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The Future of South Asia:
Population Dynamics, Economic Prospects, and
Regional Coherence

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The Future of South Asia: Population Dynamics, Economic Prospects, and Regional Coherence

David E. Bloom and Larry Rosenberg¹

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What do we foresee for South Asia² in 2060, in light of the significant changes it has undergone in the past few decades? India has experienced rapid economic growth, but continues to suffer widespread, extreme poverty as well. Afghanistan, Nepal, and Sri Lanka have seen major conflicts, with Pakistan always seeming on the verge of a major eruption. Nepal and Sri Lanka finally seem to have moved toward peace. As elsewhere, the region's many developments and crosscurrents make reliable predictions difficult, but one relatively neglected set of factors – demographic change – may shed some light on the region's future. Throughout the world, falling mortality rates and declining birth rates have been predictive of growing per-capita incomes, and theoretical reasoning and related evidence are sufficiently compelling to think that the links may indeed be causal. In this vein, this essay explores South Asia's economic prospects through a demographic lens.

In addition, as we will see, there are some similar demographic trends across the countries of South Asia, but there are also a number of extreme differences. Regional heterogeneity bears on the question, “to what extent is South Asia a coherent region?”

The current demographic scene

Demographically, South Asia is a diverse region of 1.64 billion people (24 percent of the world's population). The infant mortality rate (IMR – the number of children under age 1 who die in a given year out of 1,000 children born in that year) varies by an order of magnitude, from 152 in

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² For purposes of this essay, South Asia consists of the following eight countries: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.

Afghanistan to 15 in Sri Lanka. The total fertility rate (TFR – the average number of children a woman of childbearing age will have assuming no change in current age-specific rates) ranges from a high of about 6.5 in Afghanistan to a low of 2.0 in Maldives. Life expectancy at birth (the average age at death of those born in a given year, assuming no change in age-specific mortality rates) is three decades higher in Sri Lanka (74.5) than in Afghanistan (44.5). The population growth rate also shows dramatic differences across countries: from 3.3 percent per year in Afghanistan (a doubling time of about 21 years) to 0.8 percent per year in Sri Lanka (a doubling time of nearly 90 years). And most obviously, the countries of South Asia vary by size from India (1.2 billion) to the Maldives (300,000), which is one four-thousandth as large.³

The demographic circumstances prevailing in South Asia today reflect the changes that have occurred as part of South Asia's demographic transition: the shift from high rates of mortality and fertility to low ones. These changes have been dramatic. For example, the regional average IMR fell from 168 per 1,000 in the early 1950s to 53 today. TFR began to decline soon after the onset of IMR decline, with the regional average going from 5.9 children per woman in the late 1960s to 2.8 today. Life expectancy, which averaged 39 years in the early 1950s, has risen to nearly 65 years today. The region's total population has more than tripled since 1950, when it stood at 481 million.

Many countries exhibit a similar pattern to that of South Asia, in which improvements in child survival (due for example to increased access to safe water, sanitation, and healthcare), subsequently lead to lower fertility, as families begin to see that fewer children are needed to achieve target family size. (In addition, numerous other factors influence family size. For example, women's increased educational attainment has a powerful effect, as do women's increased opportunities in the labor market. Increased urbanization – which takes place as people move from rural to urban areas, as rural areas grow to become urban, and as urban areas expand to encompass formerly rural areas – brings greater economic opportunities for both men and women, and the consequent increased economic value of people's time leads to lower fertility.)

³ All demographic data are from United Nations 2009. Country-specific data, from which regional data are assembled, are available only to 2050. The UN Population Division uses a set of assumptions about changes in fertility and mortality to produce data for future years. These assumptions are subject to debate, and the resulting data reflect considerable uncertainty. United Nations 2009 offers three sets of future population indicators, based on low-, medium-, and high-fertility scenarios. This paper uses data from the medium-fertility scenario. Under all three scenarios, South Asia's population will increase by 2050: to 2.00 billion if fertility rates follow the low scenario, to 2.32 billion in the medium scenario, and to 2.68 billion in the high scenario. Where this paper refers to current figures, the data are for 2010.

The key point here, however, is that the initial mortality decline leads to a baby boom, since fewer babies die and because fertility has not yet fallen.

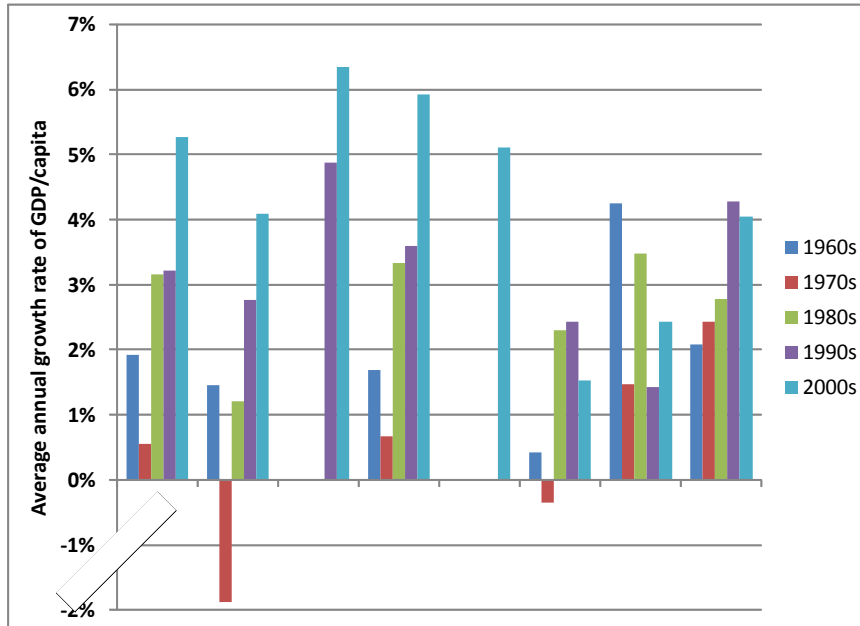
Historical and current economic situation

Consistent with widespread poverty in South Asia, gross domestic product (GDP)/capita in the region is low. At \$2,484 in 2008 (in purchasing power parity (PPP) terms and constant 2005 international dollars), the region lies at almost exactly half the income per person of the World Bank's low- and middle-income countries. The economically best-off countries in the region are Maldives (\$5,169), Bhutan (\$4,395), and Sri Lanka (\$4,215). In the second tier lie India (\$2,721) and Pakistan (\$2,344). Bangladesh (\$1,233), Nepal (\$1,020), and Afghanistan (\$1,019) are by far the poorest. Beyond this diversity of incomes, there are also wide ranges of economic well-being within the various countries.

Per capita income growth rates have varied dramatically across countries and over time. Figure 1 shows these growth rates for South Asia and individual countries. The region as a whole has been growing faster economically since the 1980s, a fact that is heavily affected by India's high share (74 percent in 2010) of South Asia's population, coupled with India's economic growth trajectory. South Asia's GDP per capita growth was low in the 1970s, higher in the 1980s and 1990s, and higher still in the 2000s.

Figure 1

Average annual growth rate of GDP/capita



Source: World Bank 2010

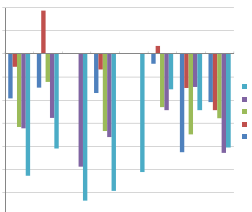
Note: Figures are exchange-rate based. A similar pattern appears if PPP figures are used, but the PPP data are not available before 1980. Data for Afghanistan are not sufficiently available to show changes over time.

Changing age structure

One consequence of the demographic transition is population growth, which (setting immigration aside) occurs when births exceed deaths. The region was growing at 1.8 percent annually in the early 1950s but sped up to a peak of 2.4 percent annually in the late 1970s. Since then, its annual growth rate has declined to its current level of 1.5 percent.

But population growth is not the only consequence of South Asia’s demographic transition. Another significant consequence is the change in the age structure of its population. This begins with the creation of the aforementioned baby boom, which quickly leads to a relatively large number of young people in the population. As fertility subsequently falls, the relative size of the “baby boom” generation is accentuated. With the passage of time, this cohort becomes a correspondingly large cohort of working-age adults.

For reasons that will become clear below, an especially salient change in demographic indicators is the increase in the ratio of working-age to non-working-age population. For South Asia as a whole, this ratio stood at 1.43 in 1950 and fell to 1.22 by 1965 as infant and child



mortality rates fell. Since then, it has risen steadily to 1.74, as the baby boom generation has moved into working ages and as fertility rates continue to fall. The ratio is expected to reach a peak of 2.2 working-age individuals for every non-working-age person in 2040, before beginning to decline. Table 1 shows the historical and expected evolution of this ratio over time.

Table 1
Ratio of working-age to non-working-age population

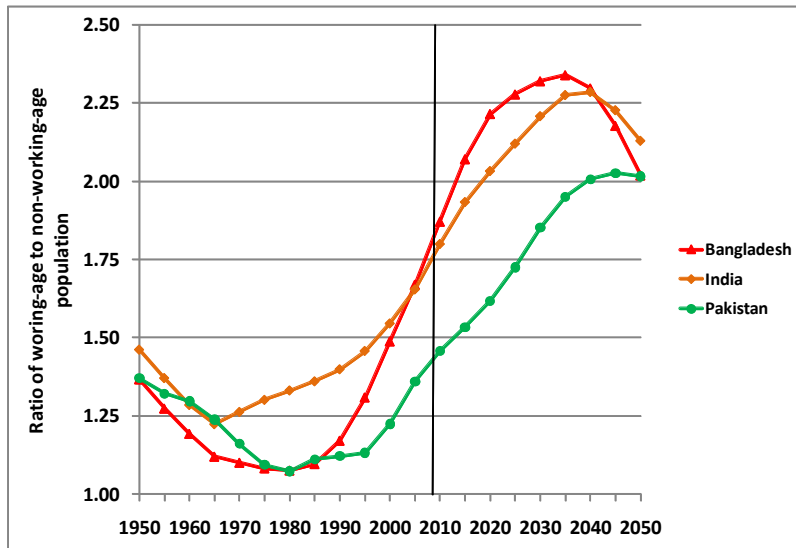
	1970	2010	2050
SOUTH ASIA	1.24	1.74	2.08
Afghanistan	1.16	1.08	1.73
Bangladesh	1.10	1.87	2.02
Bhutan	1.24	1.88	1.98
India	1.26	1.80	2.13
Maldives	1.16	2.17	1.91
Nepal	1.23	1.50	2.13
Pakistan	1.16	1.46	2.02
Sri Lanka	1.31	2.12	1.57

Source: United Nations 2009

The countries of South Asia have, and will continue to experience, changes in age structure. Some countries in the region are very far along in their demographic transition: in Sri Lanka, for example, the working-age-to-non-working-age ratio reached its peak (2.2) in 2005. By contrast, Bangladesh is expected to peak at 2.3 in 2035, India at 2.3 in 2040, and Pakistan at 2.0 in 2045 (see Figure 2). At the opposite end of the spectrum, Afghanistan can expect its ratio to still be climbing in 2050, when it will be 1.7. Of course, all of these estimates depend on the actual path of fertility rates, mortality rates, and life expectancy – patterns that are often subject to a range of factors, including government policies.

Figure 2

Dramatically changing age structure



Source: United Nations 2009

Based on the demographic changes cited in the United Nations (UN) data, it is clear that the region will be very different demographically in 2050. With respect to age structure, our central measure of progress through the demographic transition, South Asia was quite homogeneous in 1970, with the ratio shown in Figure 2 ranging only from 1.10 to 1.31. Today this ratio ranges from 1.08 to 2.17. UN projections for 2050 show ratios ranging from 1.57 to 2.13. That is, there will be some convergence across the countries of the region, but this will occur slowly.

Linking demographic change and economic growth: the demographic dividend

Understanding the significance of these demographic changes requires an examination of the economic history of the region. In particular, the data shown above on the growth rate of GDP/capita are obviously relevant to a discussion of a possible interaction between demographic change and economic growth.

Two facts stand out from the previous discussion:

- The ratio of the working-age to non-working age population in South Asia has been rising since 1965.
- The region's GDP per capita has been rising during the last 30 years of this period.

Is there a connection?

For many years, rapid population growth was thought to be detrimental to economic growth. Thomas Malthus hypothesized that a rapidly growing population would inevitably outstrip any society's capacity to produce enough food, resulting in mass starvation and human misery. In the 1980s, a new idea, "population neutralism", came to the fore. Adherents of this view marshaled evidence to show that population growth was neither helpful nor detrimental to economic growth. More recent studies (Bloom and Canning 2008; Bloom, Canning, and Sevilla 2002) have focused on the possible effects on economic growth of the age structure of a population. This body of research has found that, *ceteris paribus*, cross-country differences in age structure tend to translate into cross-country differences in macroeconomic performance. Specifically, a rise in the ratio of working-age to non-working-age population corresponds, in general, to increases in the rate of per-capita economic growth. Roughly one-third of East Asia's economic "miracle" may have come about because of the rapid demographic changes that the region has undergone (Bloom and Williamson 1998). Propelled by similar demographic changes, Ireland also benefited economically, becoming the "Celtic tiger" (Bloom and Canning 2003).

This phenomenon has come to be known as the "demographic dividend". First, a baby boom cohort arises because of a decline in mortality rates that is followed, with a delay, by a decline in fertility rates. This relatively large cohort gradually enters the typical working ages – beginning when the leading edge of the baby boom enters its teens. A few decades later, the baby boom results in there being a disproportionately and historically large share of working-age individuals in a population – the pattern discussed above for South Asia. A rising, and relatively large, share of working-age people can be economically consequential because of the following factors:

- *Labor force size.* A rise in the share of working-age people means that a country's productive capacity is larger than it was in the past.
 - A higher share of people working, and a correspondingly lower share of children, allows a country to increase its per-capita economic output.
 - The fact that there are fewer children per family allows more women to enter the workforce. Although women still bear a disproportionate burden of child-raising, they are nevertheless more likely to enter the workforce when there are fewer children to take care of. Women's increased participation in the commercial economy can be highly significant in raising output per capita. Such participation

is typically more possible and more remunerative than in the past because an increasing share of the population lives in urban areas, where earnings are higher than in rural areas.

- *Savings.* Savings may rise for two reasons, and increased savings are channeled into increased investment via the financial system.
 - A preponderance of working-age people can lead to increased savings rates, because this age group saves more than the young or the old.
 - Because the demographic transition is accompanied by longer lifespans, workers also have an incentive to save more, in anticipation of longer periods of retirement.
- *Changed use of capital.* At both the family and the national level, resources can be redirected to spur economic growth.
 - Families with fewer children can spend more on the health and education of each child without increasing their total expenses. Healthier children attend school more regularly, learn more while there, and are poised to become more productive workers.
 - At the national level, there are relatively fewer children to feed, clothe, and educate. Even with continued construction of schools, a higher share of financial resources can be directed toward investments that yield returns in the short run via the creation of greater physical capital – factories, roads, and other types of infrastructure.

Caveat lector: Demography is not destiny

Realization of a demographic dividend, via the mechanisms listed above, is far from automatic. A country's ability to capture the dividend depends on many factors and policies:

- Productive employment is the key. An economy can grow even if employment is stagnant, but inclusive economic growth, i.e., growth that benefits all sectors of society, requires the implementation of policies and practices that draw a large portion of the working-age population into the labor force. If large numbers of working-age people are unemployed, they will constitute an economic burden on those who do have jobs.

Moreover, high unemployment or underemployment can become a major source of discontent.

- Particularly important is a country's ability to nurture its human capital. An educated labor force is much more likely to be able to work productively and to be able to adapt to the rapidly changing demands of an ever more global economy. Similarly, a healthy workforce will be more productive, and it may be better able to attract foreign direct investment.
- Carefully chosen and well-implemented policies and practices in other areas, such as governance, macroeconomic management, trade, and social protection, are essential.
- Good relations with neighboring countries, trading partners, and international institutions are important. Tense relations often lead to high military expenditures – and even wars – that detract from investments in physical or human capital that can more directly benefit the population at large.
- Internal peace is usually important for economic growth. Without it, a country will have a more difficult time ensuring a high level of employment.

To date, South Asia's economies have been improving, in response to many factors, quite possibly including the region's rising share of working-age people. Based on the East Asian experience, the fact that South Asia is soon to see a further rise in the share of working-age people augurs well for increased per-capita incomes in the coming decades. To be clear, this prediction is an "all-things-equal" statement. Demographic change may well operate as a significant factor in strengthening the region's economies, but (a) policies need to be in place to ensure widespread productive employment, and (b) factors completely apart from demographics may of course play a decisive role.

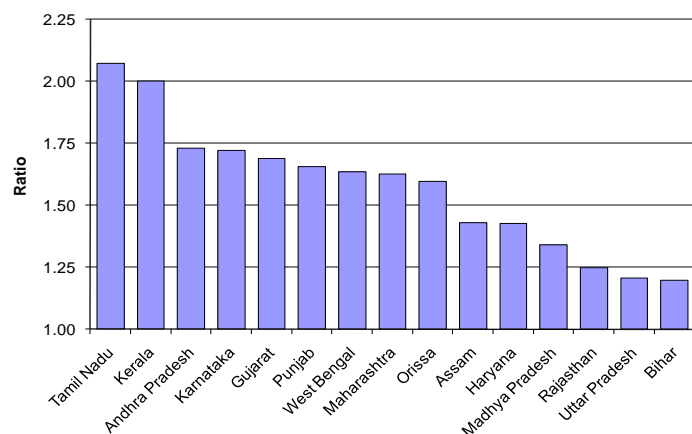
Two potential impediments to realizing the demographic dividend

Within-country heterogeneity. Considerations similar to those discussed above apply within countries. The various states of India, for example, lie at very different points along the demographic transition (see Figure 3). The demographic heterogeneity of these states suggests that their future economic trajectories may differ significantly from each other. Thus, demographic heterogeneity may undermine the inclusivity of economic growth. In Indian states,

as in the countries of the region, policies will need to be focused on specific measures that can promote productive employment.

Figure 3

Ratio, working-age to non-working-age population, by Indian state, 2001



Source: Office of the Registrar General and Census Commissioner, Ministry of Home Affairs, India, 2001, as shown in Bloom 2011 forthcoming.

Population aging. One further factor, population aging, is inherent to the demographic transition and potentially complicates the posited relationship between demographic change and economic growth. As the baby boom cohort reaches the upper end of the working ages, its leading edge begins to swell the ranks of the elderly. In conjunction with increased life expectancy, the end of this cohort's working years leads to there being an increasing share of the population that is elderly, not working, and dependent on the working-age population. Continued low fertility also contributes to the elderly representing a rising share of the population. The share of the region's population that is aged 60 or older stood at around 6 percent from 1950 through 1995. By 2010 it had reached 7 percent, and it is expected to reach nearly 19 percent by 2050. The countries of the region are aging at very different rates: Sri Lanka's 60+ population share is expected to increase from 12 percent to 28 percent over the next 40 years, Bangladesh's from 6 percent to 21 percent, India's from 8 percent to 20 percent, and Pakistan's from 6 percent to 15 percent. The share of those aged 80 or older is expected to rise from 0.6 percent in 2010 to 2.4 percent in 2050. This segment of the population is very unlikely to be working – and thus they are in general not

contributing economically to the family or to the national economy. In general, their needs are much greater and more acute than those of the 60-79 group.

Population aging is a concern for various reasons. In South Asia, as elsewhere, traditional patterns of family care of the elderly are fraying – because of smaller families, more years between generations, women working more, movement to urban areas leaving the elderly behind, and changes in social expectations. The elderly, who are often not able to support themselves and who most often have limited or no pensions, are financially dependent on others. Their contribution to economic output is greatly decreased. Although retirement policies have mostly so far been inapplicable to populations that are working primarily in the informal sector, countries will need to rethink such policies, with a view to expanding pension coverage to a greater share of the population.

In addition, the elderly need greater access to healthcare, just at the time when their financial security is typically becoming worse. The strengthening of healthcare institutions and delivery that most countries need to accomplish is even more pressing in light of population aging. In the last few decades, several newly prominent factors have begun to affect population health, including the health of the elderly. Diets in many countries have become less healthy, as the availability of processed and packaged foods expands. Urban living, because of a combination of pollution, slums, and in some instances an increase in sedentary jobs, is encouraging a significant increase in obesity and related chronic disease. Furthermore, the need to respond to chronic diseases comes while many developing countries are still dealing with the unfinished agenda of conquering infectious diseases.

Conclusion

Current demographic trends indicate that South Asia will be very different in the coming decades than it is today. Mortality and fertility rates will be lower, and life expectancy will be higher. Population growth will have slowed substantially. Of greatest note, the region's ratio of working-age to non-working-age population will have risen, peaked, and begun to fall.

Economic predictions are much more difficult to make, as they depend on a much wider array of factors. But the coming demographic changes offer most of South Asia an opportunity to benefit from a demographic dividend. Policies that successfully promote productive employment are essential if this dividend is to be realized. Other factors are likely to play even larger roles in

determining the region's economic future, but attempting to take advantage of the demographically driven opportunity is a wise move – especially because expanding work opportunities and enhancing the population's health and education are beneficial in their own right and would be good policy choices even in the absence of a demographic spur.

As the region's economies improve, the relationship between demographic change and economic growth suggests that the various countries' economic ranking within South Asia may change. Indeed, this has already happened. In 1980, India's GDP per capita, in PPP terms, was only 73 percent as large as Pakistan's. It stayed at roughly that level until the latter half of the 1990s, standing at 89 percent of Pakistan's level in 2000. By 2005, India had surpassed Pakistan by 2 percent, and in 2008, it was leading by 16 percent. The demographic comparison here is striking: India's TFR has fallen much faster than Pakistan's, and to a lower level (2.6 vs. 3.8). Its working-age to non-working age ratio began to rise earlier than did Pakistan's (1970 vs. 1985), and it has reached a higher level (1.8 vs. 1.5). More generally, the countries of South Asia are somewhat out of phase with respect to their demographic trajectories, which will create a tendency for their economic trajectories to be out of phase. This raises the possibility of other income crossovers and corresponding reordering of economic power.

It is apparent from this examination that there is considerable demographic and related economic heterogeneity both across countries and within them in South Asia. That heterogeneity has been and will continue to be a powerful driver of economic inequality. In addition, one might project that the lack of common circumstances suggests that South Asian leaders will continue to voice widely disparate interests. This poses a challenge to South Asia's coherence as an economic and political power.

References

- Bloom, David E. (2011). "Population Dynamics in India and Implications for Economic Growth", in Ghate, Chetan, ed., *The Handbook of the Indian Economy*. Oxford University Press, forthcoming.
- Bloom, David. E., and David Canning (2003). "Contraception and the Celtic Tiger", *Economic and Social Review*, Winter, Vol. 34, No. 3, 229–247.

- Bloom, David E., and David Canning (2008). “Global Demographic Change: Dimensions and Economic Significance”, *Population and Development Review*, Vol. 33, 17-51.
- Bloom, David E., David Canning, and Jaypee Sevilla (2002). *The Demographic Dividend: A New Perspective on the Economic Consequences of Population Change*, RAND, MR-1274, Santa Monica, Calif.
- Bloom, David E., and Jeffrey Williamson (1998). “Demographic Transitions and Economic Miracles in Emerging Asia”, *World Bank Economic Review*, Vol. 12, No. 3, 419–455.
- United Nations (2009). *World Population Prospects: The 2008 Revision*. New York: United Nations Population Division.
- World Bank (2010). *World Development Indicators 2010*. Washington: The World Bank.