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NTA Coordinators

Ronald D. Lee and Andrew Mason

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Gretchen Donehower, Alexia Fürnkranz-Prskawetz, Ronald D. Lee, Sang-Hyop Lee, Andrew Mason, Tim Miller, Germano Mwabu, Naohiro Ogawa, and Adedoyin Soyibo

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National Transfer Accounts

East-West Center
1601 East-West Road
Honolulu, Hawai'i 96848-1601

Telephone: +1.808.944.7566

Fax: +1.808.944.7490

Email: contact@ntaccounts.org

Website: www.ntaccounts.org

National Transfer Accounts and demographic dividends

The National Transfer Accounts (NTA) project, initiated in 2004, has steadily expanded over the past 12 years. As of mid-2016, national teams in Africa, the Americas, Asia and the Pacific, and Europe have estimated full or partial accounts, and in many countries updated accounts have been estimated for multiple years.

A new wall chart (National Transfer Accounts 2016) provides summary measures for 59 countries around the world. These countries vary widely in their levels of development, political systems, demographic conditions, and public policies, but all of them are experiencing important demographic change. NTA analysis helps understand how demographic forces influence economic development by affecting the potential of the workforce, the needs of consumers, and the forces driving investment in physical and human capital, as well as the potential strains confronting both the public sector and family support systems.

What are demographic dividends?

Demographic dividends are economic benefits that arise from changes in population age structure and from other demographic forces, enhancing opportunities for economic development. As falling fertility results in fewer dependent children relative to workers, a country experiences a first demographic dividend, with resources becoming available to increase investments and raise standards of living. The economic boost can be substantial, but it eventually comes to an end as the smaller population of children grows up to become a smaller population of workers while the number of elderly keeps growing.

Depending on the choices made by families and the policies pursued by governments, the first dividend can direct more resources into pro-growth investment, resulting in a second, more lasting, demographic dividend. NTA analysis over the past few years points to two important channels through which this occurs.

For one thing, changing demography can lead to higher rates of saving and investment. A working-age population facing a long period of retirement due to improvements in life expectancy has a powerful incentive to accumulate assets. The second channel is through human-capital investment. Countries with low fertility tend to invest more in the education and health of each child, and the improved skills and capabilities of each worker can more than compensate for the slower growth of the work force.

For the many countries currently experiencing a first demographic dividend, NTA can help understand how the dividend can be accelerated, prolonged, and directed toward important development goals. Other countries, which have completed the first dividend, can use NTA to understand how economic benefits can be sustained and how governments and families can best prepare for population aging.

The support ratio

A purely demographic approach to analyzing the first demographic dividend relies on trends in the ratio of the "working-age" population, often defined as age 15–64, to the total population. This is a useful first step, but it neglects the substantial variation in

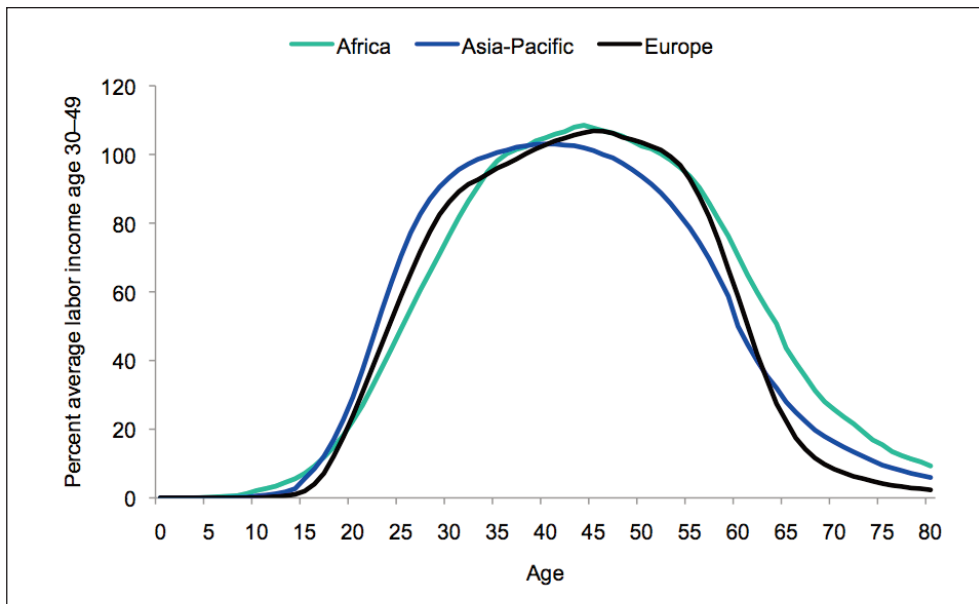


Figure 1. Age profile of per capita labor income for NTA countries in Africa, Asia and the Pacific, and Europe. Values, expressed as percentages of the average labor income of a prime-age worker (age 30–49), are unweighted averages of national values for 16 NTA countries in Africa, 19 countries in Asia and the Pacific, and 11 countries in Europe.

Source: Calculated from National Transfer Accounts data, 2016.

both production and consumption at every age. NTA addresses these limitations by calculating a support ratio, defined as the number of effective producers relative to the number of effective consumers.

The number of effective producers is calculated using labor income by single year of age, taking into account the age at which people begin to work, the income they earn at each age, and the age at which they retire from the workforce. An individual earning the average labor income of a prime-age worker (age 30–49) is counted as one effective producer. Thus, a 20-year-old would be counted as less than one effective producer if 20-year-olds, on average, earn less than prime-age workers. Similarly, a 40-year-old might be counted as more than one full worker if 40-year-olds, on average, earn more than prime-age workers.

A comparison of labor income by age shows important differences between regions (Figure 1). In Asia and the Pacific, young people age 20–29 earn, on average, 64 percent of the average labor income of a prime-age worker. In Europe, where youth unemployment is a major political issue, young people age 20–29 earn 54 percent of a prime-age worker’s average income. But in Africa, they earn only 46 percent. The relatively low earnings of young workers exert a particularly strong drag on economic growth in Africa because this age group is so large.

There are even greater differences in labor income at older ages. Retirement tends to be later in Asia and the Pacific than

in Europe and much later still in Africa. Higher incomes at older ages have a limited economic effect in Africa, however, because the elderly population in African countries is still very small. By contrast, in Europe and some Asia-Pacific countries, where the elderly are a large and growing age group, the labor income of older individuals is critical to economic prospects.

In similar fashion, the number of effective consumers in the denominator of the support ratio is calculated using consumption at each age, expressed relative to the average consumption of an adult age 30–49. For the world as a whole, average consumption by the elderly is about equal to consumption by prime-age adults, while children consume about 20 percent less. In high-income countries with large expenditures on pensions and healthcare, however, consumption by the elderly can be very high. In Japan, the United States, and Sweden consumption by those age 65 and above is about one-third higher than consumption at age 30–49.

There are some striking regional patterns (Figure 2). Consumption by children and the elderly tends to be high in Europe but low in Africa. Consumption by children tends to be low in Latin America, while

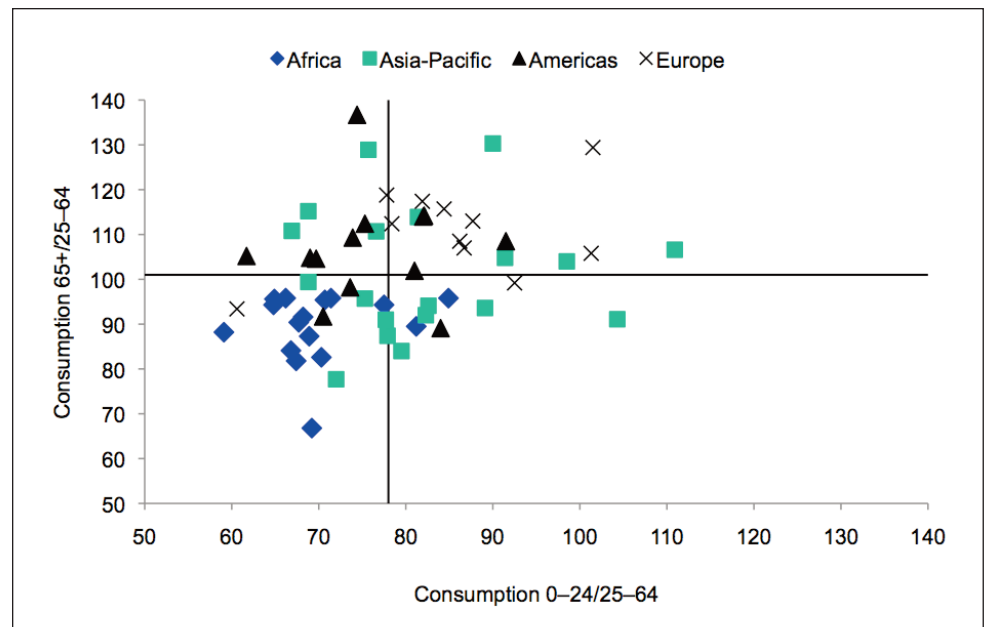


Figure 2. Per capita consumption by children (age 0–24) and the elderly (age 65+) expressed as a percent of per capita consumption by adults age 25–64 for 59 NTA countries in Africa, Asia and the Pacific, the Americas, and Europe. The simple average values for consumption by children and the elderly in all 59 countries divide the figure into four quadrants. Data points to the left of the vertical line indicate lower consumption by children than the overall average. Data points below the horizontal line indicate lower than average consumption by the elderly.

Source: Calculated from National Transfer Accounts data, 2016.

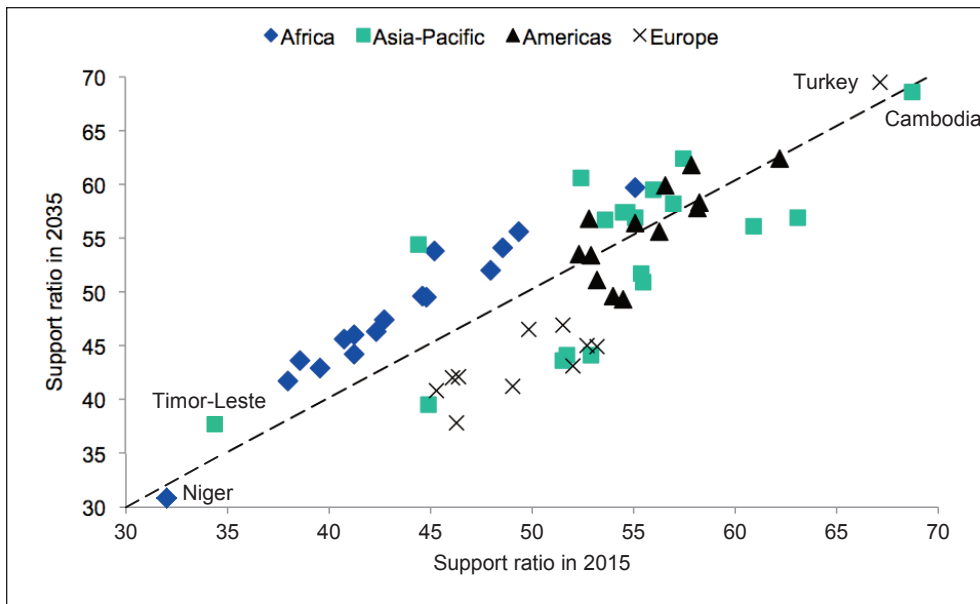


Figure 3. Support ratios (number of effective producers for every 100 effective consumers) in 2015 and 2035 for 59 NTA countries. Countries above the dashed line are experiencing a first demographic dividend—their support ratios will be higher in 2035 than they were in 2015. Countries below the dashed line have support ratios that are declining. They are no longer experiencing a first dividend. *Source:* Calculated from National Transfer Accounts data, 2016.

consumption by the elderly tends to be high. The pattern varies widely among NTA member countries in Asia and the Pacific.

The support ratio is a useful indicator of how population age structure affects economic performance. In countries with large populations of dependent children, the 2015 support ratio ranged as low as 32 effective producers for every 100 effective consumers in Niger and 34 in Timor-Leste (Figure 3). In these countries, the young age structure is compounded by the low average earnings of young workers.

By contrast, high support ratios are found in countries that have achieved low rates of child dependency but have not yet experienced significant population aging. In Cambodia in 2015, the support ratio was 69 effective producers per 100 effective consumers, and in Turkey it was 68. These favorable support ratios can provide a strong boost to economic growth.

Support ratios tend to be low in Europe and in some East Asian countries—Japan, China, and the Republic of Korea—because of their large elderly populations. In Sweden, the support ratio in 2015 was only 47. In Japan, it was 45.

The good news for nearly every African country and some Asian and Latin American countries is that their support ratios are expected to rise between 2015 and 2035,

as shown by their position above the dashed line in Figure 3. In contrast, support ratios will decline in Australia, Canada, the United States, East Asia, and in every European country except Turkey.

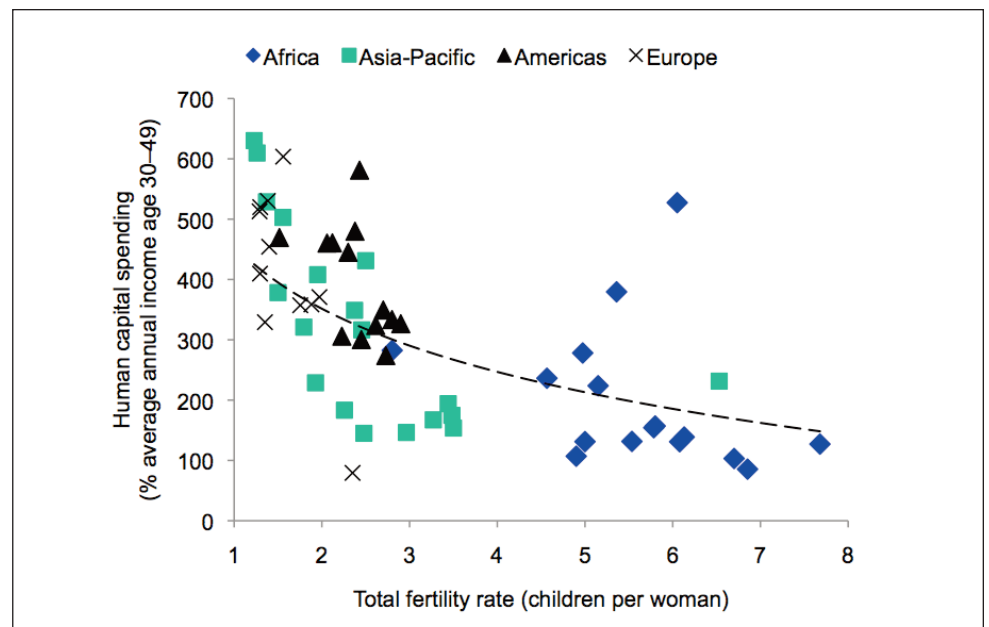


Figure 4. Trade-off between fertility and human-capital spending in 59 NTA countries. Human-capital spending is total spending per child given per capita health spending for children age 0–17 and per capita education spending for children age 3–26 in the base year. To enable meaningful comparisons, it is expressed as a percentage of the average annual labor income of a prime-age (30–49) adult in each country. *Source:* Calculated from National Transfer Accounts data, 2016.

Between 2035 and 2055, further increases in the support ratio are projected for every African country except South Africa. With few exceptions, the support ratio is projected to decline between 2035 and 2055 everywhere else in the world.

These findings point to the importance of policy measures designed to enhance and prolong the positive effects of the first demographic dividend, take advantage of the potential for a second dividend, and prepare for a post-dividend period of population aging.

Second demographic dividend: Improvements in child health and education

As the first-dividend phase comes to an end, increasing human-capital spending is one of the most promising strategies available to offset the anticipated decline in the support ratio. With greater spending on the health and education of children, future generations of workers should be more productive, even if there are fewer of them.

NTA analysis has found that countries with low fertility generally tend to spend more on the health and education of children than do countries with high fertility (Figure 4). In low-fertility countries, human-capital spending on each child

tends to be about four times the average annual labor income of a prime-age (30–49) adult, while in high-fertility countries, human-capital spending per child tends to be only about twice the average annual labor income of this age group.

The balance between public and private spending on children's health and education also varies widely. In countries with low fertility (which also tend to have high incomes), public spending on children's health and education is much greater than private spending.

In Sweden, for example, public human-capital spending on each child in 2003 was 586 percent of the annual labor income of a prime-age (30–49) adult, the highest of any NTA country, while private human-capital spending was only 18 percent of annual labor income. In the Philippines, by contrast, public human-capital spending in 2011 was only 67 percent of the annual labor income of a prime-age adult, while private spending was 100 percent.

Recent analysis of human-capital spending based on NTA data (Mason, Lee, and Jiang 2016) shows that lower fertility or child dependency leads to substantial increases in both public and private human-capital spending on children, but higher income leads to a greater rise in public spending than in private spending. This increased importance of public relative to private human-capital investment has potentially important implications for public policy, affecting economic growth and equality in future generations.

Sources of support for children and the elderly

Apart from information on human-capital investment and labor income and consumption by age, NTA data show how resources flow over time and between age groups. The analysis shows that children and the elderly rely on four sources to support their consumption—labor income, public transfers, private transfers, and asset-based flows.

Children have relatively low labor income everywhere. Even in countries where many children begin working at an early age, their wages tend to be very low. They also have little or no income from assets. In a few advanced countries, young adults may rely on credit (students loans or credit card

debt, for example), but this is the exception rather than the rule. Rather, children rely largely on family transfers from parents and grandparents. In some higher-income countries, public transfers also fund a large share of consumption by children, particularly in Europe where governments dominate the education and healthcare sectors.

The elderly rely on a more diverse set of economic resources for support. In some low-income countries, labor income is an important economic resource, even in old age. Among industrialized countries, labor income varies in importance—low in most European countries and higher in Canada and the United States. Countries facing a declining support ratio over the next 40 years should consider policies that encourage healthy older adults to remain in the workforce.

Apart from labor income, the elderly support their consumption by family transfers, public transfers, and income from assets, such as owner-occupied housing or saving from their working years. The importance of each of these sources of support varies widely among countries. The elderly in Sweden and Hungary, for example, rely on public transfers for more than 90 percent of their consumption. Reliance on public transfers is also quite high elsewhere in Europe and in many Latin American countries.

Family support to the elderly has been important in a few countries, particularly in Asia, but it is in decline. In many countries, including the United States, the elderly actually give more to their children and grandchildren than they receive.

Elderly people in many countries support a great deal of their consumption with income from assets. Public policies and institutions that encourage working-age adults to save and invest for the future can help assure support for growing elderly populations without drawing down the resources of the younger generation.

What's next for NTA?

The NTA network began in 2004 when researchers from seven countries got together to discuss intergenerational transfers and the economic implications of population aging. As of 2016, the NTA methodology has been broadly developed and made available in a manual (United Nations 2013),

and NTA analysis covers more than 75 percent of the world by population and almost 90 percent of the world by Gross Domestic Product.

Current work focuses on improving and expanding NTA analysis to new countries and additional time periods and extending analysis to specific education and income groups. NTA members are also engaged in four major initiatives: (1) the Counting Women's Work project is constructing accounts separately for males and females and measuring the production and consumption of unpaid care and housework services; (2) The AGENTA project looks at taxes and public transfers in Europe in light of demographic change and the potential for public policy reform; (3) a regional project on the demographic dividend in West and Central Africa is helping 13 countries construct accounts using the NTA model; and (4) work in Asia helps draw out the policy implications of population dynamics in the region by improving the availability and quality of NTA data and strengthening the links between data analysis and policy response.

Since 2004, NTA results have been published in books, chapters, and dozens of articles in professional journals. All this work is shedding new light on the dynamics of the first and second demographic dividends and providing insights into how public policy can improve and prolong the favorable effects and mitigate the less favorable effects of population change on economic growth.

Further reading

Lee, Ronald, Andrew Mason, and members of the NTA network (2014). Is low fertility really a problem? Population aging, dependency, and consumption. *Science*. (346):229–34.

Mason, Andrew, Ronald Lee, and Jennifer Xue Jiang (2016). Demographic dividends, human capital, and saving. *The Journal of the Economics of Ageing*. 7:106–22.

National Transfer Accounts (2016). *National Transfer Accounts: Data sheet*. Honolulu: East-West Center.

United Nations, Population Division, Department of Economic and Social Affairs (2013). *National Transfer Accounts manual: Measuring and analysing the generational economy*. New York: United Nations.