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Development and Gender Equality: Consequences, Causes, Challenges and Cures

Anne Mikkola
University of Helsinki, HECER and RUEEG

and

Carrie A. Miles
Center for the Economic Study of Religion at George Mason University,
Institute for the Studies of Religion at Baylor University

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Abstract

This paper reviews economics literature on the relationship between gender equality and economic development. Stylized facts indicate that women's roles are, although restricted, in the midst of quite dramatic change, both in developing and in developed countries. Results of both empirical and theoretical research, explanatory models and studies exploring both forces that challenge and those that facilitate greater equality are presented. The literature covers issues in gender inequality and economic development as they relate to: values and religion, cultural restrictions and roles, legal and inheritance laws and practices, education of girls, resource allocation within marriage patterns, labor market access, education, fertility, gender specific market failures in finance, and power in the political decision making. We suggest that the findings in the literature are compatible with the long term trends in women's roles in western countries that stem from technological improvement, as industrialization has made extensive home-based production obsolete, and reduced the demand for children. In this case, greater gender equality would be rather a consequence than a cause of development. However, gender equality does not seem to follow automatically from development, but there is a need for active policies.

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Anne Mikkola

Department of Economics
University of Helsinki
P.O. Box 17 (Arkadiankatu 7)
FI-00014 University of Helsinki
FINLAND

e-mail: anne.mikkola@helsinki.fi

Carrie A. Miles

Center for the Economic Study of
Religion
5365 Ashleigh Road
Fairfax, Virginia 22030
U.S.A.

e-mail: Carrie@EconZone.com

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1 Introduction

How is the relative status of women and men related to economic growth and development? In many parts of the world, women have few resources or rights and little opportunity to improve their lives. They are restricted in terms of education, ownership of property, monetary return for their work, financial opportunities, and opportunities to influence decision-making at the level of the family and society. Country by country, the lack of resources and opportunities open to women is strongly associated with society-wide poverty or lack of development. Charles Humana (1992), for example, reports that almost all of the countries ranked in the top quintile of wealth provide social and economic equality to women; none of those in the poorest quintile do.

This paper reviews the economic literature that touches the role of gender in the economy, with specific focus on issues that might be expected to be the most critical for overall development. We note that many researchers' interest in this subject goes beyond the usual academic attempts to describe behavior to positions of moral and political advocacy. We define what gender equality means; present stylized facts about the current relative status of women and men; and touch on the methodological difficulties encountered in studying this topic. We then present the issues and analyses from studies concerning gender equality and the status of women in both the developed and the less developed worlds. There is wide range in women's status across countries, just as there is a wide range of differences in the level of economic welfare. In some cases the research allows a look at how a country's economic development over time is associated with changes in the role of her women. Economic studies of this issue are found in the fields of labor economics, family economics, growth and development economics and political economics. The latter portion of this paper presents explanatory models, and reviews literature on factors that challenge or facilitate gender equality.

Significance of the question

Economists have long tried to understand why some countries are poor and some rich, and why some develop and grow while others remain stagnant. As research has moved from Solow's

growth theories to endogenous growth, we are still unable to explain the huge difference in GDP per capita that exists among countries. Explanations that developed countries have greater technological progress, a higher rate of investment and saving, better education, skill levels and infrastructure leave unanswered the question of where these differences come from (see Weil, 2005). Macroeconomics theories have influenced the World Bank and the IMF policies over the decades as these institutions attempted to help developing countries towards economic growth and development. Easterly (2001) recounts the history of attempted solutions that have repeatedly turned out to be disappointments, a situation he explains as the result of a lack of attention to the incentives that people face in their environments. The literature and its prominent authors are currently moving towards explaining the growth discrepancy between the poor and the rich nations with factors like social infrastructure (Hall and Jones, 1999), values (Guiso et al., 2002), trust (Knack and Keefer, 1997), religion (Barro, 2002; Dollar and Gatti, 1999) or other aspects of the culture (Weil, 2005). These new explanations will increasingly require a better understanding of the roles, status and behavior of a heretofore largely ignored half of the population – women.

These new efforts sometimes involve expanding our understanding of what is meant by the concept of development itself. Most prominently, Noble-laureate Amartya Sen (1999) argues that increasing GDP by itself should not be the ultimate goal of efforts to help poor countries. Rather, what aid should hope to maximize are the freedoms associated with wealth: freedom to exchange goods and labor, freedom to make choices and influence one's life, freedom to live longer, freedom to get an education. He suggest that restrictions on an individual's right to own property, save, borrow, become educated, make labor contracts or to control the products of one's own labor would qualify as disincentives to growth, while freedom to exercise these activities would be associated with economic growth. Given that roughly half of the population of any country is female, it is reasonable to postulate that a society's failure to provide such freedoms or resources to them would be reflected in failures at the macroeconomics level as well.

Although the literature exploring such a relationship between the freedoms accorded women and development is still small, interest in this area is growing. Those in grass root development work

generally acknowledge the importance of the status of women in development, believing that these restrictions on freedoms are directly counterproductive for development. The United Nations Millennium Development Goals, for example, include gender issues among the top priorities. United Nations Development Program (UNDP) and the World Bank have also done extensive research on gender and development.

Generally speaking, however, much of the work in economics has little theoretical interest in women's welfare per se. Standard economic theories such as those in public choice or welfare economics do not focus on individual characteristics; the individual actor in welfare economics could equally well be a world citizen, a country national, a man or a woman. However, empirical work requires that gender be controlled for, as women's behavior differs from that of men to such an extent that a single explanatory model is not applicable. An example of this will be seen in the empirical growth studies by Robert Barro.

Those writing in the feminist economics tradition challenge the general invisibility of gender in economic studies and urge that it be considered in order to avoid further biased results (Ferber and Nelson 2003). Emphasizing efficiency at the cost of equity, economists shy away from interpersonal utility comparisons. Yet, if the welfare of women is important, we need to identify the separate constraints on women in order to assess how lifting them affects economic choice and development.

We need to be aware of cultural issues such as gender restrictions (on both sexes), and changes in them, when analyzing the effect of gender-related issues on development. Blank and Reimers (2003) point out that the standard economic method of focusing on choices under given tastes and constraints tends to simply accept the status quo concerning cultural issues as permanent and unchanging. This raises concern given the large changes in gender roles over the past hundred years. Psychology, sociology, and anthropology give insights on how such tastes and desires are formed. However, the economists tend to be relatively uninformed on the results of other social sciences. Some of the newer fields in economics, such as behavioral economics, take these challenges more seriously. Another example of rising awareness of the need to consider changing social norms and

culture is a recent book on economic growth by David Weil (2005), which places considerable emphasis on culture and values.

2 Definition of gender equality

Our definition for gender inequality arises from reading of various social sciences literature, including economics: it manifests as hierarchical genders relations, with men above women, and women being regarded as inferior and less valuable solely by virtue of their sex. Although the literature predominantly focuses on women we recognize that men in less developed countries also suffer from behaviors and policies that foster hierarchical gender relations. Gender hierarchy is manifested in family relationships, inheritance laws and customs; valuations of women's work and its general invisibility; and the power to make decisions in society, the family, work place, religious and other cultural institutions. It is apparent in the relative opportunities available to women and girls for development, education, health and nutrition and in the pattern of violence between the sexes. Such hierarchy is generally accepted by both genders, and it is not normally questioned within its cultural context.

Gender equality, in contrast, is expressed in attitudes, beliefs, behaviors and policies that reflect an equal valuing and provision of opportunities for both genders. Further definitions of gender inequality can be found in United Nations declarations of human rights beginning in 1948. In 1979, the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) was adopted by the United Nations General Assembly. As of June 2003 174 countries – 90% of the UN members – are party to the convention. The convention defines discrimination as "any distinction, exclusion or restriction made on the basis of sex....in the political, economic, social, cultural, civil or any other field." Lack of discrimination in this sense could be seen as equal status between genders. As opposed to inter-gender power hierarchy or a separatism where everyone is self-interested and autonomous, in gender equality all individuals hold a similar level of power and treat other people with respect and consideration, regardless of their sex (Nelson and England, 2002). Our framework for

understanding gender relationships therefore sees them as falling along a spectrum, with gender power hierarchy and restrictions at one end and equal opportunities and equal value for both sexes at the other.

We will next gather statistical data across the nations to get a perspective on the economic significance and nature of gender hierarchy in today's world. Where possible we also report the changes over time.

3 Stylized facts: The relative status of men and women

On a global level, relative to men, women's lives are more centered in the home, a fact which is immediately related to observed gender biases. In less developed nations, this domestic-specialization effectively excludes women and girls from society at large. The exclusion can be externally-imposed, as in some developing or Arabic countries, or internally by the women's own choices. Societal norms and rules may exclude women from particular types of paid employment or leadership positions. On the other hand men may be excluded from child care and the home sphere, which is considered the woman's territory. This traditional division of labor within the household makes some of the stylized facts that follow understandable.

Son preference

The lesser valuation of females can be observed at birth, manifested in the prevalence of son preference. It appears strikingly in the statistics of newborns in China, India and South Korea. In these countries, for every 100 girls born at least 9 are "missing" – never born or somehow disposed of shortly after birth. Part of this is due to modern technology that allows prenatal sex determination and consequent abortion of a fetus of the unwanted sex, an option apparently used with frequency in India and China. In modeling son preference and marriage patterns Edlund (1999) simply assumes that the parents' utility from a male child is higher than from a girl child. Dahl and Moretti (2004) report surprisingly strong evidence for gender bias even in the US census data, although this bias has

decreased over time. They find that couples with girl children divorce more often than couples with boys. These studies measure son preference by observing the prevalence of couples having another child based on the sex of the couples' existing children. Preference for sons or daughters is measured by looking at the incidence of couples choosing to have another child when they already have two or three children of one sex: Son preference is indicated when a couple is more likely to have another child when they already have two or three daughters instead of the same number of sons. They also find that women who have ultrasound examinations and discover that they are carrying a girl are 0.37 percentage points less likely to be married at the time of the delivery than are women who learned they are carrying a boy. Andersson et al. (2004) report gender biases even in Nordic countries, which are considered to be among the most gender equal in the world. They find the regular son preference in Finland, while other Nordic countries have reported a daughter preference since mid 1980s. This suggests that son preference may turn into daughter preference as societal gender systems change.

Education

Over the past four decades there have been large and successful efforts to extend primary education to all children, including girls. In the developing countries as a whole, the average school years for girls (boys) has increased from 1.4 (2.6) years in 1960 to 4.3 (5.9) years in 2000 (Barro and Lee, 2001). In the countries that the United Nation Development Program classifies as having low human development, female literacy rate ranges between 10-85% with a typical gender gap (the difference between the percentage of literate men and the percentage of literate women) of around 20. The higher the national income and development the smaller the gender gap (see figure 2). Between 1970 and 1998, this gap has been reduced by more than five percent, with the greatest reduction occurring in low-income countries.

Universities in all countries excluded women nearly until the turn of the twentieth century. The first female student was admitted into the University of Helsinki in 1870, after receiving a special exception of gender. A year later the Massachusetts Institute for Technology admitted its first female student "as an experiment" (source: Univ. of Helsinki and the MIT web pages). The success of this

experiment can be seen in current university enrollment figures both in Finland, most other EU countries and the United States. Institutions of higher education in these countries enroll more female than male students (See Eurostat, 2001 and US Census). However, gender equity in higher education is far less common in developing countries (Barro and Lee, 2001).

Employment and total work

Women have become an increasing part of the labor force over the past 30 years (see Figure 3). According to the World Bank statistics women's labor force participation as a ratio of men's has increased from about 50 percent to about 80 percent in the high-income countries. In the low-income countries this ratio has also increased, from 60 to 70 percent, while remaining stable at about 60 percent in middle-income countries.

Women's pay relative to men's in full time employment is reported in Figure 4 for some European countries. This ratio varies between 70 and 90 percent with a general increase from 1995 to 1997 in all the reported countries (France, Denmark, UK, Finland and Germany). The extreme gender segregation in the EU labor markets is portrayed in figure 5. Women comprise about 80% of the total employment in the service sector but less than 20% of the industrial sectors in all of these countries.

When women do work for pay, they earn about 80% of the pay that men receive when working full time. These data will be discussed in more detail later. Additionally, women work part time more frequently than do men, which also shows in their earnings. It is difficult to get comparable data for developing countries, but there is no doubt that women's earning status relative to men's is even lower there.

In terms of total working hours, including both the market and the household work, there is a widespread belief that women work more than men in the most developed countries. Burda, Hamermesh and Weil (2007) however show this belief to be untrue. They use detailed time use data in richer, middle income, Southern European and some African countries respectively. Total working time of men and women is found to be on average almost identical in the richer countries. There is large variation across cultures, subgroups, or overtime, but it is not based on gender. However, women

do work more than men in Africa and in the Southern European countries. Economic development seems to be associated with more equal sharing of working time, even if the earnings gap has not equalized even in the richer countries.

Decision making power

Until relatively recently, women have been afforded less decision making power and fewer legal rights than men in all social arenas. In developing countries laws of inheritance and ownership generally disfavor women more than in developed countries, which may be a significant factor affecting the financial resources women have at their disposal. At the political level women also have less voice. A hundred years ago, women were without the right to vote anywhere in the world. In the US, the struggle for women's suffrage started in the mid 1800's by Susan B. Anthony and several other women¹ who joined forces with black men – the latter gaining the right to vote before the white women, who achieved their goal only in 1920. One of the first countries in the world to introduce universal suffrage was Finland in the 1906 Parliament Act (Source: www.eduskunta.fi). Figures 6 and 7 portray the percentage of women in ministerial and sub-ministerial positions in some developed countries and some developing countries respectively in 1996. In most developed countries women hold 5-15 % of the higher positions. Finland and Sweden are exceptions, with about third of the ministerial positions held by women. In developing countries women frequently hold less than five percent of the higher ranking positions in the society. Most recent data on women's share in parliaments (lower or single House) reveals a steady increase in women's share globally. In the past 10 years, the number of countries in which women's share is more than 20 percent has increased from 20 to 50 (Source: <http://www.ipu.org/wmn-e/arc/classif310107.htm>).

Another important area of decision making with economic implications concerns a woman's control over her own sexuality and the number of children she bears. In developing countries in particular, customs and norms tend to restrict the choices women are able to make in this respect. High

¹ Not incidentally, many of these women were Quakers, who are known for their egalitarian non-hierarchical beliefs and practices.

fertility is associated with less education for women, less frequent labor market participation outside the home and fewer economic opportunities. In 1980, the total fertility rate (births per woman) was twice as high globally as in the high-income countries. There has been considerable convergence in fertility between the rich and the poor over the past 20 years, however. By 1998 the number of children per woman in low income countries had fallen from about six to just above four (excluding China and India). Including China and India, which account for 40% of the world's population, the average number of children per woman in low-income countries was three, while the figure for high-income countries was less than two (see figure 8). Poor and agriculturally-based countries continue to have high birthrates, although rates have fallen there as well. In Uganda, for example, the average woman bears seven children today, the same as 40 years ago (World Bank, 2004).

Status of men

Jacobsen (2002) focuses on the men's issues in development and reports detailed country data on areas where men are disadvantaged relative to women. Addressing these issues would work towards gender equality by raising the status of men and through them women as well.

Life expectancy

Men's disadvantage relative to women shows most strikingly in their lower life expectancy. With few exceptions men's life expectancy is shorter than women's by several years. There is variation across countries but only in a few poor countries do men have equal or longer life expectancy than women. In the majority of the countries the average man's life span is shorter than the average woman's by two to seven years. The extreme case is Russia, where men's expected life span is 12.4 years shorter than women's. An explanation for differences of such magnitude appears to lie in men's greater susceptibility in many categories of human capital destruction - suicide, war and violence, occupational injury, substance abuse and diseases of various kinds.

Changing roles and marginalization

There appears to be considerable inequality among men within most countries, a fact that manifests itself in the marginalization of those worse off economically. Jacobsen argues that the marginalized men – such as those imprisoned, immigrating or single – may be systematically invisible and omitted from the published statistics. This may correspond to the large numbers of female-headed households and their measured, visible, poverty.

Men generally have higher variability in their outcomes than women, being disproportionately represented among high achievers and low achievers as measured by grades, test scores and incomes. Observed variation across societies suggests that the differences are cultural rather than genetic.

Jacobsen has also studied the changing structure of work in the developed countries. When women began to enter the labor force in large numbers in the 1970s, they moved to the growing service sectors of the economy. Men were disproportionately in the declining sectors, like manufacturing, mining, and agriculture. Galor and Weil (1996) point out that men have lost some of the rewards for their comparative advantage in physical strength as the societies have become more capital and knowledge-based. They explain the increase in women's relative wages by means of a model in which women and men have equal quantities of brains, but men have more brawn. With development, the return to brawn has fallen relative to brains.

4 Methodological issues

Measurement

Creating any single measure of gender equality for the purpose of cross country comparisons may be misleading for several reasons. Within the developed world the role of the welfare state, markets and family differ from country to country. These organizational and cultural differences lead to different labor market participation rates, rates of part-time versus full time employment, wage

versus transfer payments, childcare arrangements, etc. It is also difficult to allocate the incomes, wealth and consumptions within families to its individual members.

Perhaps for these reasons, there appears to be no single measure or index that attempts to quantify the status of women relative to men at the global level. The Human Development report published by the United Nations Development Program (UNDP, 2003) uses two different indices: the Gender-related Development Index (GDI) and the Gender Empowerment Measure (GEM). They are both based on the human development index (HDI²), which is adjusted downwards for gender inequality (see UNIFEM, 2000, p.103). Consequently the GDI and the GEM measure primarily the level of economic welfare in the country rather than women's relative status. GDI falls if the achievement levels of both women and men fall or if the disparity between their achievements increases. GEM examines whether women and men are able to actively participate in economic and political life and take part in decision-making. It is constructed using information on women's purchasing power and decision-making power in the economy and political power in parliament.

Invisible products

Another measurement problem is the tendency for the products of some of women's activities to go unrecorded. This appears to be more pronounced in less developed countries. As England and Folbre (2003) point out, economic literature tends to overlook women's provision of care to other people, often an important part of women's lives and the well-being of the family and the society. Also, measures of GDP, the dependent variable in many studies on factors affecting growth, include only market transactions. Yet, home production activities in which women are the greatest source of labor are critical to survival in subsistence economies. Most of the food produced in sub-Saharan Africa, for example, is grown by women in small family plots and for use by the family. Because relatively small amounts of their products are sold, and that mostly in local markets, women's production is undervalued or overlooked. Cash crops, which are more likely to be captured in

² HDI measures the average condition of the people in the country. It incorporates measures of life expectancy, educational attainment and the standard of living.

measures of GDP, tend to be controlled by men. It is estimated that 66% of female activities in developing countries are not captured by national accounts compared with only 24% of male activities being left unrecorded (UNDP, 1995:89). The effects of gender inequality on growth (or vice versa) may be underestimated if reducing inequality promotes women's activities that are not recorded in the national accounts (Klasen, 1999).

Lack of theory

Perhaps the greatest obstacle to understanding the relationship between women's work, gender equality and growth is the lack of theory. Standard economics models assuming separate, self-interested, autonomous and genderless agents are inadequate in modeling women's economic environment (restrictions, preferences, norms) and therefore their choices, especially in the less developed countries. Women face different incentives than do men, and may have little freedom to express them. In poor, traditional societies, women's participation in traditional female work may not be freely chosen.

Another critical question that theory might address is that of causation: Does improving the status of women cause greater wealth, or is gender equality a consequence of economic development? Or are there perhaps third factors behind them both? A problem in the empirical work on this issue is the endogeneity of both income and inequality and their interdependence. Because so much time, money, and political energy have gone into attempts to promote economic growth in poor countries, a correct theoretical understanding of the direction of causality is of great practical consequence. Later in this paper we will review a hypothesis of the relationship between development and family dynamics by one of the authors of the present article (Miles 2005). She suggests that several of these initiatives that Easterly records in his book, *The Elusive Quest for Growth* (2001) failed to affect economic growth because the behaviors they were promoting are consequences, not causes, of development. This theory suggests that initiatives promoting gender equality or raising the status of women will risk suffering the same fate, as historically gender equality in the developed world was the result, not a cause, of economic growth.

In the next two sections, we consider studies that look at the impact of gender equality on growth separately from studies that look at the impact of growth on gender equality. We then present an overview of Miles' theory on the direction of causation.

5 Impact of gender equality on growth

Education of girls

In many empirical and theoretical studies, female to male ratio of education is used as the measure of gender equality that is hypothesized to have an impact on economic growth and development. This is probably partly due to the fact that comparable data on education is one of the only measures available across countries. Education of girls is an important factor in understanding the connections between the status of women, welfare of the family, the human capital available in a society and future development. Many empirical studies conclude that increased schooling of the mother is associated with larger effects on child health, schooling and adult productivity than increased schooling of the father (see Schulz, 2001, for references). Even in the developed world, there is some evidence that the mother's education has a greater impact on children's performance later in life than the father's³.

At the level of national economy, there is a strong positive correlation between countries' per capita GDP levels and gender equality measured by female to male years of schooling (see Lagerlöf, 2003). Even though it is difficult to identify the nature of the (inter)dependence between these variables empirically, there are good reasons to believe that the actual levels of gender equality are not an outcome of efficient economic choice. This inefficiency is suggested by the finding that gender

³ Korhonen (2004) finds that the time required to obtain a doctoral degree in economics is several years shorter for those students whose mothers belonged to the better-educated half of the sample. It is remarkable that mother's education matters so strongly in his sample, which consisted of students who had already finished their MA and started their doctoral studies, even after general abilities are controlled for. The study uses survey data on the students who participated in the Finnish Post-graduate Program in Economics, which is a nationwide program coordinating the doctoral studies in economics in Finland. The data consists of 106 students who entered the doctoral program over the years 1991-1999.

equality itself can be explained by religious variables, civil freedom and regional variables (see Dollar and Gatti, 1999). In a growth model, a religious preference not to educate girls leads to a distortion that prevents the efficient accumulation of human capital. Economy-wide gender biases are likely to coexist with market failures, which further contribute to the under-investment in girls. Educational resources will be misallocated. Parents tend not to invest resources in girls when the benefits go to another family or if labor market discrimination, either in the form of lesser salaries or by direct barriers to entry, makes a proper return on their investment unlikely.

Esteve-Volart (2000) models labor market discrimination in the form of barriers to entry as a cause of both educational inequality and reduced growth. Gender inequality impacts growth by reducing the pool of talented people whose ideas in turn lead to technological progress. The underlying entrepreneurial talents of men and women are assumed to be evenly and identically distributed. Discrimination is modeled by excluding women from the managerial positions, allowing them to be only workers. As workers they may choose more primary education to increase their productivity. Any further education does not benefit them because of the exclusion from managerial positions. This form of gender bias leads to a fall in the average talent of managers, who are assumed to be the ones coming up with good or bad ideas. The average quality of ideas in turn determines growth through technological improvements. In comparison to the version of the model without discrimination, discrimination implies lower female to male schooling ratios, lower wages for both men and women, lower investment in human capital by both males and females, and reduced growth. Obviously, in a world of this kind, increasing educational equality alone will not solve the problem.

Education and gender equality are associated with externalities and complementarities in the society. Lagerlöf (2003) acknowledges the crucial importance of these externalities. He develops a model that explains the European growth experience as an ultimate outcome of a gradual exogenous improvement of educational equality over the past 2000 years. He abstracts from differences within genders and intra-household allocation issues. It is assumed that parents care about their own consumption, about the number of their children, and about the full income of the household into which their children enter through marriage. Parents decide how much of their own human capital

(time used) to invest in the human capital of their sons and daughters, which in turn will determine their children's personal income. What matters though is not their child's personal income, but the total income of the child and his/her spouse. The model is shown to have many Nash equilibria depending on the ratio of female to male human capital. If this ratio is low, any individual parent's optimal choice is to invest less in their daughter than in their son, as she is likely to marry a wealthier husband in any case. Thus the economy coordinates on a low-gender-equality equilibrium. It is assumed that the society over time re-coordinates on a more gender equal equilibria. Consequently, as the ratio of female to male human capital in the society increases there will be a critical threshold after which the economy moves to sustained growth. In the process, parents will shift from child quantity to child quality, with first mortality and then fertility being reduced. The model captures the three regimes of Galor and Weil (1999) of the population and income growth in Europe over the past thousands of years. In this set up, we can expect movement towards gender equality alone to cause economic growth, though possibly with a long lag.

Empirical studies on the effect of equality on growth

If the under-investment in girls is serious, it is reasonable that it might be visible in the macro data. There are several cross country studies that specifically focus on the effects of gender inequality on growth (for a summary see Lorgelly, 2000). The World Bank has produced research that specifically focuses on the effects of gender equality on development and growth (Dollar and Gatti, 1999, Klasen, 1999).

For several reasons, it is difficult to disentangle whether gender equality is the cause or consequence of growth. Both educational equality and growth could be driven by third factors, and it is hard to find good instruments to solve the simultaneity problem. Another problem in estimating the effect of gender inequality on growth concerns the timing of the effects. We did not find any work estimating the time horizon in which improvements in women's status or education might be expected to affect growth in GNP. Most of the effects might be delayed for decades as it takes time until the younger generations enter the labor markets. Also complications arise because of externalities that

education in general and specifically girls' education has in the economy. Given the limited length of available time series it is reasonable to consider the results of the empirical research with caution.

Klasen (1999) recognizes the importance of extending the time horizon over which the changes in income are measured. He estimates a cross-section regression with 109 countries treating the GDP growth over the period of 1960-1992 in country i as one observation. The estimated regression could be rewritten as

$$\left(\frac{\dot{y}}{y}\right)_i = \delta + \lambda q_i + X\pi + u_i$$

$\left(\frac{\dot{y}}{y}\right)_i$: average annual compounded rate of growth of GDP per capita 1960-1992.

q_i : measure of gender inequality

X: exogenous variables that affect growth

The explanatory variables measuring the gender inequality, q , are the female to male ratio of total years of schooling in 1960 and the female to male ratio of the growth in total years of schooling over the entire period, 1960-1992. Both are found to be significant in explaining growth. The growth in schooling variable is likely to depend on the GDP growth over the same period. To check for the robustness Klasen splits the sample into decades and uses only the female to male ratio of total years of schooling *at the beginning of the decade* as the measure for q_i . In another attempt to control for the simultaneity, he instruments the growth in education variables by fertility rate in 1960, its growth and government spending on education. Even after controlling for simultaneity in these alternative ways, educational equality is found to be associated with higher consequent growth rate.

The explanatory variables, X, that are controlled for in these regressions, include the variables typically used in cross country growth regressions (see Barro and others cited later): openness, initial per capita income in 1960, and regional dummies as well as variables for average investment rates, population growth and labor force growth over the entire period. To avoid multicollinearity problems

Klasen chooses variables measuring the overall human capital (included in X) and others measuring the female to male ratio of human capital. The non-gender specific human capital variables are the total years of schooling in 1960 and the annual growth in total years of schooling over the entire period. Also the indirect effects of the gender inequality via population and labor force growth and particularly via investment rates are found important both in size and significance.

Large portions of growth differences between different areas can be accounted for by the gender differences. As an example of the magnitude consider the average annual growth difference between Sub-Saharan Africa and East Asia and the Pacific from 1960 to 1992. The annual growth in per capita incomes averaged only 0.7% in Sub-Saharan Africa which was 3.5% slower than in East Asia and the Pacific. According to the estimation results 0.45% of this annual growth difference of 3.5% can be accounted for by differences in gender inequality in education. Inequality in education appears to matter more in Africa than elsewhere. Klasen additionally confirms that the fertility rate is particularly affected by the inequality in education rather than by the average education.

In another study Dollar and Gatti (1999) estimate not only the effect of gender inequality on growth but also the determination of gender inequality across countries and over time. They use panel data on 127 countries in four 5-year periods over 1975-1990. The estimated equations for the growth and gender inequality are respectively:

$$(3) \quad \left(\frac{\dot{y}}{y} \right)_{it} = \delta + \lambda q_{it} + X\pi + u_{it}$$

$$(4) \quad q_{it} = \alpha + \beta_1 y_{it} + \beta_2 y_{it}^2 + Z\gamma + \varepsilon_{it}$$

$\left(\frac{\dot{y}}{y} \right)_{it}$: per capita income growth, over the 5-year periods

Z: exogenous variables that affect gender inequality. q_{it} and X are defined previously.

Gender equality is measured by the female secondary school attainment (the % of female population over 25 years for whom secondary school is the highest level of attainment). Corresponding

male variables are included in the regression rather than using the ratio of female to male education directly.

To estimate the effect of gender equality on growth (regression 3), the familiar variables from Barro and Lee (1994) are used as explanatory variables (X): level (and square) of initial per capita income, black market premium, the rule of law, revolutions, regional dummies, life expectancy and fertility. To address the endogeneity of gender differentials (q_{it}) they use religion variables and civil liberties as instruments for the measure of gender inequality (the male and female educational attainment) in the 2SLS growth regressions. Women's education is also likely to increase growth through reducing fertility, which is controlled for, and the focus is on the direct effect of inequality on growth. The effect of female secondary school education on growth is found significant particularly in the more developed countries: 1 percentage point increase in the share of adult women with secondary school education implies 0.3 percentage point increase in per capita income growth.

Dollar and Gatti also estimate the effect of income on gender equality (the latter equation). The corresponding male variables are again controlled for in the regressions. The other variables in Z measure civil liberties, religion and regional factors. Again recognizing the problem of endogeneity among the variables, the results show a convex relationship between income and gender equality. A causal relationship appears likely: Increases in income lead to more gender equality in education. Due to convexity, this effect is minor for countries with lower middle incomes or less, with the effect becoming larger as countries move to higher incomes. The convex relationship between per capita income and secondary education is visible even when looking at the data plots of country incomes and secondary attainments by gender: Convexity is sharper for women. The results remain similar for other measures of equality like women's economic equality under the law and women in parliament. Women's rights in marriage on the other hand do not seem to be associated with income.

Do democratization and religion have an impact through education?

Robert Barro's discussion in his empirical growth studies highlight the various ways in which gender equality possibly interacts with development through issues like democracy and religion. Women's education appears in a puzzling manner in these studies (Barro, 1996, 1997, 1999a; Barro and Lee, 1994, and Barro and Sala-i-Martin, 1995, p. 424): The level of female education at the beginning of the decade seems to have either negative or insignificant effect on subsequent growth, while the male educational attainment has a positive effect to growth rates (for sensitivity analysis see Lorgelly and Owen, 1999)⁴.

Barro (1997) interprets this by pointing out that female schooling is important for growth through reducing fertility, which is already an explanatory variable in the regressions. The effects of women's schooling and status may already be included in other indicators of economic development like political freedoms, which are frequently included in the growth regressions. When the reverse channel from economic development to democracy (as measured by electoral rights and civil liberties indexes) is studied, a somewhat surprising result emerges. As opposed to direct growth regressions, the gap between male and female primary schooling now has a negative and significant effect on both indexes (Barro, 1999b). This significance does not disappear if other measures of educational and income inequality are included. It is noticeable that it is specifically early schooling that matters for democratization, whereas in the growth regressions secondary schooling is the significant variable.

Barro himself explains his findings by suggesting that the effects of the status and schooling of women on growth is hidden behind the other variables like fertility and indices measuring democracy. He states, "Perhaps more promising is the idea, reminiscent of Tocqueville (1835), that expanded educational opportunity for females goes along with a social structure that is generally more participatory and, hence, more receptive to democracy" (1999b, p.167).

⁴ Education is measured in the decadal growth regressions by average years of secondary and higher school attainment for males and females aged 25 and over and by life expectancy. Additional explanatory variables include typically rule of law indices, democracy index, and variables on government consumption and terms of trade.

There also seems to be a relation between country's primary religious affiliation and democracy, with Protestant countries being almost always democratic whereas Muslim countries are usually not. Barro suggests that the main effects of religion work through variables like the gap between male and female education. This idea gets more recent confirmation from the study by Guiso, Sapienza and Zingales (2002). They use World Value Survey data, covering 66 countries from 1981-1997, to study the association between religion and economic attitudes. Actively religious people are found to be more intolerant and less sympathetic to women's rights than people who do not belong to any religion or are not actively attending religious meetings. This holds in the major religious denominations (Muslims, Hindus, Jews, Catholics, Protestants and Buddhists). Survey questions include: When jobs are scarce, should men have more right to a job than women? Do you think that women should have children in order to be fulfilled, or is this not necessary? A university education is more important for a boy than for a girl?

The association of religiosity and a negative attitude toward women's education and market work is particularly strong within Islam.

Overall the estimation results are plagued with endogeneity problems that make it impossible to make final conclusions as to whether gender equality can be a cause of growth. However, the various estimation results are compatible with the possibility of large positive externalities in the society associated with women's education. If this is the case, the policies targeting women's education may be justified, ultimately even if one is concerned only about the instrumental effects of gender equality in promoting economic development and growth.

6 Impact of increased economic resources on gender equality

Allocation of resources and power within the household

Economic development contributes to gender equality in itself as the households have more resources available. There is less economic pressure to discriminate against women or girls who tend to do worse in the resource allocation under conditions of poverty (Ray, 1996). Empirical evidence

indicates that if women, instead of men in the same household, gain more economic resources, there will be movement towards women's empowerment and equality. Increased economic resources of women within the family have been shown to lead to children's, particularly girl children's, better education. This evidence has accumulated partly in response to the implications of the so-called unitary model of family economics as initiated by Gary Becker⁵.

Becker's model implies perfect-pooling of the household resources between the spouses whereby consumption allocations are not influenced by consideration of who earned the income or owns the economic resources. Thus the model abstracts away issues of power and individual self-interest: the altruist head of the family has the utility of the wife included within his utility function. Thus one of the key issues concerning the status of women – allocation of resources and power within the family – are abstracted away. This is a curious simplification considering that economics in general is all about self-interested *individuals* making choices under scarcity. Becker's model leads to extreme specialization of women into the home-sphere. It can be an outcome resulting from even tiny discriminations in the job market, from biological differences, or from comparative advantage in child rearing. It is efficient for the wife to specialize in low paying jobs or unpaid homework.

In the 1990s both the theoretical and empirical literature challenged the Beckerian view of the family, as the perfect-pooling implication seemed implausible. The mounting evidence from both developing and developed countries has shown that when given the opportunity, men and women use the family budget differently. An illuminating natural experiment occurred in the UK in the late 70's when a policy shift transferred government-provided child allowances from husbands to wives. Lundberg, Pollak and Wales (1996) found strong evidence that this resulted in a shift from the purchase of men's to women's and children's clothing. Work in African data has likewise shown that income from "male crops" is used differently from income from "female crops" (see Duflo and Udry, 2003, for references).

Other studies using developing country data indicate that the allocations of resources between spouses in productive activities are not efficient. Udry (1996) estimates that about six percent of output

⁵ See *A Treatise on the Family* (1991) by Gary S. Becker for a recent exposition.

in agricultural production in Burkina Faso is lost because of inefficient factor allocation within the household: Plots controlled by women are farmed much less intensively than similar plots controlled by men. Duflo and Udry (2003), using data from Côte D'Ivoire, find that rainfall shocks on different categories of crops (male controlled, female controlled, or those whose returns are customarily used for joint family consumption) indeed are associated with expenditure shifts within the family. Family members are apparently not insuring each other even against short term variations in individual income. The hypothesis of complete insurance within households is thus rejected.

To address decision making within the family, the unitary model has been challenged in the theoretical front as well. One alternative has been to model marriage as a cooperative bargaining game, where outcomes remain efficient (see Lundberg and Pollak, 1996, for a review). The household unit benefits from various kinds of joint production and scale economies. At issue is now how these benefits will be distributed. Spouses negotiate over the distribution within the family, with the bargaining distribution being dependent on each spouse's outside options. Divorce is the threat point in some models. Using such a model, McElroy and Horney (1981) find that policies improving the status of divorced women shift resources to wives within the marriage. Other models have an internal threat point, a non-cooperative equilibrium, under which the marital responsibilities in the provision of public goods will be allocated according to social norms rather than preferences or productivity differences. In this setup, the policies reallocating income within marriage will change the distribution within the family regardless of post divorce well-being (see Lundberg and Pollak, 1993). The more general "collective" model developed by Chiappori assumes efficient outcomes while individuals are free to bargain over the household allocation. The collective model encompasses the cooperative models as well as Becker's model as a special case (see e.g. Browning and Chiappori, 1998).

Some evidence for the bargaining scenario comes from looking at dowry as a means of transferring wealth intergenerationally to the daughter. Zhang and Chan (1999) point out that in Taiwan dowry is considered formally as the wife's property, even in divorce. Thus, dowry not only increases the available resources in the new family, but also enhances the bride's bargaining position within the marriage. Using Taiwanese micro data, they show that a larger dowry increases the wife's

welfare as measured by the extent of the husband's help with household chores. Bride price, which is paid to the parents of the bride, not to the bride or to the couple themselves, does not have a similar effect.

Interesting insights on how the status of women is associated with dowry and bride price practices come from the work of Botticini and Siow (2003) and Luke and Munshi (2003). The former paper reviews historical evidence over thousands of years in different civilizations. It is observed that dowries occur primarily in monogamous societies, where married daughters leave their parental home and sons take over the family business. The authors suggest that altruist parents assign large dowries to their daughters while allowing sons to inherit property after their deaths. This is to mitigate the free-riding problem between the siblings. The role of dowries becomes less important as labor markets develop. In contrast, bride price is practiced where polygyny is permitted and practiced. An explanation for the differing practices is found in the relative scarcity of land and labor. In Africa, labor was traditionally the scarce resource. Women did most of the farming, and consequently were valued for both their productive and reproductive capabilities. This is suggested to have given rise to bride price, a payment to the bride's parents in return for their provision of a valuable resource. In Eurasia, where land was in short supply, women were primarily valued for their reproductive ability, not as a source of labor, and a dowry system was common (see Luke and Munshi, 2003, for references).

These two systems imply radically different statuses for women. In the African system, divorce typically leaves the woman with nothing. The husband keeps the children, and the wife's family must return the bride-price. Under these circumstances, the woman has little bargaining power and no way to deter extra-marital sexual activity on the part of her husband. Luke and Munshi (2003) use survey data from a sample of migrants in Kenya, and find that marriage has no effect on male extra-marital sexual activity once the selective entry into marriage is accounted for. Forty-five percent of the married men reported extra-marital partners in the past year. The comparable figure for extra-marital relations in the U.S. is five percent, while the sexual activity of single men was similar in both Kenya and the U.S. Luke and Munshi state cautiously: 'A negative externality is quite possibly

associated with sexual activity involving multiple partners in this high HIV area, but social norms restricting such activity are yet to emerge.’ In this environment where 80% of HIV transmission occurs through heterosexual activity and a substantial proportion of the population is infected, women’s restricted inheritance leaves them in a very vulnerable position economically.

It is difficult to disentangle the separate roles of personal versus family wealth, income and cultural norms and practices on gender equality. The study of Luke and Munshi (2005) gives an interesting insight into their respective power in maintaining the status quo in India. The setting for the survey is in a Southern Indian area that British planters converted into huge tea plantations in the late 19th century. These plantations hired both the former slaves (the lowest caste) and the higher castes. Today the third generation of these men and women work on these plantations. The unique experiment arises from the fact that wages for plucking the tea leaves, a female job, are set by the government. Both the low and high castes earn the same and receive the same education, sanitary facilities, and accommodation. They differ primarily in the status of their caste networks in their ancestral location. Although women do more repetitious work they earn more than their husbands. Women seem to be using the bargaining power that the increased income gives them. In low caste families female income especially increases the education of girls and reduces the likelihood of sending the offspring to a secondary school in the ancestral location. It is in women’s interest to keep a distance from the low caste family networks and invest in the modern economy which is more caste and gender neutral. High caste women, on the other hand, do not have the same incentives. They are more prone to hold on to family ties, which offer higher quality networks for them than for the lower caste women. They are less educated and don’t earn more than their lower caste sisters. Under these circumstances it is not surprising that the preference and power conflict between household members is more apparent in lower caste families where women have been traditionally in a worse position, as evidenced in the increased incidence of domestic violence in low caste households where women earn more. Luke and Munshi suggest that historically disadvantaged groups and, in particular, disadvantaged individuals within those groups, may in fact be most responsive to the new economic

opportunities afforded by globalization when the income constraints that restrict their choices are relaxed.

Outside provision of economic resources

The above results hint that economic opportunities have the potential to break even the most deeply ingrained cultural practices keeping women in subordinate positions. This was the insight of the founder of Grameen bank, Muhammed Yunus. He started out to provide small loans for women to start a business of their own (Morduch, 1999). The success of the micro credit concept points to economic consequences of women's restricted opportunities. Given the opportunity, even a poor, uneducated woman, can run a business of her own.

An example of the many organizations aiming to raise the economic status of women through micro credits is ASA (Activists for Social Alternatives) with about 60,000 poor and often illiterate female members. ASA undertook a three-year panel study on the effectiveness of their micro credit programs in India. A random sample of participants was asked to use pictorial diaries to record their economic activities. The outcomes for long-term members were compared with the outcomes for those who had participated for less than two years. The comparisons show that over time, women receiving micro-credit loans participated more in household decision-making and were more likely to own real property alone or jointly with their husbands. Long-term members were also more physically mobile, visiting government institutions and speaking out more in public meetings. Compared to short term members, their children had a higher rate of school attendance and greater gender equity. On the negative side, over time loans were increasingly used for consumption and male productive activities, while less investment went to woman's productive activities. Overall, however, the microfinance program and the pictorial diary, which seems to function as an empowerment tool in itself,⁶ led to

⁶ Helzi Noponen (2003) developed this method for evaluating the success of the micro credit programs for several large Indian NGOs. A key tool in this method, the ILS (Internal Learning System) is a pictorial diary, designed for use among illiterate populations. The diary is designed to help its users analyze their livelihood situation, so that they can make strategic decisions about the use of scarce resources available to them. For example, the diary has a picture of a tree where the roots describe the different sources of funds and resources. One side of the trunk has a female face, the other a male face, and the branches describe the uses of the incomes. A user might draw a line from an agricultural activity

improved livelihood, living conditions and consumption standards for women, as well as improved social status and treatment in home and the community.

This overall picture of the role of microfinance in women's empowerment is in harmony with the results of a study by Pitt and Khandker in Bangladesh (1998). They use a careful quasi-experimental household survey designed to study the impact of participation in micro-finance, by gender, on labor supply, schooling, household expenditures and assets in Bangladeshi villages. Micro-credit taken by the woman rather than the man of the household was found to increase women's non-land assets and children's education. Household expenditures increased by twice the amount that they would have had the credit been given to the husband. Men were found to reduce their labor supply if they received the micro-credit, while if the loan was taken by the woman her labor supply increased (although the man's labor supply was reduced in this case as well). These results appeared considerably larger and more significant for those who participated in the Grameen Bank program, which was designed specifically to aid women.⁷

One key to the success of micro-credit programs in Islamic cultures, which encourage the seclusion of women, was the recognition that for Islamic women self-employment activities at home (while attending to the children) were more culturally acceptable than projects that involved working outside. These programs also discovered that project design that allowed women to deal with the often-male program organizer as a group rather than individually were more likely to be accepted. Currently, 95 percent of the clients of the Grameen bank are women. Globally 75-80% of the micro credits are given to women (Armendariz de Aghion and Morduch, 2005).

Armendariz de Aghion and Morduch point out that group lending and peer borrowing deter domestic violence. By giving women a way to keep money away from their husbands, these programs also allow women to save. In poor households rising incomes tend to lead to diminishing conflict

on the woman's side to a male branch denoting alcohol consumption. The diary also has 'dream plots' picturing different possible situations, where the woman again marks her current situation while seeing the path to the better future. The women use the diary as a tool to communicate their situation to the authorities and to request resources. They also use it to share successes and problems.

⁷ Muhammad Yunus, an economics professor, recognized the importance of women in development, but it took 3 years from the beginning of the Grameen Bank in 1983 to increase the share of women in the program from 44 per cent to 75 per cent (see Armendariz de Aghion and Morduch, 2005, for the history).

between the husbands and wives. From the banks' perspective, women – being less mobile, more fearful of social sanctions, and more risk-averse – make good clients because they are better at repaying the loans. Their lesser mobility also makes monitoring of the loans easier.

7 Political consequences of empowering women

Promoting women's broader participation in society is seen as a priority in efforts to reduce poverty in policy circles. The UNDP and the World Bank see women's empowerment as a critical issue (UNDP, 2003b). In the mainstream academic literature women's decision making power has typically been a marginal issue (see discussion in Kanbur 2002). This has partially to do with the prominent role that the Becker's unitary model used to have in family economics. Becker's model implies that if women were given power to decide at the level of the society, they would make the same decisions as men, since both genders would equally maximize the income of the household unit.⁸ The literature on household bargaining (see Katz, 1997; Lundberg and Pollak, 1993, 1996, 2003; Pollak, 1994) arises from recognition of the importance of who holds power within household. Indeed Kanbur argues for inequality of power as being the fundamental inequality associated with lower female achievements. For Amartya Sen (1999) freedom to make decisions is not only development in itself but also a necessary requirement for economic growth. More immediately power issues arise in development studies where case studies and empirical observations are used (e.g. Agarwal, 2001; Roy and Tisdell, 2002). In this context, the hindrance to development due to patriarchal property rights is particularly tangible (see Braunstein and Folbre, 2001; Agarwal, 1994). Even when the issue of power is not directly discussed, the inadequacy of the standard models is increasingly acknowledged and alternative models sought (e.g. Duflo and Udry, 2003).

Empirical evidence indicates that women as political decision makers make different choices than do men. Chattopadhyaya and Duflo (2001) collected a particularly interesting data set on 165

⁸ Additionally, there is lack of gender specific data and conceptual problems in considering intra-household consumption, incomes and decision-making as well as difficulties in measuring the 'largeness' of the gender inequalities in comparison to other inequalities. Gender has two categories while other inequalities are measured in many categories, which makes comparison of the magnitude of the issues misleading.

village councils in West Bengal in India. These village councils are responsible for the provision of many local public goods. In 1998, one third of all leadership positions of the village councils were randomly assigned to women. They found that women invested more in infrastructure relevant to them, such as water, fuel and roads, while men, who have greater access to good-paying jobs, invested more in education. Women make different decisions as legislators in the developed world as well (see Thomas, 1991). In U.S. presidential elections there has been a consistent gender gap of roughly 15 points over the past 20 years, with women voting more for the Democrats. Lott and Kenny (1999) show that the women's suffrage in the US around 1920 had a significant positive impact on the size of the state government expenditures and revenues. The fact that female suffrage was achieved in different years in different states, in some states involuntarily and in others voluntarily, allows the researchers to address the issues of causality. The most natural explanation given for this gap follows from the lower incomes of women and the uncertainty that comes from women's specialization in domestic skills that is not rewarded in case of divorce. Thus women benefit more from various government programs and vote for the candidates more likely to promote them. The gender gap has increased since the 1970's in the U.S. and in Europe.

Evidence collected by Edlund and Pande (2002, 2003) explain this widening gap by the decline in marriage (i.e. single parenthood, out-of-wedlock fertility and divorce). If marriage transfers resources from men to women, then the decline in marriage makes men richer and women poorer. Both the increased social prevalence of divorce and the actual experience of divorce are shown to make women turn towards the left in the U.S. and in Europe. Both men's and women's political preferences are affected in a way that increases the gender gap. Edlund and Pande also suggest reasons for the decline of marriage: If you consider marriage a contract where women provide sex and children, then the availability of low cost female-controlled contraceptives and legalization of abortion may have led to reduced transfers from men to women in marriage. On the other hand, if the man's role in the marriage is to be the provider, then women's greater labor force participation and earnings would lead to a decline in their interest in matrimony.

How women's levels of discretion and power at the level of the society affect aggregate growth is unclear, but it is evident that women's decision making power is associated with economic outcomes. In a cross section of countries, it has been found that higher rate of female participation in government is associated with lower levels of corruption (Dollar et al., 2001). In another study Indian villagers are found to be less likely to pay bribes in those villages randomly reserved to women leaders (Dulfo and Topalova, 2004). If women's presence in public organizations is associated with reduced corruption, this would certainly be a factor worth considering in the pursuit of growth and development. The reasons for this association are harder to explain. Dollar et al.'s report work on gender differences implying implies that women are less willing to sacrifice the common good for personal (material) gain. Torgler and Valev (2006) investigate the gender differences in the citizens' perception of the justifiability of corruption or tax evasion. They find that women are significantly less likely than men to agree that corruption and cheating on taxes can be justified. This holds after controlling for 'life-course' explanations like age, education, marriage, employment and economic situation. As a practical application, Mexico and Peru have increased the number of women police officers to reduce corruption (see Torgler and Valev for references and discussion on criminology literature).

These studies raise the question of whether women are really more likely than men to consider the common good. Are they ethically superior? It is possible to think of alternative interpretations. It could be that social norms and group expectations for women are different from those of men's, leading to different personal ethics. In the literature on tax ethics and tax compliance, there is evidence that the causality can go from group expectations to personal ethics: Wenzel (2004) finds that ethical concerns related to paying taxes are based on the internalized social norms of one's reference group. In his case the reference group was Australian citizens. Perceived social norms affected personal tax ethics when there was a strong personal identification to the Australian community. It may be that women's identification with other women, and the associated social norms that women should consider the common good, could drive the findings on the association between less corruption and women's participation in decision making. Alternatively, women's presence may lead to less

corruption amongst male decision makers. In India, women are less likely to be corrupt and appear to be at least as effective leaders using observable measures on the quality of public services. Nonetheless their performance is judged to be worse than that of men and they are not likely to be re-elected (Duflo and Topalova, 2004).

It is interesting to note that China, India and Korea, countries that have pursued active and successful government policies to further development over the past fifty years, have all seen the need to actively address women's role in their countries' development. Gupta et al. (2000) report the very varied policies and the different motivations behind them.

8 Technological change behind development and gender equality

We began by noting that the lack of resources and opportunities available to women is strongly associated with society-wide poverty or lack of development. The studies we have surveyed so far highlight the interdependence of gender equality and economic development from varied perspectives. However, this work does not allow us to draw any clear cut conclusions about the direction of causality. Carrie Miles (2005, 2007) presents a hypothesis which includes an explanation of causation between development and several aspects of women's status, including education, birthrates, and power within the household and in society at large. Her explanation provides a framework for better understanding some of the findings presented above.

The central observation on which her hypothesis is based is the fact that the provision of rights to women is a relatively late development in human history, even in developed countries. She asks what has caused the women's roles to change so dramatically over the past century in United States and Western Europe.

Miles's explanation is a technological one. She begins with Becker's explanation for the sexual division of labor⁹. Before the development of modern production technology, households, particularly farming households, were on many levels self-sufficient entities requiring a great deal of labor to meet even basic needs. In these autarkic household economies children served as a valuable input to production. For these 'technological' reasons fertility was high, and couples often had more children than they really "wanted" in a modern sense because they needed the labor. Becker writes that under these conditions, women specialized in the child bearing and in those production activities that could be undertaken simultaneously with pregnancy, nursing, or child care. Men specialized in what was left over, that is, the work that women could not easily do with children present. While Becker's argument on the impact of domestic specialization explains intra-family power hierarchies, Miles points out that because much market activity, the military, and politics were literally "none of women's business," the subordination of women extends to virtually all arenas of life – a circumstance usually known as "patriarchy".

Miles traces the movement toward gender equality in the developed world to technological advances that destroyed the economic reasons for the sexual division of labor. The Industrial Revolution (usually dated to about 1800) was the beginning of a complete change in the autarkic and patriarchal household economy. Domestic production became slowly obsolete as technological advances made it more efficient for families to purchase consumption goods rather than make them at home (Cowan 1983). As this development progressed, much of the work performed by men and children left the home. As children lost their value as direct inputs to production and instead began to require expensive education in order to compete in the changing marketplace, fertility dropped dramatically. Miles notes that between the decline in the value of children and the continual technological progress that offered more and more market alternatives to home production, sometime mid-twentieth century it became inefficient for most women to remain out of the paid labor force as well, changing the role of women on nearly all levels. Specialization within the autarkic household

⁹ *A Treatise on the Family*, chapter 2.

economy became specialization at the market place, and the former sexual division of labor was no longer natural or necessary. Miles sees these technological changes as a cause for the feminism: With far less productive work that could be done at home, women took on new role in the economy and its related institutions.

This understanding of the role of household production offers a new and different way of looking at development. Recognizing that a developed economy is one in which production takes place outside of the household explains the strong correlations between societal wealth and increased education, population control, increased employment of women outside of the home, the shift in demand for quality versus quantity in children, and increased gender equality. The causation, however, runs from growth to the latter factors, not the other way around. This view of causation is in accordance with the findings of Dollar and Gatti (1999) that increases in income lead to less gender inequality in education. This explains why programs undertaken by the World Bank and other agencies to educate the population, decrease the birthrate, or to educate girls in order to decrease the birthrate, have had little impact on economic growth (as observed by Easterly, 2001, pp 71-85). If development is associated with the movement of production out of the household, development will result in both a falling birthrate and the requirement that productive workers, male and female, be educated. If current developing countries were to follow the western process of attaining gender equality, it would be growth that creates a demand for more education and fewer children and (eventually) a reason for gender equality.

The above view is in accordance with the empirical work documenting the failure of educational programs to stimulate economic growth in developing countries (Easterly, 2001). Nevertheless, less-developed countries with a relatively well-educated populace, such as South Korea before its development boom, are in a better position to adopt modern technology when the opportunities present themselves. These opportunities in turn demand more educated workers. Education thus emerges as a necessary but not sufficient factor for economic growth. Similarly, as gender equality allows **both** halves of the population to contribute to modern production, greater equality may be caused by the economic growth it fueled. As in the case of education, less-developed

countries with relatively liberal/less restrictive attitudes towards women will arguably also be in a better position to take advantage of opportunities for growth, and that growth will further the rights accorded women.¹⁰

Technological progress can be understood as a cause or catalyst for the gradual but dramatic development in western societies over the past 200 years: drastically declining fertility, children becoming rather consumption than production goods, women's economic liberation, the collapse of patriarchy and the overall increase in social welfare in developed countries. Greenwood et al. (2005b) make a similar point in their paper, 'Engines of Liberation'. They attribute the liberation of women from the home to the labor saving household technologies that were developed after the invention of electricity: Meal preparation, laundry and cleaning took 58 hours a week in the US in 1900 as compared to 18 hours 75 years later. In Sweden, Svensson (2006) estimates that the time savings in cooking, heating, and cleaning alone because of the introduction of new household appliances over the 1900s accounted for a minimum of 12 hours per week. This is not counting the impact on time saving because of the goods that were bought on the market rather than produced at home.

How does this long term development fit with the "baby boom" that temporarily interrupted the declining trend in fertility in the 1940s -60s? This boom in fertility is often attributed to pent-up demand for marriage and children following World War II. Greenwood et al. (2005a) acknowledge that the boom took place also in countries that were not involved in the war and notice that the 1940s-60s was exactly the time when the new household technology became commonplace. They thus model the post WWII fertility boom by the improved household technology which reduced the cost of children and household work. At the same time, women were beginning to move to the labor market, but the labor market was not yet open to most of them. Based on Miles's theory, we could hypothesize that this was exactly the period during which children started to serve as consumption goods, perhaps for the first time in history. Radically improved household technology may indeed have been part of the story behind the temporary increase in fertility. Interestingly, fertility of the working women, who were a minority of all women, increased the most during the baby boom period. Even today fertility is

¹⁰ An observation that suggests that countries dominated by religious influences that require the seclusion of women will experience slower growth.

higher in those European countries where women are actively participating at the labor market (Nordic countries) than in the countries where they are commonly housewives (Southern Europe). However, the baby boom turned into the baby bust and the trend decline in fertility continued in the 60s simultaneously as the last of the productive activities left the household.¹¹ Even married women entered labor markets in large numbers. Greenwood (2005a) study, like much of economics literature, looks at the children as consumption goods focusing on the opportunity cost of women in household, childrearing work versus market place. This storyline remains silent of the longer term trend whereby the productive role of children disappeared as a motivation for fertility decisions. This could be a reason why Greenwood et al. are not able to account for the extent of the baby bust after the boom. In order to understand the longer term trend of falling fertility rates in the developed countries, we must acknowledge the fundamental change in the role of children. Miles posits that their role has changed from production inputs under economic poverty to serving parents' utility more directly or at an emotional or social level. Indeed, Miles views the motive for marriage shifting from the economic need for sexual complementarity to demands for personal fulfillment, at the same time and for the same reasons. This change has occurred over time as production gradually moved out of the households, and the marketplace, not-for-profit agencies such as hospitals and nursing homes, and governments replaced the services once provided by the family (Miles, 2006). A declining birthrate is being observed among the elites in now-developing countries, while such a decline is more problematic among the rural poor, who face a world in which superior technologies are already invented but often not available (Miles 2007).

¹¹ This is not to say that there is not still a great deal of work to be done in the household, especially when there are young children present. However, few households today actually produce the items they consume – items such as fruits, vegetables, grains, meat, milk, fabric for clothing, home sewn clothing, heat, nursing care, education, all of which were produced in the home in the recent past -- and virtually none produce items for sale, as was typical in the 19th century.

9 Achieving gender equality: Challenges and Cures

As we have noted earlier, whether or not gender equality causes growth or economic development, gender equality along with other forms of civil rights has become a goal in itself. It can also be considered as development in itself (Sen 1999). The following literature considers some of the obstacles in achieving it.

Identity and self-perpetuating subordination

The exact characteristics of hierarchical gender valuations differ across countries, but there is not doubt that hierarchy itself exists to different degrees in most (one might argue, to some extent, in all) cultures. Its existence can be more vividly seen when looking at cultures in which practices differ from our own.¹² The appearance of patriarchy differs in Africa from the form of patriarchy in Muslim countries or Asia (Kandiyoti, 2002). Generally, gender hierarchy is not necessarily implied by gender specific specialization, but rather by the restricted opportunities and restricted perspectives for the future that this specialization typically carries with it. This specialization or role might be culturally prescribed, or taken on by individuals freely. The following quote from Amartya Sen offers a perspective on the dynamics by which the hierarchical gender valuations may interact with economics:

The insecure sharecropper, the exploited landless laborer, the overworked domestic servant, the subordinate housewife, may all come to terms with their predicament in such a way that grievance and discontent are submerged in cheerful endurance by the necessity of uneventful survival. The hopeless underdog loses the courage to desire a better deal and learns to take pleasure in small mercies.

Sen also introduced the idea of capabilities: “If we do not have the courage to choose to live in a particular way, even though we could live that way if we so choose, can it be said that we do not have freedom to live that way, i.e., the corresponding capability?” (Sen, 1984/1993, – taken from UNIFEM, 2000). Ester Duflo (2005) suggests that economic development alone is insufficient to

¹² Muslims for example, perceive women in the US to have low status, while Americans perceive women in Muslim countries to have low status. Both sets of perceptions are based on differing expectations of how much of a woman’s body should be naked or covered. Sexual exploitation and violence is common, if not much talked about, in both countries (Franks, 2003).

significantly increase women's ability to make decisions because of the pervasive stereotypes against women's ability. She cites research by psychologists showing the power of the so-called 'stereotype threat', which makes women believe that they are just not as good as men in particular tasks. Spencer et al. (1999) showed that the fact that female students had internalized the stereotype that they were less able than men made them perform less well than male students in a test situation. If the test was started by stating that, "You may have heard that girls are less good than boys at math, but this is not true for this particular test", the girls did as well as boys in the same test. Discrediting the stereotype affected performance immediately.

A model proposed by Akerlof and Kranton (2000) provides an explanation of how gender hierarchy sustains itself. They introduce identity into economic analysis as a factor that substantially changes previous analyses. Identity – a person's sense of self – is incorporated into the utility function as a motivation for behavior, and a simple game-theoretic model is adapted to gender discrimination and social exclusion. Identity is based on social categories C . Each person j has an assignment of other people and himself into these categories c_j : men and women in our case. The hierarchy story of the current paper fits directly with the Akerlof-Kranton's idea that the category and associated self-image for women carries a lower social status. Prescriptions P indicate the appropriate behavior for men and women in different situations. They may also describe an ideal for each gender in terms of physical characteristics and other attributes. The utility function for person j incorporates j 's identity, I_j , along with the usual vectors of j 's actions, \mathbf{a}_j , and others' actions, \mathbf{a}_{-j} as follows

$$(1) \quad U_j = U_j(\mathbf{a}_j, \mathbf{a}_{-j}, I_j)$$

Person j 's identity is represented as follows:

$$(2) \quad I_j = I_j(\mathbf{a}_j, \mathbf{a}_{-j}; c_j, \varepsilon_j, P)$$

Person's social status depends on the j 's assigned social category, c_j . A person assigned a category with higher social status may enjoy a higher self-image. Function $I_j(\cdot)$ gives the social status of a category. Identity also depends on the extent to which j 's own characteristics ε_j match those assigned to her/his own gender prescriptions P . Finally, identity depends on how well the person's own actions

and others' actions correspond to the prescribed behavior, P . For example, a woman working in a "male" profession breaks the prescriptions for both men and women. Men's identity in the profession may be negatively affected to some degree, but the woman's identity is in conflict.

In the simplest case the individual j chooses actions to maximize utility (1) taking as given c_j, ε_j, P and the actions of others. As in standard utility theory, people may not consciously realize they are maximizing this utility function. Given the complexity with which hierarchical gender prescriptions, individual characteristics, and economic actions interact and enter through identities into the utility functions, it is easy to see why there are difficulties in understanding the reasons for women's lower status from looking at economic data alone.

That women internalize these identity prescriptions and the status that goes with them can be seen in women's support of behaviors that sustain hierarchical gender valuations, even when such activities or attitudes harm them as a group. The results of Ben-Ner, Kong and Putterman (2004) dictator game experiment provides one such example. In this experiment, women and men are given 100 dollars to be split with a completely unknown person or a person of known gender. Women systematically gave less money to women than to men or to persons of unknown gender. Gender information did not affect men's giving. Crocker (1999) reviews literature on social stigma and self-esteem and arrives at more positive perspectives on the possibilities of countering the stereotypes of women's lesser value. She considers self-worth as something that depends on the shared meanings that people bring with them to the situations. Features of the situation may make the stereotypes irrelevant for the self-esteem. This is what happened for the student's in the math exam when the stereotype was made situationally irrelevant. It was an internalization that was instantly changed. If this is true about gender valuations more widely, it opens up possibilities for even quick changes in them.

Do the changing identities explain the historical experience of the now developed country women and changes in their labor market position? Why was change so slow if identities can change quickly in changing situations? Goldin (2006) gives an interesting perspective to this. She points out that only in the 70s or late 60s were young women able to predict what their life time employment would be. Even though many of the women of the previous generation were in the labor force most of

their lives, they could not have anticipated it at the time when they made their schooling decisions. Young women of the 70s were the first to be able to plan for a lifetime career and to form their identities before marriage. They naturally invested more in education and work experience. This explains why the increase in women's earnings relative to men's occurred only over the past two decades even though the labor force participation rates were high earlier. The altered identities were behind what she calls the 'quiet revolution' that took place over this time period.

In developing countries, governments in the past have been aware of the power of the stereotypes and patriarchal kinship structures when they are intertwined with economics. One of the strongest forces maintaining the hierarchical gender structures are the patrilineal inheritance rules whereby the productive assets are passed on through the male lineage. Concomitant with women's movement to the husband's locality in marriage is a lack of female autonomy and independent legal and social personhood. Their power in the new family grows over time only through the influence of sons who might show favor to their mothers. Older women have a lot to lose if the system breaks at the only time in their lives that they had hoped to gain from it, after much investment in their younger years. Gupta et al. (2000) report the history of gender policies in India, Korea and China in this respect over the 1950-2000. The communist government in China realized that it was not possible to eliminate private property without breaking the strong kinship, age and gender structures that were associated with the patrilineal system. They started a huge public campaign to promote gender equality to change women's roles, getting them out of homes to become wage earners. The campaign worked. During the communist era women moved from homes to paid labor force and acquired new respect and power within the family. The balance of power within the family was radically altered. An illustrative example is the Marriage Law in 1950 which was passed to eliminate child marriages and bride price. It led to violent resistance from men and old women – the ones who lost the power they had in the old kinship structures. The process of privatization after 1979 has tended to make women's labor invisible again. As a result, China now faces gender challenges that are similar to those in western market economies.

In Korea, strong economic development was associated with strong commitment to Korean culture. An essential part of it was maintaining women's traditional role in the family. Movement towards increasing women's status came through the government's strong commitment to family planning to reduce fertility in 60s and 70s. It was acknowledged that the force of patrilineal social structures had to be reduced in order to reduce the son bias at birth. Fertility could not be decreased if women had to bear large numbers of children in order to get the desired number of sons. Later on international efforts to improve the status of women have enabled Korean women's organizations to push for further reforms in the family law (see Gupta et al., 2000). In India, the caste system creates a further obstacle to improving women's status.

Statistical discrimination

There are common challenges that women face in market economies. One is the lower wages women tend to earn. Statistical discrimination offers one explanation for lower wages without implying that women have lower average productivity than men.

In European countries, women earn on average roughly 80% of what men earn (see Figure 4). Much empirical research has been done to identify how much of this difference in earning is due to wage discrimination. Studies using developed country data show that only a relatively small fraction of the wage differences is due to direct discrimination, such as paying different wages for exactly the same job to persons of similar qualifications. The finer the classification of occupations and positions, the less discrimination there appears to be: In the same job classification, there is almost no difference in salary between men and women. Using detailed data on Finnish industries Luukkonen (2003) finds that discrimination amounts to 8 percent difference in the pay between men and women. These results suggest that the most significant reason for women's lower average incomes is segregation of the job market. It is difficult, however, for economists to explain why female-dominated occupations are valued less in terms of pay and prestige.

“Statistical discrimination” may help explain the pay difference not due to overt discrimination. Statistical discrimination occurs when there is imperfect information on the

productivity of a person. Following Lundberg and Startz (1983), let us assume that the exogenously given distributions of productivities of men and women are identical, but that the observed abilities (OA) (perhaps measured by some ‘test scores’) are more reliable indicators of the true marginal productivities (MP) for the men than for the women as follows:

$$OA_i^{WOMAN} = MP_i + \varepsilon_i^{WOMAN} \quad \text{and} \quad OA_i^{MAN} = MP_i + \varepsilon_i^{MAN},$$

where $\text{var}(\varepsilon^{WOMAN}) > \text{var}(\varepsilon^{MAN})$ and i indicates the individual.

In the competitive equilibrium, each individual is paid according to the expected value of his/her marginal product conditional on the observed ability and the group membership (male or female). It can be shown that the equilibrium wage is a weighted average of mean productivity and the individual’s observed ability (or test score). Here the observed ability of the female workers is weighted less because of the greater uncertainty in the observation. Therefore the wage curve facing women is flatter than the wage curve facing men (as shown in Figure 1).

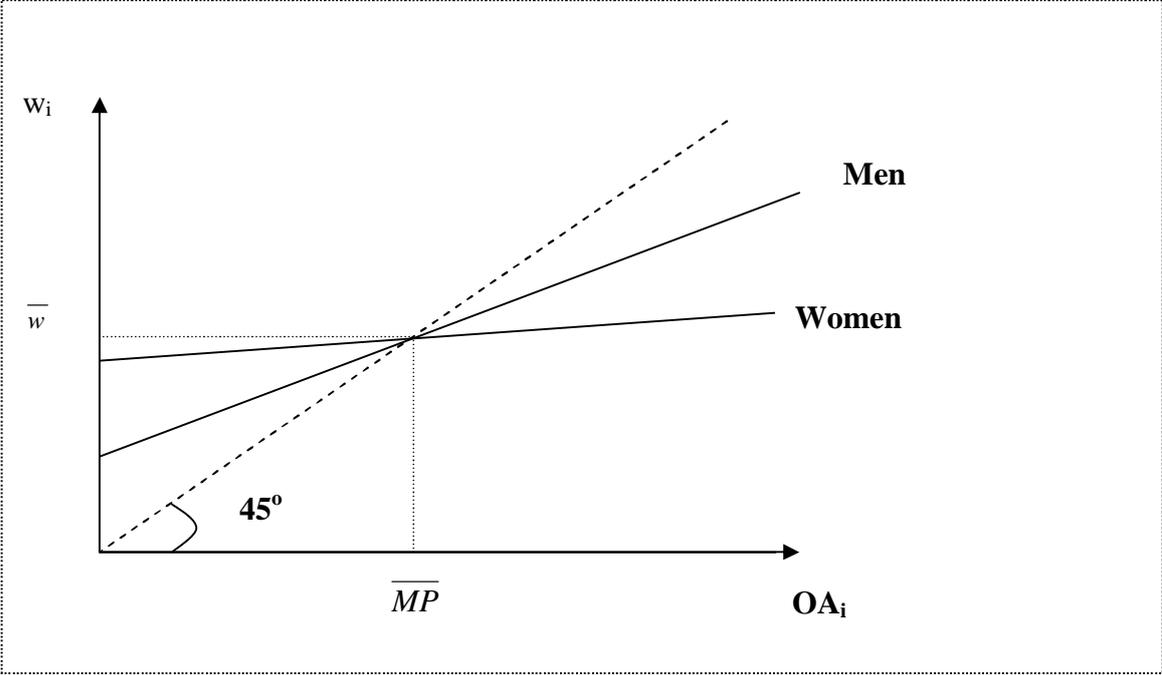


Figure 1. Statistical discrimination

As we can see, women with higher than average marginal productivity are paid less than men with corresponding marginal productivity, and women with lower than average ability are paid more than men with corresponding ability. As men and women get on average the same wage, \bar{w} , economists might not want to call this situation discrimination.

Lundberg and Startz (1983) go a step further and recognize that the above scenario affects the human capital investments, so that the productivities of men and women are no longer exogenous. If women's wage curve is flatter than men's because their abilities are less precisely observed, this leads to smaller returns to investment in their own human capital. Women will therefore invest less in activities that lead to promotions. The result will be that women's average productivities are less than men's, i.e. less than \overline{MP} in Figure 1. An empirical study might conclude that women's abilities are less and therefore they are paid less on average.

Lundberg and Startz point out that this kind of discrimination can result in large allocative efficiency losses as it becomes unprofitable for women to acquire the required skills, since the investment they make will not be rewarded fully. In this situation, it may be beneficial to prohibit the group-specific treatment of workers. Inefficiency costs associated with such a restriction may be insignificant in comparison to the efficiency gains from removing the economic discrimination. Discrimination in this case is defined as a situation where groups of people with equal average initial productive ability do not receive equal average compensation.

Statistical discrimination is likely to be a problem in developing countries, where the statistical odds that educated women will be productive may be very uncertain because of cultural restrictions. The first priority of rational parents may be to make sure their sons get educated and become able to support their families, while the daughters are expected to marry a man who is wealthier than she. This alone makes it unprofitable for parents to educate their girls regardless of her abilities and talents. Lagerlöf (2003) explains European growth over the past 2000 years as due to increasing equality in education, which at some point was enough to move Europe to a higher growth equilibrium path. As husbands (and sons) were not automatically assigned the task of economic provision in the new equilibrium, it came to be in the parents' interest to invest in their daughter's productive abilities as

well. This illustrates how difficult it can be to gain equal opportunity in a society that as a whole coordinates to a gender-biased equilibrium. Since this is an equilibrium that offers privileges to certain groups, it is all too easy to point to its advantages and perceive any changes to it as threatening. At the macro level this results in less development and slower growth as half of the population is not able to use their abilities fully and the other half is pressed to provide economically regardless of their abilities.

Care giving and home work

Ability to make economic choices requires earnings and the ownership of resources. For this reasons, feminists of our time have advocated employment for women. In a modern welfare state, however, gender hierarchy continues in the form of gendered segregation of the labor market combined with the fact that the female sectors of the economy are generally paid less and less valued. Women simply moved from the unpaid care of children and the elderly to the same work for pay. Regardless of whether they are paid or not, the provision of care to children, the ill, and the aged, whether paid and unpaid, continues to be largely women's territory, as is education below the university level.

The crucial nature of the often invisible work of women for any economy has been pointed out by Joel Mokyr (2002). He goes as far as to equate increasing knowledge of the importance of cleanliness and sanitation in the nineteenth century with the effects of the Industrial Revolution. Previously, disease was associated with poverty. The new diffusion of knowledge about the germs and the importance of cleanliness through all the levels of the society led to new emphasis on homework. The heretofore "invisible" work performed by women (nutrition, childcare and hygiene) suddenly became a top priority. As a result mortality rates were radically reduced by the end of the nineteenth century. With this new recognition of the importance of women's work, it is not surprising that their labor force participation outside the home remained low during that period.

Historically, it was also considered to be women's moral and natural duty to perform caring labor unselfishly and without pay. This view was questioned only much later as women in the

developed world achieved independence by joining the labor market. Even today there are some who argue that women should “naturally” be the ones to carry the burden of care. In response to these voices Folbre (2001) points out that maintaining the “natural” required extensive outside restrictions and enforcement. As cultural and legal restrictions on women diminished in the western world over the past few decades, women are freer to pursue their own self-interest and autonomy in a way that has been expected of men for many centuries already. In developed economies, moral arguments are no longer sufficient to persuade women to stay in economically and culturally disadvantaged position.

However, as Folbre (2001) points out in her book titled *Invisible Heart, Economics and Family Values*, there are problematic consequences of the new-found freedom from discrimination. In-home care of children and the elderly (work that is devalued by the markets) has been reduced: women do much less of the care work, and while men have increased their participation, their increase does not match the reduced input from women. This in turn is bound to have long run effects on the future development of any society if human capital is adversely affected. Lack of care and investment in children is likely to show up later in a decrease in their human capital and capabilities. Alfred Marshall, a professor at Cambridge, seems to have anticipated this “threat scenario.” Opposing the admission of women to degree programs in the nineteenth century, he warned that if university education was available to women, they would start developing their own capabilities rather than those of their future children (Folbre, p. 12). In those days, of course, it would not even occur to him to consider the possibility that men would share the burden of care for the children, the elderly or the home. But at the same time, in the modern developed societies hierarchical valuations “bite” as women pay for children in decreased earning capacity (Fuchs, 1989). For instance, it is taken for granted that it is the woman’s employer who pays for the costs related to maternity leaves or that it is the mother who takes time from her job to care for a sick child.

It is increasingly clear that the rising economic responsibilities of women need to be coupled with rising responsibilities of men in caring for children for there to be genuine economic equality. Bojer (2000, 2005) makes this point in the context of social justice theories. Currently, literature on gender equality focuses almost exclusively on women. Yet, genuine development must lead to

empowerment of both men and women, and their co-operation. Paying attention to men's disadvantaged position elsewhere would seem like one starting point (see Jacobsen, 2002).

In a broader sense, however, standard economics models with separate, self-interested and autonomous agents are inadequate, as they do not consider the care work that needs to be done in the families and society. It is unclear if it is even possible to assign an economic value on the large burden that care work puts on any society or to design systems that would reward care work sufficiently.

Traditional institutions and globalization

Globalization may be a powerful force to bring changes in the old traditional institutions and networks that have made it difficult for women to move away from their traditional economic position. Munshi and Rosenzweig (2006) find survey evidence that globalization may be a force to transform traditional Indian institutions based on gender and caste. Over the past 20 years, low caste boys in Bombay have been taught in the local language schools. Their sisters, however, are increasingly being sent to English-speaking schools, which were traditionally attended mostly by the higher castes. Munshi and Rosenzweig explain this differential treatment of boys and girls with the observation that men are traditionally employed through same-caste male networks where the local language is spoken. The network externalities for the male blue collar jobs within the *jati* are significant. Girls in contrast have nothing to gain from these networks. Training in English, however, gives girls the opportunity to be employed in the new white collar sectors of the economy. This strategy also undermines the caste system, as it makes these girls more likely to marry outside the *jati* as well.

On the other hand, there is concern that globalization may lead to other kinds of economic institutions that are oppressive to women. The export processing zones employ women in very repetitive and very low paying jobs. Often younger girls or single mothers take these jobs temporarily, sometimes against the wishes of her family. Critics point out that these jobs do not offer a longer term career track for these women (See articles in *The Women, Gender and Development Reader*, 2002). In spite of these drawbacks, however, the job opportunities the export processing zones offer may be a step forward in development, allowing young women the opportunity to gain some autonomy and to

make their own consumption choices. As the export processing zone companies mature, they may also move towards more advanced production methods.

Forces facilitating growth and gender equality in developed countries

Education of girls, as well as issues relating to sexuality and fertility, more equitable inheritance laws and practices, and increased voice of women in the society are seen as the most critical for development today by agencies such as the World Bank and the United Nations.

Theoretical economics literature, however, is remarkably silent about the role of gender equality in facilitating or causing growth. Lagerlöf's 2003 article is among the exceptions. He suggests that the reason for Europe's spurt in economic development had to do with changes in gender equality over the past 2000 years. These changes were possibly initiated by the spread of Christianity. In his writings on the growth of the early Christian movement, sociologist Rodney Stark argues that in opposition to the Greco-Roman culture that dominated the world in the first century society, Christianity raised the status of women considerably. Some of their innovations improved the status of widows, allowing them to remain single if they so desired and to keep their husband's estates, and extended women's rights to inherit and hold property. Christianity also forbids forced child-marriages, and as a result Christian women married as adults rather than as children (see Stark, 1999, p.95-128). In other work, Stark (2005) makes the case that by accepting a rational view of the world and technological development, Christianity is also the driving force behind Western economic development.

Some of this advantage Christianity bestowed on women was lost later as it was coopted by the Roman Empire (Torjesen 1995). The Roman Catholic Church took a progressively negative and ambivalent stance towards women. Evil was considered to come to the world through women, women's sexuality was seen as impure and priests were required to leave their wives and become celibate. Women's roles became more restricted and focused on the home than in the initial centuries after the birth of Christianity. The persistence of these restrictions may account for findings such as those of Guiso, Sapienza, and Zingales (2002). The Protestant Reformation loosened the hierarchy but

did little to free women or to eliminate restrictions in the church institutions themselves (see Tucker and Leland, 1987). However, the rise of Protestantism may have indirectly been a crucial catalyst for gender equality: Protestantism expected everyone, male and female, to read the Bible themselves. This built a rationale encouraging women's education and literacy and led to increased instruction for girls as well as boys, a development that Lagerlöf (2003) views as responsible for moving Europe onto a higher growth-equilibrium path.

10 Summary and conclusions

What can be said about the role of gender equality in development based on this survey?

First, the current situation in many developing countries is strikingly similar to that of Western Europe roughly a hundred years ago. Today's developing nations face the same issues that the now developed countries resolved over the past century or two: education for girls, women's political, legal and marital rights, employment outside of the home for women and men alike, lower fertility and reduced child mortality.

The current economics literature reveals that hierarchical (or patriarchal) gender valuations appear in many different guises. Overall the literature hints as to the aspects of gender inequality that seem to be associated with the overall level of economic development: values and religion, cultural restrictions, legal and inheritance laws and practices, the marital pattern of resource allocation, monogamy vs. polygyny, labor market access, education, fertility, gender specific market failures in finance, and power in political decision making. The challenge in the future may be to look at the issues from men's perspective as well. How does gender inequality adversely affecting men? What are the disadvantages, cultural, and economic restrictions that men face? Those restrictions will be different from the ones women face but they may be even more severe in their own ways. These restrictions and assumptions about men's roles have only recently been questioned, and only in the most technologically-advanced cultures. There can not be real gender equality unless the road leading to it increases well-being for men as well as women.

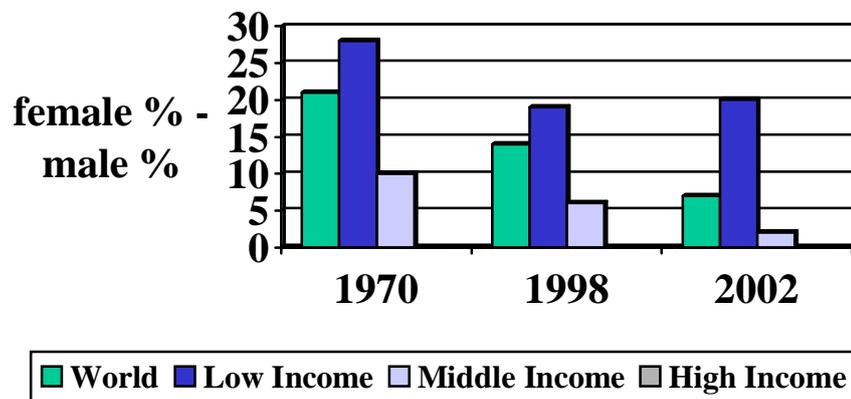
From the policy point of view, it would be important to know to what extent progress is hindered by those societal and economic structures that could be changed by political decisions, versus to what extent progress is hindered by more fundamental valuations and preferences of both genders. From the reviewed literature, it seems apparent that both matter. It further appears that the relevant values are not exogenous to the economic aspects of life. Establishing economic structures and incentives that encourage equality are likely to affect values and customs and vice versa – both working for economic development and growth. It is evident that the causality runs from economic development to greater gender equality as the economic constraint become less binding: for example, as countries become well-off enough to educate both boys and girls.

It can be argued that the immediate push for greater gender equality in the developed countries came through the technological changes that moved the production from autarkic households to the market place. These changes led to a change in the roles of women, men and children. As technological development made products available at lower cost than they could be produced at home, first men, then children, and finally women were no longer needed for production purposes within the household. The organization of household economies, where women specialized in the home production along with child bearing and rearing, became obsolete as more and more of the needed goods were produced outside the home. The economic pressure to have many children disappeared. Instead of children serving as inputs to production they started to serve consumption purposes. Further technological advances have eliminated the need for the full-time presence of women in the household as well. As a result, women in the developed world have to a large extent joined men in seeking paid employment outside of the home.

The required adjustment to these changes has not been quick or easy. It required a profound change in the old patriarchal world where the roles of men and women were distinctly different - women's identity and roles centered on the child bearing. And one of the consequences of the loss of the economic value of the family has been a deterioration of the family itself – high divorce rates, large numbers of children growing up with only one parent, decreases in marriage rates, and soon-to-be disastrously low birthrates in most wealthy countries (see Miles, 2006, for the development of these

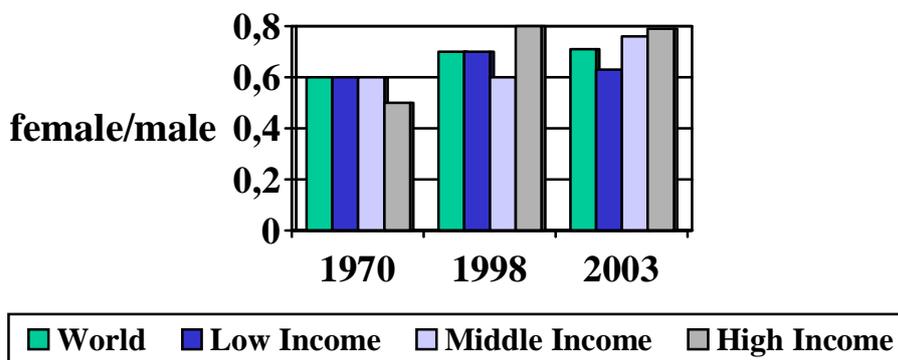
arguments). While these challenges still lie ahead for many developing countries, the developed world has yet to complete the process of achieving full equality between the sexes while supporting the development of the human capital of future generations.

Figure 2. Adult illiteracy rate



Source: World Development Indicators,
2000 and 2005, World Bank

Figure 3. Labor force participation rate



Source: World Development
Indicators, 2000 and 2005
World Bank

Figure 4. Women's pay in % of men's pay, full time

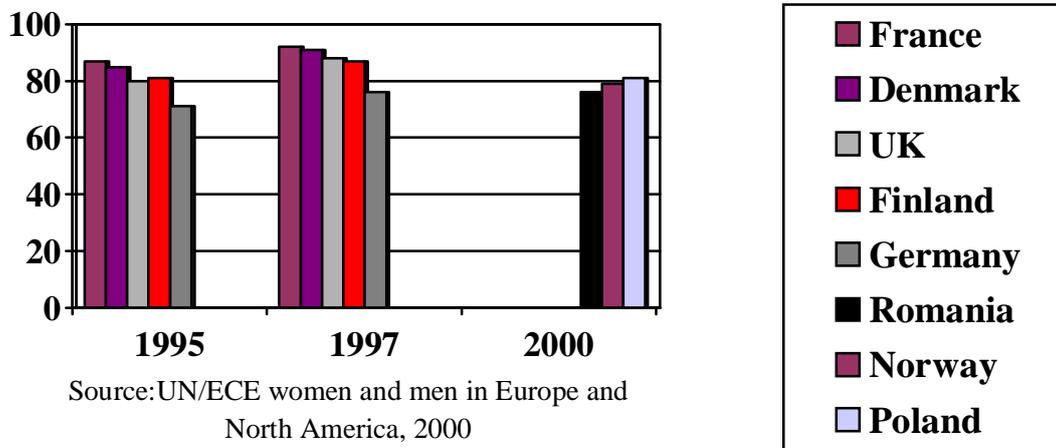
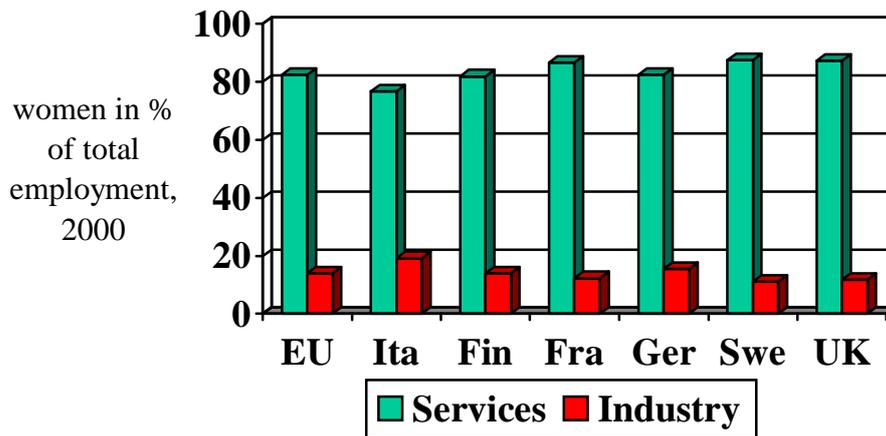
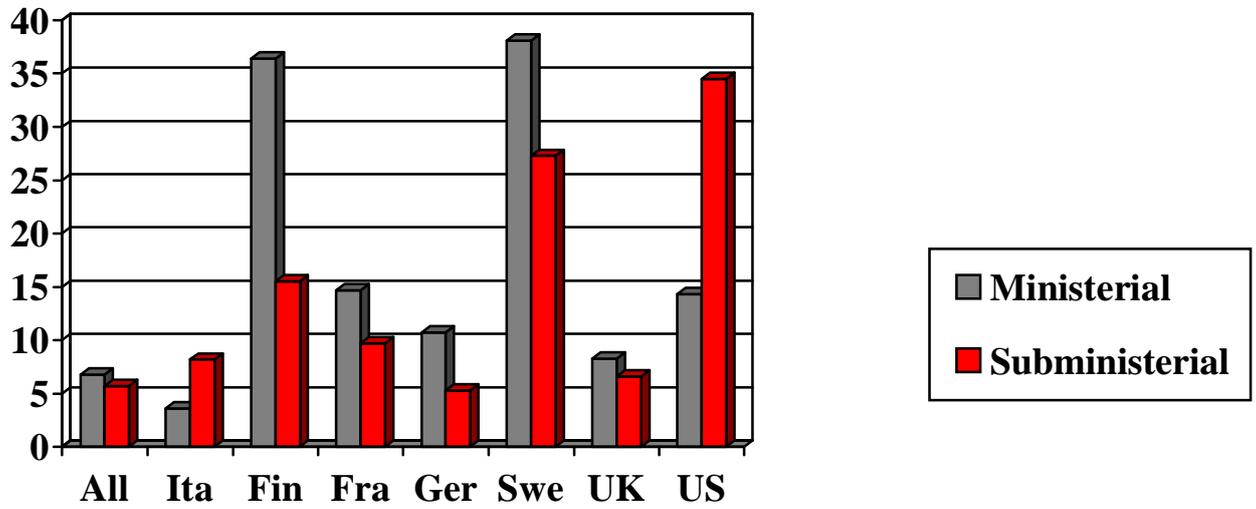


Figure 5. Gender segregation



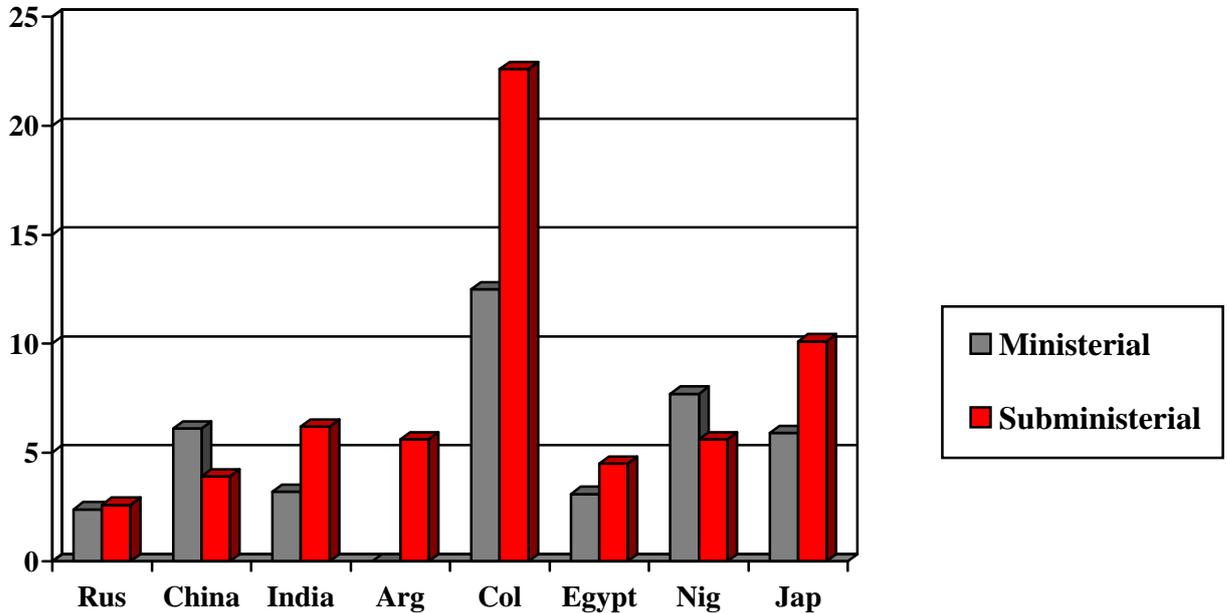
Source: Employment in Europe

Figure 6. Percentage of women in Government, 1996



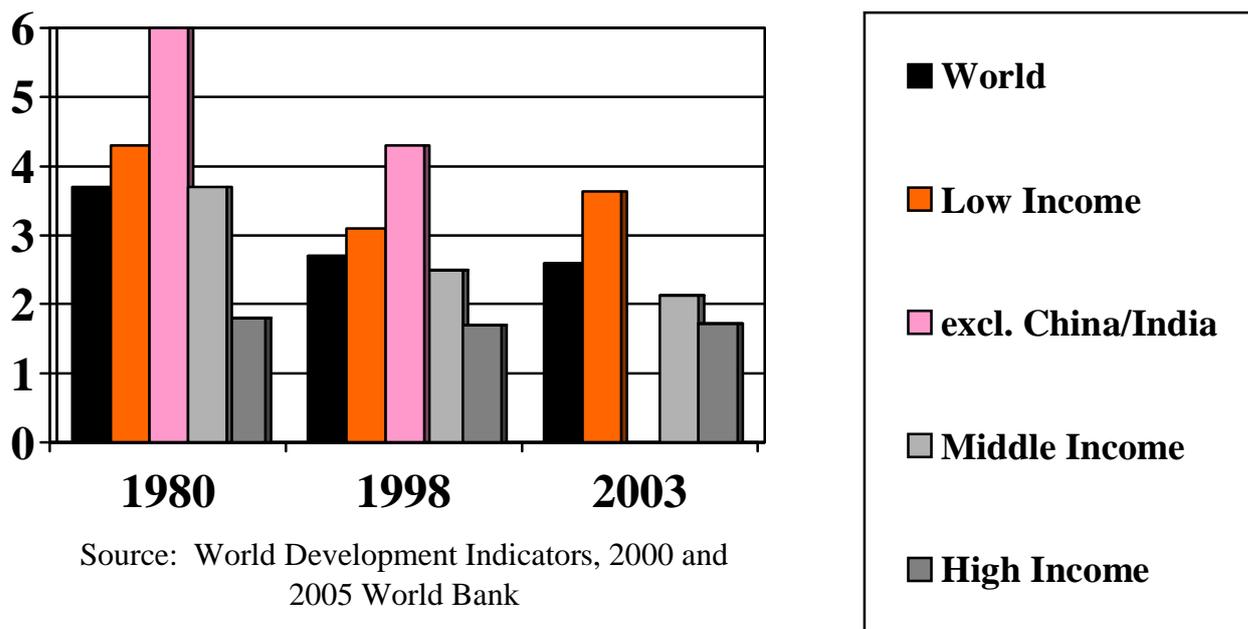
Source: www.un.org/womenwatch/daw

Figure 7. Percentage of women in Government, 1996



source: www.un.org/womenwatch/daw

Figure 8. Total fertility rate, births per woman



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