Evidence for Action

Gender Equality and Economic Growth

John Ward, Bernice Lee, Simon Baptist and Helen Jackson

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List of Acronyms

BFP	Better Factories Project
CAGR	Compound Annual Growth Rate
CIA	Central Intelligence Agency
DALY	Disability Adjusted Life Year
DFID	UK Department for International Development
EAP	East Asia and the Pacific
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
GE	Gender Equality
ICRG	International Country Risk Guide
IDS	Institute for Development Studies
ICRW	International Centre for Research on Women
IPS	Inter Press Service News Agency
IPCC	Intergovernmental Panel on Climate Change
ILO	International Labour Organization
LAC	Latin America and Caribbean
MDG	Millennium Development Goal
MENA	Middle East and North Africa
OLS	Ordinary least squares
NGO	Non-governmental Organization
OECD	Organisation for Economic Co-operation and Development
PPP	Purchasing Power Parity
USAID	United States Agency for International Development
UNFPA	United Nations Population Fund
SSA	Sub-Saharan Africa
WHO	World Health Organization
YLD	Year Lived with Disability

About the Authors

John Ward is an expert in environmental economics, industrial organization and the application of economics to public policy issues. He has led much of Vivid Economics' work on understanding the competitiveness implications of emissions regulation, as well as work on encouraging private-sector investment in climate change technologies. He has worked with a diverse portfolio of clients including numerous companies, government departments and regulatory bodies, as well as the European Commission, the World Bank and the United Nations. He holds an MSc in Economics (with distinction) from the University of London, and an MA in Philosophy, Politics and Economics from the University of Oxford.

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Executive Summary

Gender equality (GE) is a critical component of social progress. It is a basic right that does not need economic justification. This is reflected in the explicit inclusion of gender-related development objectives in the eight Millennium Development Goals (MDGs). Yet gender equality also has broad and positive implications for economic and social development.

MDG 3, which specifically aims to promote gender equality and to empower women, will not be achieved at current rates of progress. Also, according to the United Nations, achieving MDG 5 for a significant reduction in maternal mortality in developing countries remains elusive. To deliver these two MDGs and to achieve supporting targets, it is critical to raise the level of debate and to gain visibility for gender equality through strong factual evidence, as well as effective communication.

This report sets out the available evidence on how greater gender equality in the developing world could enhance economic growth. It uses the eight key factors for economic growth developed by the United Kingdom Department for International Development (DFID) as a framework for prioritizing and organizing the evidence. These factors – human capital, physical capital, the rule of law, competitive markets, macroeconomic stability, infrastructure, openness to trade and investment, and increased agricultural productivity – are the conditions most likely to ensure that a strong economic performance will be established and will endure in a country. The report also indicates how achievement of the MDGs related to gender equality will help to secure the delivery of the other MDGs and presents a set of strategic policy options.[1]

A. Improving gender equality can have significant impacts on economic growth

This research finds critical evidence that relates improving gender equality to key factors for economic growth. Most clearly, gender equality can contribute significantly to economic growth by expanding the stock of human capital, raising labour productivity, improving agricultural productivity and increasing the stock of physical capital.

1. Gender equality will enhance human capital

Better-educated women can undertake higher-value economic activity. Countries are rarely wealthy if they have poor gender equality in education. With the exceptions of resource-rich Oman, Bahrain and Saudi Arabia, no country has achieved both GDP per capita of over $10,000 and a ratio of girls to boys in primary education of less than 90 per cent. Economic growth since 1960 would probably have been appreciably higher in sub-Saharan Africa, the Middle East and North Africa (MENA), and Latin America had those regions matched the levels of gender equality in education in East Asia and the Pacific. Estimates of the loss of growth owing to gender inequality in education range from 0.38 per cent per annum in sub-Saharan Africa to 0.81 per cent per annum in South Asia. This accounts for between 11 per cent and 41 per cent of the growth difference between these regions and East Asia and the Pacific (Klasen and Lamanna, 2008).

1 This report does not discuss the evidence on whether or not these factors do indeed promote growth. The interested reader is referred to DFID (2008) for this evidence. Nor does it address whether or not other factors, such as the sustainable use of natural capital, should also be included in this framework. However, it should be stressed that these eight variables are considered to be factors associated with promoting economic growth, not absolute preconditions for growth. Different factors will be more or less relevant for different countries at different stages of development, and it is also recognized that there are different ways in which these factors can be promoted that will be more or less conducive to growth.

Economic growth, for its part, can have a positive effect on gender equality in education by increasing the incentives and opportunities for educating girls. In the right circumstances, positive feedback loops can be created. But improving GE in education will only be effective in promoting growth in countries with social and cultural institutions that allow women to take advantage of better education (Dollar and Gati, 1999).

Better-educated girls and women are likely to have fewer children. The decline in fertility associated with greater gender equality can have profound economic impacts. A fall in fertility leads to a lower dependency ratio and tends to increase per capita output, providing a 'demographic dividend'. This may have accounted for as much as one-third of the strong economic growth rate in East Asia since the late 1970s (Bloom and Canning, 2008). However, a decline in fertility will typically materialize only where lower fertility is desired and where cultural and informational barriers to family planning are surmountable. Furthermore, a 'demographic dividend' will follow a decline in fertility only if other conditions for growth are in place. Declines in fertility in Latin America failed to lead to a 'demographic dividend' because growth was hindered by macroeconomic and political instability (Bloom and Canning, 2008).

2. Gender equality fosters higher labour productivity

Improving gender equality can make labour markets more competitive. Gender inequality in education has fallen in most developing regions. But in many regions, as gaps in inequality in education have narrowed, so the importance of gender inequality in employment has increased. Narrowing the education gap further will not yield significant benefits if additional numbers of educated women are unable to access productive employment. The loss of economic growth in MENA in the 1990s from gender inequality in employment was around four times as large as that from inequality in education (Klasen and Lamanna, 2008; Vivid Economics calculations).

Product markets are more competitive if all would-be entrepreneurs can use their talents. Discriminatory laws and social norms are a barrier to female entrepreneurship in some developing countries. Where women are treated differently from men with respect to access to institutions, property rights, taxation and access to credit, their ability to start a business is inhibited. These barriers to female entrepreneurship and self-employment undoubtedly exist, and the understanding of how they impede economic development, and how they can best be removed, could be much improved.

3. Gender discrimination is inefficient and lowers agricultural productivity

Gender discrimination can be a barrier to improving agricultural productivity. Unequal distributions of resources, including credit extension, labour and fertilizer, create inefficiencies which lower yields and profits; and markedly reduces incomes in some countries. This is especially true for low-income countries, notably sub-Saharan Africa, where agriculture makes up a large proportion of the total economy and where a large number of women participate in the sector.

Social institutions which prioritize the head of the household, which mean that plots owned by heads of households are farmed more intensively than similar plots owned by others of both sexes. This implies that status in the household rather than gender specifically may be more important in the allocation of agricultural resources.

4. Enhanced gender equality attracts investment in physical capital

The incentive to invest is determined by the expected rate of return on the investment. A more productive workforce, through greater equality in employment and education, increases expected rates of return, which in turn generates a modest increase investment and promotes growth. New investment not only generates growth directly but also enables economies to adopt higher-productivity technologies, such as those used by manufacturers in East Asia.

In addition, a more equal distribution of income, by improving women's wage rates, can lead to higher formal savings. They in turn can be channelled through the financial sector so as to provide capital

for companies to make new investments. In many developing countries, access to international capital markets will be limited, making the domestic pool of savings the most important source of funds for new capital investment. Studies of the ratio of female-to-male earnings as well as of the female share of employment in manufacturing have identified a definite positive effect on household savings rates from female income (Seguino and Floro, 2003).

There is also some evidence that women make more productive investments than their male counterparts, but this remains contested.

Table 1: Gender equality and economic growth: a summary of findings

Key factor	Transmission mechanism	Evidence
Human capital	More educated girls and women can undertake higher-value economic activity	Context-specific. Appears strongest in countries with an export-focused manufacturing base and few cultural barriers. Secondary and tertiary education particularly beneficial
	Greater control for women in the domestic sphere (household resources and family size) augments the human capital of the next generation	Women are more likely to spend household income on children. Large family size may not always adversely affect education; although there is strong evidence that the presence of pre-school children has a detrimental impact on older siblings' education
	Greater access to family planning leads to declining fertility and a 'demographic dividend'	Significant impact as long as other preconditions for growth are in place
	Better maternal health increases the number of women who can participate in the labour force	Little evidence available on the effect on economic growth; more specific studies required
	Women suffering violence are less able to participate in the labour force	Initial studies suggest a potentially important impact
Competitive markets	Improving gender equality can make labour markets more competitive	Growing in importance over time. Often inequality in employment has a larger effect on growth than does inequality in education
	Increasing the entrepreneurial opportunities for women increases the competitiveness of product markets	Well-documented evidence on legal barriers in some countries but no empirical link made with growth
Physical capital	Higher household savings rates through more female employment and through equal distribution of income allowing greater investment	Evidence focused on semi-industrialized countries
	Rising gender equality may boost the profitability of investment	Small effect, as higher-skilled women raise productivity faster than wages go up, boosting rates of return
	Women make more productive investments than men	Mixed evidence. Women may focus on using profits to purchase household goods rather than reinvest in business, especially during child-bearing years
Rule of law	Precise transmission mechanism unclear	Small but significant relationship between rising female political and workforce participation and lower levels of corruption

Infrastructure	Women and men prioritize different public goods. Precise transmission mechanism unclear	Unclear whether alternative priorities of women generate higher growth
Agricultural productivity	Discrimination means resources not allocated efficiently to household plots	Household income in Africa could increase by up to 25 per cent; conditional upon cultural context
Openess to trade	Discrimination prevents women engaging in trade	Significant localized evidence but no attempt to assess overall impact
Macroeconomic stability	Female suffrage leads to different role of government in economic sphere	Limited evidence suggests that women prefer redistributive policies and possibly lower deficits. Link to growth not yet established

Source: Vivid Economics, based on references in the text.

5. There are possible linkages between gender and the other crucial factors for growth, but the evidence is inconclusive

The rule of law. Improving gender equality in political and economic life may lessen corruption. Estimates suggest that an increase of 25 percentage points in the proportion of female parliamentarians is associated with a one-point improvement in the International Country Risk Guide corruption rating (an index that ranges between 0 and 6; a higher number means less corruption). An increase of about 13 percentage points in women's participation in the labour force is associated with a one-point improvement in the same index (Swamy et al., 2001).

Macroeconomic stability. There is evidence that enhanced female participation in politics changes the role of government. Most studies suggest that extending female suffrage leads to the adoption of more redistributive policies as well as policies with a greater social insurance element (Abrams and Settle, 1999; Lott and Kenny, 1999). However, the link between governments' adoption of those policies and economic growth remains contested.

The provision of infrastructure. More political representation for women is associated with the provision of a different mix of public goods. Studies undertaken in India have found that female heads of village councils invest more in infrastructure directly relevant to the needs of their own gender than do their male counterparts (Chattopadhy and Duflo, 2004). It has yet to be established whether this infrastructure is typically more or less conducive to promoting economic growth. It is likely to be context-specific.

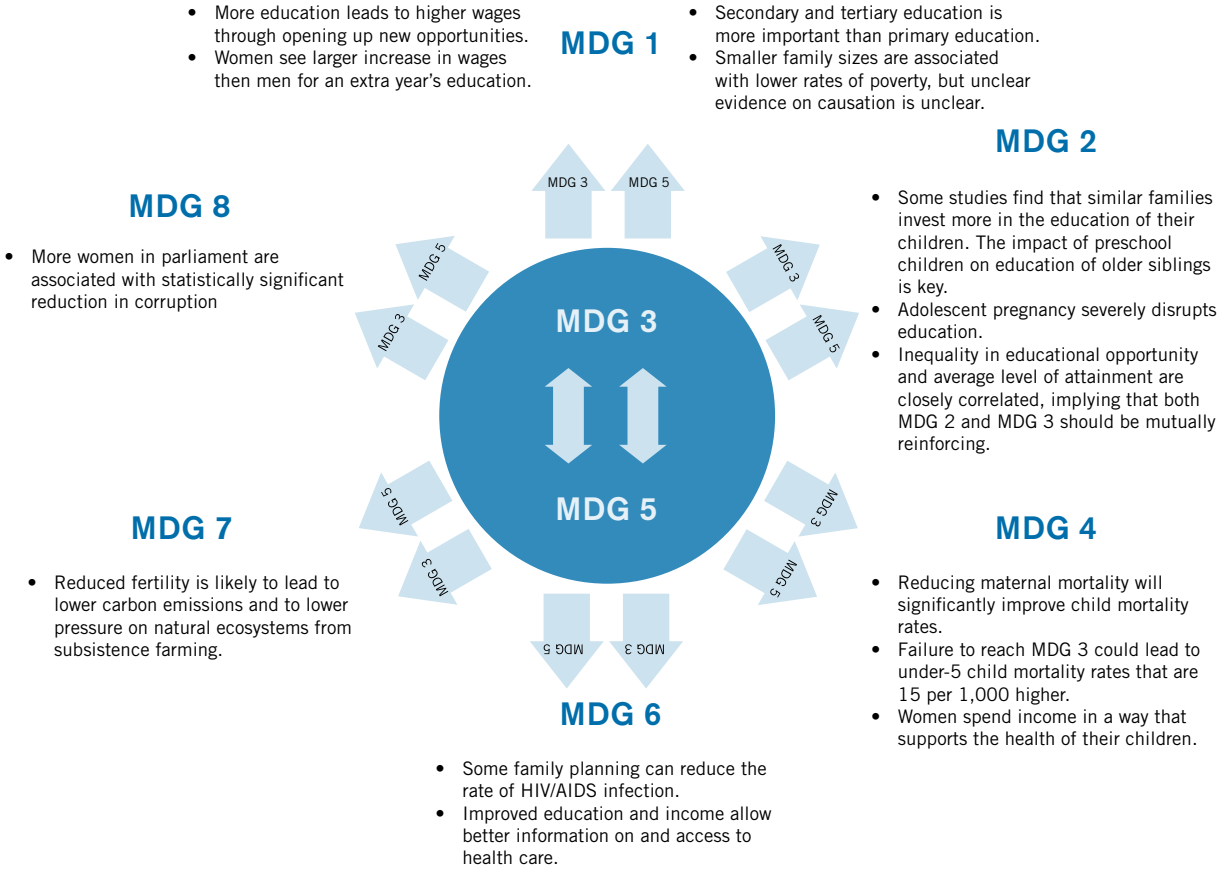
Openness to trade and investment. Trading opportunities will be enhanced by greater human and physical capital. Thus improvements in these characteristics through gender equality will boost the potential for trade and economic growth. For example, enhancing the productivity of women through tertiary and secondary schooling will increase business opportunities, and this may encourage foreign direct investment in export-orientated sectors. There is also substantial local evidence that women face barriers in small-scale border trade, but there are no estimates of the impact of this on economic growth. These barriers are similar to those vis-à-vis women's entry into entrepreneurship: a lack of access to resources such as land or collateral for loans can prevent women from taking advantage of profitable trading opportunities.

It should be noted that wage inequality may increase competitiveness in labour-intensive export industries in the short term. In the garment sectors of Cambodia and Bangladesh, for instance, women are favoured for low-skilled jobs because they will often accept lower wages, are assumed to have a natural predisposition to garment work and tend to be less liable to strike. However, it is important to bear in mind the wider economic benefits of wage equality outlined above, for instance through potentially higher savings rates. Greater wage equality can also have positive impacts on the MDGs in that women are more likely to spend money on health and education.

B. Gender equality will enhance the delivery of MDGs other than MDG 3 and MDG 5

Progress on gender equality is central to achieving many wider development goals. There is a close interrelationship between progress on MDGs 3 (gender equality) and 5 (maternal health) and many of the other MDGs. See Figure 1.

Figure 1: The relationship of MDGs 3 and 5 with other MDGs



Source: Vivid Economics based on sources referenced in the text.

1. Greater educational and employment opportunities for women (MDG 3) will help in alleviating poverty and hunger (MDG 1)

Children who receive more education are likely to earn more, but girls typically benefit more from extra education than boys (Psacharapoulos and Patrinos, 2002). In many developing countries, this benefit seems greater from secondary and tertiary education than from primary education. Women will also receive higher wages from (entering the) formal sector than from the agricultural sector, implying that expanding these opportunities for women will further alleviate poverty (Kingdon and Söderbom, 2007). Differences in gender equality are also closely related to differences in childhood nutrition: it is estimated that increasing GE in South Asia would reduce the under-three underweight rate by 13 percentage points (Smith et al., 2003).

2. More educated women, as well as those in employment, are more likely to use maternal health care and antenatal health care services, thus reducing child mortality rates (MDG 4)

It is estimated that under-five mortality rates could be 15 per 1,000 higher on average in countries that fail to reach their MDG 3 targets (Abu-Ghaida and Klasen, 2004).

3. Progress on maternal health and improving access to family planning (MDG 5) will also have spillover benefits for the other MDGs, most clearly by helping to substantially reduce child mortality rates (MDG 4)

Children whose mothers die in childbirth are themselves much less likely to survive. It is estimated that 30–58 per cent of neonatal deaths are due to obstetric complications (Lawn et al., 2005). Likewise, ensuring that there is no unmet need for family planning services would also have a marked impact on child mortality: it is estimated that as many as 9 per cent of under-five deaths in the developing world could be averted by increasing intervals between births. Increasing the provision of maternal care services and improving access to family planning are both 'highly cost-effective interventions' using thresholds developed by the World Health Organization (Singh et al., 2009).

4. Lowering fertility rates would have a range of further development benefits

Although causality is sometimes contested, studies have suggested that smaller family sizes can help to reduce household poverty (MDG 1) (Eastwood and Lipton, 1999). They can help to ensure that children attend school rather than look after younger siblings (MDG 2) (Foster and Roy, 1997). Reducing population pressure may also promote environmental sustainability (MDG 7) (IPCC, 2000; Hunter, 2001).

C. Implications for policy-makers

1. Understanding and investing where context-specific rather than general conditions can maximize the economic impact of gender-related investments

Many of the causal pathways discussed in this paper are very sensitive to context, whether at the level of the nation (general economic climate, political unrest, geographical constraints and legal infrastructure), society (cultural and religious norms) or household (number of dependants, income). For instance, gender equality in educational opportunities will not lead to a significant boost to formal economic growth unless there is a cultural environment in which women can participate in the labour force. Lack of family planning is less associated with poverty in societies in which there is greater extended family and social support. The 'demographic dividend' effect is observed only in countries with benign macroeconomic conditions. Policies based on such findings should be developed with an awareness that their effectiveness is contingent on other factors that may or may not be present in the target country or population.

2. There are clear links between the achievement of gender-related MDGs and other global development objectives

As discussed in section B, the achievement of the gender-related MDGs will facilitate progress on other development objectives. For example, gender equality in educational and employment opportunities can bring higher lifetime earnings for women, helping to reduce the incidence of poverty (MDG 1) (Kingdon and Söderbom, 2007). Maternal mortality and morbidity are very closely linked with (neonatal) infant mortality rates. Improved access to maternal health services yields health care benefits to both mother and child.

3. Growth diagnostics can be used to identify current constraints and to highlight the most effective gender-related investment and partnership opportunities

An understanding of the ways in which promoting gender equality may or may not affect economic growth can inform decision-makers about when promoting gender equality will lead to an important 'growth dividend'. Only when growth is held back by factors (such as low human capital, uncompetitive labour markets and low agricultural productivity) that have strong linkages to greater gender equality will the promotion of GE facilitate economic growth. If the key factors constraining growth (such as macroeconomic stability) are less susceptible to improvements in GE, then it will be a less effective strategy for promoting economic growth.

4. The impact of investments in gender equality will be greater under certain conditions

Further factors determining the efficacy of gender equality in delivering economic growth depend on which aspects of GE are considered.

The goals of MDG 3 in terms of promoting gender equality in education and in employment opportunities are most likely to lead to a 'growth dividend' in a defined set of circumstances, including:

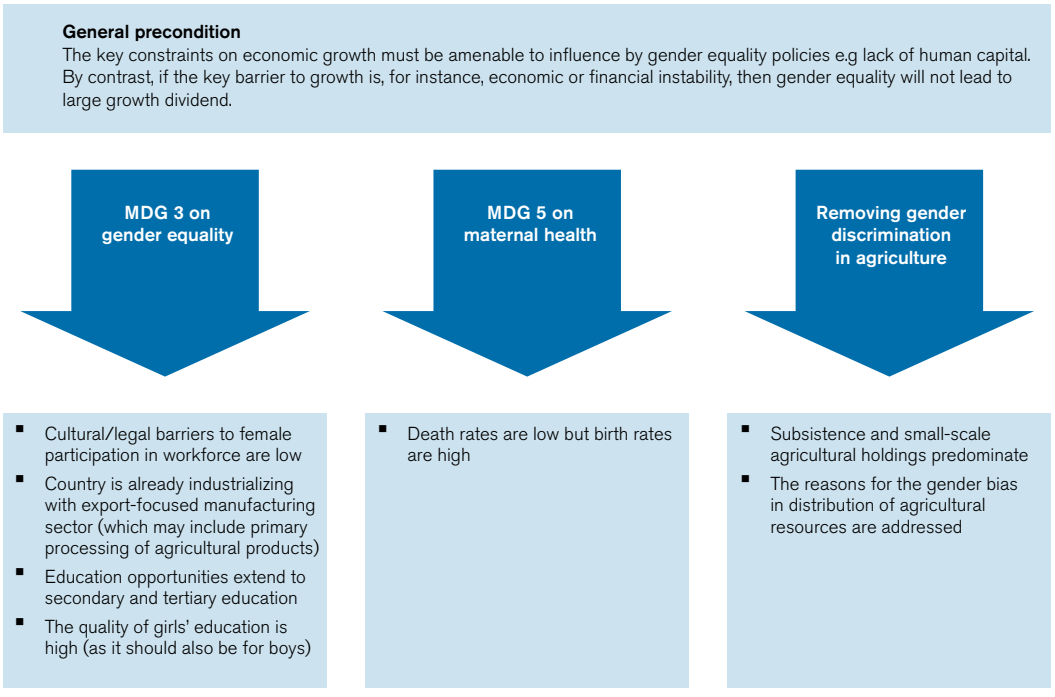
- where cultural or legal barriers to female empowerment are already relatively low or are amenable to being overcome by education;
- where the country is already industrializing and, it appears, especially if it has a strong export-focused manufacturing sector;
- when gender equality of educational opportunities are extended to secondary and tertiary education; and
- where the quality of education received by girls is sufficiently high.

The component of MDG 5 (on maternal health and family planning) with the strongest link to higher economic growth is equal access to family planning and maternal health services. It can reduce fertility rates by providing women with the means to better manage their fertility and in turn allow countries to exploit a 'demographic dividend'. Countries with reasonably low death rates but where high birth rates have not yet fallen, typically the case in many low-income countries, will be best able to exploit this opportunity.

Discriminatory agricultural practices are not adequately captured by any of the gender equality indicators of the MDGs. For policies in this area to be effective in boosting economic activity, they will need to be tailored to the cultural and environmental context. That is, they will need to take account of the possibility that current agricultural practices may reflect the prioritization of resources towards the head of the household (who typically happens to be male) rather than towards the man *per se*. These too could be effective ways to boost economic activity in low-income countries.

Figure 2 summarizes the key conclusions as to which countries are most likely to receive a large boost in economic growth/output from pursuing gender equality policies.

Figure 2: Key preconditions for (different aspects) of gender equality to promote growth



Source: Vivid Economics

5. Partnership with businesses can help to stimulate investment in gender equality along global supply chains

Businesses today that invest in gender equality in their supply chains tend to be driven by social responsibility, not economic gain. Perceived economic advantages, where they exist, are based on product differentiation rather than gains in fundamental productivity and efficiency. Firms do not see their gender-related activities as driven by competitive pressure. As a consequence, a systematic approach is taken by many large firms to counter gender-based discrimination in the workforce, but pro-gender equality investments (such as accelerated training for women) are sporadic and ad hoc.

Yet the impact of enhanced GE on a firm's productivity and profitability is not often assessed. Analysis is needed in order to test the impact on corporate performance of, for example, more female participation in the workforce and greater equality of educational opportunity. In short, we need to clarify how the benefits identified in this paper of investing in gender equality at the macroeconomic level translate into a better performance for individual firms and their suppliers.

D. Recommendations for policy-makers

1. **Increase targeted investments in GE.** These can increase economic growth and contribute to achieving the MDGs, including those not explicitly gender-related. National governments and development organizations should be considering gender equality as part of their policy toolkit for delivering growth in the same way that they consider, for instance, infrastructure development or microeconomic reform. Apropos of the MDGs, increased investment in MDG 3 should be used as a specially important component of strategies to meet MDG 1 (on eradicating poverty and hunger) and MDG 4 (on reducing child mortality) while investments in MDG 5 should be seen as an integral component of strategies to meet MDG 4.
2. **Target gender-equality investments in order to leverage the greatest development benefits** by identifying the key drivers and constraints on growth as linked to gender equality at the national and sub-national levels. Those drivers and constraints are outlined in section C 4. The strength of these links will determine the impact of different types of investment in gender equality. For example:

    - Invest in GE in educational and employment opportunities where there are low cultural barriers to female participation in economic life, in countries already industrializing and where the quality of education received by women is sufficiently high.
    - Invest in better access to family planning services where countries have low death rates but high birth rates.
    - Invest where subsistence farming and small-scale agricultural holdings predominate, a typical characteristic of many low-income countries.

    These investments will not lead to markedly greater economic growth or activity if other barriers to growth that do not have such an obvious gender dimension (e.g. a shortage of infrastructure, macroeconomic instability) are the key constraints on growth.
3. **Support the development and implementation of integrated strategies to strengthen gender equality in both education and employment so as to maximize the effect on women's income in developing countries.** Women can maximize benefits from equal access to education if they can capitalize on their skills in the labour market. Integrated strategies for education and employment have the potential to create virtuous circles. A focus on employment opportunities appears to be particularly important in MENA, where notably lower growth than in East Asia and the Pacific has been attributed to a lack of employment opportunities rather than to a lack of educational opportunities.
4. **Expand investment in secondary and tertiary female education.** Increasing educational opportunities for women at these levels is more likely to have a greater impact on growth,

especially in middle-income countries (Dollar and Gati, 1999; Busse and Nunnenkamp, 2009). Although many countries have seen an expansion in primary education for girls and women in recent years, more investment should be targeted at the secondary and tertiary levels of education.

5. **Invest in creating the right conditions for gender equality to lead to growth.** Where conditions in countries do not enable GE investments to generate economic growth, efforts should be concentrated on removing the barriers that prevent these opportunities. If these barriers can be successfully removed, national governments, and individuals in countries, will be more likely to take the lead in promoting gender equality for reasons of national, and individual, interest rather than because of extended pressure.

   One of the most important hindrances to the capture of growth benefits through gender equality in education is where social and cultural institutions[2] prevent the full involvement of women in the economic sphere. Interventions to improve these institutions and attitudes include public opinion campaigns, subsidizing women's associations and conditional cash transfers to men to accept changes (see Jütting and Morrisson, 2005a, 2005b).
6. **Accelerate access to comprehensive, culturally sensitive family planning services and improve maternal health.** The evidence shows that these are very cost-effective medical interventions in themselves. One study has estimated that for every dollar spent on providing modern contraceptives, $1.40 would be saved in medical care costs (Singh et al., 2009). Reducing population pressure may enhance efforts to promote environmental sustainability. Greater investment in maternal health will also realize spillover benefits: children with healthy mothers are more likely to survive their infant years and to acquire formal schooling.
7. **Develop high-profile partnerships with emerging economies, in particular those that are increasingly involved in development cooperation with poorer countries, in order to promote gender equality as a way of accelerating their economic development.** The evidence that gender equality in education and employment enhances growth is most visible in industrializing, export-orientated economies. Such an approach can provide opportunities for joint leadership to low-income countries that are more and more seeking to emulate the models of the fast-growing emerging economies.
8. **Establish a high-level panel with senior business figures so as to build and strengthen the commercial case for gender equality.** Five major international businesses' responses to questions about GE suggest that companies are not yet persuaded that it is good for their bottom line. However, there is a mounting appreciation of gender equality as a component of future consumer demand and skilled labour development. Identifying how the macroeconomic benefits of GE could flow to individual firms and their suppliers might stimulate private investment in it along supply chains, especially in employment and training opportunities for women. The findings of this panel should be published in different formats, including as assessment tools for businesses and also as leaflets for engagement with national and local businesses. In this context, the panel can link up with existing corporate social responsibility initiatives and other organizations such as the Ethical Trading Initiative and the International Business Leaders Forum. Businesses at different levels, global, national and local, can be cultivated in this manner as effective advocates for gender equality.
9. **Work with businesses and NGOs to promote collaborative and innovative initiatives.** Part of the reason why women are targeted in microfinance schemes is a perception that they will make more productive investment decisions than men, even though the evidence for this is mixed. In microfinance schemes, the client base is disproportionately focused on women. For instance, in 2009 almost 97 per cent of Grameen Bank's 8 million borrowers were women. Innovative practices have shown the value of harnessing women's creative power. For example, women's shea butter

2 Institutions are the humanly devised constraints that structure human interaction. There are formal constraints (rules, laws, constitutions), informal constraints (norms of behaviour, conventions and self-imposed codes of conduct) and their enforcement characteristics (as defined by the American economist Douglass North).

cooperatives in Africa have opened up access to credit and enabled women to pool resources and make large-scale investments to increase income-generation and to improve their quality of life by investing in labour-saving technology, community infrastructure and their education in literacy and business skills.

10. **Support further research on transmission mechanisms and the evidence base for low-income countries.** The impact of key dimensions of gender equality on economic development is not clear in the existing literature. A case in point is the impact of improved maternal health on economic growth, and the cultural/country-specific relationships between GE in education and growth are only beginning to be identified. Similarly, work on the loss in productivity caused by violence against women in developing countries is just starting to be quantified. But initial estimates suggest that these impacts may be significant and should be investigated further. In other cases, some of the literature, e.g. on the links between population pressure and environmental impacts, is robust but quite dated. More research could reveal additional ways for delivering GE and associated development results and provide a firmer base of evidence for constructing policy.

    There are often more pronounced data gaps in relation to low-income countries than to middle-income and industrializing countries. For instance, it is only in the latter that differences between male and female saving rates have been extensively explored. There are obvious challenges associated with the collection and use of data from low-income countries. It is critical that evidence collection is rigorous and evaluation is impartial. Quantitative analysis is very desirable. Randomized evaluations, such as those conducted by the Abdul Latif Jameel Poverty Action Lab,[3] headquartered in the Economics Department of the Massachusetts Institute of Technology, can provide powerful evidence.

3 http://www.povertyactionlab.org/.

1 Introduction

Gender equality (GE) is a critical component of societal progress. It is a basic right that does not need economic justification. The importance of gender equality for development is reflected in the explicit inclusion of gender-development objectives in the Millennium Development Goals (MDGs) (see Box 1.1 below), agreed by heads of state at the United Nations Millennium Summit in 2000. But gender equality also has broad and positive implications for economic and societal development. It is well understood today that educating girls is one of the most cost-effective development investments (World Bank, 2008a).

Ten years on, in September 2010, the international community will collectively review progress since 2000 on the eight MDGs at a high-level summit in New York. Progress has been slow on the MDGs that rely most on improvements in gender equality. According to the UN, a significant reduction in maternal mortality in developing countries remains elusive.[4] The MDG that specifically aims to promote GE and empower women will not be achieved at current rates of progress.

The Millennium Project Task Force on Education and Gender Equality in 2005 outlined a compelling case for the central role of gender equality in development. Their reports, and the work of other leading institutions on gender-related issues, have contributed to strengthening the focus on the normative dimensions of gender mainstreaming in public policy in many developing countries. To deliver the MDGs, including MDG 3 and its supporting targets, it is also critical to raise the level of debate and to raise the visibility of GE through stronger data and facts, as well as effective communication.

With the financial support of the United Kingdom Department for International Development (DFID), Chatham House and Vivid Economics have reviewed the evidence on how greater GE in the developing world can enhance economic performance and boost progress towards achieving the UN's Millennium Development Goals. This review has focused mainly on existing peer-reviewed quantitative evidence. A survey of a small number of transnational companies with large operations or supply chains in developing countries was conducted in order to gauge the business perspectives on gender inequality (see Box 2.3 and Annex 2). This research is designed to complement the findings of the Institute for Development Studies (IDS) on women's empowerment, also commissioned by DFID.

In Chapter 2 of the report, DFID's eight key factors for economic growth, detailed in its 2008 paper 'Growth: Building Jobs and Prosperity in Developing Countries', are used as a framework for prioritizing and organizing the evidence, as well as for defining the scope of this analysis. These factors are human capital, physical capital, the rule of law, competitive markets, macroeconomic stability, infrastructure, openness to trade and investment, and increased agricultural productivity.

In establishing the links between gender equality and growth, the report concentrates most heavily on those aspects of gender equality captured by MDGs 3 and 5: to 'promote gender equality and empower women' and to 'improve maternal health'. MDG 3 encompasses targets to eliminate gender disparities in education, to increase the share of women in wage employment in the non-agricultural sector and to raise the proportion of seats held by women in national parliaments. MDG 5 includes targets to reduce the maternal mortality rate and to improve access to reproductive health through family planning and obstetric and antenatal care. Where relevant, the report draws on literature concerning other aspects of gender equality, including legal discrimination and violence against women. As a consequence, the report considers the evidence on the links between all seven of the strategic priorities for gender equality set out in the 2005

4 There is significant regional variation in progress, with the greatest progress in East Asia and the least in sub-Saharan Africa (UN, 2009a). Also, some authors are far more optimistic about the absolute level of maternal mortality, and progress in reducing it since 1990, than are the MDG official figures (Hogan et al., 2010).

Box 1.1: The Millennium Development Goals

The UN's Millennium Development Goals are summarized below. The main targets of each goal are listed, but for detailed and specific targets the reader is referred to the UN Millennium Development Goals website.

MDG 1: Eradicate Extreme Poverty and Hunger. Halve between 1990 and 2015 (i) the proportion of people whose income is less than one dollar a day and (ii) the proportion of people who suffer from hunger. Achieve full and productive employment and decent work for all, including women and young people.

MDG 2: Achieve Universal Primary Education. Ensure that by 2015 children everywhere, boys and girls alike, will be able to complete a full course of primary schooling.

MDG 3: Promote Gender Equality and Empower Women. Eliminate gender disparity in primary and secondary education by no later than 2015.

MDG 4: Reduce Child Mortality. Reduce by two-thirds between 1990 and 2015 the under-five mortality rate.

MDG 5: Improve Maternal Health. Reduce by three-quarters between 1990 and 2015 the maternal mortality ratio. Achieve universal access to reproductive health by 2015.

MDG 6: Combat HIV/AIDS, Malaria and Other Diseases. To have halted by 2015 and begun to reverse the spread of HIV/AIDS, as well as the incidence of malaria and tuberculosis. Achieve universal access to treatment for HIV/AIDS for all those who need it by 2010.

MDG 7: Ensure Environmental Sustainability. Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources. Reduce biodiversity loss, achieving by 2010 a significant reduction in the rate of loss. Halve by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation. To achieve by 2020 a significant improvement in the lives of at least 100 million slum dwellers

MDG 8: Develop a Global Partnership for Development. Address the special needs of least-developed countries, landlocked countries and small island developing states. Develop further an open, rule-based, predictable, non-discriminatory trading and financial system. Deal comprehensively with developing countries' debt. In cooperation with the private sector, provide access to affordable essential drugs and make available the benefits of new technologies, especially information and communications.

Source: UN Millennium Development Goals website, www.undp.org/mdg

Millennium Project Task Force Report (education, health, infrastructure, employment, property ownership, political participation and a reduction in violence against women) and economic growth.

There are complex benefits associated with greater gender equality that may not be captured by a discussion limited to economic growth. The secondary focus of the report, presented in Chapter 3, is therefore to examine how greater gender equality might help to further progress on the MDGs.[5] In this part of the assessment, its likely cost-effectiveness or impact on various measures of economic performance is covered where relevant.

Greater gender equality does not necessarily lead to an instantaneous improvement in other development objectives. Many of the benefits arise at some point in the future, i.e. there is a time lag. Thus the benefits of educating girls are first reaped when they are adult, in the form of greater opportunities

5 As this part of the report focuses on meeting the MDG targets that do not have an explicit gender component (MDGs 1, 2, 4, 6, 7 and 8), it concentrates more narrowly on the aspects of gender equality that are captured by MDG 3 and MDG 5.

and higher incomes. Moreover, as women are often the primary carers of children, any advantages given to them will have a strong intergenerational effect, appearing in the better education and health of their own children. The lagged effect of these benefits is noted, as appropriate, throughout the report.

Finally, it should be kept in mind that this study concentrates on the instrumental case for gender equality, on why improving GE may, or may not, promote other development objectives. This means that two important strands of related discussion are not covered:

– *Evidence on the intrinsic case for gender equality*. This report takes the intrinsic case for GE as a given. Its purpose is not to provide an economic justification for gender equality but to discuss the circumstances in which further economic or development objectives may be realized by pursuing it. A separate report, also funded by DFID, and undertaken by the IDS, is examining the evidence associated with the intrinsic justification for GE. It is intended that the two reports will together provide a holistic assessment of the case for improving gender equality.

– *The reverse links between these development objectives, especially economic growth*, and gender equality. There is ongoing debate about whether or not economic growth, and the policies designed to facilitate it, contribute to greater gender equality. Probably the answer depends on the aspect of GE being considered, on the way in which growth is achieved and on the broader social and cultural context of the country in question (Berik et al., 2009). Although that is an important area of research, this report focuses solely on whether GE can contribute to meeting well-established development objectives.

2 How does gender equality promote economic growth?

Gender equality can promote economic performance by various means ('transmission mechanisms'). This chapter uses DFID's eight key factors for growth as a template and examines the evidence on the links between each of these factors and GE. These eight factors – human capital, physical capital, the rule of law, competitive markets, macroeconomic stability, infrastructure, openness to trade and investment, and increased agricultural productivity – are the most important conditions for ensuring that a strong economic performance will be established, and will endure, in a country.[6]

2.1 Gender equality increases the stock of human capital

A major way in which gender equality can contribute to economic growth is by increasing the stock of human capital. Human capital is defined as the skills, knowledge and physical capabilities that allow the labour force to be economically productive. Human capital has a quantitative dimension, such as the number of workers, and a qualitative dimension, such as the productive skills possessed by an individual worker.

There are five major channels through which GE can increase the stock of human capital:

- more educated women can undertake higher-value economic activity;
- as women are the primary carers of children, the human capital of the next generation is enhanced where women have more control over the household allocation of resources and family size;
- greater access to family planning leads to declining fertility and a 'demographic dividend' (where the ratio of working-age people to dependants in the population is high, increasing per capita output);
- reduced maternal mortality increases the number of women who can participate in the labour force and give care in the household; and
- reduced violence against women allows them to participate more fully in the labour market while reducing violence against girls at school increases the likelihood of them remaining in school, thereby improving the human capital of the next generation.

The evidence for each of these channels is examined in turn.

2.1.1 Gender equality in education will increase human capital

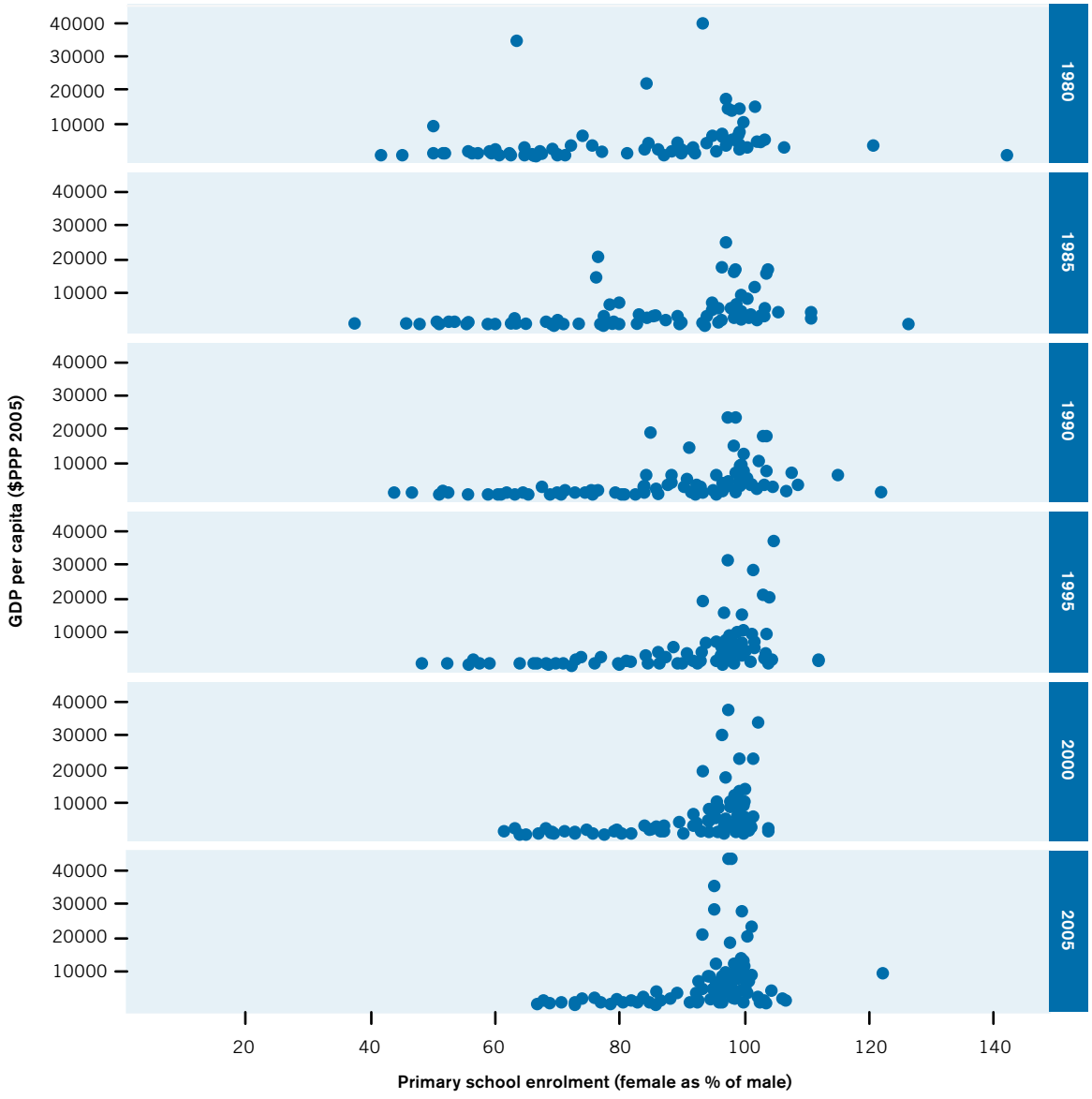
Better-educated girls and women can undertake higher-value economic activity. Increasing educational opportunities for women allows for a greater accumulation of skills and expertise in the labour force and thus raises the growth potential of the economy. In this section the pattern of evidence relating gender

6 This report does not examine the evidence on whether or not these factors do indeed promote growth. The interested reader is referred to DFID (2008) for this evidence. Nor does it address whether or not other factors, such as the sustainable use of natural capital, should also be included in this framework. However, these eight variables are factors associated with promoting economic growth, not absolute preconditions for it. Different factors will be more or less relevant for different countries at different stages of development. Also, there are different ways in which these factors can be promoted that will be more or less conducive to growth.

equality in education with economic growth is presented and, where possible, the causal relationship between the two is elucidated.[7]

Gender inequality in education has been falling since 1980. Figure 2.1 presents a snapshot of gender equality in education and GDP in 122 countries between 1980 and 2005. It shows the evolution of the

Figure 2.1: A county with a high GDP per capita and high gender inequality in education is rare



*PPP = Purchasing power parity
Source: Vivid Economics using OECD data.

7 There is a link between this section and section 3.1, where it is shown that women's earnings increase as they receive more education. If women are paid higher wages when they are better educated, then this is probably because they are producing more valuable outputs in the formal job sector. Aggregating this microeconomic evidence to the national economy would suggest that less gender inequality in education would lead to economic growth. It is not only the quantity of education but also its quality that is important. There is much research into the differences of the quantity of education received by males and females, but we have found no evidence suggesting a difference in its quality between the genders. However, this may reflect problems in measuring educational quality. Therefore, this aspect, although important, is not covered further at this stage of the report.

historical pattern between GDP per capita[8] and gender equality in education, measured as the female primary school enrolment rate as a percentage of the male enrolment rate.[9] In 1980, there were 30 countries where the rate of primary school enrolment for girls was less than 70 per cent of that for boys (and a rate of 50 per cent or less in five of those countries). In 2005, this was the case only in Afghanistan (59 per cent), Guinea-Bissau (67 per cent), Chad (68 per cent) and the Central African Republic (69 per cent). In addition, the number of countries where primary school enrolment rates are higher for girls than for boys increased from 8 to 19 over the same period. Figure 2.1 does not in itself provide any evidence of a causal relationship in either direction between gender equality and economic growth, and of course GE may affect growth with a time lag.

Countries with high gender inequality in education tend to be poor while higher-income countries tend to have greater gender equality. With the exception of oil-rich Oman, Bahrain and Saudi Arabia in the earlier years of the sample, no country has been observed with both a GDP per capita of over $10,000 and less than 90 per cent gender equality in education (see Figure 2.2).

Figures 2.1 and 2.2 demonstrate a positive correlation between gender equality and economic progress, but more substantive assertions, regarding causality or the magnitude of GE's impact, require econometric analysis. A number of studies have attempted to estimate the causal relationship; the best examples are Dollar and Gati (1999), Seguino (2000), Klasen (2002) and Klasen and Lamanna (2008).

Taken together, those econometric studies indicate that increasing educational opportunities for females can lead to higher economic growth. The results using the largest sample, including the most recent data, can be found in Klasen and Lamanna (2008). The headline results from that study are presented in Table 2.1. They suggest that economic growth since 1960 in sub-Saharan Africa (SSA), the Middle East and North Africa (MENA), and Latin America would have been appreciably higher if those regions had had the same levels of gender equality in education seen in East Asia and the Pacific (EAP). Estimates of the loss of growth owing to gender inequality in education range from 0.38 per cent per annum in SSA to 0.81 per cent per annum in South Asia (row C in the table below), and this accounts for between 11 per cent and 41 per cent of the growth difference between those regions and East Asia and the Pacific (row D in the table).

Table 2.1: Gender equality may account for 40 per cent of the growth gap between EAP and other regions

		Sub-Saharan Africa	South Asia	Middle East and North Africa
A	Annual average growth rate of GDP per capita (1960 to 2000 in $PPP, per cent per annum)	0.57	2.09	2.24
B	Difference between growth in region and the 4.05 per cent in EAP (per cent per annum)	3.48	1.96	1.81
C	Predicted additional percentage growth (range) if gender equality was as in EAP	0.38–0.46	0.81–0.97	0.41–0.70
D – C as a percentage of B	Percentage of the growth difference accounted for by gender equality	11–13	41–49	23–39

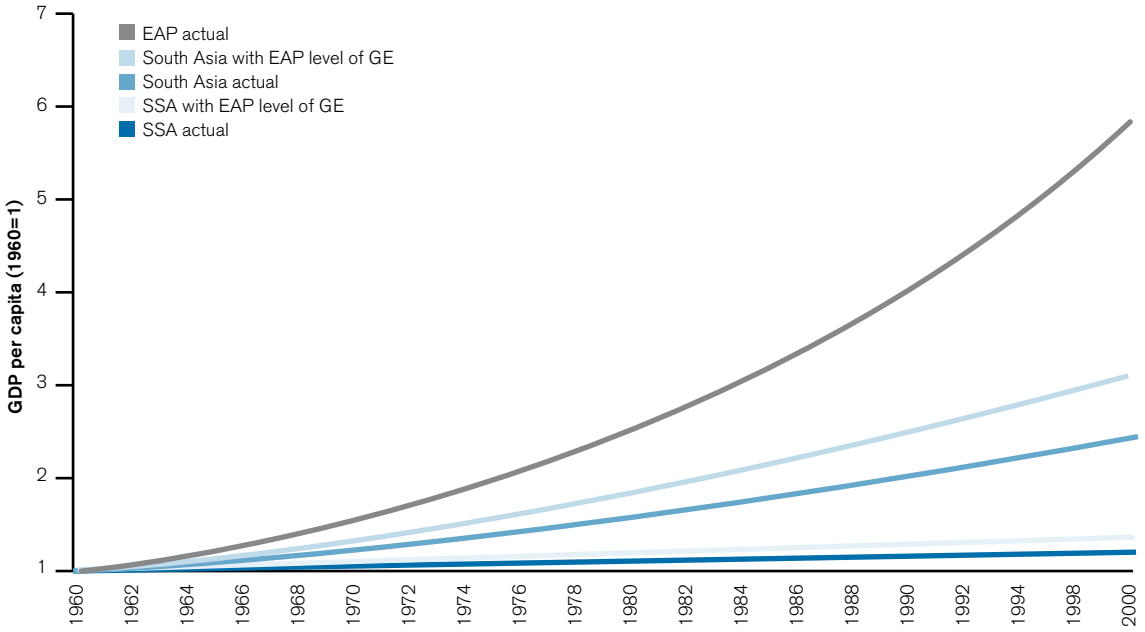
Source: Klasen and Lamanna (2008).

8 Measured in 2005 purchasing power parity-adjusted dollars.

9 The statistics on which Figure 2.2 is based are for countries in the OECD Gender, Institutions and Development Database.

An extrapolation of the additional growth that might have been achieved shows that more female education could have led to GDP per capita in sub-Saharan Africa 16 per cent higher than it was in 2000; in South Asia it could have been 37 per cent higher. Figure 2.2 takes the estimates from Table 2.1 and compares the counterfactual growth outcomes in sub-Saharan Africa and South Asia with the actual outcomes observed in those regions and in EAP.

Figure 2.2: Less gender ineqality in education since 1960 would have resulted in a higher GDP in sub-Saharan Africa and especially in South Asia



Source: Vivid Economics calculations from Klasen and Lamanna (2008).

These results are more sophisticated than those of a simple correlation analysis, but they should still be treated with care. Box 2.1 provides more detail on these issues. Three implications are clear:

1. The true causal relationship between gender equality in education and growth may be smaller and less significant than the estimates in Table 2.1.
2. In the right circumstances, virtuous circles can be created: less gender inequality in education can lead to economic growth, which can lead to even less gender inequality.
3. It is not universally true that reducing gender inequality in education will lead to growth. Instead, improving GE in education is an effective means of promoting growth only in countries where, in particular, social and cultural institutions are themselves conducive to growth and where employment equality also increases.

Examples of the diverse relationship between gender equality and economic growth in different countries are shown in Figures 2.3–2.7.[10] These figures show how one measure of gender inequality in education, namely inequality in current primary school enrolment rates, and GDP per capita have changed over the past three decades. Some countries have experienced strong economic growth with consistently low levels of gender inequality in (primary) education: Mauritius, Botswana, Chile, Sri

10 The data are not available for all years for all countries, and so the start and end years vary for each country but are generally 1980 and 2009 respectively.

Box 2.1: Econometric analysis of the relationship between gender equality in education and economic growth

The results of Klasen and Lamanna 2008) are generated using an ordinary least squares (OLS) estimation. The OLS technique uses differences between and within countries to gauge the effect of one variable.[a] Two key problems with an OLS estimation are that:

- it does not distinguish forward from reverse causality: greater gender equality in education promoting economic growth is not distinguished from greater economic growth promoting greater GE in education; and that
- the results can be misleading if a factor is not included in the estimation that affects both variables.

The focus of this report is gender equality's impact on growth, but there is also evidence that growth has a positive effect on gender equality in education. One study found that all aspects of gender inequality, including educational opportunities, tend to improve when a country's GDP per capita rises above $2,000 per annum (Dollar and Gati, 1999). This is probably due to opportunities and incentives: there are more opportunities for educated people in wealthier economies, and so it is in these places that the incentive to educate girls is higher. The exact nature of the relationship is disputed, and an extensive literature addresses this question. Nonetheless, it is clear that the causal relationship between economic growth and GE is reciprocal.

The second problem with results such as those in Table 2.1 is the possible failure to take account of factors that might affect both gender inequality in education and economic growth. For instance, Dollar and Gati (1999) find that gender inequality, in education and other dimensions, can largely be explained by the characteristics of a country, such as religion, civil liberties and other social and cultural institutions. They find that high female attainment in secondary education is associated with the Protestant Christian and Shinto religions, with strong civil liberties and with living in Latin America. Low achievement is associated with the Muslim and Hindu religions. If these factors also influence economic growth, then the relationship between gender inequality in education and economic growth reported in Table 2.1 will be mis-stated.

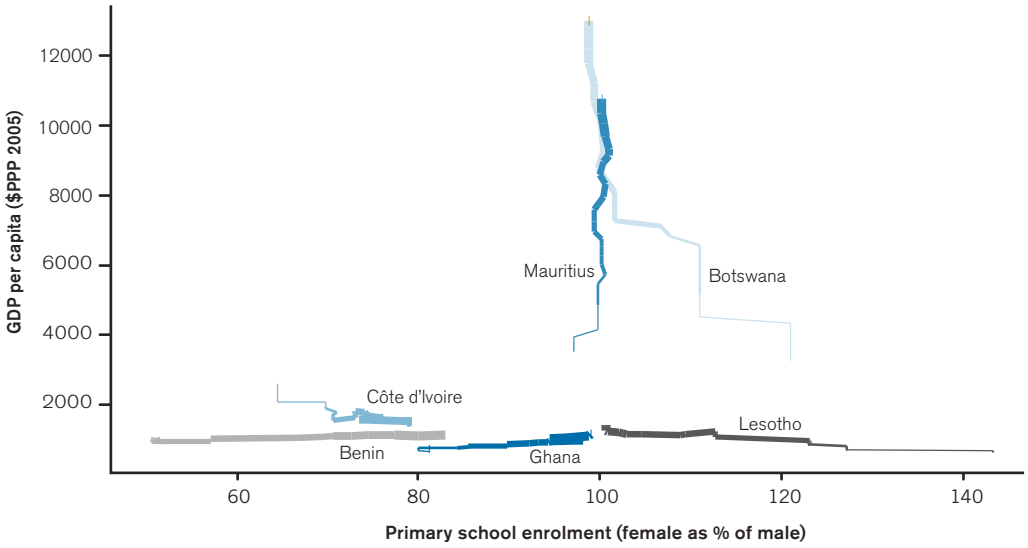
Attempting to adjust for social and cultural differences suggests a more nuanced view of the relationship between gender inequality in education and economic growth. Klasen and Lamanna (2008) use an alternative technique to try to account for this problem. Their method bases its results only on the differences observed over time in individual countries; it does not use cross-country comparisons. This means that effects that differ across countries but are unchanging over time, perhaps including social institutions, are not biasing the results. They find that the estimated effect of gender inequality in education on economic growth is smaller and statistically insignificant, but that a crucial reason for this is the inclusion of sub-Saharan Africa and Latin America in the 1990s and that the result becomes significant again if those data points are removed. Krueger and Lindahl (2001) also find that the effect on education and growth depends on conditions in individual countries.

To date, the literature on this topic has tended to use relatively simple econometric techniques. There have been a number of recent advances, particularly in the analysis of cross-country data sets with a long time-series dimension, that could be usefully applied to this issue and that would address questions both of reverse causality and differences in the nature of the relationship across countries (see Eberhardt and Teal, 2009).

a That variable here is the effect of the female-to-male ratio of the number of years of schooling for those aged 15 and above on economic growth.

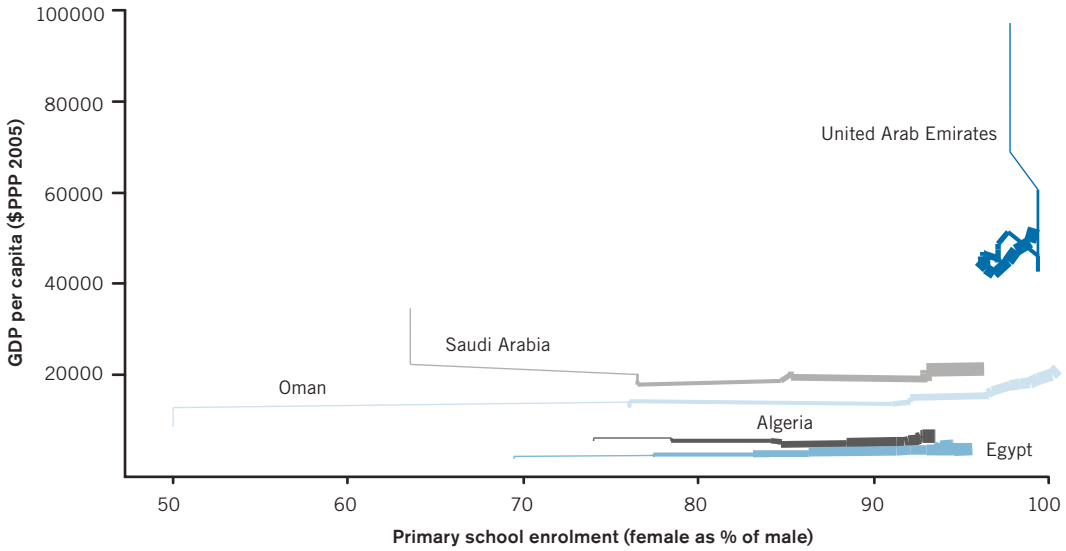
Lanka and Thailand are examples. In other countries, large decreases in gender inequality in (primary) education have not been associated with economic growth; examples are Algeria, Côte d'Ivoire, Saudi Arabia and Papua New Guinea. In Brazil, sustained economic growth has been achieved without significant improvement in the equality of enrolment rates. However, in many countries, such as Ghana, India, China and Pakistan, there was economic growth and a decrease in gender inequality in education.[11] In these figures the line becomes thicker over time. Thus the thin end of the line represents the beginning of the period and the thick end its latter part.

Figure 2.3: The relationship between gender equality in education and economic growth appears weak in sub-Saharan Africa



Source: Vivid Economics using OECD data.

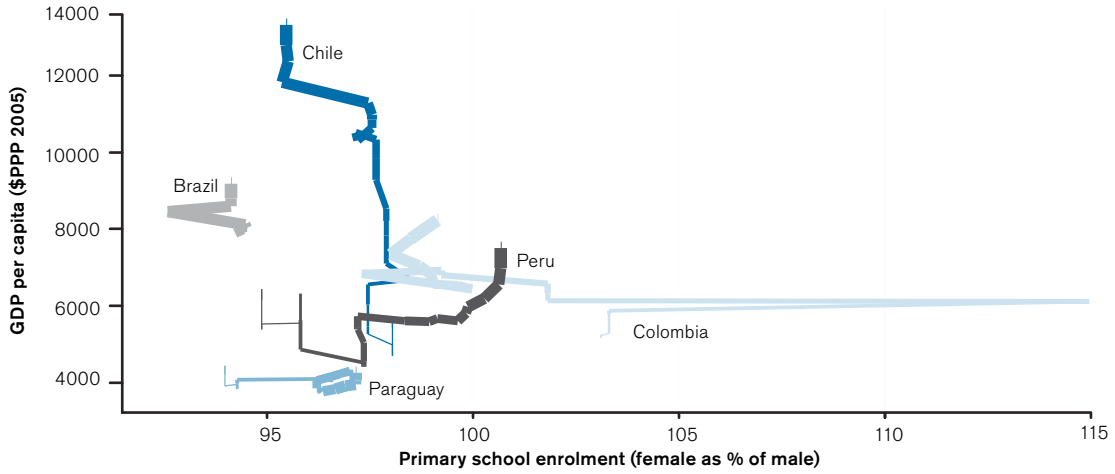
Figure 2.4: Decreasing gender inequality in education has not been associated with strong economic growth in many countries in MENA



Source: Vivid Economics using OECD data.

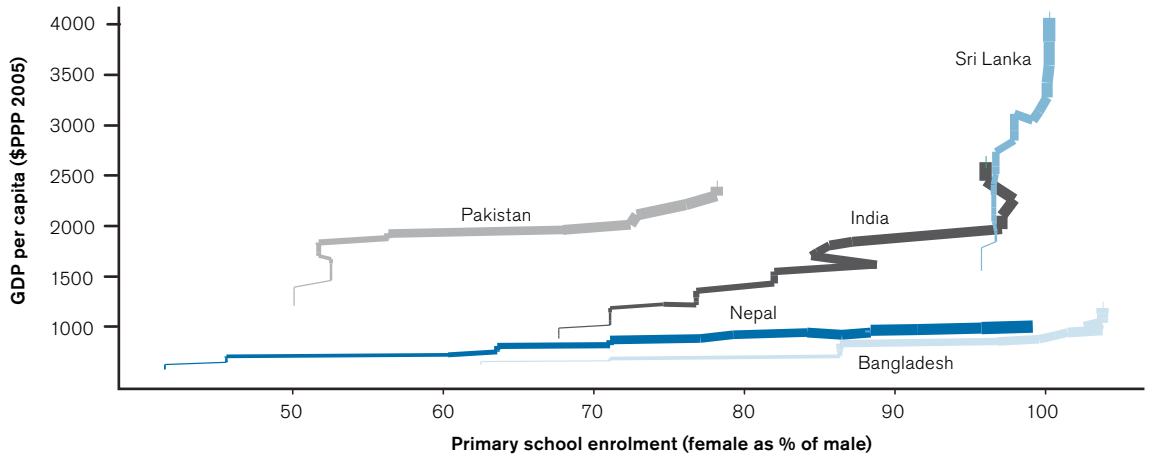
11 Figures 2.3–2.7 cannot be used to infer causality: they only demonstrate the existence, or otherwise, of a correlation between GDP and current primary school enrolment rates.

Figure 2.5: Most Latin American countries have low gender inequality in education



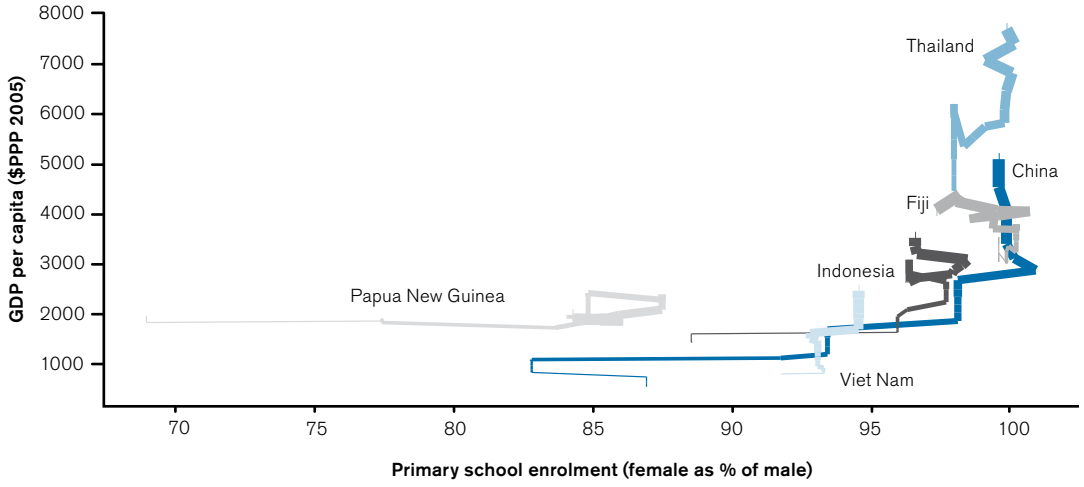
Source: Vivid Economics using OECD data.

Figure 2.6 South Asian countries have seen decreasing gender inequality in education as well as economic growth



Source: Vivid Economics using OECD data.

Figure 2.7: Countries in East Asia and the Pacific combine high growth and gender equality



Source: Vivid Economics using OECD data.

Box 2.2: The role of the garment sectors in Cambodia and Bangladesh

Cambodia and Bangladesh have traditionally ranked low in measures of gender equality. Yet in both countries the garment industry has for the first time provided significant opportunities for women to move from informal labour to wage employment.

Women in the garment sector, who constitute 80–90 per cent of the sector's labour force in Bangladesh and over 90 per cent in Cambodia, have benefited greatly from income growth. As the bulk of them are from disadvantaged rural communities and as women account for a disproportionate number of people living in poverty, increasing their income not only helps their lives but also benefits their families and the wider economy. Remittances are estimated to contribute directly to sustaining over one million Cambodians. And significantly, money received in remittances from women garment workers is used predominantly for family maintenance and the education of sons, daughters and siblings.

Evidence from Cambodia and Bangladesh suggests that families are breaking the trend of educating boys above girls: they believe that the girls will now be better able to obtain jobs in the city and send money home. Bangladesh's progress has been so marked in this regard that concern is now emerging that boys may be left behind.

Despite this, the number of male students in higher education, which is required for more skilled and senior positions, continues to dwarf that of women. And although the sector has clearly provided important employment opportunities for women in both countries, it follows that female representation in management is low owing to the limited number of sufficiently qualified women. It remains to be seen whether a time lag in educational improvements will be translated into women's better representation in management. There are, however, some positive signs, particularly with regard to entrepreneurship in Bangladesh, where 38 per cent of self-employed women are former garment workers.

Wage employment in the garment industry has also in some cases provided Bangladeshi and Cambodian women with better access to services such as maternity leave, family planning and health care. In contrast to Bangladesh's limited compliance with labour laws, Cambodia's garment sector has made great strides: women are now entitled to 90 days' maternity leave and an hour of breast-feeding during working hours, and a factory employing 100 workers or more must provide an operational day care centre or pay the women for the cost of providing day care. Although compliance rates remain relatively high, the vulnerability of the sector to the recent financial crisis is threatening to reverse some of these developments, raising questions about the long-term prospects for women's involvement in the labour force, for poverty reduction and for economic development.

The garment sectors of Cambodia and Bangladesh provide a complex snapshot of the relationship between gender equality and economic growth. Although the position of women in the labour force is inherently unequal – being able to pay them less, an assumption of their natural predisposition to garment work and less likelihood of them striking are often cited as reasons for employing women – the move of millions of women into the formal sector has reaped tremendous benefits both for them and their families. It has encouraged widespread progress in education and better access to health and has improved their decision-making power. And crucially, this move could offer enough of a step-change to see advances in attitudes towards women and their roles in society more generally.

Sources: Afsar (2003); Paul-Majumder and Begum (2000); World Bank (2008); Kabeer and Mahmud (2004); ILO/BFP (2005); Bauer and Thant (eds) (2010).

The relationship between female education and economic growth is context-specific, as indicated by the diversity of experience that Figures 2.3–2.7 and the associated literature show. As explained further below, Field et al. (2010) come to a similar conclusion about training. Less gender inequality in education does not necessarily promote growth. For policy-makers, it is therefore important to understand which characteristics predispose a country to be able to turn gender equality in education into growth.

The relationship between gender inequality in education and economic growth is stronger in middle-income countries (Dollar and Gati, 1999). In the poorest countries, the factors holding back economic growth are more likely to be a lack of physical capital or poor infrastructure than insufficient human capital. Figure 2.2 and Table 2.1 support the statistical analysis of Dollar and Gati (1999), as Klasen and Lammana (2008) estimate a greater 'growth dividend' from improving gender equality in education in South Asia and MENA than in sub-Saharan Africa. Evidence on the impact of education on female wages in formal and agricultural jobs in Pakistan, presented in Table 3.1 below, further corroborates this view: education does not appear to increase female wages in agricultural jobs but does so in formal-sector jobs.

Economies in which gender equality in education and economic growth have the strongest relationship are often those in which export-led industrialization with a focus on low-wage manufacturing has been important. Sri Lanka, Bangladesh and China are all examples of this. Low-wage manufacturing industries, often in the textile and garment sector, are likely to be an important destination for women once they have acquired more education (World Bank, 2001). However, the beneficial effect of more educated female workers on economic growth may be even stronger in cases in which gender equality in education is combined with gender inequality in wages. Seguino (2000) finds that GDP growth is positively related to gender inequality in wages.

Gender equality in educational opportunity will not lead to economic growth unless there is a cultural environment that allows women to participate in the labour force. Economic opportunities for more-educated women need to be combined with reduced inequality in employment. As a case of this, increases in the rate of female education in the 1990s in MENA did not result in economic growth, probably because the participation rate of women in the workforce did not increase (Klasen and Lamanna, 2008). Jütting and Morrisson (2005a, 2005b) also emphasize the critical importance of social institutions in mediating the effectiveness of policies intended to reduce inequality in female education and employment. They show that the degree of bias of social institutions against women – as illustrated by factors such as genital mutilation, polygamy, marriage before the age of 20, limits on the right to inherit and the right to access of property – is much greater in South Asia, sub-Saharan Africa and MENA than in Southeast Asia or Latin America and the Caribbean. They also find that Muslim, Hindu and animist countries tend to have higher levels of social discrimination against women than Christian and Buddhist countries and that there is a marked divergence between countries with the same religion, e.g. Pakistan and Malaysia.

Increasing the number of women in secondary and tertiary education is important. In countries (typically more advanced developing economies) where at least 10 per cent of females already have a secondary education, an increase of one percentage point in the number of adult women with a secondary school education raises per capita income growth by 0.3 percentage points (Dollar and Gati, 1999). This is corroborated by the more general findings on the links between education and economic growth referred to in the DFID paper on growth policy (DFID, 2008).

2.1.2 Empowering women in the domestic sphere leads to greater human capital accumulation in the next generation

Women contribute proportionally more than men to the accumulation of human capital in the next generation owing to their role as the primary carers of children. Almost all over the world, women directly contribute more to the rearing of children than men and they have the primary responsibility in the household for children's health, nutrition and well-being. The question here is how this contribution

to human capital formation would be altered in the light of greater gender equality, rather than how to estimate this undoubtedly enormous effect as a whole (Kabeer, 2003).

Gender equality, by giving women more bargaining power in the home, could improve children's health and educational opportunities, bringing clear and direct benefits for the future stock of human capital in an economy. The children of educated women are more likely to be healthy. Abu-Ghaida and Klasen (2004) estimate that on current trends, countries failing to meet MDG 3 could have on average by 2015 a prevalence of underweight children below the age of five, which is 2.5 percentage points, and an under-five mortality rate, which is 15 per 1,000 higher than if they had met the goal. These results may stem from an increase in women's bargaining power at home through employment, which in turn leads to greater investment in the health and education of their children. A study of the PROGRESA programme in rural Mexico (Bobonis, 2008) found that when women received payments from the programme, a higher proportion of the income was spent on the health and education of children than when similar increases in household income were achieved through rises in agricultural income (presumed to flow mainly to the male member of the household). Similarly, Thomas (1997) found in a study on families in Brazil that additional income to women had a statistically much greater impact on children's survival and nutrition than did income received by men. The increased human capital associated with improved children's health can be observed in adult life: for many developing countries, there is a strong positive correlation between adult height (an indicator of childhood nutrition and disease) and adult earnings (WHO, 2001).

Women with lower fertility appear to devote more resources to their children's education, but the evidence is nuanced. It might be expected that a larger size of family impairs children's health and education, as there is lower per capita consumption and fewer resources to invest in each child. However, a 2005 review of the links between reproductive health and poverty commented that 'while research on developed countries generally indicates that family size has a negative effect on child well-being; research in developing countries is less conclusive' (Greene and Merrick, 2005). Much of the evidence is nuanced and context-dependent.

Studies in Bangladesh, Ghana and the Congo have found that large family size retards children's educational enrolment and attainment. For example, Foster and Roy (1997) found in that Bangladesh, the provision of family planning services to women at age 16 led to a 12–15 per cent increase in schooling for their children. Three other studies have found that the presence in the household of preschool children in particular has a significant negative effect on schooling because older children may be withdrawn from school in order to help with childcare (Foster and Roy, 1997; Lloyd and Gage-Brandon, 1994; Shapiro and Tambasche, 2001).

However, some studies find counteracting factors. A large family may mean that remittances from older children can contribute to investment in younger children (Gomes, 1984). In addition, parents may place more value on education if there is an increased need for a cash income (Lloyd and Gage-Brandon, 1994). Studies with mixed findings include that by Maralani (2004). It noted that the effect of large family size on school enrolment in Indonesia differs by maternal age, with a positive effect among older mothers and a negative one among younger mothers, as well as between urban and rural areas. The reasons for this are unclear, and could encompass an array of social changes.

Maternal ill health harms children's health, well-being and educational opportunities. Children who have lost their mother are themselves more likely to die. The evidence for this linkage is reviewed in section 3.3.2. Moreover, studies in Tanzania and Indonesia have shown that a lack of maternal care also affects the health of surviving children and have found that children who have lost their mother are more likely to be stunted or malnourished (Ainsworth and Semali, 2000; Gertler et al., 2003). Jayachandran and Lleras-Muney (2009) have found that a dramatic reduction in maternal mortality in Sri Lanka between 1946 and 1953 appears to have led to a small but detectable increase in girls' schooling: for every extra year of female life expectancy, literacy increased by 0.7 percentage points and years of education increased by 0.11 years. It is not clear that a similar effect would follow in cases in which the decrease in maternal mortality was less conspicuous.

2.1.3 The decline in fertility associated with greater gender equality can have profound economic impacts

Women with control over their fertility tend to opt for smaller families. Fertility policies have had a dramatic effect in much of developing world, especially in Latin America and Asia. Between 1960 and 2000, average fertility in developing countries fell from six to three births per woman. But the poorest countries, particularly in sub-Saharan Africa, still have high fertility and a high unmet need for family planning.

Women with more education are likely to have fewer children. UN statistics clearly show this to be the case in all developing regions. In sub-Saharan Africa, Latin America and West Asia, women with a secondary or higher education have on average three fewer children than women with no education (UN, 2003). Abu-Ghaida and Klasen (2004)[12]estimate that by 2015, countries that fail to achieve the required level of progress on MDG 3 could have 0.1 to 0.4 more children per woman. One reason for this may be that, as noted above, the children of more educated women are more likely to survive, and thus couples need fewer children in order for a sufficient number to reach adulthood. The clear correlation between infant mortality and fertility rates is well established (WHO, 2001).

The main way in which family planning is thought to stimulate economic growth is through demographic change. There is much disagreement over whether and how absolute population size affects growth (Birdsall et al., 2001; Bloom and Canning, 2008; Ahlburg, 2002). In the past, scant evidence that rapid population growth has a negative effect on income growth led to the view that demographic factors were not important. A later, revisionist approach suggested that age structure was the most important demographic factor affecting economic performance.

A fall in fertility leads to a lower dependency ratio, which increases per capita output. Demographic transition creates a temporary period of 40 to 50 years in which the ratio of the working-age population to dependants is higher, increasing per capita output. East Asia has seen the world's most dramatic drop in the dependency ratio since the late 1970s, largely as a result of China's one-child policy: as much as one-third of its strong economic growth rate over this period is attributed to this 'demographic dividend' (Bloom and Canning, 2008). The lack of a demographic transition is linked to poor economic performance in Africa, with high dependency ratios likely to depress growth rates 'for decades', even if fertility were immediately to fall to the replacement level (Bloom and Sachs, 1998).

A decline in fertility will typically materialize only where lower fertility is desired and where cultural and informational barriers to family planning are not significant. An estimated 38 per cent of women of reproductive age who are married or in union[13] in the developing world are not using any method of contraception (UN, 2009b). Opinion is divided over whether large families are a rational and deliberate response to poverty, lack of social security and high infant mortality, with some authors arguing that income and societal development are the main drivers of low fertility (Bloom and Sachs, 1998). This is strongly disputed by others, who argue that most couples will opt for fewer children if given the choice (Cleland et al., 2006). Causes of unmet need for family planning may include a lack of physical access, but evidence suggests that use of family planning declines only modestly as distance or travel time to the nearest source of contraception increases (Cleland et al., 2006). Potentially more important is the quality of family planning services. Evidence suggests that most women at family planning clinics already know which form of contraception they wish to use and that failure to obtain that form may be the biggest deterrent to family planning'. (Pariani et al., 1991). And there are also informational barriers (concern about safety, not knowing how to use or to access contraception and underestimating the risk of pregnancy) and cultural barriers (religion, husband's objections) (Collumbien et al., 2004; Cleland et al., 2006).

A 'demographic dividend' will follow a decline in fertility only if other conditions for growth are in place. Between 1965 and 1990, the demographics of Latin America resembled those of East Asia. Nonetheless, it does not seem to have reaped a 'demographic dividend'. Bloom and Canning (2008)

12 See also for a review of the many other studies that have consistently shown that more educated women tend to have fewer children.

13 That is, having a marriage-like relationship and living in the same residence.

attribute this to 'episodes of high inflation and political instability, and aspects of trade policy and labour relations', which 'appear to have prevented many Latin American countries from exploiting their demographic window of opportunity'. Besides the requirement for political and economic stability, the cohort of working-age people created by this demographic transition will need to be sufficiently well educated and healthy in order to benefit from the decrease in dependence on them.

Where fertility falls to levels below replacement, demographic transition will eventually pose economic challenges in the form of an ageing population. No developing country has yet worked out the full consequences of having a high proportion of old-age dependants in the population, placing strains on health and pension provision. In China, the ratio of old-age dependants to those of working age is projected to increase by between four and six times between 2004 and 2050 (Lutz et al., 2007). The ultimate consequences of this are unclear, and will depend on how countries invest the economic surplus of their low-dependency-ratio years.

There is less direct evidence that women with smaller families will find it easier to engage in formal employment. The dependency ratio in the 'demographic dividend' literature does not take into account the fact that women caring for children are less able to work and may themselves be dependants. Smaller family sizes should allow women time to engage in work or other non-domestic activities, and some studies demonstrate this link. Padmadas et al. (2004) found that in Andhra Pradesh, women's reproductive span was a quarter of its length in the 1960s as a result of women choosing sterilization, partly to allow themselves opportunities for work and social activities. But the economic consequences were not estimated. The extent to which women with smaller families will choose to work may also depend on their potential earnings and their perceived economic necessity, related to their husband's earnings (Hausmann and Szekely, 2001).

2.1.4 Improving maternal health could have a small positive impact on economic output

Better maternal health increases human capital. Healthy women are better equipped, mentally and physically, to contribute to productive activities in the formal or the informal economy. In addition, they will be better able to gain skills and experience that increase their productivity and earning power, which prolonged absence through sickness would prevent.

The extensive literature on health and economic performance typically finds a positive link between better health and economic growth. In such studies health is measured by life expectancy or adult survival rates and is regressed with other variables against economic growth. For example, Bloom et al. (2004) used the results of several studies and estimated that an increase in life expectancy of five years typically adds 0.06 to 0.58 percentage points to growth in per capita income. Other studies have reached similar findings. The effect of maternal ill health on life expectancy can be used in conjunction with those findings.

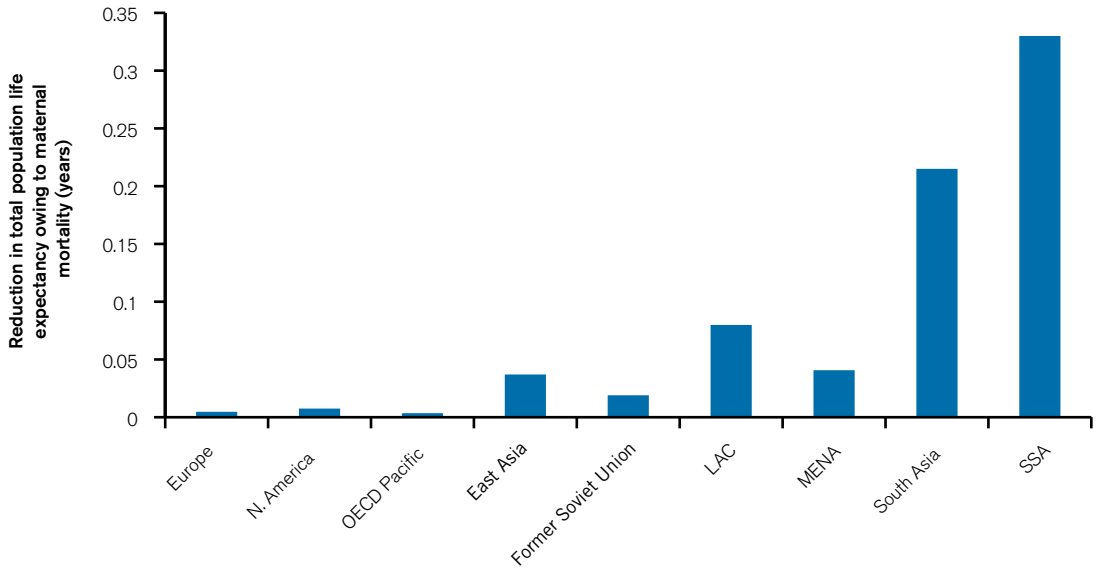
Although maternal ill health reduces life expectancy in some countries, the estimated direct impact on economic growth of improving maternal health is small. Figure 2.8 shows the degree to which total population life expectancy would be increased if maternal mortality were reduced to zero in different regions of the world.[14] Maternal mortality has a clear effect on life expectancy in some countries, taking on average one-third of a year off life expectancy in sub-Saharan Africa. But according to the growth rate estimates mentioned above, the improvement in health that this would represent would translate into only a small expected increase in growth rates for most countries (e.g., 0.02 percentage points for a mid-point estimate for sub-Saharan Africa).

More evidence is required in order to make the economic argument for promoting maternal health as forceful as the moral argument. There is a lack of evidence on the economic impacts of poor maternal

14 The lowest maternal mortality ratio of all regions is 11.9 per 1,000 for the OECD Pacific. (See note to Figure 2.8 for list of countries.)

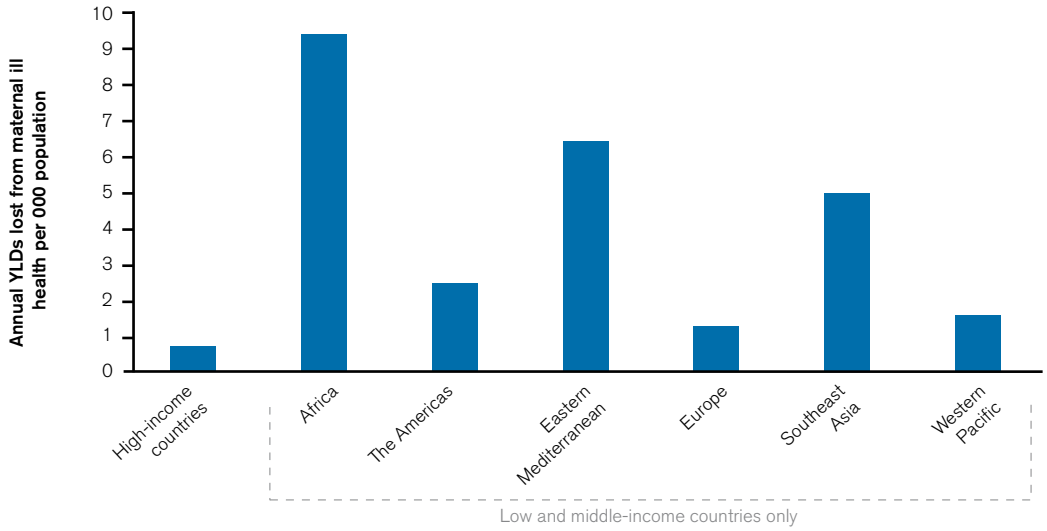
health (Wilhelmson and Gerdtham, 2006).[15] The economic arguments could be stronger if this gap were addressed. For instance, the estimates above are based on evidence related to general population health rather than to maternal health. They may be misleading, as they do not capture any differential impacts of maternal death, e.g. the potentially significant adverse effects of maternal mortality on children's health and education (see sections 3.2.2 and 3.3.2).

Figure 2.8: Maternal mortality subtracts a third of a year from life expectancy in sub-Saharan Africa



LAC = Latin America and Caribbean; OECD Pacific = Japan, S Korea, Australia and New Zealand; MENA = Middle East and North Africa; SSA = Sub-Saharan Africa
Source: Vivid Economics calculations using UN demographic statistics.

Figure 2.9: Maternal morbidity imposes a heavy burden of disease in Africa and other parts of the world



Source: WHO and Vivid Economics calculations.

15 There are estimates of lost productivity owing to maternal ill health in four African countries, reviewed in Islam and Gerdtham (2006). These have not been included here because of concern about the methodology. Similarly, USAID (2001) has argued that the combined impact of maternal mortality and the associated increased probability of newborns dying has an annual economic result in lost productivity (equivalent to a one-off reduction in economic output) of $15 billion. It is not clear how this figure has been derived.

In addition, maternal morbidity imposes a heavy economic cost in many parts of the world, particularly in Africa. Yet this impact has not been measured. WHO Global Burden of Disease data suggest that maternal conditions account for almost one-quarter of the years lived with disability (YLD) for women in the 15–59 age group in Africa, or roughly nine years for every 1,000 of the population (Figure 2.9). Morbidity in the eastern Mediterranean and South-East Asia is also high. However, it is not clear how this translates into lost working life.

2.1.5 Violence against women reduces the current and future stock of human capital in the economy

Violence against women reduces human capital. Women who experience violence are less able to contribute to productive activities, to gain skills and experience and thus to increase their productivity and earning power. For example, a study in Nagpur, India showed that 62 per cent of women had experienced violence in the past year and that 9 per cent of them had injuries serious enough to prevent them from working, in a job, in the household or both, for an average of seven days per incident. The study also reported that in 42 per cent of cases, the abusive partner also missed work for an average of 7.5 days per violent incident (ICRW, 2000).

Researchers are beginning to put monetary value on the loss of productivity resulting from violence against women. Ribero and Sánchez (2004), as reported by Skaperdas et al. (2009), found that in Colombia, women who experience severe domestic violence earn 70 per cent less in monthly income than do non-abused women. Translating this into macroeconomic outcomes, they estimate that violence against women led to a loss in productivity equivalent to 2.43 per cent of GDP annually.[16]

Violence against girls at school reduces their educational attainment. As violence against women reduces the current stock of human capital in the economy, so violence against girls at school can reduce the likelihood of school attendance and result in a longer-term depletion of the stock of human capital. A survey among Benin schoolchildren found that 43 per cent of primary students and 80 per cent of secondary students knew girls who had dropped out of school owing to sexual abuse (Wible, 2004).[17]

More work is required, especially in low-income countries, in order to further evaluate the costs of violence against women and girls.

2.2 Gender equality makes labour and product markets more competitive

2.2.1 Improving gender equality can make labour markets more competitive

Improving gender equality will make labour markets work better. If women do not have equal access to the labour market, then the quality of the labour force will be lower. If firms are not able or willing to employ the most productive workers, then output, and growth in output, will be lower than it could be.

In many regions, as gaps in inequality in education have narrowed, the importance of gender inequality in employment has increased. Table 2.2 shows that gender inequality in education has been reduced faster than inequality in employment in South Asia, sub-Saharan Africa and the Middle East and North Africa. But although the gender gap in education (as measured as the ratio of female-to-male years of schooling of those aged 15+) in SSA has fallen by two-fifths, inequality in employment (the ratio of female-to-male activity) has remained constant.[18] In MENA the size of the education gap has more than halved, but the gender gap in employment has fallen by only around half as much. As educated women take up available opportunities, the additional benefit of narrowing the education gap further becomes smaller because more of them cannot find productive employment. Thus it would be expected that gender gaps in employment would become a larger drag on growth as the education gap narrows.

16 Reversing this impact would lead to a one-off, permanent increase in GDP rather than to an increase in growth rates.

17 Based on a survey of 70 girls. It is not possible to identify how many separate cases of sexual abuse are implied by this finding.

18 The measure of inequality in education remains lower than that for inequality in employment in sub-Saharan Africa, but the two measures are not easily comparable on an absolute basis.

Table 2.2: Gender inequality in education has declined faster than that in employment in South Asia, sub-Saharan Africa and the Middle East and North Africa

	1960	1970	1980	1990	2000	CAGR[a] (1960-2000)
Inequality in education (ratio of female-to-male years of schooling of those aged 15+)						%
East Asia and the Pacific	0.59	0.67	0.70	0.76	0.74	0.6
South Asia	0.29	0.37	0.43	0.54	0.60	1.8
Sub-Saharan Africa	0.48	0.52	0.60	0.62	0.70	0.9
Middle East and North Africa	0.37	0.41	0.47	0.58	0.73	1.7
Eastern Europe and Central Asia	0.82	0.85	0.83	0.91	0.86	0.1
Latin America and the Caribbean	0.90	0.89	0.94	0.96	0.96	0.2
OECD	0.91	0.92	0.93	0.93	0.94	0.1
Inequality in employment (ratio of female-to-male economic activity, as defined by the ILO[b])						
East Asia and the Pacific	0.45	0.52	0.61	0.66	0.70	1.1
South Asia	0.52	0.53	0.53	0.55	0.59	0.3
Sub-Saharan Africa	0.75	0.75	0.75	0.75	0.75	0.0
Middle East and North Africa	0.24	0.27	0.31	0.34	0.41	1.3
Eastern Europe and Central Asia	0.67	0.73	0.79	0.81	0.84	0.6
Latin America and the Caribbean	0.30	0.34	0.41	0.49	0.56	1.6
OECD	0.41	0.50	0.62	0.73	0.77	1.6

a The compound annual growth rate (CAGR) is the average percentage change in a variable between two periods. Between 1960 and 2000, the ratio of female-to-male years of schooling in East Asia and the Pacific grew at an average rate of 0.6 per cent per annum.
b http://laborsta.ilo.org/definition_E.html.

Sources: Barro and Lee (2000) and Klasen and Lamanna (2008).

The statistical analysis by Klasen and Lamanna (2008), presented in Table 2.3, provides empirical support for this. Gender gaps in employment seem to explain a large extent of the growth differential between regions over time.

Reducing gender inequality in employment would have a large impact on growth in MENA and South Asia. Table 2.3 shows that the loss of economic growth in MENA in the 1990s resulting from gender inequality in employment was around four times as large as that resulting from inequality in education.

Microeconomic evidence from India further suggests that gender gaps in employment cause large losses in economic output. Gender gaps in employment and managerial positions have a marked adverse effect on the economic output of India's states (Esteve-Volart, 2004). Increasing the ratio of female to male managers by 10 per cent could lead to a 2 per cent increase in per capita output; a similar increase in the ratio of total workers could increase per capita output by 8 per cent. These differences result from a distortion in the allocation of talent to managerial and unskilled positions: if women cannot access managerial positions but have access to unskilled jobs, then the wage rate for unskilled workers is lower than it would be with no discrimination. This in turn entices less competent men to switch from being unskilled workers to becoming entrepreneurs (a subset of managerial positions will be those managing their own businesses), thereby reducing the average talent of managers and slowing down economic growth.

Table 2.3: Gender equality in education and employment, taken together, can explain most of the difference in growth rates between EAP and both MENA and South Asia

Predicted additional growth if gender equality was same as EAP (% p.a.)	1960s	1970s	1980s	1990s
Middle East and North Africa (MENA)				
from inequality in education	0.18	0.29	0.27	0.24
from inequality in employment	0.75	0.86	0.96	1.06
percentage of gap with EAP explained	175	78	45	84
South Asia	0.37	0.41	0.47	0.58
from inequality in education	0.25	0.22	0.29	0.32
from inequality in employment	-0.17	0.09	0.34	0.45
percentage of gap with EAP explained	4	8	332	97

Sources: Klasen and Lamanna (2008) and Vivid Economics calculations.

Discriminatory social norms that expect women to undertake the bulk of domestic work are often a barrier to greater female participation in the labour force. In one case, Fafchamps and Quisumbing (2003) find 'overwhelming evidence' that societal factors help to explain the allocation of household tasks in rural Pakistan – men engage in market-based activities such as farming, herding and other income-generating activities, and women undertake domestic activities – even after economic factors such as differences in human capital between members of the household are taken into account.[19]

2.2.2 Product markets are more competitive if all would-be entrepreneurs can use their talents

Discriminatory laws and social norms are a barrier to female entrepreneurship in some low-income countries. Female entrepreneurs in developing countries may receive different treatment relative to men with respect to access to institutions and credit, property rights, taxation and their opportunity to start a business. For example, in the Democratic Republic of Congo, women cannot purchase property, sign contracts or incorporate businesses without their husband's authorization; in Cameroon, Togo, Sudan and Rwanda, husbands can prevent their wives from working (World Bank, 2010).

As well as discriminatory laws, childcare and domestic responsibilities impede female entrepreneurship. According to ILO labour market statistics, the proportion of women working in the formal sector in developing countries is the same as for men (57 per cent). However, 28 per cent of working women are self-employed, compared to 34 per cent of men. The remainder are unpaid workers in family enterprises (Sinha et al., 2007). Childcare and domestic responsibilities help to explain this difference. A study of female entrepreneurs in Latin America found that although 50 per cent of micro-enterprise owners were female, only 12 per cent of companies with 11 employees or more were female-owned (Bruhn, 2009). Childcare and household obligations were the only factors cited appreciably more by female entrepreneurs than by males as obstacles to a company's operation and growth.

The likelihood of improving rates of female entrepreneurship will depend on social norms. Field et al. (2010) find that upper-caste Hindu women benefit from training in basic financial literacy and business skills – measured in terms of the likelihood of taking out a loan – in a way that Muslim women and lower-caste Hindu women do not. They argue that this is because lower-caste Hindu women are already aware of entrepreneurial opportunities and thus receive little benefit from the training while Muslim women face too many other social strictures to be able to exploit their training: 'The training

19 As discussed in section 2.1.1, access to education may itself be affected by discriminatory social norms.

helped women whose businesses had been held down by social restrictions but women subject to extreme restrictions had too little agency to easily change their aspirations or activities.' This is analogous to the findings on improving rates of female education: the economic effect of both depends on whether social norms are sufficiently permissive.

However, there is little research linking these restrictions to general economic performance. For example, it is understood that an inability to secure rights to even modest properties, and therefore to use them as collateral for loans, can be a barrier to entrepreneurship and investment in poor countries (de Soto, 2001; Besley, 1995). But there is no evidence about how this may impede growth by frustrating female entrepreneurs specifically. These barriers to female entrepreneurship and self-employment undoubtedly exist, and the understanding of how they impede economic development could be much improved.

2.3 Gender equality may increase investment in physical capital

There are three ways in which greater gender equality could lead to greater investment in more and better physical capital: by increasing the productivity of the workforce, making investment in new technologies more attractive; by increasing domestic savings rates and thus the funds available to finance new investment; and by women making more productive investment decisions than their male counterparts.

2.3.1 A more productive workforce attracts investment

Although its impact is small, gender inequality in education and employment may reduce the incentive to invest. As discussed above, improving gender equality in education and employment can lead to economic growth if it increases the skills and expertise of the labour force. There are indirect effects too. The incentive to undertake physical investment is determined by the expected rate of return made on the investment. This in turn will depend on the size of the existing capital stock, the productivity of the labour force and the technology with which inputs are combined into outputs. Gender inequality in education and employment lowers the average productivity of the labour force, thereby limiting economic growth by lowering the return on new investment. This is clear from Table 2.4 where this indirect effect is shown in bold. This effect is relatively small but it is statistically significant. Moreover, new investment not only increases growth directly, it is also necessary for economies to adopt more productive technologies such as those used by manufacturers in East Asia. These impacts are further corroborated by Busse and Nunnenkamp (2009), who find that developed-country foreign firms responded with additional investment in middle-income countries that adopted greater gender equality in education in the period 1980–2005.[20]

Table 2.4: Gender equality in education has an indirect impact on growth by increasing investment in physical capital

	SSA	South Asia	MENA
Predicted additional growth if gender equality were as in East Asia (per cent per annum)			
Direct effect	0.22	0.45	0.33
Indirect effect via investment	**0.07**	**0.14**	**0.07**
Indirect effect via population growth	0.10	0.29	0.17
Indirect effect via labour force growth	-0.01	-0.04	-0.02

Source: Klasen and Lamanna (2008).

20 They do not find a similar effect in low-income countries. They attribute this to the fact that in these countries most foreign direct investment is concentrated in extractive industries, for which skilled labour is less important.

Box 2.3: Exploring business perspectives on gender equality

In order to highlight current business perspectives on gender equality, 20 major international businesses were invited to participate in a survey as part of this project. Ten responded positively, but only five interviews could be conducted in time to contribute to this report. The parent companies of those five firms had combined annual sales of over $550 billion in 2009. They manage in total a global network of over 100,000 first-tier suppliers.

The survey focuses on evidence and examples of business practices – both in companies' operations in the developing world and in how they work with suppliers. The lessons from this limited survey shed light on current trends as well as on potential barriers to progress. These lessons could be extended and tested by further research.

All five companies had specific policies on equality, such as those promoted by the Ethical Trading Initiative, and this may explain why they agreed to participate in the first place. In their view these commitments, introduced in the past 10–15 years, have helped to integrate ethical principles into business practice, including addressing discrimination in the workplace. In some but not all cases, these discrimination issues are gender-specific or have an important gender dimension.

Three of the five firms have already gone a step beyond anti-discrimination measures and invested in pro-women or pro-gender equality projects. They stressed that these projects were ad hoc rather than systematic and comprehensive, but each was able to give concrete examples in which they believe that there has been a significant effect on a local community or workforce. For example, a leading UK supermarket claims to be the first private-sector company in Ghana to offer paternity leave, a health clinic and a crèche, and over 50 per cent of its management team in that country are female.

A number of critical preconditions had to be met before any of the companies would consider investing in gender-focused activities. They agreed that local cultural differences could be a major challenge to successful implementation of gender-related activities. One firm, another leading supermarket, said explicitly that a clear legal framework was necessary before a project could be implemented. Another pointed to internal constraints: difficulties in understanding the local environment (and thus where to target and deliver investment) and limited budgets for relevant activities.

The companies mentioned two potential factors in developing a stronger business case for pursuing gender equality:

- *Product differentiation*. A leading beauty brand explicitly uses pro-women messages in marketing its products, indicating that there is consumer interest. The other four companies took a contrasting view: consumers were in general unlikely to pay more for products that had a positive impact on women. One business said that its detailed consumer surveys had confirmed this perception.
- *Productivity improvements.* All five companies confirmed that if there were clear evidence that stronger GE would boost productivity and profitability, they would be much more inclined to invest. But none of them felt that the evidence to date had demonstrated a robust business case.

Nor did any of the five companies feel that pressure from shareholders and investors had become a significant driver. Until firms, driven by competitive pressure, perceive a stronger business case for gender equality, they are likely to treat it primarily as a social responsibility issue.

At least one company collects data on its suppliers, including statistics on female participation, as part of its anti-discrimination activities. This could be the starting point for a deeper, firm-level analysis of the effect of gender equality on the bottom line – and therefore the place to start constructing a positive approach for businesses based on profit as well as social awareness.

There is one positive aspect of the perception that addressing GE is not a competitive issue: firms are willing to work with their competitors on anti-discrimination projects in developing countries. Indeed, one saw that as the future of activities in this area.

2.3.2 A higher domestic savings rate makes more funds available for investment

Improving women's income can lead to a higher formal domestic savings rate. A study of 20 semi-industrialized countries found that both the ratio of female-to-male earnings and the female share of employment in manufacturing had a significant positive effect on domestic savings rates (Seguino and Floro, 2003). This could indicate a higher female propensity to save, which may cause domestic savings rates to rise if income is redistributed from men to women. For example, Seguino and Floro found that in one set of results, an increase of one percentage point in the female share of the wage bill raised the aggregate savings rate by 0.25 per cent of GDP. As the female share of the wage bill was in the region of 15–40 per cent for most countries in the study, achievement of parity could have a correspondingly large effect on the aggregate savings rate. These macro-level studies are unable to provide detail on explanations of women's greater inclination to save, which could include greater longevity or more cautious expectations over future income. Data for less-developed countries are unavailable.

A higher domestic savings rate can be channelled through the financial sector, especially via established micro-banks, in order to make financial capital available for investment by companies. It is likely that in many developing countries, access to international capital markets will be limited, making the domestic pool of savings the most important source of funds for new capital investment needed to stimulate growth.[21]

The likelihood of gender equality leading to higher domestic savings is country- and culture-specific. The link between GE and savings in a country is also likely to depend on interest rates, expectations of future taxation, the prevalence of informal savings programmes, such as credit unions, and cultural expectations, for example if women are expected to help finance their weddings or younger siblings' education (Seguino and Floro, 2003). Goetz and Gupta (1996) show that in Bangladesh women may be discouraged from saving for fear that they will lose control of their assets to men. Moreover, if women opt for informal savings programmes that do not make funds available for investing in businesses, a higher propensity to save will not lead to greater investment in physical capital.

There is no evidence that women experience formal restrictions on accessing savings products, but there may be other barriers to saving. The literature on financial services tends to address women's access to formal credit arrangements rather than savings products, and analysis of gender barriers to saving is extremely limited (UN, 2009c; World Bank, 2007). While there is no evidence available on formal restrictions on accessing savings products, other impediments to saving may include lower and more uncertain incomes, travel restrictions, lack of financial infrastructure in poorer areas and control of household resources by male relatives (UN, 2009c; World Bank, 2010; Goetz and Gupta, 1996).

2.3.3 Women may make more productive investments

One reason why women are targeted in microfinance schemes is that they are believed make more productive investment decisions than men. Microfinance organizations aim to increase growth in the

21 Although there is a positive linkage from higher female income to higher savings rates which would be expected to lead to greater investment and higher growth, there is also evidence, set out below, that gender wage inequality may make export sectors in an economy more competitive.

informal sector of developing economies by providing finance for small-scale (often non-agricultural) entrepreneurial activities. Microfinance schemes focus disproportionately on women as their client base. For instance, in 2009 almost 97 per cent of Grameen Bank's 8 million borrowers were women.[22] This is partly due to the empowerment benefits that borrowing brings them (Amin, Becker and Bayes, 1998).[23] However, it is also due to a view that women may make more productive use of the finance.

Most studies agree that women make different investment decisions from men. For instance, Pitt and Khandker (1998) show that every 100 taka borrowed by women from microfinance organizations in Bangladesh led to an increase in household consumption by 18 taka; the increase was only 11 taka if the loan was taken by a man. They also find that providing credit to women rather than men increased the probability of children being enrolled at school. They suggest that these findings may result from the fact that providing credit to women opens up greater production opportunities than if the credit was given to men and thus has a larger impact on household income. If replicated by all households, this would have an effect on the general level of economic activity in the economy. Repayment rates by women are also higher (de Mel et al., 2008).

It is less clear whether or not the investment decisions made by women support growth. Others have suggested that women may use the credit only to achieve a modest improvement in household earnings so that they can increase their family's welfare while men may focus more on exploiting business expansion opportunities. Consistent with this, Matienzo (1993) and de Mel et al. (2008) report higher rates of return for male-owned businesses supported by microfinance than for similar female-owned businesses. This would be consistent with the findings of most of the literature from both experimental studies and field studies that women are more risk-averse (Eckel and Grossman, 2008). Kevane and Wydick (2001), examining microfinance schemes in Guatemala, find that during their childbearing years, female entrepreneurs supported by microfinance are unable to generate as much employment in their business as their male counterparts but that when they pass their mid-thirties, these differences largely disappear.

When women do not make as productive investment decisions as men, this may be because of discrimination in the household. De Mel et al. (2008) demonstrate that their findings that women make less productive and profitable investments than men are consistent with the idea that women may be vulnerable to having their investment 'captured' by the male member of the household. To try to prevent this, women may invest in equipment instead of working capital or inventory, even if it yields very little or no return.[24]

2.4 Gender inequality reduces agricultural productivity

There are a number of reasons why gender equality is relevant to agricultural development. The World Bank's Gender in Agriculture Sourcebook (2009) discusses several of them, including GE's role in ensuring the efficiency of production and in affecting the distribution of income and household welfare and its status as a basic human right. In view of the focus of this report on how gender equality can affect economic growth, evidence is presented in relation to efficiency of production only. The literature discussed has been chosen on the basis that it measures changes in output or income that may be achieved by improving gender equality.

There is clear evidence that female-owned plots are less productive than ones owned by men and that reducing inequality in the allocation of resources in the household could increase income for agricultural households. In some countries, notably low-income ones where small-scale agriculture is important, this could have an appreciable impact on the level of economic output and, possibly, on growth.

22 Grameen Bank Performance Indicators and Ratio Analysis: http://www.grameen-info.org/index.php?option=com_content&task=view&id=632&Itemid=664 Accessed 7 June 2010.

23 This is contested by some authors. See Mallick (2002).

24 De Mel et al. (2008) is based on a randomized experiment in which participants were provided with grants rather than loans.

Box 2.4: Shea butter

The shea tree grows in a 3-million km^2 belt across sub-Saharan Africa. The harvesting and processing of shea nuts into butter is a labour-intensive but lucrative activity carried out exclusively by women.

Men dominate the trading and wholesale market for the export of shea nuts, but women trade at the local level. They represent 91 per cent and 88 per cent of shea traders in the markets of Zitenga, Burkina Faso and Diepani, Benin respectively (FAO, 1999). Continued access to shea and to trade opportunities is becoming more crucial than ever for rural African women. The growing number of single-income households headed by women – as a result of AIDS-related deaths or the rise in the seasonal urban migration of the male labour force (CIA, 2010) – makes the shea trade and female financial independence increasingly indispensable.

Access to capital is a major hurdle to women's participation in processing and increasing the capacity for it (FAO, 1999), and the formation of women's groups or cooperatives has had a marked effect on access to credit and investment. By improving access to markets and investing pooled resources at the community level, the cooperatives are geared towards improving efficiency and raising standards of living. One organization in Ghana reported an increase in profits through the formation of a cooperative from $0.02 per kilogram to $0.10 per kilogram (IPS, 2008). Moreover, if women are allowed to contribute more to domestic income, they enjoy increased status at the household level and, by extension, the community level.

Investments by various shea cooperatives include labour-saving devices such as mechanical grinding mills and oil extractors, which improve production efficiency; community infrastructure in the form of water wells and pipes, medical clinics and schools; courses on literacy and business so as to foster entrepreneurial and managerial skills; and IT training, which affords access to market price data, new markets and a plethora of information on new initiatives, labour laws and best farming practices (IICD, 2010).[a]

Besides financial gain, shea projects and cooperatives have produced substantial social benefits by providing a forum for the development/expansion of social initiatives such as health care, nutrition and voting rights (Shea Project, 2008). Customarily, women in rural Africa tend to have very little formal education and thus are excluded from traditional employment. Education projects play a major role in teaching women about the shea market and production standards. In a similar vein, access to technology has opened up new markets and increased their awareness of this unique industry. The development of female entrepreneurial skills and ownership of shea businesses is crucial for gender development in sub-Saharan Africa.

The shea trade has attracted support from a number of external donors and NGOs, raising the profile of women and their shea projects. The government of Burkina Faso, for example, has established a coordinating committee to manage the growing number of shea projects in sub-Saharan Africa.[b] This committee, set up as a direct result of the growth of shea trade, enjoys a high profile and puts rural African women firmly on the political agenda (Harsch, 2001).

a The Zantiébougou Women Shea Butter Producers Cooperative was trained by the International Institute for Communication and Development to use computers.

b The committee is headed by Ms Giserle Guigma, the minister for women's advancement.

In most countries the distribution of physical and human capital for agriculture favours men. Differences in rights and responsibilities in the household lead to an inequitable distribution of resources, and that reduces agricultural productivity. Compared with agricultural plots managed by men, women's

plots typically have significantly lower yields and lower inputs of labour; they use fertilizer less intensively and make lower profits.

This discrimination is inefficient. As increasing the amount of resources devoted to a plot results in smaller and smaller increases in output (the law of diminishing marginal returns), more output would be generated by applying resources equally to all plots managed by a household.

There is good evidence that achieving gender equality could increase agricultural profits and yields. Goldstein and Udry (2008) find that in Ghana, differences in profitability between men's and women's plots can be explained by the longer fallow periods on men's plots. If all plots were left fallow for an equal period, then the median change in profits per household would increase by 25 per cent. They calculate that in view of the share of agriculture in the Ghanaian economy, this could increase Ghana's GDP by one per cent, although it would be a one-off gain and would not affect growth. Similarly, Udry (1996) finds that in Africa, female-managed plots are farmed less intensively and that a reallocation of resources in the household could increase output by six per cent. Alderman et al. (1995) estimate that household output in Burkina Faso could be increased by 10–20 per cent by reallocating resources more efficiently among plots. Gender discrimination is a major source of this inefficiency. The World Bank (2005) concludes that there is significant lost output and growth in agriculture in sub-Saharan Africa as a result of gender inequality, and it documents a number of studies showing that reducing gender inequality, for example in the allocation of fertilizer, could increase output by between 10 per cent and 20 per cent.

The reasons for discriminatory resource allocation vary across countries. Policies for increasing agricultural productivity through promoting gender equality need to be tailored to the cultural and environmental context. For instance, in Burkina Faso the documented gender pattern in agricultural production can be accounted for entirely by the obligations placed on the head of the household, who is usually a man. Kanzianga and Wahhaj (2010) find that in Burkina Faso, plots owned by the head of the household are farmed more intensively than similar plots owned by other household members of both sexes.[25] This implies that status in the household rather than gender *per se* is the most important factor in the allocation of household resources. Heads of households are subject to social norms that require them to spend more of the earnings from their plots on household public goods. Consequently, improving a woman's status in the household might not result in gains in agricultural productivity.

2.5 There is less evidence on the impact of gender equality on other key factors

2.5.1 The impact of gender inequality on the rule of law

Improving gender equality is associated with lower levels of corruption. Swamy et al. (2001) look at the relationship between corruption and various measures of female engagement in public and economic activities and find that

- an increase of 25 percentage points in the proportion of female members of parliament (MPs) is associated with a one-point improvement in the International Country Risk Guide's index of corruption – the index ranges from 0 to 6 ;
- an increase of about 13 percentage points in women's share within the labour force is associated with a one-point improvement in the same ICRG corruption rating.

The finding on the relationship between the proportion of female MPs and corruption should, however, be treated with a degree of caution. To achieve the 25 percentage-point improvement stated

25 The intensity with which a plot is farmed refers to the intensity with which inputs are applied, for example fertilizer, labour and machinery. This is separate from the length of time that a plot is left fallow. There is an optimal time for leaving a plot fallow, but credit or other constraints may mean that some plots have fallow periods that are too short. Thus these results from Ghana and Burkina Faso are not necessarily inconsistent, although practices are likely to differ between the two countries.

by the authors would imply an increase of more than 3.5 times in the proportion of women MPs.[26] Extrapolating the relationship between the two variables to predict what would happen if one of the variables changed by such a large magnitude reduces the credibility of the conclusion.

The reasons why women appear to be less corrupt are not identified, nor has the possible magnitude of this impact on economic growth been researched. With regard to the reasons for their findings, Swamy et al. explicitly state that 'the gender differences we observe may be attributable to socialization, or to differences in access to networks of corruption, or in knowledge of how to engage in corrupt practices, or to other factors. We do not attempt to identify these underlying factors, but rather to document several statistically robust relationships that point towards a gender differential in the incidence of corruption.'

2.5.2 The impact of gender inequality on the provision of infrastructure

Greater political representation for women is associated with the provision of a different mix of public goods. Chattopadhy and Duflo (2004) show that in India, a woman as the head of a village council affects the type of public goods provided: women leaders invest more in infrastructure directly relevant to the needs of their own gender. For example, in West Bengal women are more concerned about, and spend more money on, drinking water and roads than on other public goods while in Rajasthan women are more concerned than men about drinking water but less about roads. In both cases, the expenditure by villages with women leaders reflected this.

However, no studies have examined whether this alternative mix of public goods is better at promoting economic growth. If the provision of female-relevant public goods is inefficiently low owing to discrimination or societal institutions, then increasing the number of women in influential positions could lead to additional growth. This is likely to be country-specific.[27]

2.5.3 The impact of gender inequality on openness to trade and investment

There is substantial localized evidence that women face barriers in small-scale border trade but there are no estimates of the effect of this on economic growth. For example, women face greater delays at border crossings and may be subject to cultural restrictions, meaning that they cannot travel alone (Shaw, 2010). These barriers are similar to the barriers women face when becoming entrepreneurs: a lack of access to resources such as land or collateral for loans can prevent them from taking advantage of profitable trading opportunities. There are no reliable estimates of the impact of these barriers on economic growth or on the extent to which trade would increase if they were removed.

Trading opportunities will be enhanced by greater human and physical capital, and improvements in these characteristics through GE can enhance the potential of trade to lead to economic growth. For example, enhancing the productivity of women through secondary and tertiary schooling will increase the rate of return on capital and could encourage foreign direct investment in export-orientated sectors.

Wage inequality may increase competitiveness in labour-intensive export industries in the short term. Many countries, particularly in East Asia, have achieved sustained increases in GDP through a focus on exports of labour-intensive manufactured goods. Women make up a large proportion of the workforce in many labour-intensive manufacturing industries such as cut flowers, textiles and garments (Çağatay, 2001). Gender inequality in wages is associated with increased exports of labour-intensive goods (Busse and Spielmann, 2006; Seguino, 2000). Where inequality in education is reduced (making female workers more productive) but the wage gap persists, the profitability of those industries will be increased. This will lead to greater job opportunities for women, but there may be negative impacts if women spend less time on household activities and children are withdrawn from school to do household duties in their place. Blecker and Seguino (2002) develop a theoretical model that predicts the effect on trade of reducing wage inequality. They find that it is different depending on the specific values of some

26 The mean percentage of women in parliament for the countries analysed is 9.7 per cent, and the standard deviation is only 8.2 per cent.

27 It is plausible that the public goods that women favour will be inefficiently low if the costs associated with the under-provision of these public goods are borne disproportionately by women and children and these costs are given less weight by male leaders.

economic factors (such as the price elasticity of exports and the marginal propensities to consume out of income from wages and income from profit. Empirical testing of these models would be a useful addition to the trade and gender literature.

There is a large literature on whether or not trade liberalization promotes gender equality, but that issue is not within the scope of this report.

2.5.4 The impact of gender inequality on macroeconomic stability

There does not appear to be a direct link between greater gender equality and macroeconomic stability. Specifically, there does not appear to be any evidence that greater GE leads to a more effective use of monetary and fiscal policy in smoothing out fluctuations in macroeconomic aggregates, e.g. output, employment and inflation.[28]

There are some indirect links: in particular, increased female participation in politics may lead governments to adopt more redistributive policies. Studies undertaken primarily in the developed world suggest that an expansion of the female franchise is associated with increases in government programmes with a redistributive or social insurance element. For instance, Abrams and Settle (1999) found that expanding the female franchise in different cantons of Switzerland was associated with more redistributive policies and higher overall government spending but lower government consumption spending Lott and Kenny (1999) find broadly similar results from the US. Such policies would help to smooth out fluctuations in aggregate demand although they would need to be funded by additional taxation, which would introduce its own distortions.

One paper has suggested that more female participation is associated with lower government budget deficits. Krogstrup and Wälti (2007) find that the expansion of female suffrage in Swiss cantons reduced budget deficits by a small but statistically important amount. They attribute this to the higher life expectancy of women as well as to women's greater concern about the potentially harmful consequences of debt accumulation on future generations. At extreme levels, high levels of national indebtedness can lead to macroeconomic instability owing to high debt servicing costs and pressure for currency depreciation. But this finding has yet to be corroborated by other studies and may be driven by the specifics of the Swiss data.[29]

Evidence on the links between gender equality and macroeconomic stability is still at an embryonic stage; and even where links have been suggested, their impact on economic growth is ambiguous. More research is required in order to understand whether or not female participation in politics might have an effect on macroeconomic stability. For instance, besides a dearth of studies on the effect of GE on macroeconomic variables, there is an absence of studies examining the impact of the expansion of the number of female parliamentary representatives (as opposed to female suffrage) and of studies with a developing-world focus. Further, in cases where a link between gender equality and macroeconomic variables has been suggested, it is still unclear whether this relationship will necessarily support economic growth. For instance, there is an ongoing debate about whether increasing the role of government in national output will have a positive or negative effect on economic growth (Tanzi and Schuknecht, 1997).

2.6 Summary

Table 2.5 summarizes the evidence of and key message for each of the critical factors for growth, and associated transmission mechanisms discussed above. It shows that there is some relationship between gender equality and seven of the eight factors.

There is a strong link between gender equality and some of these factors. The links appear to be strongest in the case of human capital accumulation, in improving the competitiveness of (labour) markets

28 There is some evidence from developing countries that there is a gender bias in the impact of monetary policy (see Braunstein and Heintz, 2008); but, as with all these reverse linkages, that is outside the purview of this report.

29 One of the two cantons that introduced female suffrage first had by far the largest budget deficit, and thus may have been under pressure to reduce it anyway. By contrast, the two cantons that introduced female suffrage last had the lowest budget deficits.

and improving agricultural productivity. In many countries, the link to physical capital accumulation will also be important, but some of the evidence for this is available only for semi-industrialized countries. In the case of human capital accumulation, an increase in employment opportunities for more educated girls and improved access to family planning, allowing countries to exploit a 'demographic dividend', appear to be the most important factors.

Table 2.5: Summary of evidence on transmission mechanisms

Key factor	Transmission mechanism	Evidence
Human capital	More educated girls and women can undertake higher-value economic activity	Context-specific. Appears strongest in countries with an export-focused manufacturing base and few cultural barriers. Secondary and tertiary education particularly beneficial
	Greater control for women in the domestic sphere (household resources and family size) augments the human capital of the next generation	Women are more likely to spend household income on children. Large family size may not always adversely affect education; although there is strong evidence that the presence of pre-school children has a detrimental impact on older siblings' education
	Greater access to family planning leads to declining fertility and a 'demographic dividend'	Significant impact as long as other preconditions for growth are in place
	Better maternal health increases the number of women who can participate in the labour force	Little evidence available on the effect on economic growth; more specific studies required
	Women suffering violence are less able to participate in the labour force	Initial studies suggest a potentially important impact
Competitive markets	Improving gender equality can make labour markets more competitive	Growing in importance over time. Often inequality in employment has a larger effect on growth than does inequality in education
	Increasing the entrepreneurial opportunities for women increases the competitiveness of product markets	Well-documented evidence on legal barriers in some countries but no empirical link made with growth
Physical capital	Higher household savings rates through more female employment and through equal distribution of income allowing greater investment	Evidence focused on semi-industrialized countries
	Rising gender equality may boost the profitability of investment	Small effect, as higher-skilled women raise productivity faster than wages go up, boosting rates of return
	Women make more productive investments than men	Mixed evidence. Women may focus on using profits to purchase household goods rather than reinvest in business, especially during child-bearing years
Rule of law	Precise transmission mechanism unclear	Small but significant relationship between rising female political and workforce participation and lower levels of corruption
Infrastructure	Women and men prioritize different public goods. Precise transmission mechanism unclear	Unclear whether alternative priorities of women generate higher growth

Agricultural productivity	Discrimination means resources not allocated efficiently to household plots	Household income in Africa could increase by up to 25 per cent; conditional upon cultural context
Openess to trade	Discrimination prevents women engaging in trade	Significant localized evidence but no attempt to assess overall impact
Macroeconomic stability	Female suffrage leads to different role of government in economic sphere	Limited evidence suggests that women prefer redistributive policies and possibly lower deficits. Link to growth not yet established

Source: Vivid Economics based on sources referenced in the text.

But even in many of these cases, the arguments for why gender equality will promote economic growth are more subtle than they may at first appear. Where human capital accumulation is increased by girls receiving more educational opportunities, the evidence suggests that this will have the strongest impact on growth in cases where there are also employment opportunities for women and (potentially) where countries have a sizeable export-focused manufacturing sector and have already reached middle-income status. Improving gender equality in secondary and tertiary education also seems more important than ensuring universal primary education. Likewise, in the case of agricultural productivity, which could have a greater effect on low-income countries, policies aimed at exploiting this transmission mechanism will need to be tailored to the cultural and environmental context if GE is to lift growth.

Gender equality may, in some instances, impede economic growth. Although education and equality of employment opportunity will often have a positive impact on growth, gender wage equality may reduce growth. Gender wage inequality is associated with increased exports of labour-intensive goods (Busse and Spielmann, 2006; Seguino, 2000), which have been a major source of growth for many developing countries in recent years.

For other factors, more evidence is required. In many cases, there is evidence that gender inequality can restrict a country's performance against a given factor, but the effect of this reduced progress on economic output or growth has not been assessed. Examples of this include improving the competitiveness of markets by removing barriers to entrepreneurial activities for women, increasing flows of trade by removing (often similar) barriers and reducing levels of corruption (but the effect here is expected to be small). As for provision of infrastructure, it is unclear whether women's different priorities for infrastructure would promote or impede economic growth. The outcome is context-specific. Similarly, it seems likely that women may have different macroeconomic priorities from men, but again it is unknown whether or not this is conducive to growth.

3 How does gender equality help to attain the MDGs?

This chapter examines the potential repercussions of greater gender equality on achieving the six Millennium Development Goals not explicitly related to it. There is evidence that GE has a relationship with all the other MDGs (see Figure 3.2 below).[30] The focus of this analysis is on aspects of gender equality captured by the indicators in MDG 3 and MDG 5, namely:

- The ratio of boys to girls in education;
- The proportion of women in wage employment in the non-agricultural sector;
- The proportion of seats held by women in national parliaments;
- The maternal mortality ratio;
- The proportion of births attended by skilled health personnel;
- The contraceptive prevalence rate;
- The adolescent birth rate;
- Antenatal care coverage; and
- The unmet need for family planning.

In taking this approach, it is recognized that improving gender equality can be relevant to the MDGs in ways not captured by the above indicators.[31]

3.1 MDG 1: Eradicate Extreme Poverty and Hunger

3.1.1 Increasing female education and employment can reduce poverty by increasing incomes

Increasing the amount of education received by women could increase income and help to eradicate poverty. Education can increase the level and the growth rate of income regardless of the gender of those receiving it. But because women are generally less educated than men, there is greater scope for increases in income through the education of females, particularly in developing countries. Psacharopoulos and Patrinos (2002) review the global evidence on the rate of return to education and conclude that, on average across all studies, an additional year of schooling increases wages by 10 per cent and that the average return for women is slightly higher than that for men.[32] There will, of course, be significant variation from this average across countries and in different contexts within countries.

The relationship between earnings, employment and education is different in Africa and some other developing-country regions than in developed economies. In developed economies, the rate of return is often higher for primary education than for other levels and lower, but still positive, for secondary and tertiary education. In many developing countries, notably in Africa, the reverse is true. The early years of schooling have a small impact on wages and productivity, and the additional return from a further year of education increases as the total number of years of schooling increases.

30 For MDG 8, 'Develop a Global Partnership for Development', there is only a small amount of evidence.

31 The reader is referred to World Bank (2003), which, although systematically setting out the links between gender equality and the Millennium Development Goals, does not include improved reproductive health in the scope of gender equality.

32 The rate of return to education is the incremental increase in earnings that would be expected if a worker completed an additional year of schooling. These estimates are derived from regressions, which typically control for other factors, such as age and work experience, that also affect earnings. The rate of return is conditional on all these other factors. It is how much the earnings of an individual worker would be expected to increase if she received another year of schooling, holding all her other characteristics constant.

The rapid expansion of basic education in Africa has not increased incomes. The evidence from returns to education from increased schooling in Africa suggests the need for a more nuanced picture of how increasing educational opportunities for women may reduce poverty. More schooling leads to higher wages, primarily because it allows people to make life-choice decisions that are associated with higher incomes, e.g. to move into the labour market, to move out of the agricultural sector or to move into a skilled job. Once people are in a particular job or sector, the amount of education they have had has little effect on their wages until they have more than around 10 years of schooling. A few extra years of primary education is unlikely to significantly affect life opportunities and will have less impact on poverty. Consequently, the rapid expansion of compulsory education in Africa has not led to sustained increases in income or to economic growth. The rate of return to education in this context is actually quite low (Knight et al., 1992; Bigsten et al., 2000). A further contributory factor may be that the quality of primary education in Africa is too low to have a marked impact on incomes and growth, but there are limited data for quantifying the extent of this (Hanushek and Wöβmann, 2007).

Consequently, to get the biggest boost in aggregate lifetime earnings, it may be better to focus resources into giving secondary and tertiary qualifications to women who already have primary schooling than into expanding the number of women who receive basic education. For women with opportunities to enter skilled jobs in the formal sector, such as those in urban areas with a manufacturing industry, the effect on their wages of giving them secondary or tertiary schooling will be greater than the increment they would get if they had no schooling and were given basic education only. For unskilled workers, the benefits from work experience may be higher than those from formal education; from the narrow perspective of lifetime earnings, these workers may be better off with additional years in the labour market than in schooling unless they are going to receive more than around 10 years of schooling.

Women may see larger increases than men in earnings from additional education, as long as they secure employment in the formal sector. Kingdon and Söderbom (2007) find that the earnings premium from education is higher for women than for men, whether waged or self-employed. For example, Table 3.1 shows that if a young Pakistani woman who has completed middle school is given a year of secondary education, her expected wage would increase by 39.5 per cent; a similar man would expect an increase of only 2.7 per cent. Completing primary school increases the expected earnings of a woman by 45 per cent and those of a man by just under 10 per cent. By contrast, educating young Pakistani women does not have a positive impact on their earnings in agriculture.[33]

Table 3.1: Education increases wages for Pakistani women in wage employment but lowers wages for those in agriculture

Increase (per cent) in earnings from an additional year of schooling if that year is …	Young men (waged)	Young women (waged)	Young men (agriculture)	Young women (agriculture)
Primary (5 years)	1.9*	7.8*	4.5	-15.4
Middle (3 years)	2.6*	2.0	6.9	-50.7
Secondary (2 years)	2.7*	39.5*	13.3	-22.4
Higher secondary (2 years)	5.8*	2.3	14.3	-43.2
Tertiary (any further)	9.0*	9.5	-1.5	-70.8

Statistically significant results are marked with an asterisk.
Source: Kingdon and Söderbom (2007).

33 The strongly negative rates of return for young Pakistani women employed in agriculture may due to a number of reasons. It may reflect that education does not equip them with the skills needed for agricultural employment. However, it is possible that it reflects a 'selection bias', i.e. that women who return to agricultural work after receiving an education are typically low-productivity workers. It may also reflect difficulties in measuring rural employment. In any event, the results are not statistically significant.

Increasing the proportion of women in the non-agricultural sector will also enhance poverty reduction by increasing the return women receive from education. The findings of Kingdon and Söderbom (2007) support this. Women experience higher returns in the formal wage sector than in the agricultural sector, and thus reducing gender inequality in employment will increase the incentive for females to acquire an education and result in them having a higher income.

In many cases, investment in physical capital is likely to have a greater impact on poverty reduction than is investment in education. Without a sufficient stock of physical capital, increases in education cannot be used productively, and thus do not contribute to growth in GDP or earnings. The results of the study by Bigsten et al. (2000), shown in Table 3.2, indicate that firms in Africa achieve much higher returns by deploying additional physical capital[34] than by employing more educated workers. This suggests that workers' productivity, and therefore their wages, would increase more if greater physical, rather than human, capital were employed.

Table 3.2: In sub-Saharan Africa the rate of return on physical capital greatly exceeds that of human capital

	Cameroon	Ghana	Kenya	Zambia	Zimbabwe
Impact on individual earnings (per cent increase in earnings for each additional year)					
Primary school	2	3	4	7	7
Secondary school	6	6	12	16	19
Post-secondary education	12	12	20	25	31
Average	8	9	10	16	16
Impact on company's value-added (rate of return, per cent)					
Physical capital	17	27	22	10	34
Human capital	4	4	3	1	2

Source: Bigsten et al. (2000).

3.1.2 Increased gender equality will also improve child nutrition

As well as reducing poverty, greater gender equality would give women higher status in the home, which in turn would have a positive effect on the nutrition of children. Smith et al. (2003) conclude that gender inequality makes the greatest contribution to regional differences in child nutrition, with children having better nutrition in regions where there is less gender inequality. In South Asia, they estimate that an increase in gender equality would reduce the proportion of underweight children aged less three years by around 13 percentage points; the corresponding decrease in sub-Saharan Africa would be 3 percentage points.

3.1.3 Direct evidence on the impact of improved reproductive health on poverty is less strong

Evidence that better maternal health has a direct impact on poverty reduction is scarce. As much of this topic is covered in other sections detailing the effects of poor maternal health on economic growth (section 2.1.4) and on children's health and education (sections 3.2.2 and 3.3.2), the rest of this section addresses links between family planning and poverty reduction.

Some studies are unequivocal that lower fertility rates reduce poverty. In a study of 59 countries, Eastwood and Lipton (1999) estimated that if the birth rate had decreased by five per 1,000 in the 1980s, the proportion of people living in poverty would have fallen by one-third. Retardation of economic growth and distributional effects were found to have equal weight in keeping poverty rates high. It may be reasonably argued that having a larger number of children will lead to lower household earnings (owing

34 Physical capital means buildings, land, plant and machinery used by firms.

to a woman's reduced ability to work), lower per capita consumption and lower investment in the health and education of each child (see section 2.1.2), thereby contributing to intergenerational poverty.

Others have argued that a lack of family planning is only associated with poverty and that causation is difficult to prove and very context-dependent. Direct causal links are difficult to establish because of the degree of simultaneous causality between poverty, fertility and other household-level variables, and relationships may be associative. A review of the link between reproductive health and poverty reduction by Greene and Merrick (2005) found general agreement that it depends on external factors: the link will be stronger in countries with higher returns to labour, at a later stage of their demographic transition, with little state provision of child services or in which families are more 'nuclear' and self-reliant and there is little extended family support.

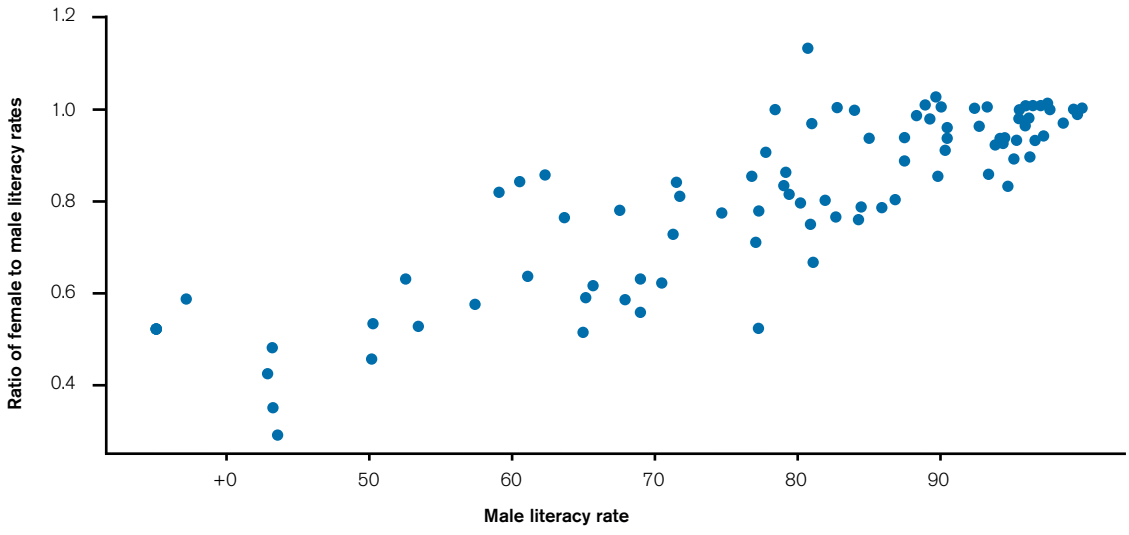
Within countries, there is strong evidence of a correlation between household poverty and childbearing. On average, the poorest 20 per cent of women in developing countries have a fertility rate twice that of the wealthiest 20 per cent (Gwatkin and Rutstein et al., 2004). The association may be partly because larger families are a rational response to poverty and a lack of social security. But this is strongly disputed by some authors, who argue that most couples will opt for fewer children if given the choice (Cleland et al., 2006).

3.2 MDG 2: Achieve Universal Primary Education

3.2.1 Achieving universal education and reducing gender inequality in education are mutually reinforcing

Inequality in education is greater in countries with low average levels of education. Achieving MDGs 2 and 3 appears to be mutually reinforcing. Figure 3.1 shows that improving the general level of education (MDG 2) is associated with reducing inequality in education (MDG 3). In countries where there is a low male literacy rate, there is not only a low female literacy rate: the female literacy gap is also larger. One possible reason for this is that when there are few employment opportunities, there is less wish to increase competition for that employment by also educating women. This suggests that tackling MDG 2 and MDG 3 in tandem, through, for instance, a policy of promoting general increases in education and expanding employment opportunities in the formal sector for all workers, would be an effective strategy to promote gender equality.

Figure 3.1: The lower the literacy rate of males, the larger the gap between male and female literacy rates



Source: OECD data.

3.2.2 Better reproductive health can improve children's educational outcomes in some circumstances

It is self-evident that better maternal health should improve children's life chances, but the current evidence linking it to children's educational outcomes is weak. There are three main ways through which improved maternal health can affect children's education: smaller family sizes, allowing more resources per child; maternal labour (either in the home or in earning extra income), allowing children to attend school; and better child health, improving educational ability.

Large family size is most likely to harm a child's education if he or she has siblings of preschool age. Evidence on the links between family size and education was reviewed in section 2.1.2. Although some studies find that family size hinders children's educational enrolment or attainment, others find the relationship to be less clear-cut, for example because of the additional household income that older siblings can provide. The most important factor appears to be the presence of preschool children, which studies agree can lead to older children being withdrawn from school. According to some research, girls appear more likely than boys to have their education curtailed (Foster and Roy, 1997).

Lower fertility rates lead to greater societal resources for children's education. The effects of higher fertility on children's education extend outside the home: a country with a growing number of young people needs to spend an increasing amount on education merely to maintain quality. This effect has been noted by several authors (Cleland et al., 2006; Bloom and Sachs, 1998) but it remains unquantified.

There is some evidence that maternal death can reduce children's years of schooling. Studies in Mexico and Indonesia have found that after a parent's death, children have less chance of enrolling in school and are more likely to drop out (Gertler et al., 2003). A mother's death appeared to be significantly linked to delayed entry into school in both countries and to drop-out rates in Mexico. This could indicate that care from mothers in children's early years is particularly important for ensuring school enrolment.

The education of young mothers themselves can be disrupted by pregnancy. As well as facing increased health risks, adolescent mothers are very likely to drop out of school, either temporarily or permanently, impairing their education and future opportunities. Studies in Cameroon and South Africa have demonstrated the impact of pregnancy on school drop-out rates. It has been estimated that about one-quarter of the gender gap in secondary school attendance in Cameroon is attributable to pregnancy (Eloundou-Enyegue, 2004). Grant and Hallman (2006) found that 45 per cent of girls aged 14–19 who became pregnant during school years dropped out and did not return; a further 29 per cent dropped out for a time. Girls without support from older female relatives are especially likely to leave education for good.

3.3 MDG 4: Reduce Child Mortality

3.3.1 Gender equality in education and other areas would reduce child mortality rates

The children of more educated women enjoy better health. Several studies have shown that better and more widespread female education reduces child mortality. Cross-country studies have estimated that an additional year of female education in developing countries reduces the under-five mortality rate by 12–18 per 1,000 (Schultz, 1997; Abu-Ghaida and Klasen, 2004). Other studies have found links between female education and a reduced incidence of undernutrition in children (Smith and Haddad, 1999; Klasen, 2003). Women with more education are more likely to use maternal health services and antenatal care, and the same is also likely to be true of women in employment (Kirrin et al., 2007).

This link has direct consequences for meeting child mortality targets. As already discussed in section 2.1.2, Abu-Ghaida and Klasen (2004) estimate that by 2015, countries failing to meet MDG 3 could have a prevalence of underweight children under five 2.5 percentage points higher, and an under-five mortality rate that is 15 per 1,000 higher than if they had met the goal.

3.3.2 Improved reproductive health could substantially reduce child mortality rates

There is a clear link between maternal health and neonatal mortality. Obstructed labour and malpresentation are the two greatest risk factors for neonatal death. It is estimated that 30–58 per cent of

neonatal deaths are due to obstetric complications (Lawn et al., 2005). Antenatal health problems such as poor nutrition, hypertension, anaemia and malaria also contribute significantly to the risk of neonatal death. Low-birthweight babies from undernourished mothers account for 60–80 per cent of neonatal deaths (Lawn et al., 2005).

Children whose mothers die in childbirth are less likely to survive. A study in Nepal showed that infants whose mother died during childbirth were six times more likely to die in the first week of life, 12 times more likely to die between one week and one month and 52 times more likely to die between one month and six months (Katz et al., 2003) than infants whose mother survived childbirth. Studies in Bangladesh have found that girls are more likely to die than boys after an adult death. Specifically, girls are 40 per cent more likely to die after maternal death at the age of up to 1 year and 100 per cent more likely to die at up to 5 years. They are 22 per cent more likely to die after an adult death at any age (Roy et al., 2001; Strong, 1992).

Averting neonatal deaths by better provision of maternal care is a very cost-effective medical intervention. One study suggests that providing for all pregnant women in the developing world with a currently unmet need for maternal and newborn health services could save six million maternal disability-adjusted life years (DALYs)[35] and 35 million newborn DALYs. The cost of saving a healthy year of life would range between US$122 in Asia and US$320 in Latin America and the Caribbean (Singh et al., 2009). This makes it a 'very cost-effective' intervention in all these regions in the light of thresholds developed by the World Health Organization.[36]

There is much evidence on the links between maternal and neonatal mortality but less on the impact of maternal death on older children's health and well-being. One study (Gertler et al., 2003) reports that research in Indonesia and Mexico had found that maternal death is a strong predictor of child mortality (and that paternal death is less of a predictor in Mexico and not one at all in Indonesia).

Lack of access to family planning has an adverse effect on child health too. Women who have borne many children can suffer from nutritional depletion, which puts their babies at risk. Infants born to mothers who have had more than six children are 40–50 per cent more likely to die (Lawn et al., 2005), and for children conceived within 18 months of their mother's previous birth there is a 40 per cent greater risk of low birth-weight and prematurity (Zhu et al., 1999). It is estimated that 9 per cent of deaths in children under five years could be averted by increasing the intervals between pregnancies (Cleland et al., 2006). Children in larger families in developing countries are more likely to be shorter, especially if the family has surpassed its desired size (Desai, 1995). In addition, mothers who are unintentionally pregnant are less likely to seek antenatal care, and their children are less likely to be well nourished and to be immunized (Acharya, 2004).

Providing greater access to family planning, by reducing the number of unwanted pregnancies, can further increase the cost-effectiveness of maternal care provision. One study has estimated that for every dollar spent on providing modern contraceptives, $1.40 would be saved in medical care costs. The lowest-income countries would benefit disproportionately from these savings (Singh et al., 2009).

3.4 MDG 6: Combat HIV/AIDS, Malaria and Other Diseases

3.4.1 Gender inequality is a barrier to combating HIV/AIDS and other diseases

Empowered women are better able to protect their health. HIV/AIDS, malaria and respiratory infections are some of the leading causes of female death in low-income countries (WHO, 2009). Women may lack information or resources to protect their health owing to a lack of education, a low income, unequal control of resources in the household and restrictions on their mobility (Sen et al., 2007). It follows that improved gender equality in income and education will enable women to be more informed

35 DALYs are a measure of overall disease burden. They take into account years of life lost and the equivalent years of 'healthy' life lost by having poor health or a disability.

36 The thresholds are determined by reference to a country or a region's GDP per capita. An intervention is classified as very cost-effective if it is lower than the GDP per capita (in 2005 international dollars). An intervention with a cost-effectiveness of less than $1,695 would be classified as very cost-effective in any region of the world. See http://www.who.int/choice/costs/CER_levels/en/index.html.

about disease prevention and to access health care for themselves and their children, and they will also be less likely to put themselves at risk of contracting HIV through commercial sex work.

Gender inequality increases the risk that women will contract HIV. In South Africa, Dunkle et al. (2004) find that after adjusting for other risk factors, women subject to gender-based violence and experiencing low levels of control in their relationships were at increased risk from HIV infection. Increasing women's access to education has also been cited as an important tool in stopping the spread of HIV/AIDS (Türmen, 2003).

However, in some countries, many of the factors that make women vulnerable to HIV infection are cultural and may not be addressed directly through improved female education and income. These include socially accepted infidelity by men, expectations of early sexual activity by girls and an aversion to the use of condoms (WHO, 2003).

The incidental impact of family planning programmes on HIV infection rates should not be overstated. Family planning clearly overlaps with the prevention of sexually transmitted disease, particularly HIV/AIDS. But barrier methods are a relatively uncommon family planning method in developing countries compared with sterilization or intrauterine contraceptive devices (UN, 2009b).

3.5 MDG 7: Ensure Environmental Sustainability

3.5.1 The greatest environmental impact of improved gender equality is likely to be through the decline of fertility

Reductions in population growth, brought about by greater choice over family planning, may place less pressure on the environment. Choice about family planning allows fertility to decline: other things being equal, a population that is smaller relative to what it would otherwise have been (there will not be an absolute decline for some decades in most developing countries) requires less energy and less food. This has clear implications for the MDG 7 objectives of slowing the loss of biodiversity, reducing CO_2 emissions and providing drinking water and sanitation.

Lower fertility rates will reduce the growth of greenhouse gas emissions. Integrated assessment climate models that vary the level of the world's population clearly show the effect of high population on global CO_2 emissions. Among the scenarios in the IPCC's 'Special Report on Emissions Scenarios', the scenario with the slowest economic growth but the greatest population growth stands out (along with the scenario for high economic growth and intensive fossil fuel use) as having CO_2 emissions in 2100 that are between two and seven times greater than in the other scenarios (IPCC, 2000).

High fertility rates make it more difficult to extend water and sanitation infrastructure. In particular, urban population growth may outpace investment in water and sanitation infrastructure, causing insanitary conditions that could contribute to the spread of disease (Hunter, 2001). In order to meet the MDG 7 target of halving the proportion of people without sustainable access to safe drinking water and basic sanitation by 2015, Africa needs to extend access to these services to 30 per cent of its rural population between 2001 and 2015, by far the most challenging target for any region (UNFPA, 2003). If Africa's population was stable over this period, rather than growing at 2.5 per cent, then the amount of resources per capita needed to meet this target would be 30 per cent lower.

Population is a key determinant of demand for food, but the impact of population growth on the change of land use and the loss of biodiversity can be complex. Population growth can drive the conversion of natural ecosystems to agricultural land, but factors such as the distribution of land and international trade patterns may be stronger drivers in some contexts. It can also stimulate improved land management and its more intensive use (Hunter, 2001). Deforestation is closely linked to the increase of the population engaged in subsistence agriculture, but it is delinked from population growth when it is driven more by commercial considerations or when the productivity of land and labour can be increased (Marcoux, 2000). Pressure on fish stocks is unlikely to be affected primarily by population because, on present trends, consumers in developing countries will eat more animal protein as they get richer, even if the level of population remains constant (OECD-FAO, 2008).

3.6 MDG 8: Develop a Global Partnership for Development

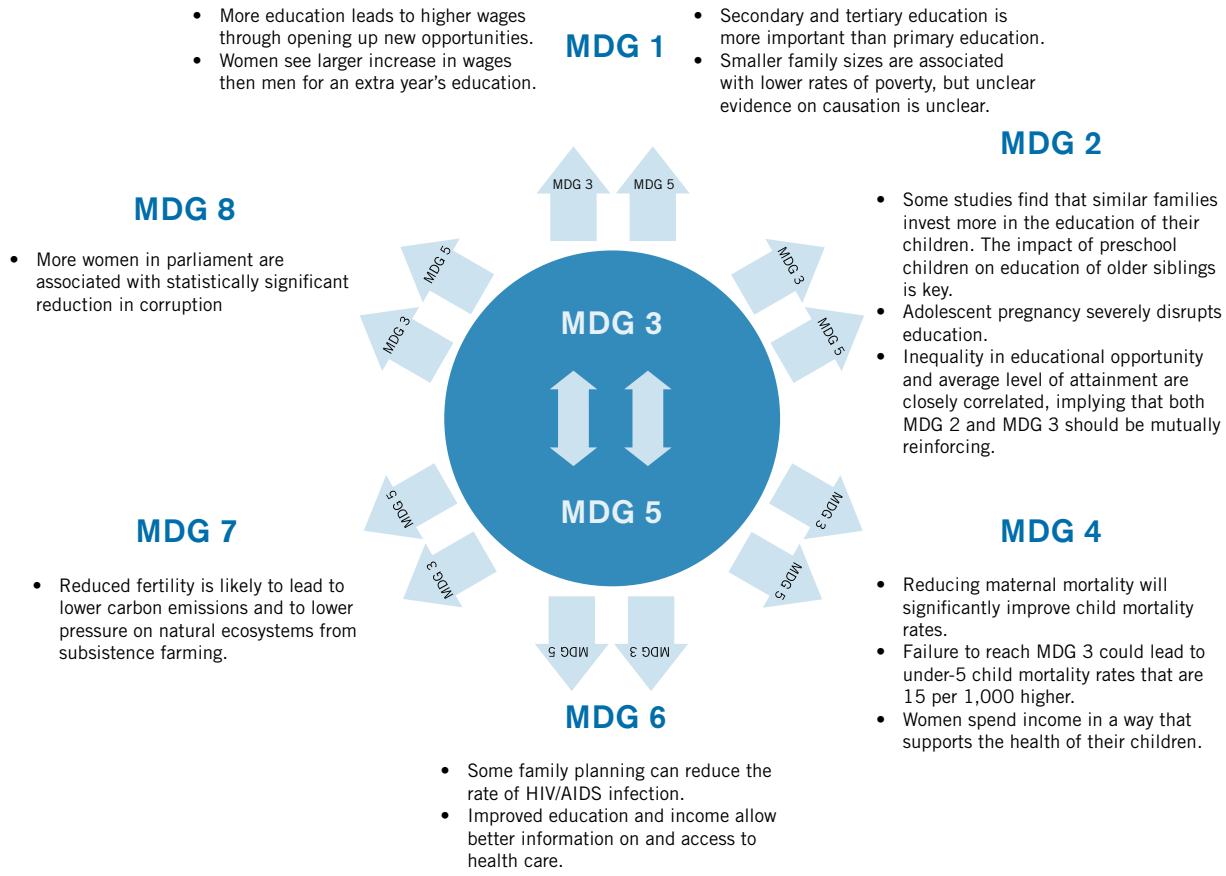
3.6.1 The links between gender equality and developing a global partnership for development are mainly indirect

The links between increasing women's political and economic engagement and the level of corruption were discussed in the analysis of conditions for growth. There is a clear, if quite weak, statistical relationship between female engagement and lower levels of corruption, which may help to meet one of the targets of this goal (to develop further an open, rule-based, predictable, non-discriminatory trading and financial system).

3.7 Summary

Figure 3.2 summarizes the evidence for and key message of each MDG reviewed above. It shows that, in all cases, there is a link between improving performance against the indicators with greatest relevance to gender equality, those in MDG 3 and MDG 5, and improving performance against the other MDG indicators.

Figure 3.2: Summary of evidence on the links between gender equality and the MDGs



Source: Vivid Economics based on sources referenced in the text.

There are a number of cases in which these links appear to be particularly strong.

In terms of MDG 3, its linkages appear to be strongest with MDG 1 and MDG 4. Promoting gender equality of educational opportunity will in many cases yield a significant return for women in higher lifetime earnings (higher than the increased return that a man would see for a similar increase

in education), thereby helping to reduce the incidence of poverty (MDG 1). And if countries fail to meet their targets for MDG 3, it is estimated that under-five child mortality rates could be as much as 15 per 1,000 higher on average than otherwise

In terms of MDG 5, its links are arguably strongest with MDG 4. Unsurprisingly, maternal mortality and morbidity are very closely linked with (neonatal) infant mortality rates. High fertility rates are also associated with infant mortality rates. Also unsurprisingly, the evidence shows that improved access to maternal health services, which yields health care benefits to both mother and child, represents a 'very cost-effective' intervention in terms of the WHO's criteria. This conclusion would be further reinforced by meeting the unmet demand for family planning and reducing unwanted pregnancies.

4 Implications for policy and further research

The report explores the evidence base for the benefits of promoting gender equality primarily in terms of its impact on economic growth and on attaining the Millennium Development Goals.

4.1 There is a strong business case for investing in gender equality

One of the main ways in which gender equality impacts on economic growth is through greater accumulation of human capital. More educated girls and women can undertake higher-value economic activity. Women are the primary carers of children; and if they have more control over resources, that increases spending on children and the accumulation of human capital in the next generation. More educated girls and women are also more likely to access reproductive health care, including family planning, and to choose to have fewer children, leading to a decline in fertility and to its associated 'demographic dividend'.

Some evidence suggests that enhanced GE increases the level of investment in a country. A more productive workforce, through greater gender equality in employment and education, increases expected rates of return and attracts investment. Gender inequality in labour markets restricts economic output if there are instances in which female workers could be more productive than incumbent men. In addition, a more equal distribution of income may lead to a higher domestic savings rate in some countries.

Gender discrimination can be a barrier to improving agricultural productivity, which is likely to be quite important in low-income countries where the agriculture sector drives the economy. An unequal distribution of resources, particularly labour and fertilizer, creates inefficiencies that, evidence suggests, markedly reduce incomes in some countries, particularly in sub-Saharan Africa.

Outside these parameters, in many cases it is indicated that gender inequality can restrict a country's performance against a specific factor, but the impact of this reduced progress in economic output or growth has not yet been assessed. Most notably, more evidence is required on the impact of barriers to female entrepreneurship and trade on economic growth.

Gender equality may also, on some occasions, impede economic growth. Although opportunity in education and employment will often help to stimulate growth, gender wage equality may reduce growth. It is associated with increased exports of labour-intensive goods (Busse and Spielmann, 2006; Seguino, 2000), which have been a major source of growth for many developing countries in recent years.

4.2 Maximizing the economic impact of gender-related investments will require a clear understanding of context-specific, rather than general, conditions

Gender equality in educational opportunity will not lead to growth unless there is a cultural environment in which women can participate in the labour force. Economic opportunities for more educated women need to be combined with reduced inequality in employment. As an example of this, increases in the rate of female education in the 1990s in MENA have not resulted in much economic growth, probably because the participation rate of women has not increased (Klasen and Lamanna, 2008).

Increasing the number of women in secondary and tertiary education is likely to be more conducive to growth than concentrating only on primary education. Again, this effect is particularly strong in middle-income countries. In countries where at least 10 per cent of females have secondary education (i.e. more advanced developing countries), an increase of one percentage point in the proportion of adult women

with a secondary school education increases per capita income growth by 0.3 percentage points (Dollar and Gati, 1999). This is corroborated by the more general findings on the links between education and economic growth referred to in the DFID paper on growth policy (DFID, 2008).

Providing greater access to family planning, by reducing the number of unwanted pregnancies, can further increase the cost-effectiveness of maternal care provision. One study has estimated that for every dollar spent on providing modern contraceptives, $1.40 would be saved in medical care costs (Singh et al., 2009).

4.3 Using 'growth diagnostics' to identify the most effective gender-related investment and partnership opportunities

In recent years, increasing attention has been given to 'growth diagnostics' (see DFID, 2008). This concept recognizes that many policies or other changes might promote economic growth but that the biggest benefit from growth will come from prioritizing those policies/changes that address the most important constraints on growth. With an understanding of how promoting gender equality does, and does not, affect economic growth, 'growth diagnostics' can be used to consider when advancing it will lead to a significant 'growth dividend'.

Only when growth is held back by factors that have strong linkages to greater gender equality, such as low human capital, will promoting GE facilitate economic growth. For instance, promoting gender equality is likely to increase the level of human capital in an economy, help to make labour markets more competitive and, in the right circumstances, boost agricultural productivity. If growth is being constrained by some of these factors, then promoting gender equality may well have a significant role to play in promoting growth. But if the most important factor holding back economic growth is, for example, macroeconomic instability, then in view of the findings above that there are no obvious links between gender equality and macroeconomic stability, policies that promote it are unlikely to have a marked effect on growth.

4.4 Conditions in which the impact of investments in gender equality can be maximized

The relevance of further factors determining the efficacy of gender equality in promoting economic growth depends on which aspects of GE are considered. The aspects of GE that may promote economic growth can be grouped into three categories: those broadly captured by MDG 3, those broadly captured by MDG 5 and those not adequately captured by either MDG 3 or MDG 5.

Achieving MDG 3 in promoting gender equality in opportunities for education and employment is most likely to lead to a 'growth dividend' in specific circumstances. Those can be summarized as follows:

- **The cultural or legal barriers to female empowerment are already relatively low.** Economic opportunities for more educated women need to be combined with reduced inequality in employment. Evidence from India demonstrates how entrenched social norms can discriminate against women in the labour market even when the economy develops (Esteve-Volart, 2004).
- **The country is already industrializing and it appears to have a strong export-focused manufacturing sector.** Sri Lanka, Bangladesh and China are all examples of countries that have combined increasing educational opportunities for women with higher economic growth. They have in common an export-focused manufacturing industry, often in the textiles and garments sector, which is likely to be an important destination for women once they have acquired more education. This is consistent with the findings from, for instance, Dollar and Gati (1999), which show that promoting GE in education appears to have a larger impact on growth in middle-income countries than in the least-developed countries.
- **When gender equality of educational opportunity is extended to secondary and tertiary**

education. In middle-income countries where at least 10 per cent of females have secondary education, an increase of one percentage point in the proportion of adult women with secondary school education increases per capita income growth by 0.3 percentage points (Dollar and Gati, 1999). This is corroborated by the more general findings on the links between education and economic growth referred to in the DFID paper on growth policy (DFID, 2008).

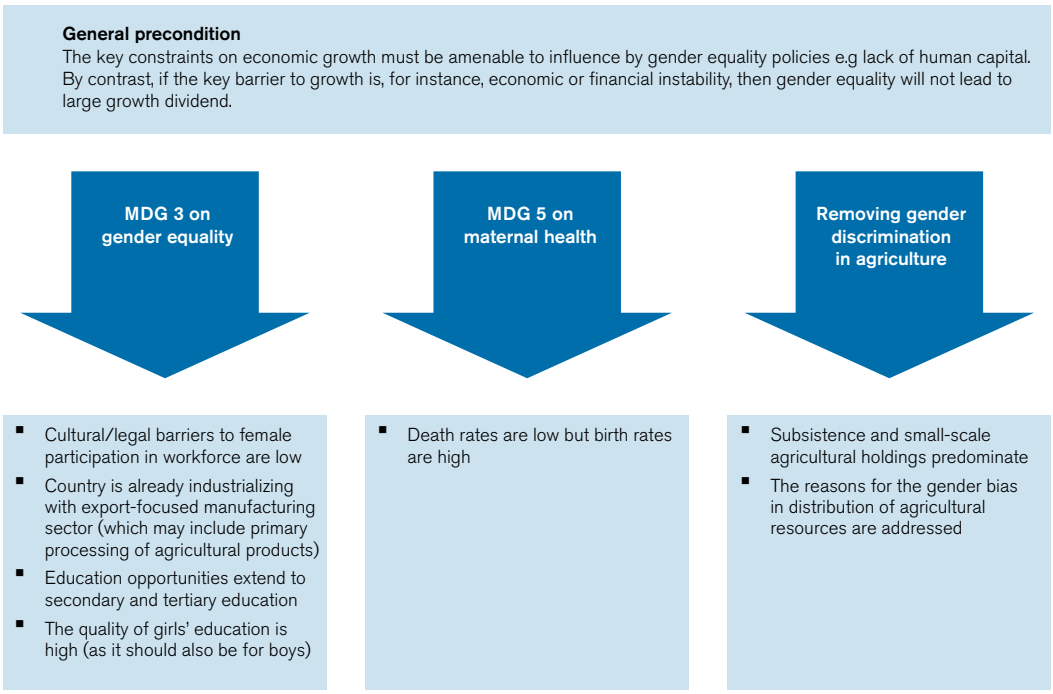
- **The quality of education received by girls is sufficiently high.** As DFID's existing policy already recognizes (DFID, 2010), the average number of years of schooling is only one important requirement. The schooling must also be of sufficiently high quality to equip girls with the skills needed to undertake high value-added activity.

The component of MDG 5 showing the strongest evidence of a link to higher economic growth is access to family planning services, which can reduce fertility rates and allow countries to exploit a 'demographic dividend'. Countries that have reasonably low death rates but whose birth rate remains high, including many low-income countries, will be best able to exploit this opportunity.[37]

Discriminatory agricultural practices are not adequately captured by any of the gender equality indicators of the MDGs. Despite this, removing these practices is a potentially important way in which greater GE may boost economic growth or output. This is most likely to be important in low-income countries where subsistence/small-scale agricultural holdings predominate. For policies in this area to effectively boost growth, they must be tailored to the cultural and environmental context, i.e. they must recognize that current agricultural practices may prioritize resources towards the head of the household (who typically is male) rather than to the man *per se*.

Figure 4.1 summarizes the key conclusions as to which countries are most likely to receive a significant boost in economic growth/output from pursuing gender equality policies.

Figure 4.1: The conditions in which greater gender equality can be expected to lead to greater economic growth can be identified



Source: Vivid Economics

37 These would be countries currently at Stage II of the Demographic Transition Model.

4.5 Partnership with businesses can help to catalyse investment in gender equality along global supply chains

Businesses today that invest in gender equality in their supply chain tend to be driven by social responsibility, not economic gain. Perceived economic advantages, where they exist, are based on product differentiation rather than fundamental gains in productivity and efficiency. Companies do not see their gender-related activities as driven by competitive pressure. Thus even though many large firms take a systematic approach to counter gender-based discrimination in the workforce, investments in pro-gender equality (such as accelerated training for women) are, by contrast, sporadic and ad hoc.

Consequently, the effect of enhanced gender equality on a company's productivity and profitability is not often evaluated. Analysis is needed in order to test the impact on corporate performance of, for example, greater female participation in the workforce and greater equality of educational opportunity. In short, we urgently need to understand whether or not the benefits identified in this report of investing in GE at the macroeconomic level might translate into an opportunity for individual firms and their suppliers.

Box 4.1: Recommendations for policy-makers

1. **Increase targeted investments in gender equality.** These can increase economic growth and contribute to the achievement of the MDGs, including those that are not explicitly gender-related. National governments and development organizations should be considering GE as part of their policy toolkit for delivering growth in the same way that they consider, for instance, infrastructure development or microeconomic reform. Within the MDGs, increased investment in MDG 3 should be used as a particularly important component of strategies to meet MDG 1 (on eradicating poverty and hunger) and MDG 4 on reducing child mortality. Investment in MDG 5 should be seen as an integral component of strategies to meet MDG 4.
2. **Target gender-equality investments so as to leverage the greatest development benefits** by identifying the key drivers and constraints on growth related to GE at the national and sub-national levels. They are outlined in section 2.0. The strength of these drivers and constraints will determine the effect of different types of GE investment. For example,

    - Invest in gender equality in education and employment opportunities where there are low cultural barriers to female participation in economic life, in countries already industrializing, and where the quality of women's education is sufficiently high.
    - Invest in better access to family planning services where countries have low death rates but high birth rates (a common characteristic of many low-income countries).
    - Invest where subsistence farming and small-scale agricultural holdings predominate, again a typical characteristic of many low-income countries.

    These investments will not lead to greater economic growth if other barriers to growth without an obvious gender dimension, e.g. a shortage of infrastructure and macroeconomic instability, are the key constraints on growth.
3. **Support the development and implementation of integrated strategies to strengthen gender equality in both education and employment and thus maximize the effect on women's income in developing countries.** Women can

maximize benefits from equal access to education if they can capitalize on their skills in the labour market. As equality in education is improving in most countries, inequality in employment opportunities is becoming the greater drag on growth. For instance, although the gender gap in education in sub-Saharan Africa has fallen by two-fifths, inequality in employment has remained constant. Similarly, in MENA the size of the education gap has more than halved, but the gender gap in employment has fallen by only around half as much.

Integrated strategies for education and employment have the potential to create virtuous circles: girls who receive more education and can exploit their skills to gain employment will see increases in their household income. If they retain control of this income, it is more likely that a greater proportion of it will be spent on their children's health and education.

A focus on employment opportunities appears to be especially important in MENA. This region has experienced significantly lower growth than East Asia and the Pacific, and estimates suggest than four times as much of this gap is a result of a lack of employment opportunities as the result of a lack of educational opportunities.

4. **Expand investment in secondary and tertiary female education, above all in middle-income countries.** Many countries have seen an expansion in primary education for girls and women in recent years, but more investment should be targeted at the secondary and tertiary levels of education. Increasing educational opportunities for women at these levels is more likely to have a greater impact on growth at the country level, notably in middle-income countries. At the individual level, women typically realize larger increases in wages for an additional year's schooling than men, and this effect appears particularly strong if girls complete secondary education. This recommendation is consistent with earlier evidence that DFID has collected on the importance of secondary and tertiary education.
5. **Invest in creating the right conditions for gender equality to lead to economic growth.** Where conditions in countries do not enable GE investments to generate economic growth, efforts should be focused on removing the barriers to the functioning of transmission mechanisms. If those barriers can be removed, it is more likely that national governments, and individuals, will take the lead in promoting gender equality for reasons of national and personal interest rather than because of extended pressure. One of the most important conditions hindering improvements in gender equality in education is where social and cultural institutions and attitudes towards women prevent their full involvement in the economy. Interventions to improve those institutions and attitudes might include public opinion campaigns, subsidizing women's associations and conditional cash transfers to men to accept changes (see Jütting and Morrisson, 2005a, 2005b).
6. **Accelerate access to comprehensive, culturally sensitive family planning services and improve maternal health.** The evidence shows these to be very cost-effective medical interventions. Further, by reducing the unmet need for family planning, smaller family sizes can facilitate a reduction in household poverty and help to ensure that children attend school rather than look after younger siblings or go to work. One study has estimated that for every dollar spent on providing modern contraceptives, $1.40 would be saved in medical care costs. By reducing population pressure, it may enhance efforts to promote environmental sustainability. Greater investment in maternal health will also achieve spillover benefits: children with healthy mothers are more likely to survive their infant years and to acquire formal schooling.

7. **Develop high-profile partnerships with emerging economies, in particular those that are increasingly involved in development cooperation with poorer countries, for promoting GE as a way to accelerate their economic growth.** The evidence that gender equality enhances growth is most visible in industrializing, export-orientated economies. This approach can provide opportunities for joint leadership to low-income countries that are more and more seeking to emulate the models of fast-growing emerging economies.
8. **Establish a high-level panel with senior business figures for building and strengthening the commercial case for gender equality.** Five major international businesses' responses to questions about GE suggest that companies are not yet persuaded that it is good for their bottom line. However, there is a mounting appreciation of it as a component of both future consumer demand and the development of skilled labour. Identifying how the macroeconomic benefits of GE could flow to individual firms and their suppliers might stimulate private investment in it along supply chains, and especially in employment and training opportunities for women. The findings of this panel should be published in different formats, including as assessment tools for businesses and as leaflets for engagement with national and local businesses. Businesses at different levels, global, national and local, can be cultivated in this manner as effective advocates of gender equality.
9. **Work with businesses and NGOs to promote collaborative and innovative initiatives.** Part of the reason why women are targeted in microfinance schemes is a perception that they will make more productive investment decisions than men, even though the evidence for this is mixed. In microfinance schemes, the client base disproportionately concentrates on women. As a case in point, in 2009 almost 97 per cent of Grameen Bank's 8 million borrowers were women. Innovative practices have shown the value of harnessing women's creative power. They have enabled women to pool resources and make large-scale investments for increasing income-generation and to improve their quality of life by investing in labour-saving technology, community infrastructure and education in literacy and business skills.
10. **Support further research on transmission mechanisms.** The effect of key dimensions of gender equality on economic development is not clear in the existing literature. For example, the effect of improved maternal health on economic growth and the cultural/country-specific relationships between GE in education and growth are only now beginning to be unpicked. Work on the loss of productivity caused by violence against women in developing countries is also only beginning to be quantified, but initial estimates suggest that these impacts may be significant and should be investigated further. In other cases, some of the literature is extensive but quite dated, e.g. on the links between population pressure and environmental impacts. There are often more significant data gaps in relation to low-income countries than to middle-income and industrializing countries. For instance, it is only in the latter that differences between male and female savings rates have been well explored. More research could reveal additional avenues for delivering GE and associated development effects and could provide a firmer evidence base for policy-making.

Annex 1: Data Gaps

The causal impact of gender inequality in education at the aggregate level has not been fully established. Recent econometric developments, for example in accounting for the dynamic properties of data across countries and over time, could be exploited so as to better ascertain to what extent the observed correlation is a causal relationship (in either direction).

The current evidence, although inconclusive, suggests that the effect on growth of gender inequality in education and employment is closely linked to country-specific factors such as cultural and societal institutions. In view of the apparent differences across countries in the efficacy with which gender equality assists economic growth, it would be valuable to understand which factors are critical, the mechanism through which they operate and whether or not policy interventions are effective in overcoming them. For example, why do reductions in gender inequality in education in South Asia appear to have a larger impact on growth than similar reductions in other regions?

In general, the impact of gender inequality in employment is understood less well than that of gender inequality in education, particularly at the microeconomic level. Studies at the level of individual firms and workers would be useful in order to help understand the forces governing women's choices about careers and participation in the workforce.

The literature on gender and international trade and on gender and entrepreneurship contains a plethora of evidence about the barriers to women in those areas. However, there is little research on what the effect might be on economic growth if those barriers were removed.

The links between greater female participation in politics, the economic role of the state and economic growth are not well understood. In particular, the impact of greater female representation in national parliaments, one of the MDG 3 targets, as opposed to the extension of the franchise to women, does not appear to have been investigated. Most studies also have a developed-world focus.

The economic impacts of maternal ill health are not well understood. The WHO has undertaken a review of the literature on this issue (Wilhelmson and Gerdtham, 2006), but it was limited to studies dealing with general population health. There is very little evidence specifically on the economic effects of maternal ill health. There are two important observations about this lack of evidence:

- Recourse to the literature on general health cannot explain the differential economic impacts of improving the health/life expectancy of mothers compared to the general population. For example, it does not explore the implications for their children or consider the possibility that they may be less likely to work.
- Evidence particularly on the economic impacts, and the impacts on child welfare, of maternal morbidity (as opposed to mortality) and on conditions such as obstetric fistula is lacking. There are data on years lived with disability for maternal conditions, but it is unclear how the data translate into lost working life and income.

Evidence on the effects of improved reproductive health on poverty reduction, on children's education and on the health of older children could also be stronger. Much of the evidence on the effects of family size on education is by now fairly old, and more attention could be given to untangling causation given sometimes contradictory results.

Most of the discussion on the environmental effects of population growth appears to date from the 1990s or earlier. Clearly this area of study has received little attention over the past decade.

Annex 2: Business Survey Questions

1 **What sector is your company in and what is your position?**

2 **What kinds of operation do you have in developing countries?** (Check all that apply)
a. Regional offices
    i. Retail/distribution outlets in developing countries
    ii. Manufacturing
        1. Food
        2. Textiles
        3. Electronics
        4. Other (please specify)
    iii. Agricultural production
b. Sourcing through intermediaries (vendors/traders)

3 **Have you implemented a formal gender-related policy or equivalent diversity/ anti-discrimination policy?**
a. If yes, is this policy also implemented at the local/regional level?
b. If no, are you implementing some activities to promote gender equality?

4 **What measures are used for the integration of gender considerations at the following levels?**
a. Company headquarters
b. Regional offices
c. Subsidiaries

5 **Can you provide an example of any of your projects that are specifically gender-focused?**

6 **Have gender considerations changed how you operate? If yes, in what way?**

7 **What are some of the strategic lessons you have learned from implementing a gender-related policy/activities? What would you identify as the current barriers/hurdles?**

8 **Do you consider gender-equality issues and anti-discrimination policies to be part of investment decision-making, e.g. to be a proxy for good management or enhanced productivity?**

9 **Would you be prepared to invest in gender-focused projects, e.g. training programmes for women or general support for female education?**

10 **Do you collect data on female participation in your workforce/suppliers that could be used to evaluate the impact on your company's performance of more/less female involvement?**

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