Wealth accumulation over the lifecycle: some evidence for France

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Introduction

A key prediction of the basic life-cycle model is that households should accumulate wealth until retirement and then draw down gradually to reach zero wealth at death. This basic version is not supported by the data. A variety of models have attempted to resolve this puzzle through, for example, bequests (Kotlikoff and Summers, 1981), uncertain lifetime (Davies, 1981), or precautionary savings (Zeldes, 1989) (health and log-term care expenditures). The evidence that elderly draw down assets after retirement, as surveyed by Browning and Lusardi (1996), is mixed at best. Börsch-Supan and Lusardi (2003) note that there is strikingly little evidence of dissaving at older ages. Few works exist on French data but they reach the same conclusion (Lollivier and Verger, 1996).

The aim of this paper is to study life-cycle accumulation in the French case. In a context of decreasing replacement rates due to pension reforms, individual saving takes a greater importance to cover expenditures during retirement. Besides, accumulated wealth should enter the behaviour model of retirement to better understand how people react to pension reforms. If panel data on a long period would be adequate to study the decumulation rates, they have other drawbacks. Measurement errors, attrition, small sample sizes at older ages are problematic. The main concern remains, however, the limited available panel data on wealth and savings issues. Another approach to this question is to use repeated cross-sectional data and to construct synthetic cohorts (“pseudo-panel”).

The paper is organized as follows. Section I provides some elements on the data used. Section II is devoted to the methodology and problems encountered. The third section presents the descriptive and econometric results and further research.

I – Data used

1. French Wealth Surveys

We use the four French household wealth surveys : Actifs Financiers 1986 and 1991-1992 ; Patrimoine 1997-1998 and 2003-2004. It enables to cover a twenty years time period, from 1986 to 2003. People are interviewed on the different assets they own (financial, housing, …), on

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inheritances, on bequests made and received, …. Sociodemographic characteristics of the household and professional biographies are also available.

2. **Simulation of a continuous distribution of wealth**

As far as data on wealth are highly confidential and sensible, it is a common practice to collect such information by asking people to classify their own earnings along a discrete scale of income "brackets". We use the method of simulated residuals (Lollivier and Verger, 1988) to simulate continuous distribution of wealth, using bracket information available in our dataset. We use at this stage gross wealth. In summary, the method described by Verger and Lollivier is to consider the amount of wealth (continuous variable) of an individual (denoted Yi) can be explained by a set of covariates, satisfying the following model $\log(Y_i) = X_i\beta + u_i$. We do not observe Yi but the portion of assets declared by the household. Assuming that $\frac{u_i}{\sigma}$ follows a normal distribution, then we can consider the previous model as an ordered probit. We can then estimate $\hat{\beta}$ and $\hat{\sigma}$ and obtain an estimate of $\log(Y_i)$, ie $X_i\hat{\beta}$; Then, for each individual, we draw an alea ε_i form a normal distribution until the result $\hat{Y}_i = \exp(X_i\hat{\beta} + \hat{\sigma}\varepsilon_i)$ be included in the bracket reported by the household i. We then consider $\hat{Y}_i$ as the amount of continuous wealth of the individual i.

II – Modelling wealth accumulation over the lifecycle

1. **The accumulation over the life-cycle**

In the framework of the pseudo-panel approach, we aggregate data (arithmetic mean) for each survey by individual generation of individuals. 44 generations are observed at 4 dates, ie 176 cells, containing between 30 and 200 individuals.

We regress the logarithm of average wealth on age $A_{c,t}$, cohort C_c and period D_t using weighted least squares[3],

$$\log(W_{c,t}) = \alpha + \beta\, A_{c,t} + \gamma\, C_c + \delta\, D_t + u_{c,t} \quad (1)$$

The estimation of this relationship raises and identification problem. Indeed, calendar time is simply equal to year of birth (cohort) plus age. The separate effect of age, cohort and period are therefore not identified and unless one is willing to make additional identification assumptions.

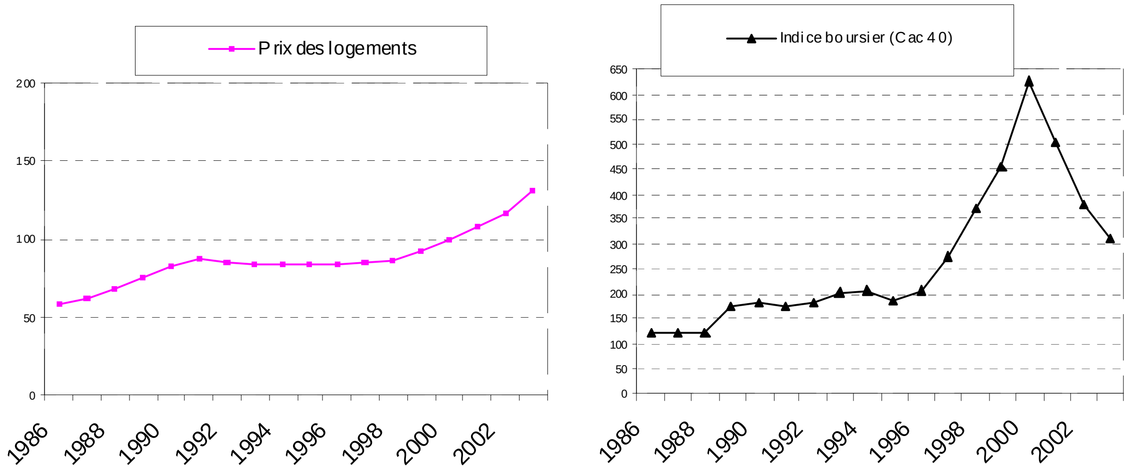
The choice of this identification assumption is one of the main difficulties of this type of modelling because it impacts the results. We address this issue in more detail below, identifying options chosen in the literature on this topic.

2. **The importance of identifying assumptions : controlling the effects of time, cohort and age**

[3] We need weighted least square because we use grouped data. Weights used are group sizes.

An identification assumption usually used (Japelli, 1999; Boissinot, 2007) is proposed by Deaton and Paxson (1994) in the context of the life-cycle permanent income hypothesis (LC-PIH) for consumption. They assume that the coefficients corresponding to the time dummies add up to zero and are orthogonal to a time trend. In other words, we would assume that the growth of wealth is entirely due to an effect of age and generation. This frequently used assumption is in our case difficult to adopt, given the dramatic changes in housing and stock prices over the period considerer (Figure 1).

Figure 1 – Changes in housing prices and the CAC 40, period 1986 to 2003



Source : Insee for CAC 40 and Friggit for housing prices.

We follow another approach assuming that the time effects could be replaced by a proxy (see Alessie, Kapteyn and Lusardi, 2005). We use in the estimation the variable "Housing prices". Housing indeed represents the largest share of the accumulated wealth of households.

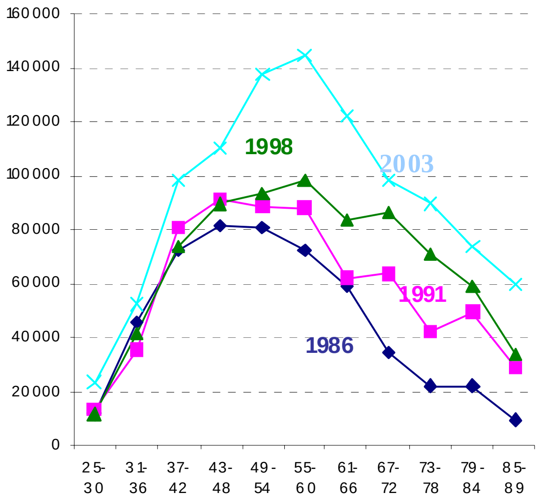
III - Empirical Results

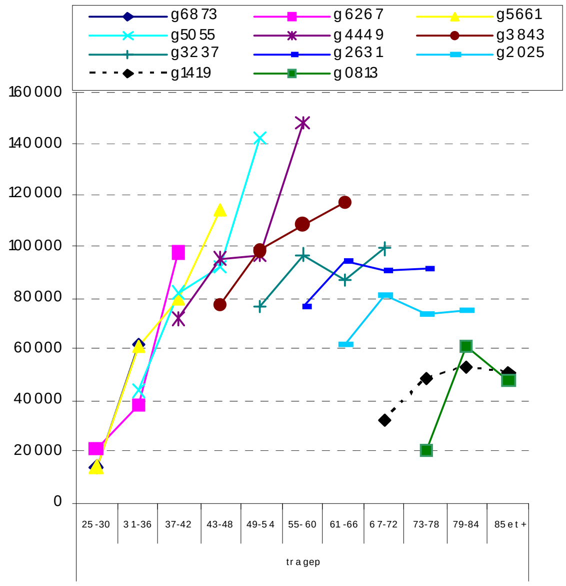
1. Descriptive statistics

The analysis of the median wealth pattern by age in each survey should not lead to erroneous conclusions, particularly a decrease in wealth with age (Figure 2a). Indeed, cross-sectional data mix age and generation effects (Shorrocks, 1975). Following birth cohorts, we do not observe decrease in wealth in older ages (figure 2b).

Figure 2a - Median wealth (in € 1998), according to age

Figure 2b - Median wealth (in € 1998), according to the birth cohort





Source : Wealth surveys, 1986, 1991-92, 1997-98 and 2003-04

2. Decomposition of age, period and cohort effects

We regress the log of wealth on a third-order age polynomial, one dummy per generation (generations from 1918 to 1957, observed in the four surveys) and a proxy used to account for the time effect :the evolution of house prices over the period. We report the estimated effects on figure 3a (age effect) and on figure 3b (cohort effects, adjusted by a second order polynomial).

Figure 3a – Age-wealth profile

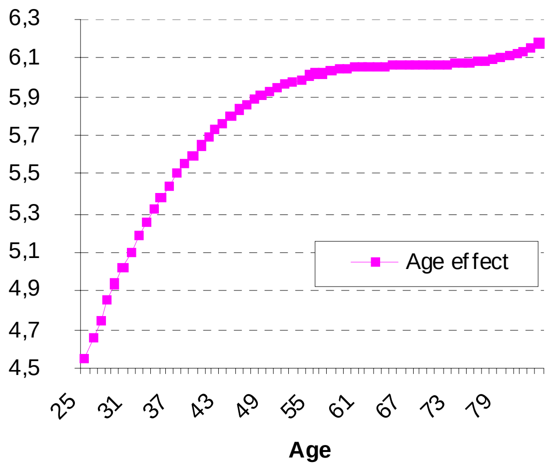
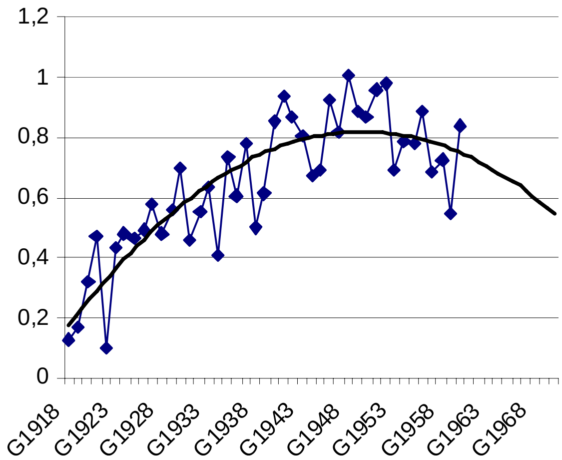


Figure 3b – Cohort effect



It seems that wealth does not decrease in older ages (figure 3a). The cohort effect reflect the impact of growth on lifetime resources, younger cohorts being richer than their predecessors (figure 3b). However, the cohort effects are rather flat for generations born after 1945 and even decrease for the youngest ones. This puzzling fact was already noted for income.

Athough age and cohort effects explain some of the individual variation in wealth accumulation and are natural factors to look at within the framework of a life cycle model, other observable variables are likely to explain part of the heterogeneity within each year-cohort cell. Controlling for such variables (education for instance) can be interesting and useful both because of the intrinsic interest of such an exercise and to check the robustness of the results obtained previously section (Attanasio and Horazio, 1998).

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