



Full Length Article

The lifecycle deficit in France, 1979–2005 [☆]

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ABSTRACT

We use the National Transfer Accounts methodology to calculate the lifecycle deficit in France for the years 1979–2005. During this period, consumption profiles were roughly constant over age, while labor income profiles shifted to higher ages. The share of the aggregate lifecycle deficit in GDP rose sharply in the 1980s due to an increase in the mean age of the population. In contrast, the per capita shares of the lifecycle deficit attributed to the population under 20 and over 60 varied little during this period, even though the relative weights of these two age-segments has shifted continuously in favor of the latter.

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Introduction

The intergenerational distributions of income and public resources are recurring issues in national public debates. In France, the economic slowdown, growth of public debt, and uncertainty regarding the long-term sustainability of the pay-as-you-go pension system take center stage in intergenerational debates. Some authors suggested an increasing inequality between generations over the last decades, articulating the emergence of so-called "golden" generations that benefited from economic growth between 1950 and 1970 and who did not modify their consumption behaviors after the economic slowdown at the expense of later generations (Chauvel, 1998; Kotlikoff and Burns, 2012). It is however difficult to compare the situation of individuals of different

ages as the entire lifecycle profile should be taken into account. Moreover, the low income level of young workers compared to those of senior workers or even retirees may be offset by, for instance, downward family transfers.

A detailed picture of the various economic flows between ages over the life course seems then very useful to better ground this debate. To compare the welfare of successive generations, Auerbach et al. (1991) have originally proposed to study the intertemporal government budget constraint. Generational accounting considers how much each generation, on a per person basis, is expected to pay in future taxes net of transfer payments, over the life course. Such exercise has been completed at the beginning of the 2000s in France. Bonnet (2002) and Accardo (2002) conclude that if tax and social policies remained constant an intergenerational imbalance would emerge. These studies also warned about the fact that the magnitude of this imbalance is highly sensitive to the assumptions made.

The National Transfer Accounts (NTA) method of Lee and Mason (2011) provides a more thorough accounting of age-specific resource allocation. An informative index falling out of this method is the lifecycle deficit, which is defined as the difference at each age between consumption and labor income. When the deficit is positive, this means that labor resources are not sufficient to cover consumption needs. Of special interest are the two ages at which the consumption and income age profiles intersect. Once the lifecycle deficit is computed, the next step is to assess the reallocation of resources between age groups and to investigate how the lifecycle

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deficit is funded. From a public policy perspective, the lifecycle deficit and its evolution over time is a powerful tool to highlight the potential imbalances between the various age groups.

In this article, we present lifecycle deficit estimates for France according to NTA methodology. The originality of our study is the time window since we cover the period ranging from 1979 to 2005. This allows us to determine how the profiles have evolved over more than two decades as the result of both economic changes and changes in the age structure of the French population with the advance of the baby-boom generation. This time-perspective is coupled with a comparative approach to other countries for which NTA accounts have been implemented in order to highlight any specifics in France.

The primary advantage of a study covering a long period is that it reveals the constants that structure society. In particular, we find that the allocation of consumption between ages has remained relatively unchanged over the period. The total consumption profile is relatively stable after 17 years, although substitutions between private and public consumption take place at different ages. Interestingly, the share of lifecycle deficit per capita in the GDP has held roughly constant both for the young and the elderly during this period. These developments may reflect a certain social preference for equality in terms of consumption between ages in France. However, the gap between shares received by the elderly and by the young has steadily increased, reflecting the increasingly predominant weight of the elderly in French society.

This paper is presented as follows. Section 'Construction of consumption and income profiles by age' describes the methodology and data sources used to construct the consumption and income profiles by age. The results obtained for year 2005 are subject to a detailed analysis in Section 'Consumption, labor income and lifecycle deficit in 2005', including an international comparative perspective. Section 'Persistence and changes during the period 1979–2005' explores the changes in both the income and consumption profiles between 1979 and 2005 and analyzes changes in the balance between large age groups. Section 'Conclusion' provides some concluding remarks.

Construction of consumption and income profiles by age

Consumption and labor income profiles for France were constructed following the NTA methodology, as described in the latest version of the Reference Manual (UN, 2014). This is based on the combination of two elements: survey data to determine the age profiles for the selected flows (i.e. private consumption, public consumption and labor income), and aggregates calculated from the national accounts to adjust the results from survey data so as to sum to the total flows in the economy for a given year.

For private consumption, the age profiles are composed of three parts: education expenditure, health expenditure, and other expenditures including imputed rents. These components are obtained from the Family Budget surveys (*Enquêtes Budget des Familles*) which are conducted at regular intervals in France (1978–1979, 1984–1985, 1989, 1994–1995, 2000–2001, and 2005–2006) on a sample of approximately 10,000 households. These surveys describe the structure of household expenditures on the basis of similar questionnaires over the period, which ensures comparability of our results between surveys.

Private education and health profiles are obtained by regression methods. For education, household consumption is assumed to be a function of the number of enrolled household members of each age ranging from 2 to 28. The regression coefficients are then used to allocate the education expenditure to each member within the household (see NTA manual for further details). Given data constraints, household health expenditure is assumed to be a function

of the number of household members in each five-year age group¹, except for the first year of life (age 0) which is treated separately. Concerning other consumption, the allocation by age is determined according to the piecewise linear profile suggested by Lee and Mason (2011, p. 62), which is based on age-specific contributions within the household. The weight is 0.4 for young children till age 4, then it increases linearly from age 4 to age 20, and is equal to 1 for adults aged 20 and older.

Public education consumption profiles are calculated for each year from the French Education Account (*Compte de l'Éducation*), a satellite of the national accounting system. The data used to determine the number of students at each age and level of education (primary, secondary and tertiary) are taken from the National Institute of Statistics (INSEE) and the Ministry of National Education (*Ministère de l'Éducation Nationale*). It is assumed that individual public consumption is the same for all students of a given level. Public health expenditure profiles are estimated using data from the French Permanent Sample of National Insurance Beneficiaries (*Echantillon Permanent d'Assurés Sociaux*), based on a sample of nearly 80,000 insured persons under the scheme for employees for the years 2000, 2002, 2004 and 2006. For the years 1992 and 1998, data are taken from Health and Social Protection Surveys (*Enquêtes Santé et Protection Sociale*), which are subsamples of the above sample. Those samples do include institutionalized persons. Other public consumption expenditures (defense, justice, etc.) are distributed uniformly over the population, resulting in an age profile that is then assumed to be constant.

Age profiles of labor income (sum of wages, self-employed incomes and payroll taxes) are constructed from the Family Budget Surveys.

Once calculated, each profile is smoothed across ages using the Friedman (1984) method recommended in the NTA methodology (UN, 2014, Appendix B, p. 159–164). Because not all profiles are available for each year between 1979 and 2005, we interpolate the values for all ages in missing years using polynomial functions. Specifically, we rely on cubic functions which are flexible enough to get accurate values for the missing indicators. The only exception is the age pattern of public health expenditures. Since no data are available before 1992, we take the age-specific mean of the profiles computed for 1992 and 1998 for all years prior to 1992.

For each year of the period considered, National Accounts data for France are used to calculate the NTA accounting identity, according to which the sum of consumption, saving and net transfer outflows is equal to the sum of labor income and asset income (UN, 2014, p. 29). The aggregate counterpart for the income of the self-employed is derived using the method proposed by Askenazy et al. (2011), which is based on decomposition by sectors. Within each sector considered, this method assigns the average labor income observed among employees to the self-employed. The resulting breakdown of Gross Mixed Income differs from the 1/3–2/3 rule typically used in NTA to separate the share of capital and labor in total earnings. For the self-employed, we determined that the share of labor earnings fluctuated between 0.59 and 0.83 over the period considered in France. Finally, each age profile is readjusted based on the corresponding aggregate.

Consumption, labor income and lifecycle deficit in 2005

In this section we present a decomposition of the lifecycle deficit for the year 2005 in France. Fig. 1 represents the per capita age

¹ This approach corresponds to the "simple regression approach" in the NTA manual. Indeed, there is no variable identifying which individuals are receiving health-care services.

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