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When in life is income higher than consumption? Changes in France over 30 years[1]

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Population ageing raises the fear that the cohorts of young people now entering the labour market and having trouble finding a job will also be penalised when they retire, because their pensions will be smaller than those their parents and grandparents enjoyed. The National Transfer Accounts that Hippolyte d'Albis and his colleagues present in this article are a way of measuring economic transfers between various ages and monitoring how they change over time.

The varying extent of economic transfers between ages and generations is a recurring topic of public debate. It first arose in the United States in the early 1980s, when the pension system reported a deficit. The idea was that there are trade-offs to be made, and potential conflicts of interest, in the allocation of resources between age groups, as links were drawn between the continual improvement in the lives of the elderly and the deterioration in the lives of younger groups. The redistribution of resources between age groups and the funding of the economically inactive groups is now an issue facing all the developed economies, at a time of slower economic growth, uncertainty about the sustainability of welfare systems and major demographic change.

It has become necessary to quantify the distribution of resources at various ages. To that end, tools are required that measure economic flows between ages, and any changes over time. National transfer accounts (NTA) meet this objective. The method began in the United States [1] and by 2015 had spread to 47 countries, including France, that now construct national transfer accounts (NTA) [2].

Measuring economic flows between ages

The aim of NTA is to measure how individuals produce, consume, save and share resources at each age. It uses an accounting equation whereby private and public resources and consumption are equal. An individual's resources, income from labour and capital plus public and private transfers received must be equal to the use made of them, whether for consuming, saving or making public and private transfers. The various items in the equation are then calculated for each age, both individually and in aggregate.

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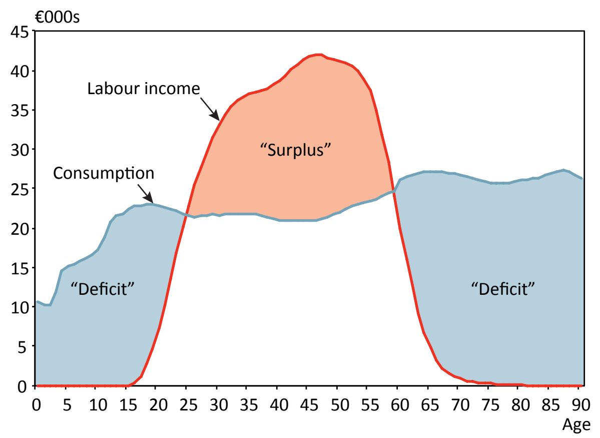
Transfers between ages reallocate the wealth produced during the active ages so that individuals can consume at various times in their lives. There are ages when they consume but do not produce—childhood and retirement—and other ages when they produce significantly more than they consume—adulthood. It is therefore important to measure levels of production and consumption by age. Calculating these profiles is the first stage in constructing NTA (box), carried out for France by Albis et al. [3, 4], and its main findings are presented here(2).

Figure 1. Average consumption and income per person by capita, France 2011



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Sources: INSEE *Budget des familles* survey 2011, social insurees panel *Échantillon permanent des assurés sociaux 2008*, public statistical data, and authors' calculations.

Note: Ages where labour income is lower than consumption are periods of "deficit", and where it is higher, periods of "surplus".

In 2011, the elderly consumed more than the young

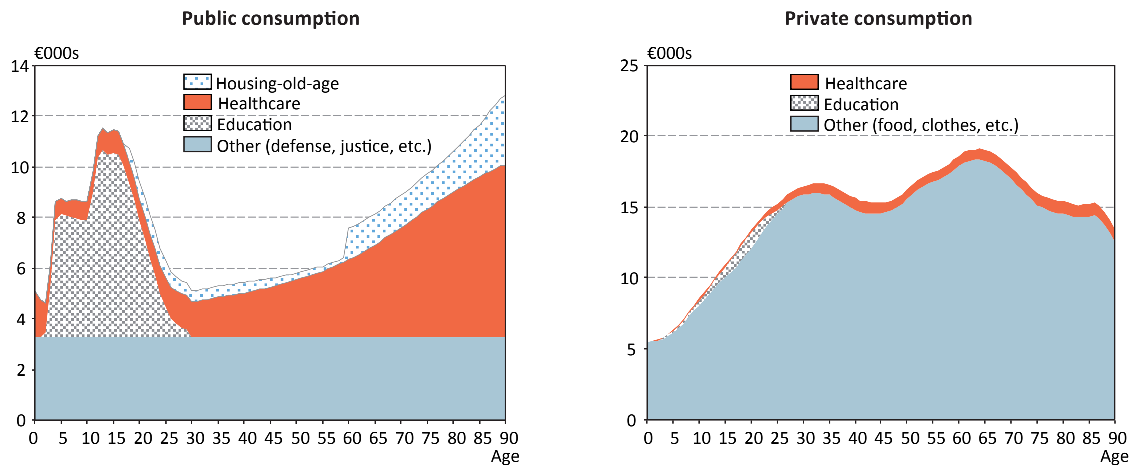
In 2011, total average consumption doubled from birth to €23,000 at age 16 (Figure 1). It then fell slightly and plateaued between ages 25 and 45, rose again after 50 and varied little after 70.

The line of total consumption includes both public and private, which balance out (Figure 2). Private consumption increases sharply from age 0 to 33, falls slightly until 45 and then rises to a second peak at 64. Above that it regularly falls. The profile of public consumption also varies greatly by age; it is much higher at the start of the lifecycle (mainly due to expenditure on education) and after age 65 as health and dependency expenses rise.

Total labour income, nil before age 16, rises rapidly until age 35. Income then grows more slowly and peaks on average at €42,000 at 46 (Figure 1). It declines slightly until 55 and then more sharply. A large number of factors affect the labour income by age profile (employment rate, working hours, hourly wage rate by age, and the whole range of institutional, social and cultural factors that influence the workings of the labour market).

The differential between consumption and income at each age shows periods of so-called "surplus" where individuals produce more than they consume. In 2011, this was 25 to 58. Before 25 and after 58, the reverse is true: these are the "deficit" periods where they consume more than they produce (Figure 1). This "deficit" is a key NTA indicator. It is funded by economic mechanisms (saving) and institutions (State, family) that arrange to redistribute resources from surplus to deficit periods.

Figure 2. Average public and private consumption per capita by age, France 2011



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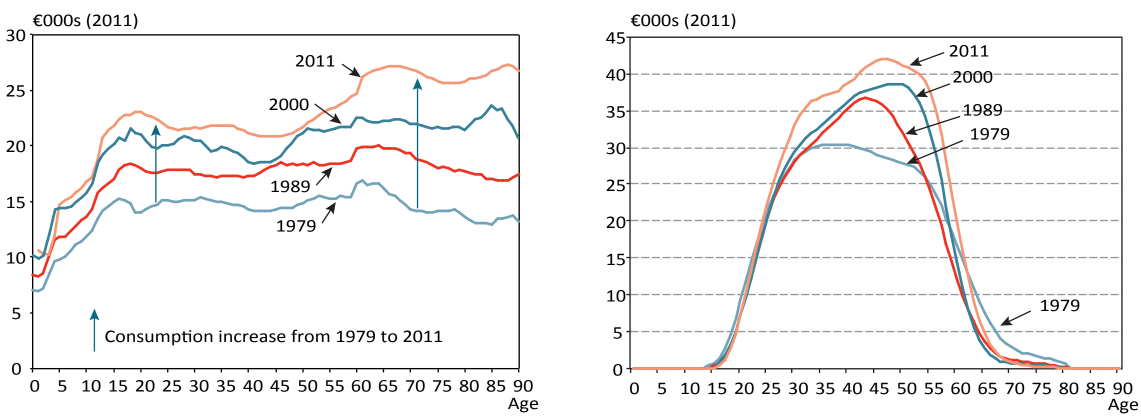
Sources: INSEE *Budget des familles* survey 2011, social insurees panel *Échantillon permanent des assurés sociaux 2008*, public statistical data, and authors' calculations.

Note: Housing and old-age expenditure corresponds to final consumption items from public administration that can be allocated by age.

(2) The database is available at the dedicated website http://ctn.site.ined.fr/en/data/

Figure 3. Average consumption and labour income per capita by age, France, 1979-2011 (2011 euros)



Hippolyte d'Albis *et al.*, *Population & Societies* n° 529, INED, January 2016.

Sources: INSEE *Budget des familles* surveys 1979, 1989, 2000, 2011, public statistical data, and authors' calculations.

Consumption and income by age profiles significantly different from 1979

Not only demographic structures alter over time, but also does the economic lifecycle profile. The average consumption by age profile from 1979 to 2011 shifted to the advantage of the older groups (Figure 3). Over time, consumption at each age rose in line with the general growth of the economy. However, the rise was not a uniform one. It was much greater for those aged 60 and over, thus shifting the consumption by age profile. In 1979, the consumption line was fairly level after 15 and then dropped noticeably after 60, but later it gradually moved to the advantage of the older groups, as a result of a greater rise in private, and especially public, consumption for these groups as compared with the younger ones. In 1979, those aged 60-79 had a level of consumption on average 2% higher than those aged 20-59. This gap widened over the period to 7% in 1989, 9% in 2000 and 17% in 2011.

Average labour income may be influenced over time by later entry into employment—as a result of longer education or youth unemployment—and earlier or later exit as legal pensionable age is modified. Other factors may operate, such as seniority-based salary scales. In France, the age when labour income peaks gradually shifted from 36 in 1979 to 46 in 2011 (Figure 3). Retirement at 60, introduced in 1982, caused a significant fall in labour income from 60 to 70, clearly visible in the age profiles after 1979.

These shifts in average consumption and income profiles by age reveal a shortening of the period during which the individual's labour income exceeds their consumption. The number of years of youth "deficit" rose significantly from 1979 to 1995 (from 23 to 25), and then levelled out until 2011. The starting age of the retirement deficit fell from 61 in 1979 to 59 in 2011. Before 2000 it even dipped to 58. These developments are related to conditions for retirement, since staying at work longer automatically delays the start of this deficit. The two effects combined with longer lifespans have produced an increase in the total number of "deficit" years. This rose from 37 years in 1979 to 49 in 2011.

Internationally, many similarities can be seen between the findings for France and those for other developed countries. The rise in relative consumption by the elderly and the shift in the peak age for labour income are observed in Sweden and the United States, countries for which long-term NTA data are available [6]. And the lifecycle deficit profile in most countries is shaped like an inverted U, with nil deficits per person around ages 24-26 and 58-62.

Construction of National Transfer Accounts continues to develop

Once these surplus and deficit periods have been identified, the question arises of how the lifecycle deficits are to be funded. How much of the redistribution of resources from the productive to the recipient years is carried out by the family via private transfers, by public systems via taxes, contributions and benefits, and by the market via labour income and savings vehicles? What changes have there been to this redistribution over the last three decades in France? The current second stage of constructing the accounts is designed to answer these two questions.

A third area for research is to add the time dimension of the transfers to the NTA, so as to have NTTA (national time transfer accounts). The reason is that one explicit objective of NTA is to take a comprehensive view of intergenerational transfers. To meet it, we must examine both public and private transfers in monetary form such as financial aid or gifts and in time transfers, which means placing a value on domestic production.

The national transfer accounts (NTA) method

The general approach to NTA is to separate out by age all the major aggregates in national accounts, using individual profiles estimated from survey data. First, profiles of both public and private consumption and labour income by age are constructed at individual level. Second, the estimated age profile is adjusted so that the aggregate calculated from survey data equals that taken from national accounts. The consumption and labour income profiles are thus average profiles for each age.

Basing the calculations on national accounts means that comparisons can be made over time or between countries, since the national accounts system is harmonised along both dimensions. All the countries that construct NTAs use the same method [5].

Various types of individual profile are constructed. On the production side, labour income includes salaries, employers' contributions and the income of the self-employed. Consumption is obtained from the total of private and public consumption. The private component is the value of goods and services consumed by households. It is broken down into three parts: healthcare, education and other. The first two are processed separately because they are assumed to vary much more by age than other expenditures. Public consumption is the value of goods and services received via the public sector. It too is broken down into healthcare, education and other expenditure. The latter is goods and services that cannot be individually allocated by age, such as defence and justice, and are broken down equally for each age.

A large number of sources, surveys and administrative data over long periods are used to construct the profiles. France uses its *Budget des familles* surveys for the labour income and private consumption profiles; national accounts for education and pupil numbers from the Ministry of National Education, Higher Education and Research for public expenditure by age; and the *Enquêtes sur la santé et la protection sociale* (ESPS) surveys and *Échantillons permanents d'assurés sociaux* (EPAS) panels for public healthcare expenditure.

Magda Tomasini, new Director of INED

Magda Tomasini was appointed Director of the Institut National d'Études Démographiques (INED) on 1 January 2016. She succeeds Chantal Cases who held the post for six years.

Magda Tomasini was previously head of the solidarity monitoring department at the health ministry's directorate for research, evaluation and statistics (DREES), after heading INSEE's household income and wealth division from 2008 to 2011. Ms Tomasini graduated from and then taught statistics at the École Nationale de la Statistique et de l'Administration Économique (ENSAE) and is a member of the technical grand corps of INSEE. In 2001 she joined the labour ministry's directorate for research, studies, and statistics (DARES) as deputy head of the employment department. From 2003 to 2006, she was head of the higher education statistical studies office at the education ministry's directorate for evaluation, forecasting and performance (DEPP). Then for two years she was head of the statistics, forecasting and analysis department at the national family allowances fund (CNAF).

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Abstract

The National Transfer Accounts method is used to quantify economic transfers between ages. During their working years, individuals usually produce more than they consume. The opposite occurs during their youth and retirement, when their consumption is financed by a redistribution of resources between ages. From 1979 to 2011, the period of life when income from work is higher than consumption grew shorter in France. Consumption profiles shifted to the advantage of the elderly, who now consume more in relative terms than younger cohorts.

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