

**THE DEMOGRAPHIC BONUS
AND
POPULATION IN ACTIVE AGES**

Ralph Hakkert

Chief Technical Advisor, Project RLA5P201

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11. Carlos Alonso; Jairo Núñez; John Jairo Roldán; Natalia Millán; Óscar Alfonso; Ralph Hakkert & Sergei Soares - Informe del estudio en profundidad de Colombia

Introduction

Demographers have long been aware of the opportunities that were likely to be created by the results of the worldwide demographic transition. In the LAC region, for example, Carvalho referred to it as the “golden age” of demography (Carvalho, 1998; Carvalho & Rodríguez, 1995). However, these ideas have gained much greater public visibility ever since the notion of the demographic “bonus” or “dividend” or “window (of opportunity)” was introduced in the late 1990s by the World Bank and other major development agencies. In the LAC region, the 2000 edition of *Economic and Social Progress in Latin America* (IADB, 2000) was particularly influential in this respect.

The shift in emphasis from population growth effects to age-structural effects has gone beyond the strictly economic sphere. Recently, it has even led to a revival of the idea that age structure is an important component of national security (Leahy et al., 2007). In a more systematic fashion, CICRED (Adioetomo et al., 2005) has detailed for each of the eight Millennium Development Goals (MDGs) how they would be affected by what the authors, using a less value-laden term, call age-structural transformations (ASTs):

Goal 1 (Eradicate extreme poverty and hunger): When young families, with only one or two “breadwinners”, predominate, they are more likely to see poverty and hunger. In contrast, during periods in which there are windows of opportunity, when dependency ratios dip, there will be more productive workers. The effect on poverty reduction is twofold. On the one hand, lower dependency ratios tend to raise aggregate per capita incomes. Malmberg and Lindh (2006), for instance, project that, whereas the per capita income effect of the age structures of countries like Austria and Sweden will peak during the next decade, Mexico, Brazil, Iran, the Philippines, Indonesia, and Cameroon will continue to receive substantial boosts to their per capita incomes until 2040 and beyond as a consequence of to their changing age structures. On the other hand, poverty may be reduced as a consequence of a more favourable distribution of family sizes within the population, as the number of dependants in poor families falls more than in non-poor families, which have fewer children to begin with (Hakkert, 2007).

Goal 2 (Achieve universal primary education): Education is clearly the key to the development of the human capital essential to exploiting any windows of opportunity. ASTs can have positive effects when there are large numbers of young people available to gain skills, but massive cohorts will make provision of education very difficult to achieve.

Goal 3 (Promote gender equality and empower women): Where there are existing inequities (e.g. in education) or where the processes producing ASTs have major gender imbalances, increases in access to education, made possible by a window of opportunity, could allow increased levels of school attendance by girls. At the same time, the propensity to progress to higher levels will be enhanced, thus increasing their skills, the range of jobs they can enter, and their incomes and bargaining power, in the family and the society.

Goal 4 (Reduce child mortality): By reducing the numbers of children attended, ASTs may improve the capacity to provide health services of quality, particularly where food security is weak. The occurrence of a window of opportunity permits a reduction in the number of malnourished children.

Goal 5 (Improve maternal health): The size of maternal cohorts interacts with the capacity to provide services. Thus, it is again a quantity vs. quality effect. A window of opportunity would enhance the capacity of countries to increase health services for women.

Goal 6 (Combat HIV/AIDS, malaria and other diseases): HIV/AIDS, malaria and other epidemics have a major impact on ASTs, both directly, through mortality, and indirectly, through factors, such as orphanhood. A window of opportunity would afford a chance to shift more resources to health services and to malaria control. Paradoxically, a window of opportunity is associated with larger cohorts reaching adolescent, youth and young adult ages. These ages are those at which migration and sexual relationships with multiple partners are most likely to occur. Thus, the incidence of HIV/AIDS and STDs could well increase.

Goal 7 (Ensure environmental sustainability): Environmental sustainability is affected by ASTs in two ways. To exploit the window of opportunity requires economic growth, which may negatively affect the environmental. On the other hand, attempts to increase agricultural productivity by land redistribution or the opening up of common and other public land, especially in the environmentally more fragile regions, may produce more direct impacts, which can also be negative.

Goal 8 (Develop a global partnership for development): This Goal underpins the capacity of countries of the South to exploit windows of opportunity. The wealthy will need to aid the poor if the latter are to realise window of opportunity, but, for this to happen, poorer countries will need to set up systems of administration that enhance their capacities to benefit and to ensure equality of opportunity. Failure to respond equitably may produce tensions within a country, and thus lead to political instability. In small-island countries numbers may be small, but AST effects may be magnified, e.g. by migration, making them demographically,

politically, environmentally, and economically fragile. The highest profile interaction between the North and the South is migration, a demographic trend that exacerbates ASTs and which highlights problems of managing them, both in the country of origin and that of destination. Migration may reduce distortions in age-structures in wealthy countries. Through remittances, it may also involve North-South capital transfers and aid development, or at least, sustainability in the South. But the levels needed to achieve this may introduce other distortions in the ASTs of migrant receiving countries.

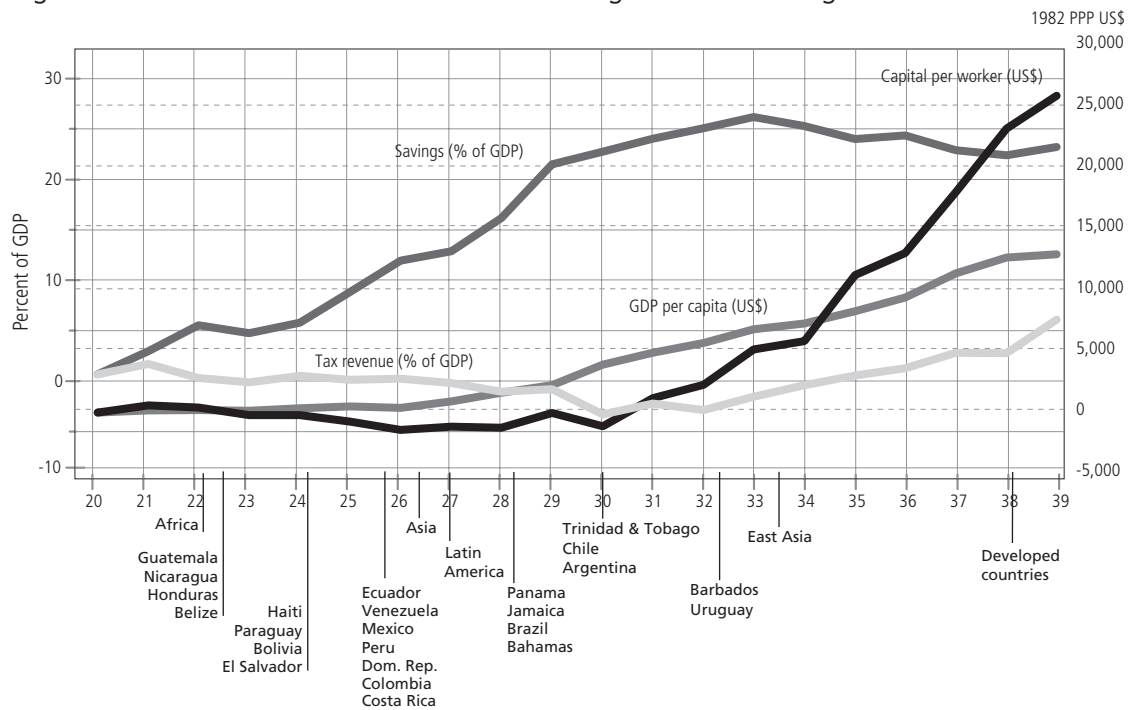
Largely based on the experiences of the “East Asian Miracle”, the basic idea behind the economic component of the demographic bonus is that of a dividend arising from a favourable age structure molded by past fertility trends, which creates a window of opportunity for increased savings and investment for economic growth, at a time when relatively fewer resources are required for investment in education.

“The macro-level evidence complements and reinforces the micro-level evidence by showing that per capita income grows more rapidly when the number of working-age adults is growing faster than the number of children because children are mainly consumers, not producers. At the aggregate level or at the household level a decline in the number of children per adult leads to higher per capita income for the country and the household.” (Mason & Lee, 2004: XX-2)

The exact technical boundaries of definition may vary. The UN Population Division has defined the window of opportunity as period when the proportion of children and youth under 15 years falls below 30% and the proportion of people 65 years and older is still below 15%. Europe’s demographic window lasted from 1950 to 2000. It began in China in 1990 and is expected to last until 2015. India is expected to enter the demographic window in 2010, which may last until the middle of the present century. Much of Africa will not enter the demographic window until 2045 or later.

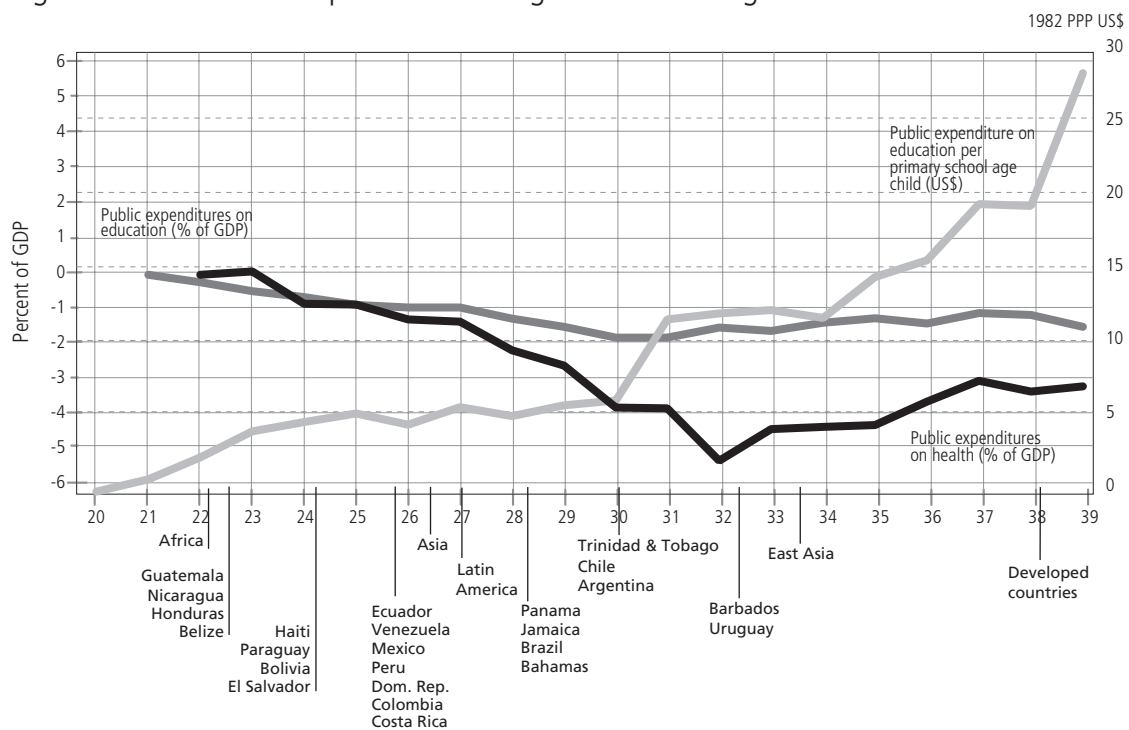
The faster the demographic transition, the more quickly a country reaches the window of opportunity which may last for two or three decades. In East Asia, where the transition was very compressed and where the working age population grew on average 0.8 % per year more than the total population during 1965-1990, the demographic dividend has been estimated to explain 1.4-1.9 % of GDP per capita growth, i.e. about one third of the “economic miracle” (Kelley & Schmidt, 1995, 2001; Williamson, 2001). Some Latin American observers (e.g. Székely, 2003) think that these results can be replicated in the LAC region and that in Mexico, for instance, the demographic bonus could generate per capita economic growth rates that are 1.5-3.0 % above the historical trend.

Figure 1.A: How macroeconomic variables change as countries age



Source: IADB, 2000: Figure 2.3

Figure 1.B: How social expenditures change as countries age



Source: IADB, 2000: Figure 2.4

The peak ratio of working-age to dependent ages will take place in the time frame of the MDGs in many sub-regions of the developing world if access to RH and family planning is provided:

“These dynamics of population and poverty are magnified at the macro level, as the age structure of the entire economy shifts to working age adults when fertility falls. It is this ‘demographic window’ that provides an opportunity for countries to take advantage of increases in labour inputs, saving, and capital accumulation per capita that fuel investment and growth.” (UNFPA, 2004 a: XV-3)

Some authors (Mason & Lee, 2006) have advanced the idea that, given the right circumstances, there may actually be a “second demographic bonus”. This second dividend arises because population ageing provides a powerful force for saving and asset accumulation which, in turn, stimulates economic investment and growth. In this case the aspect that is being emphasized is not merely the fact that families become more concentrated in a phase of their life cycle where their propensity for saving is high, but more specifically the fact that they may be obliged to save in view of their imminent retirement. Given the right mechanism for funding the livelihoods of the elderly, population ageing could, therefore, generate a savings boom as households in the middle phase of their life-cycle need to accumulate funds for retirement.

Table 1: Potential contributions of the first and second demographic bonus to economic growth compared to actual growth rates 1970-2000

	Demographic dividend: contribution to GDP growth / effective number of consumers (N)			Actual growth in GDP per N
	First	Second	Total	
Industrial economies	0.34 %	0.69 %	1.03 %	2.25 %
East and Southeast Asia	0.59 %	1.31 %	1.90 %	4.32 %
South Asia	0.10 %	0.69 %	0.79 %	1.88 %
Latin America	0.62 %	1.08 %	1.70 %	0.94 %
Sub-Saharan Africa	-0.09 %	0.17 %	0.08 %	0.06 %
Middle East and North Africa	0.51 %	0.70 %	1.21 %	1.10 %
Transition economies	0.24 %	0.57 %	0.81 %	0.61 %
Pacific Islands	0.58 %	1.15 %	1.73 %	0.93 %

Source: Mason, 2005

Despite all of these promising prospects, it has become common practice to point out that the economic benefits are uncertain and contingent, among other things, on a favourable external and internal economic setting and policy environment, as well as on political and social stability (Ahlburg, 2002; Bloom, Canning & Sevilla, 2003; Mason, 2002; Schultz, 2004). Indeed, Table 1 shows that in the LAC region the benefits of the demographic bonus (including the “second” demographic bonus) have been well below their potential contribution. The reservation most frequently expressed is that relatively rapid growth of the

labour force is advantageous only for those countries that can, inter alia, increase employment opportunities with sufficient speed to match the growth in labour supply, maintain growth in labour productivity, improve public health, including RH and invest in physical infrastructure.

Demographic trends, as assessed in 1990 and 2006

According to the regional report on progress toward the achievement of the Millennium Development Goals in LAC prepared by ECLAC (2005), between 2005 and 2015, 70 % of the estimated population growth will occur in the 20-60 year age group, which comprises the economically active population. Consequently, dependency rates will fall, opening an opportunity for development:

“This faster expansion of the working-age population has become known as the ‘demographic bonus’ or ‘demographic window’ and represents a relatively short-lived and unique opportunity for the region’s economies to capitalize on the dividends generated by the drop in fertility in earlier decades.” (ECLAC, 2005: 9)

In the LAC region, dependency ratios peaked at 0.89 in 1965, after which they started a decline which will likely stop at about 0.50 in 2020. After 2020, the gradual ageing of population will cause them to rise again. Table 2.B. below presents this information not in terms of dependency ratios, but in terms of the percentage of population in the typically active ages between 15 and 64, not only for the sub-regions of LAC, but also for other sub-regions and countries in the developing world. It is based on the most recent assessment of world population trends by the UN Population Division, made in 2006, according to their Medium Variant.

Table 2.A., which precedes it, contains similar information, but according to the 1990 Revision of these projections. The scenario chosen in this case is not the Medium Variant, but the Constant Fertility Variant, which would have been realised if fertility levels had remained constant at the levels implied by the latest available information in 1990. Actually, the 1990 Revision did not publish complete age and sex distributions according to the Constant Fertility Variant, just population totals by sex (UN Population Division, 1991 a). But because it did publish age and sex distributions for other scenarios (UN Population Division, 1991 b), the complete distribution by age and sex for the Constant Fertility Variants can be derived by applying standard cohort survival projection techniques. This is what was done to generate Table 2.A.

The reason for the particular standard of comparison chosen in Table 2.A. is that, in the remainder of this paper, an analysis will be made of the difference

between current population outlooks and the situation that would have existed today if fertility levels had been fixed from 1990 onwards.¹

Table 2.A: Trends for the population percentage aged 15-64 in the major developing sub-regions and selected countries under the Constant Fertility Variant as computed in 1990

Sub-region/Country	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19	2020-24
Eastern Africa	49.68%	49.24%	48.90%	48.61%	48.32%	48.01%	47.72%
Middle Africa	51.49%	51.15%	50.75%	50.43%	50.17%	49.93%	49.68%
Northern Africa	54.88%	55.12%	54.95%	54.70%	54.64%	54.49%	54.15%
Egypt	57.03%	57.74%	58.08%	57.96%	57.69%	57.21%	56.71%
Southern Africa	57.33%	57.00%	56.64%	56.43%	56.32%	56.14%	55.82%
RSA	58.45%	58.15%	57.81%	57.67%	57.68%	57.60%	57.35%
Western Africa	50.33%	49.95%	49.60%	49.28%	48.99%	48.73%	48.48%
Nigeria	49.89%	49.56%	49.26%	49.02%	48.74%	48.48%	48.24%
Caribbean	61.69%	61.23%	61.18%	61.48%	61.55%	61.18%	60.50%
Haiti	55.28%	54.89%	54.71%	54.80%	54.96%	54.95%	54.77%
Central America	56.30%	55.71%	55.30%	55.51%	55.90%	55.99%	55.68%
Guatemala	50.76%	50.37%	50.07%	50.03%	50.08%	50.09%	50.06%
Mexico	57.53%	56.89%	56.48%	56.80%	57.36%	57.55%	57.25%
South America	59.20%	59.15%	59.18%	59.40%	59.48%	59.23%	58.77%
Argentina	60.78%	60.90%	60.78%	60.68%	60.55%	60.43%	60.39%
Brazil	59.37%	59.25%	59.33%	59.64%	59.75%	59.47%	58.94%
Colombia	59.28%	59.51%	59.69%	60.34%	60.82%	60.64%	60.10%
Eastern Asia	67.48%	66.20%	65.47%	66.25%	67.33%	67.09%	65.73%
China	67.18%	65.83%	65.20%	66.26%	67.60%	67.41%	65.96%
South-East Asia	59.16%	59.23%	59.03%	59.13%	59.55%	59.70%	59.34%
Philippines	56.39%	56.76%	56.97%	57.17%	57.32%	57.20%	56.87%
Southern Asia	56.80%	56.56%	56.30%	56.05%	55.86%	55.52%	55.02%
India	58.68%	58.50%	58.26%	58.07%	58.04%	57.88%	57.52%
Western Asia	55.24%	54.37%	53.69%	53.42%	53.17%	52.69%	52.03%
Developing Oceania	56.04%	55.76%	55.37%	55.11%	54.96%	54.83%	54.68%

Source: Computed from UN Population Division, 1991 a b

The major difference between the results of Tables 2.A. and 2.B. is that in Table 2.A. the percentage of population in the 15-64 age group varies between sub-regions and countries, but remains roughly constant or falls slightly over time, whereas in Table 2.B. all sub-regions and countries register significant increases of this percentage, varying in magnitude from about 3% in Middle Africa to almost 10% in Northern Africa and Mexico. East Asia (mostly because of China) is the exception, with a percentage that at first increases and then comes down again. What little variation over time there is in Table 2.A. is accounted for by the fact that the age structures of the populations were not entirely stable in 1990, so that some adjustment had to take place, and by the effects of changing mortality, which are smaller than those of fertility change, but may still affect the percentages to some

¹ Actually, it would have been better to use an earlier year of reference, such as 1980 or 1975, but the UN Population Division only started publishing its Constant Fertility Scenarios in 1988 and the age and sex distribution of other scenarios in 1990. The option of deriving the scenarios for earlier dates a posteriori seemed excessively laborious.

degree, generally in the sense of driving them slightly down. Table 2.B., on the other hand, depicts the situation of an increasing population in the economically active age groups relative to the total population, which is the main reason for the doubts being expressed by some analysts about the benefits to be expected from the demographic bonus.²

Table 2.B: Trends for the population percentage aged 15-64 in the major developing sub-regions* and selected countries under the Medium Variant as computed in 2006

Sub-region/Country	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19	2020-24
Eastern Africa	51.15%	51.74%	52.36%	53.12%	54.04%	55.31%	56.96%
Middle Africa	50.78%	51.08%	51.41%	51.63%	51.93%	52.63%	53.82%
Northern Africa	55.91%	58.38%	61.03%	63.06%	64.24%	64.90%	65.53%
Egypt	56.32%	58.47%	60.76%	62.41%	63.30%	64.01%	64.77%
Southern Africa	58.77%	61.08%	62.48%	63.12%	63.63%	64.15%	64.67%
RSA	59.72%	62.10%	63.36%	63.76%	64.08%	64.55%	65.06%
Western Africa	51.05%	51.60%	52.50%	53.54%	54.80%	56.31%	58.02%
Nigeria	50.94%	51.38%	52.28%	53.42%	54.86%	56.62%	58.63%
Caribbean	61.50%	62.27%	63.28%	64.25%	64.96%	65.26%	65.19%
Haiti	53.23%	54.68%	56.87%	58.81%	60.54%	62.04%	63.34%
Central America	57.28%	59.28%	61.03%	62.80%	64.50%	65.71%	66.38%
Guatemala	51.38%	51.70%	52.25%	53.35%	55.00%	56.98%	59.22%
Mexico	58.38%	60.64%	62.56%	64.42%	66.17%	67.31%	67.75%
South America	60.67%	62.44%	64.03%	65.21%	66.04%	66.53%	66.70%
Argentina	60.87%	61.76%	62.77%	63.92%	64.69%	64.97%	65.16%
Brazil	61.47%	63.79%	65.50%	66.26%	66.68%	67.04%	67.18%
Colombia	60.36%	61.95%	63.68%	65.60%	67.19%	67.94%	67.87%
Eastern Asia	67.43%	68.00%	69.36%	70.87%	71.20%	70.07%	68.42%
China	67.11%	67.81%	69.50%	71.39%	71.94%	70.81%	69.07%
South-East Asia	60.52%	62.44%	64.37%	66.04%	67.30%	68.07%	68.40%
Philippines	56.62%	58.05%	59.41%	62.77%	64.47%	65.55%	66.36%
Southern Asia	57.59%	58.83%	60.71%	60.74%	62.10%	63.56%	65.04%
India	58.74%	59.83%	61.27%	63.04%	64.78%	66.06%	67.02%
Western Asia	56.99%	58.86%	60.90%	62.72%	64.17%	65.19%	65.92%
Developing Oceania	57.06%	57.56%	58.11%	59.31%	61.31%	63.38%	64.76%

* In order to maintain comparability between the 1990 and 2006 sub-regional divisions used by the UN Population Division, the Central Asian republics (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan) were removed from the 2006 South and Central Asian sub-region, whereas Armenia, Azerbaijan, and Georgia were removed from the Western Asian sub-region. In order to better focus on developing countries, Australia and New Zealand were removed from the Oceanic region. However, Japan and Hong Kong were counted as part of the Eastern Asian region.

Source: UN Population Division, 2007

Tables 3.A and 3.B make essentially the same point as 2.A and 2.B. The difference is that, rather than focusing on the population in the economically active

² One would expect the curves of Tables 2.A and 2.B (and other tables, to be displayed below) to coincide in 1990, which is the only year for which both are based on observed data. In fact, however, this is not always the case because the 1990 figures displayed in Table 2.A in many cases had to be extrapolated from data predating 1990 and because subsequent corrections had to be applied for the purpose of later projections, including the 2006 revision.

age categories, these two tables focus on the actual estimated labour force, based on the typical age and sex-specific economic participation rates for the respective sub-regions. For the latter, the most recent sub-regional ILO estimates (Kapsos, 2007) were used, which may not be exact for each individual country, but nevertheless provide a reasonable approximation based on sub-regional averages. Because this publication does not provide estimates for the developing countries of Oceania, the labour force for this sub-region was computed based on the labour force participation rates of Southern Asia. It must be emphasized that the age and sex-specific labour force participation rates that were used are based on the most recent information available and do not change over time. Therefore, they may not correctly reflect the percentage of people in the labour force in the past (1990-1999) or in the future (2010-2024). For the purposes of the present analysis, however, this is not important because the objective here is precisely to isolate the effect of changing age structures. At the end of this paper, some considerations will be made with respect to what will happen if age and sex-specific participation rates change in the future.

Table 3.A: Trends for the percentage of the population in the labour force (based on constant age specific participation rates) in the major developing sub-regions and selected countries under the Constant Fertility Variant as computed in 1990

Sub-region/Country	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19	2020-24
Eastern Africa	39.56%	39.18%	38.88%	38.63%	38.38%	38.13%	37.88%
Middle Africa	41.07%	40.82%	40.51%	40.24%	40.01%	39.81%	39.61%
Northern Africa	30.13%	30.38%	30.43%	30.31%	30.17%	30.04%	29.90%
Egypt	31.87%	32.23%	32.49%	32.48%	32.27%	32.02%	31.81%
Southern Africa	46.22%	46.01%	45.73%	45.54%	45.46%	45.37%	45.20%
RSA	47.20%	47.03%	46.78%	46.65%	46.67%	46.69%	46.60%
Western Africa	40.12%	39.80%	39.51%	39.23%	38.98%	38.75%	38.53%
Nigeria	39.70%	39.42%	39.18%	38.99%	38.75%	38.51%	38.30%
Caribbean	41.26%	41.28%	41.20%	41.31%	41.34%	41.09%	40.59%
Haiti	35.99%	35.83%	35.70%	35.71%	35.80%	35.83%	35.77%
Central America	36.92%	36.88%	36.62%	36.63%	36.79%	36.84%	36.70%
Guatemala	33.12%	32.96%	32.79%	32.70%	32.69%	32.71%	32.71%
Mexico	37.77%	37.76%	37.50%	37.57%	37.82%	37.93%	37.81%
South America	43.12%	43.17%	43.12%	43.12%	43.09%	42.93%	42.66%
Argentina	44.37%	44.52%	44.51%	44.38%	44.28%	44.24%	44.26%
Brazil	39.62%	39.61%	39.59%	39.66%	39.68%	39.54%	39.28%
Colombia	39.22%	39.53%	39.71%	39.97%	40.17%	40.14%	39.90%
Eastern Asia	55.23%	54.83%	54.05%	54.05%	54.48%	54.32%	53.28%
China	55.08%	54.65%	53.90%	54.05%	54.63%	54.53%	53.43%
South-East Asia	47.50%	47.85%	47.83%	47.79%	47.87%	47.86%	47.61%
Philippines	45.31%	45.64%	45.82%	45.89%	45.91%	45.81%	45.61%
Southern Asia	36.77%	36.70%	36.56%	36.37%	36.15%	35.88%	35.55%
India	38.18%	38.20%	38.11%	37.98%	37.86%	37.71%	37.49%
Western Asia	31.11%	30.77%	30.28%	29.86%	29.50%	29.12%	28.70%
Developing Oceania	35.84%	35.73%	35.47%	35.23%	35.06%	34.94%	34.80%

Source: Computed from UN Population Division, 1991 a b; Kapsos, 2007

Table 3.B: Trends for the percentage of the population in the labour force (based on constant age specific participation rates) in the major developing sub-regions and selected countries under the Medium Variant as computed in 2006

Sub-region/Country	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19	2020-24
Eastern Africa	39.34%	39.76%	40.20%	40.83%	41.65%	42.75%	44.16%
Middle Africa	39.14%	39.30%	39.53%	39.72%	40.00%	40.57%	41.51%
Northern Africa	30.30%	31.72%	33.36%	34.82%	35.82%	36.46%	36.96%
Egypt	30.66%	31.79%	33.12%	34.33%	35.17%	35.79%	36.40%
Southern Africa	45.59%	47.53%	48.79%	49.50%	50.13%	50.86%	51.66%
RSA	46.41%	48.42%	49.61%	50.15%	50.63%	51.31%	52.08%
Western Africa	39.51%	39.86%	40.52%	41.36%	42.41%	43.70%	45.21%
Nigeria	39.38%	39.64%	40.28%	41.17%	42.36%	43.86%	45.62%
Caribbean	40.59%	41.31%	42.00%	42.76%	43.39%	43.73%	43.80%
Haiti	34.18%	34.89%	36.29%	37.88%	39.32%	40.58%	41.71%
Central America	36.83%	38.47%	39.88%	41.15%	42.35%	43.37%	44.10%
Guatemala	32.76%	32.78%	33.05%	33.74%	34.91%	36.42%	38.12%
Mexico	37.54%	39.45%	41.04%	42.38%	43.60%	44.57%	45.15%
South America	43.60%	44.95%	46.23%	47.25%	47.96%	48.44%	48.72%
Argentina	43.95%	44.66%	45.55%	46.46%	47.21%	47.71%	48.03%
Brazil	40.28%	41.85%	43.17%	43.98%	44.43%	44.77%	45.05%
Colombia	39.36%	40.57%	41.82%	43.12%	44.28%	45.07%	45.41%
Eastern Asia	54.63%	55.74%	56.74%	57.72%	57.93%	57.12%	55.68%
China	54.43%	55.68%	56.90%	58.12%	58.46%	57.65%	56.16%
South-East Asia	48.06%	49.92%	51.71%	53.17%	54.20%	54.82%	55.14%
Philippines	44.79%	46.02%	47.23%	48.38%	49.56%	50.81%	52.13%
Southern Asia	36.75%	37.59%	38.85%	40.26%	51.55%	42.61%	43.51%
India	37.67%	38.46%	39.49%	40.71%	41.96%	43.10%	44.12%
Western Asia	31.94%	33.28%	34.67%	35.86%	36.73%	37.41%	37.90%
Developing Oceania	35.89%	36.24%	36.60%	37.36%	38.58%	40.02%	41.24%

Source: UN Population Division, 2007; Kapsos, 2007

The social and economic policy context of the demographic bonus

There is considerable consensus in the literature that the “demographic bonus” is not automatic but dependent on appropriate policy in other areas. Bloom, Canning and Sevilla (2003), for example, emphasize the ineffectiveness of the demographic transition in realising the demographic dividend when quality institutions (rule of law, efficient bureaucracy, low corruption, political freedom, low expropriation risk, openness, freedom of political representation and freedom of speech, health care systems, schooling, roads, transport) are not in place. Adioetomo et al. (2005), when discussing MDG 1, caution that the effect of age-structural transformations that tends to higher economic growth, higher incomes *per capita* and greater family savings will occur only if there is also investment in employment and human capital. Rodríguez and Carvalho (2006: 193-194) alert that:

“Of course, it would be naive to believe that a decrease in the number of births, whether in relative or even absolute terms, and a reduction in the

total population growth rate as a consequence of fertility declines will result in the automatic solution of social problems. (...) The bonus is only available on the demographic side of the population and development equation, and much of it may already have been wasted because appropriate policies were not in place."

Similarly, a recent study by the World Bank (2007) on Ethiopia argues that, for the increasing share of the working age population to positively contribute to economic growth they must:

1. Be productively employed and not reduce their hours of work;
2. Save more and invest it wisely; and
3. Be well educated by their governments to ensure a high return for their labour efforts.

This implies that the positive effects of a declining dependency ratio are likely to depend strongly on the economic policy that accompanies this transition.

Although there are variations in the emphasis given to the importance of particular aspects of the enabling policy environment, these ideas are echoed by almost all the literature that has been produced on the subject in recent years:

"A demographic bonus can only be realized if, as was true in East Asia, human capital investments have been made in the health and education of those entering the labor force, and jobs have been created to meet the demand. Only then can youth realize their potential as healthy and productive members of society and boost their countries' economic and development status. Investment in youth must be made early enough to create the conditions for this bonus to occur. Otherwise, a large, uneducated, unhealthy, unskilled, and under-employed workforce creates a burden to society and threatens its stability."
(World Bank, 2004; Mason, 2003)

Despite the long list of challenges to be faced, the outlook of the World Bank study on economic growth in Sub-Saharan countries over the next 20 years is rather positive. Given past estimates of economic growth, current institutional settings, and population forecasts, it argues that Ghana, Ivory Coast, Malawi, Mozambique, and Namibia have a very high potential to profit from the demographic dividend. Its growth outlook is also very positive for South Africa and Botswana as current regional leaders in terms of their institutional quality, even though their prospects for profiting from a demographic dividend over the next two decades are rather small. Senegal, Cameroon, Tanzania, Togo and Nigeria are projected to have very strong growth of the share of the working age population, but still suffer from institutional deficiencies. Given the importance of institutional quality as a catalyst for converting growth of the working age share into a demographic dividend,

it is hard to tell the degree to which these countries will be able to gain from the demographic dividend.

In some versions of the discourse, the argument is presented in terms of a fundamental political option between two radically divergent paths. Either countries can choose to make the necessary investments in education of the young, physical capital investments, and stable political and economic institutions, as the East Asian economies did, in which case the demographic bonus will offer substantial benefits; or, in the absence of such complementary investments, the demographic bonus could be wasted or even become a liability to countries faced with increasing unemployment as a consequence of their incapability to provide productive employment to an increasing labour force. Bloom et al. (2007: 4) hint at this when they write:

“Without the right policy environment, countries will be too slow to adapt to their changing age structure and, at best, will miss an opportunity to secure high growth. At worst, where an increase in the working-age population is not matched by increased job opportunities, they will face costly penalties, such as rising unemployment and perhaps also higher crime rates and political instability.”

Some conceptual clarification is called for, to sort out the implications of terms like “bonus”, “opportunity”, “liability”, and “wastage”. In this context, there are at least five categories of effects that need to be distinguished:

1. The “pure”, “mechanical”, or “autonomous” effects of the ASTs that occur independently of any behavioural response on the part of the economic actors or only as a short-term response to market stimuli. In theory, the “pure” effect may be negative, either because the ASTs themselves generate adverse effects (e.g. fiscal disequilibria as age brackets with a positive fiscal balance decrease relative to age brackets with a negative fiscal balance) or because they induce market behaviour that has undesirable consequences. Preston (1984), for instance, has pointed out that the rapid decline of fertility in the US, rather than benefiting the quality of education, reduced the demand for teachers faster than the natural rate of depletion of the educational labour force. The consequent over-supply of teachers depressed salaries and made it unattractive for qualified young people to choose the teaching profession. On the other hand, one should remember that both the environmental impacts of ASTs mentioned under MDG 7 in the Introduction were likely to be negative.
2. The added benefit that can be achieved, typically at the policy level, by “planning ahead”, i.e. stimulating behaviour in accordance with the new long-term decision environment. A government may, for example, increase

per capita investments in education, maybe even raising teacher salaries beyond short-term market conditions, as a way to optimise the opportunities created by a larger proportion of the population in the economically active age groups. Some degree of flexibility in labour markets is vital if a country is to accommodate a burgeoning working-age population. The provision of adequate safety nets and generous re-training programs can help persuade workers to become less risk-averse. Conversely, failure to make these adaptations can rightly be termed a “missed opportunity”.

3. The pre-existing institutional setting, which may facilitate or hamper the adaptation to a new decision environment. For instance, a deficient market structure or institutional corruption can stand in the way of long-term planning and obstruct the promotion of necessary changes in investment behaviour to take advantage of the new demographic environment. Bloom, Canning and Sevilla (2003) and Bloom et al. (2007) place a lot of emphasis on determinants of this kind, which they consider the main enabling factor of the demographic bonus. Poor rule of law discourages investment as contracts are not reliably enforceable. Corruption and inefficient bureaucracy create difficulties and uncertainties in establishing enterprise or gaining and maintaining employment. The lack of political freedom and high expropriation risk lead to short-sighted behaviour and undermine long term investment.
4. Unintended behavioural consequences of the benefits generated by the demographic trends. This issue is very similar to the discussion surrounding the social appropriation of windfall profits generated by the discovery of new natural resources, as in the case of natural gas and oil reserves in the North Sea, which were applied to much greater advantage by a country like Norway than by Great Britain or the Netherlands. In the case of the demographic bonus, DaVanzo and McAdams (1998) suggest that the liquidity created by savings in the East Asian countries may actually have contributed to the financial excesses that led to the Asian economic crisis of the late 1990s.
5. Wholly unrelated economic or social trends which may eliminate some or even all of the benefits generated by the demographic bonus. It is possible, for instance, that these benefits will be minimised or wiped out by increased unemployment brought about by factors such as worsening terms of trade in the world markets or labour-saving technological change. To the extent that these processes would have taken place under any circumstance, with or without demographic change, they have a rather different status than those mentioned under 2-4.

From a methodological viewpoint, these relationships may be analysed either empirically, using econometric techniques, or by means of simulation models. In a recent paper based on the former, Bloom et al. (2007) demonstrate the importance of the effects mentioned under 3. Although the focus of the paper is on Africa, their conclusions actually apply more widely. Using data on 85 countries (19 of which in Africa) over the period between 1960 and 2000, they find a significant interaction effect between institutional strength and growth of the population share in working ages in explaining economic growth. Once this interaction is accounted for, the direct growth effect of the population share in the working ages becomes insignificant and even bears a negative sign. The *level* of this share, however, continues to have a highly significant positive impact on economic growth, so that one may still argue for the existence of an important autonomous effect of the demographic bonus, as described under 1.

Using a formal demographic-economic simulation model (RAMSEY), Hakkert (2005; see also UNFPA/IPEA, 2007, Section 1.2.3.) represents the autonomous effect by changing the parameters that characterise the demographic situation without changing the decision parameters of the actors, so that these continue to optimise their behaviour in accordance with the previous decision environment. The result is a moderate positive effect, but the larger part of the demographic bonus derives from adaptive change of the economic actors as envisaged under point 2. This model is based on perfect foresight, which does not affect benefits of the first kind, but may affect benefits of the second kind, as actors do not necessarily respond perfectly to new circumstances. The lack of institutional determinants in the model,³ therefore, may over-state the overall benefit of the demographic bonus, but not its autonomous effect.

In practice, however, discussions about the expected benefits of the demographic bonus are often conducted in a less disciplined manner, in which the different categories of effects are not clearly distinguished and no explicit points of reference are established: a bonus or a liability compared to what? In particular, the tendency to point to factors of the fifth kind to argue that some countries, particularly in the LAC region, may be “wasting” their demographic bonus does little to clarify the role of demographic factors.

Bruno and Freire (2007), for example, compare the ratio of working-age to total population (WAP/TOT) with the ratio of the population employed to the working-age population (EMP/WAP), for the case of Brazil 1950-2006, noting that the difference between the ratios (WAP/TOT – EMP/WAP) has increased sharply

³ The model does consider, however, what Bloom et al. call “fractionalisation” of economic interests, although in terms of economic prosperity strata, rather than ethnic groups.

since 1990. The authors interpret this finding as a sign of the “increasing difficulty to generate sufficient employment positions for Brazilian society in the presence of the new age structure.” This suggests that the new age structure is somehow to blame for this difficulty, but that argument is vulnerable to at least three objections:

1. The *difference* between the two ratios is not an appropriate criterion for deficient labour absorption. As a consequence of the demographic transition, the first ratio tends to increase, but as long as the second remains constant or increases slightly, there is no reason to characterise the situation in this way.
2. The increase of (WAP/TOT) started in 1965 and was already well advanced in 1990, but during the period from 1975 to 1990, the average value of the second ratio (EMP/WAP) was actually *higher* (60.2%) than in the previous 15-year period (55.2%); in the period from 1992 to 2006, it merely returned to the 55.1% of the 1960s and early 1970s.
3. Most importantly, the argument simply ignores that the average *growth* of WAP in 1992-2006 has been *lower* (2.0%) than in 1975-1990 (2.7%).

Although it is not possible, without further evidence, to reject the proposition that the decline of the percentage of the population employed since 1990 is, in some indirect way, related to the increase of the population in working ages, arguments such as these do not even come near to proving this point. A more plausible viewpoint is that the negative trends identified under point 5 above may actually be attenuated to some extent by demographic change and that an alternative scenario, without a demographic bonus, would have been even less attractive.

In order to elucidate the relationship between these trends, more sophisticated analyses are called for. Amaral et al. (2007) provide an example of such an analysis, applied to 502 Brazilian micro-regions over the period from 1970 to 2000, using four age categories (15-24, 25-34, 35-49, and 50-64) and three educational groups to estimate earnings effects based on the relative sizes of population groups. Their conclusion is that:

“Our first and most important result is that relative group size matters. The own-quantity wage effects are generally negative, as predicted by factor-demand theory; and potential biases induced by a number of effects for which we could not adjust mean that, if anything, the true impacts of changing relative quantities are larger in absolute value than our estimates suggest. The results imply that workers classified by age-education group are not perfect substitutes, so that own cohort-education size generally depresses earnings. That the effects increase with education is consistent with the observation of lower own-wage elasticities as education increases. (...) Some of the parameters become less negative [over time], suggesting that more recent changes in relative supply have

altered the relative wages of the least-skilled workers less than would have been the case in the 1970s. Indeed, the own-quantity effect among workers with 0-4 years of schooling is essentially zero, suggesting that the increasing relative scarcity of such workers is hardly contributing to an increase in the relative earnings of the (fewer) remaining workers in the group. The results also suggest that throughout the period the sharp increases in the relative supply of the most skilled workers have reduced relative wages in this group: Accounting for relative shifts in supply implies that wage inequality may have risen less than if these substitution effects had not occurred. (...) Our results suggest that shifts in the demographic and skill structure of the labor force are indeed influential and that this approach represents a fruitful way of expanding the study of earnings and income inequality, a central problem in economic development.”
(Amaral et al., 2007: Conclusions and Implications)

Regarding the 15-24 year age group in particular, their results indicate that a 10% increase in the number of people with 5-8 years of schooling reduced earnings by 2.7% in 1970 and 2.5% in 2000. In the 0-4 year education category, however, the effect, which had been a 2.2% reduction in 1970, had disappeared by 2000 or even become marginally positive. This seems to suggest that, even if there were an expansion of the 15-24 age group, this would not affect the average earnings of the least educated youths. At present, project RLA5P201 is carrying out a study similar to the one by Amaral et al. on the seven major urban areas of Colombia from 1978 to 2005, to see if the earnings results obtained in the case of Brazil also apply to employment indicators in Colombia.

In the following sections, two specific aspects of the ASTs will be commented on in some detail. The first has to do with the so-called “youth bulge”, the trend towards a high concentration of the population in the ages between 15 and 24 resulting from current demographic trends. The other issue, which will be treated more extensively in the subsequent section, investigates the implications of the demographic bonus for the growth of the population in active ages and the consequent need for creation of employment.

Youth bulge or scarcity of children under age 15?

Current demographic trends in countries where fertility has fallen significantly during the past few decades are about to create a relative concentration of the population in the youth segment, of 15-24 years. This has led to the coining of suggestive terms such as the “youth bulge”, which evokes images of teeming masses of dissatisfied young people unable to make their entry into adulthood because of their sheer numbers. As was mentioned in the Introduction, it is even being suggested that this situation may pose a threat to national security (Leahy et al., 2007).

These ideas, however, need to be qualified because closer examination of the data shows a more complex picture. To begin with, the share of young people aged 15-24 with respect to the total population is not increasing everywhere. In the LAC region, for instance, it peaked at 20.3% in 1980 and has been declining ever since; it will probably be 17.8% in 2010 and 16.4% in 2020. Similarly, in Northern Africa, it reached a maximum of 21.1% in 2000 and is now declining; the share expected in 2020 is 17.2%. The same is true of Western Asia, where the maximum was 19.9% in 2000, but the trend is declining and the expected share in 2020 is 17.6%. The decline in China is particularly fast, from 21.9% in 1990 to as little as 12.6% in 2020.

Where the share of young people is increasing is in Africa and some countries of Central America. In Western Africa, for example, it was 18.7% in 1990, 20.3% in 2005, and it is likely to peak around 20.5% in 2020 or 2025. In Guatemala, there has been a slight increase, from 19.5% in 1990 to 20.1% in 2005; this trend will increase by another half percentage point or so, before it will start declining around 2015 or 2020. A small increase is also found in the case of India, but this reached its peak around 2005.

Even more important than the share of young people with respect to the total population is their share of the population in active ages (15-64). After all, this is what the imagery of the “youth bulge” and its possible national security risks is presenting to the public: a large contingent of volatile youth relative to the number of adults who are well established in their economic and personal lives. However, when analysed in these terms, the numbers are even less supportive of the notion of a youth bulge. In Western Africa, for example, this percentage peaked at 38.3% in 2005, but it is now going down. Similarly, in Guatemala it reached 39.1% in 2000, but it is now falling with moderate speed. In the LAC region, it was 36.1% in 1980, but only 29.2% in 2005, and it will be further down, to about 25% by 2020. In Western Asia, the numbers are slightly higher, but the trend is similar: 35.3% in 1990, 29.8% in 2010 and 26.8% in 2020. This fall is much faster than what would have happened under the Constant Fertility scenario. If this had come to pass, the percentage in South America would be 30.1% in 2010 and 29.9% in 2020. In Western Asia, the numbers would be 34.4% in 2010 and 35.3% in 2020. Under these terms, therefore, the demographic transition is not responsible for the youth bulge; to the contrary, it is making it smaller.

It may be appropriate in this context to contrast the current process of demographic change with another historical AST, namely the one brought about by the post-war baby boom in the US. This one did indeed create a significant “bulge” in the age structure which had an impact on the economic opportunities of young people. The percentage of 15-24 year olds in relation to the population as a whole

increased from 13.0% in 1955 to 18.7% in 1975. In relation to the population aged 15-64 the increase was from 21.1% to 29.0% during the same period. But, as is evident from the previous paragraph, the current situation in the developing world is quite different.

In what sense then can it be said then that there is such a thing as a youth bulge? The answer is that the bulge refers purely to the relationship between young people and children under age 15. This relationship is actually increasing quite markedly as a consequence of declining fertility. In South America, for example, the share of young people as a percentage of the population under age 25 would have remained roughly stable at 33-34% under the Constant Fertility scenario, but under the Medium Variant of the 2006 Revision this it is increasing and will be 40% by 2020-25. In Central America it will increase from the 34.8% where it was in the early 1990s to 40% by 2020-25, and in the Caribbean the increase will be from 36.5% in the late 1990s to 39.3% by 2020-2025. Outside the LAC region, the Northern African sub-region, where this share under the Constant Fertility scenario would have fluctuated around 31% will see it increase to 37.4% under the Medium Variant by 2020-2025. In Western Africa, the Constant Fertility scenario would suggest fluctuations between 28 and 29%, but under the Medium variant the share of 15-24 year olds would increase to 34.2% years. China exhibits a much more complex oscillating pattern due to the drastic changes in its age structure brought about by the demographic policies of the 1970s.

What the above suggests is that the social and economic implications of the youth bulge are not primarily related to the relations between young and older adults. The difficulty young people experience to enter the labour market may be increasing, but not primarily due to demographic trends. Similarly, the established order is unlikely to be challenged by unusually large cohorts of disgruntled young people who, due to sheer numeric disadvantage, find it difficult to make the transition into adulthood. What the analysis does suggest, however, is the need to change the pattern of investment in children and young people. As the percentage of young people aged 15-24 among those under 25 gradually increases from a traditional 30% or so to somewhere in the neighbourhood of 40%, there should be a shift in investment pattern away from the more traditional expenditures on children towards expenditures that benefit young people: secondary education, professional training, entry-level job creation, and SRH.

In this context, a question that is becoming increasingly pressing is what kinds of investments in young people are the ones most urgently needed. As common wisdom has it, the current stage of the demographic transition requires massive investments in the human capital of young people. To the extent that investment in

today's young people will be the basis of a more productive labour force tomorrow, this proposition is hard to disagree with. Another question, however, is to what extent the present difficulties young people face in the labour market can be attributed to lack of investment in human capital.

Some economists (e.g. Bruno & Freire, 2007) argue that human capital formation, whatever may be its other merits, is not necessarily the key to the reduction of youth unemployment, at least not in countries like Brazil where the educational indicators of the 15-24 year age segment are already far superior to those of older adults and where it is not uncommon for university-educated young adults to work in occupations that only require secondary-education skills. The previously cited results of Amaral et al. (2007) seem to point in the same direction. Bruno and Freire suggest that investments in infra-structure and physical capital that expand the demand for labour as a whole are likely to be a much more relevant mechanism to create job opportunities for young people. The capacity of the educational system to provide appropriate skills for today's labour market may be another factor. Finally, an inter-generational issue that has received little attention relates to the fact that older workers in many developing countries need to remain in the labour force due to the lack of social security provisions that would allow them to retire and create opportunities for labour force entrants. In South America, for instance, jobs held by workers over age 60 represent about 14% of the number of people aged 15-24 and 18% in the case of old and young males. In East Asia, these numbers are even higher: 22% and 30%, respectively, whereas in the Middle East they are lower: about 8% and 13%. Obviously, not all jobs held by older workers are appropriate for labour force entrants and increasing the coverage of pension systems may be an expensive solution for creating youth employment, but the issue nevertheless merits closer attention.

Economic boom or labour-market glut?

As the previous section suggests, much of the debate regarding the costs and benefits of ASTs, particularly in the LAC region, has tended to focus on its implications for employment. In this regard, Rodríguez and Carvalho (2006: 194) express a common concern when they state the following:

“The bonus, however, can only be exploited if full employment and higher productivity are pursued. Otherwise, it will instead result in a potential threat to economic and social stability. As a necessary, although not sufficient condition by which to achieve social, economic and intergenerational balances, labour-force skills should be enhanced. For this reason, opportunities to become skilled should be made a priority for workers to be.”

The previously mentioned simulations with the RAMSEY model confirm that increasing human capital investment is indeed a necessary condition for maximising the benefits of the demographic bonus.⁴

The debate, however, not infrequently goes beyond merely stating the need for complementary investments to fully exploit the opportunities offered by an age distribution tending towards a concentration in the working ages, and ends up raising the spectre of catastrophe, in the form of the increased unemployment that will result from this concentration. This fear is particularly present in the LAC region, but statements such as the following, on China, express a similar concern:

“(...) an inflated labour force does not necessarily lead automatically to economic growth. For better economic results, the contribution of other elements like land (natural resources), capital and technology is also needed. If not properly allocated and fully utilized, there is going to be a mismatch between labour and other productive factors, or an imbalance between demand and supply on the labour market, leading to the undesirable phenomenon of unemployment. For the economy as a whole, unemployment due to the oversupply of labour is considered a burden rather than a bonus. Jobless people consume, not create, social wealth as long as they remain unproductive. (...) For the country as a whole, therefore, it seems difficult to see the results of age-structural transitions as a potential “demographic bonus” that can be exploited quickly in the current circumstances.” (Yan Hao, 2006: 310-311)

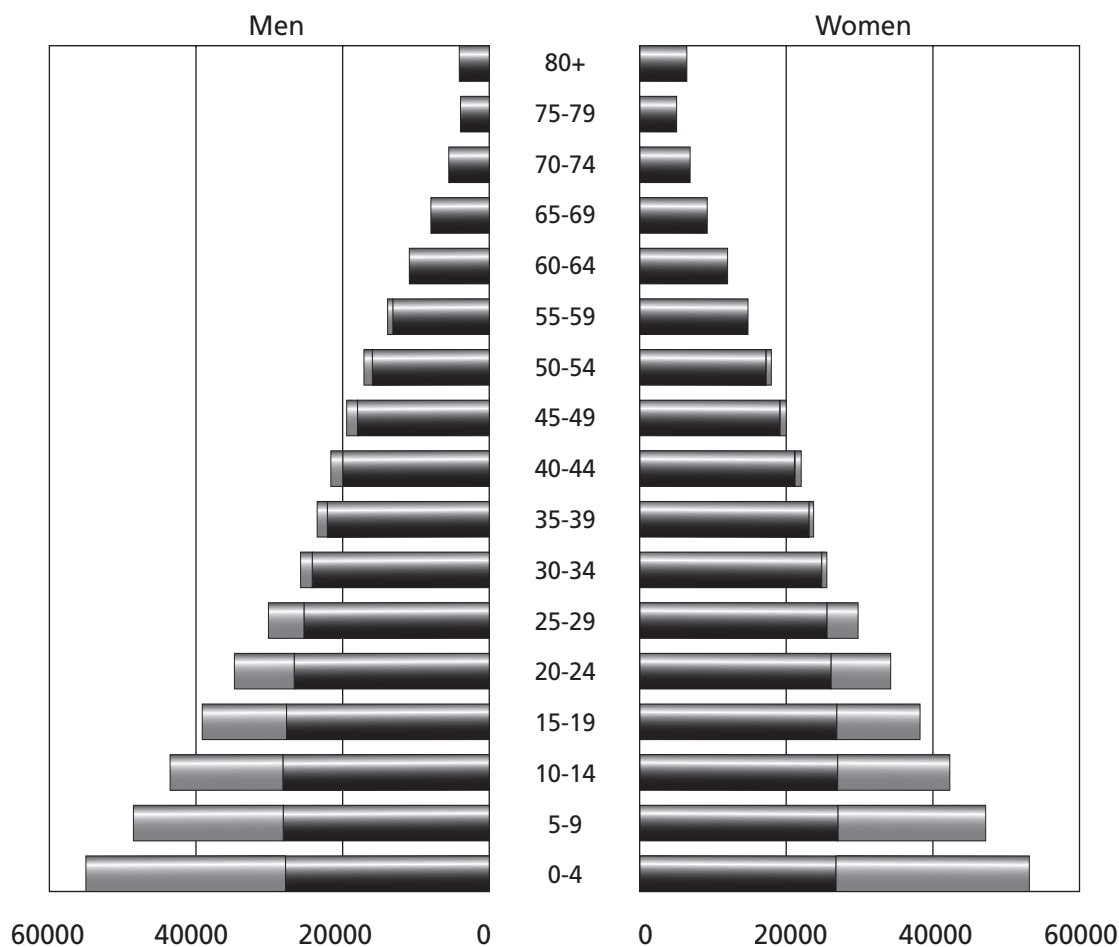
This concern, in the case of China, is all the more remarkable given the current high economic growth rates of the country and the under-supply of labour in some areas (which the author exposes in some detail). This situation is very different from the one found in the LAC region, most of which has already undergone the necessary demographic change, but without the economic growth, income distribution, and poverty reduction of the East Asian economies, where a similar demographic phenomenon took place. Thus some economists question whether the necessary conditions to take advantage of the bonus are actually in place. In some circles in Latin America, the initial optimism regarding the potential benefits of the bonus has even given way to a negative perception, in which the primary effect of changing age structures would be to flood a labour market which has historically been unable to create anything approaching full employment with many additional job-seekers. Thus, increased cohorts of young people entering the labour force may become a burden on countries with a lack of employment opportunities, stagnant labour productivity and ill-designed policies and

⁴ It also suggests that, to obtain optimal results, there is a need to increase physical capital outlays, which are less frequently mentioned in this context.

investments, thereby contributing to growing unemployment, increased poverty, and an undermining of democratic institutions.

The remainder of this paper will analyse this issue in some detail. In doing so, it will argue that the perception of a rising pressure on employment is an example of one of the problems noted above, namely the failure to establish clear points of reference for comparison. The comparison made here will be in terms of the same population projection alternatives used in Tables 2 and 3: the Constant Fertility Variant of the UN Population Division, as projected in 1990 (Tables 2.A and 3.A), and the medium variant as projected in 2006 (Tables 2.B and 3.B). The question then becomes: have the prospects for reducing unemployment become more or less favourable under the medium variant of 2006, when compared to the Constant Fertility Variant of 1990?

Figure 2: Age-sex pyramids of the LAC region under the Constant Fertility Variant of the 1990 Revision (outer area) and the Middle Variant of the 2006 Revision (inner area)



Source: Computed from UN Population Division, 1991 b, 2007

The other distinction, which parallels that between Tables 2 and 3, has to do with the way the labour force is quantified: either in terms of the working-age population between 15 and 64 (as in Table 2), or in terms of a projected labour force based on constant age-specific participation rates (as in Table 3). Finally, the comparisons below are made according to two additional criteria:

1. Gross increases of the labour force or the population in active ages, due to new entrants, versus net increases of either, due to the combined effects of gross entries, death, emigration, and retirement. The former are particularly important in the 15-24 year age range, where first-time job seekers need to be accommodated, whereas the second provides an overall picture of the demand for employment, either through new jobs or through the turn-over of existing positions.
2. The denominators used for the respective growth rates, which may be either the size of the existing labour force or working-age population, or rather then size of the entire population. The relevance of this distinction will be commented below.

Figure 2 compares the age-sex pyramids implied by these two projections for the case of the LAC region in 2015. Although this seems obvious to demographers, the point still needs to be made that the impending “glut” in labour market entrants is not a consequence of recent fertility decline, but of the high fertility that preceded it. If this high fertility had persisted, the only difference from the viewpoint of present or future population structure would be that the same economically active population would have to sustain a larger number of dependent children. There are also differences in the 20-24 and 25-29 age brackets, but these are comparatively small. After age 30, the two pyramids are almost identical.

The question is how these different age structures will affect employment. Clearly, as shown by Figure 2, this is not an issue of more labour force entrants competing for the same number of jobs. To the extent that the inner pyramid provides less employment, this has to be justified by the additional consumer demand that would otherwise be generated by the missing population in the lower age brackets. As was pointed out above, lower demand for primary school teachers might be one component of this. Reduced demand for housing and household appliances, due to less population in the 15-29 age brackets might also be a factor, particularly in higher-income countries, where lower expenditure on these items is less likely to be substituted for other consumer items (Chesnais, 2004). Rodríguez and Carvalho (2006), following Behrman, Duryea and Székely (2001), also point to the internal distribution of the working-age population as a determinant of employment. When the working-age population is relatively young, unemployment tends to be higher, but as the age structure shifts toward higher ages, unemployment declines. In the case

of Brazil, they point out that the junior group within the working-age population is now declining vis à vis the mature group, a demographic change which, *ceteris paribus*, should be favourable to employment creation. The same is happening in the LAC region as a whole, as illustrated by the lower population contingents in the 15-29 age brackets. In this respect, the notion of new social problems as a consequence of the “youth bulge” may be somewhat misleading. The contingent of youth and young adults in 2015 implied by the inner pyramid will be larger relative to the number of children under age 15 than would have been the case under the scenario implied by the outer pyramid. But it will be smaller compared to the number of adults.

On the whole, then, it seems reasonable to assume that, *ceteris paribus*, the employment generated by the inner population pyramid will be less than that generated by the outer pyramid, but that the reduction will be less than proportional to the reduction of the total population volume. In fact, the relative growth or reduction of employment, to the extent that it is determined by population growth, should lie somewhere between the growth of the population as a whole and the growth of the working-age population or the expected labour force under constant age and sex-specific participation rates. This is the justification for the use of these two denominators in computing the growth rates of the working-age population or expected labour force, as mentioned above. By using the existing working-age population as a denominator, one obtains an idea about the relative effort involved in expanding employment under the assumption that the natural tendency for employment is to expand at the same rhythm as the existing working-age population. By using the total population size as a denominator, one assumes instead that employment tends to expand in proportion to this quantity, and in this case the effort to create employment has to be greater in populations where the total population size grows at a slower rate than the working-age population, as is the case of the inner pyramid. The actual trend is likely to lie somewhere between these two extremes.

By analysing the growth of the labour force or the working-age population in these terms, one thing becomes clear: the demographic bonus does not increase the burden on governments to expand employment. Figures 3.A-D show the example of Western Africa; other examples are displayed more succinctly in the Appendix. Figure 3.A. shows gross entry (the two highest curves) and net growth rates (the two lower curves) of the 15-64 year population of with respect to the existing population aged 15-64 for 1990-2025, under two alternative projection scenarios: A. (with black markers) denotes the Constant Fertility Variant of the 1990 Revision and B. (with white markers) the Medium Variant of the 2006 Revision.⁵ Clearly, the scenario

⁵ In theory, the curves with the black and the white markers should depart from the same levels in 1990. This is not entirely reflected in the graphs, due to the fact that: 1. The first data point is an average of the situation in 1990 and 1995; and 2. The 2006 Revision has modified some of the historical data prior to 1990, making corrections which, in some cases, such as Southern Africa and Guatemala, are quite substantial.

B is characterized by growth rates that become progressively smaller than those that would have been necessary to maintain the same levels of employment under scenario A. One may argue, however, that this depiction of the facts presents an overly favourable image of the trends under scenario B because the size of the actual working-age population is used as a denominator. To the extent that the natural tendency of employment is to accompany the growth of the total population (see the discussion above), it would be more realistic to use this denominator. This is done in Figure 3.B. Under this specification, the gross rate of entry into the working ages becomes roughly the same for both scenarios, signaling that the challenge of creating of youth employment under either is roughly the same or maybe slightly smaller under scenario B. The latter would be true if the actual growth of employment tends to be intermediate between the growth of the total population and the working-age population. The net growth rate of the working-age population, however, still indicates an advantage for scenario B, even though the two curves have moved closer together. Projecting the actual labour force (based on constant age-specific participation rates), rather than the working-age population, yields roughly the same results, possibly with a marginal deterioration of the gross entry rates under scenario B. These results are displayed in Figures 3.C and 3.D.

Figure 3.A: Gross entry and net growth rates of the 15-64 year population of Western Africa with respect to the existing population aged 15-64 for 1990-2025, under two alternative projection scenarios

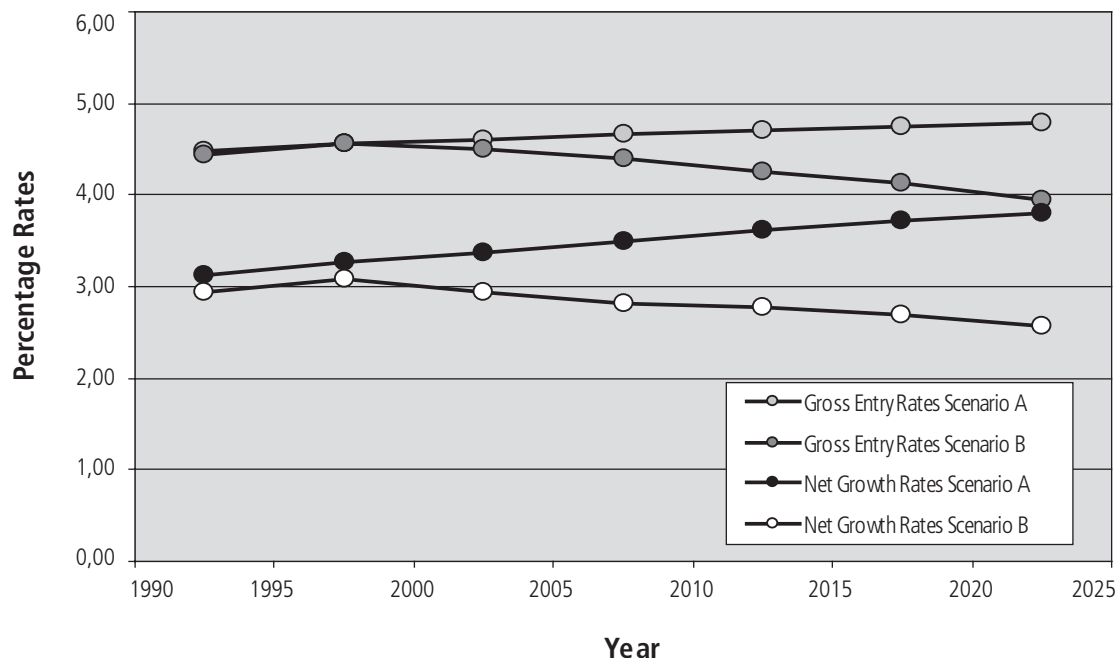


Figure 3.B: Gross entry and net growth rates of the 15-64 year population of Western Africa with respect to the existing total population for 1990-2025, under two alternative projection scenarios

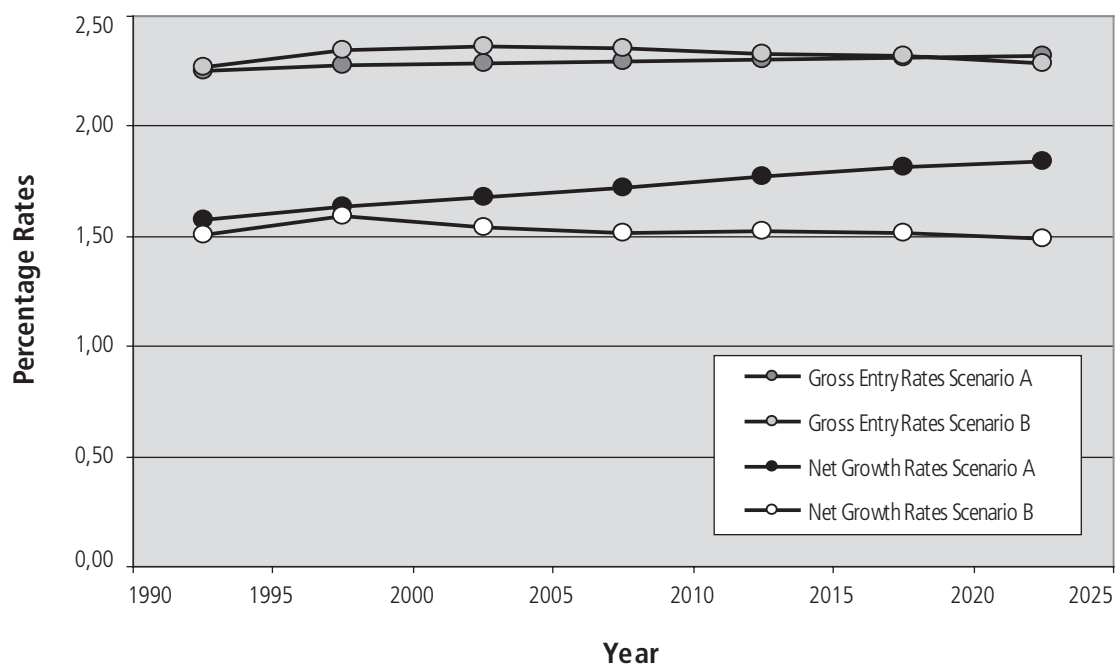


Figure 3.C: Gross entry and net growth rates of the labour force of Western Africa under constant age-specific participation rates with respect to the existing labour force 1990-2025, under two alternative projection scenarios

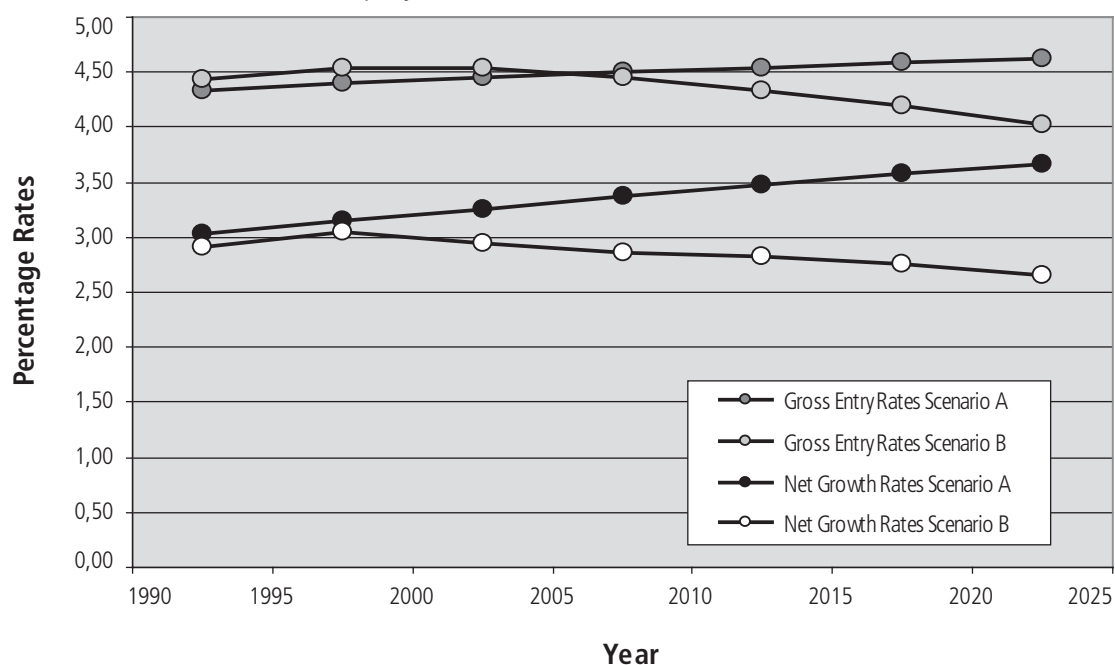
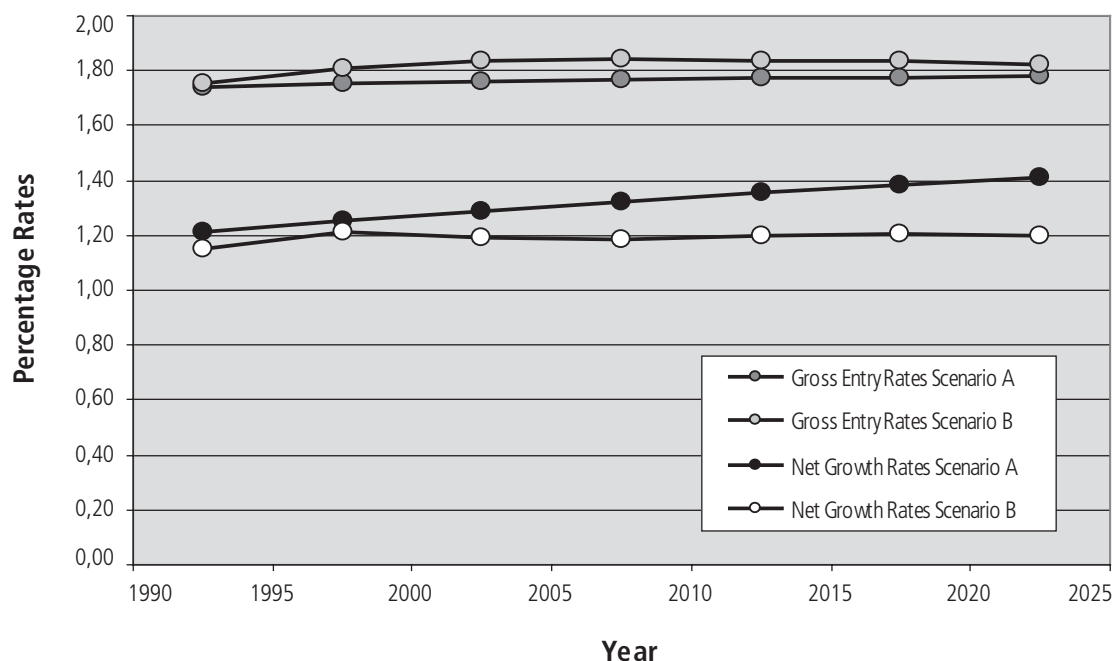


Figure 3.D: Gross entry and net growth rates of the labour force of Western Africa under constant age-specific participation rates with respect to the existing total population for 1990-2025, under two alternative projection scenarios



Source: Computed from UN Population Division, 1991 a b, 2007; Kapsos, 2007

How well do these patterns characterise other regions? The patterns observed in Figures 3.A-D are reproduced, with only minor changes, in Eastern and Middle Africa. They are also representative of some countries outside the African region, such as the Philippines. This is related to a feature of demographic change in the Philippines which Gultiano and Xenos (2006: 227 and 233) lament, namely:

“Because of the sluggish fertility decline and drawn-out demographic transition, the Philippines enjoys no such ‘demographic bonus’.... Had it not been for this exceedingly slow passage through the demographic transition, maintaining relatively high child dependency ratios up to recent times, the youth surge would have taken the Philippines into the threshold of the ‘demographic bonus’. However, with shortcomings in population and economic policies, this ‘bonus’ has not materialized thus far.”

The authors point out that, nonetheless, the ongoing shift in age structure now poses the immediate and continuing challenge of providing adequate economic opportunities, resources and services to an unprecedented number of people in the productive ages, a challenge that the Philippine economy is ill-equipped to face. This seems to hint at one of the observations made above, namely that the absence of a demographic bonus by no means safeguards developing economies from some

of the problems that are often attributed to a poorly managed demographic bonus, particularly with respect to employment. Southern Africa displays a rather different pattern, particularly with respect to the net growth rates of the labour force under scenario B. This is largely the result of the projected collapse of the labour force in these countries as a consequence of the AIDS epidemic. Obviously the vastly reduced net growth rates resulting from this should not be cause for any celebration but, to the contrary, constitute an enormous humanitarian and economic problem for the sub-region.

China also displays a quite particular set of trajectories. On the one hand, these are characterised by very low net growth rates of the labour force and working-age population which, under scenario B, even become negative after 2015. This is a consequence of the drastic population policies implemented in China since the 1970s. On the other hand, the gross entry rates into the labour force or the working-age population have also suffered stronger reductions between scenarios A and B than the ones depicted in Figures 3.A-D. Therefore, even if the total population is used as a denominator for the gross entry rates, the curves associated with scenario B still fall substantially below those projected with the Constant Fertility Variant of 1990.

As was noted earlier, the concern about the employment effects of the demographic bonus has been particularly strong in the LAC region. Is this justified by the respective employment curves? The answer is negative. As can be seen in the series of graphs from 3 to 6 of the Appendix, the curves under scenario B actually display a somewhat more favourable behaviour than the ones shown in Figures 3.A-D. Even if the total population is used as a denominator for the growth of the working-age population or the projected labour force, the curves corresponding to scenario B all tend to fall below those of scenario A after a while. This is particularly the case in South America, and especially in Brazil. As is shown in graphs A.6.B and A.6.D, the curves for new entrants into the labour force or the working-age population under scenario B start out slightly above those of scenario A, but by the end of the projection horizon they have fallen well below the corresponding curves for scenario B. This shows that, in terms of the prospects for youth employment generation, the situation created by a lower fertility scenario is markedly more favourable than the one that would have prevailed under constant fertility. This is not to say that the creation of sufficient productive employment for young people in Brazil or in the LAC region is a trivial matter. To the contrary, young people in the LAC region today, particularly in countries like Argentina or Brazil, have a harder time to make their way into the labour force than the generation of their parents. The reasons for this situation, however, are unrelated to the demographic bonus.

Framing the youth employment problem as an undesired side effect that will keep the region from realising its demographic bonus or even blaming the demographic bonus for this problem is to confound the issues.

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Appendix

The following graphs display more succinctly the trajectories of the the major developing sub-regions and some selected countries with respect to the same indicators graphed in Figure 3.A-D. In the interest of brevity, the graphs are displayed more in a smaller format and without legend, which are identical to those of Figure 3.A-D.

