What do we learn about gender inequality using a NTA approach? Some evidence for France over the 1979-2005 period.

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1. State of the art

Intergenerational distribution of incomes and public resources and their evolution over time are recurring issues in national public debates. In France, the economic slowdown, the growth of public debt and uncertainty about the long-term sustainability of the pay-as-you-go pension system are elements that dramatize the intergenerational debate. Some authors perceive an increase in inequality between generations and discuss the emergence of "golden" generations, which would have benefited from the growth in the years 1950-1970 at the expense of other generations (Chauvel, 1998, Kotlikoff and Burns, 2012).

To contribute to this debate, the quantified analysis of the economic flows between generations needs to be used. The National Transfer Accounts (NTA), whose approach is presented by Lee and Mason (2011), provide a complete analysis describing the resource allocation process at each age. The basic concept is the lifecycle deficit, defined as the difference at each age between consumption and labour income. Even if consumption gives only a partial account of the reality of welfare, it could be used as a fruitful indicator of comparison between generations. The lifecycle deficit indicates the ages in life where resources obtained from labor are not sufficient to cover consumption needs. NTA have been computed for France over the 1979 to 2005 period (d'Albis *et al.*, forthcoming). They highlight both the relative equality of consumption between ages and an increase in consumption profiles (compared to the 30-49 labour income) between 1979 and 2005. Such an evolution is different from the income profiles that are distorted in favour of the oldest workers. Shortening the period during which the cohort consumes less than their labour income has not led to significant changes in reallocations that benefit the young and the elderly.

A new strand of research regarding NTA consists in extending the NTA adding gender (Zagheni and Zannella, 2013). Indeed, "Gender is an important dimension of the generational economy. The support system for men and women may be very different with potentially adverse implications for women or possibly men" (United Nations, 2013). This involves two improvements of the "classic" NTA approach. First, we need a disaggregation of the current accounts by gender. It also requires to include unpaid work, otherwise the vision of inequalities between gender would be biased. This introduction of household production is in line with the last report of the Stiglitz commission. This latter recommended to improve the indicator of GDP to reflect all the aspects of well-being including the large quantity of goods and services produced by household members for their own consumption, without involving market transactions (Fitoussi, Stiglitz and Sen, 2009). Moreover, the vision of transfers between generations is incomplete as unpaid care for both the younger and the older generation is a vital form of transferred resources between generations.

This article aims at giving some new picture of the evolution of gender inequalities over the 1979-2005 period in the NTA framework.

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2. Data and method

We follow the methodology of the NTA, as described in the latest version of the Reference Manual (UN, 2013). Consumption and labour income profiles by gender including time use are first constructed in two steps. First, the construction of the basic profiles by gender relies on the combination of two elements: Survey data to determine the average profiles by age for selected flows (consumption and income) by sex ; aggregates calculated from the national accounts to adjust each age profile to the total value of the flow considered in the economy for a given date. Indeed, the macro accounting identity which indicates that the sum of consumption, savings and transfers is equal to the sum of labour and financial incomes should be fulfilled.

For private consumption, the age profiles are distinguished in three components (education expenditure, health expenditure and other expenditure including imputed rents), obtained from the Family Budget Surveys (*Enquêtes Budget des Familles;* 1978-1979, 1984-1985, 1989, 1994-1995, 2000-2001 and 2005-2006). Age profiles of labour income (wages and income from self-employed) are also constructed from the Family Budget Surveys. Public education consumption profiles are calculated for each year from the education account (*Comptes de l'éducation*), which is a satellite account of the national accounting system. The data used to determine the number of students at each age and level of education are taken from the National Institute of Statistics (INSEE) and / or the Ministry of National Education. It is assumes that individual public consumption is the same for all the students of a given level. Public health expenditure profiles are estimated using data from the French Permanent Sample of the Socially Insured (*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, 2006 and 2008. For the years 1992, 1995 and 1997, data are taken from Health and Social Protection surveys (*Enquêtes Santé et Protection Sociale)*. Other public consumption expenditure (defence, justice, etc.) is uniformly distributed over the entire population. The age profile is assumed to be constant.

Once the individual profiles are calculated, they are smoothed for years of investigation by the Friedman (1984) method and recommended in the NTA methodology (UN, 2013, Appendix B, p. 199-205). When all profiles are not available between 1979 and 2005, which is the reference period that takes into account the availability of households consumer surveys in France, we interpolate and extrapolate for each age values for the missing years for the period by the cubic splines method. This method allows us to interpolate the piecewise data using a polynomial of degree 3, providing good confidence in the results.

Then, we compute time use profiles, to assess the domestic production and consumption by the households. Time produced and consumed by individuals is composed of three tasks: housework, child care and adult care, computed from the French Time use survey available for three dates (1985-86, 1998-99, 2009-10). This production and consumption is measured in hours per day and valued by multiplying each hour worked by the minimum wage including employers contribution. We also used other ways to value time use, as replacement cost or opportunity cost. The first alternative consist in valuating each hour of housework to the purchase price, i.e. the price that would be paid if you had to purchase these services on the market. The second alternative relies on the assumption that each hour of unpaid domestic work corresponds to the "time cost" of the person performing these household tasks. This method has a major inconvenient. It gives a higher value to the domestic production enjoyed by children from wealthy families compared to children from the poorest families. For the results below, we chose the minimum wage method.

3. Results

On average, the domestic production of women is always higher than the domestic production of men, whatever the task considered. However, the domestic consumption of men is very similar to that of

women. Therefore, the individual profile of lifecycle deficit (LCD, calculated by the difference between individual consumption and individual production) of men is always lower than the profile of women. In the long term, there is a translation of the lifecycle deficit of men to the right since 1984 (cf. Figure 1), and an increase of the lifecycle deficit for women over the period (Figure 2). The difference between the deficit lifecycle of men and women has increased in the 1980s and has been reduced since 1989.

Figure 1 : Lifecycle deficit for men - Time use

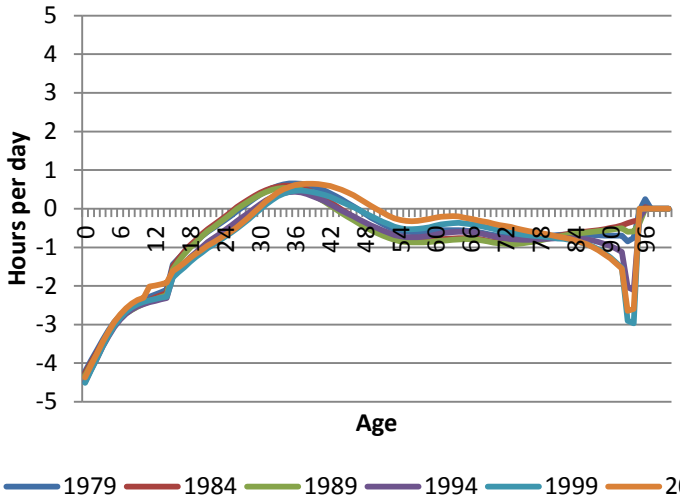
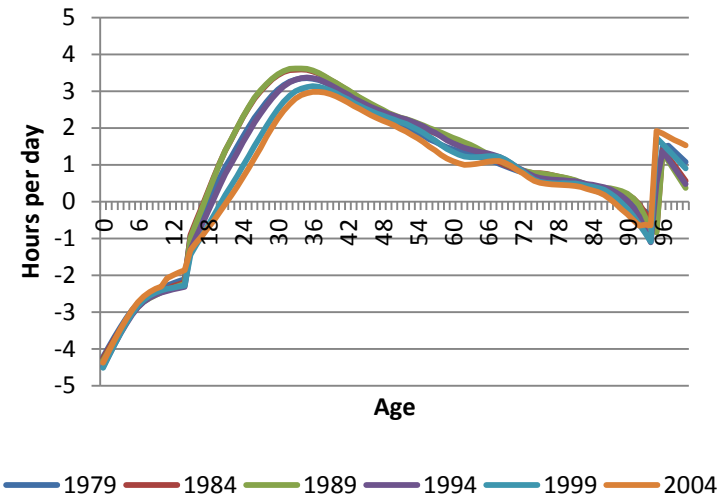


Figure 2 : Lifecycle deficit for women - Time use



The sum of labor income and monetized domestic production for each gender is more important for men up to age 65, the age at which it becomes lower than that of women (Figure 4). The contribution of men is always higher than that of women before 65, whether the profiles take into account domestic production or not. However, the gap between income of men and women between 65 is highly reduced by the inclusion of domestic production (Figure 3 and 4). Contrary to domestic output and labor income, there is no major difference between consumption profiles depending on whether they include or not domestic production (Figure 5 and 6).

Figure 3 : Labor income by gender, 2005

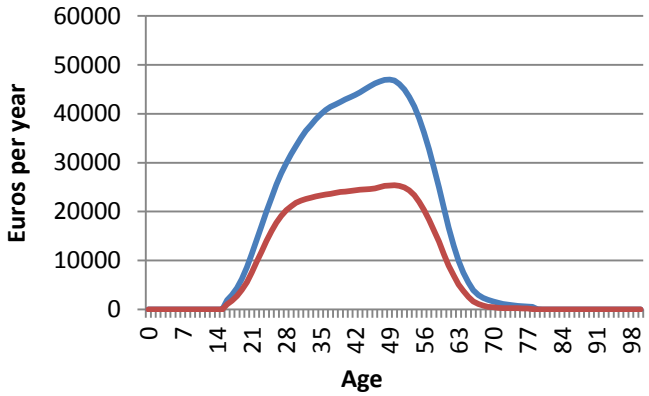


Figure 4 : Sum of domestic production and labor income by gender, 2005

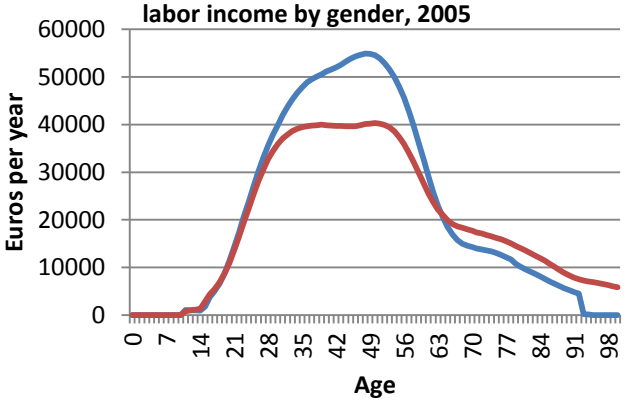


Figure 5 : Total monetary consumption by gender, 2005

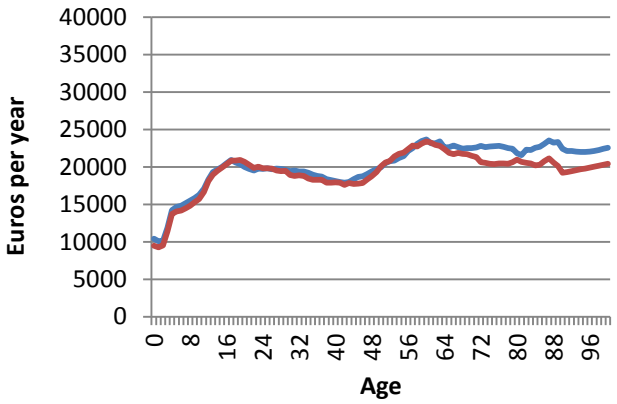
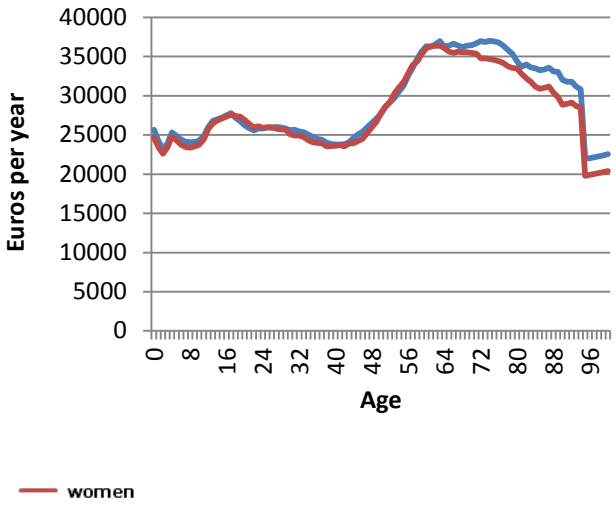


Figure 6 : Sum of domestic consumption and monetary consumption by gender, 2005



Including domestic production in the usual life-cycle deficit results in an increase of the deficit for men. As highlighted before, this results from a lower domestic production by men, the difference between men and women consumption does not change with the inclusion of domestic production.

The deficit is still increasing over time (Figure 7). For women, there is a shift of the LCD curve to the right over time, indicating that women become creditor later, but also that they will become debtors later. In addition, the period of life during which they are in a situation of surplus has increased (Figure 8).

Figure 7 : Lifecycle deficit for men - including monetary and time use profiles

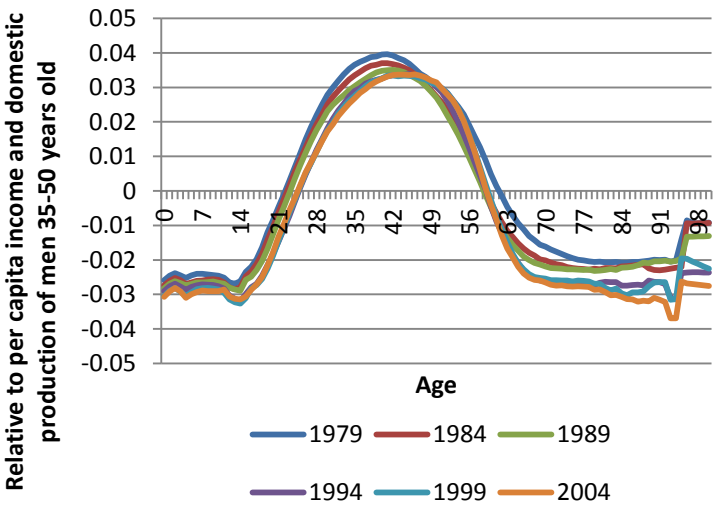
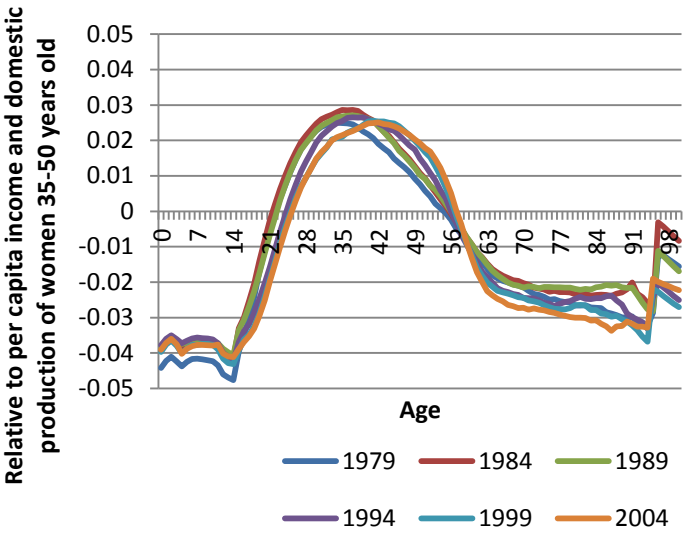


Figure 8 : Lifecycle deficit for women - including monetary and time use profiles



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