

## Investing in *All* the People

LAWRENCE H. SUMMERS

I am honoured to have the privilege of addressing this distinguished conference. I have read about Pakistan's accomplishments and problems for many years and since coming to the World Bank I have followed your government's bold reform efforts closely. I feel fortunate to finally have the opportunity to visit your country.

I decided to speak today on "Investing in All the People" because an extensive body of recent research has convinced me that once all the benefits are recognised, investment in the education of girls may well be the highest return investment available in the developing world. And, as I will make clear, increasing the education of girls is an especially high priority for Pakistan.

Women's education may seem an odd topic for an economist to address. But enhancing women's contribution to development is as much an economic as a social issue. Economics, with its emphasis on incentives, provides a useful way to understand why so many girls are deprived of education and employment opportunities. And concrete calculations demonstrate that there are enormous economic benefits to investing in women.

In examining the links between women's education and development, I will make five main points that, taken together, provide a compelling case for action.

First, comparisons of the female fraction of the population in different countries suggest that as many as 100 million women are missing worldwide primarily due to higher death rates for young girls than boys. Higher death rates are symptomatic of a much more general pattern of female deprivation in the developing world, especially in South Asia.

Second, underinvestment in girls is not an ineluctable consequence of poverty, nor is it made necessary by any religious or cultural tradition. It is an economic

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problem that results from a vicious cycle caused by distorted incentives. The expectation that girls will grow to do little other than serve their husbands reduces parent's incentive to invest in their daughter's human capital. Uneducated women then have few alternatives and so the expectation becomes self fulfilling, trapping women in a continuous circle of neglect.

Third, increasing educational opportunities for girls offers the best prospect for cutting into this vicious cycle. As an economic investment, increased outlays directed at educating girls may well yield the highest return of all investments available in developing countries considering both private benefits and returns to other family members.

Fourth, experience suggests that female education programmes are relatively inexpensive compared to other development investments and could quickly increase female enrollment rates.

Fifth, major initiatives to increase female education have the potential to transform society over time. If a larger fraction of girls had gone to school a generation ago millions of infant deaths each year could have been averted and tens of millions of families could have been healthier and happier.

### **THE PROBLEM OF EXCESS FEMALE MORTALITY**

The experience of different countries as reflected in the statistical record provides a natural starting point for any discussion of development policy. I want to start with one of the most basic of all national statistics – the demographic composition of the population. In examining these statistics, many observers have been struck by the differences between countries in what one might have expected to be a biologically determined constant – the share of the population that is female. My Harvard colleague Amartya Sen has recently highlighted how large these differences are by calculating that worldwide more than 100 million women<sup>1</sup> are missing and labelling the fate of these women, “one of the more momentous problems facing the contemporary world”.<sup>2</sup> This problem is symptomatic of an even larger problem of hidden underinvestment in the human development of the women who survive and are counted.

In the industrialised world females comprise over 51 percent of the population. In Sub-Saharan Africa the percent of the population that is female is a little bit lower, ranging from 50.9 to 49.2 percent (Table 1). Likewise, the percentage of females in Latin America ranges from 50.7 to 49.5 percent. But, as seen in Figure 1,

<sup>1</sup>Ansley Coale (1991), using slightly different assumptions about expected masculinity ratios, calculates that the total number of missing females is approximately 60 million. As Coale says, even this lower independent estimate “confirms the enormity of the social problem”.

<sup>2</sup>Amartya Sen. “Women's Survival as a Development Problem”. Comments prepared for the 1700th Stated meeting of the American Academy of Arts and Sciences on March 8, 1989.

Table 1

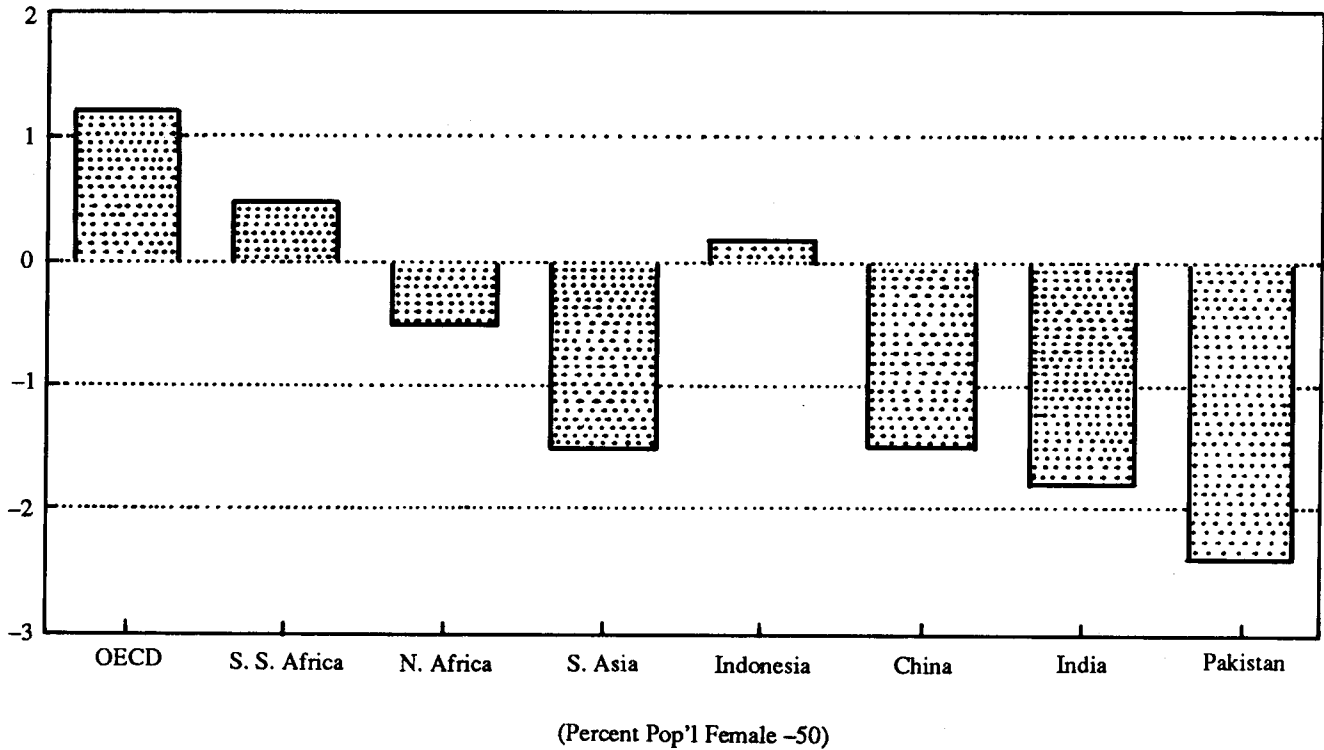
*Selected Statistics on Women's Role*

Regions	GNP per Capita 1989	Fem. % of Total Popul- ation	Fem. as % of Pop- ulation Age 0-4	Life Expectancy		Maternal Mortality	Primary Enroll.		Secondary Enroll.		Fertility	Age Marriage
				F	Ratio F/M		F	Ratio F/M	F	Ratio F/M		
Low-income W/o China and India	330	49.0%	48.5%	63	1.03		95		29		4	
Low-and-middle Income	300	50.0%	49.2%	56	1.04		68		20		5.6	
High Income	800	49.2%	48.7%	65	1.05		97		36		4	
	1730	51.0%	48.7%	79	1.08		102		94		1.8	
<b>Low Income Countries</b>												
<b>Asia</b>												
Bangladesh	180	48.5%	48.5%	51	0.98	600	49	0.64	11	0.46	5.5	20
China	350	48.5%	48.2%	71	1.03	44	126	0.90	37	0.74	2.4	22.4
India	340	48.2%	48.5%	59	1.02	500	83	0.73	29	0.58	4.3	18.7
Indonesia	500	50.2%	49.2%	63	1.05	800	117	0.98	43	0.81	3.5	20
LaoPDR	180	49.7%	49.5%	51	1.06		98	0.96	22	0.96	5.7	16.7
Nepal	180	48.7%	48.5%	51	0.98		57	0.55	17	0.49	5.9	17.9
Pakistan	370	47.6%	48.7%	55	1.00	600	28	0.55	11	0.42	6.7	19.8
Sri Lanka	430	49.5%	49.0%	73	1.06	90	105	1.00	74	1.17	2.7	24.4
<b>Latin America</b>												
Haiti	360	51.0%	49.5%	57	1.06	340	80	0.96	17	0.89	4.7	23.8

Continued -

Table 1 - (Continued)

Regions	GNP per Capita 1989	Fem. % of Total Popul- ation	Fem. as % of Pop- ulation Age 0-4	Life Expectancy			Primary Enroll.		Secondary Enroll.		Fertility	Age Marriage
				F	Ratio F/M	Maternal Mortality	F	Ratio F/M	F	Ratio F/M		
<b>SS Africa</b>												
Benin	380	51.0%	50.0%	53	1.08	1680	43	0.51	9	0.39	6.5	18.3
Burkina Faso	320	50.5%	50.0%	49	1.07	600	24	0.59	4	0.50	6.5	17.4
<b>Central Africa</b>												
Rep.	390	51.5%	50.0%	52	1.06	600	51	0.62	6	0.35	5.8	
Chad	190	50.7%	50.0%	48	1.07	700	29	0.40	2	0.20	5.9	
Ethiopia	120	50.2%	50.0%	49	1.07	2000	28	0.61	12	0.67	6.5	17.7
Ghana	390	50.5%	49.7%	56	1.06	1070	66	0.85	30	0.61	6.4	19.3
Kenya	360	50.0%	49.5%	61	1.07	510	91	0.93	19	0.70	7.7	20.4
Lesotho	470	51.9%	50.5%	58	1.07		123	1.21	30	1.67	5.8	20.5
Madagascar	230	50.5%	49.7%	52	1.04	300	95	0.98	19	0.83	6.4	20.3
Malawi	180	51.0%	49.5%	48	1.02	250	65	0.89	3	0.60	7.6	17.8
Mali	270	51.7%	50.0%	49	1.07		17	0.59	4	0.44	7	18.1
Mozambique	80	50.7%	50.0%	50	1.06	479	59	0.78	4	0.57	6.3	17.6
Niger	290	50.5%	50.0%	47	1.09	420	21	0.57	4	0.44	7	
Nigeria	250	50.5%	49.7%	54	1.10	1500	48	0.67	7	0.24	6.5	18.7
Sierra Leone	220	51.0%	50.0%	44	1.10	450	40	0.59			6.5	
Somalia	170	52.4%	50.0%	49	1.07	1100	13				6.8	20.1
Tanzania	130	.....	.....	51	1.09	370	66	0.99	3	0.60		
Togo	390	50.7%	49.7%	55	1.06	476	78	0.63	12	0.33	6.5	
Uganda	250	50.5%	49.7%	50	1.06	300	50	0.66	8	0.50	6.9	
Zaire	260	50.7%	49.7%	54	1.06	800	65	0.76	14	0.44	6.1	20.1
Zambia	390	50.7%	49.5%	56	1.08	110	92	0.90			6.8	19.4



Source: World Development Report, 1989.

**Fig. 1. Female Population, Percent  
(Deviations from 50 Percent)**

Asia in general and Pakistan in particular stand out in any examination of sex ratios. The female share of the population is 48.5 percent in China, 48.1 percent in India, and 47.6 percent in Pakistan – the lowest measured share in the developing world.

Why are there such large differences in sex ratios across countries? As a matter of logic there are four possibilities – differences between men and women in migration patterns, differences in the share of female babies born, differences in male and female population shares counted by census data, or differences in female survival rates. There is no evidence that differing patterns of migration between women and men can explain such large differences in national sex ratios, nor are there noticeable differences across countries in the share of female births.<sup>3</sup> Claims that women are undercounted in certain societies are largely unsubstantiated and fail to explain differences in population ratios in nations of similar culture. It follows that discrepancies in the share of women in the population must be primarily a matter of differences in survival probabilities.

Direct analysis of mortality rates supports the proposition that discrepancies in female population ratios are caused by gender differences in survival probabilities (Table 2). These differences are most pronounced for girls and boys between the ages of 1 and 4. Moreover, these current mortality rates and examination of cohort data<sup>4</sup> demonstrate that the present low female population ratios do not reflect excess female mortality that took place in the past but indicate an ongoing problem. The precise mechanisms which cause these discrepancies in mortality rates between boys and girls are not fully understood. But studies have found evidence of differential feeding, additional work burden inside and outside the home, and less attention during illness for girls than for boys. Women also suffer excess mortality due to the risks of childbearing. One third of all deaths among Pakistani women aged 15 to 49 are due to complications of pregnancy.<sup>5</sup>

Given that women get less than their share of the goods necessary for survival, it is hardly surprising that their treatment falls short in other respects (Table 1). There is a considerable tendency for various indicators of the relative treatment of women to be correlated across countries. I am afraid that Pakistan

<sup>3</sup>There is some evidence that in higher income Asian countries modern medical technologies have been used to selectively abort female fetuses. Where selective abortion is not practiced, male births generally slightly outnumber female births. The median ratio of the number of male to female births in 24 countries in Europe from 1962 to 1980 was 1.059, with 71 percent falling between 1.055 and 1.064 (Chahnazarian, 1986).

<sup>4</sup>Examination of the female population ratios for cohorts in 1951, 1961, and 1972 show near equal increases as the cohort ages from 0–10 years to 10–20 years, indicating consistently higher female mortality.

<sup>5</sup>Senior Minister Begum Nusrat Bhutto. Inaugural Address. Safe Motherhood South Asia Conference. Lahore, Pakistan. March 1990.



Table 2

*Comparison of the Ratio of Female to Male Age-specific Mortality Rates*

Age	0 - 1	1 - 4
Pakistan	0.89	1.26
Bangladesh	0.93	1.12
Syria	0.95	1.04
Algeria	0.91	1.02
Malaysia	0.83	1.00
Mali	0.81	0.94
Columbia	0.80	0.91
Philippines	0.74	0.90
Bolivia	0.86	0.90
Malawi	0.85	0.89
Jordan	0.87	0.83
Singapore	0.74	0.80
Mauritius	0.66	0.58

Source: United Nations Demographic Yearbook 1988.

clearly illustrates this point. It lags badly on almost every indicator. As I have said, Pakistan has the lowest ratio of women to men, and among low income countries, the fifth lowest ratio of female to male primary enrollment, and the seventh lowest female/male ratio in secondary enrollment.

### THE VICIOUS CYCLE OF DEPRIVATION?

Why are girls deprived in so much of the world and what explains the large variations across countries? These questions defy any simple answer. But even a cursory examination of the available information suffices to reject some explanations and to support others. It is a misconception that low female population ratios are an inevitable consequence of poverty. Africa has a far higher fraction of women than South Asia despite the fact that it fares equally poorly on measures of per-capita income and much worse on most other social indicators.

Comparisons between populations also allow us to rule out the notion that low female population ratios are unavoidable due to cultural tradition. It would be foolish to deny that culture has a role in explaining differences in sex ratios; any explanation of differing survival rates for children must consider parents' aspirations for their sons and daughters, which obviously cannot be divorced from culture. Yet large differences in the treatment of girls exist between nations with important cultural similarities. To take just one example, the share of the female population in Indonesia is much closer to the African share than to the Pakistani share. Even within a single country large discrepancies in the ratio of females can exist. The state of Kerala in India, for example, has a proportion of females which is far higher than the nation as a whole.<sup>6</sup>

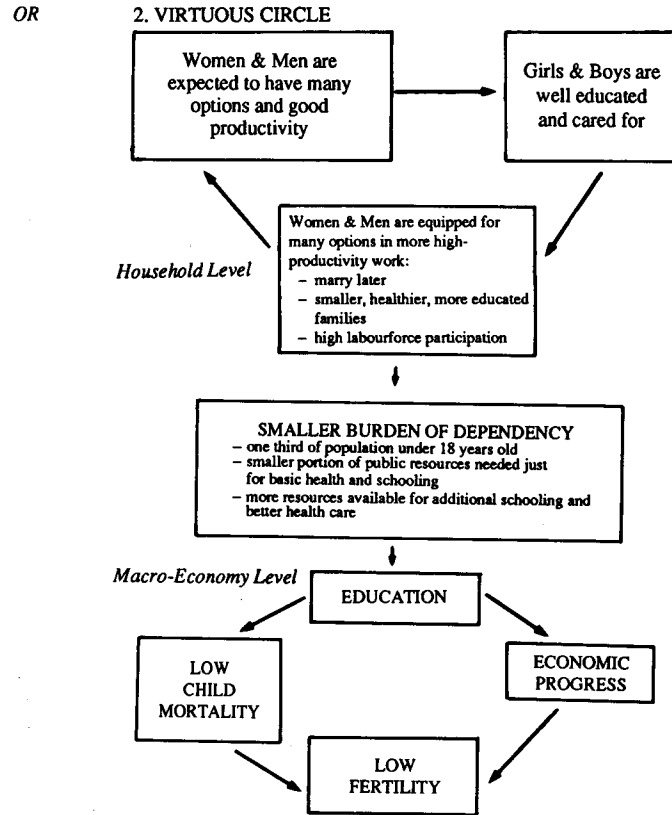
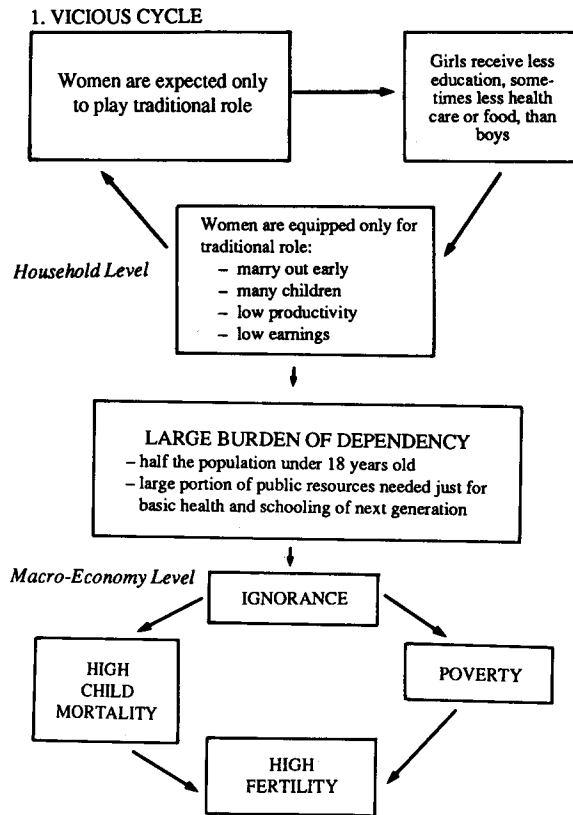
Whatever its original roots, the problem of excess female mortality today is a consequence of a vicious cycle (depicted in Figure 2) whereby parents fail to invest in their daughters because they do not expect their daughters to be able to make an economic contribution to the family, and the prophecy turns out to be self fulfilling. The nature of this cycle is illustrated by two stories.

#### Situation A

A poor family has 6 children. The mother never attended school and was married at age 15. She is completely illiterate and cannot do arithmetic well enough to count out change. She stays home, does household chores with her daughters, and works in the fields even though she is 7 months pregnant. Her husband earns most of the family's meager income and decides how it is spent. As he, not his

<sup>6</sup>This difference may be partially due to migration. But this is unlikely to be the whole story. It is noteworthy that Kerala's health and primary education systems are very strong, both overall and in their treatment of girls and women.





**Fig. 2. Educating Girls and Economic Development.**

Source: Herz et al. (1991) "Letting Girls Learn". World Bank Discussion Paper 133.

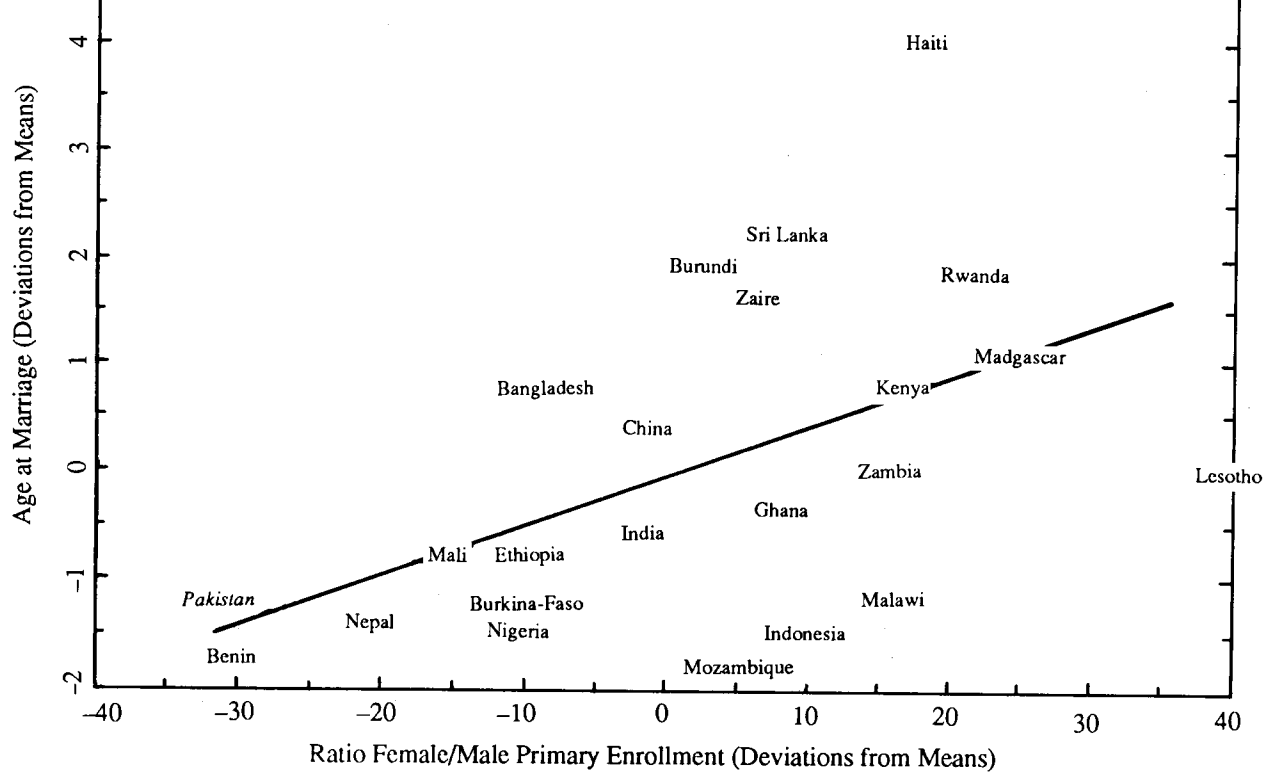
sisters, is expected to support his parents, he recognises that his economic security depends on his sons' ability to support him in his old age. He insists that the boys go to school while the girls stay home to do chores and take care of the young babies. When his daughter becomes mysteriously ill, he feels he cannot afford to go with her for two days to the medical clinic in the city. His wife pleads with him but he will not change his mind, repeating the words "we have to think about our future". The wife finally relents, realising that he is right. The daughter dies.

### **Situation B**

A poor family has 3 children. The mother went to school for five years and is able to read and do arithmetic well enough to teach school in the village. As her last birth was extremely difficult, she and her husband adopted family planning. This allows her more time and resources to spend on her family; she visits her ill mother often and buys her medicine. She insists that all of her children go to school and practice their reading each night, hoping to expand their horizons. She is especially determined that her middle daughter, who has a remarkable ability to make up stories, continue in school and develop her talent. When the daughter gets sick and does not seem to be getting better, she takes her to the medical clinic. The doctor gives them some ampicillin tablets and instructs the mother to give them to any of the children who fall ill. The daughter's strep infection is cured, as is the infection of the son who was running a high fever by the time the mother returned home.

Some of the differences between these two situations are obvious enough. An uneducated mother without skills that are valued outside the home has less ability to influence choices within the family. Her daughters are uneducated as well and a vicious cycle is perpetuated – girls grow up only to marry into somebody else's family and bear children. Girls are thus less valuable than boys and are kept at home to do chores while their brothers are sent to school. They remain uneducated and unskilled and the conditions necessary for them to contribute to the economy are not created. The economy suffers and young girls die of neglect.

By contrast, an educated mother faces a higher opportunity cost of time spent caring for children. She has a greater value outside the home and thus has an entirely different set of choices than she would without education. She is married at a later age (Figure 3) and is able to better influence family decisions. She has fewer, healthier children and can insist on the development of all of them, ensuring that her daughters are given a fair chance. And the education of her daughters makes it much more likely that the next generation of girls, as well as of boys, will be educated and healthy as well. The vicious cycle is thus transformed into a virtuous circle.



**Fig. 3. Female Education and Age at Marriage  
(Partial Correlation, Controlling for GDP per Capita)**

## THE NEED FOR EDUCATION

What is the best way to convert what is too often a vicious cycle into a virtuous circle? There is no one answer to this question. But I believe that the available evidence suggests that programmes to raise the education of girls offer the best hope. When one takes into account all of its benefits, educating girls quite possibly yields a higher rate of return than any other investment available in the developing world. Consider its benefits.

Most obviously, there is the direct effect of increased female education on the wages of female workers. The evidence is that the returns in the form of higher wages are fairly similar for men and women. As a rough approximation, wages increase by more than 10 to 20 percent for each additional year of schooling. In parts of the world like South Asia and Africa, where literacy and school enrollment rates are low, the returns to education are particularly high.

Returns of this magnitude are impressive by the standard of other available investments, but they are just the beginning of the benefits from increasing female education. In part because of what women do with the extra income they earn, in part because of the extra leverage it affords them within the family, and in part because of the direct effects of being more knowledgeable and aware, female education has an enormous impact on health practices including adoption of family planning – an impact that as Table 3 demonstrates, is large enough to justify increased educational outlays even if there were no direct pecuniary benefits. While the evidence is that increased schooling of boys and girls is similar in its wage impact, it is clear that educating girls is much more effective in generating social benefits.

Educating women yields high returns in terms of healthier children by cutting through the vicious cycle I just described. There is overwhelming evidence that mothers channel much more of their income to expenditures on children than their husbands do. But this is only one of the channels through which education improves health. It also increases the willingness to seek medical care and improves sanitation practices. Educating an extra 1000 girls an additional year in 1990 would have cost approximately \$ 30,000.<sup>7</sup> The best available estimates suggest that each year of schooling reduces under five mortality by up to 10 percent. Similar estimates are obtained both from studies of cross sections in individual countries and for studies of cross country variations in infant and child mortality rates. With an average woman in Pakistan having 6.6 children, it follows that providing an addi-

<sup>7</sup>The World Bank's best estimate of the average recurrent cost of one year of secondary school in Pakistan is \$ 28.7. On the one hand, the marginal cost will be higher for girls. On the other hand, primary school is cheaper than secondary school so our use of \$ 30 as the recurrent costs of one year of school is conservative.

Table 3

*Net Social Benefits of One Additional Year Schooling for 1,000 Women*


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Recurrent Cost of One Year Education for 1000 Women	\$ 30,000
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**Child Mortality**

Percentage Reduction in Child (< 5) Mortality	7.5
Total Fertility Rate in Pakistan	6.6
Total Averted Deaths per 1,000 Women	60
Alternative Costs per Averted Deaths	\$ 800
Value of Averted Deaths	\$ 48,000

**Births Averted**

Percentage of Reduction in Total Fertility Rate	7.5
Birth Averted	500
Alternative Cost per Birth Averted	\$ 65
Value of Averted Births	\$ 33,000

**Maternal Mortality**

Maternal Mortality per 100,000 Births	600
Mother's Death's Averted	3
Alternative Cost per Averted Maternal Deaths	\$ 2500
Value of Averted Maternal Deaths	\$ 7,500

Total Discounted Social Benefits (15 Years, 5 Percent)	\$ 42,600
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tional 1000 women one extra year of schooling would prevent roughly 60 infant deaths.

What would it cost to achieve similar results through investments in health care? Obviously the answer differs across health care investments. For example, cost effectiveness estimates suggest that programmes of supplementary antenatal feeding cost in the neighbourhood of \$ 700 per life saved. Other commonly recommended health interventions are more expensive; measles immunisation programmes outside of high risk environments, for example, cost \$ 1000 per life saved.<sup>8</sup> Taking \$ 800 as the cost of saving a life with health care interventions, the cost of achieving the same reduction in mortality that would accrue from devoting \$ 30,000 to educating another 1000 girls is \$ 48,000. As this calculation ignores any other benefits of reduced child morbidity, it underestimates the returns to female education as a health care investment.

Educated women also choose to have fewer children. Econometric studies within individual countries looking at the effects of education on fertility find that an extra year of female schooling reduces female fertility by approximately 5 to 10 percent, or in the case of Pakistan by about .7.<sup>9</sup> Thus a \$ 30,000 investment in educating 1000 women would avert 500 births. I will avoid the metaphysical question of trying to value an averted birth and simply ask how much typical family planning programmes spend per birth that they avert. A typical family planning evaluation concludes that costs run approximately \$ 65 per birth averted. Averting 660 births would cost about \$ 33,000, enough to justify education on family planning grounds alone.<sup>10</sup>

There is a final group of beneficiaries of investments in female education – the women themselves. Maternal mortality rates are ten times as high in South Asia as in East Asia. By increasing knowledge about health care practices and reducing the average pregnancies of these women, female education significantly reduces the

<sup>8</sup>Jamison and Mosley's study, described in Chapter 1 of *Disease Control Priorities in Developing Countries* (1990), gives costs for a wide variety of health interventions. The cost of supplementary antenatal feeding per discounted healthy life year gained is \$ 25. The cost of measles immunisation per discounted healthy life year gained outside of high risk environments is \$ 40. The cost of immunisation for tuberculosis and leprosy per discounted healthy life year gained is \$ 75. The cost of improved cholera immunisation per discounted healthy life year gained is \$ 200.

<sup>9</sup>A study by Dennis de Tray (1972) finds the elasticity of fertility with respect to female education is -0.3. At a level of three years of schooling an additional year would reduce fertility by 10 percent. Other more recent studies confirm this magnitude. In Kenya (Schafgans, 1991) a woman with secondary education has one fewer child than a woman with five to eight years of schooling. In Peru (Herz and Khandker, 1991) an additional year of schooling reduced urban women's number of offspring by roughly 0.26 (6.7 percent of the country's mean fertility rate of 3.9). In Thailand (Schultz, 1991) an additional year of schooling reduced fertility by 7 to 9 percent.

<sup>10</sup>Of course family planning is also useful in promoting women's and children's health and preventing primitive abortion with its high risks of morbidity and mortality.

risk of maternal mortality (Figure 4). Based only on the impact on the number of births, and not including what are surely significant impacts on the risks associated with any given birth, one can calculate that an additional year of schooling for 1000 women will prevent three maternal deaths. Achieving similar gains in adult mortality through medical interventions of average cost effectiveness would cost close to \$ 7,500.<sup>11</sup>

These estimates of the social benefits are of course crude. On one hand, I have failed to discount benefits to reflect the fact that female education operates with a lag. On the other hand, I have neglected the add-on benefits as healthier better educated mothers not only have healthier better educated children but healthier better educated grandchildren. When the average mother has nearly 40 grandchildren as in Pakistan, this is no small thing.

Even discounting the social benefits of education to reflect the lags and taking no account of add-on benefits, the social benefits of increased female education are sufficient to more than cover its costs. Given that increases in female education also yield large wage increases, it seems reasonable to conclude that the return to getting more girls into school is in excess of 20 percent and may well be considerably greater. Turning the vicious cycle I have described into a virtuous circle has other benefits as well. It provides more women the means to escape the exploitation and neglect that remains all too common in many parts of the world and it helps them to become dignified members of their family, their society, and their nation. I will come later to the comparison of the return to educating girls with other developmental expenditures. But let me just note for now that the calculations I have just presented imply that educating girls looks quite attractive compared with educating boys and quite likely has higher return than health or family planning interventions.

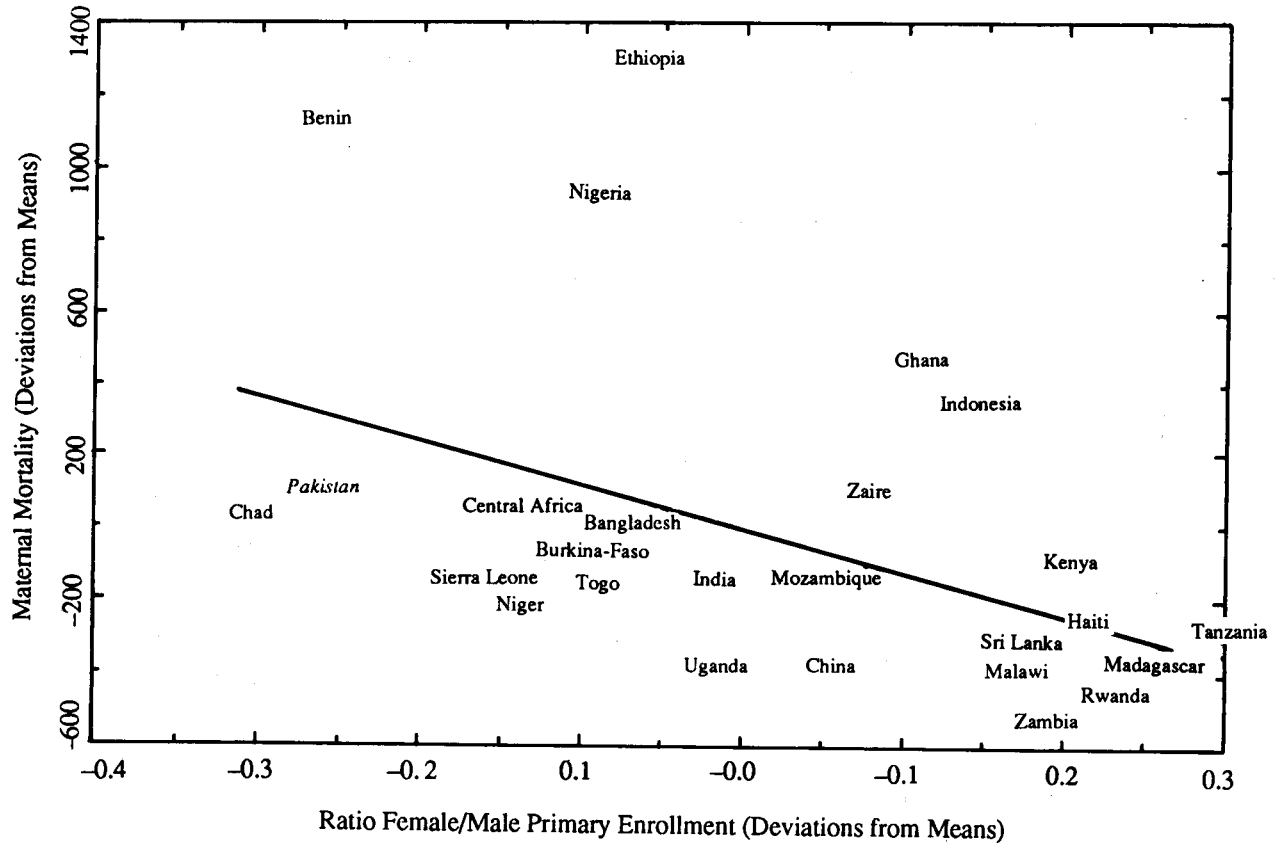
### INCREASING THE EDUCATION OF GIRLS

There is then an overwhelming case for increased investments in the education of girls. How can this best be done? The first component of any effort to raise female enrollment rates must be policies that promote economic growth and poverty alleviation. Comparisons of both countries and families demonstrate a strong impact of poverty alleviation on enrollment rates. Because parents are more reluctant to send girls than boys to school, poverty alleviation is especially important for raising female enrollment rates.

But female enrollments do not always rise as incomes grow. It takes the right policies to alter perverse incentives and provide the needed encouragement to let

<sup>11</sup>The cost of integrated antenatal and delivery care for maternal mortality per discounted healthy life year gained is \$ 150 (Jamison and Mosley, 1990).





**Fig. 4. Female Education and Maternal Mortality**  
**(Partial Correlation, Controlling for GDP per Capita)**

girls learn.

Ultimately, whatever laws legislatures enact, it is parents who decide whether or not to send their daughters to school. And although the social returns to educating girls far exceed the returns to educating boys, parents capture a larger fraction of the benefits of educating their sons. In a survey done some years ago, by far the largest single reason given by parents (over 45 percent) for not educating daughters was lack of financial gain to the family (Table 4).

What can be done to make educating girls more attractive to parents? While the evidence is far from clear and there is a need for controlled experiments, current knowledge suggests enactment of an agenda which will recognise the external benefits of female education in determining financing policies and would seek to make educating girls more attractive given both cultural traditions and the many competing needs of poor families. As there are greater social benefits to educating girls than boys, it is appropriate for females' education to cost less than male education. Scholarship funds should be established and more free books and other supplies provided for girls. Because parents are more reluctant to educate their daughters, this is particularly important. One study in Peru found that rules requiring students to pay for textbooks had a large negative effect on female enrollment but almost no effect on males. Whatever the general merits of cost recovery in the case of basic education may be, the argument is much weaker where there are large external benefits, as there are with the education of females.

Providing schooling that responds to cultural and practical concerns is also essential. Female enrollment is heavily dependent upon schools not being too far away, upon the provision of appropriate sanitation facilities, and upon the hiring of female teachers. This, of course, is facilitated by raising female enrollment rates. Flexible hours and the provision of care for younger siblings can also be helpful in some cases.

These two measures – reducing costs for girls and making special efforts to accommodate parents' practical needs – will make a big difference in raising families' demand for female education. In the survey cited above, the largest single reason given by girls for their lack of enrollment was "there is no school for girls" (Table 5). A recent survey of households in four Pakistani districts shows that enrollment rates for girls with a school in their village is equivalent to male enrollment (Table 6). The enrollment rate of girls with a school nearby, instead of in their village, is ninety percent of that of males. This indicates that increasing the supply of educational facilities for girls has tremendous potential for expanding enrollment.

Increasing female enrollment in school is dependent upon providing resources for increased schooling. As education is a labour intensive business, it is relatively inexpensive to provide in low income countries. The available statistics indicate that in low income economies, the average annual recurrent costs of prima-

Table 4

*Responses to the Question 'If Boys and Girls are Equal in the Eyes of Parents, Why Do Most of the Parents Educate their Sons and not the Daughters?'*

Response	No.	Percent
1. There are no Financial Gains to the Parents	716	45.2
2. It is not Customary to Educate Girls	256	16.2
3. There is no Proper Arrangement for Girls Education	209	13.2
4. Since Boys and Girls are not Equal, there is no Question of Educating Both	133	8.4
5. Poverty Prevents Parents from Educating Daughters	74	4.7
6. Girls become too Independent after Getting Educated	58	3.7
7. Ignorant Parents do not Value their Children's Education	49	3.1
8. Purdah is the Reason for not Educating Girls	44	2.8
9. Girls have to do Household Work	18	1.1
10. Girls are not Intellectually Capable of Getting an Education	16	1.0
11. Education does not Help Girls in their Future Life	12	0.8
	1,585	100.0

Source: Nasra M. Shah *Pakistani Women: A Socioeconomic and Demographic Profile*. Pakistan Institute of Development Economics, Islamabad 1986.



Table 5

*Reasons Why the Girls Thought they were not in School*

Reason	No.	Percent
1. There is no School for Girls	85	33.0
2. The Relatives are Against My Education	57	22.1
3. Poverty is the Reason for not Educating Me	47	18.2
4. I am not Good Enough for Study	26	10.1
5. They do not Send Me to School because of Work at Home	22	8.4
6. There is no Teacher in School	12	4.7
7. The Teacher does not Treat Me Well	9	3.5
	258	100.0

Source: Nasra M. Shah *Pakistani Women: A Socioeconomic and Demographic Profile*. Pakistan Institute of Development Economics, Islamabad 1986.

Table 6

*Proportion of Respondents Attending School*

Age Cohort	School in Village		School Nearby	
	M	F	M	F
10 – 14	93.1	97.8	71.8	66.1
20 – 24	100.0*	—**	67.2	43.2
30 – 44	43.8	—***	52.2	32.3

Source: Prepared from "The Gender Gap in Cognitive Skills in a Poor Rural Economy" by Harold Alderman, Jere R. Behrman, David R. Ross, and Richard Sabot.

\* 12 respondents.

\*\* All 7 respondents attended school.

\*\*\* Both respondents attended school.

ry schooling (which comprise the vast majority of the costs) run slightly over \$ 36 per student. Secondary education is somewhat more expensive per student, reflecting in part lower enrollment rates. Since satisfactory estimates of the average cost of secondary school are not available, I simply assume that they are twice primary costs.<sup>12</sup>

- \* Raising the female primary school enrollment rate of girls to equal the male primary school enrollment rate in the world's low income countries would involve educating an additional 25 million girls each year at a total cost of approximately \$ 938 million (Table 7). Raising the secondary school enrollment of girls to equal the secondary school enrollment rate of boys would involve educating an additional 21 million girls at a total cost of \$ 1.4 billion. Eliminating educational discrimination in the low income parts of the world would thus cost a total of \$ 2.4 billion. This represents less than one-quarter of one percent of their GDP, less than two percent of their government consumption spending, less than one percent of their investment in new capital goods, and less than 1/10 of their defense spending.
- \* Similar calculations can be made for Pakistan. The recurrent costs of raising female primary enrollment to equal the current primary enrollment of males would be about \$ 36 million or 625 million rupees. This represents only 0.12 percent of GNP. Achieving the more ambitious objective of equalising male and female enrollment rates in both primary and secondary school would cost \$ 64 million, 1.1 billion rupees or .22 percent of GDP. Of course these low costs will not meet all of Pakistan's educational goals. Maintaining and raising the current low overall enrollment rates with existing population growth will not be cheap and will require major investments.

Considering the very low cost both in Pakistan and in low income countries in general of equalising educational opportunities for men and women, it is easier to wonder whether the world can afford not to make the necessary outlays than it is to wonder if they are affordable. I have already suggested that education looks very attractive relative to other social sector investments. When compared to development investments outside the social sector, education looks even more attractive. Taking investments in power generation as an example, current projections suggest that developing countries will spend approximately \$ 1 trillion on power plants over the next ten years. In many of these nations, existing power plant capacity utilis-

<sup>12</sup>This assumption overstates the cost of secondary education Pakistan and understates the cost in some other parts of the world, particularly where foreigners are hired to teach secondary school. For Pakistan, we have rough estimates and hence we use \$ 30 as the recurrent cost of one year of secondary school.

tion is less than 50 percent due to poor maintenance and pricing problems. The overall return on power plant physical assets in a sample of 57 developing countries has been estimated at an average of less than 4 percent over the last 3 years and less than 6 percent over the last decade, returns which cannot even compare with those of providing education for females.

No doubt efficiency in the power sectors of developing countries can and will be improved. And I have probably understated somewhat the difficulty of raising enrollment rates by neglecting capital costs and not taking explicit account of the special costs that must be incurred in targeting girls. Nonetheless, it is hard to believe that building 19 out of every 20 planned power plants and using the savings to finance world equal educational opportunity for girls would not be desirable.

Table 7

*Cost of Raising Female Enrollment Sufficiently to:*

<u>A</u>	<u>B</u>
Equalize Female/Male Enrollment	Raise Female Enrollment to Level in High Income Ratio Countries

	Number Students (Millions)	Cost (Millions)	Number Students (Millions)	Cost (Millions)
<b>Primary</b>				
Low Income	25	938	9	328
Low Income (w/o India, China)	6	230	14	560
Pakistan	1.8	36	5.8	115
<b>Secondary</b>				
Low Income	21	1,201	98	5,329
Low Income (w/o India, China)	5	271	38	2,203
Pakistan	9	28	5.2	157

**WHAT COULD BE ACCOMPLISHED**

Letting girls go to school, learn to read, and experience more of the world beyond their homes makes them better off immediately and enriches their families.

Over time, getting girls into school can transform societies as their sons and daughters and grandsons and granddaughters reap the benefits. Contemplate a very crude estimate of how much better off the world would be today if major investments in increasing female education had been made a generation ago.

There are a number of different strategies to approaching this counterfactual. One method would be to simply extrapolate the calculations based on microeconomic estimates based on surveys of women within individual countries. Instead, as a kind of check on those calculations, I examine the relationship between national rates of infant mortality and female education a generation ago (Table 8 and Figures 5 and 6), holding constant a variety of country characteristics. The estimates are derived from a sample of the 45 developing countries for which all the needed data are available. As the evidence I have presented so far might lead one to expect, the relationship is both statistically significant and implies large effects of education on health and fertility. Female education rates are the most potent variable in these equations, dwarfing the effects of male education or the availability of medical care.

These relationships can be used to simulate the impact of an increase in the female secondary school enrollment rate from its average in 1965 to 30 percent (Table 9). For comparison, the male secondary enrollment rate in this sample of countries averaged 22 percent in 1965. The results are striking. In Pakistan alone raising the female secondary enrollment rate from 6 to 30 percent in 1965 would have averted 1.2 million births per year and 297 thousand infant deaths. For a sample of 45 countries that includes about 71 percent of the low income world's population (excluding China), the result would be 9.1 million births per year averted and 3.0 million fewer infant deaths.

## CONCLUSION

My emphasis this afternoon is on the need for increasing expenditures on female education. Those who advocate such policies also argue for programmes directed at enhancing family planning and women's health services as well as measures to combat discrimination in labour and credit markets. I have little doubt that such actions would also be constructive, but I believe that they are less important than improvements in female education. Hard statistical evaluations fairly consistently find that female education is the variable most highly correlated with improvements in social indicators. And the benefits of education have multiplier effects because they empower women to bring about other necessary changes. The greatest emphasis, therefore, should be put on closing the education gaps that I have described.

Lectures and papers that plead the importance of a particular type of investment in developing countries are hardly uncommon. Reflecting the biases of an



Table 8

*Cross-country Regression Results for LDCs (N = 45) –  
Determinants of TFR, IMR and Female Secondary Enrollment, 1987*

	Dependent Variables:		
	TFR	IMR	FEMSEC
Constant	7.09 (9.83)***	125.417 (6.508)***	-0.666 (-0.182)
Female Secondary Gross Enrol. Rate, 1965	-0.389 (-3.592)***	-5.967 (-2.414)**	1.786 (1.999)**
Female Secondary Gross Enrol. Rate <sup>2</sup>	0.016 (3.526)***	0.139 (1.293)	-0.00607 (-0.155)
Female Secondary Gross Enrol. Rate <sup>3</sup>	-0.0002 (-3.937)***	-0.00129 (-0.940)	-0.0003 (-0.567)
Male Secondary Gross Enrol. Rate 1965	0.0837 (0.720)	-0.565 (-0.235)	-0.739 (-0.891)
Male Secondary Gross Enrol. Rate <sup>2</sup>	-0.006 (-1.339)	0.0588 (0.630)	0.031 (0.891)
Male Secondary Gross Enrol. Rate <sup>3</sup>	0.0001 (2.078)**	-0.00074 (-0.692)	-0.00027 (-0.673)
% Population w/ Access to Water		-0.442 (-1.866)*	
Population per Physician	0.0000026 (0.161)	0.00082 (1.924)*	
Urban Population as % of Total Pop.	0.014 (1.120)	0.539 (2.564)**	0.296 (2.791)***
Gross National Income per Capita, 1987	-0.00069 (-2.428)**	-0.012 (-2.407)**	0.0024 (1.120)
Expend. on Education as % of GNP, 1985			1.769 (2.976)***
Adjusted R <sup>2</sup>	0.66	0.74	0.88

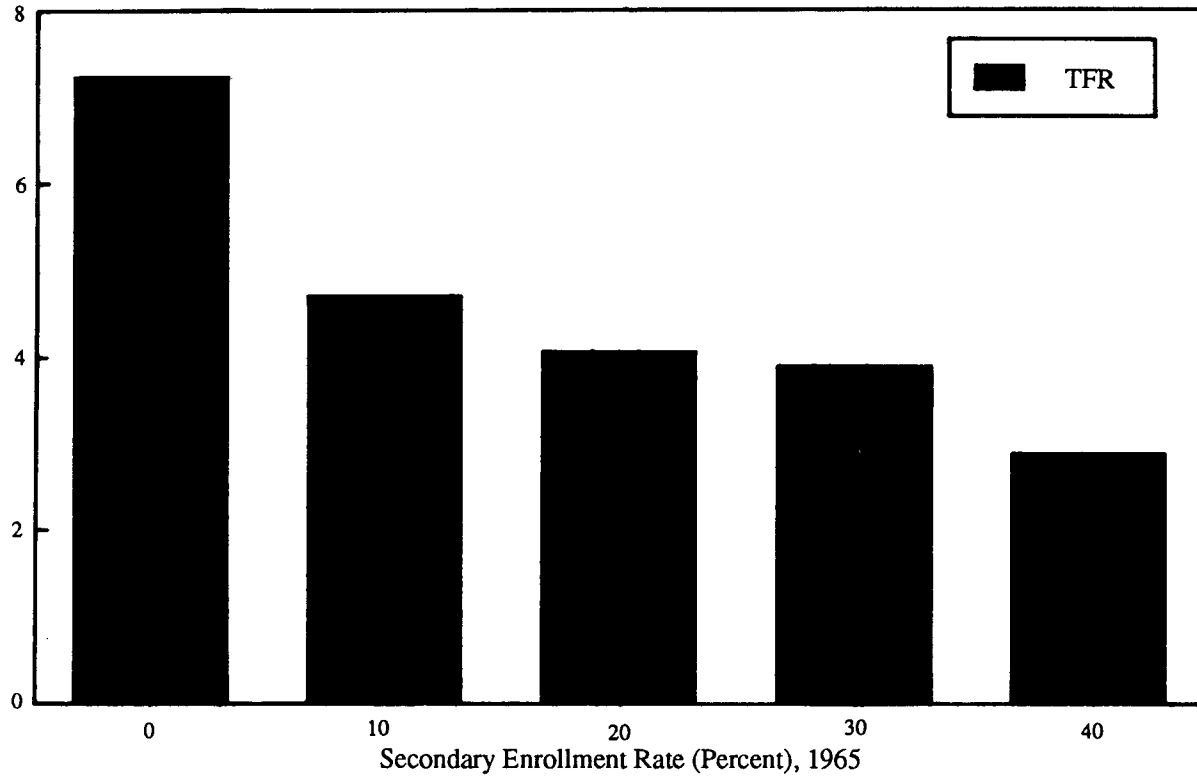
Source: K. Subbarao and L. Raney "Social Gains from Female Education. PHRWD, forthcoming.

\* Significant at the 10% level.

\*\* Significant at the 5% level.

\*\*\* Significant at the 1% level.

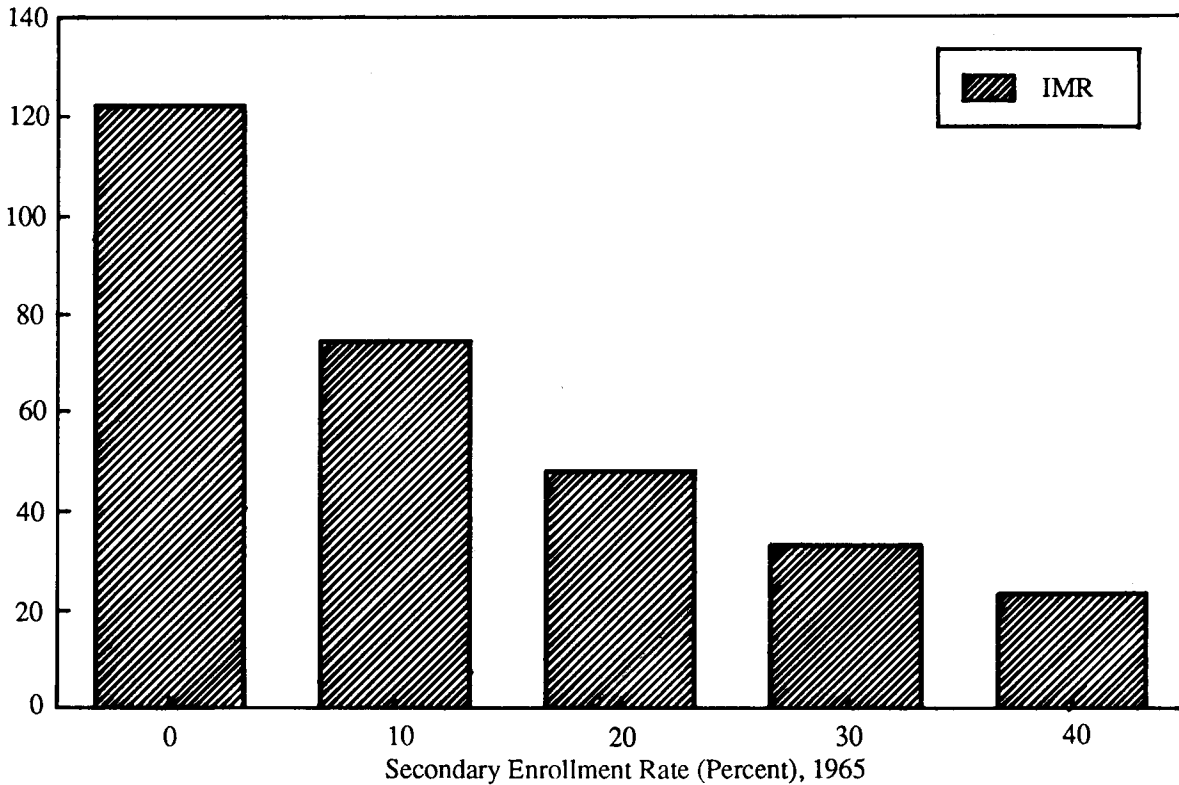
(standard errors corrected for heteroskedasticity).



Source: Subbarao and Raney, "Social Gains from Female Education", forthcoming, PHRWD.

Note: Results based on regressions controlling for spouse effect (all LDCs, n=45)

**Fig. 5. Predicted TFR, 1987  
Births per Woman Enrolled in 1965**



Source: Subbarao and Raney, "Social Gains from Female Education", forthcoming, PHRWD.  
 Note: Results based on regressions controlling for spouse effect (all LDCs, n=45)

**Fig. 6. Predicted IMR, 1987  
 For 1000 Women Enrolled in 1965**

Table 9

*The Long Run Impact of Improved Female Education<sup>a</sup>*

	Births per Year, 1987 (Millions)			Deaths per Year, 1987 (Millions)		
	Actual	Simulated	Averted	Actual	Simulated	Averted
45 Low and Middle Income Countries <sup>b</sup>	62.3	53.2	9.1 15%	4.9	1.9	3.0 61%
16 Low Income Countries <sup>c</sup>	41.7	34.3	7.4 18%	3.8	1.5	2.3 61%
Pakistan	4.1	2.9	1.2 30%	0.4	0.1	0.3 75%

Source: K. Subbarao and L. Raney, "Social Gains from Female Education" PHRWD, Forthcoming.

<sup>a</sup>Simulation depicts the scenario if the female gross secondary enrollment rate in 1965 were raised to 30 percent.

<sup>b</sup>These 45 countries represent 55 percent of the world population, and 71 percent of the LDC population, excluding China.

<sup>c</sup>These 16 countries represent 35 percent of the world population, and 70 percent of the low-income LDC population excluding China.

economist, I have tried to concentrate on the concrete benefits of female education and explicitly contrast it with other proposed investments. Expenditures on increasing the education of girls do not just meet the seemingly easy test of being more socially productive than military outlays. They appear to be far more productive than other social sector outlays and than the vastly larger physical capital outlays that are projected over the next decade.

In making an economic argument for investing in the education of women, I have tried to steer clear of the moral and cultural aspects unavoidably implicated in any gender related question. Partially this reflects my comparative advantage as an economist. But it also reflects a conviction that one's viewpoint on feminism should not affect one's evaluation of the arguments for educating girls. Helping women be better mothers to their children is desirable on any view of the proper role of women in society.

There are those who say that educating girls is a strategy that pays off only in the long run. I am reminded of a story that John F. Kennedy used to tell of a man asking his gardner how long it would take for a certain seed to grow into a tree. The gardner said it would take 100 years, to which the man replied, "Then plant the seed this morning. There is no time to lose".

## Comments on “Investing in *All* the People”<sup>1</sup>

In his Quaid-i-Azam Lecture, Professor Summers lends the prestige of his office of the Vice Presidency of the World Bank “to make a point: educating women is the best investment the developing world can make.”<sup>2</sup> Professor Summers puts his point across through a five-fold argument which involves (i) mortality, (ii) economic incentives, (iii) portfolio choice, (iv) costs and (v) societal transformation. I take each in turn.

The importance of gender for questions of mortality, particularly child mortality, is well-known and well-understood. In their 1976 examination of Bangladeshi data, Ben-Porath and Welch wrote that

*girls born into families where girls are in the majority are significantly more likely to die before age five than girls born into families with more boys than girls.*<sup>3</sup>

Since then Amartya Sen has highlighted the importance of low female survival rates in the LDCs as “one of the more momentous problems facing the contemporary world” and an important problem for development economics.<sup>4</sup>

Second, Professor Summers draws attention to what has now come to be known as the Chicago-Columbia approach to the economics of the household, and one associated particularly with the names of G. Becker and T. W. Schultz. The basic insight is to regard children, boys and girls, with differing levels of education as different commodities, each with its own shadow prices and its own demand and supply. Summers writes

Economics, with its emphasis on incentives, provides a useful way to understand why so many girls are deprived of education and employment opportu-

<sup>1</sup>This comment has benefited from the response of Professor Summers to my remarks in Islamabad, and from conversations with Saleha Jilani and Leila Khan as well as with my Hopkins’s colleagues. The responsibility for any errors, including those of tone and emphasis, and for the views expressed here is of course solely mine.

<sup>2</sup>See *Business Week* for a perception of Professor Summers’s presentation in the popular press.

<sup>3</sup>The italics are the authors’; [see Ben-Porath-Welch (1976), p. 297].

<sup>4</sup>See Summers’s article for detailed references.

nities. Underinvestment is not an ineluctable consequence of poverty, nor is it made necessary by any religious or cultural tradition. It is an economic problem that results from a vicious cycle caused by distorted incentives. In making an economic argument for investing in the education of women, I have tried to steer clear of the moral and cultural aspects unavoidably implicated in any gender related question. Partially, this reflects my comparative advantage as an economist.

Summers contrasts a *vicious cycle* involving, at the macroeconomic level, ignorance, poverty, high mortality and high fertility, with that of *virtuous circle* where education leads to economic progress and low mortality and fertility rates; see his parables labelled Situation A and Situation B as well as his Figure 2.

I have already referred to issues of mortality. In the context of fertility decisions, Ismail Sirageldin and I attempted in our work in the seventies, to apply the insights of this approach to 1968 Pakistani data. In particular, we constructed the variable *EC* about which we wrote

This variable can be better described if we mention the corresponding questions that were asked. It was first inquired whether the wife thought it "necessary nowadays to educate children." Those who answered yes were then asked how much education was necessary for girls. Out of these answers, we constructed the dummy variable as follows: zero if the answer to the first question was no or the answer to the second question was less than three grades, one otherwise.<sup>5</sup>

However, we were very conscious of our data base not allowing us to study the question with any depth and we emphasised

the inadequacy of the variable *EC* as measuring the differential shadow prices of boys and girls. It is only our presumption that *EC*, in measuring a couples commitment to the education of their children, measure the parents' willingness to absorb a higher cost of their sons' education as opposed to that of their daughters'. It must also be borne in mind that in the context of Pakistani society the costs of a son's education have to be balanced by the dowry provisions a parent has to furnish for his daughter at her marriage. Of course, these would be just one of the considerations that make up the total shadow prices of boys and girls.<sup>6</sup>

<sup>5</sup>[See Khan-Sirageldin (1979), p. 533.]

<sup>6</sup>See Khan-Sirageldin (1977) in the *Johns Hopkins working paper* version.



Despite all of this, we were unambiguously clear about the importance of our principal findings.

The negative inducement of the number of living sons on wanting additional children is about three times that due to the number of living daughters. Thus, for example, a family with no children has a probability of 78.2 percent [of wanting additional children,] and with seven sons only a probability of 1.6 percent. Both figures are reasonable. The surprise [lies in that] for a family with seven daughters only, this probability is around 40 percent. Indeed, if we turn the question round to ask how long a string of girls would be needed so that the probability falls to 1.6 percent, the answer comes out to be more than twenty.<sup>7</sup>

The interesting questions pertain to the incentives and institutions that make a Punjabi farmer's choice of seven sons as opposed to seven daughters, *rational*, whatever meaning one may choose to give to the term. The question is the nature of the equilibrium that is responsible for the imbalance between education and opportunities. One has to be particularly wary here, it seems to me, of a partial equilibrium approach, whereby equilibrium embraces both the economic and the socio-cultural. Institutions of any complex society are not only linked to each other, but any one of them typically serves more than one end and its unilateral abolition without corresponding modifications of others, however desirable from the point of view of one objective, may be disastrous from the point of view of another.<sup>8</sup>

Of course, the interesting point in Professor Summers' Lecture is not the advocacy of education for girls – hardly anybody would object to that – but that, dollar for dollar, it is the *best* investment for Pakistan. This is a question of portfolio choice and he writes

It is hard to believe that building 19 out of every 20 planned power plants and using the savings to finance world educational opportunity for girls would not be desirable.<sup>9</sup> Concrete calculations demonstrate that there are enormous economic benefits to investing in women. And, as I will make clear, increasing the education of girls is an especially high priority for Pakistan. Expenditures on increasing the education of girls do not just meet the seemingly easy test of being more socially productive than military

<sup>7</sup>[See Khan-Sirageldin (1977), p. 488.]

<sup>8</sup>I return to these issues in my discussion of Professor Summers's last point.

<sup>9</sup>Also the last but one paragraph in Summers's essay titled "The most influential investment" in *Scientific American*, August 1992, p. 132.

outlays. They appear to be far more productive than other social sector outlays and than the vastly larger physical capital outlays that are projected over the next decade.

The point that is being made here is not that education, be it of girls or of boys, is a *public good* and hence there is a tendency for free-market outcomes to undersupply it, but that it is more undersupplied, and hence has a higher social return, than any other *public good*. This is a most interesting point and I shall make two observations in relation to it.

It is a triviality that to term an element of a set as a *best* element implies not only that one has a clear idea of what is in the set, but also what one's objective function is. Thus, Professor Summers's claim opens the ground for a host of interesting questions as regards both the nature of commodity that is being invested in as well as the methodology of welfare economics. The former leads, in particular, to concrete thinking as regards educational policy in Pakistan. When we say *more education of girls*, do we mean the action of devoting more resources within the existing curriculum or do we also allow for changes in the curriculum itself? Should we continue the emphasis on memorisation and the current mix between the sciences and the humanities, and between vocational and non-vocational instruction? What goes into the humanities? How much should cultural and religious studies be emphasised? Which culture? How about history? Should it be World history or European history or Pakistani history? What should be the medium of instruction? What about the education of the educators? How should the curriculum differ between the provinces? Should it differ across gender? In sum, once we raise the question of the *best* investment, we are naturally led towards the specification of the precise nature of the commodity involved?<sup>10</sup> Again, how precise is precise? I do not have answers to these questions but it is clear that research resources devoted to them also have a high social return.<sup>11</sup>

The question of objectives and what this implies for the methodology of welfare economics can best be taken up in the context of the last two points of Professor Summers. The fourth leg of his argument involves figures on the costs of equalising male/female enrollment ratios and to consider the speed with which female enrollment rates can be increased. He concludes with the statement that

Major initiatives to increase female education have the potential to transform society over time.

<sup>10</sup>See Khan (1989) for the importance of the definition of a *commodity* for the fundamental theorems of welfare economics.

<sup>11</sup>See especially Lecture 1 in Derrida (1984) for a fascinating discussion of how the French language was imposed on what is now France to build what is now the French nation.

Leaving aside the obvious point of the difficulty of using market prices for internationally non-traded commodities in an LDC, especially in the case of a "large" project, there is a fine line here between an economist's "scientific" evaluation of a particular project and his or her advocacy of it as a citizen of a relevant community, be it of Pakistan, or of the LDCs as a whole, or of the world or of any other grouping that is relevant. To put the matter another way, *best* obviously implies a criterion which is being maximised, and as I understand the new welfare economics, an economist simply spells out to those in charge of policy the various trade-offs involved. It is then left to the executive, elected or appointed or whatever, to take the necessary decisions.<sup>12</sup> But maybe, here I am being influenced too much by old-fashioned constructs such as Arrow's impossibility theorem.

In the context of the last point, I would also like to raise two cautionary flags. It is clear that there are obvious impediments, economic and social, towards the endogenous realisation of outcomes that we consider desirable and would like to see realised. As such, this argues – and Professor Summers is doing precisely this – for policy interference, and in particular for a transition from one Nash equilibrium to another. It may very well be that LDCs, and Pakistan in particular, have in-built buffers resulting from their rich historical heritage, that facilitates these transitions and makes their costs negligible, but I would like to make the point that it would be reckless, especially if the policy interventions are to be major initiatives, to disregard this aspect.

My second point simply underscores what Professor Summers says himself.

It would be foolish to deny that culture has a role in explaining differences in sex ratios; any explanation of differing survival rates for children must consider parent's aspirations for their sons and daughters, which obviously cannot be divorced from culture. Yet large differences in the treatment of girls exist between nations with important cultural similarities. To take just one example, the share of female population in Indonesia is much closer to the African share than the Pakistani share.

As Geertz's fascinating study shows, cultural similarity is an elusive thing and sometimes efficacy obtains where one would least expect it.<sup>13</sup>

In conclusion, I refer to *Business Week* which quotes Professor Summers as follows:

<sup>12</sup>See Khan's (1992) discussion of Harberger's views on this point.

<sup>13</sup>I would like to refer here to my work with Ismail Sirageldin, see Khan-Sirageldin (1981, 1983), on interspousal communication and the asymmetric importance of a husbands' opinions on those of his wife.

Some people thought I was the greatest thing ever to come to Pakistan; others thought America has 20 million latchkey kids because of the sort of ideas I was pushing.<sup>14</sup>

In thanking Professor Summers for his Quaid-i-Azam Lecture, I would take a somewhat intermediate position – he raises an important and challenging topic, both from the point of view of economics and others so-called “human sciences” and one on which scholars, including those from Pakistan, have been working for some time.

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<sup>14</sup>See paragraph 2 in the *Business Week* article.

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## Comments on “Investing in *All* the People”

This comment represents a watershed in my professional life. One that I did not expect to reach till rather later in my career. I was prepared to be harsh if necessary in my comments because of the position in which Prof. Summers has placed me. I however find that harshness is not necessary because I agree with so much of what he has said. In my lecture I describe the gender gap in cognitive skills in rural Pakistan, analysed its sources and suggested how best to eliminate them. In essence, I was recommending substantial increases in government spending on the education of girls. How very nice of the organisers of this conference to arrange for the Chief Economist of the World Bank to forcefully second my argument. The only situation I might have preferred would be for the Minister of Finance to be present along with the Minister of Defence and Minister of Water and Power, and announce that they have agreed to have a reallocation of public expenditure from the military for future investment in power plants and primary and secondary education systems, enabling Pakistan, to eliminate in short order, the enormous gender gap in education that currently prevails. In my comments I wish to raise a few queries and provide a few additional arguments to support Larry Summers contention that the returns to investment in girls' education are high. There is however a difference in our understanding of the situation. At least in the situation in Pakistan, Prof. Summers and I agree on the prescription of the problem of a large gender gap in schooling. There are adjustments which need to be made, largely by the government on the supply side of the market for education. But we disagree on the origin of the problems. He places emphasis on inadequate household demand for the schooling of girls. Why emphasise inadequate supply? Moreover, there is, I think a fundamental inconsistency in arguing, as Prof. Summers does, that the solution to the problem of inadequate demand is an increase in supply. What is the point of providing schools to girls, when their parents would not send them. The evidence I believe is strong that at least in Pakistan, demand is adequate and supply is the problem. Prof. Summers set the stage for his discussion of education by talking about other manifestations of gender bias. Given normal sex ratios, there are, worldwide, more than one hundred million women missing, presumably because of higher mortality among girls and women than among boys and men. This gender gap in mortality rates is to be found in Pakistan. Indeed he notes that at 47 percent

Pakistan has the lowest measured share by women in the population of the developing world. I do not dispute these stylised facts but one aspect puzzles me. The one hundred million missing women and the proportion of women refer to the entire population stock and not to the flow. Not to what is happening at the margin. It is conceivable for example that the stock has the gender composition it does because of the biases in infant feeding practices, health care and other reasons that were prevalent 20 – 30 – 40 or more years ago, but are no longer prevalent today. In his Table 1, Prof. Summers anticipates such a query and as an indicator of what is happening today, presents data on females as a percentage of the population from 0–4 years of age. The data only increase my puzzlement. In Pakistan that proportion is a full percentage point higher than the percentage of females in the total population, suggesting that at least in Pakistan the gender bias and the mortality rate can, may be, substantially reduced. Turning now to the core of his argument which pertains to the investment in schooling of girls, which he sees as the most effective way of breaking the vicious circle of higher fertility, little or no education, low productivity and higher mortality which face women in developing countries. Educating girls will, he argues, convert this vicious circle to a virtuous one by contributing to reduction in fertility, an increase in the productivity of women, both in the labour market and in the household, and to reduce the mortality of women and their daughters. He goes on to present stylised facts pertaining to the economic benefits in investing in the education of girls. He notes, first of all, that the returns to education in the wage labour market are at least as high for women as for men. He could further note that education increases the probability of attaining a wage job and that this effect can be larger for women than for men. He still places a greater emphasis on the returns to education that changes household behaviour. Educated women have healthier children. Similarly, he shows that investment in the education of girls is a more cost-effective means of reducing female fertility than directly investing in family planning programmes. I would add another similar example. It is possible to improve the cognitive outputs per year of schooling by expending resources on improving the quality of schooling or by increasing the education of women. Given two children with the same ability, the same number of years of schooling, and the same quality of schooling, the child with the educated mother will learn more. I would not be surprised if ensuring that the mothers are educated, is not a more cost-effective means of increasing the cognitive skills of children than investing in the improvement of the quality of schools. Of course, the investment choices are not mutually exclusive. Indeed, I expect that there is a positive interaction between these two types of human capital investment. Returns to investment in quality enhancement are likely to be higher if mothers are educated. This point, I believe generalises returns to investment in health care or in family planning are also likely to be higher if women are educated. This only reinforces



Prof. Summers argument that the returns to education are higher. I now turn to the issue of just how high. He suggests that there may be excess of 20 percent per year – A couple of comments on this – First a few words of caution. A rate of return of 20 percent imply a doubling of resources invested roughly in 3 1/2 years. If such investment opportunities were abundant in sectors as large as education then poor countries would be transformed to rich ones at a much more rapid rate. Why might returns be much lower? First, if the quality of schooling is too low then the various benefits noted by Prof. Summers will not be reaped. Sitting in a class room will not be sufficient to achieve these benefits. It is necessary to acquire the cognitive and other skills that schools are trying to teach. Second, in countries such as Egypt, the government is so compelled by political pressure to hire second school university graduates for jobs that have low or even negative marginal productivity. If the response to increase the education for girls is increased, much of the potential productivity benefit of education will be squandered. Third, Prof. Summers notes that many of the benefits of education are inter-generational. They will be reaped by the children of the current generation of girls. Though they have the power to transform society, when such benefits are discounted in the conventional way they may appear to be low. There is a risk that expectations of such higher rates of return are not fulfilled in the short run. The political will to stay the course may be undermined. But these are only qualifications on the margin. I agree that the returns, both private and social, to investment in primary and secondary schooling are likely to be higher. Higher at the margins are returns to investment in the schooling of boys and higher than planned investment in physical capital. This brings me to the basic point of disagreement with Prof. Summers. If private returns are so high, why is the parental demand for girls schooling so low? Are parents ignorant of the returns? Or are they still biased against their daughters or so traditional in their attitude that they are willing to sacrifice these benefits? Here it is important to recall that in Pakistan, as in many other countries, the main cost of education is borne by the Government leaving parents only the opportunity costs. Is the opportunity cost that much higher for girls than boys? Are households so resource constrained that they cannot afford these opportunity costs even when the net result of investment are so large? In Pakistan the answer to these four questions appear to be No, No, No and No. Parents have come to recognise that investment in girls education is a good thing. But the main reason more girls are not in school is that very often a school for girls is not available. Nearly one-half of the villages in our sample had primary schools for boys but did not have primary schools for girls. Prof. Summers inconsistency in recommending an increase in supply to solve the problem of inadequate demand is I think, best resolved in the Pakistani case by recognising the increase in the supply of schooling of girls. This is necessary to satisfy the currently frustrated demand of parents. Policy need not address biases

which are deeply embedded, incentive systems or household preferences: if the schools are provided the girls will attend.

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