Microeconomic explanations for fertility trends

Economics, Microeconomics

Introduction

The economic consequences of population growth have been a recurrent theme in development literature throughout history. However, attempts to analyse the microeconomic explanations for fertility trends is a more recent occurrence. Studies of population growth, in particular on fertility, have consistently pointed to female education as a major influence on differences in fertility rates. The purpose of this essay is to review this complex inverse relationship using microeconomic frameworks for fertility analysis. The investigation focuses on the role of female education in influencing the three key determinants of fertility: demand for children, supply of children, and the cost of fertility control measures.

Theories

Much of the theoretical work on the relationship between women's education and fertility stems from Becker's model of the demand for children (Becker, 1960). His framework analyses the demand for children in microeconomic terms by viewing children as normal consumption goods, through the application of consumer behaviour theory. Becker's (1960) contribution opened up a multitude of economic research into fertility, resulting in many adaptations to his framework. Easterlin (1975) expands on Becker's theory, incorporating it into his own economic framework for fertility analysis. He identifies the three determinants of fertility as: demand for children, potential output of children, and the costs, broadly speaking, of fertility regulation. Demand refers to the desired number of children if fertility control was free, and the potential output of children refers to the supply of

surviving children if fertility is not deliberately controlled. The combination of demand and supply of children determines the motivation for the third determinant of fertility: the costs of fertility regulation (Easterlin, 1975). These three areas form the structure of this analysis into the relationship between female education and fertility.

Human capital theory suggests that there are substantial microeconomic and macroeconomic returns to education (Michaelowa, 2000). In the context of female education, investment in human capital results in the macroeconomic effect of reducing population growth through different microeconomic channels, such as women's improved earnings (Michaelowa, 2000). This has been evident over time in the developed world as studies have shown that the accumulation of human capital, amongst other factors, contributed to the third stage of the demographic transition, i. e. low birth rates and low death rates. The coincidence of the rise in education and the onset of the demographic transition in developed countries has been noted in many studies (Clark, 2005; Goldin, 2006; Galor, 2005) However, the pace of the fertility transition has been slower in developing countries. This analysis aims to show how increasing female educational attainment in developing countries will aid the transition to the third stage of the demographic transition, as seen in the industrialised world.

Demand for children

Women's human capital accumulation affects demand for children through the following routes: smaller desired family size, increased opportunity cost, and a decline in child mortality. Family-size preferences play a crucial role in

determining fertility behaviour. For instance, there are substantial differences in the number of desired children between educated and uneducated women in developing countries, ranging from 6-7 children in Sub-Saharan Africa to 3-4 in North Africa, Asia and Latin America (Martin, 1995). Many factors explain the role of education in shaping these differentials. One possible explanation is that more educated women tend to have increased autonomy and bargaining power within the household, affecting demand for children (Dreze and Murthi, 2001). Women's increased bargaining power may result in a smaller desired family size, as some studies show that women want fewer children than their husbands (e. g. Bankole and Singh, 1998). In addition, education enhances women's receptiveness to more modern social norms regarding desired number of children (Dreze and Murthi, 2001). For example, according to the ideational theory, women's exposure to global communication networks through schooling can lead to the rejection of traditional values of desired family size (Pradhan, 2015), exerting a downward pressure on fertility. Reduced family size desire can also be explained by a decline in both the labour value of children and the old-age security value (Easterlin and Crimmins, 1985; Jain and Nag, 1986; Dreze and Murthi, 2001). Educating women facilitates their economic independence which means that they no longer have to depend on children as " productions goods", i. e. providing income in the form of child labour (Becker, 1960). Similarly, education reduces women's demand for children as " investment goods" for insurance in old age (Easterlin and Crimmins, 1985). Evidence from India and Pakistan supports this argument: it was found that more educated women, beyond a certain threshold of

education, become self-reliant in old age (Jejeebhoy, 1995). However, the strength of the relationship between education and family size changes over time depending on the context. The relationship is stronger in countries at early stages of the demographic transition (characterised by high fertility and mortality), such as Sub-Saharan Africa, and there appears to be a threshold level of education before any decline in fertility takes place (Jejeebhoy, 1995).

Secondly, women's education increases the opportunity cost of childbearing via the substitution effect (Becker, 1960). Galor and Weil (1993) noted the positive effect of capital accumulation on women's relative wages, and also the negative effect of this on fertility. This illustrates that an increase in women's human capital investment improves their economic opportunities to participate in the wage sector, providing an independent source of income. As a result, the indirect cost of having children increases with educational attainment because women's time becomes more valuable. This is supported by a Jamaican study which found the negative effect of education on the number of births occurs by raising the value of time of women (Handa, 2000). This was experienced in Western Europe during the Industrial Revolution, where industrialisation increased the opportunity cost of having children in two ways: factory workers could not combine work with child-rearing, and some industries refused to hire married women (Guinnane, 2010), thus delaying family formation. This occurrence has also been noted in developing countries. For instance, a study found that women with higher relative remuneration for human capital in Latin America tend to have fewer children (Hausmann and Székely, 1999), thus supporting the argument that

education reduces fertility via increased opportunities for paid work. However, in some settings, the relationship between education and women's economic activity has shown to be weak or even negative (Jejeebhoy, 1995). It has been found that women's returns to education are most prevalent in secondary education, which may explain why there is a negative relationship between low levels of education and economic activity (Psacharapoulos & Patrinos, 2004). A positive relationship often occurs in highly gender-stratified contexts, particularly when there are fewer opportunities for women in formal employment. The implication in terms of fertility is that education, beyond a certain threshold level of schooling, increases the opportunity cost of child-bearing which decreases the demand for children.

Easterlin (1975) posited that even if the other demand determinants remain unchanged, fertility can vary due to changes in child mortality. Therefore, education may reduce the desired number of children through improving child survival prospects. Studies have shown that female education plays a major role in determining the level of child mortality (Jain and Nag, 1986; Abadian, 1996; Dreze and Murthi, 2001), which reduces the demand for children by increasing confidence in their survival. An exogenous decline in child mortality results in couples having fewer children because they need less ' spares', i. e. in order to achieve their actual desired family size, they need to plan fewer births (Dreze and Murthi, 2001). There are a number of reasons for women's education improving child survival-prospects, including increased awareness of good health practices; greater voice in family health decisions; greater resources control; and increased confidence in obtaining

health services (Jejeebhoy, 1995). – EXPAND ON REASONS (WITH EXAMPLES FOR THIS) / counter argument

Supply of children

The potential output, or supply, of children varies directly with natural fertility (Easterlin, 1975). Educating girls impacts the immediate determinants of fertility such as via delayed marital age, breastfeeding, and abstinence. There is a pervasive positive relationship in the literature between women's education and marital age (Jain and Nag, 1986; Breierova and Duflo, 2004; Goldin, 2006; Chicoine, 2012). Arguably, the most important reason behind this relationship is that delaying marriage ' reduces the total duration of fecund exposure to sexual activity' and shifts it to older ages of lower natural fertility (Jain and Nag, 1986, p. 1604). Moreover, attending school is likely to be a direct cause of delayed marriage as girls tend not to be married whilst in school (Jain and Nag, 1986). In developed countries, girls' increased college attendance in the 1970s-80s increased the median age at first marriage by 2. 5 years, thus delaying child-bearing (Goldin, 2006). In developing countries, improved women's education will likely delay the age at first marriage and reduce total fertility, aiding the transition to. A World Bank report predicts that universal secondary education for girls reduces the likelihood of child marriage and early childbearing by an average of 6. 1 percentage points per additional school year (Wodon et al., 2018). However, there are other hypothetical routes through which education can delay marriage. For example, daughters' increased autonomy and decision-making power over marriage choice may result in resistance to the norms of arranged marriages (Jejeebhoy, 1995). In

Saudi Arabia, girls educated at secondary-level were more likely to participate in the selection of a husband (Alsuwaigh, 1989). Furthermore, it is argued that educated women are ‘ less ‘ marriageable’’ (Jejeebhoy, 1995, p. 68) in patriarchal cultures. This is due to factors including the difficulty of finding equally-educated grooms, higher dowry costs, and female autonomy lowering marriageability (Jain and Nag, 1986; Jejeebhoy, 1995). Therefore, education reduces fertility by delaying marriage and childbearing.

However, education can have a positive effect on fertility in terms of breastfeeding and abstinence. The duration of breastfeeding increases with educational attainment (Weinberger, 1987), as women become more knowledgeable about the importance of breastfeeding. Furthermore, Easterlin (1975) proposed that cultural factors may inadvertently affect natural fertility. For example, some countries have a tradition of long periods of postpartum abstinence, which more educated couples tend to observe less (Weinberger, 1987 – plagiarism). Therefore, the effects of female education on breastfeeding and abstinence can actually increase the supply of children by increasing natural fertility. This implies that the relationship between education and fertility is not always negative.

Cost of fertility control

The demand for fertility control measures, determined by differences in supply and demand, is a major factor in explaining fertility differentials. Costs of fertility control are divided into psychic costs, such as cultural views towards contraception, and market costs, such as time and money (Easterlin, 1975). Female education affects some of the direct and indirect costs of

contraception, by making information more accessible, changing attitudes, breaking down communication barriers, increasing autonomy and decision-making power and increasing freedom of movement (Jejeebhoy, 1995). Moreover, education also reduces the physical or health costs of contraceptives, according to Jain and Nag (1986) – give example. As a result, much of the literature shows a positive relationship between women's education and contraceptive use, thus reducing total fertility. For example, a Pakistan study found that women's decision autonomy due to education was significantly associated with lifetime contraceptive use (Saleem and Bobak, 2005). In addition, women's use of contraception was found to have the most powerful effect on fertility across less developed countries, suggesting that education may influence fertility primarily through its effect on contraceptive use (Singh, 1994). This is consistent with Kim's (2010) study on the relationship between education and birth spacing in Indonesia. The results show that the change in education on fertility can be explained by the implementation of family planning programs, concluding that female education impacts fertility primarily through increasing the availability of contraceptive technologies (Kim, 2010). – plagiarism?

Ways education increases contraceptive use: ???

Costs of fertility control vary depending on cultural attitudes and the availability of contraceptive technologies.

Limitations

The usually expected inverse relationship between female education and fertility does, however, have an exception when girls have incomplete

primary education, which can actually increase fertility in the least developed countries (Moursund and Kravdal, 2003). Martin (1995, p. 199) stated that, in the poorest and highest gender-stratified countries in the developing world, slight improvements in ‘ education was found to have a positive effect on fertility at the lower end of the educational range’. However, such fertility-enhancing aspects of education have become increasingly rare over time. As countries become more developed and egalitarian, there is a stronger inverse relationship between women’s education and fertility (Heward, 1999).

Moreover, comparing education in industrialised countries with developing countries has its limitations. In the more advanced countries, measuring an additional year of girls’ education tends to mean an additional year of secondary or higher education whereas in developing countries it usually means primary-level education (Michaelowa, 2000). In addition, there are also significant differences in the quality of education between countries. For instance, students in developing countries often experience time-wastage due to informal school closures and teacher absenteeism (Abadzi, 2009), limiting the quality of their education. Other socio-cultural factors alter the relationship between girls’ education and fertility. For example, a Niger study found that underlying social structures that valued girls for the purpose of reproductive labour meant that the benefits of increasing education to reduce fertility levels would not occur until society changes its perception of girls’ education (Wynd, 1999).

Conclusion

To conclude, female education has a significant negative effect on fertility in both developed and developing economies. Using Easterlin's (1975) framework for fertility, this analysis highlighted the negative impact of education on the demand for children, supply of children, and cost of fertility control. Explain each one. However, educating girls does not have identical outcomes in every country, as it depends on socio-cultural factors such as traditional customs and the stage in the demographic transition. Moreover, there are exceptions to the standard inverse relationship, as shown by the positive effect of education on fertility at the lowest levels of education in the least developed societies. In addition, education can have a positive impact on fertility via reduced abstinence and breastfeeding duration. However, the net impact of girls' education on fertility appears to be

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