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A decorative graphic on the left side of the cover. It consists of a central circular hub with a black dot in the middle. The numbers '2005' are arranged around the hub: '2' and '5' are on the left, '0' is at the bottom, and '1' and '5' are on the right. Several thick, colored lines radiate from the hub: a black line pointing up-left, a yellow line pointing up-right, a light green line pointing right, and a dark green line pointing down-right. There are also two large, stylized arrows: a light green one pointing right and a dark green one pointing down-right.

## Gender Equality and Human Development: The Instrumental Rationale

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## Gender equality and human development: the instrumental rationale

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Along with the halving of income poverty in the world, the MDGs are concerned with other dimensions of poverty which relate to human capabilities. Some of these goals and their associated targets and indicators relate to 'first-order' basic needs, such as nutrition, child survival and morbidity, maternal health and general health status, which are the necessary preconditions for a healthy, active life. Others relate to a second order of needs which improve the quality of life and the capacity for agency: these include access to contraception, education, economic opportunities and political representation.

There is a strong **equity** case for the reduction of gender inequalities in these human development outcomes since the inequalities in question relate to the ability of women and girls to live healthy, active lives and to achieve their full human potential. Such a case can be supported by evidence of the various kinds of disadvantage that women and girls experience relative to men and boys. However the focus of this note is on the **instrumental** case for investing in gender equality. It draws on a variety of evidence to make the argument that improving women's access to resources is an important route through which the MDGs on human development can be achieved, including those relating to gender inequalities in human capabilities.

There are a number of different possible pathways through which this multiplier effect might work. One is *biological* and relates to the fact that mother's health and nutritional status is a key determinant of the birthweight of an infant. Low birthweight infants (less than 2500 grams) suffer from extremely high rates of

morbidity and mortality from infectious diseases compared to infants with higher birth weights. Thus a five year randomised controlled trial from the Gambia found that a high energy ante-natal dietary supplement can increase maternal weight gain and reduce low birth weight by 35% and significantly reduce stillbirth and neo natal deaths by 55% and 40% respectively (UN ACC/SCN, 2000).

However, our interest in this paper is in the *social* pathways through which women's access to resources might operate to improve their own and their children's welfare. This mainly reflects the gender division of labour and responsibilities which prevail in different contexts and which gives rise to gender-specific preferences and interests. Investment in resources which strengthen women's ability to exercise agency can strengthen their ability to express their differential preferences and priorities.

For instance, the fact that it is women who bear children, and hence the bodily costs associated with frequent child bearing, is likely to give them a different stake in reproductive outcomes to that of men. It is noteworthy, for instance, that while the family size preferences reported by men and women in many large scale surveys do not display a great deal of difference, women are less likely to express strong son preference than men and less likely to want additional children (Mason and Taj, 1987).

The fact that it is women who are generally assigned primary responsibility for the care and reproduction of the family may also give rise to preferences and priorities which are different from those of men within the family. The socialisation processes by which women and men are prepared for their roles within the family may be one source of this variation in preferences and priorities. Another source may relate to the differential experiences associated with this division of labour. The close physical bonding that occurs between

mothers and children in the first years of the child's life together with the very direct care and emotional support that mothers provide as children grow up is likely to make their bond with their children a special one. And since mothers are most closely involved in the care of children and families, their skills, knowledge and capacities are likely to have a greater effect on such outcomes than those of fathers.

In addition, gender inequalities in access to various kinds of resources, including extra-familial forms of social capital, mean that women's fortunes are more closely bound up with the fortune of their families and children. This may explain why women often invest in the welfare of their families and children to a greater extent than men. However, if the society at large is characterised by strong son preference, or if women's own future security is bound up with the survival and loyalty of their sons, such investment may take the form of discriminatory behaviour against daughters. Alternatively, of course, a mother's experience of discrimination in her own childhood may lead her to empathise with, and invest in, her female children, regardless of prevailing norms.

The other point to note is that there are 'synergies' between some of these outcomes. A decline in fertility rates has positive implications for women's own health and survival chances since maternal health is undermined by early, frequent and closely spaced births. It also has positive implications for child survival since the lengthening of the space between births can reduce child mortality. A decline in child mortality in turn will bring about a decline in fertility as parents no longer have more births than they might want in order to ensure a certain number of surviving children. A postponement in the age of marriage or first birth is both likely to lead to a reduction in fertility rates as well as an improvement in maternal health. In this paper, we consider some of the evidence linking women's access to various kinds of resources to fertility rates,

children's health and mortality rates, children's education and women's own health and well-being.

## **Fertility**

There is strong and broad-based evidence from cross-national data of an inverse relationship between women's education and fertility rates (Schultz, 1993; Subbarao and Raney, 1995). Declines in fertility are observable from primary education level in much of the world, although in sub-Saharan Africa, it does not come into effect until secondary education. In general, the relationship is stronger in the case of mother's education than the father's. Women's employment is another variable which appears to be associated with lower fertility rates in different parts of the world.

A review of fertility decline in India by Murthi (2002) notes evidence from a number of different studies of a strong negative association between female education and fertility rates. When analysed in a multivariate framework which included both male and female education, male education was found to exert a relatively small, often insignificant, influence on fertility. Dreze and Murthi (2001) estimate that female literacy is likely to have contributed to 24% of the fertility decline in India between the 1981 and 1991 censuses, while a decrease in child mortality, which can be regarded as an index of child health, is likely to have accounted for 29% of the decline. As we shall see female education may also be a factor in bringing about mortality decline.

In Bangladesh, an analysis of fertility behaviour among different cohorts of women, using the Bangladesh Fertility Survey 1989, found that women's participation in paid work together with their education levels, were significant determinants of fertility decline, with male education also playing smaller, but also significant role (Kabeer, 2001). In Tanzania, a study by Kradval (2001)

using data from the DHS found that female education was associated with lower rates of fertility but only after secondary education: women with secondary education were likely to have one less child than those with primary or no education.

These relationships appear to operate through changes in attitudes, knowledge and behaviour. For instance, a survey of 1830 currently married women in Oman carried out in 2000 found that women's employment and education were significant predictors of both whether or not a woman wanted a child within the next two years as well as whether or not those who did not want a children in the next two years were using contraception (Al Riyami et al., 2004).

In Mali, there was a 55% decline in early marriages reported by educated women compared to a 2% decline reported by uneducated women (Mahy and Gupta, 2002). Studies from Indonesia also note that the rise in the median age at marriage was strongly associated with female education. Jones (2001) estimates that the median age at marriage between the 1941-45 and the 1966-70 birth cohorts of women in Java which could be attributed to rising education varied between 38% among the East Java Madurese speakers and 59% among the South Kalimantan Muslims. In Tanzania, female secondary education was associated with a postponement in the age of first birth. In Zimbabwe, employed women were more likely to use contraception than those who were not employed (Becker, 1997). Educated women in Guatemala were found to be four times more likely to use contraception as uneducated women (ORC Macro, 2005).

There is also increasing evidence of a 'diffusion effect' by which certain forms of behaviour by educated women are emulated by women with little or no education. For instance, data from India suggests that contraceptive use as well as the likelihood of sending their children to school was higher among uneducated women in areas with high levels of female education than in areas

with low levels of female education (McNay, et al, 2003; Bhat, 2002). In Bangladesh, not only were women who received microfinance loans more likely to adopt contraception but so too were women located in villages with microfinance programs (Hashemi et al).

The diffusion effect is also evident in a study of Peru where both female education and 'other women's education' had a positive impact on child nutrition and growth, but the impact of education of men within the community was insignificant (Alderman, et al, 2003).

### **Child Mortality**

An equally broad based and even more consistently inverse relationship between mother's schooling and child mortality has been documented over the last three decades for Latin America, Africa and Asia by a number of cross national studies (Hobcraft et al, 1984; Mensch et al. 1985). This association survives controls for other socio-economic variables including husband's education and occupation. Both studies suggested that no threshold of maternal education had to be reached for the effect to kick in: even a small amount of education was associated with improved chances of child survival and gains increased with increasing levels of education. The maternal education effect remained strong even when child spacing had been factored into the equation. This effect appears to occur through a number of pathways.

In a more recent study using DHS data from 25 countries, Hobcraft (1993) found that the average 'gross' odds (ie. without controlling for other socio-economic variables) of children dying before the age of two whose mothers have seven or more years of education are only 42.5 % when compared with

odds of 85% for children whose mothers are uneducated. The differentials are much weaker for father's education and occupation. Controlling for region and socio-economic factors, including father's education and occupation, only mildly weakens the relationship between mother's education and odds of children dying: the odds of dying among children with the most educated mothers averages only half of those for children of the most educated mothers while the odds of death among children with most educated fathers is 80% of those with least educated fathers. Disaggregating by country, Hobcraft found that effects of maternal education were more likely to be statistically significant than of father's education in 19 of the 25 countries. The effect was least significant in the sub-Saharan African countries.

Using national data from Egypt, Kishor found that women with employment experience reported lower levels of child mortality and higher levels of child immunization. Analysis of Indian census data by Dreze and Sen (1995) showed that female literacy led to a statistically significant improvement in under-five mortality among children and that both female literacy and female labour force participation reduced gender disparities in under-five mortality. Dreze and Sen suggest that access to education and to paid work were both likely to increase women's agency and hence capacity to act to promote their children's survival chances. Moreover, the effect in relation to gender disparities in child survival in India suggests that these forms of access may also affect women's own preferences and priorities, in this case, leading them to reduce discrimination against daughters. However, this is not the case in all regions of India. In Punjab, for instance, where son preference is very marked and there is excess mortality among girl children, Das Gupta (1990) found that relative excess mortality among second and later daughters was greater for children of more educated mothers.



The hypothesis of women's enhanced agency is supported by a number of other studies. For instance, drawing on DHS surveys from 17 countries, Bicego and Boerma (1991) found that the maternal education effect was reduced but did not disappear in most countries when health service utilisation indicators were included in the regression analysis, suggesting that at least one pathway through which the effect worked was through greater use of health services by educated women.

Other analysis of DHS data by Boerma et al found that children of women with at least secondary education were far more likely to have been immunized (over 90%) than children of uneducated women (around 75%) in the countries covered. They also found that more educated mothers were generally more likely to use medical facilities to seek treatment for children with diarrhoea, fever and coughs. For instance, across the sample of countries, around 50% to 75% of mothers with secondary schooling reported taking a feverish child to a medical facility compared to just 25% to 50% of uneducated mothers (*ibid*).

Country level analysis also supports this finding. Thus the study of Egypt cited earlier reported that women with employment experience reported higher levels of child immunization. In rural Bangladesh, (Breiman, et al, 2004) found that children of mothers with higher education were more likely than other infants to have received three doses of DTP vaccine<sup>1</sup> (diphtheria, tetanus, and pertussis) by the age of 9 months. In Ghana, analysis of the Ghana DHS data from 1998 established the inverse relationship between mothers' education and child survival rates and suggested that one pathway through which it operated related to the use of basic health facilities related to child survival. Thus only 18% of women with no education had their children fully vaccinated compared to 24% of women with primary education and 30% of women with secondary education (Buor, 2003).

In Kenya, women were able to correctly understand the instructions for administering oral rehydration salts after four or more years of schooling but only those with secondary education were able to fully explain the environmental causes of diarrhoea (Eisemon, Patel and Sena, 1987). In Nigeria, less-educated women were as likely as educated ones to have their children immunised; educated women were more likely than uneducated ones to know about family planning; but only secondary-schooled women revealed an in-depth understanding about disease and prevention.

In rural Uganda Katahoire et al. (2004) found that mothers without schooling had their children at a younger age, had more children and reported higher levels of child mortality than mothers with schooling, controlling for household socio-economic status. Further analysis suggested one reason for the differential mortality rates may have been that mothers without schooling were less likely to have completed immunisation courses for their children.

A study from Morocco that sought to explore in greater detail the positive association between women's education and children's height for age concluded that education contributed to women's health knowledge, not directly through formal learning processes, but by providing them with the literacy and numeracy skills they needed to acquire and utilise practical health information (Glewwe, 2000).

There is evidence from Brazil that unearned income in the hands of mothers had a far larger effect on family health than income in the hands of fathers; for child survival, the effect was 20 times larger. Maternal education effect was also larger than the paternal education effect. Women were slightly more likely to use

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<sup>1</sup> DTP is a common childhood vaccination against diphtheria, tetanus, and pertussis.

unearned income in favour of daughters while men were slightly more likely to favour sons (Duncan, 1994).

There are also more indirect routes through which mother's attributes affects child survival. Analysis of DHS data, for instance, suggests that women with no education are less likely to space their births less than 3 years apart when compared to women with education (Pop. Report, 13:30, 2002). The evidence suggests that children who are born 3-5 years after their sibling are 1.5 times as likely to survive up to age 5 than children born to 2-3 intervals. They are also about 2.5 times as likely to survive than children born in periods shorter than 2 years.

### **Child Nutrition**

Along with child health and survival, studies also suggest that women's ability to exercise greater agency also has positive effects on the nutritional well-being of their family, particularly their children. Bicego and Boerma (1991) cited earlier also explored the relationship between maternal education and nutritional status among children aged 3-23 months in their analysis of DHS data. They used incidence of low height for age or 'stunting' as their indicator of routine and chronic malnutrition. They found a strong relationship between maternal education and stunting but one that was reduced by inclusion of an index of household economic status. However, the relationship remained significant in a number of countries so that, even with controls for household economic status, children of women with no education were found to be twice as likely to be stunted in Colombia, Dominican Republic and Thailand as children of women with secondary education.

Research by IFPRI used data on 117, 242 children under the age of 3 taken from DHS surveys in 36 developing countries in South Asia, Latin America and sub-

Saharan Africa to explore the relationship between children's nutrition and women's status (Smith et al., 2004). Women's status was measured at the household level by whether women worked for cash or not, their age at first marriage, the age difference between women and their husbands and the educational difference between women and their husbands. It was measured at the community level by gender differences in nutritional status and preventive health care among children and gender differences in adult education. While it found that women's status had a significant positive effect in all three regions, the influence was strongest in regions where women's status was lowest. In other words, it was strongest in South Asia, followed by Sub-Saharan Africa and weakest in Latin America and the Caribbean. Thus in South Asia, the study estimated that if women's status was equalised with that of men, the underweight rate among children would drop by 13% or reduction of 13.4 million undernourished children.

These cross country findings also find some support from in-country analysis. Comparison of household data from Kenya and Malawi (Kennedy and Peters, 1992) found that 'in spite of lower incomes and lower caloric intake at household level, pre-school children from female-headed households do at least as well, or significantly better than, children from male-headed households, according to longer term measures of nutritional status' (p. 1081) There was little difference as far as short-term nutritional measures went. The prevalence of moderate to severe levels of malnutrition was much lower among children in female-headed households in Kenya, whether *de jure* or *de facto*, than children in male-headed households. Similar findings were reported for Malawi. In fact, children in *de facto* female-headed households received a higher proportion of total household calories than did children from other types of household groups.

In Rwanda, holding income constant, members of female-headed households consumed 377 more calories per adult equivalent per day than male-headed

households (von Braun et al, 1991). The difference was greatest among lower income households. A study of households in Ethiopia reported that education of both mother and father together with number of ante-natal visits for the mother were also significant determinants of child nutrition (Girma and Genebo, 2002)

In rural Philippines, where male household heads were found to be favoured in nutritional allocation, Wandel, (1995) found that an increase in the wage of husbands and fathers was found to have a positive effect on share of calories allocated to themselves and their spouses but a negative effect on children's. However, an increase in the wage rates of wives and mothers had a significant positive impact on women's own and their children's share of household calories and a negative effect on husbands' share. In Ethiopia, children whose mothers were uneducated were twice as likely to have stunted growth attributed to malnutrition than those children whose mothers were educated (Girma and Genebo, 2002).

There is also some evidence of the 'diffusion effect' in operation in relation to child nutrition: a study from Peru found that both women's own education as well as levels of female education within the community had a positive impact on child nutrition and growth while the impact of education of men in the community was insignificant (Alderman, et al, 2003).

### **Children's Education**

Women's access to agency-enhancing resources also appear to have positive implications for children's education in a number of contexts. For instance, studies from both Pakistan and Bangladesh show that while the education levels of both parents increase the likelihood of children's education, the effect of women's education levels was found to be far more significant (Montgomery et al., 1999). A study using Malaysian data found that gender differentiated the

effects of parent's education on the education of their children. A 10% increase in mother's education increased the likelihood that daughters would finish their education by 0.7% and that sons would finish their education by 0.3% while a 10% increase in father's education increases the likelihood by just .01 % that both sons and daughters will finish schooling (Anderson, et al, 2003).

In areas of the world where there is marked gender discrimination in children's education, mother's education can have a disparity-reducing effect. Analysis of data from West Bengal by Kambhampathi and Pal (2001) suggests that the literacy of household head increases the likelihood of both boys and girls having been enrolled in school while mother's literacy has a distinct additional effect on girls' enrollment. Focusing on children who have attended school, the study found that while neither parents' literacy had any effect on educational level attained by boys, mother's literacy had a positive and significant effect on girls' educational attainment. In a study using household data from Pakistan, Sathar and Lloyd (1994) also found that mother's education was more powerfully associated than that of fathers with the likelihood of children going to school, but also of *girls* going to school.

In Bangladesh, detailed analysis of 1995 household level data from two districts in Bangladesh (Ridao, 1999, 2000) found that while child labour was higher, and school attendance lower, in the less developed of the two districts, and in very poor households within each district, the education of both mother and father increased the likelihood of children going to school, with a strong statistical effect associated with mother's schooling. Moreover, only the mother's education had the effect of reducing the likelihood of children working. And finally, women's access to loans significantly increased the likelihood of children going to school while men's access to loans had no such effect. In fact, a 10% increase in female credit increased the probability of a child going to school by between 10-11% and decreased the probability of full time work among children in work by 10%.

While the study does not differentiate children's education by gender, there is some evidence to suggest that women's access to micro-credit is associated with an increase in children's education, particularly girls' education (Kabeer, 2000; Khandker et al., 1996).

In Jamaica, where the prevalence of consensual or 'visiting' unions means that female headship may be associated with a resident or non-resident male partner, it was found that it was the presence or absence of an adult female member in the household play a key role in explaining variations in children's welfare (Handa, 1994). Children in female headed households generally reported better health status and educational outcomes than did children in male headed households, despite lower levels of per capita consumption. However, children in male headed households without a resident female partner reported poorer health and educational outcomes than did children in male headed households with a resident female partner although the former had higher levels of per capita expenditure than the latter.

## **Reproductive Health**

Finally, women's access to agency-enhancing resources also has positive impacts on their own health and physical well-being, including maternal health and mortality. Using cross-sectional samples varying from 40 to 97 countries, Williamson and Boehmer (1997) found a positive relationship between variables measuring women's status and their life expectancy. Thus both absolute levels of women's education, as well as the ratio of female to male schooling, were related to women's life expectancy. In addition, women's access to

contraception also had a significant effect on their life expectancy, independently of the education variables. The effects of women's economic participation varied by sector: other things being equal, including levels of development, women's participation in industry and services had a positive impact on their life expectancy while their participation in agriculture had a negative effect.

Shen and Williamson (1999) examine the effects of women's status on maternal mortality for a sample of 79 less developed countries. They found that all five indicators of women's status included in the study - women's education relative to men, their age at first marriage, access to contraception and presence of health attendants at birth were all strongly related to maternal mortality, even after controlling for per capita GDP and economic growth.

Women's ability to access health care during pregnancy and delivery is likely to be an important determinant of both child and maternal mortality. Their education levels appear to be a factor in mediating this. For instance, in a comparative study of DHS data from 17 countries, Bicego and Boerma (1993) found that 'relative risk' of not using ante-natal health services among uneducated women compared to women with secondary education ranged from 70% in Kenya to 2100% in the Dominican Republic; it ranged from 31% in Kenya to 700% in Thailand among women with primary education compared to those with secondary education.



Findings from cross country studies are corroborated by in-country analysis. A study by Becker (1997) in rural Zimbabwe found that women's education and employment increased the likelihood that they would take up contraception and seek ante-natal care, both with positive implications for the reduction of maternal mortality. Women with low levels of education were less likely to seek pre-natal care within the first trimester of their pregnancy and to continue to visit ante-natal facilities throughout their pregnancy. In Ghana, among mothers with no education, only 46% of births were to women who had received two or more doses of tetanus toxoid injections compared to 67% of births to women with at least secondary education. Around 25% of deliveries to mothers with no education took place at a health facility compared to over 80% to women with at least secondary education.

In Ethiopia, logistic regression analysis on national data suggested that, along with urban residence and higher household economic status, women who worked for cash were 1.2 times less likely to be under-nourished than women who worked but not for cash and 1.5 times less likely to be undernourished than women who were not employed. Furthermore, the risk of undernutrition among women who had joint say in how their cash earnings were to be used was 1.5 higher than among women who had full say.

Finally, in contexts where there are cultural restrictions on women's mobility in the public domain, such mobility may constitute such a resource. However, as analysis of survey data on currently married women in Pakistan shows, these same cultural restrictions complicate the interpretation of women's mobility where it is observed (Mumtaz and Salway, 2005). In a context where such restrictions apply, it is likely to be poorer women with few choices who will report

'unaccompanied' mobility with the accompanying loss of status. Women with better-off households were more likely to report 'accompanied mobility' where they were generally accompanied by men or older women from their households. The study found that, controlling for various other likely influences on women's use of contraception and take up of ante-natal care, women who reported 'accompanied mobility' were statistically more likely to take up ante natal services than those who either reported unaccompanied mobility or who did not report mobility. In other words, the implications for women's access to health care of their capacity to travel in the public domain was mediated by the socio-economic status of their households.

## Conclusion

There are various grounds on which gender should be integrated into the analysis and implementation of the MDGs at national and international levels. This note puts forward one set of rationales based on evidence that improving women's access to resources and capacity to exercise agency has been found to have positive implications on a range of human development outcomes, many of which are incorporated into the MDGs. While there are clearly likely to be exceptions, the 'rule' appears to be that women's access to resources of various kinds tends to lead to lower levels of fertility and higher levels of contraceptive use as well as having a positive association with children's survival, well-being

and educational levels. It also has positive associations for women's own well-being.