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Socioeconomic Determinants of Fertility: What do We Know?

Introduction

IN the demographic literature the most widely examined question is: what leads people to curtail their fertility? Examination of historical data suggests that modernization has played a major role in fertility reduction. Extensive research has been conducted to identify the causal relationship between fertility and macro-development variables. Proponents of the demographic transition theory have described the impact of macro-development variables on fertility and proposed their own versions of the "Classic" transition theory. According to Freedman (1979), changes in macro-development variables (literacy, urbanization, industrialization, communication, etc.) have forced rural people to shift their dependency from local self-contained institutions to large social, economic and political institutions. Similarly, Notestein (1953) suggested that urbanization changed the operating mechanism of several family functions, and residency in the city reduced the pressures toward traditional behavior exerted by the family and community. Modern sector employment provided women an alternative to childbearing and also provided higher prestige, which influenced fertility behavior.

Goldscheider (1971) stated that on both theoretical and empirical grounds it is clear that fertility reduction does not result automatically and mechanically by shifting an agricultural economy to a commercial economy, and he contended that large scale urbanization is not a precondition for fertility transition. It is the disintegration of kinship domination, improvements in the standards of living, and rising aspirations for socioeconomic mobility that create pressure on individuals to control fertility. Moreover, several macro development factors, such as urbanization, industrial development, labor force participation of women, and universal education also contribute toward institutional changes, thereby generating pressure on couples to control their fertility. Modernization, which is generally equated with socioeconomic development, has both positive and negative effects on fertility. At the initial stages of modernization, traditional norms and values may change quickly in one area but remain similar in others. One component of modernization is urbanization and it is observed that once people move to urban centers they quickly adopt modern behaviors such as changes

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in breastfeeding patterns, change in postpartum sexual abstinence, etc. On the other hand, social norms may prohibit couples from adopting contraception, so fertility may rise at the initial stages of modernization.

The various aspects of modernization tend to be closely related to one another, and in many cases it is difficult to assess the distinctive effects of each. The analysis of the relationship between modernization and fertility requires the identification of the variables that cover both the supply and the demand aspects of fertility. According to Easterlin (1978), the determinants of fertility can be seen as working through one or more of the following channels: (1) demand for children, (2) supply of children, and (3) cost of fertility regulation. The factors which determine the demand for children include: (a) labor value of children, (b) children's value as old age support, (c) the economic cost of children, (d) infant and child mortality. On the supply aspect, Easterlin (1975) argues that several biological and cultural factors determine the supply of children. These include age at marriage, proportion married, norms regarding sexual behaviors, patterns of breastfeeding, etc.

In order to determine more precisely which factors affect fertility, it is necessary to shift the focus of investigation from the aggregate level to the individual level. The micro-economic model of fertility assumed that couples would have as many children as they could, if children are costless in terms of money, time, foregone opportunities, etc. The micro-economic model of fertility is based on the assumption that once a couple's demand for children has been determined by their preferences and budget constrains, it will remain constant for the entire life time (Decker, 1960; Wills, 1973; Easterlin, 1978). Alternatively, it is assumed that at the early stage of family formation, a couple can accurately foresee the costs and benefits of children and other goods, as well as limits on reproductive period. The consumer behavior model assumed that a rational consumer maximized his or her utility subject to his or her budget constraint.

The economic framework for fertility analysis was first suggested by Becker (1960) and subsequently modified by Namboodiri (1972), Willis (1973), Becker (1974, 1975), and Schultz (1981). Taking children as consumer goods, economists have developed an extensive literature on fertility decisions at the household level. Becker (1960) assumed that children provide utility to parents like any other good, and the shape of the resulting indifference curves reflects relative preferences for children. According to Becker (1960), since children are normal goods, a rise in income would therefore increase both the quality and quantity of children desired. Although empirical evidence suggests a negative relationship between rise in income and fertility, Becker argues that access to modern contraception is directly related to income. Once access to contraception is held constant, rich people will have more children compared to poor people. Becker also suggests that poor people tend to have more children not because they want more but due to a lack of contraceptive knowledge.

The factors most often studied in relation to fertility are education, employment, landownership, family income and religion. In the following sections, we have presented empirical findings from several studies, where the relationships between socioeconomic variables and fertility are investigated.

Education and Fertility

Education is the most widely reported variable which shows a consistent negative association with fertility. Female education in particular bears a strong and consistently negative relationship to fertility. Both the demographic transition literature and contemporary research in LDCs have cited education as the single most important variable leading to large-scale fertility decline. Bogue (1967) examined the reasons for fertility decline in western Europe and found that education had the highest predictive power in explaining the fertility differentials. Similarly, in many LDCs it has been observed that increased female education has lowered fertility substantially (Caldwell, 1981; Jain and Nag, 1985; Birdsall, 1977). Another interesting finding in the education-fertility relationship is the rise of individual fertility with a few years of schooling. But it is also observed that the initial rise is followed by a much sharper decline as educational levels reach into the upper primary and secondary stages. The most likely explanation for the initial rise may be that women with a few years of primary schooling are more likely to discontinue traditional practices such as breastfeeding andpostpartum abstinence, thus shortening the interval between births.

The causal relationship between education and fertility is complex and influenced by social, economic and behavioral variables. Broadly speaking, female education increases the age at marriage and also improves the likelihood that a woman has knowledge of modern contraceptives and may use them when needed. Moreover, higher female education increases a woman's ability to work outside her home and to be involved in household decision-making processes. Education, in general, will change perceived economic costs and benefits of children, and therefore can influence reproductive decisions.

Higher education provides higher socioeconomic status. It is also observed that education provides an opportunity to an individual for higher social mobility, particularly in a class structured society. Thus a large number of children may be seen as a constraint on social mobility. An educated family may also have small family norms. Freedman (1968) argues that with increased education and literacy, the population becomes involved with the modem ideas and reorganizes social institutions in such a way that promotes modern culture and non-familial systems.

In Bangladesh, the inverse relationship between women's education and fertility is not consistent. The results from the Bangladesh Retrospective Survey of Fertility and Mortality (BRSFM) show that those women who have primary education tend to bear more children than those who have no education. The same study reports that husbands' education seems to be positively associated with the average fertility of their wives. Chaudhury (1977) reported an inverse relation between female education and fertility measured by children ever born from an urban sample. However, the authors reported a weak but inverse association between male education and fertility. According to Chaudhury (1977), female education has the dominant depressing effect on fertility compared to male education at every age group.

Employment and Fertility

Among the factors of modernization, changes in the mode of production has a direct impact on the employment sector. As the mode of production changes, occupational

structure accommodates more people, particularly females. Demographic transition theory serves as the major framework for most macro-level investigations of relationships between fertility and female employment. The classical interpretation of the European fertility transition suggests that non-agricultural labor force participation intervenes between economic development and fertility. More precisely, economic development is assumed to be accompanied by an increase in education and occupational opportunities for women—that compete with early marriage and continuous childbearing. Together with other aspects of the development process, these opportunities are expected to promote fertility reduction via late marriage and deliberate fertility control.

Although a negative relationship between female employment and fertility holds in LDCs, regional variations are noticeable. The World Fertility Survey (WFS) results showed that non-familial employment has the strongest association with recent fertility trends in Latin American countries as compared to Asian and African countries. The findings are further complicated by the higher sterility rates observed among working women. Thus, it can also be argued that the lower fertility among working women may not be completely voluntary and that as a result of infertility or due to smaller family size, women decide to join the employment sector. The argument has some support from the WFS findings, where contraceptive use rate was only slightly higher among women who worked outside home than non-working women.

/Inconsistencies in the relationship between fertility and female employment may be partly attributed to a measurement problem. From the early sixties, information on female employment has been collected in several ways in LDCs. In general, census data provide the basic information on female labor force participation. The serious problem encountered regarding the definition of non-household activities was in defining economic activities in different societies and in different strata within societies. Although in most cases women were classified as working inside or outside the home, cultural differences in defining women's work on family farms and in businesses has created problem in the comparative analysis both at the national and individual levels.

At the aggregate level Kasarda (1971) found an inverse relationship between the percentage of females employed in non-agricultural activities and fertility.,The author used crude birth rate and child-woman ratio as the measures of fertility. Similarly, Mauldin and Berelson (1978) found that fertility decreased as relative female participation in non-agricultural sectors increased. But in an extensive review of the literature, Brazzell (1984) reported that higher female labor force participation rate has very little effect on aggregate fertility rates.

At the individual level, Harmann (1970) found an insignificant inverse relationship between children ever born and female labor force participation for woman aged 20-24 in the Philippines. In contrast, an insignificant positive correlation between children ever born and employment was reported for women aged 15-19 in the same study. In Taiwan, Speare *et al.* (1973) found lower than average cumulative fertility among currently working married women, and higher than average fertility among married women who had worked previously (but not presently working) and those who had never worked. A significant inverse

relationship between current non-familial work and children ever born was found in rural Thailand (Cook and Leoprapai, 1977). But the relationship become insignificant when other categories of employment are considered. In Bangladesh, female employment showed an insignificant association with fertility as measured by children ever born (Chaudhury, 1978).

Effects of economic activity and types of employment are also examined in cross national studies. Shah and Smith (1981) analyzed the WFS data from Pakistan and the Philippines, and reported an inconsistent relationship between female employment variables and fertility. In Pakistan, no relationships were observed^belween the employment variables and fertility for both rural and urban women. In contrast, fewer children were born to urban Philippine women who had ever worked and the relationship was more pronounced among the women who had worked away from home. But no relationship was found between female economic activity and the number of children ever born in rural areas. According to Shah and Smith (1981), the lack of a statistically significant relationship between female employment and fertility in Pakistan was mainly due to the occupational structure. In Pakistan, women were by and large employed in a few traditional occupations, whereas women in the Philippines were working in both traditional and non-traditional occupations. Moreover, the level of education has also contributed to the employment-fertility relation in the Philippines. It is observed that urban working women in the Philippines were better educated that their urban nOn-working counterparts. In contrast, urban working women were less educated than their urban non-working sisters in Pakistan.

In the past decade, studies in both developed and developing countries have raised several questions about the validity of the incompatibility hypothesis. Most important questions are about the causal processes involved in relationship between female employment and fertility, and particularly how the proximate determinants of fertility are affected by female employment. Recent research findings from LDCs have contributed to the controversy over the causal processes involved in the female employment-fertility relationship. The majority of the studies have cited a negative relationship between fertility and female employment, but a significant number of studies have reported no relationship, and few cases of a positive relationship have been found. How does female employment influence the proximate determinants of fertility? Empirical evidence suggests that the three proximate determinants — (1) age at marriage, (2) lactational infecundability and (3) contraception — can be affected by female labor force participation.

The literature on female employment-fertility interrelations in LDCs has largely ignored the role of premarital employment. There are major theoretical reasons to believe that premarital employment or certain types of such employment should have a negative effect on fertility. The important direct consequence of premarital employment is a rising age at marriage. Duza and Baldwin (1977) found that the fertility declines in Tunisia, Sir Lanka and Malaysia could be partly attributed to rising age at marriage as the result of enhanced educational and occupational opportunities. Hirschman (1982) found that the net effect of premarital employment in the non-farm sector was 1.5 to 2 years delay in age at marriage relative to women who had not worked before marriage or whose work had consisted of familial or farm labor. Thus age at marriage may be a salient causal path through which female employment affects fertility.

Several studies suggests that female employment has a positive effect on contraception. Cook and Leoparapai (1977) stated that rural Thai working women were more likely to be using a family planning method than non-working urban women; In the Philippines, Shah and Smith (1981) found that both urban and rural women who had worked since marriage were more likely than their non-working counterparts to have used contraception. In Pakistan, however, the authors found non-significant relationships between economic activity and both employment conditions variables and contraceptive use.

Since intensive breastfeeding tends to extend periods of postpartum infecundability, breastfeeding affects aggregate fertility substantially in societies where it is widely practiced. On this basis, it is frequently suggested that female employment may actually increase fertility, by reducing the prevalence or the average duration and intensity of breastfeeding. In instances, where the work performed by women is typically compatible with child care activities, including breastfeeding, an inverse female employment breastfeeding relationship would not be an appropriate explanation for positive or null relationships that are sometimes observed between female employment and fertility. In contrast, where female employment involves regular and sustained separation between mother and infant, an inverse female employment-breastfeeding relationship could be important in accounting for a positive or null relationship between female employment and fertility. However, in those cases, breastfeeding practices cannot fully explain such relationships.

Landownership and Fertility

Studies of differential fertility according to size of landholding have suggested considerable fertility differences among landholding categories. In general, it is found that farm owners have higher fertility than farm workers in both developed and developing countries. In an extensive review of the literature, Muller and Short (1983) found consistent positive relationships between land owned or operated by a given family and the fertility of that family. In contrast, Schutjer and Stokes (1984) argued that the size of operational holdings has a positive effect on fertility, whereas the size of ownership has a negative effect on fertility. According to Lee and Bulatao (1983), the positive relationship between fertility and landholding might be purely an income effect.

In both developed and developing countries, landowners can expect to have monetary return from their agricultural land. Theoretically, land owners can receive three types of returns from the land they own. First, landowners can always receive an equity return from land irrespective of their involvement in the agricultural production process by leasing out the land. The second and third types of return depend on the magnitude of the owner's involvement in the production process. Landowners can receive a labor return from the land if they physically work on the field. But landowners can also receive a management return for managing the land even if they do not work in the field. In contrast, landless laborers receive a return only to their labor.

In the literature, relationships between landholding and fertility have been examined from two broad perspectives. In the first approach, it is considered that land is a good substitute for children as a source of security, therefore landowners will have lower fertility.

The proposed relationship is commonly known as the land-security hypothesis. In the second approach, it is assumed that more family members are required for the efficient management of large operational holdings, and therefore, owners of large operational holdings will have higher fertility. This particular relationship between fertility and land is also known as the land-labor hypothesis. According to Schutjer and Stokes (1984), households with larger holdings require more labor and are able to utilize family labor more effectively, and therefore, will have high fertility. Conversely, ownership of land exerts a negative long term effect on fertility, because of income returns to enquiry and the consequent increase in old age security.

In the developed and developing countries, researchers have found many types of relationship between fertility and landholding. In several cases, a positive relationship between fertility and landownership has been observed. In other cases, mixed or null relationships have been found. Alauddin (1980), reported landholding as one of the few socioeconomic variables that showed a consistent and significant positive relationship with marital fertility in Bangladesh. In contrast, Latif and Chowdhury (1977) found both positive and negative relationships between fertility and landownership in Bangladesh. Similarly, Schutjer and Stokes (1984), found a negative and statistically significant relationship between landownership and fertility in Thailand and Egypt. According to Stokes *et al.* (1986), there is evidence supporting the land-security hypothesis from several less developed countries, such as India, Egypt, Mexico, Iran, Thailand. In Iran, Good *et al.* (1980) found that ideal family size was significantly lower among wives of landowners and they also had fewer children when controlled for mother age. In addition, Good *et al.* reported that wives of landowners were more likely to report use of contraceptives. Similarly, DeVany and Sanchez (1979) found a negative relationship between landownership and fertility in Mexico.

With the exception of a few studies, authors have used children ever born as a measure of fertility and controlled for several socio-demographic variables. However, the measure of landownership has differed markedly from one study to another. One major group of studies used the actual amount of cultivable land owned by families as a measure of land ownership. Others have included the amount of land leased in or leased out in the calculation and constructed variables to measure landownership. Latif and Chowdhury (1977) used the actual amount of land owned by families as a measure of landholding. In contrast, Schutjer and Stokes (1984) used constructed indices to measure the landownership variables.

The inconclusive relationship between landownership and fertility has raised more questions than answers. Cain (1985) questioned the basic notion of the land-security hypothesis and suggested that a positive relationship between size of family landholding and fertility might be spurious. According to Cain, land is not a worthy substitute for children in LDCs, because in LDCs, financial markets are imperfect and social and legal systems are incapable of protecting property in rural areas. Moreover, land has to be managed in order to procure income, even when land is leased out. In rural South Asia, Cain observed institutional arrangements governing land tenure are extremely complex and children are needed to manage the land and to receive the products. Particularly in bad years, children

can work outside family holdings and therefore provide for the loss incurred from crop damage.

Ownership of Modern Durable and Fertility

It is also observed that modernization can change individuals' taste for goods and services, and with modernization individuals tend to cumulate new modern durable for their households. Therefore it has been argued that ownership of modern durable can be used as an index of modernity. Results from four countries (Bangladesh, India, Israel and Nigeria) suggest that ownership of Modern durable has a direct effect on acceptability of family limitation (Miller and Inkeles, 1974). However, authors also found that ownership of modern durable showed no significant relationship with actual use of contraception. In contrast, Goldberg (1975) stated that ownership of modern durable was a relatively important determinant of ever use of family planning methods. However, Goldberg's analysis indicated a weak effect of modern objects owned on expected number of children. Goldberg (1975) suggested that the index created by Miller and Inkeles did not theoretically contribute to explaining fertility differences in low income countries. The author argued that the index included a large set of values and behaviors that result in an undefined variable.

In Taiwan D. Freedman (1970) observed that ideal family size was negatively related to ownership of modern consumption durable for younger but not for older women. In addition, she found that for older women, use of contraception was positively related to consumption of modern durable and weakly related for younger women. For women who had completed their fertility, number of living children was negatively related to housing quality, consumer durable and consumer services.

The Bangladesh Fertility Survey (BFS, 1978) reported that families who owned a radio or a boat had higher fertility than those who did not. The Bangladesh Institute of Development Studies (BIDS) data corroborate with the BFS findings. Several authors (Chaudhury, 1977; Maloney *et* a/., 1981) suggested that richest and poorest people had lower fertility in Bangladesh. Again, the richest group of people are more likely to have modern household items, contradicting the BFS findings.

Religion and Fertility

Fertility has been found to vary according to religious affiliation. It is observed that fertility is highest among Muslims, followed by Catholics and Jews (Nagi, 1981). In South Asia, it is found that Hindus have lower fertility compared to Muslims. The reasons why fertility is high among Muslims all over the world are not well understood. However, researchers suggest that Islam has a non-supportive attitude toward fertility control.

Several authors have found fertility to be lower among Hindu women in Bangladesh than among Muslim women, both nationally and regionally (Amin, 1979; Chaudhury, 1971). According to Obaidullah (1966), Muslims had about 26 percent higher fertility in rural Bangladesh during 1961-62. Similar results were reported by Stoeckel and Chaudhury (1969) from a rural area of Bangladesh. Amin *et al.* (1981) reported that the number of children ever born was higher among Muslim women than Hindu women as observed from the Bangladesh Fertility Survey (BFS, 1975) and the National Impact Survey (1969). The

BFS data showed that in every age group Muslim women have higher fertility than non-Muslim women. The Bangladesh Retrospective Survey on Fertility and Mortality (BRSFM, 1977) reported that on average fertility was 0.4 children higher for Muslim women than for Hindu women as measured by children ever born. Maloney *et al.* (1981) also found that Muslim women had higher fertility than Hindu women.

Using the child-woman ratio as an index of fertility, Chaudhury (1971) found that Muslims had higher fertility than Hindus. The author cited (a) longer exposure time, (b) higher infant mortality, and (c) less favorable attitudes toward family planning as the three contributing factors for higher fertility among Muslims. However, the differences in fertility between Muslims and non-Muslims were found to be small when the duration of marriage was controlled, and this finding holds for both rural and urban areas (Ahmed, 1979).

Conclusion

The socioeconomic variables discussed in the above sections have been widely used in the literature to describe the observed changes in fertility behavior. Empirical evidence suggests that the hypothesized relationships between socioeconomic variables and fertility are not always consistent, particularly in the developing countries. Researchers should be careful in explaining the impact of socioeconomic variables on fertility.

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