

Maternal Schooling in Pakistan: The Girl Effect in Action

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Abstract

In Pakistan, women have long been second-class citizens due to a deeply embedded set of religious and cultural values that have prevented equality between men and women, and between boys and girls. Recently, the Pakistani government has been investing a large amount of funds into education. While in the past most of the Pakistani Government's segregated education funding went mostly to boys' schools, there has been increased international pressure to expand the availability of primary education to girls. The collateral effect of women's education expands far beyond the ability to read and write. Women with an education have more influence and more bargaining power when it comes to making decisions, which is beneficial for their families as well as society. When women are educated there is a drastic decrease in fertility, maternal mortality, infant mortality, and child mortality. This is called the girl effect. This paper reviews the girl effect based on the recent experience in Pakistan.

I. Introduction

In December 2003, Pakistan adopted a new strategy to reduce poverty in the country through a variety of new policies and reforms.¹ As part of reform efforts, the Pakistani government gave high priority to the improvement of social causes, in particular to education.² While education is important for many different reasons, it is especially the education of girls that has effects across economic, social, political, and humanist aspects. As will be shown below, looking at Pakistan's actual data shows that shortly after girls'/women's enrollment increased other statistics (such as infant mortality, maternal mortality, sanitation, and life expectancy) improved.

¹ See Ministry of Finance, Government of Pakistan (2003).

² World Bank (2009).

The argument behind this linkage is that when women are educated, they pass the value of their schooling down to their children, so student enrollment grows at an accelerated rate. In addition, fertility rates, infant mortality and maternal mortality drop due to women not only understanding basic medicine and sanitation, but also because women feel empowered to speak up and make decisions for their lives and the lives of their children. Women who are educated tend to have more bargaining power with the males in the home. More broadly, by having more educated people, an economy has a stronger workforce. Furthermore, improvements in sanitation (which typically is pushed for more by women than men), allow for healthier citizens who then have more time to work and spend less money on healthcare. All of these outcomes are called “The Girl Effect”,³ a cyclical correlation between women’s education and the above mentioned improvements and advancements in a country’s culture, society, and governing body.

This paper examines the effect increased female enrollment had in Pakistan, especially in rural areas. Following this introduction, a literature review (section II), and some empirical background (section III), sections IV to VI review, respectively, the effect maternal schooling has on school enrollment and learning, on health and fertility, and on human capital and economic growth.

II. Literature Review

There are a number of studies that examined the effects of maternal education on physical health. Among the early contributions are Cleland and van Ginneken (1988); Diamond, Newby and Varle (1990); Boerma, Sommerfelt and Bicego (1992); Schultz (1993); Mahmood and Kiani (1994) and Hagen (1995). All of them come to the conclusion that when a mother is educated, prenatal care and sanitation increase, and infant and maternal mortality decrease. Among the more recent contributions, which also refer specifically to Pakistan, are Khalid and Mujahid-Mukhtar (2002); Kabeer (2005); Mortenson and Relin (2007); Andrabi, Das and Khwaja (2009); Levine, Lloyd, Greene and Grown (2009) and a World Bank (2009) report.

- Khalid and Mujahid-Mukhtar (2002) discuss the different options that both the Pakistani government and the world have to continue the upward trend in Pakistan’s education. They outline a Perspective Development Plan (PDP), which is a suggestion of the type of reforms, movements, and goals that need to be implemented. The basic essence of their PDP is to exert a positive influence on the overall environment for women and girls and, particularly, girls’ education. They suggest the formulation of a national policy for women and women’s rights, as well as the implementation of a national plan of action for women, which would introduce programs for the economic empowerment of women and make efforts to raise awareness against violation of human rights and domestic violence.⁴

³ See: <http://www.girleffect.org>.

⁴ Yet, they also emphasize the importance of continuing with improvements for both boys and girls because: (1) an educated woman is an empowered woman who will make decisions for and stand up for herself and (2) an educated man will understand the importance and value of an educated woman and mother. The children of these men and women will continue to pass on the importance of education and human capital to their children, and thus further improve the lives of the Pakistani people.

- Kabeer (2005) notes that a woman's role in the family changes when she is educated. Mothers who are educated tend to have more bargaining power in the home, whereas women who are not tend to follow orders from the male members of the household.
- Mortenson and Relin (2007) wrote a book entitled "*Three Cups of Tea*", which has reached international fame. The book documents Greg Mortenson's experience in Pakistan. A mountain climber turned humanitarian, Mortenson has, to date, built more than 130 schools for both boys and girls in rural Pakistan and Afghanistan. Mortenson's one stipulation is that the local leaders allow girls to attend the schools, with the future goal of having 50 percent of the enrolled students be girls. Mortenson's book has drawn attention to the issues behind amplification of female education worldwide.
- Andrabi, Das and Khwaja (2009) delve into the role that parental education plays in childhood scholastic achievement, particularly the education of mothers. They found that women who are educated spend more time daily on educational activities for their children and are more likely to create an environment conducive to 'study time'.
- Levine, Lloyd, Greene and Grown (2009) examine the impact that improvements and increases in women's education have on developing economies. By educating women, a government facilitates education of future generations, a stronger and better-equipped workforce, and a healthier and more knowledgeable population. They state that in some countries in the world, a knowledgeable and capable population is what certain governing bodies are trying to avoid, but at least in Pakistan the government is looking forward.
- Finally, according to a World Bank (2009) report, Pakistan experienced a period of economic growth beginning in the early 2000s that led to governmental investments in multiple areas, the most important being education. As part of the government's overall reform efforts, high priority was given to the improvement of social conditions, in particular to the education sector. The report found that since then, enrollment has increased for both boys and girls in urban and rural areas, but the greatest increases in school attendance have been for girls in urban areas. Dropout rates in Pakistan are drastically decreasing, teachers are being hired, and the government is funding private schools. The report also examines the specific role that government played in these improvements, especially for women and girls.

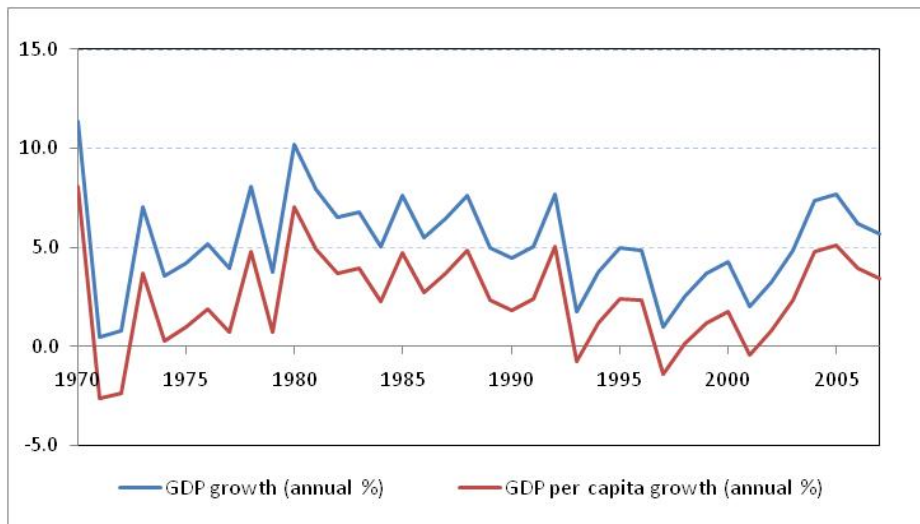
III. Empirical Background

Pakistan is a country with a rich and far-reaching cultural, religious, and social background. Until recently, women were considered second-class citizens. Indeed, in most rural areas this remains to be the typical case. Women have long been powerless to make decisions about their homes, marriages, bodies, and even their children. Women are powerless because they are uneducated, and girls are uneducated because their mothers are powerless to push for their education. Fortunately, because Pakistan has recently begun to invest more

rigorously into its education system, more and more families are giving their girls the chance to attend primary school. When these girls grow up to be mothers, they too will then send their children to school.

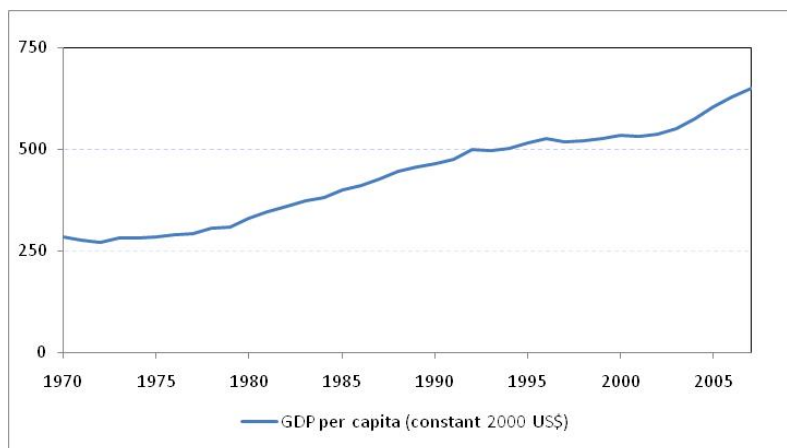
As Figure 1 shows, over the last four decades, the annual growth rate of Pakistan’s gross domestic product (GDP) has been highly volatile, averaging about 5 percent. The growth rates allowed GDP per capita to increase from US\$285 in 1970 to US\$651 in 2007, measured in constant 2000 US\$. As Figure 2 shows, income per capita increased relatively slowly during the 1970s, accelerated during the 1980s, grew then again more slowly during the 1990s, and increased more sharply during 2002-2007.

Figure 1: Growth Rates of GDP and GDP per capita, 1970-2007 (percent)



Source: World Bank (2008) *World Development Indicators 2008*, CD-Rom.

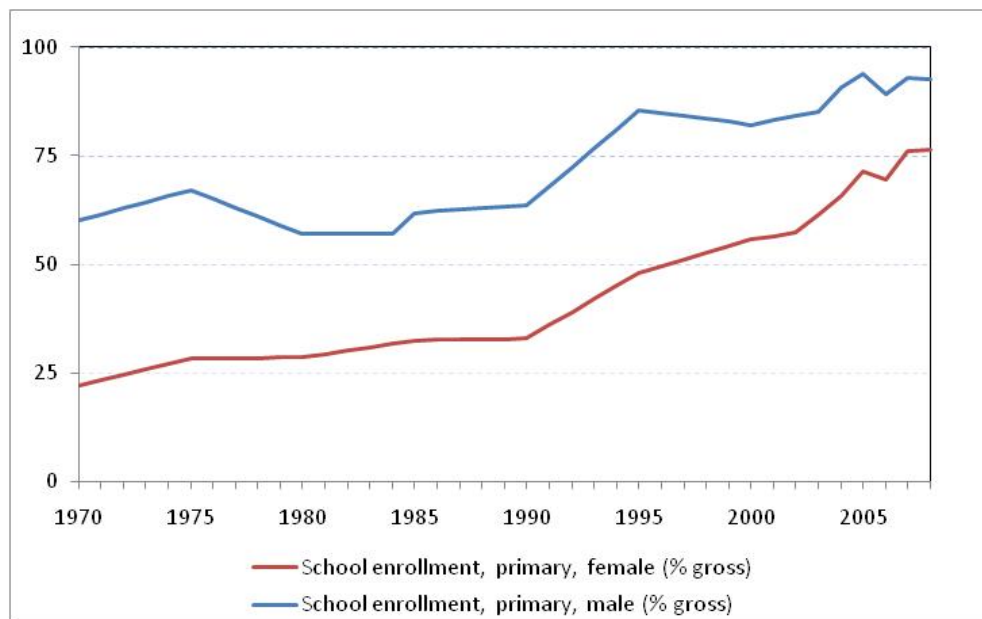
Figure 2: GDP per capita, 1970-2007 (in constant 2000 US\$)



Source: World Bank (2008) *World Development Indicators 2008*, CD-Rom.

Because of this increase in GDP and GDP per capita, not only is the government in a position where it can finance more education, but also families are able to send their children to school rather than to work to increase family income. Economic prosperity provides more time and resources which then can be used towards education and health care. As Figure 3 shows, school enrollment, especially for girls, has increased since 1970. An interesting and important observation however is that the primary school enrollment ratios for girls have increased relatively sharply during the early 1970s, despite little or no increase in GDP per capita during those years.

Figure 3: Male & Female Gross Primary School Enrollment, 1970-2008 (percent)



Source: World Bank (2008) *World Development Indicators 2008*, CD-Rom, updated with *World Development Indicators* data as posted by the World Bank on May 2010; data for a few missing years was calculated by the author using simple averages.

The major difficulty in Pakistan for women’s education is not money, but rather social pressures and challenges brought on by a rich historic culture. According to Pakistan’s constitution, education funding is a matter decided by provincial governments, not national, and the financing and service responsibilities are in the hands of provinces and districts.⁵ This creates a major obstacle for women and girls, because while the national government may be willing to adopt radical changes in women’s education, cultural and social pressures in rural areas and villages make these adaptations difficult.

As documented in World Bank (2009), in 2003 a local government in Punjab (a region of Pakistan), launched the Punjab Education Sector Reform Program (PESRP). This program

⁵ World Bank (2009).

consisted of upgrading schools, filling teacher vacancies, specific stipends for girls, and subsidies to low-fee private schools. Following the creation of the PESRP, net primary enrollment increased by 38 percent between 2001 and 2007. Both boys and girls increased participation in school by more than 36 percent, and female enrollment had reached an all-time regional high of 59 percent. The PESRP shows that if a region's actions towards education reflect those that the government has begun, the results are enormous. There is, however, still room for improvement. In Punjab, dropout rates are still high due to late entry into primary school (many children do not start school until the age of 10), and only a small proportion of students persevere beyond the primary level. Additionally, for every 100 urban males that attend primary school, only 66 girls do in rural Punjab. While there is still work to be done, educating women in particular has long-term effects on education, among other things, that will last for generations to come.

IV. Effects of Maternal Schooling on Enrollment and Learning

Andrabi, Das and Khwaja (2009) have shown that the presence of a girl's school in a woman's birth village at the time she was at primary school age increases the woman's average years of education by 0.61 years. Considering that the average of a woman's education is 1.2 years, 0.61 years are an enormous increase. Furthermore, it has been shown that maternal education has an effect on a child's education when it comes to enrollment, hours per day spent on educational activities, and academic achievement. Therefore, when these educated girls become mothers, enrollment will continue its exponential upward trend. Across the globe, there is a strong correlation between maternal education and child educational achievement, in particular for daughters, because "if children (principally girls) see that their mothers attended and valued school, they are more likely to follow that example."⁶ Not only does a woman herself benefit from her education, but in their roles as mothers, women can also pass on additional educational benefits to their children, the most important of which is to keep the cycle going. It is an "inter-generational transmission of human capital".⁷

Human capital, as defined by Amartya Sen (1997), is the agency of human beings augmenting production possibilities through skill and knowledge as well as effort. Mothers who are educated have the ability to pass down their own earned human capital for their children to build on, and so on through generations. As Andrabi, Das and Khwaja (2009) have pointed out, mothers who are educated act within the space they control (typically the home) by making sure their children spend more time studying and by creating a nurturing learning environment. Mothers with some education spend an average of an extra 75 minutes per day on educational activities outside of school with their children. Additionally, a child of a mother with some education spends an average of 43 more minutes on educational activities outside of school, either alone or with other family members (such as older siblings or other relatives).

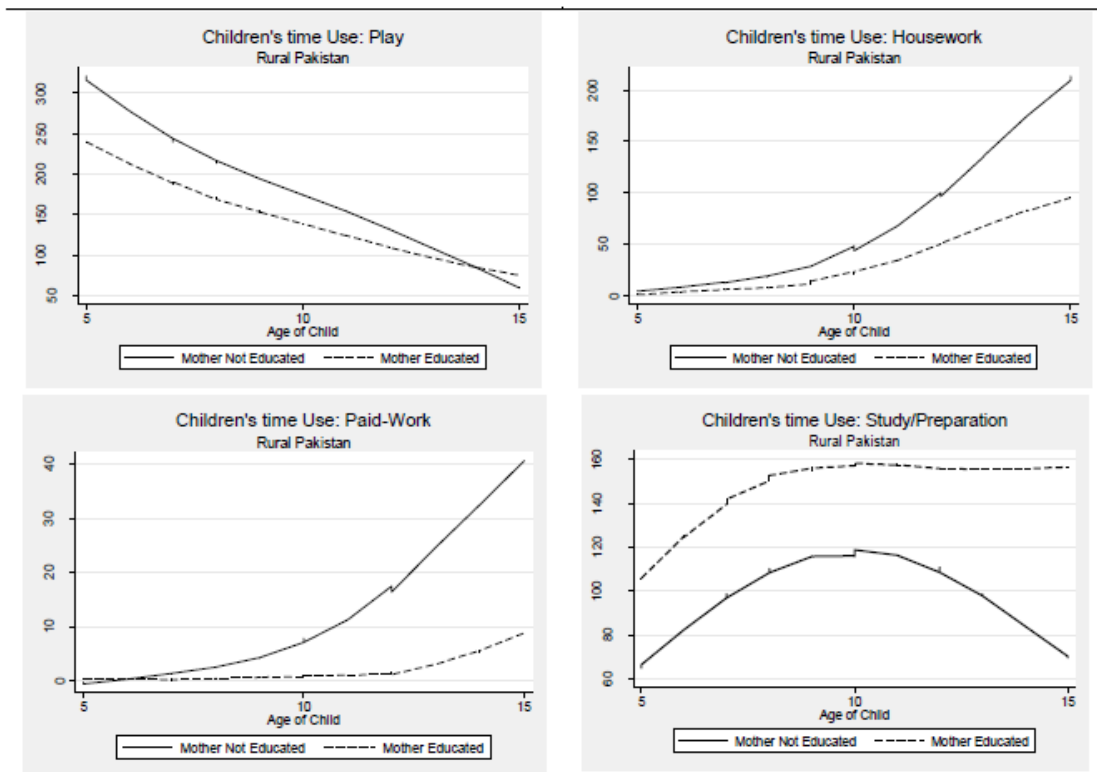
When mothers are educated, they understand the importance of school-related homework and the priority it takes over other parts of household life. Children of educated mothers

⁶ Levine, Lloyd, Green and Grown (2009).

⁷ Andrabi, Das and Khwaja (2009).

spend less time on non-school related housework than those whose mothers are not educated. For children with uneducated mothers, school-related homework time declines sharply after the age of 10, and this decrease is most drastic for teenage girls. This trend is a reflection of the deeply seeded culture that surrounds women in Pakistan. When a girl reaches her teenage years, she is expected to shift her focus away from education and towards household duties and preparing for marriage and a family of her own. Educated mothers seem to understand the importance of education as well as learning these other skills, and they therefore continue to encourage their children to spend time on education. As shown in the charts of Figure 4 below, maternal education has a drastic effect on the amount of time a child spends on housework, paid work, study time and playtime.⁸

Figure 4: Children’s Time-Use and Age, and Maternal Education



Notes: The figures show non-parametric graphs relating child time-use with age for the sample of mothers with some education relative to those with no education. To focus on the relative differences between these groups, the vertical axis are different across the graphs. Child time use is based on a time allocation module completed for every child through the LEAPS survey in 2003.

Source: Andrabi, Das, and Khwaja (2009), Figure 1, p. 38.

There is also a strong correlation between maternal education and child test scores. A child of an educated woman has an average of 43 percent higher test scores in Math and 35 percent in Urdu (the vernacular language) than their peers whose mothers are uneducated.⁹

⁸ Andrabi, Das and Khwaja (2009).

⁹ Andrabi, Das and Khwaja (2009).

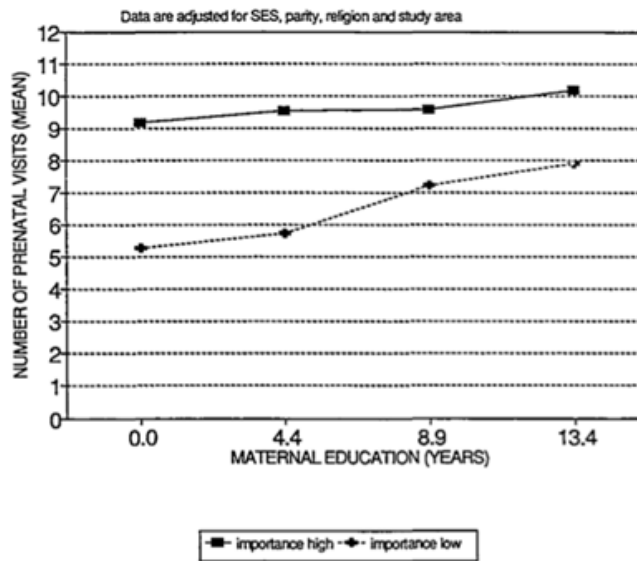
These score discrepancies correspond to roughly one additional year of learning. Again, in a country where a female’s average education is 1.2 years, an additional year is a huge advantage. These score increases are mostly due to the fact that mothers do not need to be at an advanced cognitive level to make their children study.

V. Effects of Maternal Schooling on Health and Fertility

Maternal education has a strong positive effect on personal and child survival, especially during pregnancy and birth, because it indicates at least a basic understanding of modern health, improves the effectiveness of maternal behaviors involving the child’s health, and changes the mother’s role within a family to include greater attention to the use of modern health services and sanitation.¹⁰ Educated women tend to better understand the importance of prenatal care, both for themselves and for the health of their child. These women are more likely to seek and obtain adequate care rather than, like in most developing countries, receive poor to no prenatal care.

Maternal education also impacts the importance women place on prenatal care. Schultz (2001) undertook a large cross-country study and concluded that for every year of schooling, infant mortality declines by 5-10 percent. In Pakistan in particular, women with more education place a higher emphasis on the importance of frequent prenatal visits to doctors, as illustrated in Figure 6 below.

Figure 5: Number of Prenatal Visits by Maternal Education and Perceived Importance of Prenatal Care



Source: World Bank (2009), Figure 8.

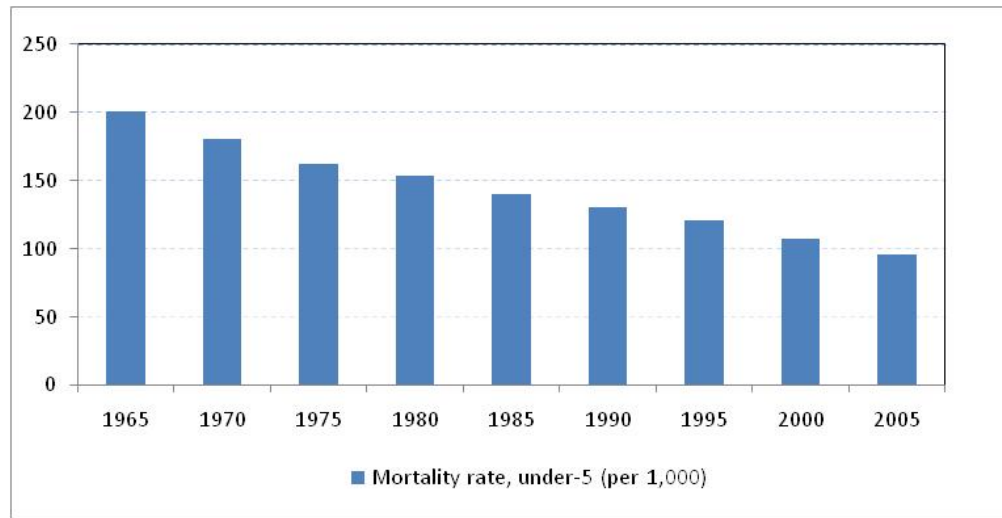
Thanks to an increase in women seeking prenatal care, infant and child mortality in Pakistan has fallen drastically. Between 2000 and 2009, stillbirths have declined from 85

¹⁰ Cleland and Van Ginneken (1988).

to 77.5 per 1000 live births, and under-5 child mortality has declined from 108 to 97.2 per 1000 children,¹¹ a downward trend which is illustrated over a longer time period in Figure 6 below.

It is not coincidental that while female education increases, infant and maternal mortality decrease and a women's choice to seek prenatal care becomes increasingly common. Women who do not perceive prenatal care are poor, of high parity, low levels of education, and are unaware of the importance of prenatal care.¹² Regardless of wealth, women who perceive prenatal care to be important are more likely to obtain adequate care, and women who perceive it to be important tend to be those who are educated. Economic prosperity does directly influence these numbers, because the government can fund facilities and clinics, but the people still have to have the knowledge and belief in modern medicine to seek out this care, and that is where the education of women and girls comes strongly into play.

Figure 6: Under-5 mortality (per 1,000)



Source: World Bank (2008) *World Development Indicators 2008*, CD-Rom.

Knowledge of modern health extends beyond prenatal and infant care. Fertility and family planning are also highly influenced education. Women who are educated are empowered to make decisions about their bodies. When women (instead of men) are making decisions about family planning, the number of children born per woman decreases. Again, the decreasing number of children per woman over time (see Table 1 below) does not coincidentally parallel the increases in female education, but is due to the increased female school enrollment.

¹¹ World Bank (2008) *World Development Indicators 2008*, CD-Rom.

¹² Hagen (1995).

Table 1: Age-Specific and Total Fertility Rates

MATERNAL AGE GROUP	BIRTHS PER 1,000 WOMEN BY AGE GROUP			
	1976	1981	1986	1991**
15-19	100.0	75.9	60.2	31.5
20-24	234.3	223.9	182.5	151.7
25-29	277.7	233.9	227.5	183.5
30-34	193.5	189.3	161.1	133.3
35-39	194.6	80.6	85.3	61.9
40-44	*	102.7	38.7	21.3
45-49	*	*	32.4	4.8
TFR	5.68	4.69	3.94	3.03

Source: Hagen (1995), Table 7 (* refers to partially truncated data, ** indicates that the 1991 data is based on a six-year average (1988-1993).

Educated women also make decisions about their own bodies and families. This creates a more manageable population growth. As shown in Table 2, comparing fertility and selected maternal health indicators of five South Asian countries (and Canada as a reference), countries with a higher percent adult female literacy rate have fewer children and maternal mortality drops significantly.

Table 2: Fertility and Selected Maternal Health Indicators in South Asia (Canada as reference)

	Pakistan	India	Bangladesh	Nepal	Sri Lanka	Canada
Socioeconomic Indicators						
Per Capita Income (US\$)	400	330	220	180	500	20,440
Female Literacy Rate (%)	21	34	22	13	84	n.a.
Fertility Indicators						
Crude Birth Rate	41	29	39	38	21	14
Contraceptive Prevalence (%)	12	43	31	14	62	73
Total Fertility Rate (births/woman)	6.2	3.9	4.6	5.5	2.5	1.8
Maternal/Child Health						
Maternal Mortality Ratio (per 100,000)	500	460	600	830	80	5
Births with Trained Attendance (%)	35	33	5	6	94	99
Under 5 Mortality Rate (per 1000)	137	124	127	128	19	8

Source: Hagen (1995) Table 2 (based on UNICEF's *The State of the World's Children 1994*).

Fortunately for Pakistan, a more sustainable rate of population growth is a foundation for strong economic progress, which is why the correlating drop in fertility rate from 4-5 children in 1981 to 3 children in 1991 was a contributing factor to the economic successes Pakistan experienced shortly after. With a smaller population of children to take care of, parents can commit more resources to a smaller number of children as well as have leftover income to spend elsewhere.

VI. Effects on Human Capital and Economic Growth

Educational attainment is related to an adult's long-term earning capacity, or human capital. For a woman, her ability to bargain for resources within the family is also related to her schooling. A mother who has attended school may have more resources to send her child to school and encourage and facilitate educational activities in the home than if she had not attended herself. Maternal education helps to eliminate inequalities between men and women in the home. In Pakistan, a women's fortune is tied closely to her family and male members of the family make most decisions.

However, in families where women are educated, their opinions tend to be better respected. By giving women more economic power, they can invest in their children, both male and female. Men tend to favor male children in societies like Pakistan.¹³ Women tend to invest more into the welfare of their families than men do. When women and girls earn income, they reinvest 90 percent of it into their families, as compared to 30 percent for males.¹⁴ When women are allowed to decide where resources are allocated in a household, she tends to invest in sanitation, education, and other aspects that will benefit the family entirely. Additionally, women will invest equally in male and female members of the family, whereas men tend to favor male children. The types of investments that women make are more beneficial in the long run, not only inside the family but also externally.

When children are healthier because their mothers were educated, less money and time is lost on healthcare. People whose mothers invested in their health while growing up are less likely to get sick as adults, both because they are physically healthier and because they better understand sanitation and modern medicine. Therefore, more adults are available to work and are taking less time off or losing their job due to illness. As stated above, women tend to reinvest more in their families than men do.

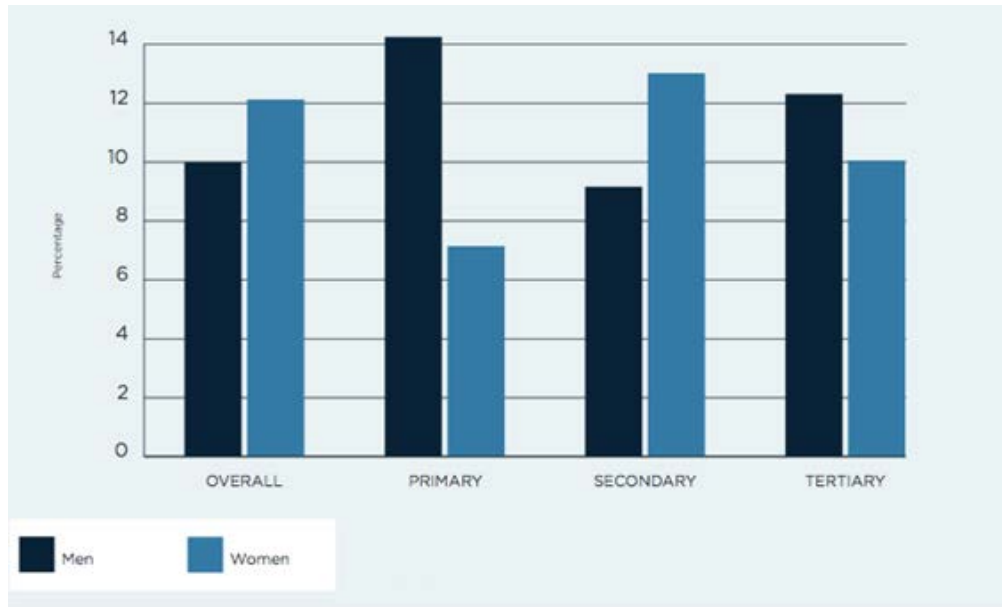
As Figure 7 shows, overall, education also has a greater return for women than men, particularly for women who have reached a level of secondary education. For every year she is educated, a woman's wages increase by 10-20 percent, whereas for men the increase is only 5-15 percent.¹⁵ In Pakistan in particular, women's educational returns are higher across the board. Educated women have more economic power for themselves. Women who have completed primary school can take out loans to start their own business.

¹³ Kabeer (2005).

¹⁴ Fortson (2003).

¹⁵ Levine, Lloyd, Green, and Grown (2009).

**Figure 7: Returns to Investment in Schooling in Developing Countries
(by gender and level)**



Source: Levine, Lloyd, Green and Grown (2009) Figure 2.2 (based on Psacharopoulos and Patrinos, 2004).

VII. Conclusion

As illustrated on the Girl Effect website, if a girl goes to school, grows up and gets a loan, and then buys some cows, she can make money off of her business selling milk. When she earns her wages, she will reinvest it in her children, for example by financing clean water or sanitation facilities. Not only does this end up benefiting her children, family, and even her village, but also there is a good chance that the woman will also gain the respect of the men in her social sphere, outside the home where she already has gained bargaining power. Perhaps this woman's influence or she herself will end up on the city council and be able to champion for more positive change. Consequently, quality of life improves, which has an effect on the economy.

All together, the "Girl Effect" has far-reaching consequences in every country across the globe, but particularly in Pakistan, where girl's education is a relative new concept. It is important to forward social, economic, governmental, and medical change. While efforts to improve the quality and quantity of education for boys and girls are important, it is especially important that girl's education catches up with boy's education. Given the recent initiatives in Pakistan, future enrollment ratios will hopefully soon match the ratio of boys and girls in Pakistan's population.

Thanks to the availability of funding due to the economic success in Pakistan, the national government has begun pouring money into schools. Additionally, women's rights in Pakistan are slowly improving as society moves away from the cultural norms of the past hundreds of years. More schools for girls are being built nation-wide and more emphasis

is put on teacher training, as well as improvements on existing educational systems and the funding of private schools. More recently, the Millennium Development Goals (MDGs) set a goal that by 2015 all children have access to complete free and compulsory primary education of good quality. This goal is underway in Pakistan, and at least until the recent floods, the percentage of children enrolled has been growing.

Another important trend is the increased ratio of female to male teachers in rural areas, which can be linked to educated women understanding the need for well qualified teachers, as well as schools understanding the importance of hiring female teachers to better benefit female students by setting an example. The improvements in schooling initiated by governmental reform will have impacts across the board in Pakistan for years to come, as the children they are educating now grow up, hold jobs, and raise families of their own.

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