries, from the extended family structure to the nuclear family structure. In this research, the structure of the family (whether they are living in a nuclear family or an extended family) was taken as an important determinant that might affect the childbearing preference of women.

3. Methodology

The study was based on data obtained from Sri Lankan Demographic and Health Surveys (SLDHSs) of Sri Lanka conducted in 2016 by the Department of Census and Statistics. The data set consists of information derived frompersonal interviews conducted among 18,302 eligible women (ever-married women aged between 15-49) representing the whole country (SLDHS, 2016). The present study has used only women those who prefer another child within the next 2 years and women those who do not prefer another child at the time of the survey. The threshold of two years was adopted following conventional practice in most Demographic Health Surveys (Dibaba 2009; Kodzi et al., 2010). Following the literature, women who reported that they prefer another child later, who have been sterilized and whose husband died/divorced/separated are excluded from the analysis. After cleaning the data, 8,776 women were included in the final analysis.

A women preferred (or not) to have another child in the next two years was considered as an outcome variable. Control variables (demographic variables) in the analysis include demographic and socio-economic variables (Table 1).

The Department of Census and Statistics has developed the wealth index, a socio-economic indicator that is used as a proxy for the long-term standard of living of the household. It is based on data on household ownership of consumer goods, dwelling characteristics, type of drinking water source, toilet facilities and other characteristics that are related to a household's socioeconomic status (Department of Census and Statistics, 2016) (Table 1).

The Chi-square test has been used to assess the associations between independent variables and the outcome variable. Following the literature, the variables that were statistically significant in the chi-square test were included in the logistic regression (Dibaba, 2009; Rabbi, 2014; Basten & Verropoulou, 2015; Perera, 2017). Models of binary dependent variables often are estimated using logistic regression or probit models.

$$\widehat{Y_n} = \frac{e^{b_0+b_1x_1+b_2x_2+\cdots+b_nx_n}}{1+e^{b_0+b_1x_1+b_2x_2+\cdots+b_nx_n}}$$

$$\ln\left(\frac{\widehat{Y_n}}{1-\widehat{Y_n}}\right) = b_0 + b_1x_1 + b_2x_2 + \cdots + b_nx_n$$

where, $\widehat{Y_n}$ is the expected probability that the outcome is present; x_1 through x_n are distinct independent variables; and b_0 through b_n are the regression coefficients. The outcome is the expected log of the odds that the outcome is present.

Empirical economic research often reports "marginal effects". The marginal effect of a predictor in a categorical response model estimates how much the probability of response level changes as the predictor changes. The overall measure is the marginal effect evaluated at the mean of all of the predictors (MEM). Within this study, the interpretations of the logistic regression models were given by MEMs.

Table 1. Variable description

Interest Variable	Description
Ethnicity	The ethnicity of the eligible woman. Whether Sinhala, Sri Lankan Tamil, Indian Tamil, Muslim, Malay or Burger.
Current age	Age of the eligible women within the survey period.
No. of Children	The total number of living children.
Family structure	Whether eligible woman live in a nuclear family (Household with father, mother, and children) or extended family (Household with father, mother and children and parents or parents-in-law, grandchildren, etc.)
Wealth	Long term standard of living of the household of the eligible woman. Whether rich, middle or poor
Education level	Highest education qualification of the ever-married women in childbearing age. Whether Primary education (No education, grade 1-5), Secondary education (grade 6-10, passed G.C.E (O/L), passed G.C.E (A/L), Degree or above.
Participation of female labor force	Apart from doing housework, eligible women currently working in a job or a business. Whether employed or not.
Experience of domestic violence	Eligible woman's experience on the violence of intimate partner. Whether experienced or not.
Experience of child deaths	Eligible woman's experience on stillbirth or child mortality. Whether experienced or not.

4. Results and discussion

Childbearing preference is determined by the number of demographic and socio-economic factors (Table 2). Concerning the childbearing preference of married women, 25% of women intended to have a child within the next two years whereas 75% of them has no preference to have a child in the next two years. Survey respondents have a good educational background-approximately 67% of women had at least secondary level education while more than half of the women were not employed (Table 2). Differences in other socio-demographic variables also were observed (Table 2). More than half of the women (61%) lived in nuclear families which consist of only parents and kids. Based on the women's responses, the majority of them (82%)have not experienced any domestic violence from an intimate partner.

Table 2. Demographic and socio-economic characteristics of ever-married women

Variable	Count (n)	Percentage (%)	Count of childbearing preference	Percentage of childbearing preference[1]
Education				
Primary or below	643	7.3	63	9.8
Secondary	5865	66.8	1402	23.9
GCE A/L and higher	2268	25.8	756	33.3
Current age				
15-24	503	5.7	332	66.0
25-34	3043	34.7	1198	39.4
35-44	3809	43.4	595	15.6
45-49	1421	16.2	96	6.8
Employment status				
Employed	2796	31.9	742	26.5
Not employed	5980	68.1	1479	24.7
Household wealth				
Poor (lowest quintile)	1789	20.4	404	22.6
Middle quintile (second, third, fourth quintiles)	5295	60.3	1382	26.1
Rich (highest quintile)	1692	19.3	435	25.7
Ethnicity				
Sinhala	6369	72.6	1487	23.4
Tamil	1656	18.9	474	28.6
Muslim	725	8.3	255	35.2
Other	26	0.3	5	35.2
Family structure				
Nuclear family	5349	61.0	1025	19.2
Extended family	3427	39.1	1196	34.9
Experience of domestic violence				
Yes	1618	18.4	351	21.7
No	7158	81.6	1870	26.1
Experience of child deaths				
Yes	1739	19.8	462	26.6
No	7037	80.2	1759	25.0
Current family size				
A small family (2 or fewerchildren)	6770	77.1	2175	32.1
A large family (3 or more children)	2006	22.9	46	2.3
The decision to have more children				
Wants more	2,221	25.3	-	-
Wants no more	6,555	74.7		

[1]percentage is calculated considering each sub category

Table 2 (columns 4 and 5) describes the childbearing heterogeneity based on age, education and ethnicity.Out of women who were living in extended families, 35% prefer another child whereas 19% of women who live in nuclear families prefer another child. More than a quarter (26%) of women who have not experienced domestic violence prefer another child. Approximately 27% of the women who have experienced stillbirths or child deaths have preferred to have another child.

This study used the Chi-square test to assess the associations between independent variables with the preference of another child. All the factors were significant at the level of 5% (see, Appendix), except employment status and the experience of child deaths. However, based on the literature employment status of women and experience of child deaths are important variables to be considered and hence both of these variables were included in the logistic model (Bongaarts, 2001; Dibaba, 2009; Perera, 2017).

Prior to performing logistic regression analysis, other statistical properties such as multicollinearity were tested as it is needed to identify whether there are linear relationships between independent variables. According to the multicollinearity test, the VIF value (1.13) was less than 10. It means there are no linear combinations of other independent variables.

4.1 *Determinants of women's preference for another child*

The logistic regression models were developed for the national-level and then for different sectors (urban, rural and estate) to observe the heterogeneity of childbearing preferences. Table 3 describes the aggregated data at the national level illustrating to what extent the demographic and socio-economic factors affect the likelihood of preference for a child or another child.

One of the most focused variables in this study is the family structure. The preference of women who live in the extended families to have another child is 6% higher than the women in a nuclear family. This is possible as extended families provide numerous support in raising kids. Particularly, grandparents look after children which is a great support financially as well as caring for the child. Women in nuclear families may be less likely to have another child due to the high cost of child caring and lack of security. The empirical analysis in Norway shows that the availability of childcare facilities likely to increase the women's fertility preferences (Rindfuss et al., 2010). The second most targeted variable of this study is exploring the impacts of domestic violence on childbearing preferences. The preference of women who have experienced domestic violence to have another child is 2% less than women who do not have experience in domestic violence. As this research hypothesized, domestic violence significantly and negatively influences on childbearing preferences.

When the educational level increase from primary to the secondary, the change in probability of preference for another child increases by 5%, and for those who completed at least high school there is an increase by 11% in comparison to lower educational groups (Table 3). The results indicate women with higher education are more likely to have another child within the next two years than less educated women which is consistent with the literature (Dibaba, 2009). However, contradictory to our findings, some researchers argue the level of education is insignificant (Weerasinghe & Parr, 2002; Adjei & Billingsley, 2017; de Silva & Tenreyro, 2017; Perera, 2017). This research reaffirms that age is an important determinant of childbearing preferences. However, previous studies, found non-linear effect of age on childbearing preferences (Weerasinghe & Parr, 2002; Perera, 2017). The employed women has higher preference for another child than unemployed women. In this context, women's contribution to household income is an important factor. Concerning the household wealth, the rich households prefer to have another child 1% more than the middle-income group and 2% less than to the poor households. Ethnicity is another significant determinant of the childbearing preference. The preference to have another child by Muslim women is 22% higher and for Tamil women it is 6% higher compared to Sinhalese women and this observation is in line with previous literature (Pew Research Center, 2015; Perera, 2017).

In order to explore the preference heterogeneity, the analysis was extended for the different residential sectors; urban, rural and estate. The results show differences from the national-level results for certain determinants, while other determinants are consistent with national-level analysis. The impact of the level of education is inconsistent (Table 4). Compared to the nuclear family structure, women who lived in an extended family's preference for another child is higher despite the sector they belong to. The experience of domestic violence negatively influences women's childbearing preference particularly in the urban and the rural sectors.

Table 3. Sectoral/demographic differences in childbearing preferences

Preference	Coefficient	Odds ratio	Marginal effect
Education			
(1, if secondary education and 0, otherwise)	0.483***	1.620***	0.051***
	(0.158)	(0.255)	(0.014)
(1, if GCE A/L and higher, and 0 otherwise)	0.886***	2.425***	0.110***
(Omitted group: bellow primary education)	(0.166)	(0.403)	(0.017)
Current age	-0.128***	0.879***	-0.017***
	(0.005)	(0.004)	(0.001)
Employment status			
(1, if employed and 0, otherwise (unemployed))	0.254***	1.289 ***	0.035***
	(0.064)	(0.083)	(0.009)
Household wealth			
(1, if belong to poor group and 0, otherwise)	0.107 *	1.113*	0.014*
	(0.080)	(0.089)	(0.011)
(1, if belong to middle income group and 0 otherwise)	-0.188*	0.828*	-0.023*
(omitted group: rich income group)	(0.112)	(0.092)	(0.014)
Ethnicity			
(1, if belong to Tamil and 0, otherwise)	0.441***	1.554***	0.060***
	(0.081)	(0.125)	(0.012)
(1, if belong to Muslim and 0 otherwise)	1.248***	3.483***	0.217***
	(0.115)	(0.402)	(0.025)
(1, if belong to Other and 0 otherwise)	0.050	1.052	0.006
(omitted group: Sinhala)	(0.579)	(0.609)	(0.070)
Family structure			
(1, if in an extended family and 0, otherwise (nuclear family))	0.418***	1.519***	0.057***
	(0.059)	(0.089)	(0.008)
Experience of domestic violence			
(1, if yes and 0, otherwise (not experienced))	-0.179**	0.836**	-0.023 **
	(0.079)	(0.066)	(0.010)
Experience of child death			
(1, if yes and 0, otherwise (not experienced))	0.364***	1.439***	0.052***
	(0.072)	(0.103)	(0.011)
Current family size			
(1, if in a large family and 0, otherwise (small family))	-2.760***	0.063***	-0.239***
	(0.157)	(0.010)	(0.007)
Constant	2.827***	16.889***	-
	(0.256)	(4.323)	

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ R-squared = 0.2428, Standard errors are in parenthesis

Table 4. Impact of demographic and socio-economic factors on preference for another child for different sectors

Preference	Urban			Rural			Estate		
	Coefficient	Odd ratio	Marginal effect	Coefficient	Odd ratio	Marginal effect	Coefficient	Odd ratio	Marginal effect
Family structure (1, if in an extended family and 0, otherwise (nuclear family))	0.274** (0.143)	1.315** (0.188)	0.044** (0.023)	0.449** (0.067)	1.567** (0.104)	0.059** (0.009)	0.943** (0.306)	2.568** (0.786)	0.125** (0.040)
Experience of domestic violence (1, if yes and 0, otherwise (not experienced))	-0.652** (0.190)	0.521** (0.100)	-0.091** (0.023)	-0.092 (0.090)	0.912 (0.082)	-0.011 (0.011)	0.031 (0.358)	1.032 (0.370)	0.005** (0.043)
Education (1, if secondary education and 0, otherwise)	-0.389** (0.170)	0.678** (0.115)	-0.062** (0.028)	-0.361** (0.079)	0.697** (0.055)	-0.050** (0.012)	-1.225** (0.513)	0.294** (0.151)	0.031** (0.047)
(1, if GCE A/L and higher, and 0 otherwise) (Omitted group: bellow primary education)	0.393 (0.411)	1.482 (0.610)	0.077 (0.086)	-1.169** (0.214)	0.311** (0.067)	-0.125** (0.017)	-0.904 (0.586)	0.405 (0.237)	-0.181 (0.111)
Current age	-0.143** (0.012)	0.867** (0.010)	-0.023 (0.002)	-0.131** (0.005)	0.877** (0.005)	-0.016** (0.001)	-0.072** (0.023)	0.931** (0.021)	0.008*** (0.003)
Employment status (1, if employed and 0, otherwise (unemployed))	0.358** (0.157)	1.430** (0.225)	0.059** (0.027)	0.323** (0.074)	1.381** (0.102)	0.043** (0.010)	-0.697** (0.307)	0.498** (0.153)	0.086** (0.038)
Household wealth (1, if belong to poor group and 0, otherwise)	-0.006 (0.167)	0.994 (0.166)	-0.001 (0.027)	0.150* (0.096)	1.162* (0.111)	0.019* (0.012)	0 (empty)	1 (empty)	-
(1, if belong to middle income group and 0 otherwise) (omitted group: rich income group)	-0.550 (0.351)	0.577* (0.203)	-0.075* (0.042)	-0.024 (0.129)	0.976 (0.126)	-0.003 (0.015)			
Ethnicity (1, if belong to Tamil and 0, otherwise)	0.604** (0.181)	1.830** (0.331)	0.091** (0.023)	0.505** (0.099)	1.657** (0.164)	0.068** (0.015)	0.604* (0.443)	1.830* (0.811)	0.052** (0.043)
(1, if belong to Muslim and 0 otherwise)	1.364** (0.217)	3.911** (0.847)	0.253** (0.046)	1.204** (0.143)	3.334** (0.476)	0.202** (0.030)	0.310 (1.406)	1.364 (1.918)	0.008 (0.140)
(1, if belong to Other and 0 otherwise) (omitted group: Sinhala)	0.485 (0.687)	1.624 (1.115)	0.071 (0.115)	0.038 (1.263)	1.038 (1.312)	0.004 (0.146)	0 (empty)	1 (empty)	-
Experience of child death (1, if yes and 0, otherwise (not experienced))	0.211 (0.180)	1.235 (0.222)	0.035 (0.031)	0.385** (0.080)	1.470** (0.118)	0.053** (0.012)	0.166 (0.414)	1.181 (0.489)	0.012** (0.053)
Current family size (1, if in a large family and 0, otherwise (small family))	-2.500** (0.316)	0.082** (0.026)	-0.265** (0.020)	-2.902** (0.189)	0.055** (0.010)	-0.235** (0.008)	-2.402** (0.757)	0.091** (0.068)	0.210** (0.034)
Constant	4.131** (0.448)	62.262** (27.889)	-	3.427** (0.211)	30.785** (6.505)	-	1.447* (0.952)	4.249* (4.046)	-
N		1,414			7,006			351	
R-squared		0.2609			0.2492			0.2051	

*** p < 0.01, ** p < 0.05, * p < 0.1, Standard errors are in the parenthesis

In the rural sector, the preference to have another child declines when the level of education increase from primary to secondary level or higher. In the urban sector, for women whose education level is GCE A/L and higher, the preference to have another child is higher compared to women whose education level is at primary or lower levels. This result showed that women with low education are more likely to have another child in the rural sector. This negative relationship can be seen in many studies (Weerasinghe & Parr, 2002; Adjei & Billingsley, 2017; de Silva & Tenreyro, 2017; Perera, 2017). When the current age of women increases, the preference for another child decreases in every sector. The predicted probability for preference for another child is higher for the employed women compared to unemployed women in urban and rural sectors whereas in the estate sector contradictorily women's employment negatively influence on childbearing preference. This is possible due to job commitment and lack of access to childcare facilities (Rindfuss et al., 2010). Most of the women in the estate sector are working in the plantation sector which is less paid compared to other sectors which may hinder childcare affordability. When the wealth category changes from rich to the middle level, the preference for another child decreases in the urban sector while it has increased in the rural sector. Overall, in contrast to rich women, poor women's preference for another child is low despite the sector.

5. Conclusion

The aim of this research was to explore the impacts of domestic violence and family structure on women's childbearing preference in Sri Lanka. The results indicate that family structure is a significant determinant of childbearing preferences. Women who live in an extended family structure are more likely to prefer another child than those live in a nuclear family. It is possible due to the availability of childcare facilities within the extended family. Further analysis confirms, despite the demographic region, the family structure is a major determinant of childbearing preferences. Domestic violence is extensively discussed in many studies (Emenike et al., 2008; Duvvury et al., 2013; World Health Organization, 2012; 2018) that were reaffirmed by the present study. This research also found the heterogeneity of childbearing preferences across different residential sectors which can be explained based on the different living styles.

This research contributes to the literature in different ways. This is the first study that attempted to explore the impacts of domestic violence and family structure on childbearing preferences. This research is also special as it attempted to explore the determinants of childbearing determinants across different residential sectors. Policymakers can use the research findings, specially, focusing on reducing domestic violence, as it is a highly influencing factor on childbearing preference. Changes of family structure-extended family to nuclear family-influence on childbearing preferences. It highlights the importance of expanding childcare policies. The parental leave and parental benefits policies influence childbearing preferences that need to be considered (Šťastná et al., 2019).

The programs on women empowerment should be continued as it is another important factor that determines the childbearing preferences. In fact, it will help in increasing household wealth. Furthermore, the findings of this research show the importance of national policies and programs on reducing domestic violence, poverty alleviation, and female empowerment to achieve a desirable population growth and thereby achieve SDGs. Sectoral disaggregated analysis indicates the importance of targeting different policies based on sectoral differences and demographic factors. Finally, this study suggests the Department of Census and Statistics to improve the questionnaire by adding questions regarding the occupation categories, domestic violence and more information about the spouse.

This research is not without limitations. Domestic violence or violence against women can be happened in different ways, i.e. barriers in employment and education, which was not the focus of this research. In depth analysis considering types of violence is important for better policy focus. Although the study considered family structure as the focus variable, child caring facilities and their affordability as an alternative has not been considered in this analysis.

Conflict of interest

The authors have no conflicts of interest to disclose.

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Appendix A

Collinearity Diagnostics

Variable	VIF	SQRT-VIF	Tolerance	R-Squared
Experience of domestic violence	1.04	1.02	0.9620	0.0380
Family structure	1.07	1.03	0.9348	0.0652
Current age	1.16	1.08	0.8617	0.1383
Household wealth	1.31	1.14	0.7639	0.2361
Employment status	1.07	1.04	0.9321	0.0679
Ethnicity	1.09	1.04	0.9168	0.0832
Education level	1.30	1.14	0.7722	0.2278
Experience of child deaths	1.01	1.01	0.9886	0.0114
Current family size	1.12	1.06	0.8954	0.1046

Mean VIF 1.13

Appendix B

Marginal effect at means (MEMs) of Table 4.3.1

Variable	Mean
Nuclear family	0.610
Extended family	0.390
Experienced domestic violence (Yes)	0.184
Experienced domestic violence (No)	0.816
Sinhala	0.726
Tamil	0.189
Muslim	0.083
Other	0.003
Primary or below	0.073
Secondary	0.668
GCE A/L and higher	0.258
Current age	36.334
Poor	0.204
Middle	0.603
Rich	0.193
Experienced child deaths (Yes)	0.198
Experienced child deaths (No)	0.802
Employed	0.319
Not employed	0.681
2 or few living children	0.771
3 or more living children	0.229

Appendix C

Marginal effect at means (MEMs) of Table 4.3.2

Variable	Urban	Rural	Estate
	Mean	Mean	Mean
Nuclear family	0.563	0.624	0.510
Extended family	0.437	0.376	0.490
Experienced domestic violence (Yes)	0.795	0.821	0.790
Experienced domestic violence (No)	0.205	0.179	0.210
Sinhala	0.603	0.779	0.167
Tamil	0.214	0.152	0.813
Muslim	0.173	0.068	0.017
Other	0.011	0.001	-
Primary or below	0.371	0.245	0.278
Secondary	0.584	0.687	0.640
GCE A/L and higher	0.045	0.069	0.082
Current age	36.731	36.392	33.623
Poor	0.403	0.160	-
Middle	0.528	0.634	-
Rich	0.069	0.206	-
Experienced child deaths (Yes)	0.801	0.800	0.847
Experienced child deaths (No)	0.199	0.200	0.153
Employed	0.663	0.694	0.487
Not employed	0.337	0.306	0.513
2 or few living children	0.779	0.770	0.768
3 or more living children	0.221	0.230	0.232