WORLD ECONOMIC FORUM

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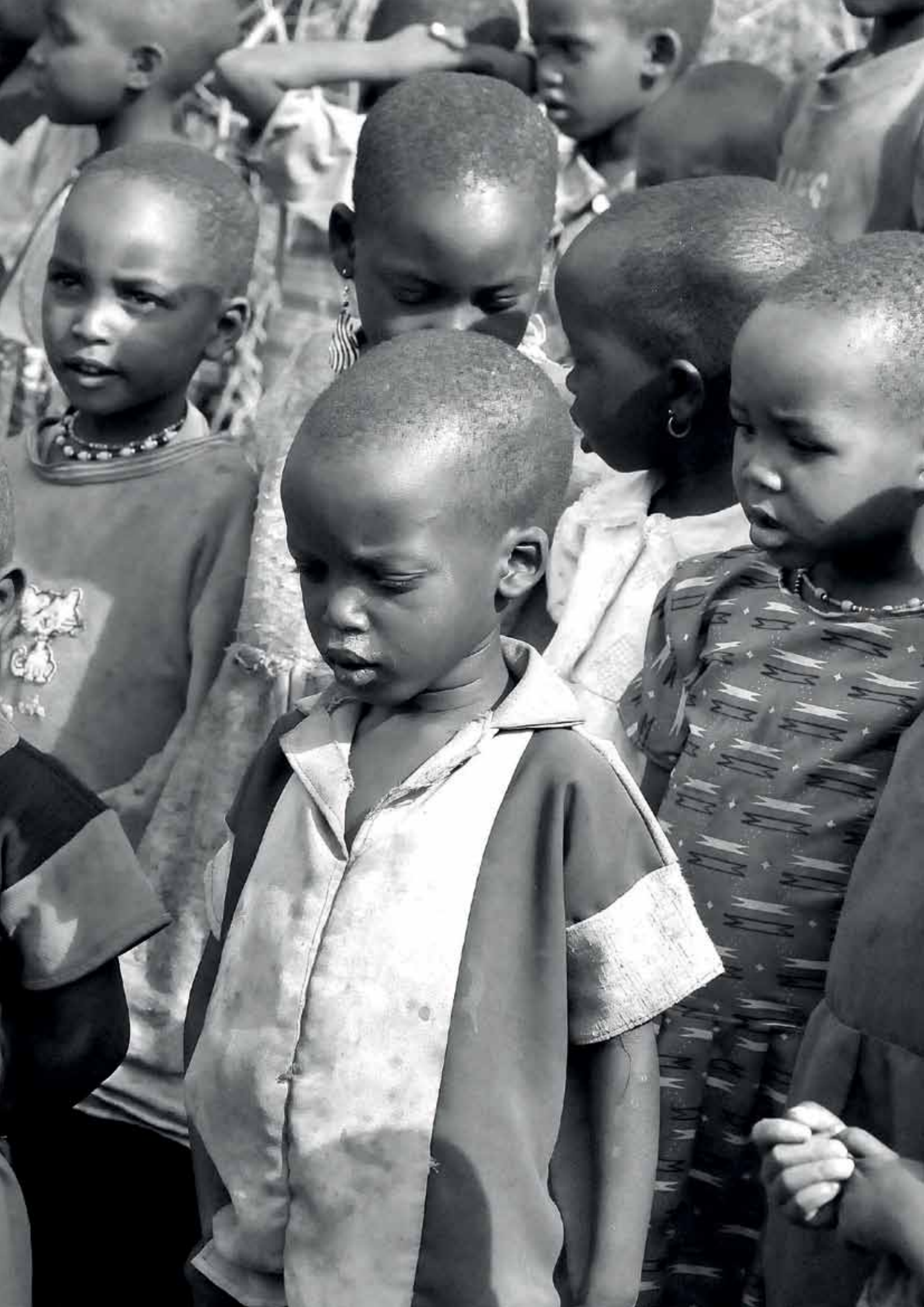
Seven Billion and Growing:
A 21st Century Perspective on Population

The Global Agenda Council on Population Growth



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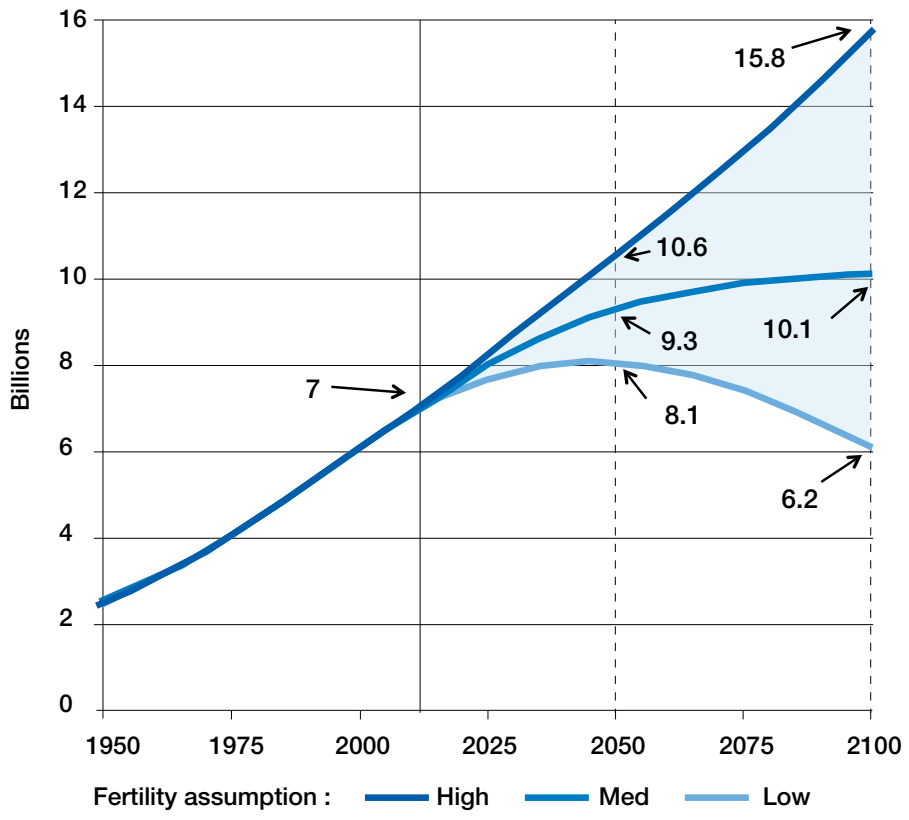
Executive Summary[1]

Sometime around the end of October 2011, the world welcomed its seven billionth inhabitant. From a historical perspective, that milestone was reached in a very short time: it took over 50,000 years for the world population to reach its first billion, but the last two have been added in barely 25 years. Even if the speed of population growth continues to slow down, as it has done since the 1960s, the world population is likely to continue rising over this century. The United Nations projects that by 2050 the world population may be anywhere between 8.1 billion and 10.6 billion persons.

The future size of the world population depends greatly on the speed of fertility decline in developing countries and, in particular, among those that still have high fertility. The figure below shows UN estimates of world population based on low-, medium-, and high-fertility assumptions. If the world population surpasses 10 billion by 2050, it will very likely add several additional billions by the end of the century. To avoid that outcome, the 2050 population should remain close to 9 billion. Actions taken today can shape the path that fertility follows in the future and, in the process, improve the lives of millions of women, their children and their families. In addition, speeding up the reduction of fertility in high-fertility countries will trigger changes in the age structure of their populations that are beneficial for development.

UN Projections of World Population under Three Fertility Assumptions



Source: United Nations Department of Economic and Social Affairs, Population Division (2011). World Population Prospects: The 2010 Revision, http://esa.un.org/unpd/wpp/index.htm

Taking action to reduce population growth is all the more urgent because rapid population growth can magnify nearly every global problem and policy challenge that is scaled by population numbers.

First, although experts agree that there is sufficient food to feed everyone today, important changes need to take place to ensure food security for an additional two or three billion people, especially if increases in demand are driven both by larger numbers of consumers and by rising incomes.

Second, higher numbers of people will likely increase the impact of climate change. A larger world population will have a greater effect on global warming, even if low rates of economic growth prevail. In addition, the most vulnerable countries have the fastest growing populations and are already finding it difficult to adapt to the consequences of climate change.

Third, high population growth driven by high fertility has made it more challenging for developing countries to reduce poverty. Low-income households tend to have higher numbers of children, which strains the capacity of both governments and families to provide them with the food, shelter, education, health and basic services they need.

Fourth, there are ongoing demographic shifts such as urbanization and population ageing that will transform economies and societies. If rising urbanization in countries that are still largely rural is not to be detrimental, it needs to be accompanied by job-creating economic growth and adequate planning. The financial resources required to promote successful urbanization are more likely to be strained if services have to be provided to a rapidly growing population.

Fifth, high fertility increases the health and mortality risks of women and children, especially if they are poor. Maternal mortality depends on the number and timing of the pregnancies a woman has over her lifetime. The ability of mothers and families to take care of and invest in each child is lower the higher the number of children they have.

Governments can influence future population growth through policies that increase human well-being and ensure that people can exercise their reproductive rights, thus expanding individual choices and opportunities. Government interventions to reduce child mortality and to increase levels of education, both worthwhile goals in themselves, can also influence the decisions of parents regarding the number of children to have. Moreover, implementing poverty reduction strategies that increase income-earning opportunities, especially for poor women, can empower poor people to exercise their rights and improve the life chances of their children.

Access to modern contraceptive methods is the means to enable people to exercise the right to decide freely how many children to have and when to have them. Too many people are still deprived of the means of realizing their reproductive choices because of the barriers they face in getting and using modern methods of family planning. In 2009, an estimated 210 million women who were married or in a union had either an unmet need for family planning or were using traditional methods of contraception.[2] Redoubling efforts to satisfy that latent demand for modern contraception is necessary if the commitments made under the Millennium Development Goals (MDGs) are to be kept.

Governments can take measures to make available a variety of contraceptive methods through as many service delivery outlets as possible. Doing so will take resources. Ensuring the availability of the additional US$ 3.6 billion (in 2008 dollars) needed to satisfy current levels of unmet need for family planning should command a high priority. Donors can help by providing predictable funding to buy adequate supplies of a wide array of contraceptive methods. After more than a decade of relative neglect, the international community is starting to come together to provide the necessary support. Major donors, such as DFID, USAID, the World Bank and the Bill and Melinda Gates Foundation, are focusing on assisting governments to expand and strengthen their family planning and reproductive health programmes.

These efforts that affect both the demand for children as well as the supply of commodities to manage their numbers will pay large dividends. First, declining fertility can produce changes in the age distribution of a population that are beneficial for economic growth. After fertility starts to decline, the share of children in the population drops over the next three or four decades, resulting in a high share of working-age individuals relative to that of dependants. During that period, if persons of working age are productively employed, economic output per capita will increase more rapidly than in the past, producing a "demographic dividend". Thus, between 1960 and 1995, 20% of per capita output growth in developed and developing countries can be attributed to the effects of declining fertility.

Second, at the national level, falling fertility facilitates increasing investments in education and health, thus improving human capital. Within families as well, improvements in child nutrition, health and education can be achieved more easily when there are fewer children to compete for the resources available. Thus, reductions in fertility have the potential of starting a virtuous circle whereby countries and families with fewer children can invest more in each and therefore build a better-qualified workforce, which, in turn, will be more productive than the previous generation and will want to have fewer children in order to be able to invest more in each of them.

Third, ensuring access to modern methods of contraception for everyone who needs them is a matter of equity and human rights. In every population, the low-income segment of society has higher unmet needs for family planning than any other group. Low-income women and their children are more likely to face, therefore, the higher health risks associated with pregnancies that are too closely spaced or of high order. If the existing unmet need for modern contraception could be satisfied, unintended pregnancies could be cut by 70% and nearly 100,000 maternal deaths could be averted annually.

The prospect of accelerating economic growth by facilitating the decline of fertility is especially relevant for most of today's most vulnerable countries, which are poised to start the period where the demographic dividend may accrue. By supporting the expansion of family planning in those countries, international donors and the governments concerned can leverage overall development efforts and improve the quality of life of millions.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Seven Billion and Growing:
A 21st Century Perspective on Population[3]

Introduction

The world population, which took more than 50,000 years to reach the first billion, has just surpassed 7 billion (figure 1). Although the speed of population growth peaked in the late 1960s and has been declining since then (figure 2), the accumulating numbers of people have meant that each additional billion has been added more rapidly than at any other time in history: the last two in a record 12 and 13 years, respectively. Even if fertility continues to decline at the world level and with it population growth rates, the United Nations projects that the world population could reach 9.3 billion by 2050 and surpass 10 billion by the end of the century.[4] If fertility were to be higher than in that projection, the population could surpass 10 billion by 2050 and be several billions higher by 2100. The future size of the world population hinges therefore on the path that fertility takes in the future.[5]

In the 1960s, just as the speed of population growth was reaching an all-time high, concern about an imminent crisis was high. In his famous 1968 book, The Population Bomb,[6] Paul Ehrlich warned of mass starvation in the coming decades as population growth outran global resources. In a similar vein, the Club of Rome sounded the alarm by publishing in the Limits to Growth[7] dramatic simulations showing precipitous drops in consumption. Yet, both economic and population growth continued apace. Technology raised productivity; new resources were found, and fertility began to fall in most of the developing world while continuing its long-term decline in the developed world.

Today, the world population is growing at half the speed it reached in the late 1960s. So, why worry? What does the continued increase in population bode for the 21st century? In this report it is argued that, despite the planet's remarkable resilience, continued population growth creates important threats that, although different in nature from those imagined in the middle of the 20th century, nevertheless continue to pose perils for the world, individual countries, families and individuals.

First, although humanity has succeeded in developing technology to improve productivity and use resources efficiently, the global commons are increasingly showing signs of being strained to their limits as demand expands with rising incomes and more people enjoy higher standards of living than ever before. While experts agree that there is sufficient food to feed everybody today, it is less certain what the impact would be of having to feed another two billion people. Food prices are already rising and food is bound to cost more in the future as increases in agricultural productivity slow down and the number of consumers continues to grow.

Second, higher numbers of people will likely increase the impact of climate change, both because a larger world population would have a greater effect on global warming even at low rates of economic growth, as the IPCC scenarios show, and because the most vulnerable countries have the fastest growing populations and are already finding it difficult to adapt to the consequences of climate change.

Third, although overall population growth rates are declining, there remain 77 countries whose populations are currently growing at rates that imply doubling times of 40 years or less. Among them, 44 countries are currently growing at rates that imply doubling times of 30 years or less.[8] Those countries, most of which are located in sub-Saharan Africa, are among the poorest and most vulnerable in the world. They also have the weakest institutions and capacity to manage their population growth. For them, rapid population growth poses significant economic, social, political and ecological challenges. It also limits their ability to improve health, enhance human capital and ensure human security.

Fourth, there are ongoing demographic shifts that will transform economies and societies, sometimes in unprecedented ways. If the rising urbanization expected to occur in countries that are still largely rural is not to be detrimental, it needs to be accompanied by job-creating economic growth and adequate urban planning to avoid the expansion of existing slums or the emergence of new ones. The development of adequate infrastructure requires resources that are likely to be scarce in countries faced with the challenge of satisfying the basic needs of rapidly growing populations. The unprecedented changes in age structures constitute another transformational shift whose consequences will be far-reaching. In an interconnected world, the effects of those shifts will inevitably spill over borders, generating not only national challenges but also shaping those faced at the regional and global levels.

Fifth, high fertility poses significant threats for the health of women and children and to the well-being of their families, particularly when those families are poor. Maternal mortality depends on the number and timing of the pregnancies a woman has. The ability of mothers and families to take care of and invest in each child is lower the higher the number of children they have.

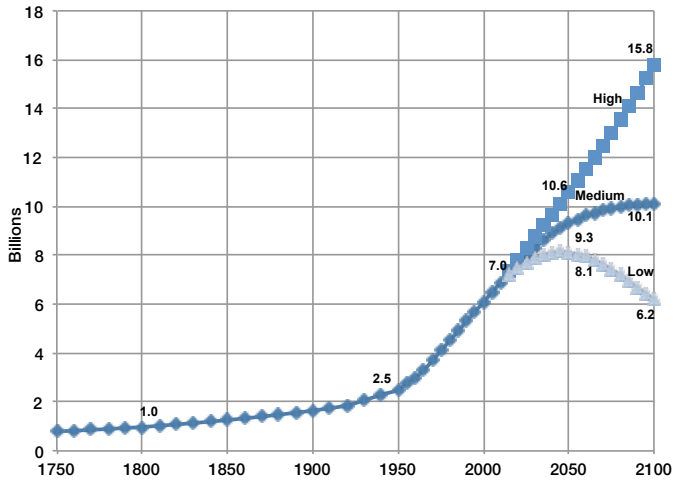
In sum, rapid population growth – especially when fuelled by continued high fertility – can magnify every problem that is scaled by population numbers and justifies a strong international focus on population growth and its consequences. Small differences in future average fertility can have dramatic effects on population numbers over time. The latest United Nations projections show that if average future fertility for the world remains just half a child above that projected in the medium variant,[9] the world population could reach almost 16 billion by 2100 instead of the 10 billion projected if fertility declines from 2.5 children per woman today to 2.0 in 2100 (figure 3). Similarly, if future fertility were to remain half a child below that projected in the medium variant, the world population could return to 6.2 billion by 2100. That is, a difference of nearly 10 billion people in 2100 results from a sustained difference of just one child per woman around projected fertility in the medium variant (figures 1 and 3).

In this report, the latest population trends and prospects according to the United Nations (section 1) are examined, and the challenges identified above and the benefits that countries, families and individuals can derive from reducing fertility (section 2) are discussed. The report then focuses on what needs to be done (section 3) and discusses the importance of human and reproductive rights as the basis for population policy (section 4). It is argued that there needs to be a concerted effort from governments, the international community and civil society to:

- Accelerate economic and institutional development in countries with high rates of population growth, especially those that are least developed
- Ensure that women and men of reproductive age in those countries have easy access to family planning, including to the widest possible range of safe and effective methods of contraception
- Improve access to family planning for the poor in all countries

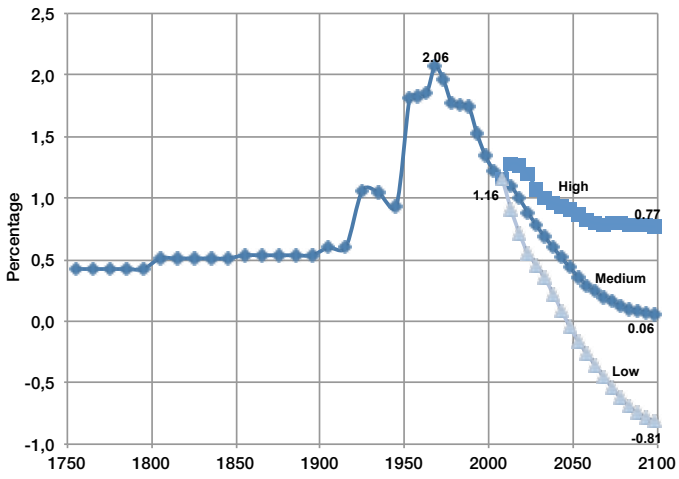
Such actions will not only facilitate the achievement of worthwhile economic and social objectives, but will also serve to meet the goal of ensuring universal access to reproductive health by 2015, which is one of the targets of the Millennium Development Goals (MDGs). Furthermore, guaranteeing that women and men all over the world can exercise their reproductive rights is a worthy goal in its own right.

Figure 1 : The world population according to different projection variants, 1750-2100



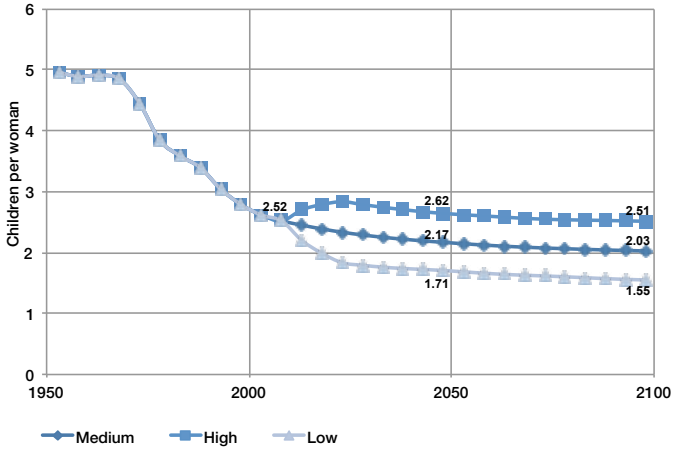
Source: United Nations Department of Economic and Social Affairs, Population Division (2011). World Population Prospects: The 2010 Revision, http://esa.un.org/unpd/wpp/index.htm

Figure 2 :Average annual rate of population change for the world according to different projection variants, 1750-2100



Source: United Nations Department of Economic and Social Affairs, Population Division (2011). World Population Prospects: The 2010 Revision, http://esa.un.org/unpd/wpp/index.htm

Figure 3 :Estimated and projected total fertility for the world according to different projection variants, 1950-2100 (children per woman)



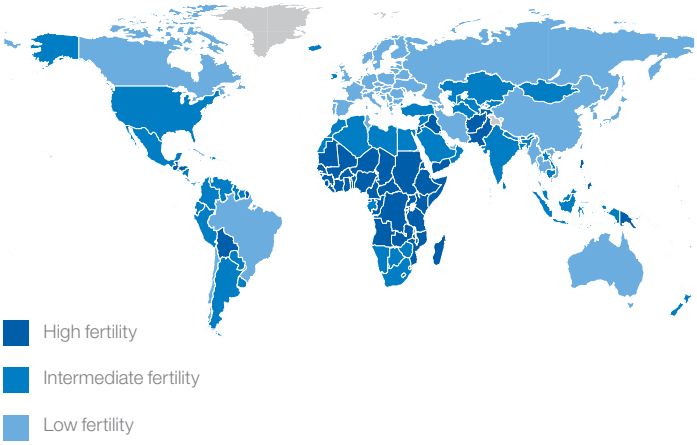
Source: United Nations Department of Economic and Social Affairs, Population Division (2011). World Population Prospects: The 2010 Revision, http://esa.un.org/unpd/wpp/index.htm

1. A More Crowded Planet

The most recent United Nations projections indicate that the world population surpassed 7 billion late in 2011 and will grow to between 8.1 billion and 10.6 billion by 2050, depending on the path that fertility takes over the next few decades. However, population growth is unevenly distributed among the countries of the world.

To understand the effects that the diversity of population trends has on population growth, the United Nations classifies countries into three groups according to their level of fertility. Among the 197 countries or areas with at least 100,000 inhabitants in 2005, 74 are classified as low-fertility countries, 65 are considered to have intermediate fertility and 58 to have high fertility[10] (see map 1 and the table in Annex 1).

Map 1 : Countries according to fertility level, 2005-2010



Source: United Nations Department of Economic and Social Affairs, Population Division (2011). World Population Prospects: The 2010 Revision, http://esa.un.org/unpd/wpp/index.htm

Note: The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations.

Today, the majority of the world population lives in countries that have low or intermediate fertility levels. The low-fertility countries, which include China, account for 42% of the world population (2.94 billion); the intermediate-fertility countries, which include India, account for an additional 40% (2.83 billion), and the high-fertility countries account for the remaining 18% (1.23 billion).

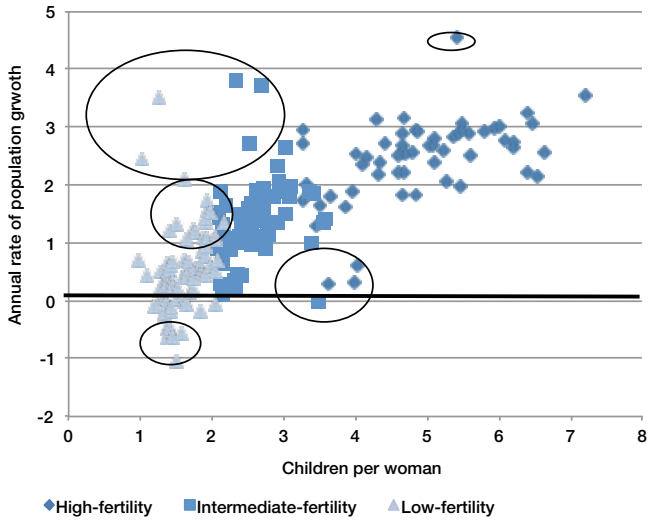
Low fertility is no longer restricted only to developed countries.[11] Thus, the 74 low-fertility countries include not only all countries in Europe with the exception of Iceland and Ireland, but also 19 out of the 51 countries in Asia, 14 out of the 39 in the Americas, two in Africa (Mauritius and Tunisia) and one in Oceania (Australia). Countries as varied as China, Brazil, the Russian Federation, Japan, Vietnam, Germany, Iran, Thailand and France, in order of population size, account for 75% of the population living in low-fertility countries.

Although the 58 high-fertility countries are mostly concentrated in Africa (39 out of the 55 countries in the continent have high fertility), there are also nine high-fertility countries in Asia, six in Oceania and four in Latin America. Fifteen countries account for 75% of the population in high-fertility countries: Pakistan, Nigeria, the Philippines, Ethiopia, the Democratic Republic of the Congo, Tanzania, Sudan, Kenya, Uganda, Iraq, Afghanistan, Ghana, Yemen, Mozambique and Madagascar, in order of population size. Among the 48 countries classified by the United Nations as least developed, 38 are high-fertility countries. That is, nearly two-thirds of the high-fertility countries are least developed.

There are 65 intermediate-fertility countries, but the population of this group is highly concentrated in a few populous countries. Thus, six countries – India, the United States, Indonesia, Bangladesh, Mexico and Egypt, in order of population size – account for 75% of the population of intermediate-fertility countries.

High fertility is the major factor leading to rapid population growth. As figure 4 shows, high fertility is closely associated with higher rates of population growth. Most high-fertility countries have annual rates of population growth of 2% or higher, which, if maintained, would imply a doubling of the population in 35 years or less. The association between fertility and population growth is not perfect (as seen by the countries within the circles in figure 4), because of different age structures, mortality and migration across countries. International migration contributes to changing population growth rates, but the countries in which it makes a large difference are few. Such migration is more likely to be an important determinant of population change when fertility is low. Most of the high-fertility countries experience very low rates of net migration.

Figure 4 : Annual rate of population growth vs total fertility, 2005-2010



Population Prospects DEMOBASE extract. 2011.

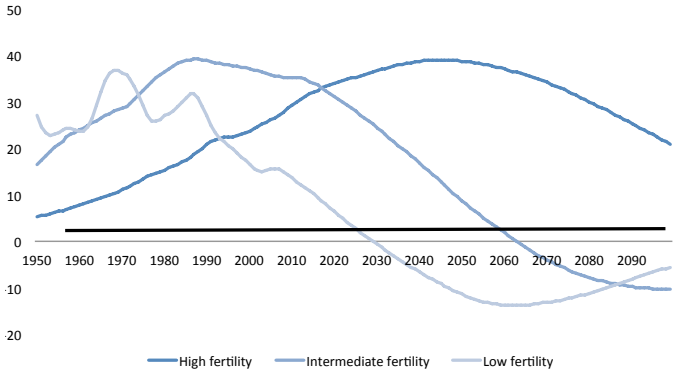
Future Population Growth Depends Mostly on Fertility Trends in High-Fertility Countries

Despite having only 18% of the world population, high-fertility countries account today for 38% of the 78 million people being added annually to the world population. In contrast, low-fertility countries, which have 42% of the world population, account for just 16% of that annual increase and their share is expected to decline in the future. The same is expected of the share of the intermediate-fertility countries, which account today for 45% of annual population increments. According to the United Nations medium variant assumption about changes in future fertility, starting in 2018, the contribution of high-fertility countries to the annual growth of the world population is projected to surpass that of the intermediate-fertility countries, and by 2023 it is projected to surpass the joint contribution of the low-fertility and the intermediate-fertility countries (figure 5). That is, during most of 21st century, the high-fertility countries are expected to be the major contributors to world population growth.

The potential growth of the population of high-fertility countries is therefore a key issue. According to the medium variant, if the average fertility of high-fertility countries drops from the 4.9 children per woman in 2005-2010 to 2.8 children per woman in mid-century and further to 2.1 children per woman by the century's end (figure 6), their contribution to annual population growth will peak around the middle of this century at 39 million and will then begin a slow decline. This path can be achieved because the reduction of fertility in the high-fertility countries projected over the next 40 years is similar to that achieved by today's intermediate-fertility countries over just three decades: between the early 1970s and the early 2000s, their total fertility declined from 4.9 to 2.7 children per woman. However, if fertility in the high-fertility countries declines more slowly by, for instance, reaching only 3.3 children per woman by mid-century instead of 2.8, and 2.6 children per woman by the end of the century instead of 2.1, their annual contribution to world population growth will continue to rise, passing from 28 million in 2011 to 67 million in 2099. Clearly, small differences in future fertility, if sustained, can lead to major differences in future population growth.

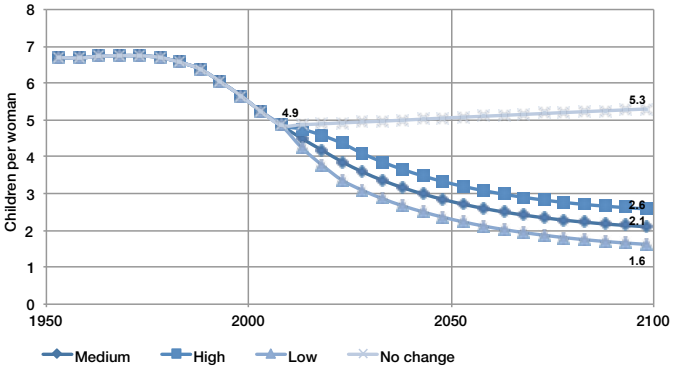
Since the population of low-fertility countries is expected to start declining around 2030 according to the medium variant, world population growth over a longer-term horizon will depend on the contributions made by the intermediate-fertility and the high-fertility countries (figure 6). Another way of assessing the potential for future population growth in those two groups of countries is to consider the results of a "no-change" scenario that maintains fertility and mortality constant in each country at current levels (figure 7). According to that scenario, the annual contribution of the high-fertility countries to population growth would increase 10 times from now to the end of the century: from 28 million in 2011 to 284 million in 2099. In sharp contrast, the no-change scenario for the intermediate-fertility countries, whose population size today is more than twice that of the high-fertility countries, produces annual increments that vary over a narrow range, peaking at 38 million in 2014, declining to 24 million around 2065 and then increasing slowly to reach 30 million by 2099. These comparisons further confirm that the high-fertility countries of today have the highest potential to add large numbers of people to the world population and imply that the future size of the world population is highly dependent on future changes in their fertility levels.

Figure 5 Annual increments of the population in high-fertility countries, intermediate-fertility countries and low-fertility countries according to the medium projection variant, 1950-2100 (millions)



Source: United Nations Department of Economic and Social Affairs, Population Division (2011). World Population Prospects: The 2010 Revision, http://esa.un.org/unpd/wpp/index.htm

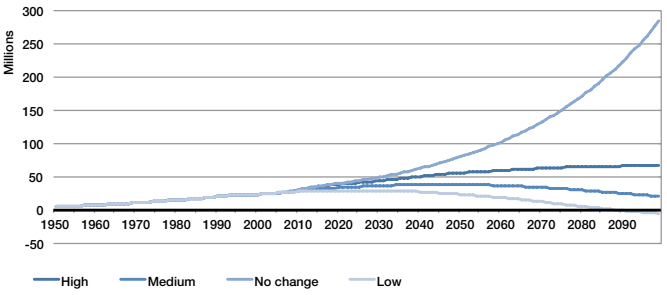
Figure 6 Estimated and projected fertility for the group of high-fertility countries according to different projection variants, 1950-2100



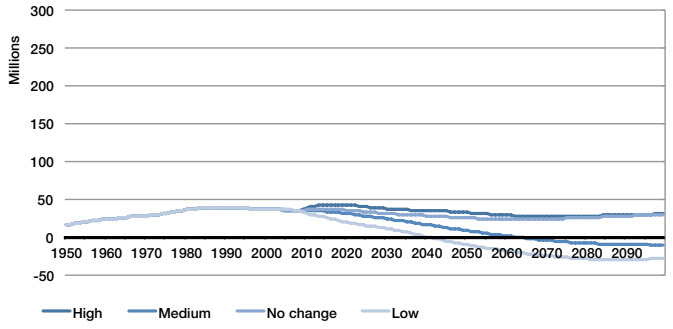
Source: United Nations Department of Economic and Social Affairs, Population Division (2011). World Population Prospects: The 2010 Revision, http://esa.un.org/unpd/wpp/index.htm

Figure 7 A comparison of projected annual population increments for the high-fertility and the intermediate-fertility countries according to different projection variants, 1950-2100 (millions)

High-fertility countries



Intermediate-fertility countries



Source: United Nations Department of Economic and Social Affairs, Population Division (2011). World Population Prospects: The 2010 Revision, http://esa.un.org/unpd/wpp/index.htm

2. Implications of Population Growth

Sustained population growth can increase the risks to the global environment, to the national development of vulnerable countries and to the chances families have of escaping poverty. All of these concerns are at the core of the global agenda. This section discusses some of the challenges that are exacerbated by continued population growth and documents the benefits that can accrue when population growth slows down because of declining fertility. In doing so, it focuses on the effects of population growth on the global commons, on national economies and on the ability of countries to provide basic services to their populations, as well as on the impact of high fertility on families, mothers and children.

Population Growth and the Global Commons

One of the lessons of the "population scare" of the 1960s was that dire predictions were way off base. Population growth has not led to impoverishment and catastrophic degradation of the environment. What population growth does is to scale up what are already formidable challenges. As the recent World Development Report 2010: Development and Climate Change remarks:

Larger populations put more pressure on ecosystems and natural resources, intensify the competition for land and water, and increase the demand for energy. Most of the population increase will be in cities, which could help limit resource degradation and individual energy consumption. But both could increase, along with human vulnerability if poorly managed. (p. 40)

Sustained population growth interacts with other processes and influences the course of major global challenges, such as climate change. Today, urban areas consume more than two-thirds of the global energy used annually and produce more than 70% of CO2 emissions. If the global urban population is to grow from today's 3.5 billion to 6.4 billion in 2050, as currently projected by the United Nations, there is a good chance that its impact on climate change will increase unless major efforts are made to switch to sources of energy not based on fossil fuels.

In producing scenarios to explore the impact of different future trends on climate change, the Intergovernmental Panel on Climate Change (IPCC) considered three different paths for future population growth. In the A1 and B1 family of scenarios, the world population peaks at 8.7 billion in 2050 and declines to 7.1 billion in 2100. The A2 family of scenarios is based on a high population projection where the world population reaches 15 billion in 2100. The B2 family of scenarios uses a medium population projection where the world population reaches 9.4 billion in 2050 and keeps on rising to 10.4 billion in 2100. Acknowledging the relationship between population growth and economic growth, the IPCC assigns the highest economic growth to the family of scenarios with the slowest population growth (in A1, the economy grows at 2.9% annually and in B1 it increases by 2.5% per year). The other two families of scenarios are assigned a medium level of economic growth (2.2% annually on average in B2) or a low one (1.3% annually on average in A2). The results are sobering because they indicate that the A2 scenario has the highest impact on climate change despite its low economic growth.[12] Moreover, it is not yet beyond the realm of possibility that the world population could reach or even surpass 15 billion by 2100: fertility that is just half a child higher than that in the medium variant produced by the United Nations yields a world population of 15.8 billion in 2100.

The stark reality is that the reduction of greenhouse gas emissions requires lower overall consumption of energy derived from fossil fuels. Hence, the more people there are on the planet, the more the per capita use of fossil fuels needs to drop to attain safe emission levels. Existing disparities in energy use stemming from sharp differences in per capita incomes add complexity to the argument, but do not invalidate the fact that current levels of population growth cannot be maintained over the long run without endangering the sustainability of the planet, particularly if standards of living are to be improved for a growing population.

Ensuring food security is another challenge that is scaled up by a growing population. Although, according to the Food Price Index of the UN's Food and Agriculture Organization,[13] food prices had been stable or declining until the early part of this century, they began to increase slowly around 2004 and since 2007 they have experienced important fluctuations resulting in higher average values. The causes of such price increases are complex, but population growth combined with increasing incomes in middle-income countries are important contributors to the upward trend observed. As a result, there is growing concern about the ability of the world economy to feed a growing population.

Debates about ensuring global food security in the future take for granted that the world population will reach no more than 9 billion by 2050. Little attention is given to the fact that reaching that number will require major reductions in fertility in high-fertility countries and moderate but still important reductions in intermediate-fertility countries. Furthermore, even if fertility drops to low levels in most countries, the population of the world may keep on rising because mortality may continue to decline and because there will still be large cohorts of childbearing-age individuals for some time to come. FAO reckons that food production will have to increase by 70% to meet the food demand of 9 billion people and acknowledges that raising production by such an amount will be a challenge, especially as water supplies become strained in parts of the world. The challenge will be undoubtedly greater if world population grows faster than projected by the medium variant of the United Nations.

Population Growth and National Economic Development

The link between a country's rate of population growth and its rate of economic growth is complex. More people mean more potential workers, and more workers who are productively employed can lead to greater economic output. If the rate of economic growth exceeds the rate of population growth, income per capita will rise. However, high rates of population growth can also strain national economies, in large part because they keep populations young and because high numbers of children relative to the number of potential workers imply more dependents per worker.

Reducing fertility can produce changes in the age distribution of a population that are beneficial for economic growth. In most countries, reductions of fertility have occurred only after mortality has been declining for some time. The process whereby mortality declines first and, after some time, fertility reductions follow is known as the "demographic transition". In developing countries, the demographic transition began in the 20th century, especially after 1945 when interventions to combat or cure infectious diseases together with improved nutrition and sanitation led to unprecedented reductions of mortality even in the poorest countries.

When mortality begins to decline from high levels, reductions are sharpest among infants and young children, implying that more children survive to adulthood. As a result, countries experiencing a reduction of mortality without a similar drop in fertility experience a sort of "baby boom" and both the number and the share of children in their populations increase. Consequently, countries undergoing this change have more children to feed, educate and keep healthy while at the same time their share of people of working age declines. The experience of today's high-fertility countries illustrates these trends (figure 8): between 1950 and 1990, their overall proportion of children aged 0 to 14 increased from 41% to 45%, whereas their proportion of persons aged 15 to 64 (the "working" ages) decreased from 56% to 52%.

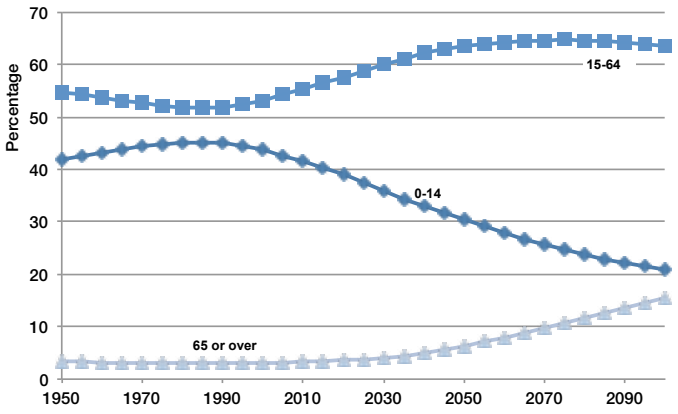
Sometime after mortality starts to decline, fertility begins to fall, partly because parents realize that they can have fewer children to reach the number of adult children that they want. Reductions of fertility eventually lead to a drop in the proportion of children in the population even if mortality continues to decrease and, as the "baby boom" generations reach working age, the share of working-age people in the population increases, leading to a period in which there are fewer children and older persons per working-age person than there had been in the immediate past. In the case of today's high-fertility countries, the proportion of children reached a maximum in 1990 at 45% and has been declining since then, whereas the proportion of people of working age (15 to 64), has been increasing since 1990 (figure 8). These changes have been the result of the mortality decline that began in the early 1950s, if not earlier, and of the reductions of fertility that began in the early 1980s (figure 9).

A high ratio of working-age individuals to dependants carries with it the possibility of faster economic growth. If persons of working age are productively employed, economic output per capita will increase more rapidly than in the past, a phenomenon known as the "demographic dividend".[14] The increasing support ratios (i.e. higher average number of persons of working age per dependant) that arise when fertility decreases have contributed to the rise in per capita incomes and economic growth in countries as diverse as China, Egypt, Ireland, Japan, Sweden and the United States.[15] The medium-term effects of fertility reductions on economic growth in both developed and developing countries accounted for about 20% of the per capita output growth achieved between 1960 and 1995.[16]

The particularly fast reductions of fertility experienced by the newly industrializing countries of East and South-East Asia have contributed to their vigorous economic growth.[17] They facilitated major public investments in education and public health, which – combined with a stable macroeconomic environment, macroeconomic policies that focused on job creation and institutions that promoted savings – have been critical in allowing those countries to derive the full benefits associated with the demographic dividend. During the 1980s, about one-third of the increase in per capita income in the newly industrializing countries of East and South-East Asia was due to the demographic dividend.[18] In contrast, economic growth has fallen short of its full potential in most countries in Latin America and the Caribbean that also experienced fast fertility declines.[19] These examples suggest that, although reductions in fertility can potentially accelerate economic growth, the realization of that potential depends on developing the right institutions and adopting appropriate economic and social policies, including measures to build human capital, generate jobs and improve income distribution.

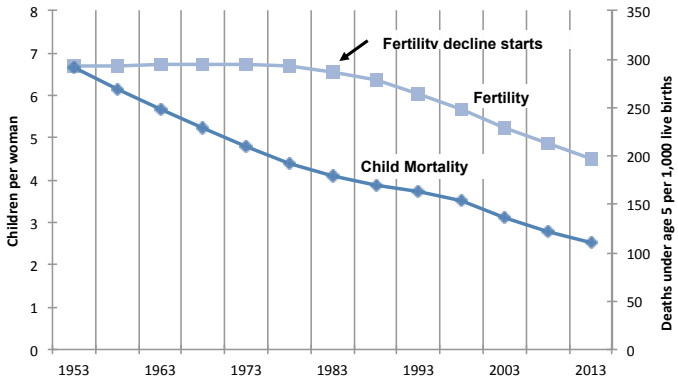
In sum, falling fertility can give rise to a demographic dividend that can facilitate the acceleration of economic growth. A number of low-fertility or intermediate-fertility countries, such as those in Asia, have already reaped the benefits of that demographic dividend or are beginning to do so. But for the majority of high-fertility countries, the period when the demographic dividend may arise is just beginning. As a group, the high-fertility countries have today on average just 1.23 persons of working age per dependent, whereas the intermediate-fertility countries have 1.86 persons of working age per dependent and low-fertility countries have 2.38. For high-fertility countries, the ratio of persons of working age to dependants is today similar to what it was in 1950. Provided their average fertility declines as projected by the United Nations medium variant, that ratio is projected to increase steadily until 2075 when it will be similar to the ratio exhibited today by the intermediate-fertility countries. For high-fertility countries, therefore, the potential for reaping the benefits of a demographic dividend is still in the future. But, given that about 30 high-fertility countries had a total fertility close to or higher than five children per woman in the late 2000s and that most of them are among the least-developed countries in the world, a concerted effort by their governments, the international community and civil society will be necessary to make the demographic dividend a reality.

Figure 8 : Changing shares of selected age groups in the overall population of the high-fertility countries during the demographic transition, estimates and medium projection variant, 1950-2100



Source: United Nations Department of Economic and Social Affairs, Population Division (2011). World Population Prospects: The 2010 Revision, http://esa.un.org/unpd/wpp/index.htm

Figure 9 : Changes in child mortality and total fertility leading to the changing age distribution of the population of high-fertility countries, 1950-2010



Source: United Nations Department of Economic and Social Affairs, Population Division (2011). World Population Prospects: The 2010 Revision, http://esa.un.org/unpd/wpp/index.htm

Population Growth and the Reduction of Poverty

Poverty levels tend to be higher in countries experiencing high population growth. In 2005, developing countries with at least 40% of their population living on less than US$ 1 a day had an average rate of population growth of 2.5%, driven mostly by high fertility. Thus, their average total fertility was 5.4 children per woman, more than double that of developing countries having poverty levels below 10% (table 1).

Table 1 : Population growth rate and total fertility in 2000-2005 for developing countries by poverty level around 2005

	Percentage of people living on less than US$ 1 a day around 2005[a]			
	Under 10	10 to 19.9	20 to 39.9	40 or over
Number of countries	44	13	23	33
Annual population growth rate (percent)	0.7	1.3	1.9	2.5
Total fertility	2.1	3.2	3.8	5.4

Sources: The World Bank online Poverty Analysis Tool (PovcalNet), accessed on 14 October 2008; World Population Prospects: The 2006 Revision (United Nations publication, Sales No. E.07.XIII.2).

[a]The reference date varies by country, ranging from 1995 to 2007. For 102 of the 113 countries considered, the estimate refers to 2000 or later.

High fertility is associated with the persistence of poverty within countries because low-income groups generally have higher fertility than high-income groups. Surveys in 56 developing countries have shown that women in the lowest wealth quintile have, on average, two children more than women in the upper quintile.[20] In Africa, that difference is even higher, at 2.8 children, and it is highest in Latin America and the Caribbean, where it reaches 3.8 children per woman.[21]

Reducing fertility among poor families can contribute to reducing a country's poverty rate by slowing the growth of the population living in poverty. Analyses of the impact of declining fertility on poverty reduction have shown that demographic change alone has accounted for a 14% drop in poverty levels in the developing world during 1960-2000 and could produce an additional 4% reduction during 2000-2015 if the fertility decline were to accelerate in high-fertility countries.[22] During 1990-2001, the maintenance of rapid growth among the population living on less than US$ 1 a day is estimated to have slowed the rate of poverty reduction compared with what it might have been had fertility in that population fallen faster.[23] This effect was most pronounced in Africa and South Asia.

Because the persistence of poverty is related to the persistence of hunger, high population growth caused by high fertility contributes to an increase in the levels of hunger and undernutrition. Low-income households, which tend to have higher numbers of children, usually have to allocate a higher proportion of their incomes to food and are particularly vulnerable to rising food prices or increases in the cost of food production. Thus, higher food prices and rises in the price of fertilizer or seeds have had more serious impacts on developing countries whose populations are growing rapidly and where poverty was high before the crisis. Although measures to address the effects of food-price shocks should give priority to the immediate protection of the most vulnerable households and individuals, over the medium term, responses to the persistence of hunger and undernutrition need to factor in population policy as a means to promote sustainable livelihoods.

High Population Growth and the Capacity to Provide Education and Health Services

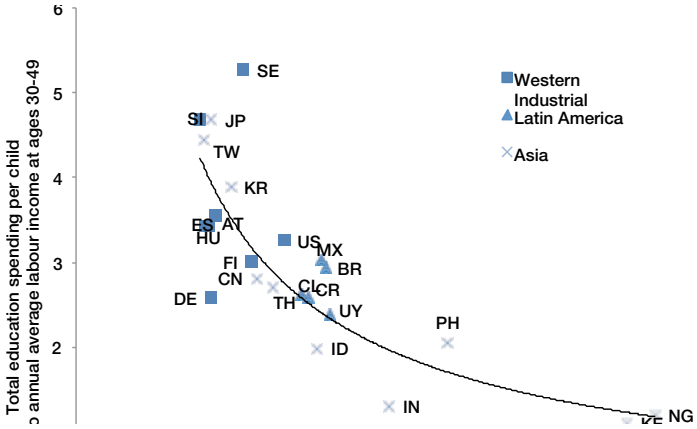
High population growth driven by high fertility results in rapidly growing numbers of children and young people, and poses challenges for the provision of services to this growing segment of the population. In the least developed countries,[24] the number of children under age 15 was growing at well over 2% per year until 2000 and is still growing at 1.5% per year today. In 2010, the number of children in the least developed countries reached 341 million. Even assuming a substantial reduction in the average fertility of their populations, from 4.4 children per woman in 2005-2010 to 3.5 children per woman in 2020-2025, their number of children would increase by 72 million to reach 413 million in 2025. Although most of the least developed countries continue to have high fertility, a few have achieved impressive reductions over the past decades. Bangladesh, for instance, has managed to cut its fertility from 6.9 children per woman in 1970 to 2.3 today.[25] If all the least developed countries had managed to reduce their fertility as rapidly as Bangladesh, they would have today just 266 million children under age 15 instead of 341 million and, more importantly, they would expect a 40% reduction in the number of children by 2025, to reach just 237 million.[26]

Declining numbers of children would have opened numerous opportunities to improve the health and educational prospects of future generations, especially in the least developed countries. Instead, the sustained increase in the number of children aged 5 to 14 in the least developed countries imposes additional burdens. In the least developed countries' school systems, even to maintain the current pupil-to-teacher ratios, which are high in many of the countries involved, the number of teachers in the least developed countries would have to increase by 25% by 2025 and new schools would have to be built.[27] Improving the quality of education would require even larger increases in the number of teachers, schools and educational materials. Thus, the combination of high fertility and low financial and institutional capacity poses a continuing challenge for some of the poorest countries. In Mali, for instance, after nearly 20 years of major efforts to increase enrolment in primary school, only 57% of the pupils who enrol complete primary education and the expansion of enrolment has led to large class sizes, averaging 51 pupils per teacher in 2008.[28]

Reducing the average family size can contribute to improving educational levels. Investments in the education of children are less likely to be sufficient when the number of children is large. Countries with the worst education indicators tend to have high proportions of children and high population growth rates. Thus, in the 22 countries whose net enrolment ratios in primary school[29] were below 80% around 2008, children under age 15 accounted for 41% of the population and the population growth rate averaged 2.4% annually. In contrast, the 72 countries with net enrolment ratios in primary school above 95% had a lower proportion of children in the population (28%) and their population growth rates averaged 1.1% annually. Furthermore, whereas low-fertility and intermediate-fertility countries had net enrolment ratios in primary school of approximately 96%, in high-fertility countries the average net enrolment ratio was around 78%, yet another indication that lower fertility makes it easier to invest in education.

Reducing fertility can facilitate the task of improving the educational attainment of younger generations. Intergenerational transfer accounts indicate that parents and governments in countries with lower fertility jointly spend more on the education of children relative to labour income than they do in countries with higher fertility (figure 10). In general, in countries with a total fertility of three or more children per woman, expenditure on education per child relative to labour income is appreciably less than expenditure in countries with a total fertility ranging from one to two children per woman.[30]

Figure 10 : Share of income spent on children's education in relation to labour income vs total fertility



Source: Derived from estimates produced by the National Transfer Accounts Project. See http://www.ntaccounts.org

Countries with high fertility also tend to have weak healthcare institutions that cannot cope with the service demands of rapidly increasing populations. The system for delivering primary health services is a key institution to ensure people's well-being. Among other things, the primary healthcare system is responsible for providing pregnant women with the attention and care they need for delivering healthy babies safely, ensuring that children get the vaccinations that they need, and treating the diseases of childhood. Pregnant women need access to antenatal care and to trained birth attendants whose services can reduce the risk of maternal morbidity and mortality. Those services are more likely to be available in countries with lower fertility. Most countries where both fertility and maternal mortality are high tend to have weak health systems that are unable to deliver the services required by women and children (table 2). The prevalence of weak health systems is also common among countries where maternal mortality remains high despite the decline of fertility.

Table 2 : Relation between the levels of maternal mortality and fertility and health-system indicators

	Gross National Income per capita	Health expenditure per capita	Physicians per 1,000 population	Percentage of deliveries attended by skilled personnel	Percentage with weak health systems
High maternal mortality and high fertility	US$ 862	US$ 47	0.18	48	98
High maternal mortality and low fertility	US$ 1,783	US$ 91	0.71	64	70
Low maternal mortality and low fertility	US$ 4,120	US$ 279	2.16	96	9

Source: "Better health for women and families: The World Bank's Reproductive Health Action Plan, 2010-2015", World Bank 2010, p. 24. Note that, in this document, "high fertility" covers those countries with a total fertility rate (TFR) of three or above. Population Growth and the Well-being of Families

What is true for poor countries holds for poor families, whether they live in rich or poor countries. Having fewer children allows families to invest more in each child. Improvements in child nutrition, health and education can be achieved more easily when there are fewer children in the family to compete for the resources and services available. Thus, studies at the household level show that, on average, children born into large families have fewer opportunities to receive schooling than children born into small families, especially in countries where most education costs are borne by parents.[31]

Reductions of fertility usually go hand in hand with changes in the timing of births. In most societies where fertility is low or moderate, women tend to have their first child at age 18 or later and the intervals between the birth of a child and the next conception tend to lengthen, leading to longer intervals between births. These changes contribute to reducing the mortality of young children and allowing mothers to recuperate from one pregnancy to the next. Furthermore, reducing the number of pregnancies a woman has also reduces her lifetime risk of dying from maternal causes.

Longer birth intervals are good for children. Closely spaced births as well as pregnancies in adolescent and older women put their children at increased risk of dying. Children at high risk of dying are those born to mothers under age 18 or to women aged 35 or over, as well as children born within 24 months of a preceding birth and those having a birth order of four or higher. According to data collected by 172 Demographic and Health Surveys conducted between 1985 and 2007, the higher the proportion of children in the high-risk groups, the higher the probability of dying before age five (i.e. under-five mortality). Without controlling for other variables, the proportion of births in high-risk categories accounts for 41% of the inter-country variation in under-five mortality.

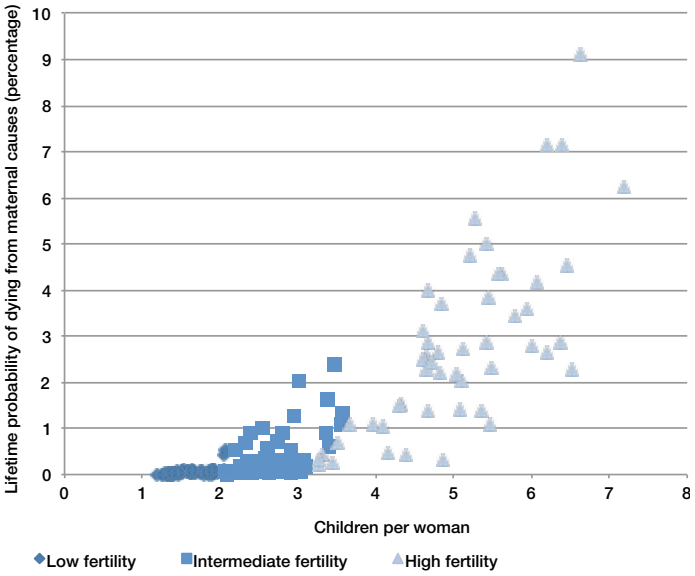
The inter-pregnancy interval is defined as the time between a live birth or another pregnancy outcome and the start of the next pregnancy. Analysis of the survivorship of more than a million births recorded in Demographic and Health Surveys between 2000 and 2005 found that inter-pregnancy intervals ranging from 36 to 47 months were associated with the lowest risk of death in childhood.[32] The study concluded that if women could delay the next conception after a live birth by at least 24 months, under-five mortality would fall by 13%, and it would drop by 25% if women could delay the next conception by at least 36 months. Accordingly, the World Health Organization recommends that women delay by at least 24 months the next conception after a live birth.[33] To the extent that women have children too closely spaced together or too early or late in life because they lack access to modern contraceptive methods, improving their access to effective methods of family planning can reduce under-five mortality significantly.

Lower fertility is good for women. Ensuring maternal health is a global priority. In developed countries, antenatal care is routinely provided to pregnant women and the probability of dying in childbirth is very low. In developing countries, especially in the high-fertility countries, many pregnant women still lack access to adequate maternal care and face high risks of dying while giving birth. Globally, the number of women of reproductive age has increased from 1.3 billion in 1990 to 1.8 billion today and will continue to rise. That increase alone might have been expected to drive up the number of maternal deaths,[34] yet the latest estimates show their number has declined from 545,000 in 1990 to 359,000 in 2008.[35] The reduction of fertility has greatly contributed to that decline, more than counterbalancing the increase in the number of women of reproductive age.[36]

Although efforts are ongoing to provide better healthcare to pregnant women and to ensure safe delivery for all pregnant women, important disparities in both fertility levels and in access to maternal healthcare persist. Today, 65% of maternal deaths occur in high-fertility countries, whereas those countries account for just 32% of births. In addition, whereas the low-fertility and intermediate-fertility countries taken as a group have achieved a 55% reduction in their overall maternal mortality since 1990, the high-fertility countries have achieved just a 28% reduction.

Because the lifetime risk of maternal mortality depends on the number of pregnancies a woman has, lower fertility reduces the lifetime risk of maternal death (figure 11). Countries that have achieved rapid reductions in fertility have also tended to experience sizable reductions in maternal mortality. As discussed above, preventing high-risk pregnancies – that is, pregnancies that start less than two years after the last delivery and those of adolescents and women aged 35 or over – is beneficial not only for the women involved but also for the health and survival of their children. Access to modern contraceptives, which allow women to prevent mistimed or unintended pregnancies, is crucial in this respect. If the existing unmet need for modern contraception could be satisfied, unintended pregnancies could be cut by 70% and nearly 100,000 maternal deaths could be averted each year. Over the immediate future, an additional US$ 3.6 billion (in 2008 dollars) devoted to family planning are needed annually to satisfy current levels of unmet need[37], but as the number of women of reproductive age increases, the necessary funding will rise.

Figure 11 : Lifetime probability of dying from maternal causes in 2008 vs total fertility in 2005-2010



Source: Derived from data presented in World Health Organization, Trends in Maternal Mortality: 1990 to 2008, Estimates developed by the WHO, UNICEF, UNFPA and the World Bank, 2010.

Averting unintended pregnancies is also crucial to reducing the recourse to unsafe abortion. The World Health Organization estimates that 22 million unsafe abortions occurred in 2008, 13% of which occurred in low-fertility countries, 52% in intermediate-fertility countries and 35% in high-fertility countries. The rate of unsafe abortions per 1,000 women aged 15-44 was highest in high-fertility countries (31 per 1,000) compared with that of intermediate-fertility countries (18 per 1,000) and low-fertility countries (four per 1,000). Although there is no data on the number of conceptions that would permit relating the number of estimated unsafe abortions to all conceptions, their number can be related to the number of live births. Thus, in low-fertility countries there are an estimated eight unsafe abortions for every 1,000 live births, in intermediate-fertility countries that ratio amounts to 20 for every 1,000 births and in high-fertility countries its value is 19 for every 1,000 births.

3. What Can Be Done?

As this report has shown, the future size and growth of the world population depends to a large extent on the future path fertility takes. Average world fertility has fallen from 4.9 children per woman in the late 1960s to 2.5 children per woman today. This decline has largely been driven by the rapid reductions of fertility achieved by a majority of developing countries since the late 1960s. There is considerable experience on strategies that developing country governments and the international community can adopt to promote the voluntary reduction of fertility among their populations.

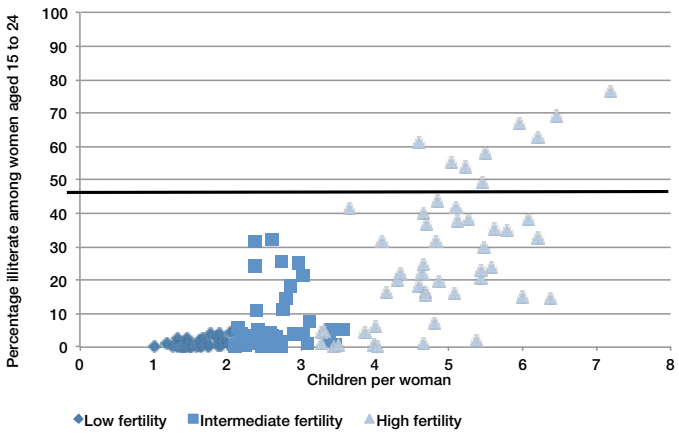
Actions by Countries

Government policies can affect fertility levels either directly or indirectly. Direct policies focus mainly on the proximate determinants of fertility by, for instance, setting lower limits for the age at which people can marry or by promoting and supporting access to contraception. Indirect policies are those that, although not aimed at influencing fertility, nevertheless change the incentive structure influencing parental desires regarding the number of children to have. Such policies include the provision of old-age pensions, incentives for women to join the labour force, and policies that reward higher educational attainment with better economic prospects, providing parents an incentive to invest more per child.[38] In addition, policies adopted to increase human well-being and build human capital have influenced parents' ability to reach their desired family size, including those directed at reducing child mortality and the efforts made to increase educational attainment, particularly among girls.

Improving the educational level of women is generally considered to be an important strategy to lower fertility. In developing countries, women who have completed secondary education have fewer children on average than women with little or no education. The ability to read and write is a major source of empowerment for women that translates into greater efficacy in making decisions for themselves and the ability to follow through with them. Yet, levels of illiteracy among women remain high in many developing countries, particularly among those with high fertility (in many countries, over 40% of women aged 15 to 24 were illiterate in 2008). Thus, high-fertility countries tend to have higher levels of illiteracy among women aged 15 to 24 than countries having intermediate fertility.

While the correlation between lowering fertility and increasing educational attainment is positive and strong (figure 12), education is only one instrument in lowering fertility. Indeed, several high-fertility countries have already achieved very low levels of illiteracy. Other policies, such as those described in the following paragraphs, are also needed.

Figure 12 : Percentage illiterate among women aged 15 to 24 years vs total fertility, 2008

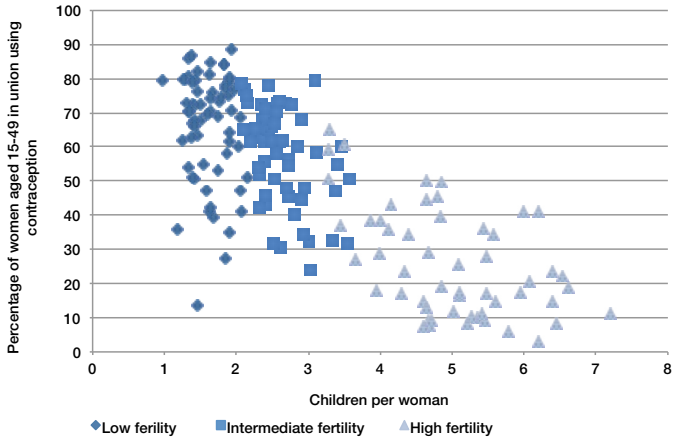


Sources: Percentage illiterate was obtained from the Millennium Development Goals Indicators database available at http://mdgs.un.org/unsd/mdg/Data.aspx. The total fertility was derived from the United Nations Department of Economic and Social Affairs, Population Division (2011). World Population Prospects: The 2010 Revision, http://esa.un.org/unpd/wpp/index.htm

The use of contraception, particularly of modern methods of contraception, is the usual means by which couples and individuals exercise control over the number of children they have. Since the introduction of modern contraceptives in the 1960s, their use among people who are married or living in a consensual union has increased markedly, particularly in populations where fertility has declined. Contraceptive prevalence, measured as the share of women aged 15-49 who are married or in a union and who use some method of contraception, averaged 72% in developed countries and 61% in developing countries in 2009 and, among contraceptive users, those relying on modern methods constituted 85% of users in developed countries[39] and 90% in developing countries.[40]

Contraceptive prevalence tends to be higher in low-fertility countries and in intermediate-fertility countries than in high-fertility countries (figure 13). Although most high-fertility countries still have very low contraceptive prevalence, in 15 of them contraceptive prevalence has surpassed 30% and in four it is above 50%. In general, lower contraceptive prevalence is associated with higher fertility but, as figure 13 shows, for a given level of total fertility, there is considerable variation in the level of contraceptive prevalence. This variation implies that factors other than overall contraceptive prevalence are important in determining fertility levels, including the effectiveness of the methods used, the incidence of childbearing outside marriage or consensual unions, and the incidence of abortion.

Figure 13 : Most recent level of contraceptive use vs total fertility in 2005-2010



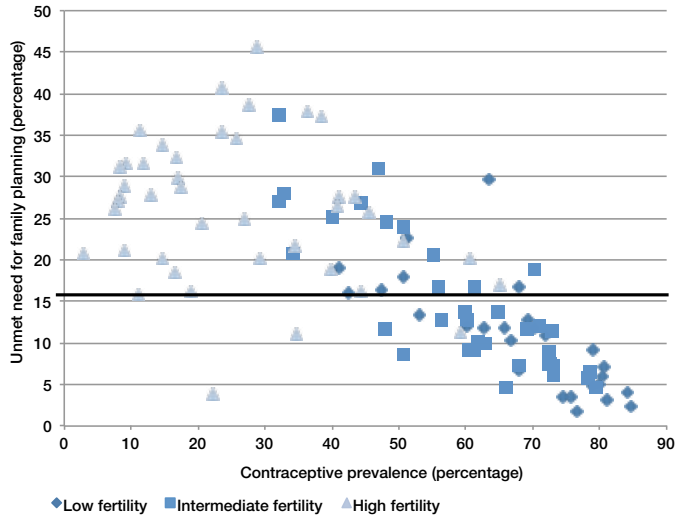
Source: United Nations, World Contraceptive Use 2011. United Nations publication, Sales No. E.11. XIII.2, 2011.

The extent to which women rely on modern contraceptive methods varies between fertility groups. In 11 out of the 52 high-fertility countries with data, over 40% of contraceptive users rely on traditional methods of contraception, which are less effective than modern methods. In addition, in almost all countries with data on the method mix prevalent among contraceptive users, there is concentration of use in one or two methods. Such concentration suggests that accessibility to the widest possible range of safe and effective contraceptive methods is not yet a reality in many countries.

Despite the progress achieved by many countries in expanding access to modern contraceptives, wide disparities persist within countries, with the younger, poorer, less educated and rural segments of the population facing greater barriers to accessing effective methods of family planning. Major disparities in contraceptive use exist both across and within countries.[41]

A useful indicator of the unmet need for family planning is the proportion of fecund women who are married or in a union and who wish to delay their next pregnancy or to stop childbearing altogether but are not using any method of contraception. Unmet need is typically low when the desired number of children is high. It rises as the desired number of children drops and then falls as contraceptive use becomes widespread and equitably distributed. Unmet need tends to be low in low-fertility and intermediate-fertility countries, but is higher than contraceptive prevalence in 25 of the 42 high-fertility countries with data. In all but three of them (Jordan, the Solomon Islands and Timor-Leste), more than 15% of women who are married or in a union has an unmet need for family planning (figure 14). Similarly, high levels of unmet need are reported by 13 of the 26 intermediate-fertility countries with data and by seven of the 27 low-fertility countries with data. That is, although significant levels of unmet need are more common in high-fertility countries, they also exist in a fair number of low-fertility and intermediate-fertility countries.

Figure 14 : Unmet need for family planning vs contraceptive prevalence



Source: United Nations, World Contraceptive Use 2011. United Nations publication, Sales No. E.11. XIII.2, 2011.

Unmet need is related to the desire for children, and in many of the high-fertility countries, couples desire to have many children. However, the evidence suggests that desires are changing and, in some high-fertility countries, the proportion of women wanting no more children after they have had three or four is high.

To be effective, government policies aimed at modifying fertility levels should be mindful of the social dynamics that influence values and norms regarding the ability to decide the number of children to have and the capacity to act on that decision. In the 1970s, demographers studying the decline of fertility in 19th century Europe discovered that it could be explained in terms of a diffusion process, whereby novel ideas and modes of behaviour spread through social networks. Some of the steps involved in adopting contraception, which include becoming aware of the possibilities that contraception offers to plan one's family, acquiring information, evaluating options, trying one or several methods of contraception and, lastly, becoming a committed practitioner, imply that social learning and social influence are important aspects of the process. These insights have guided the design of effective family planning programmes, all of which have incorporated key communication and outreach components aimed at raising awareness, validating behavioural change, and increasing familiarity and confidence in the use of contraception.

Diffusion processes, driven by social influence, social emulation and social learning (in many cases taking place independently of family planning efforts), are an important part of the explanation of the substantial reductions in fertility that have been achieved even in countries where levels of development and education among women were low when fertility started to decline.[42]

In sum, despite the advances made in ensuring that all couples and individuals have the information, education and means to have the number of children they desire, there are many countries where access to family planning is lagging behind the population's needs. Most of those countries are high-fertility countries that are also among the least developed in their respective regions. A focus on improving access to a wide array of family planning methods is all the more urgent because family planning is a cost-effective intervention to accelerate achievement of the health-related Millennium Development Goals, especially the reduction of child and maternal mortality.

Actions by the International Community

The international community needs to be involved in supporting family planning, partly because those countries where fertility is highest are among the poorest in the world. The recent track record in this regard has not been good. In developing countries today, nine out of every 10 governments provide direct support to family planning programmes, but those programmes are still falling short of satisfying the needs of the population. To be fully successful, family planning programmes must reach the underserved, including young people, low-income women and men, and those living in rural areas. In countries where fertility is high and contraceptive use is low, family planning must incorporate a strategy for community outreach as well as communication strategies to change norms and influence reproductive preferences. Those strategies can include measures to empower women; mobilization of support from community leaders; provision of education on human sexuality that includes counselling on decision-making and ways to counteract peer pressure; promotion of female education; and delay of marriage.

Ensuring access to modern methods of family planning by all those who need them is an effective means of improving the health of mothers and infants and a key measure to empower people to exercise their reproductive rights. Furthermore, by preventing unintended pregnancies, family planning can ultimately reduce the overall cost of providing maternal and newborn healthcare services. Yet, funding for family planning has not kept pace with need. Donor funding, in particular, peaked in 2002 at US$ 700 million and has since declined to about US$ 400 million.[43] Given the increase in the number of women of reproductive age, donor funding for family planning per capita has declined by more than 50% since 1995 in virtually all recipient countries. At the same time, overall development assistance for health has tripled. It is urgent, therefore, to raise funding levels for family planning, especially if the additional US$ 3.6 billion needed annually to satisfy the unmet need for effective methods of contraception is to be secured.[44]

4. Human and Reproductive Rights: The Basis for Population Policy

The actions discussed above are beneficial not only for development, but also because they empower people to exercise their rights. Efforts to reduce fertility should be based on the recognition that reproductive rights are an integral aspect of basic human rights. One of the first mentions of the rights of individuals to decide how many children to have appeared in the proceedings of the first World Population Conference held in Rome in 1954. There, the Swedish Royal Commission and other Scandinavian Governments offered the view that "the right of the individual parent to be able to control the number of his or her children, while at the same time leading a normal married life, [is ...] axiomatic. It follows […] that no obstacle should be placed in the path of dissemination of contraceptive knowledge, but that all citizens should be able to have access, if they desir[e] it, to means of contraception." (United Nations 1955, p. 62).

It took 12 more years and the efforts of influential activists to convince 12 heads of state to issue on Human Rights Day in December 1966 a Declaration on Population stating, among other things, that "the majority of parents desire to have the knowledge and the means to plan their families; [and] that the opportunities to decide the number and spacing of children is a basic human right."

Two years later, in 1968, the governments participating in the International Conference on Human Rights held in Tehran recognized the principle that parents had the right to education and information to determine the number of their children. The Conference adopted Resolution XVIII on the Human Rights Aspects of Family Planning, whose operative paragraph 3 stated that:

> **"[…] couples have a basic human right to decide freely and responsibly on the number and spacing of their children and a right to adequate education and information in this respect."**

(Resolution XVIII: Human Rights Aspects of Family Planning, Final Act of the International Conference on Human Rights. United Nations document, A/CONF. 32/41, p.15)

One year later, the General Assembly of the United Nations adopted the 1969 Declaration on Social Progress and Development (Resolution 2542), which reaffirmed the Tehran Proclamation and urged governments to provide couples not only the "education" but also the

> **"means necessary to enable them to exercise their right to determine freely and responsibly the number and spacing of their children."**

(General Assembly Resolution 2542, United Nations Document A/7630)

All these developments were echoed and reinforced by the World Population Conference held in Bucharest, Romania, in 1974, the first intergovernmental conference focusing on population. The Conference adopted the World Population Plan of Action, which stated in para. 14(f) that:

> **"All couples and individuals have the basic right to decide freely and responsibly the number and spacing of their children and to have the information, education and means to do so; the responsibility of couples and individuals in the exercise of this right takes into account the needs of their living and future children, and their responsibilities toward the community."**

By 1974, therefore, the fundamental reproductive rights were well established, and they were subsequently reaffirmed by the United Nations International Conference on Women held in Mexico City in 1975, by the Second World Conference on Women held in Copenhagen in 1980, and by the Third World Conference on Women, held in Nairobi in 1985. In the late 1980s, the constituency interested in improving the well-being of women began to work towards the adoption of the broader concept of "reproductive health", which was first introduced by the International Conference on Better Health for Women and Children through Family Planning, held in 1987 in Nairobi.

The movement in favour of expanding the scope of reproductive rights to include reproductive health culminated in 1994, when the International Conference on Population and Development (ICPD) held in Cairo adopted its Programme of Action, which defined reproductive rights as follows:

"…reproductive rights embrace certain human rights that are already recognized in national laws, international human rights documents and other relevant United Nations consensus documents. These rights rest on the recognition of the basic right of all couples and individuals to decide freely and responsibly the number, spacing and timing of their children and to have the information and means to do so, and the right to attain the highest standard of sexual and reproductive health. It also includes the right of all to make decisions concerning reproduction free of discrimination, coercion and violence as expressed in human rights documents. In the exercise of this right, they should take into account the needs of their living and future children and their responsibilities towards the community." (ICPD Programme of Action 1994, para 7.3)

Despite the emphasis that the ICPD Programme of Action put on the enjoyment of reproductive health by all, in many developing countries, access to effective contraceptive methods remains poor. Recognizing that better access to family planning methods is necessary to achieve universal reproductive health, the United Nations World Summit convened in 2005 decided to add universal access to reproductive health as a new target of the Millennium Development Goals framework, under the goal of improving maternal health (goal 5). By incorporating universal reproductive health as an MDG target, the international community has recognized the relevance of reproductive rights for development and committed to support their enjoyment by all people.

Conclusion

Late in 2011, the world population surpassed 7 billion and is currently adding 78 million persons every year. By 2050, the world population may be anywhere between 8.1 billion persons and 10.6 billion. The actual number reached depends highly on the speed of fertility decline in developing countries and, in particular, among those that still have high fertility. If the world population surpasses 10 billion by 2050, it will very likely add several additional billions by the end of the century. To avoid that outcome, the 2050 population should remain close to 9 billion. Actions taken today can shape the path that fertility ultimately takes and, in the process, improve the lives of millions of women, their children and their families. In addition, speeding up the reduction of fertility in high-fertility countries will trigger changes in the age structure of their populations that are beneficial for development.

Rapid population growth can magnify every problem that is scaled by population numbers. Slowing that growth will buy time to address a number of major challenges facing the world today. Reducing population increases can help to ease pressure on ecosystems and natural resources, facilitate the management of land and water resources, and improve the chances of achieving a more equitable distribution of energy. Slower population growth will also facilitate adaptation to the consequences of climate change. Furthermore, achieving global food security may be feasible only if population growth slows significantly by mid-century.

Governments can influence the future growth of the world population through policies that increase human well-being and ensure that people can exercise their reproductive rights, thus expanding individual choices and opportunities. Government interventions to reduce child mortality and to increase levels of education, both worthwhile goals in themselves, can also influence the decisions of parents regarding the number of children to have. Moreover, implementing poverty reduction strategies that increase income-earning opportunities, especially for poor women, can empower poor people to exercise their rights and improve the life chances of their children.

To be able to exercise the right to decide how many children to have and when to have them, women and men also require access to modern contraceptive methods. Too many people are still deprived of the means of realizing their reproductive choices because of the barriers they face in getting and using modern methods of family planning. In 2009, an estimated 210 million women who were married or in a union had either an unmet need for family planning or were using traditional methods of contraception.[45] Redoubling efforts to satisfy that latent demand for modern contraception is necessary if the commitments made under the Millennium Development Goals are to be kept. In addition, complementary policies to ensure that people are making informed choices based on accurate information, such as communication campaigns, should also be in place. Addressing the needs and desires of young people in this regard and fostering their active involvement are essential, both because young people are the parents of the future and because they have the highest stakes in shaping the world that they will inherit.

These measures will require resources which may be well beyond the means of countries that need them most – those that have the highest fertility are also the poorest and the most challenged in terms of institutional development. For example, ensuring the availability of the additional US$ 3.6 billion (in 2008 dollars) needed to satisfy current levels of unmet need for family planning should command a high priority. Donors can help by providing predictable funding for the acquisition of adequate supplies of a wide array of contraceptive methods. All these actions are consistent with the guidance provided by the international community and with human and reproductive rights.

In sum, declining fertility leads to fewer children per person of working age and ushers in a period where the economy can reap a demographic dividend, provided workers are productively employed. Such a demographic dividend has already contributed to the economic growth of many developing countries, but high-fertility countries have yet to reach the period in which that dividend may accrue. Lowering their fertility will facilitate their efforts to combat poverty, improve educational levels, generate sufficient jobs for young people and spur economic growth. Having fewer children allows families to invest more in each child. Improvements in child nutrition, health and education can be achieved more easily when there are fewer children in the family to compete for the resources and services available. Reductions in fertility have the potential of starting a virtuous circle whereby countries and families with fewer children can invest more in them and therefore build a better qualified workforce, which, in turn, will be more productive than the previous generation and will want to have fewer children in order to be able to invest more in each of them.

Annex 1

Countries or Areas According to Fertility Category: Low-Fertility, Intermediate-Fertility and High-Fertility

Low-fertility Countries or Areas

Albania
Armenia
Aruba
Australia
Austria
Azerbaijan
Bahamas
Barbados
Belarus
Belgium
Bosnia and Herzegovina
Brazil
Bulgaria
Canada
Channel Islands
Chile
China
China, Hong Kong SAR
China, Macao SAR
Costa Rica
Croatia
Cuba
Cyprus
Czech Republic
Democratic People's Republic of Korea
Denmark
Estonia
Finland
France
Georgia
Germany
Greece
Hungary
Iran
Italy
Japan
Latvia
Lebanon
Lithuania
Luxembourg
Maldives
Malta
Martinique
Mauritius
Montenegro
Myanmar
Netherlands
Netherlands Antilles
Norway
Poland
Portugal
Puerto Rico
Republic of Korea
Moldova
Romania
Russian Federation
Saint Lucia
Serbia
Singapore
Slovakia
Slovenia
Spain
Sweden
Switzerland
Taiwan
TFYR Macedonia
Thailand
Trinidad and Tobago
Tunisia
Ukraine
United Arab Emirates
United Kingdom
United States Virgin Islands
Vietnam

Intermediate-fertility Countries or Areas

Algeria
Argentina
Bahrain
Bangladesh
Belize
Bhutan
Botswana
Brunei Darussalam
Cambodia
Cape Verde
Colombia
Dominican Republic
Ecuador
Egypt
El Salvador
Fiji
French Polynesia
Gabon
Grenada
Guadeloupe
Guam
Guyana
Haiti
Iceland
India
Indonesia
Ireland
Israel
Jamaica
Kazakhstan
Kuwait
Kyrgyzstan
Laos
Lesotho
Libya
Malaysia
Mexico
Mongolia
Morocco
Namibia
Nepal
New Caledonia
New Zealand
Nicaragua
Oman
Panama
Paraguay
Peru
Qatar
Réunion
Saudi Arabia
South Africa
Sri Lanka
St. Vincent and the Grenadines
Suriname
Swaziland
Syria
Turkey
Turkmenistan
United States
Uruguay
Uzbekistan
Venezuela
Western Sahara
Zimbabwe

High-fertility Countries or Areas

Afghanistan
Angola
Benin
Bolivia
Burkina Faso
Burundi
Cameroon
Central African Republic
Chad
Comoros
Congo
Côte d'Ivoire
Democratic Republic of the Congo
Djibouti
Equatorial Guinea
Eritrea
Ethiopia
French Guiana
Gambia
Ghana
Guatemala
Guinea
Guinea-Bissau
Honduras
Iraq
Jordan
Kenya
Liberia
Madagascar
Malawi

Mali
Mauritania
Mayotte
Micronesia
Mozambique
Niger
Nigeria
Palestinian Territories
Pakistan
Papua New Guinea
Philippines
Rwanda
Samoa
Sao Tome and Principe
Senegal
Sierra Leone
Solomon Islands
Somalia
Sudan
Tajikistan
Timor-Leste
Togo
Tonga
Uganda
Tanzania
Vanuatu
Yemen
Zambia

Annex 2

List of Members of the Global Agenda Council on Population Growth, 2010-2012

Abdulkhaleq Abdulla, Professor of Political Science, UAE University, United Arab Emirates

Eli Y. Adashi, Professor of Medical Science, Brown University, USA

Judith Banister, Senior Demographer, Javelin Investments, USA

David E. Bloom, Clarence James Gamble Professor of Economics and Demography, Harvard School of Public Health, Harvard University, USA

Robert Cailliau, Co-Developer of the World Wide Web, CERN, Switzerland

Gary Darmstadt, Director, Family Health, Bill & Melinda Gates Foundation, USA

Nicholas Eberstadt, Henry Wendt Chair in Political Economy, American Enterprise Institute for Public Policy Research, USA

Hans Groth, Senior Director, Healthcare Policy and Market Access, Oncology Business Unit, Pfizer Europe, Switzerland

Jose Miguel Guzman, Chief, Population and Development Branch, United Nations Population Fund (UNFPA), New York

Dana Hovig, Chief Executive Officer, Marie Stopes International, United Kingdom

Emmanuel Jimenez, Director, Human Development, East Asia and Pacific Region, and Editor, World Bank Research Observer, World Bank, Washington DC

Precious Moloi-Motsepe, Chairperson, African Fashion International, South Africa

Nkosana D. Moyo, Founder and Executive Chair, Mandela Institute for Development Studies (MINDS), South Africa

Muhammad Ali Pate, Minister of State for Health of Nigeria

Johannah-Joy Phumaphi, Executive Secretary, African Leaders Malaria Alliance (ALMA), Botswana

Kenneth Prewitt, Vice-President for Global Centers and Carnegie Professor of Public Affairs, School of International and Public Affairs (SIPA), Columbia University, USA

Zeba Sathar, Country Director and Senior Associate, Poverty, Gender and Youth Program, Population Council, Pakistan

Wang Feng, Senior Fellow, The Brookings Institution, People's Republic of China

Hania Zlotnik, Director, Population Division, Department of Economics and Social Affairs, United Nations, New York

From The World Economic Forum

Robert Greenhill, Managing Director and Chief Business Officer, World Economic Forum

Patrick McGee, Senior Research Analyst, World Economic Forum

Endnotes

1 This report is a product of the World Economic Forum Global Agenda Council (GAC) on Population Growth. It was drafted by Hania Zlotnik, Emmanuel Jimenez and David Bloom, and reflects helpful discussions among, and comments from, members of the GAC on Population Growth, as well as the thoughtful suggestions and strong support of Robert Greenhill and Patrick McGee. Larry Rosenberg provided excellent editorial assistance.

2 Derived from the data in World Contraceptive Use 2011, United Nations publication, Sales No. E.11.XIII.2, 2011

3 This report borrows from several reports prepared by the United Nations to inform governments on population trends and the relevance of population dynamics for the attainment of the Millennium Development Goals.

4 United Nations, Department of Economic and Social Affairs, Population Division (2011). World Population Prospects: The 2010 Revision, http://esa.un.org/unpd/wpp/index.htm

5 For a review of the demographic upheaval the world has seen, the salutary economic effect of changes in age structure, and the potential repercussions of demographic change for human well-being, see David E. Bloom, "7 Billion and Counting", Science, 333, 562-569 (2011). DOI: 10.1126/science.1209290

6 Paul Ehrlich, The Population Bomb, Ballantine Books, New York, 1968.

7 Donella Meadows et al., The Limits to Growth, Universe Books, 1972.

8 World Bank, Better Health for Women and Their Families: The World Bank's Reproductive Health Action Plan, Washington, DC, May 2010.

9 The United Nations Population Division makes different demographic projections based on low-fertility, medium-fertility, and high-fertility assumptions.

10 Low-fertility countries are those whose fertility is below replacement level. Fertility is at replacement level when every woman has exactly one daughter who survives to reproductive age. Because more boys are born than girls and not all girls survive to the reproductive ages, the average number of children women have to bear in order to have a daughter who survives to reproduce is higher than two. The net reproduction rate (NRR) measures the average number of daughters surviving to the age of reproduction that women have at current levels of fertility and mortality. When NRR is lower than one, fertility is below replacement level. In this section, intermediate fertility is taken to mean an NRR ranging from 1 to 1.5 daughters per woman, implying that the next generation increases by at most 50%. Higher levels of NRR are considered high fertility.

11 In this report, the term "developed countries" is used to refer to all countries in Europe plus Australia, Canada, Japan, New Zealand and the United States. All other countries are referred to by the term "developing countries".

12 IPCC, Climate Change 2007: Synthesis Report. Downloaded from http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_synthesis_report.htm on 30 August 2009

13 FAO Food Price Index, 3 November 2011, accessed on 24 November 2011 at http://www.fao.org/worldfoodsituation/wfs-home/foodpricesindex/en/

14 Andrew Mason and Sang-Hyop Lee, "The demographic dividend and poverty reduction" in Proceedings of the Seminar on the Relevance of Population Aspects for the Achievement of the Millennium Development Goals, United Nations, New York, 17-19 November 2004.

15 David E. Bloom and David Canning, "Global demographic change: dimensions and economic significance", Population and Development Review, supplement to vol. 34, 2008; Bo Malmberg and Thomas Lindh, "Demographically based global income forecasts up to the year 2050", International Journal of Forecasting, vol. 23, No. 4, 2007.

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17 Andrew Mason, editor, Population Change and Economic Development in East Asia: Challenges Met, Opportunities Seized (Stanford University Press, 2001); David E. Bloom, David Canning and Jaypee Sevilla, The Demographic Dividend: A New Perspective on the Economic Consequences of Population Change (Santa Monica, California, Rand Press, 2002).

18 David E. Bloom and Jeffrey G. Williamson, "Demographic transitions and economic miracles in emerging Asia", World Bank Economic Review, vol. 12, No. 3, 1998.

19 Andrew Mason, "Demographic transition and demographic dividends in developed and developing countries", in: Proceedings of the United Nations Expert Group Meeting on Social and Economic Implications of Changing Population Age Structures, Mexico City, 31 August-2 September 2005; Casio Turra and Bernardo Queiroz, "Intergenerational transfers and socio-economic inequality in Brazil: a first look", Notas de Población, No. 80, October 2005.

20 Davidson R. Gwatkin, Shea Rutstein, Kiersten Johnson, Eldaw Suliman, Adam Wagstaff, and Agbessi Amouzou, Socio-Economic Differences in Health, Nutrition and Population within Developing Countries: An Overview (Washington, D.C., The World Bank, 2007).

21 Shea Oscar Rutstein, Fertility Levels, Trends and Differentials 1995-1999. DHS Comparative Reports No. 3 (Calverton, Maryland, ORC Macro, December 2002).

22 Andrew Mason and Sang-Hyop Lee, "The demographic dividend and poverty reduction" in Proceedings of the Seminar on the Relevance of Population Aspects for the Achievement of the Millennium Development Goals, United Nations, New York, 17-19 November 2004. The figures given here were amended based on personal communication with the authors.

23 The rate of poverty reduction was slowed down by between 10% and 50%. For details, see Martin Ravallion, "On the contribution of demographic change to aggregate poverty measures for the developing world", World Bank Policy Research Working Paper, No. 3580, The World Bank, April 2005.

24 In this paragraph, the least developed countries include the 49 countries defined as such by the United Nations General Assembly as of 2008. Since then, one country in the group has "graduated" out of it.

25 World Population Prospects: The 2008 Revision, United Nations Population Division.

26 High population growth in the least developed countries challenges progress towards the Millennium Development Goals, Population Facts, No. 2010/5, United Nations Population Division.

27 Ibid.

28 Jean-Pierre Guengant, Comment bénéficier du dividende démographique : Analyse pays (Mali), Agence Française de Développement, 2011.

29 The net enrolment ratio for primary school is the number of students of primary-school age enrolled in primary education divided by the population of that age group.

30 Ronald Lee and Andrew Mason, Population Aging and the Generational Economy: A Global Perspective, Edward Elgar, Cheltenham, United Kingdom, 2011.

31 Cynthia Lloyd, "Investing in the next generation: the implications of high fertility at the level of the family", Population and Development: Old Debates and New Conclusions (New Brunswick, New Jersey: Transaction Publishers, 2004), pp. 181-202; Claudia Buchmann and Emily Hannum, "Education and stratification in developing countries: A review of theories and research", Annual Review of Sociology, vol. 27, 2001, pp. 77-102.

32 Shea Oscar Rutstein, "Further evidence of the effects of preceding birth intervals on neonatal, infant, and under-five-years mortality and nutritional status in developing countries: evidence from the Demographic and Health Surveys". DHS Working Papers, No. 41 (Calverton, Maryland, Macro International Inc., 2008).

33 World Health Organization, Report of a WHO technical consultation on birth spacing (Geneva: World Health Organization, 2006).

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37 Susheela Singh and others, Adding it Up: The Costs and Benefits of Investing in Family Planning and Maternal and Newborn Health. Guttmacher Institute and UNFPA, New York, 2009.

38 For a recent comprehensive review of how gender-sensitive policies can increase the opportunities for women to earn income and invest in their human capital, see the World Bank, World Development Report 2012: Gender and Development, Washington DC, 2011.

39 In developed countries, 11% of couples rely on traditional methods of contraception, nearly double the proportion that do so in developing countries (5.9%). The largest difference lies in the use of withdrawal, which is the method used by 6.7% of couples in developed countries and just 2.5% of couples in developing countries.

40 United Nations (2011). World contraceptive use 2011. United Nations publication, Sales No. E.11.XIII.2.

41 N. Ortayli and S Malarcher, "Equity analysis: Identifying who benefits from family planning programs", Studies in Family Planning, vol. 41, No. 2, pp. 101-108, 2010.

42 The case of Bangladesh is the best-known example, but successful programmes in countries such as the Republic of Korea, which were implemented and produced changes before the economy took off, also included proactive communication and outreach strategies.

43 Sexual and Reproductive Health for All, op. cit.

44 In fairness, it is important to point out that there is a debate in academic circles about the effect of family planning programmes on fertility. The debate centers on whether (a) access to family planning programmes strongly and independently reduces fertility or (b) such access does little more than permit lower desired fertility to be more easily translated into lower actual fertility. Both sides of the debate recognize that lower desired fertility takes place nearly everywhere in the normal course of development. Studies and papers emphasizing the limited role played by family planning include Grant Miller, "Contraception as Development? New Evidence from Family Planning in Colombia", The Economic Journal, 2010, 120(545), 709-736, and Lant Pritchett, "Desired Fertility and the Impact of Population Policies", Population and Development Review", Vol. 20, No. 1 (Mar., 1994), pp. 1-55. The latter was followed by a response: John Bongaarts, "The Impact of Population Policies: Comment", Population and Development Review, Vol. 20, No. 3 (Sep., 1994), pp. 616-620, and a reply to the response: Lant Pritchett, "The Impact of Population Policies: Reply" Population and Development Review 1994, Vol. 20, No. 3 (Sep., 1994), pp. 621-630. A careful study that stands in the middle of the debate is Paul J. Gertler and John W. Molyneaux, "How Economic Development and Family Planning Programs Combined to Reduce Indonesian Fertility", Demography, Vol. 31, No. 1, February 1994. A study of the long-running Matlab family planning project in Bangladesh found a significant decline in fertility (Shareen Joshi and T. Paul Schultz, "Family Planning as an Investment in Development: Evaluation of a Program's Consequences in Matlab, Bangladesh," February 2007, Yale Economic Growth Center Discussion Paper No. 951).

45 Derived from the data in World Contraceptive Use 2011, United Nations publication, Sales No. E.11.XIII.2, 2011.

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World Economic Forum
91-93 route de la Capite
CH-1223 Cologny/Geneva
Switzerland

Tel +41 (0) 22 869 1212
Fax +41 (0) 22 786 2744

contact@weforum.org
www.weforum.org