Gender, poverty and demography: an overview[1]

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Abstract: Much has been written on gender inequalities and how they affect fertility and mortality outcomes on the one hand, and economic outcomes on the other. What is not well understood is the role that gender inequalities, embedded in the behavior of the family, the market and/or society, play in mediating the impact of demographic processes on economic outcomes. This paper reviews the empirical evidence on possible economic impacts of gender inequalities that work through exacerbating demographic stresses associated with different demographic scenarios and/or reducing the prospects of gains when demographic conditions improve. It defines four demographic scenarios and discusses which public policies are more effective in the different scenarios in reducing the constraints that gender inequality imposes on poverty reduction.

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Renewed interest in the links between demographic change and economic outcomes has focused primarily on the "window of opportunity" that the increasing share of adults in the population relative to children and the aged presents for accelerating economic growth. But it is well known that a larger set of demographic processes can influence the prospects for poverty reduction and economic growth.

Much has also been written on gender inequalities and how they affect fertility and mortality outcomes on the one hand, and economic outcomes on the other. What is not well understood is the role that gender inequalities play in mediating the impact of demographic processes on economic outcomes.

This overview examines the impact of gender inequalities on poverty through the prism of four dominant demographic conditions (Figure 1). Gender equality does not necessarily mean equality of outcomes for men and women but equality of opportunity (and the ability to make choices) in the family, the market and society (World Bank 2007). Girls and women are typically more affected by inequalities in opportunities— which have serious (and often overlooked) implications for the perpetuation of poverty — but we also discuss the impact of gender inequalities on men's well-being. Given that there are few data on differences in opportunity, much of our discussion is necessarily based on studies of gender differentials in outcomes ─ as a proxy measure of opportunity.

The available evidence on these relationships varies in quantity and quality. A large literature establishes associations between variables but does not prove causality. The overview flags these analytical differences and focuses primarily on the relationship between gender inequality and poverty outcomes, which is backed by a growing body of micro-studies using increasingly rigorous methodologies. We focus much less on the relationship between gender inequalities and economic growth, which is more difficult to measure and where the evidence is much weaker (see Schultz in this issue).

The four demographic settings are illustrated in Figure 2. They are:
(1) Demographic "explosion" — countries with high fertility and declining child mortality leading to high youth dependency ratios, reducing per capita resources for investments in human capital, infrastructure and economic growth, and making it more difficult for households to emerge out of poverty.
(2) Demographic "window of opportunity" — countries where declining fertility has led to a high proportion of working-age adults in the population relative to children and the aged, offering the prospect of increasing savings and economic growth if appropriate policies are put in place to use the expanded labor force productively.
(3) Demographic "implosion" — countries where the population is aging rapidly as a result of continuing low fertility and declining adult mortality, straining public and private resources for supporting the aged, a disproportionate number of whom are female since they typically outlive men.
(4) Demographic "hourglass" — countries where there is a reduction in the prime working age population because of premature adult mortality (from armed conflict or disease, such as HIV/AIDS), raising dependency ratios, increasing households' vulnerability to poverty, and reducing the potential for economic growth. This is the reverse of the demographic "window of opportunity." While countries progress over time from the first to the third scenario, this "hourglass" effect can occur under any of the prior scenarios, if there is an unusual mortality spike.

Gender inequalities exacerbate demographic stresses and limit potential gains when demographic conditions improve.[3] In high fertility settings, they slow fertility decline, negatively affecting women's health and lifetime earnings and reducing the prospects of income growth for current and future generations. In the second scenario, gender inequalities restrict women's participation in productive employment, and thereby lower the potential "dividend" in terms of economic growth. In rapidly aging populations, the strains of supporting the aged are exacerbated by gender inequalities in access to productive assets and employment. But where gender inequalities go so far as to result in significant proportions of women "missing" due to sex-selection, men may be deprived of familial support in their old age. Lastly, under the "hourglass scenario," gender inequalities increase the vulnerability of children and the aged to poverty if adult males die, because adult women are less well-placed to support their dependents single-handedly ─ though this can be partly offset by an increase in potential economic niches left by the men who die. Figure 3 maps the countries of the world according to their dominant demographic scenario. The most demographically-stressed are those countries which still have high fertility but are also subject to the "hourglass" scenario as result of high HIV prevalence rates or armed conflict. This combination of demographic stresses severely constrains these countries' efforts to reduce poverty and increase growth. The remainder of this overview synthesizes main findings to date under the four demographic settings and makes suggestions for research and policy.

I. "DEMOGRAPHIC EXPLOSION": HIGH FERTILITY AND RAPID POPULATION GROWTH

It is an arithmetic truth that rapid population growth strains resources at both societal and household level. Rapid population growth (Figure 2a above) reduces available per capita resources for public investment in services such as health and schooling, as well as for investing in generating growth through expanding infrastructure and employment opportunities. These take a toll on the prospects for economic growth and poverty reduction, though in the very long sweep of history higher population density can be associated with more rapid technological change (Kremer 1993). At the household level, having large numbers of children puts pressure on the household budget and can be associated with poorer human capital outcomes through many channels, taking a toll on children, women, and the household economy. The evidence for this is discussed below.

Effects on child health and wellbeing

Parental investment in children may be diluted as the number of children increases. In particular, poorer families may have trouble feeding and schooling their children, and larger families may intensify these challenges. Several studies have examined this "quantity-quality tradeoff" carefully, controlling for the potential endogeneity between family size and child outcomes. Evidence of this tradeoff is found in the developing world, for example in Indonesia, where later born children are found to have lower weight-for-age (Henderson and others 2008). In the developed world, where parental incomes are relatively high, less dramatic effects are

[3] In turn, changing demographic dynamics can affect gender inequalities. For example, it can affect spousal dynamics. Given that men typically marry women younger than themselves, the age gap can increase with high fertility and resultant growth in size of successive births cohorts. This gives men a potential edge over their wives, which diminishes when falling fertility reduces the scope for finding a wife much younger than oneself. Little is yet known about how this affects other outcomes, such as investment in human capital.

found in some studies. In the United States, children's likelihood of attending private school falls with increasing sibsize (Conley and Glauber 2006), and in Norway later born children have been found to have lower IQ (Black and others 2007). Other studies in the developed world find no effect, for example, in Israel (Angrist and others 2005).

Another manifestation of "resource dilution" is that babies are more likely to be born with low birth weight if they are born to mothers depleted by successive pregnancies. In a review of studies from around the world, Behrman and others (2004) find that low birth weight is associated with stunting, poorer cognitive development and lower adult productivity. In the United Kingdom, children of low gestational age grew to be adults who were shorter, had lower earnings and were less likely to have professional or managerial jobs (Strauss 2000).

Gender adds a further twist to this story of "resource dilution" since there is a strong preference for sons in many developing country settings. In South and East Asia parental son preference is strong and results in significant "culling" of daughters in order to keep family size down (Chung and Das Gupta 2007), thereby reducing the "resource dilution" caused by bearing children until they reach their desired number of sons. This pattern of excess female child mortality is not found in sub-Saharan Africa (Garenne 2003). Filmer, Friedman and Schady's paper in this issue shows that parents are more likely to stop bearing children if they have a son, so girls tend to have more siblings. This means that son preference, combined with incomplete "culling" of girls, leads to larger family size. This effect is strongest in South Asia, followed by Central Asia and the Middle East & North Africa.

Effects on women's health, labor force participation, and earnings

Women pay a high price for high fertility in terms of maternal mortality, a major cause of death for young adult women in high fertility settings (WHO 2007). Moreover, women's mortality risk remains elevated long after childbirth: a study in Bangladesh found that this risk is nearly twice as high as normal for up to two years after childbirth (Menken and others 2003). This is further complicated for the poor by the fact that they have less access to quality care during pregnancy and childbirth (Bloom and others 2001).

Childbearing can also take a toll on women's labor force participation, productivity, and earnings. In Bangladesh, Joshi and Schultz (2007) found that lower fertility was associated with a rise in women's earnings, better maternal and child health, and higher schooling for the sons in the family. Studies in settings as diverse as the Philippines and Brazil indicate that childbearing is associated with lower women's labor force participation (Adair and others 2002; Connelly, and others 2006). However, other studies yield only a weak correlation between declining fertility and women's labor supply. This may be due to the intervening role of family structures and dynamics, including fosterage, that affect the allocation of labor within the household and the compatibility between paid work and child care, cultural practices that may constrain women's access to jobs and productive resources, and labor demand.

Women's lifetime earnings are found to be negatively associated with the number of children, and this is especially the case for women who are less educated and those who begin childbearing early. This association is strongest among poor and less educated women in the United States (Angrist and Evans 1996). Similarly in the United Kingdom, a woman with no qualifications and two children has half the total lifetime earnings of her childless counterpart, and a mother of four has less than a fifth of the total earnings of a childless woman (Matheson and Summerfield 2001). In Chile, Barbados, Guatemala, and Mexico, Buvinic (1998) found that, only among the poor, adolescent childbearing was associated with lower monthly earnings for mothers and lower child

nutritional status. In agrarian settings, women's participation and lifetime productivity in the labor force may be less disrupted by childbearing but, countering this hypothesis, tabulations of time use data from countries in Latin America, Asia and Africa, including several still largely agrarian societies, indicate that women spend twice as much time on unpaid care work than men (Budlender 2008).

Effects of girls' education and urbanization on fertility

Women's education is strongly negatively correlated with fertility (Cochrane, 1979). More recent studies have controlled for potential endogeneity between the variables and established this link more conclusively in a range of settings, including Guatemala, Nigeria, and Indonesia (Behrman and others 2006; Osili and Long 2004; Breierova and Duflo 2004). However, further evidence is still needed to unambiguously establish causality and clarify the principal pathways by which women's schooling affects fertility. Urbanization has also been found to be correlated with lower fertility, partly due to higher opportunity costs (education and employment) and greater access to family planning services. This is found in many settings, including China and several African countries (Goldstein and others 1997; Brockerhoff 1998).

Women's disadvantage in schooling is narrowing in most regions of the developing world. Grant and Behrman (2008) find that the gender gap in school enrollment at ages 10-12 (but not at older ages) fell between 1990-99 and 2000-05 in South Asia, North Africa/Middle East, and West/Central Africa. In Latin America, Southeast Asia and South/East Africa, they find that girls aged 10-12 have somewhat higher levels of primary school enrollment than boys, and that their secondary school attainment (conditional on enrollment) is higher than boys'.

II. THE "DEMOGRAPHIC WINDOW OF OPPORTUNITY"

The demographic "window of opportunity" is the period following fertility decline, when the share of working-age people in the population rises and dependency ratios are low (Figure 2b). This increases per capita income and per capita availability of public resources to invest in human capital and the infrastructure for economic growth. Aggregate savings can be raised, and the expanded labor force used to increase the pace of economic growth. This in turn helps speed fertility decline, in a virtuous cycle of high growth-low fertility. Eventually the population starts aging, and this "window of opportunity" closes.

The extent to which this "window of opportunity" can be converted into a "demographic dividend" of increased economic growth depends on the effectiveness of state policies. Realizing this dividend requires early investments in schooling and health, so that the working population is educated and healthy. Robust evidence shows that while expanding the quantity of education is important, the quality of education is key for economic growth (Hanushek and Woessmann 2008).[4] Policies, therefore, should invest in improving school quality; they should also encourage the expansion of employment opportunities, especially in industries which can absorb the semi-skilled labor which predominates in developing countries. Promoting international trade and a

[4] Improving health outcomes has been widely found to be associated with better cognitive outcomes as well as labor productivity and higher income at the microlevel, but the macrolevel impact of health improvements on economic growth is difficult to measure and more mixed (Jack and Lewis 2007; Glewwe and Miguel 2008).

favorable investment climate, and reducing labor-market rigidities increases the demand for labor.

East Asian countries put these measures in place and, as a result, one third of the nearly tripling of real per capita income between 1965 and 1990 has been attributed to their ability to harness the demographic shifts to advantage (Bloom and Williamson 1998). By contrast, Latin America's under-performance relative to East Asia during this period has been linked to protectionist trade policies that hindered actualizing this dividend (IADB 2000). However, establishing precise causality between demographic and economic change is methodologically complex, given simultaneity between demographic and economic variables. Shultz (in this issue) finds, for instance, that the association between a rising share of households with working-age individuals and increasing aggregate demand for savings (following the life-cycle savings model), results in large estimates at the aggregate level but yields only weak, insignificant estimates with household survey data.

Gender inequalities and the demographic dividend

Gender inequality can mediate the effect of the demographic bulge on economic growth in a number of ways. First, it can slow the speed of fertility decline, and therefore the timing and size of the "window of opportunity." This can result in a shallow but prolonged "window of opportunity," not the sharp surge of working age population seen in East Asia. Second, gender inequalities in schooling can limit the potential for economic growth by restricting the pool of talent from which to draw, and reducing average labor force quality (World Bank 2001). Galor and Weil (1996) conclude that gender inequalities in schooling and employment can seriously hamper countries' prospects for growth and poverty reduction. Studies from a range of settings indicate that expanding women's education and control over household resources is associated with better child health and education (World Bank 2007; King and Hill 1993), boosting the potential for future productivity and economic growth.

Third, increased female labor force participation (and greater gender equality in labor markets) contributes to the dividend. It has been argued that women's entrance into the labor force was one of the most important features in East Asia's demographic dividend (Mason 2006). Shultz (in this issue) argues that the gains from increases in female labor supply will be larger than those from changing age structures.

Cultural restrictions can constrain women's economic contributions. In the Middle East, they have prevented women from taking advantage of the opportunities created by economic opening (Schultz in this issue). It is also common for women to be less likely to own or have secure access to productive assets, such as land. Deininger (2008) shows that in Ethiopia, increasing women's tenure security (by issuing land titles in both the names of husbands and wives) increases farm productivity and empowers women within the household.

In societies with strongly patrilineal kinship systems, parents have lower incentives to invest in schooling their daughters since they cannot receive support from married daughters. Filmer (2000) finds a large gender gap in female enrollment in selected countries in South Asia and the Middle East, especially in poorer households.

III. "DEMOGRAPHIC IMPLOSION": RAPIDLY AGING POPULATIONS

The rapid fertility decline in much of the developing world is graying the population much faster than in the developed world, and typically at lower levels of income, straining sources of old age support. Although the share of older persons in industrialized nations remains higher, by mid century 80 percent of the world's elderly will be living in developing countries. The most rapid growth of the elderly population will be in East Asia, which experienced the most rapid fertility declines (Figure 4). South Asia and the Middle East will have a longer window of time in which to put formal old age support systems in place, and for Sub Saharan Africa the problem is far into the future.

In the developed world, formal systems support the elderly and protect against old age poverty, although an increasing number of countries face problems with the continued financing of these systems as the proportions of the aged rise (Williamson and Smeeding 2004). Some middle-income countries such as South Africa and Brazil show that modest cash transfers directly targeted to the elderly can significantly reduce poverty and extreme poverty (Case 2004, Carvalho 2008). Interestingly, when women received the transfers they used them also to improve their grandchildren's health and schooling outcomes, an effect that was not measurable when men received the transfers (Duflo 2003, Carvalho 2008) Of course, even these measures may be fiscally unaffordable in many low-income countries where, until recently, the formal sector has been small and citizens have not contributed to pension funds. These countries may also lack the administrative capacity to deliver such targeted support. At present, in most developing countries non-contributory pensions provide quite trivial support (Casabonne, 2007).

Fortunately, traditional systems of familial support are still largely in place in the developing world, where children are the main source of material and physical support for their aged parents. The proportions of elderly living with their children are highest in Asia, followed by Africa and Latin America (United Nations 2005). Co-residence with children is associated with a lower likelihood of being poor in old age, although causality has not been established. Smeeding and others (2008) find that, in middle-income countries (China, Taiwan, Mexico), people in multi-generational households have net "disposable income poverty rates" that are not much different from those in rich countries. Non-co-resident children may also help support their parents financially and otherwise.

With urbanization and "modernization," the proportion of elderly living in multigenerational households shrinks: between the early 1980s to 2000, it fell from 78% to 66% in Mexico, and from 95% to 58% in Taiwan (Smeeding and others 2008). However, familial support can show remarkable resilience even after decades of social change. In Taiwan, only 29% of aged respondents said that pensions/retirement benefits constituted their main source of income (Chan 2005). Persistence in patterns of familial support offers a window of time for countries to build up the resources to establish more formal old age support policies. This needs to be carefully designed, since government transfers to the needy can diminish the flow of private transfers from other relatives (Jimenez and Cox 1992).

Gender inequalities heighten the problems of old age support

Women are more vulnerable than men to poverty in their old age, for several reasons. First, they have lower lifetime earnings as a basis for earnings-linked support systems and for personal savings, because they (a) participate less in the formal labor force, (b) are paid less for their participation, and (c) childbearing lowers their lifetime earnings curve. And they own fewer

assets than men (World Bank 2007). In sum, women make large non-monetary contributions to their families, but in turn are more dependent on them for support.

Second, they live longer than men, on average. This results largely from women's biological advantages and men's greater tendency to adopt risky behaviors.[5] Gender differences in opportunity also contribute, for example through men's greater exposure to hazardous occupations. Greater longevity can be desirable, but it also means that women are likely to be widowed and perhaps lose access to all or part of their husband's income or pension. Moreover, women are exposed to a longer period of old-old age with potentially poor health during which their need for support is higher On the other hand, studies indicate that women are better integrated than men into family and social networks, giving them sources of resilience (Knodel and Ofstedal 2003).

Old people are especially vulnerable where kinship systems prescribe that only sons can support their aged parents and less vulnerable when children of either sex can provide parental support. Fertility decline further increases the likelihood of old parents having no son able to support them. This suggests that the need for state support may be higher in some societies than in others, and that policies for state support may need to be tailored to the prevailing cultural patterns.

An especially striking manifestation of how old age support can be affected by gender inequalities is currently unfolding in China, where significant proportions of girls are "missing" as a result of strong son preference. While this problem has been widely discussed, Ebenstein and Jenning's paper in this issue explore its dynamics and implications. They show the significant proportions of men in China who will remain single, and will face an old age without the physical and financial support of a spouse and children. The regions of China with the highest levels of culling of girls are also the prosperous regions of the country, and able to attract marriageable women from the poorer areas. Thus they show that the unmarried men will be concentrated among those who are poorer and less educated, living in regions with lower employment opportunities and resources for providing public support to their citizens. Ironically, a cultural bias against girls will increase male poverty and vulnerability, especially in old age.

IV. "DEMOGRAPHIC HOURGLASS": WORKING-AGE ADULTS MISSING

If the prime working age population is shrunk by premature mortality, there are economic and social consequences at both macro and micro levels. It is the opposite of the "demographic window of opportunity." At the macro-level, the labor shortfall and the rise in dependency ratios diminish the potential for economic growth and poverty reduction. At the micro-level, households suffer from the loss of income from the missing adult, and the remaining members of the household are put under greater stress to provide and care for everyone. Familial support for the aged and for children is stressed. On the other hand, the labor shortages can benefit women and others who may find it normally harder to find a job.

[5] Genetic and physiological factors predispose women to greater longevity (Waldron 2005) ─ while men have higher levels of engagement in life-threatening behaviors such as smoking and drinking and violence as well as higher exposure to hazardous occupations, resulting in higher mortality rates from causes such as lung cancer, accidents, suicide, and homicide (Waldron 2005, McKee and Shkolnikov 2001).

One major factor making for "hourglass" populations is armed conflict. These typically raise adult male mortality more than that of other groups in the population. The resulting shortage of working-age males can be dramatic: in 1950, after the 2nd World War there were 40% more women than men aged 25-39 in Germany, and 57% more in what is now the Russian Federation (Figure 2d).[6] In Africa in the year 2000, there were an estimated 51 deaths per 100,000 for males compared to 15 for females — while the average for low and middle income countries was 6.2 male deaths per 100,000 (WHO 2002) — suggesting excess male mortality due to violence. Studies show the devastating effects of conflict at the macro and micro levels, and have also analyzed the economic causes of conflict (Stewart and Fitzgerald 2001, Collier and Sambanis 2005). However, studies of gender differentials in the effects of conflict are limited by the difficulties of data collection in the aftermath of war, and of attribution of causality, so they are not reviewed here.[7] Another possible factor producing "hourglass" populations is the reverse skewing of the population age-sex distribution as a result of strong societal son preference, which increases girls' mortality. Current sex ratios at birth in China[8] imply that these birth cohorts will have nearly 20 percent fewer adult females than males. The fallout for men has been discussed above. However, son preference may not shrink the total labor force, since it implies a choice not to reduce family size, but to alter its sex composition. Indeed, if parents are inefficient at "culling" daughters, son preference may increase the size of birth cohorts (Filmer and others in this issue).

HIV/AIDS is a very important factor making for high levels of premature adult mortality, shrinking the labor force. It is estimated that by 2020, some of the worst affected countries (Botswana, Lesotho, Swaziland, and Zimbabwe) will have lost over 35% of their working-age populations (ILO 2006). A high prevalence of HIV/AIDS is estimated to have a large negative impact on GDP growth (Corrigan and others 2005). The mechanisms through which this happens includes loss of labor productivity owing to illness/death, increased health care expenditures that lead to dissaving, as well as lower capital accumulation and expenditures on schooling.

HIV prevalence and gender inequalities

Both men and women are affected by HIV, but in Africa many more women than men are affected and at younger ages than men. Recent surveys in eight African nations show HIV prevalence levels 1.2 to 1.8 times higher among adult women than men in six of these countries, particularly below ages 35 to 40 (Mishra and others 2005). The UNAIDS (2008) estimates that three-quarters of all Africans between the ages of 15 and 24 who are HIV-positive are women.

The impact on orphans

Orphanhood can be associated with poorer schooling and health outcomes for children, especially in poorer households. In a sample of 39 DHS surveys, there was a significant orphan disadvantage within poor households in about one third of countries, but orphans did not show a larger gender gap than non-orphans in most countries (Ainsworth and Filmer 2002).

Studies in Tanzania, where longitudinal data have been carefully collected and analyzed, find that children who lose their mother fare worse than those who lose only their father. Their

[6] Source: United Nations Population Division http://esa.un.org/unpp.

[7] We also do not discuss the effect of large scale labor outmigration, since the literature shows that labor migrants are not typically lost to their place of origin unless they take their families with them.

[8] Source: China 1% Population Sample Survey 2005.

schooling suffered more if they lost their mother, especially in poorer households (Ainsworth and others 2005). They were also disadvantaged in height, especially if they were younger when orphaned (Beegle and others 2008). Orphaned girls face an additional disadvantage as a consequence of their gender: they become married or otherwise exposed to HIV earlier than other children, especially if they come from poorer households (Beegle and Krutikova 2007).

The impact on spouses and children

Having a working age adult ill with HIV takes a heavy toll on other household members. Children are diverted to activities other than schooling. In Tanzania, longitudinal data show that children sharply reduced their hours spent in school before the death, but returned to school after the death (Ainsworth and others 2005). Girls are sometimes disproportionately affected (Yamano and Jayne 2004).

An evaluation of the impact of anti-retroviral therapy (ART) in Kenya found that it helps keep HIV-infected adults in the laborforce. This is associated with lower participation of women in cash-generating work, in turn freeing children (boys more than girls) from additional household work to return to school (Thirumurthy and others 2005).

The impact on aging parents

Studies from a range of settings find that aging parents face heavy burdens if they have a child with HIV. First, the toll of caring for an adult child with HIV can deplete their resources, especially for the poorer elderly. Studies in Asia (Thailand and Cambodia), as well as in Southern Africa, find that to meet these costs, parents sell assets, use their savings, take loans, and work extra hours (Gregson 2008). Several of these studies are based on surveys of self-reported status after the child becomes ill or dies, so the results of Adhvaryu and Beegle's paper in this issue are of special value since they are based on longitudinal data. They find that in Tanzania, those who lose adult children deplete their assets to meet the additional expenses, and thereafter older women increase their working hours such that they work longer into old age.

Second, aged parents support their orphaned grandchildren. In both Asia (Thailand, Cambodia) and Southern Africa, surveys indicate that grandparents are the primary caregivers for about one-third of orphaned children (Gregson 2008, Deininger, and others 2003); and partially support others.

Third, losing adult children increases old-age vulnerability to poverty. Amongst poorer parents who had lost an adult child, that child was the main source of support for around half of parents in Cambodia and Thailand (Knodel 2006). Bereaved parents can potentially turn to other children for support, but their need for support is intensified by their depleted assets. And high levels of mortality can offset the potential diversification of having several children. It is estimated that by 2010 in South Africa, nearly one in five persons aged above 60 years will have no surviving children left (Merli and Palloni 2006).

IV. DISCUSSION AND POLICY IMPLICATIONS

Viewed through the lens of the dominant demographic conditions in a country, the development implications of gender inequalities become clearer. These implications relate in particular to increasing the value of girls in the family, to quality family planning services, to gender equity in schooling and employment, and to old age support. Cultural factors leading to a preference for sons over daughters are typically viewed as a problem for girls and women, since they may result in "culling" of unwanted daughters and lower parental willingness to invest in girls' health and schooling. Filmer et al's paper in this issue shows that son preference can also make girls more likely to be exposed to parental resource dilution because parents continue childbearing until they reach their desired number of sons, so girls tend to belong to larger families. However, as Ebenstein and Jennings' paper in this issue shows, when seen through the prism of demographic scenarios, it becomes apparent that high sex ratios at birth or a culture where only male children are able to provide old age support are not just an issue concerning young girls, but have serious repercussions for older men's vulnerability to poverty and the country's resources to help support its aged population. Culture, fortunately, is changeable and studies show that son preference can diminish in the face of modernization, especially if the media and other sources are used to re-shape attitudes towards daughters (Chung and Das Gupta 2007).[9]

In addition to the influence of the media, the surest way to increase the value of girls and women in the family and society is to invest in reducing gender inequalities in schooling and employment. These are smart investments across the different demographic scenarios. However, quality family planning programs should head the list in settings where high fertility constitutes a major threat to countries' prospects for economic growth and household poverty reduction.[10] They are particularly cost-effective in settings with high fertility, as well as those with high HIV prevalence, and should be a priority investment for the 63 countries (Figure 3) which currently experience high fertility and especially the subset of 15 countries, all in Sub-Saharan Africa, who show both high fertility and 'hourglass mortality' due to HIV/AIDS (Levine and others 2006). The direct health benefits of family planning for women and children from increasing birth intervals, reducing teen pregnancies and preventing mother-to-child HIV transmission are well known (Levine and others 2006). In addition, Schultz in this issue shows that in a social experiment in Matlab, Bangladesh, family planning increased women's wages and their investments in child quality (sons' schooling and daughters' health). These health and economic payoffs of quality family planning should help accelerate fertility decline in high fertility, high 'hourglass mortality' countries.[11]

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[9] Development has two countervailing effects on the culling of girls. On the one hand, improved financial and physical access to better sex-selective technology tends to increase culling. On the other hand, modernization changes attitudes in favor of greater gender equality. Studies indicate that the latter effect comes to outweigh the former.

[10] Pritchett (1994) has argued that *desired* family size rather than family planning programs is a major factor contributing to fertility reduction. However, his analysis ignores the fact that successful family planning programs focus intensively on reducing desired family size. For example in India, the media is used heavily through direct advertising, soap operas, etc, to disseminate the idea that "Smaller Families are Happier Families". Jensen and Oster's (2008) study of cable TV in India shows that media exposure reduces fertility.

[11] These benefits of family planning in high fertility Sub-Saharan African countries where women record high unmet need for contraception (19.4% of all women – according to Levine and others, 2006) should influence fertility desires and counter Pritchett's (1974) argument that fertility desires and not family planning are the predominant factor in explaining fertility decline.

Investments in schooling that increase schooling quality for all and reduce gender gaps in enrollment and completion, are especially important as countries transition from the high fertility scenario to the early stages of the demographic "window of opportunity," to fully reap the benefits of the demographic dividend. Reducing gender gaps in school attainment without increasing school quality and the cognitive skills of female and male students will not have desired effects on individual earnings and economic growth (Hanushek and Woessmann 2008). These efforts should pay special attention to increasing access of girls from socially excluded groups, who constitute the largest proportion of girls not in primary school, and narrowing gender gaps in secondary schooling, where gender disparities are the widest and the returns to girls' schooling the greatest (Tembon 2008). Investments also need to be balanced to pay attention to the growing number of cases where boys' schooling attainment is lagging behind or reversing.

There is a rich literature on policy options to improve student performance and reduce gender disparities in schooling. The former takes decades (20 to 30 years) but is critically linked to growth and evidence indicates that it benefits girls more than boys (Tembon 2008); the latter includes supply-side interventions, such as broadening school options for girls and, notably, incentives so that parents will send children to school. Demand-side interventions such as conditional cash transfer programs have been found effective at expanding child schooling, sometimes more for girls than boys (Fiszbein and Schady 2009). In settings, such as Bangladesh, where cultural factors preclude receiving support from married daughters, parents' disincentive to invest in schooling their daughters can be offset by providing female scholarships or stipends (Khandker and others 2003).

Schooling opportunities for all, but especially for girls, can be severely compromised in 'hourglass' settings due to HIV/AIDS or conflict. Policy alternatives include accelerated learning programs and targeted programs to improve the school-to-work transition and skill deficits of adolescent and young women among the poor-- a critical target group or entry point for interventions that seek to break the intergenerational transmission of poverty. A generation of rigorously evaluated demand driven youth training programs in Latin America have successfully eased young women's transition into jobs by promoting equal access to females especially in training in non-traditional skills, providing stipends for childcare, and building strong links between training and private sector labor demand (Nopo et al 2007; Attanasio et al 2008). The challenge is to roll out these designs in high fertility, high HIV/AIDS or post conflict 'hourglass' settings with substantially less institutional capacity.

Schultz's paper in this issue surveys the literature on the macro and micro linkages between the demographic "window of opportunity" and economic development, and discusses how labor market and micro credit policies could be better designed to help women increase their income-earning potential. Policies that expand labor demand and create economic opportunities for women, more specifically, are fundamental to reduce the intergenerational transmission of poverty in high fertility and high young-adult mortality scenarios, to help transform the demographic gift into dividend, and to increase private savings for old age. These policies, in turn, will have positive impacts on girls' schooling by narrowing the gap between the returns to girls' and boys' schooling and helping to change parents' perception that girls are less valuable than boys. The time to implement these policies is now -- in the past decade and a half girls' schooling has improved notably but women's labor force participation rates have barely budged (World Bank 2007).

Trade policies can expand women's employment by increasing employment in sectors that favor women, such as the garment industry, electronics and high value agricultural exports (cut flowers and fruits) — while also reducing the gender gap in employment in other industries. But

there is also evidence that trade works to narrow the occupational gender wage gap in richer but not in poorer countries (Oostendorp 2009). It may be that women need a certain skill level to take advantage of trade related opportunities. This argues for putting in place skills training and labor intermediation programs targeted to youth and women to facilitate their entry into the employment opportunities generated by the opening of markets to international trade. More generally, when in the labor force, women tend to be more vulnerable to labor market conditions than men, experience higher unemployment rates, and may therefore benefit disproportionately from an overall expansion in job opportunities. For example, Kolev and Sirven (2007) find a positive relationship between male and female employment ratios in 21 African countries, and that countries with largest male employment ratios tend to have the lowest gender gaps in employment.

Experience with employment generation (public works) programs designed to cushion the impact of economic crisis on the poor shows that they can ensure high female participation by including specific incentives to attract female labor such as numerical targets for their participation, use of community based intermediary agencies, work sites close to home, home-based production as an employment option, and availability of child care (Buvinic 2009).

In addition to wage employment, expanding women's access to entrepreneurship and self-employment is critical to boost women's economic opportunities and contributions and is especially timely in 'explosion' and 'hourglass' scenarios with undeveloped labor markets. This requires increasing their access to credit and other inputs. Substantial experience with micro finance agencies shows that these programs effectively reach women and can have larger benefits for female borrowers than for male borrowers (Pitt and Khander 1988, Armendariz de Aghion and Morduch. 2005). Less is known about successful models to increase women's access to formal financial services, while recent studies in Italy, East Europe and Central Asia find that women are disadvantaged in obtaining finance from commercial banks (Alesina and others 2008, Sabarwal and Terrell 2008).

Policies also need to be carefully designed to help women remain in the labor force when they have children. Access to child care is a common feature of public works programs that reach women (see above), and public investments in pre-primary schooling increase maternal labor supply (Berlinski and Galiani 2007). However, labor market regulations which seek to protect women by mandating employers to pay for fringe benefits such as maternity leave can reduce employers' willingness to hire women. Further, most of the mandated fringe benefits are withheld from wages, leaving the employers' cost of labor relatively unaffected (Shultz in this issue). Public funding for these fringe benefits may be more effective.

As populations age, governments increasingly need to consider safety net and pension options for vulnerable elders, typically older women. Modest targeted non-contributory pensions have been found effective at reducing old age poverty in Brazil and South Africa, and could perhaps also be used to help poor parents elsewhere cope with the costs of caring for HIV-affected children and their orphans.

There remain substantial research gaps on the relationships between demographic factors, gender inequalities, and economic outcomes. They include, foremost, looking beyond associations between variables to testing for causality between, for instance, female schooling or female wages and lower fertility. In addition, evidence is needed — among others — on the relationship (and the pathways) between growth outcomes and increased gender equality in schooling and the labor market. Also, evaluation research needs to better understand how specific policies affect women's labor supply, wages and savings. How is women's labor-force

participation affected by gender inequalities in wages and by discrimination against women in labor markets? And, in turn, how does women's labor-force incorporation affect aggregate savings and investments? While difficult, another major research need is isolating the impact of demographic changes brought about by conflict on women's labor force participation, gender inequalities and family well-being. Progress in establishing stronger links between gender equality, poverty, and growth and in moving from establishing associations to asserting causality will increasingly be possible with growing investments in gender-informed panel studies with large samples and natural or scientific experiments. Filling these research gaps should help in identifying effective policy interventions for creating a virtuous cycle of increased gender equality, poverty reduction, and economic growth.

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Figure 1. Flowchart of demography, poverty and gender relationships

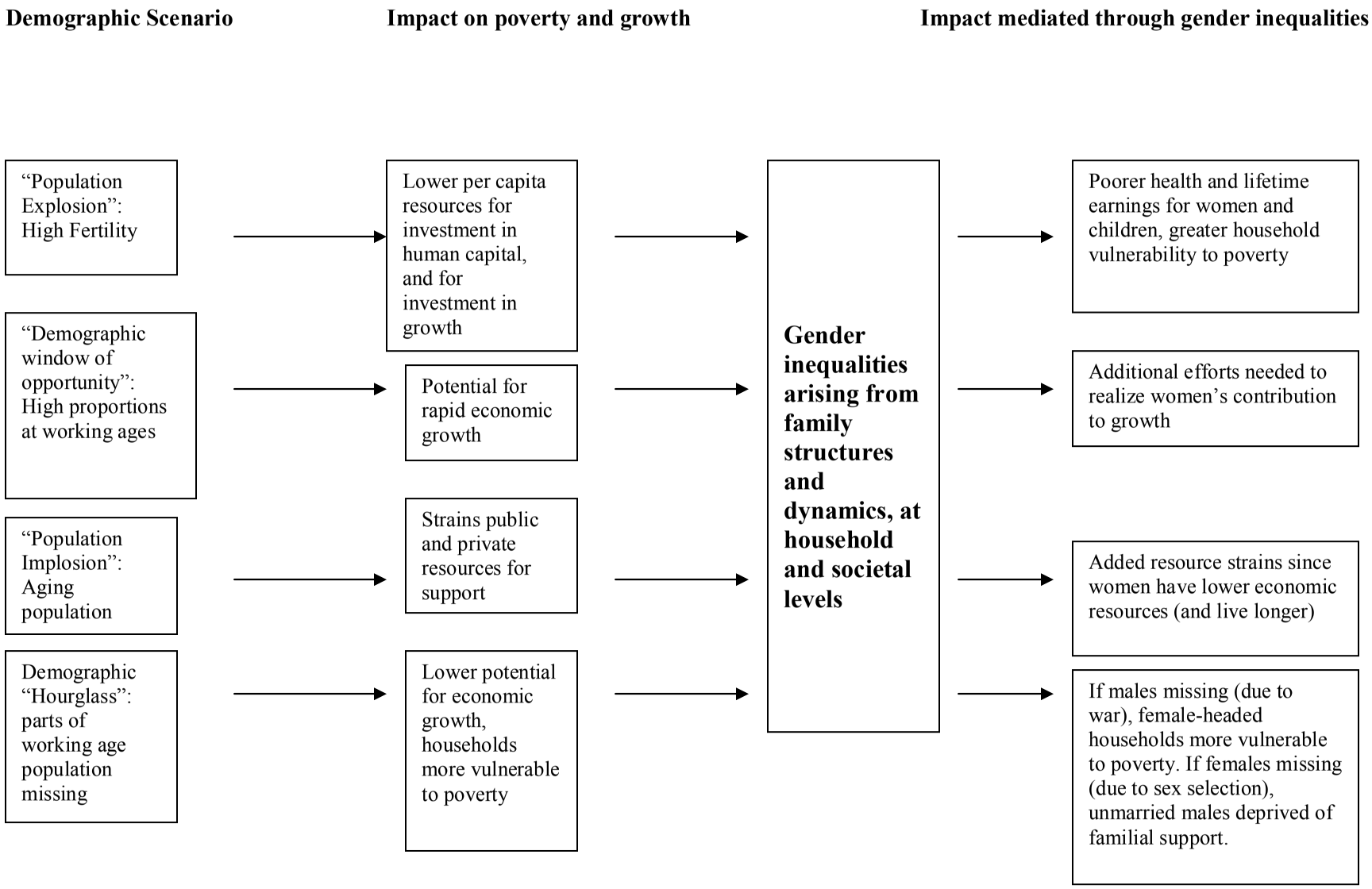
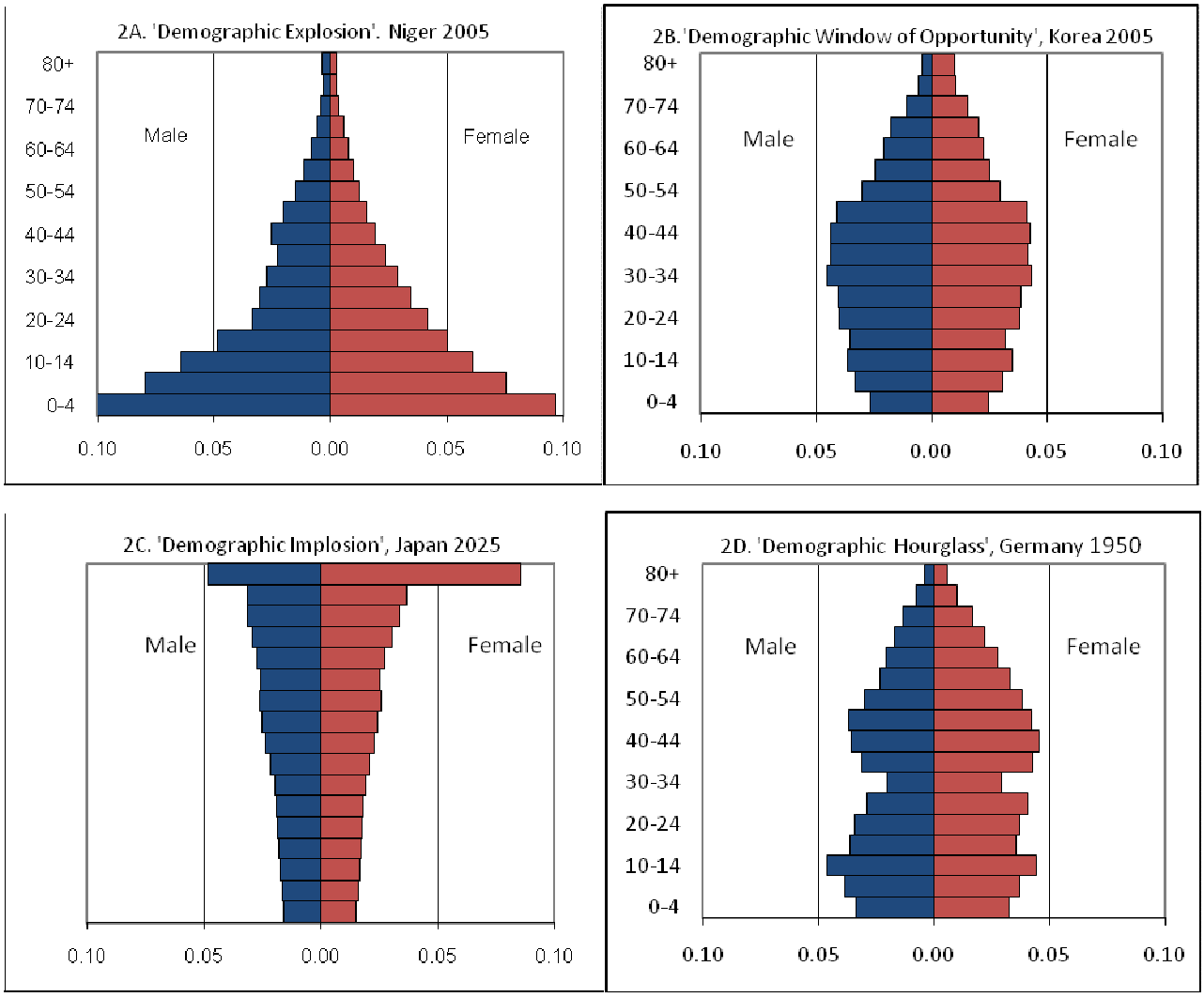


Figure 2. Estimated population distributions by age and sex, illustrating the different demographic settings

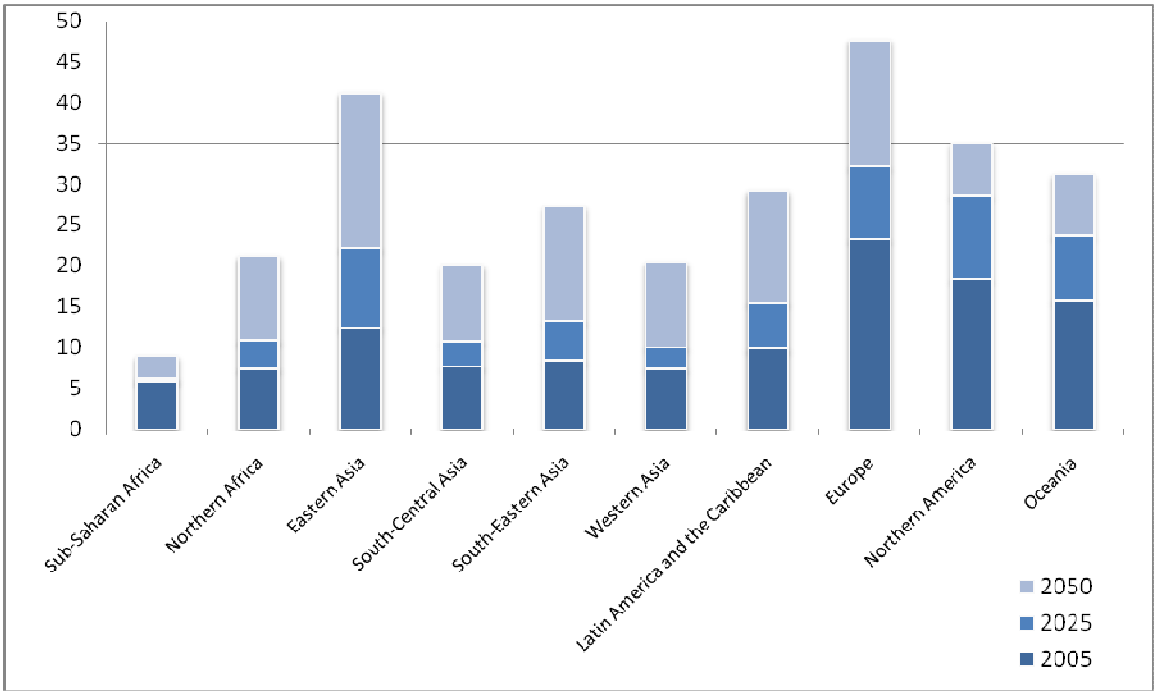


Source: Population Division of the Department of Economics and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2006 Revision, New York: United Nations. The projection data refer to the medium variant assumption of fertility trends.

Figure 3: Map of demographic settings (2005)

[ATTACHED IN A SEPARATE PDF FILE]

Figure 4. Increases in the old age dependency ratio, 2005-2050
(Ratio of projected population aged 65+ /15-64)



Source: Population Division of the Department of Economics and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2006 Revision, New York: United Nations. Data refer to the the medium variant assumption of fertility trends