BULLETIN

National Transfer Accounts:
A new way to look at population change and economic growth

In all modern societies, there are extended periods of dependency at the beginning and the end of life—children and the elderly consume more resources than they produce through their own labor, while working-age adults produce more than they consume. What makes this economic lifecycle possible is the flow of resources over time and across generations through a complex of social, economic, and political institutions. This universal pattern raises a number of important questions for economic planners and policymakers.

Who in the population earns income from labor, and how much do they earn? How much do people at every age consume? And how do young and old people, who consume more than they produce, support themselves—do they rely on their families, on taxpayers through government programs, or in the case of the elderly, on their own savings and investment?

Because of this economic lifecycle, changes in population age structure pose special challenges for policymakers. Are public pension and healthcare programs sustainable? Will tax payers be able—and willing—to provide financial support for growing numbers of old people? Will the expansion of elderly populations slow economic growth? And what are the likely impacts of population aging on social and economic inequality? The National Transfer Accounts (NTA) network is bringing together data and developing analytical tools to help answer these important questions.

Researchers and policymakers use measures such as the Gross Domestic Product (GDP) and other components of the System of National Accounts to assess the performance of national economies. By providing estimates of income and consumption by age, NTA adds an important dimension to measures of GDP and other widely used economic indicators.

NTA also estimates economic flows across age groups, showing how each age group relies on sharing and saving to support consumption at all stages of life. All economic flows are considered, distinguished into two categories—transfers between age groups and the use of assets accumulated at one time of life to fund consumption at another. Transfers flow through government programs, such as education, healthcare, and pensions, and through families. Asset-based flows can involve governments, but they occur primarily through private institutions such as businesses, financial firms, and markets.

The NTA approach, which looks at economic indicators through the lens of age, is particularly critical today because the age structures of populations are changing more quickly than in the past. In roughly half the countries of the world—concentrated in Africa, Latin America, and South Asia—the working-

age population is growing faster than other groups. This creates a highly favorable age structure for economic growth. For these countries, it will be valuable to invest this "dividend" in capital formation and in the education and health of young people, who will be tomorrow's workers. The other half of the world—living in the countries of Europe, North America, and East Asia—has completed this phase of the demographic transition. Increasingly, these populations will consist of very few children, not many workers, and many old people.

Changes in population age structure result from the fact that people are having fewer children and, to a lesser extent, because people are living longer. Fewer children today means fewer workers and fewer taxpayers tomorrow, along with relatively large elderly populations. This change in age structure can be surprisingly rapid. In Japan, for example, the proportion of the population age 60 and above has nearly doubled in the past 20 years—jumping from 17 percent in 1990 to 31 percent in 2010 (United Nations Population Division 2008).

Policymakers need to understand the likely consequences of these demographic changes in their own societies—and what is likely to happen in the future—accurately and in detail. NTA is collecting data and developing analytical tools to fill this critical information need.

What is the NTA network?

The NTA network was initiated in 2004 when researchers from seven countries met at Berkeley, California, to discuss intergenerational transfers and the economic impact of population aging. The lead institutions are the Center for the Economics and Demography of Aging, University of California at Berkeley, and the Population and Health Studies Program, East-West Center.

By the end of 2010, the basic methodologies for measuring, analyzing, and interpreting the macroeconomic aspects of population age structure were in place, and teams of research scholars and graduate students in 34

economies around the world (Table 1) were compiling and analyzing their own NTA data. NTA researchers are based in universities, government statistical agencies and research institutes, private research institutions, and international organizations. And the NTA network continues to grow as research teams join from new countries.

What is NTA's information base?

National Transfer Accounts are compiled from a variety of data sources. National Income and Product Accounts, government financial statistics, and administrative records are used to estimate economy-wide aggregates, such as public and private consumption, labor income, public and private transfers including remittances, asset income, saving, international capital flows, and their components.

Age profiles of economic flows are estimated from administrative records and nationally representative income and expenditure surveys, labor-force surveys, health-expenditure surveys, and special-purpose household surveys. Countries vary widely in the quality and the comprehensiveness of their economic data, but many have the data needed to estimate the age profiles required for NTA.

Labor income is a broad measure that reflects variation across age in labor force participation, unemployment rates, hours worked, and wages. NTA defines labor income comprehensively to include the value of most productive work: the earnings of employees,

employer-provided benefits, taxes paid to the government by employers on behalf of employees, the proportion of entrepreneurial income that is a return to labor, and the estimated value of unpaid family labor.

Labor income does not include the value of time associated with child-rearing or other at-home activities that do not produce market goods or services. As a consequence, women's labor is not fully documented, and consumption and transfers of nonmarket goods and services are undervalued. NTA researchers are currently exploring ways to incorporate the value of these elements more fully.

Consumption in NTA includes goods and services from both public and private sources. Separate estimates of public and private consumption are constructed for every NTA economy in three categories—education, health, and other goods and services. This provides comprehensive estimates of human-capital spending by age for economies at widely varying levels of development—estimates that are not available from other sources.

Perhaps the most important feature of NTA is the estimation of resource flows between age groups that underlie the economic lifecycle. The NTA approach is shedding light on the complex systems of institutions and economic mechanisms that make these resource flows possible.

Both families and governments support the young and the old by transferring resources, mostly from

---

Table 1. NTA regions and members as of late 2010.

Asia-Pacific	The Americas	Europe	Africa
Australia	Argentina	Austria	Kenya
China	Brazil	Finland	Mozambique
India	Canada	France	Nigeria
Indonesia	Chile	Germany	Senegal
Japan	Colombia	Hungary	South Africa
Philippines	Costa Rica	Slovenia	
South Korea	Jamaica	Spain	
Taiwan	Mexico	Sweden	
Thailand	Peru	United Kingdom	
	United States		
	Uruguay		

working-age adults. Families are generally the primary institution supporting children. The role of families in old-age support is more varied—very often, older family members provide more support to the young than they receive. Governments at the local, regional, and national level play an important role by imposing taxes, most heavily on working-age adults, and providing benefits to the young and the old. Education, pensions, and healthcare are important examples of government programs that transfer resources among age groups.

In addition to relying on income from their labor and from transfers, people fund their own consumption and the support they provide to others through income earned from assets and, in some cases, from spending down their savings. Working-age adults may accumulate real assets, such as farms, businesses, and homes, and rely on these assets during retirement. Stocks, bonds, mutual funds, and similar financial assets allow workers to accumulate pension funds and personal wealth on which they can rely when they retire. People also acquire assets through bequests, most often from family members.

Asset-based flows are difficult to assign to particular age groups because it is difficult to know exactly who owns assets within a household. NTA adopts the convention that all assets held by a household belong to the household head. Bequests are not included in the estimates, but methods are being developed to include them in the future.

Economic flows between age groups can be difficult to interpret because NTA data are cross-sectional estimates for a single year rather than longitudinal data that follow members of the population over their lifetime. Government policies change, economic crises occur, and economic growth is very rapid in some countries and slow in others. Current consumption, labor and asset income, and flows between age groups may provide a poor indicator of what will happen in the future when today's children join the labor force and today's young adults become the elderly.

Nevertheless, in some countries, NTA estimates have been constructed for two decades or more. As more data become available and are analyzed more extensively, it will be possible to provide better descriptions of trends over time.

What does NTA tell us?

In each country where data have been analyzed, consumption exceeds labor income for two long periods of life. These bracket a surprisingly short period—little more than 30 years and often less—during which more is being produced than consumed. This pattern is remarkably similar among countries, such as India and Germany, at widely different stages of economic development (Figure 1).

But striking differences occur when population age structure is added to these individual-level findings to estimate consumption and labor income for a country as a whole. The lifecycle

deficit, defined as consumption in excess of labor income, is particularly high for the young in India and for the old in Germany (Figure 2). This is not because individuals in these groups have such high consumption, but rather because these age groups are so large.

How are their consumption needs met? Estimates of the relative importance of public transfers, private transfers, and the use of assets provide important insights into changing social patterns and the effects of public policy.

Brazil and Mexico illustrate common patterns but also reveal some striking differences (Figure 3). In both countries, families provide most of the consumption needs of children through private transfers. But the elderly in Brazil receive much larger public transfers, primarily in the form of pension benefits, than do the elderly in Mexico. Brazilians become net beneficiaries of public transfers at age 52, while Mexicans pay more in taxes than they receive in public benefits until age 58. And throughout old age, Brazilians receive very significant public pensions, supporting a steep rise in consumption. The elderly in Mexico continue to work longer than the elderly in Brazil and tend to support themselves largely through asset income. Their consumption declines in old age.

And how do working-age adults in Brazil and Mexico support themselves and their children and pay taxes that help support the elderly? Looking at
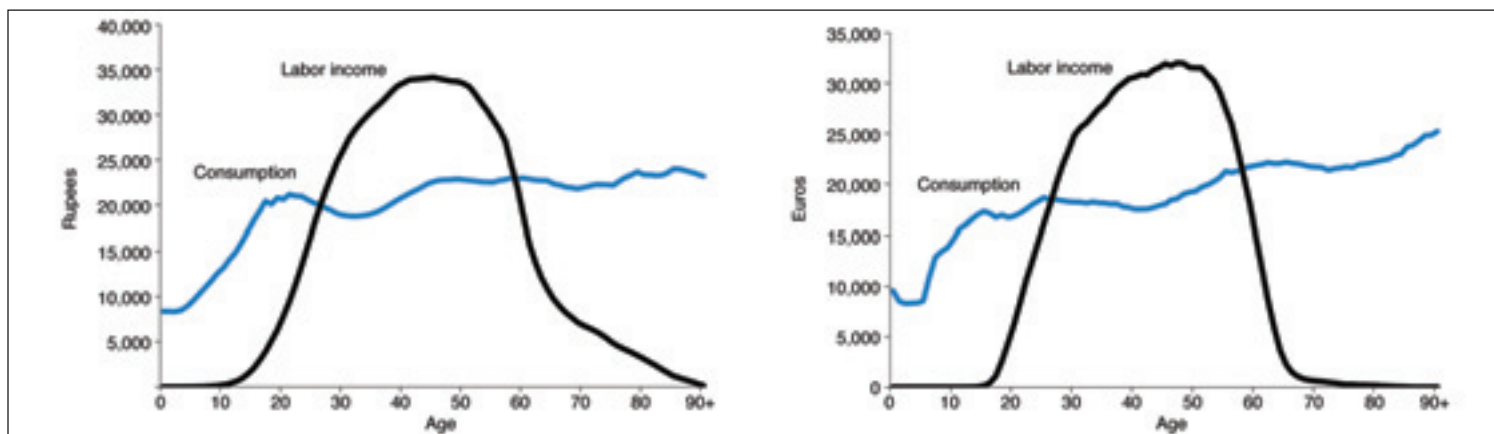

Figure 1. Per-capita labor income and consumption by age in India (left) in 2004 and in Germany (right) in 2003. *Source:* **Lee and Mason forthcoming, Figure 1.3.**
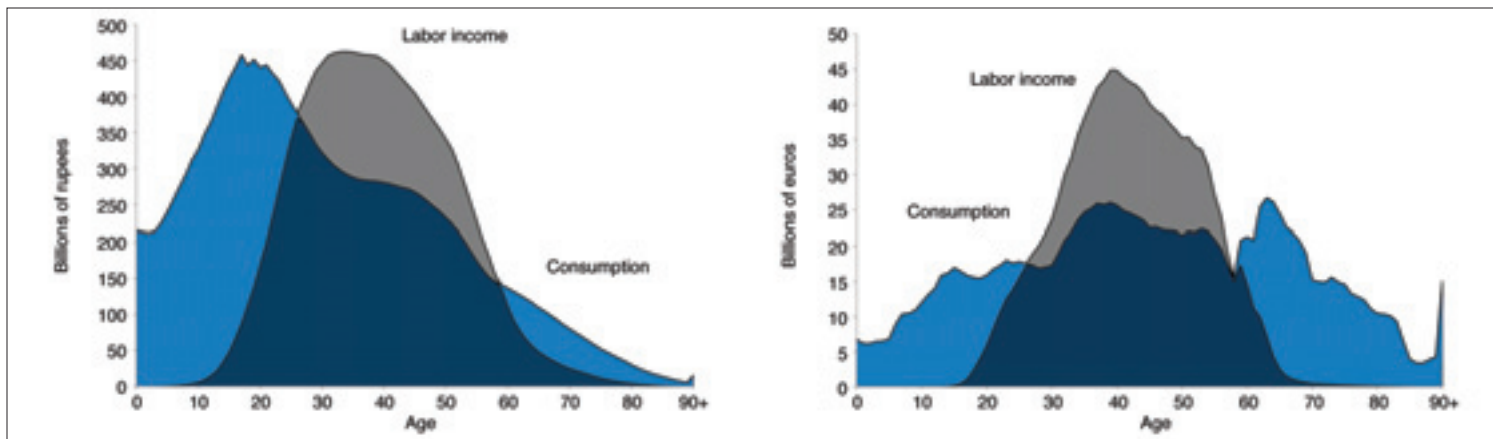
Figure 2. Aggregate labor income and consumption by age in India (left) in 2004 and in Germany (right) in 2003. *Source:* Lee and Mason forthcoming, Figure 1.3.

national averages, they are drawing on asset income for support, along with labor income, beginning as early as the mid-20s. Few adults will have accumulated significant assets of their own at these young ages. More likely, they are relying on assets received as gifts or bequests from the older generation. It is important to remember, however, that these are overall averages for two societies with a highly unequal distribution of wealth. It is unlikely that asset income is an important source of support for the poor in Brazil or Mexico.

Is there a lesson here for policymakers? Although Brazil is considered a middle-income country, its generous pension programs are typical of many high-income countries in Europe. As elderly populations expand, these governments will find it difficult to sustain such generous public-transfer programs. Similar concerns face policymakers in the United States who are faced with rapidly escalating healthcare costs.

But will population aging inevitably lead to poverty among the elderly and an excessive burden on working-age adults? Perhaps not. Today, the elderly in countries with less generous public support tend to depend largely on their own assets. The pattern observed in Mexico is also seen in Japan and the United States among high-income countries and in several Asian countries in the middle-income category.

In fact, the elderly are relying to some extent on asset income in countries at every stage of economic development. They may save less as they grow older, but they are not spending down their assets. And through most of old age, they provide more support to younger family members than they receive. Thus, the widely held view that population aging will lead to a decline in wealth and a burden on families is not supported by the evidence.

These and other findings are described in more detail in the first book to come out of the NTA project, *Population aging and the generational economy: A global perspective* (Lee and Mason forthcoming). Future issues of the *NTA Bulletin* will also summarize findings from the project, and more details are available on the NTA website at ntaccounts.org.

Additional resources

Lee, Ronald D., and Andrew Mason, eds. 2011. *Population aging and the generational economy: A global perspective.* Cheltenham, UK: Edward Elgar.

United Nations Population Division. 2008. *World population prospects: The 2008 revision: Population database.* http://esa.un.org/unpp/p2k0data. asp. Accessed 29 July 2010. New York: United Nations.
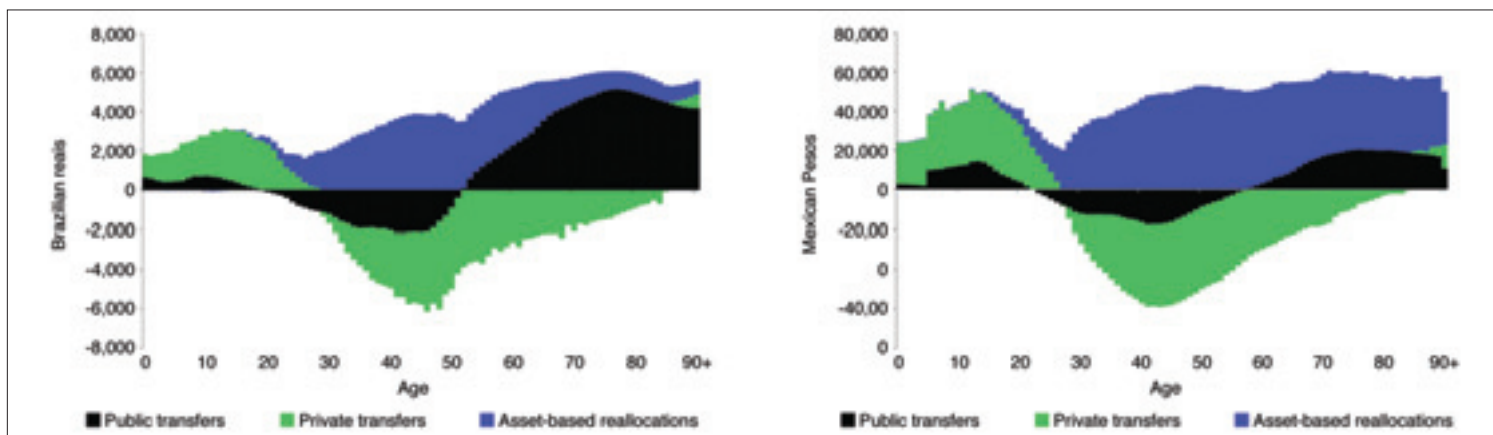

Figure 3. Per capita public and private transfers and asset-based resource flows by age in Brazil (left) in 1996 and in Mexico (right) in 2004. *Source:* Calculated from data on the NTA website (www.ntaccounts.org). *Note:* Negative values for net public and private transfers occur when an age group is giving more than it is receiving. Asset-based flows are negative when saving exceeds asset income.