Direction des Études et Synthèses Économiques

G 2015 / 18

French households financial wealth: which changes in 20 years?

Jean-Baptiste BERNARD
Laura BERTHET

Document de travail

Institut National de la Statistique et des Études Économiques

INSTITUT NATIONAL DE LA STATISTIQUE ET DES ÉTUDES ÉCONOMIQUES

Série des documents de travail
de la Direction des Études et Synthèses Économiques

G 2015 / 18

French households financial wealth: which changes in 20 years?

Jean-Baptiste BERNARD*
Laura BERTHET**

DÉCEMBRE 2015

The authors would like to thank José Bardaji, Jean Boissinot, Éric Dubois and Corinne Prost. We are grateful to Bertrand Garbinti for discussing the first version of this paper and to Xavier d'Haultfoeuille for his help. We also thank the "Division Revenus et Patrimoine des ménages (Insee)" for the help in accessing and understanding the data.

---

* Faisait partie du Département des Études Économiques au moment de la rédaction de ce document.

** Direction Générale du Trésor (Pôle d'Analyse Économique du Secteur Financier)

Département des Études Économiques - Timbre G201 - 15, bd Gabriel Péri - BP 100 - 92244 MALAKOFF CEDEX - France - Tél. : 33 (1) 41 17 60 68 - Fax : 33 (1) 41 17 60 45 - CEDEX - E-mail : d3e-dg@insee.fr - Site Web Insee : http://www.insee.fr

French households financial wealth: which changes in 20 years?

Abstract

Focusing on households' financial assets, this work attempts to analyze microeconomic determinants of the global evolutions in French households' portfolio from 1990 to 2010. In particular, we analyze the role of age and provide, from French data, an empirical ground to the large literature dedicated to wealth accumulation. The paper mobilizes successive Household Wealth Survey cross-sections (conducted in 1992, 1998, 2004 and 2010) and develops an age-cohort-period model. The estimation of age-patterns for financial assets building shows no decumulation in retirement, on the contrary to the standard Life-Cycle Hypothesis, and no significant differences between birth cohort groups. This approach is supplemented by exploring the role played by other microeconomic determinants, such as diploma, suggesting the existence of a large diversity of accumulation patterns within each generation. The paper ends with a brief focus on life insurance expansion in French households' portfolio, describing its nature and which savers' groups have supported it.

Keywords: Financial wealth, Age-Period-Cohort (APC), Life-Cycle, Intergenerational Equity, households' portfolio choice, life-insurance

---

Patrimoine financier des ménages français : quelles évolutions en 20 ans ?

Résumé

L'objectif de cette étude est d'analyser les déterminants microéconomiques des évolutions macroéconomiques observées sur le patrimoine financier des ménages entre 1990 et 2010. En particulier, ce travail explore le rôle de l'âge sur les choix d'accumulation d'actifs financiers et apporte, sur données françaises, un point de vue empirique à la littérature théorique riche sur le sujet. Un modèle âge-période-cohorte est estimé, en mobilisant les données individuelles issues des enquêtes Patrimoine de l'Insee (menées en 1992, 1998, 2004 et 2010). L'estimation des profils par âge indique que les ménages français ne désaccumulent pas leur patrimoine financier après le passage à la retraite, en désaccord avec la théorie standard du cycle de vie. Par ailleurs, les résultats n'indiquent aucune différence significative dans le profil d'accumulation de richesse financière entre les générations observées. L'analyse du rôle joué par d'autres déterminants microéconomiques tels que le niveau de diplôme vient compléter cette première approche ; si les profils d'accumulation d'actifs financiers apparaissent relativement proches entre générations, ils semblent afficher une forte disparité au sein de chacune d'entre elle. Enfin, l'étude donne quelques éléments d'analyse sur la forte expansion de l'assurance-vie dans le portefeuille des ménages français, identifiant quels ménages y ont le plus contribué.

Mots-clés : Patrimoine financier, modèle âge-période-cohorte, Hypothèse de Cycle de Vie, choix de portefeuille des ménages, inégalités intergénérationnelles, assurance-vie

Classification JEL : D14, D91, E21, G11

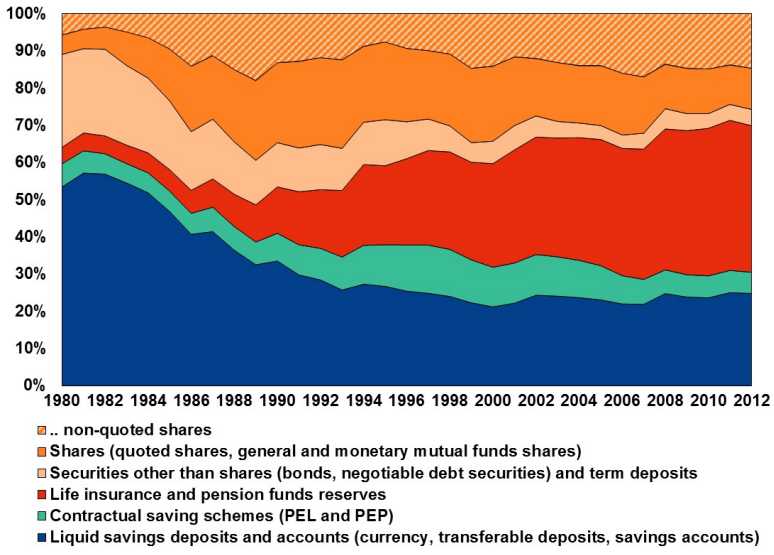
Contents

Introduction

The aim of the paper is to provide an empirical ground to the large literature dedicated to wealth accumulation, looking precisely at financial assets building on French data. In a sense this study extends the approach initiated by Boissinot and Friez [2006]. From the beginning of the 1990s, French household gross wealth has increased at a brisk pace, representing today almost 9 times the Gross Disposable Income (GDI), versus 5 times in 1990. Both housing and financial wealth have contributed to this growth. If the former is clearly driven by changes in housing prices, the latter is more difficult to capture, as it results from a wide range of determinants. Indeed, macroeconomic data reveal that the amount of financial assets grew in real terms over the period, and their structure changed significantly, with a shift toward life insurance (see Figure 1). Few microeconomic studies document this phenomenon. Yet, understanding households' decisions regarding the accumulation of financial assets and their allocation is crucial. It gives, for instance, empirical grounds to the mobilization of savings to meet the financing needs of the economy or to the design of an efficient taxation scheme as the French Court of Auditors pointed it.[1] This issue also relates to the current debate on inequalities between generations, recalled in Arrondel and Masson [2013]. The authors notably put forward an increasing wealth imbalance at the expense of the youngest generations in France, associated with growing wealth disparities within cohorts (between homeowners and tenants or between those who have inherited and those who have not).[2]

This work attempts to tackle this issue and aims precisely at looking into the growth in household financial assets over the period. The objective is to identify and disentangle the main wealth accumulation determinants shaping French households behavior: who contributed to the financial assets expansion, according to several criteria (age, birth cohort, diploma, etc.)? and through which savings vehicles? As a starting point, we focus on the role of age, largely documented in the theoretical literature. The results could then be used to establish life-cycle wealth profiles.

Figure 1: Structure of households' financial assets



Data: *Banque de France, national financial accounts.*

The paper relies on a longitudinal exploitation of French household surveys over a 20 years period (1992-

[1] *"L'absence d'une connaissance fine du comportement des épargnants pose problème : il n'existe pas d'analyse empirique qui permettrait de savoir ce que serait, dans ce contexte nouveau, leur réaction à d'éventuelles modifications fiscales"*, La politique en faveur de l'assurance-vie, Rapport de la Cour des Comptes, janvier 2012.

[2] From mean and median statistics by age class from the Household Wealth Surveys, Arrondel and Masson [2013] show that the relative position of people aged 60 years and over has improved in terms of gross wealth on their observation period (1992-2010); at the same time, inheritances come increasingly later in the life-cycle. Same conclusions can be drawn regarding specifically housing wealth, but evolutions are not clearly conclusive regarding financial wealth.

2010). The Household Wealth Surveys (HWS) ("Enquête Patrimoine") designed by INSEE[3] have already been extensively investigated, with a large majority of previous studies focusing on a specific cross-section of the survey (see Arrondel and Masson [1990] on the 1986 one, Arrondel [1995] on the 1992 one or Chaput, Kim, Salembier, and Solard [2011] and Garbinti and Lamarche [2014] on the 2010 one). To the best of our knowledge, our longitudinal approach of HWS is closest to Cordier, Houdré, and Rougerie [2006] – who look at changes in gross wealth inequalities from 1992 to 2004 – and Girardot and Marionnet [2007] – who analyze stocks and compositional evolutions on household portfolio over the 1997-2003 period. Our study differs in two major ways. First, the analysis is conducted on a larger period. Second, we adopt an econometric strategy in order to disentangle financial wealth life-cycle profiles from birth cohort and period effects.

In this way, the paper is in line with the age-period-cohort (APC) literature. Developed by demographers in the 1970s (Glenn [1977]) and popularized by Deaton and Paxson [1994] in the 1990s in respect to savings behaviors[4], the APC modeling focuses on the exact linearity between age, birth cohort and period that prevents models that include these three independent variables to be identified (since Age = Period - Cohort). This methodological approach has been mainly mobilized in papers dealing with life-cycle consumption patterns, as in Boissinot [2007] on French data. Attanasio [1993] has paved the way for financial wealth accumulation study in the United States based on the Consumer EXpenditure survey (CEX). But yet no study has hitherto been carried out on financial assets accumulation in France.[5] The APC literature has given rise to further developments, giving various strategies based on additional identifying restrictions to solve the linearity issue. In this paper, we rely on traditional Deaton and Paxson framework. We also draw inspiration from Chauvel [2013a] who provides an alternative specification, the APC-Detrended model, that allows us to back our results. The econometric developments he suggests fall within his work on French social structure and generational cleavages.[6]

The small number of studies on financial assets building reflects problems of data availability and difficulties in using them. Indeed, the analysis mobilizes both micro and macro data. On the one hand, Household Wealth Survey (HWS) data from INSEE are necessary to analyze household portfolio choices at an individual level, but suffer from important limits: underreporting, measurement errors, small sample sizes at the top of wealth distribution. Four cross-sections are used in the paper (1992, 1998, 2004 and 2010).[7] On the other hand, national financial accounts provided by the Banque de France offer a comprehensive picture of household financial wealth changes over 30 years, and also appear as a valuable benchmark to harmonize successive HWS cross-sections. Estimations are then conducted on the 1992-2010 period on the four HWS waves, in constant euro terms (2009=100, to match with the period of collection of the last wave, between October 2009 and March 2010). To put it in perspective, section 1 depicts macroeconomic developments on French household wealth in national accounts on a larger period (1980-2012).

Three main results come out of this paper. Firstly, regarding total wealth, we find results in line with the previous literature on French data (see Guillerm [2015][8]): a positive cohort effect for generations born from the 1910s to the 1950s (i.e. a gradual improvement in wealth across these generations) and stable afterwards. Regarding financial wealth, our results contrast with what we observe on total gross

[3]From the 2014-2015 Household Wealth Survey, the survey is part of a European framework, the Household Finance and Consumption Survey (HFCS).

[4]See also Japelli [1995] and Attanasio [1998].

[5]Direr and Yayi [2013] work on panel data on financial assets from 2003 to 2011, analyzing age and cohort effects on a specific portfolio choice: the part of the savings placed on a retirement plan in risky assets contrary to safer monetary ones, and how does this part evolves with age or time. Yet, their analysis differs from ours regarding the sample - since theirs only covers Madelin contracts, a retirement saving plan dedicated to independent workers - and the method - since they do not implement APC modeling.

[6]See Chauvel [2010].

[7]The 1986 survey does not contain any information about the amounts held by households for each assets.

[8]With a different specification (pseudo-panel model), Guillerm [2015] finds a significant increase in gross wealth over generations until the "baby boom" generation, and a stagnation afterwards. Note that conclusions concerning the youngest generations could not be made since the diagnostic varies with the grouping criterion.

wealth: we find no significant cohort effect on financial assets accumulation, meaning that no generation seems to have more supported the financial assets growth over the last two decades. Secondly, we find no sign of decumulation after retirement, questioning the inverse U-shaped curve given by the traditional life-cycle hypothesis regarding French households' financial portfolio choices. Indeed, the mean age-pattern of financial assets building is increasing between 25 and 55 years old and remains stable afterwards. Besides, we show that large disparities exist in financial accumulation within birth cohorts, according criteria such as the level of education or the reception of a bequest or a legacy. Thus, the mean age-profile does not appear very representative and covers very different behaviors. Thirdly, regarding allocation of French households' portfolio, we highlight the fact that the sharp distortion in the 1990's toward life insurance reflects a widespread change in investing choices, supported by a large majority of savers. This shift was also substantially larger for the richest groups who continued to switch to life insurance in the 2000s. Therefore, life insurance has become a mass market product and at the same time more unequally distributed.

The rest of the paper is organized as follows. Section 1 provides historical background on the level and structure of household wealth, as reflected in the balance sheets of French national accounts, over the period 1980-2012. Section 2 remembers the salient facts on microeconomic determinants of wealth accumulation in existent literature and puts forward the need for longitudinal micro data, which leads to the building of a pooled cross-sections database from HWS data. It also provides descriptive insights about age wealth profiles. Section 3 presents the two APC methodologies used to disentangle age, cohort and period effect and displays the results obtained on financial wealth. Section 4 aims to look into other microeconomic determinants than age or birth cohort, such as relative diploma. Finally, section 5 focuses on lifeinsurance sharp evolution over the period, giving some insights on its nature and on the group who has supported it.

1 Macroeconomic evolution in household financial wealth over the past 30 years

1.1 Financial assets played a significant part in the sharp growth in household gross wealth

In late 2012, French households' financial wealth reached 4 160 billion euro. Defined as the stocks of financial assets held by an agent, financial wealth accounts for 35% of household gross wealth which is primarily composed by real estate properties (for 59%), the remaining being mainly held in the form of professional assets (for 5%).

Table 1: Distribution of household wealth in France, in current price, end of the year

in billion	**1980**		**1990**		**2000**		**2010**		**2012**		**1980**
	Stocks	%	Stocks	%	Stocks	%	Stocks	%	Stocks	%	**2012**
Financial assets	450	31%	1 320	38%	2 540	46%	3 930	35%	4 160	35%	x9.3
Housing wealth	650	45%	1 720	49%	2 620	47%	6 660	60%	7 000	59%	x10.8
Other assets	340	24%	460	13%	410	7%	570	5%	640	5%	x1.9
Gross wealth	**1 440**		**3 490**		**5 570**		**11 160**		**11 800**		**x8.2**
Financial liability	110		390		610		1 300		1 400		x12.5
including long-term loans	*90*	*82%*	*310*	*79%*	*460*	*75%*	*1 000*	*77%*	*1 100*	*79%*	x*12.2*
Net wealth	**1 330**		**3 100**		**4 960**		**9 860**		**10 400**		**x7.8**

Data: *Insee, Banque de France.*

Note: housing wealth is computed as the sum of dwellings (AN.1111) and land carrying buildings and structures (AN.21111) in national accounts. 'Long-term loans' refers to loans for more than one year (F.4211 and F.4212). Besides, initial work have be done with data in the '2005' base. With the switch to the '2010 base' in 2014, 2012 is our last available year in accounts in the '2005' base.

A look back on the last 30 years shows some important shifts on household portfolios. First, household gross wealth rose sharply over the period (see Table 1 and Figure 2): it has been multiplied eight-fold in nominal terms (three-fold in real terms) and has moved from 4.4 times the household gross disposable income (GDI) in 1980 to 8.8 times in 2012. Second, this growth has been accompanied by compositional changes, with

a greater share of housing wealth and, to a lesser extent, of financial assets – from, respectively, 45% and 31% in 1980 to 59% and 35% in 2012 – at the expense of other non-financial assets (see Table 1). In line with the increase in housing wealth, household financial liability (mainly composed of real estate loans) rose sharply, multiplied by 12.5 over the period.

If both housing and financial wealth have expanded faster than the GDI since 1980 – representing respectively 5.2 and 3.1 times GDI in the end of 2012, against 2.2 and 1.5 in 1980 – they contributed to the growth of gross wealth very differently over the period. On the one hand, the profile of growth in housing wealth results directly from revaluation. This sole effect that comes from changes in real estate prices has been responsible for 70% of housing wealth expansion over the period 1980-2012 (see Figure 3 (a)). Moreover, its part is dominant in the 2000s since the sharp rise in French real estate prices explains most of the increase in total gross wealth, with a contribution equal to 60% over the period 1998-2007. On the other hand, the growth in financial assets was mainly fueled by positive net investment flows, which accounts for around 80% of the growth over 30 years (see Figure 3(b)).

Thus, the strong growth observed on nominal gross wealth from 1980 is primarily due to two factors: a price effect that stemmed from the housing market and a volume effect arising from households' investment decisions. Both factors contributed to this growth in large proportions, around 40% for housing revaluation and around 30% for financial investment inflows. Housing price effects are well documented in literature. Yet, the growth in financial assets is harder to interpret, resulting directly from individual saving choices. If price effects must not be overlooked as they play a key part in households' portfolio choices affecting actual return of investments especially in the real estate market (where speculation motive can be important), we choose here to drill down into the changes in volume of financial assets.[9]

1.2 Household financial portfolio showed huge asset reallocations over the past 30 years

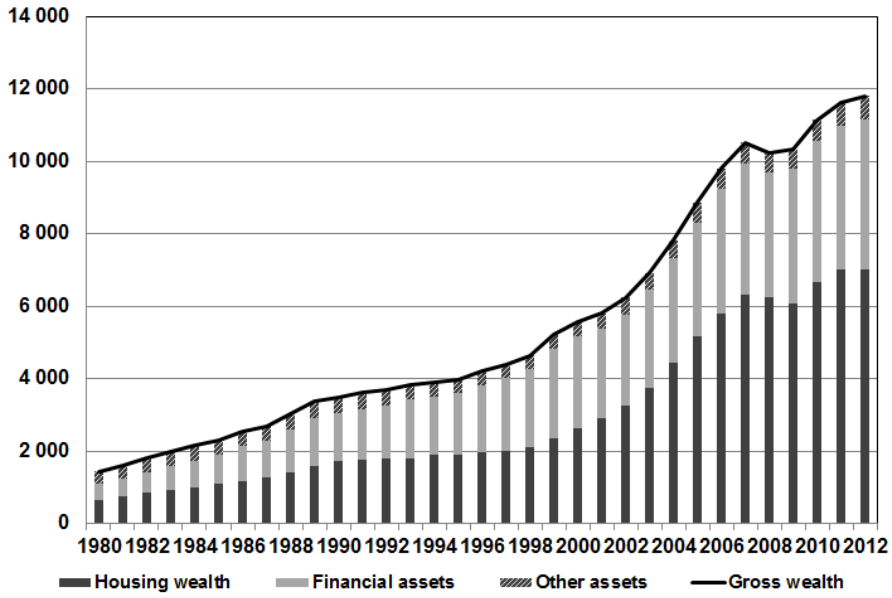
National financial accounts compile all financial assets and liabilities held by households. It covers conventional financial investments – like deposits, shares or life insurance – but also encompasses other accounting categories such as technical reserves in non-life insurance or trade credits that do not appear as portfolio investment. From now on, these categories are excluded from our scope.[10] Once the selection has been made, households' financial wealth is held as follow in late 2012:

- *life insurance and pension schemes* represent the most significant fraction of households' financial wealth (39% of total amount);
- *liquid assets* that include currency, transferable deposits and saving accounts (regulated and taxable accounts) represent 24% of total financial assets, and are, in terms of detention, the most widespread assets;
- *contractual saving schemes* – housing savings (PEL) and popular savings (PEP) – weight over 6%;
- *bond securities and term deposits* (which include savings bonds) account for 4%;
- finally, *shares* represent 27% of total financial assets and embrace quoted and non-quoted shares (respectively 4% and 16%), general mutual funds shares (7%) and monetary mutual funds shares (less than 1%).

[9] The connections existing between housing and financial investments are strong by definition, as they both result from a households portfolio allocation choice, and appear multidimensional. Among the different channels that come into play, Fougère and Poulhès [2014] analyze how the level of gross and net housing wealth affect the composition of households financial assets, putting forward two opposing channels: a wealth effect tends to increase the share of risky assets in portfolio whereas a real estate risk effect tends to reduce it, the former being higher than the latter. These connections are not at the core of our study but represent another issue that should be interesting to look at.

[10] Household financial assets include banknotes and coins (F21), transferable deposits (F22), sight deposits (F291), term deposits (F292), contractual savings (F293), securities other than shares (F3), equities and UCITS securities (F5), net equity of households in life-insurance and pension fund reserves (F61).

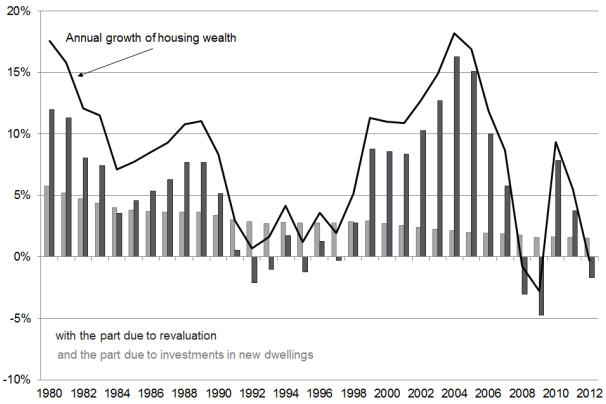
Figure 2: Evolution and structure of household gross wealth, in billion, in current prices



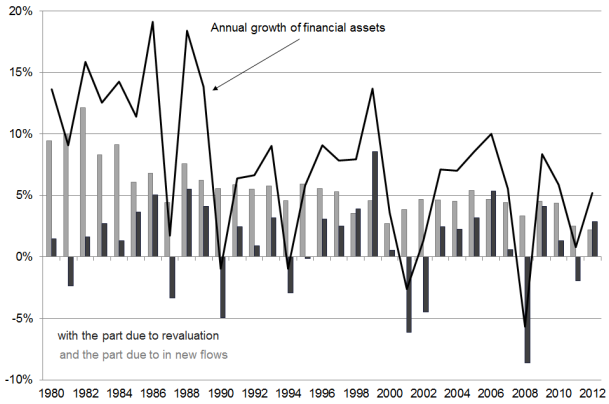
Data: *INSEE, national accounts; Banque de France, national financial accounts.*

Figure 3: Breaking down housing and financial wealth - Contributions of net investment flows and revaluation to the evolution of housing and financial wealths

(a) Housing wealth



(b) Financial assets



Data: *INSEE national accounts, Banque de France, national financial accounts, own calculations.*

Figure a: *over one year, the variation in housing wealth recorded in national accounts breaks down into four components: gross fixed capital formation (GFCF), valuation, degradation due to utilization (consumption of fixed capital) and other factors (natural disasters for instance). GFCF in housing refers to households' buildings costs for new dwellings, large maintenance of the buildings and acquisitions of dwellings net of divestitures to other institutional sectors (property developers, public housing offices, non-financial firms).*

Figure b: *new flows refer to net household financial investment flows, including 'new provisions' brought by households and interest payment.*

Lecture: *In 2000, household housing wealth increased by 11%. Revaluation (due to changes in housing prices) explained 8.6 percentage points of this growth whereas net investments explained 2.7 percentage points (and -0.3 percentage points due to other changes in volume).*

Since the beginning of the 1980s, the structure of household portfolio has severely distorted over time (see Figure 1), reshaped by two major movements. The first stylized fact relies in the sharp drop in liquid deposits and savings accounts that constituted more than half of households' financial portfolio in the beginning of the 1980s (53% in 1980) and subsequently fell down in a decade to then stabilize for the remaining period around 25%. More generally, the proportion of saving flows to the banks has been continually reduced as French households increasingly entrust their savings to other financial intermediaries (insurers and asset managers through mutual funds). This pattern is also accompanied by internal reallocations among securities, from directly owned bonds (bond securities and savings bonds included in 'other deposits' category) toward securities in the form of shares, and especially mutual funds shares. The movement described essentially took place in the 1980s, with the share of bond securities and term deposits in total assets decreasing from 25% in 1980 to about 10% in the beginning of the 1990s, and hovers around 5% in the 2000s. As a result, French household's portfolio is characterized by a relatively low part of direct shareholding. More than 80%[11] of households' financial investments are intermediated by financial actors such as insurance companies, banks and mutual funds, which take care on behalf of households the management of their financial assets.

The second stylized fact relies in the huge increase in the weight of life insurance in household portfolio. Life insurance really entered in an upward phase in the latter half of the 1980s and has been continually expanding, from 6.3% of household financial assets in late 1986 to around 40% at the end of 2012. In addition to asset management, life insurers also offer to handle on behalf of households the diversification of their financial assets.

1.3 Focus on the 1992-2010 period

In the remainder of our study, we will focus on the second sub-period, essentially because available micro data allows us to look into households' financial assets only from the beginning of the 1990s (with the 1992 wave of the INSEE Household Wealth Survey). Moreover, analyzing the savings reallocation movements observed in the 1980s would demand a specific approach as some clear significant structural changes took place over this decade in terms of deregulation and financiarisation of the French economy, leading to a significant break in time series and in household behavior.

We thus consider evolutions of financial assets between 1992 and 2010, where survey data can shed some light on households' portfolio choices. As described previously, the period is shaped by life insurance expansion. This development came at the expense of all other asset categories, in particular liquid deposits, bonds, term deposits and shares in a lesser extent. More precisely:

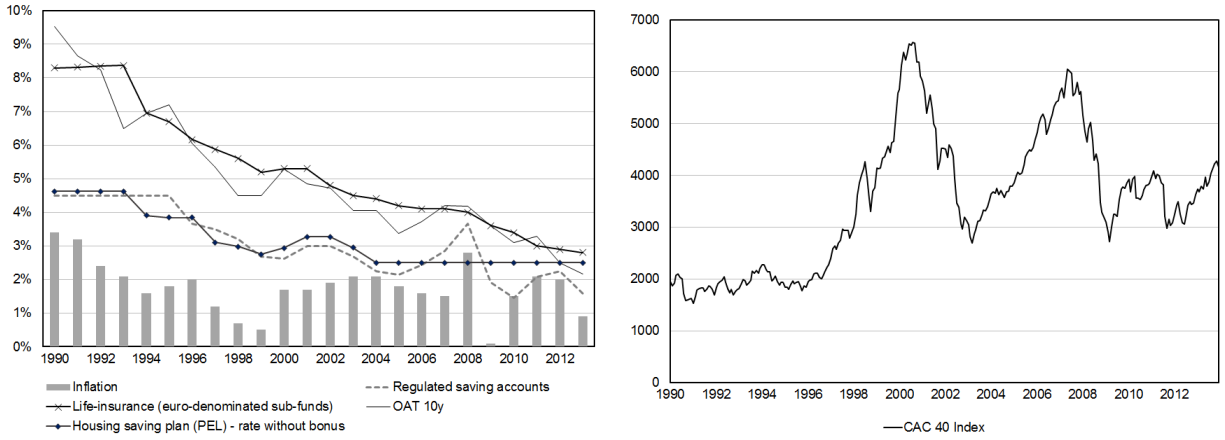
- life insurance developed at a brisk pace, from 13% in late 1991 to 38% of all financial assets in late 2010. Supply factors essentially explain its increasing popularity. Indeed, life insurance contracts became more and more easily shaped (introduction of free payments, 'unit-linked' products, etc.) and adjustable to the different savers' needs, with respect to retirement but also precautionary savings thanks to its relative liquidity. The saving vehicle has also clearly benefited from a favorable tax system. Finally, the development of bancassurance business enabled suppliers to reach a wide customer base. Note that a slowing down in its progress is visible between 1997 and 2000, likely in relation to the 1997-98 reform of its taxation scheme (see Box 1);
- the decline in liquid assets observed in the previous decade is well underway in late 1991 and appear as completed in the end of the 1990s. In the 2000s, transferable deposits and savings accounts represent slightly over 20% of total assets, with a share that fluctuates mainly with the business cycle becoming higher after financial crisis (in 2002-2004 after the IT bubble burst and again from 2008);

[11] National financial accounts of 2012, own calculations. The 'intermediated' investments cover life-insurance, contractual saving schemes, deposits and savings accounts, mutual funds shares. Direct investments include securities held by households for their own account.

- contractual savings underwent a notable development starting in the middle of the 1990s (up to 12% of total financial assets in the late of the 1990s), before returning to their original share in total financial assets during the second half of the 2000s (6%). The reasons of this downturn lie, on the one hand, in the permanent closure of popular savings schemes (PEP) in 2003[12], and, on the other hand, in changes in taxation of housing savings products (PEL) in 2002;
- bond securities and term deposits experienced a continuous drop in their household portfolio share, from 11% in late 1991 to 4% in late 2010, which can be partly explained by the parallel shift toward life insurance;
- shares (excluding non-quoted shares) moved from 21% in late 1991 to 12% in late 2010. They appear to fluctuate significantly in line with equity market values with a first boom reached in the beginning of the 1990s and a second peak in 1999-2000 following the strong performance of stock markets during the 1995-2000 period, and, on the contrary, some troughs in 2002 after the stock market bubble burst and in 2008 at the time of the financial crisis (see Figure 4).

Therefore, national accounts gives some useful highlights on macroeconomic historical background. Households have made significant structural changes in their portfolio allocation strategy from the beginning of the 1990s, with the savings taxation scheme appearing as a key determinant. The brief overview also puts forward the relative sensitivity of households' investment choices to business cycles.[13] These important features shall be borne in mind for the remainder of the study, so that each cross-sectional observation of household financial wealth has to be analyzed as dependent of a given economic and tax situation.

Figure 4: Returns on main financial investments



Data: *Banque de France, INSEE, Data Insight, FFSA, AFER.*
Note: The returns on the euro-denominated sub-funds of life insurance (which represent a large part of life insurance total outstanding stocks) and the 10-year French Treasury bonds (OAT) follow a parallel track over the period. This is explained by the fact that these euro contracts are invested - because of the guarantees included - mostly in long-term debt securities over the period, with a significant part issued by public treasuries. According to a study published by the Banque de France, up to 80% of the euro contracts funds were, after applying the look-through approach to collective investment schemes (CIS), deployed in debt securities in late 2010. In particular, 16.7% of total outstandings of euro-denominated contracts were invested in French government securities (see Birouk, Bouloux, Gandolphe, Hauton, and Viol [2011]).

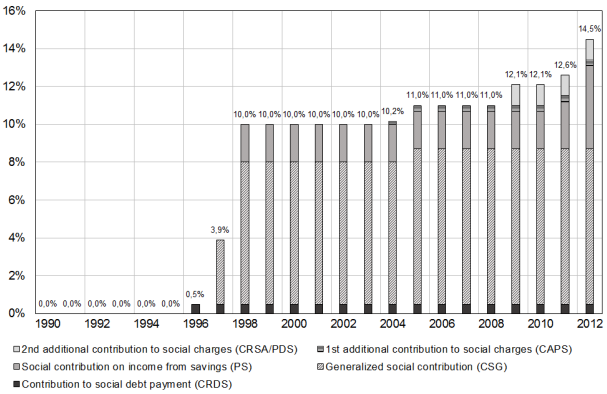
To remove inflation changes that could lead to misinterpretations, the following work is made on constant price data (Consumer Prices Index as deflator, 2009=100 to match with the period of collection of the last wave (October 2009 - March 2010)). For readers' information, 'real' gross wealth increased by 2.1 between late 1991 and late 2009, factors are respectively 2.6 and 2.0 for housing and financial wealth (and 0.9 for other assets, see Appendix A). An analysis conducted on data as percent of GDI would have been more relevant but too complex to manage with individual data.

[12] Opening a popular savings plan has not been possible since September 2003 but existing plans continue to live.
[13] Arrondel and Masson [2011] study how French households reacted to the last financial crisis and put forward the significant portfolio shifts made toward safe assets.

Box 1: Landmarks of the taxation of income from savings

☐ **Introduction of social security contributions:** Since 1991, five successive taxes have been implemented: the contribution to the social debt (CRDS) in 1996, the general social contribution (CSG) is extended in 1997 to incomes from capital, social contribution (PS) in 1998 and two additional contribution to social charges in 2004 (*'Contribution Additionnelle au Prélèvement Social'* (CAPS)) and in 2009 (*'Contribution pour le financement du Revenu de Solidarité Active'* (CRSA), *'Prélèvement De Solidarité'* (PDS)). They apply to earnings (wages, benefits, pensions) as well as to income from wealth (investments, annuities, rental income, capital gains, with exceptions for instance for some specific savings product: Livret A, LDD, Livret jeune, LEP). As for income from savings, social contributions have grown as follow:

Evolution of the taxation of savings income



Data: *own calculations.*

☐ **Creation of the Plan d'Epargne en Actions (PEA or share savings plan) in 1992:** A plan that allows French individuals to benefit from a tax exemption for capital gains, distributions and other income related to investments in equity.

☐ **Reform of life-insurance taxation scheme in 1997-98:** Life-insurance is governed by a specific tax system. Before 1998, benefits payable on surrender or death (except for premiums paid after the insured person's 70th birthday) were exempt from income tax. Tax on benefits on life-insurance contracts has been introduced by the Finance Act 1997 and the Finance Act 1998.

☐ **Changes in PEL characteristics for plans opened on or after 12 December 2002:** This home ownership saving plan offers a government bonus (capped to 1.525 euros), in addition to interest payments exempt from income tax (excluding social security contributions). For plans opened on or after 12 December 2002, the government bonus is restricted to plans that result in property loans and income tax is payable on interest earned on plans held for 12 years.

☐ **Changes in the standard taxation of the capital gains on shares:** In addition, the standard tax regime of the capital gains on shares (in direct holding) has undergone a number of evolutions over the period, including, without being exhaustive, the Finance Act 2000, which in particular led to a harmonization of different specific tax regimes, and the amending Finance Act 2005, which introduced a deduction based on the duration of ownership (substantially revised in 2012).

☐ **Codevi becomes LDD in 2007:** The regulated savings account called Codevi ('account for industrial development'), which is a completely tax-free product, becomes the LDD on 1st January 2007. The ceiling amount is raised from 4.600 to 6.000 euros.

☐ **Generalization of Livret A in 2009:** Since 1st January 2009, the special distribution right enjoyed by the three historical operators (La Banque postale, Caisse d'épargne, Crédit Mutuel) has been removed and all banking institutions have been allowed to distribute the most popular tax-free savings account called as Livret A (or Livret Bleu in the case of Crédit Mutuel).

2 Some microeconomic determinants of wealth accumulation

Understanding the global evolution of French households' portfolio proves to be challenging as the level and the diversification of assets held by a household depend on a wide range of factors. The literature devoted to households' accumulation is large. Among the main determinants we found the structural characteristics of the household (age, ability to save through occupation status or diploma), some psychological and often unobserved characteristics (willingness to pass on, risk aversion, personal business acumen) and the economic and financial environment (economic and job-market conditions, anticipations on the evolutions of assets prices, capital taxation treatment). The analysis is complicated by the fact that financial assets represent a stock that result from households' choices in present circumstances but that also reflect the past personal efforts of accumulation of savers and their previous generations through inheritance.

Thus, the key-role given to the particular history of the household, the multiplicity and the interactions of explanatory factors or the unpredictable evolutions of assets prices make it difficult to resort to a theory able to synthesize all these determinants. Hence, traditional models of savings such as the life cycle hypothesis have been developed, each focusing on some specific determinants. Next subsection reports a summarized description of the landmark studies.

2.1 Salient findings of existing literature

Keynes [1936] lists eight saving motives for households, which are presented in Browning and Lusardi [1996]. It is unlikely that a sole factor could explain all the saving features for a whole population or even for the same person over time. Nonetheless among them, three factors appear as key factors to explain saving behavior:

- Firstly a life-cycle motive, which enhances the household to *"provide for an anticipated future relationship between the income and the needs of the individual"* and thus smooth consumption over time;
- Secondly, a precautionary motive, which urges the household to *"build a reserve against unforeseen contingencies"* and thus to self-insure against unemployment risk, health risk and longevity risk;
- Thirdly, a bequest motive, which drives an household to *"bequeath a fortune"*.

The Life-Cycle Hypothesis: the role of age. The seminal idea is that individuals make rational choices at each age on the amount of consumption spending, respect to an intertemporal resources constraint. By saving and dissaving, individuals can adjust at different ages their consumption needs, regardless of the income they earn at this age. Through life-cycle savings or debts, the household is able to smooth its consumption throughout his life and finance various anticipated projects (retirement, real estate ownership, children education, etc.). The Life-Cycle Hypothesis (LCH hereafter) arose from the work of Modigliani in the early 1950s and its strength comes from both its own coherence and ability to generalize the initial theory of consumer choice. Namely two papers founded this theory. Modigliani and Brumberg [1954] focuses on the link between income and consumption observed at micro level while Modigliani and Brumberg [1979] focuses on the changes in aggregate savings rate over time and the business cycle.

What does the LCH implies. The pattern of life cycle enhances working households to accumulate wealth in anticipation of their retirement (and the consequent income reduction) and to dissave while in retirement. Thus the model predicts a well-known hump-shaped age-pattern of savings, with a consumption profile that disconnects from earnings profile. For instance, young households anticipating significant income increases in their careers can contract debt at the beginning. All these mechanisms are affected by institutional environment, including the organization of the pension system or the existence of debt constraints.

The role of preferences. Precautionary motive leads households to build wealth in order to face temporary and unanticipated declines in income, such as unemployment. Risk adverse households are more likely to overprotect themselves against any unanticipated event and thus save more than the LCH would predict for consumption smoothing. This motive can also lead to different savings rate respect to age: young households tend to build capital to serve as a buffer against future income fluctuations while older households will adjust their buffer according to evolving threats on the resources. **Bequest motive** enhances older households to save to pass on to descendants. While initial LCH works only considered inheritance as accidental, the bequest motive has since been largely investigated.[14]

These motives are complementary and thus are hard to disentangle. In addition, Keynes points out other explanations linked to psychological individual behavior (avarice or extravagance) that are difficult to rationalize and then to model.

The role of the economic context. Households may also differ in their savings behavior according to the period in which they live. For Wolff [1981], four factors may almost completely account for the variation in household wealth holdings that is not explained by age: differences in lifetime earnings and its distribution over time across households, differences in savings rates both over time and across households, differences in rates of return on assets holdings and differences in gifts and inheritances. Impacting current earnings, saving rates or rates of returns, the global economic context as such as short-term shocks thus affect the level of wealth (and potentially in a cumulative way as wealth is a stock variable), so that differences in household wealth holdings may be partly linked to the period or the age of birth (i.e. the birth cohort). Indeed, two households that belong to two different generations can be distinguished by their level of accumulation depending on economic and financial conditions in which they live.

Existing literature puts forward the importance of microeconomic factors in households' choices of accumulation, with age playing a central role. In this approach dedicated to French households' portfolio, we decide to focus – as a first step – on the life-cycle hypothesis, with the aim of identifying the age pattern of financial wealth. Besides, Wolff's analysis already gives intuition about the issues of identifying age from time (or birth cohort) effects detailed in a next section.

2.2 Matching micro and macro data

Interpreting changes in household financial assets involves the use of both macro and micro data. As pointed in the previous section, national financial accounts deliver a useful overview of how saving products have changed over time in terms of stocks and flows. However, these aggregate data do not allow to analyze the amounts and the distribution of household portfolios based on socio-economic criteria such as age, educational level, household size, or in view of some factors such as inheritance. Therefore, we complement the national account approach by survey data. The INSEE Household Wealth Survey (HWS) has been chosen for obvious reasons since its objective is precisely to describe the French household wealth situation with regard to financial, real-estate and professional assets and to provide comprehensive information on factors accounting for wealth accrual over the lifespan (family and professional biography, income and financial situation, inheritances and transfers, motives for the holding of the different asset). The survey was launched in 1986, but only the last four waves were finally retained in our study (conducted respectively in 1992, 1998, 2004 and 2010) as the first one does not provide information on the amount held on the different financial assets.

[14] See, among others, Kopczuck and Lupton [2007] who estimate the bequest motive between individuals; Piketty and Zucman [2015], who provide an overview of the empirical and theoretical research on the long run evolution of wealth and inheritance, and investigate models that are able to account for these trends, Garbinti, Lamarche, and Salembier [2012] who offer a comprehensive overview of socio-demographic determinants of inheritance in France, from 2010 Household Wealth Survey data.

We thus observe households' portfolio on a twenty-year period, from 1992 to 2010. The four waves of the HWS are used as pseudo-panel data. To track household wealth behavior across surveys and explain changes observed at a national level, two main steps have been completed on data: the realignment of survey data on national accounts and the formation of age cohorts.

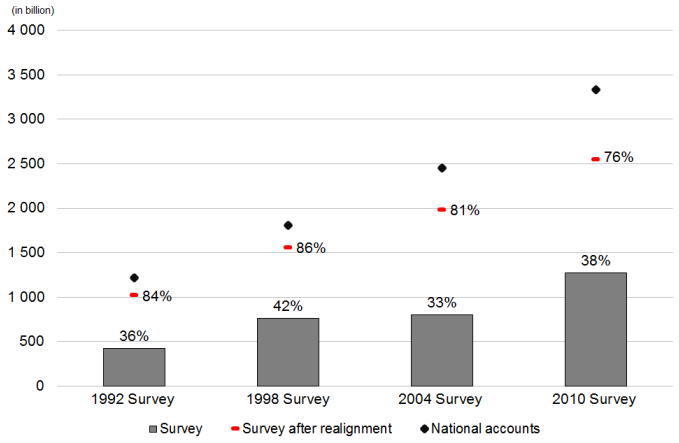
2.2.1 Realignment of survey data on national accounts

The first step is to reconcile survey data with national financial accounts. Actually, collecting precise information on household financial wealth – and particularly on the exact amount on assets – is a difficult exercise. Because of a significant under-reporting (or an absence of reporting), a certain lack of awareness by savers on the current situation of their portfolio and some mismatches in accounting definitions between both sources, the HWS do not succeed in fully replicating national accounts aggregates. The coverage rate averages just over one third and varies across surveys: the representativeness of total financial assets is 36% in the 1992 survey, 42% in the 1998 one, 33% in the 2004 one and 38% in the 2010 one (see figure 5 and Appendix B). Disparities between micro and macro sources also vary significantly by financial assets. These two types of variation – across surveys and across saving products – introduce biases in our pseudo-panel data that should be minimized to properly compare the amounts of household financial assets over time.

One solution is to use national accounts figures as benchmarks and to follow the same scope of assets over the period. This operation removes variations in underestimation due to misreporting across surveys, and counters mismatches in accounting definitions or changes in the questionnaire used for the successive surveys. To realign survey data on national accounts, we rely on the results of previous works conducted on this area, in particular by the Demographic and Social Statistics Directorate at INSEE. The resetting process is made by financial assets categories and remains uniform for each household. Generally speaking, as emphasized in this literature, matching both sources of data is challenging for a number of practical reasons. Appendix B offers a comprehensive picture of the set of obstacles encountered, the steps conducted to realign data and the retained scope for financial assets.

Figure 5 shows the gain in coverage rate brought by realignment. There is a clear improvement as regards amounts and asset allocation. Yet, the representativeness compared to national accounts (restricted scope) is not complete and still varies by survey: 84% in 1992, 86% in 1998, 81% in 2004 and 76% in 2010. This gap stems notably from a definition issue about non quoted shares (defined or not as professional assets) and should be borne in mind when interpreting our results even if it should not significantly impact them.

Figure 5: Comparison of household financial assets between national accounts (in billion Euro) and HWS data



Data: *Banque de France, Insee (HWS).*

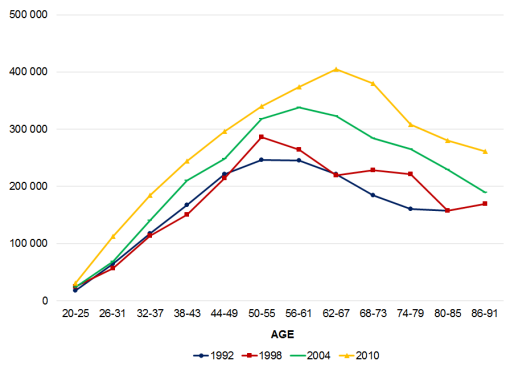
2.2.2 Decomposing the data into birth cohorts

The second step consists in building birth cohorts. To analyze age and cohort effects on household wealth across surveys, each sample is organized into households' groups according to their date of birth. The study relies on the observation of fifteen cohorts, built in steps of six years, which range from people born between 1901 and 1906 for the oldest to people born between 1985 and 1990 for the youngest. Appendix C provides a table displaying cohort composition and additional information on their elaboration.

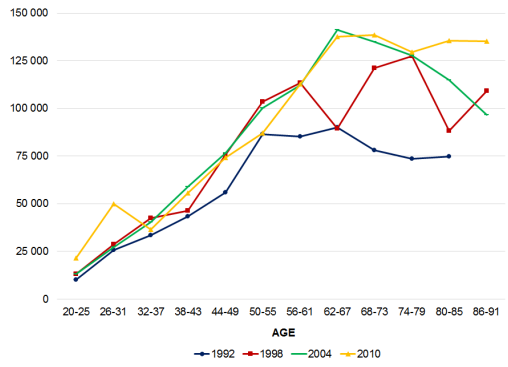
2.3 First empirical facts on French households' behavior

Cross-sectional analysis When considering French households' wealth patterns, a typical approach is to plot wealth against age at a given period (see Figure 6). An inverse U-shaped curve is frequently observed for mean and median age-wealth pattern through cross-sectional survey data, appearing as a strong support to the life-cycle hypothesis. If the inverse U-shaped curve clearly stands out for gross wealth with a peak around 60 years old (that progressively shifts toward 65), the age effect appears less well shaped in the case of financial assets with a peak at a later age and a decumulation phase much less pronounced. These graphs only provide as screenshot of the reality. Cross-sectional data do not allow to conclude on any age effect since they intermix age, birth cohort and period effects. Indeed, the distribution of wealth at a given date captures the life cycle path of wealth but also the effects of economic or demographic conditions known by some birth cohorts during their lifespan (productivity, unemployment, institutional environment and welfare protection, etc.) as well as period effects. More precisely, the age effect captures the changing household characteristics during the life cycle commonly shared by households. The birth cohort effect affect differently generations, leading to a distortion of the age-pattern of some birth cohorts due to shaping practices or changes in the economic context. Lastly, the period effect is related to variations due to global shocks (on asset prices for instance) or measurement errors, affecting all age groups simultaneously.

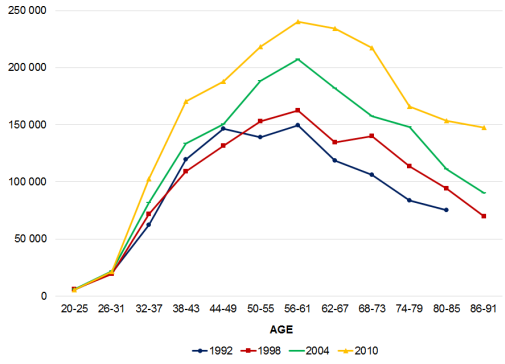
Figure 6: Evolution of household wealth over lifespan, cross-sectional analysis



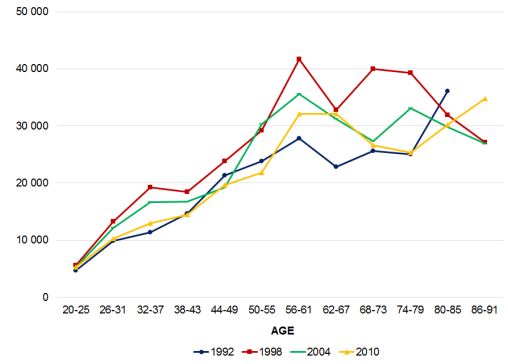
(a) Gross wealth (in 2009 euros), Mean



(b) Financial assets (in 2009 euros), Mean



(c) Gross wealth (in 2009 euros), Median

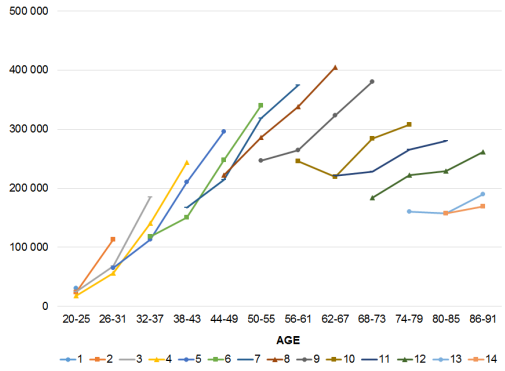


(d) Financial assets (in 2009 euros), Median

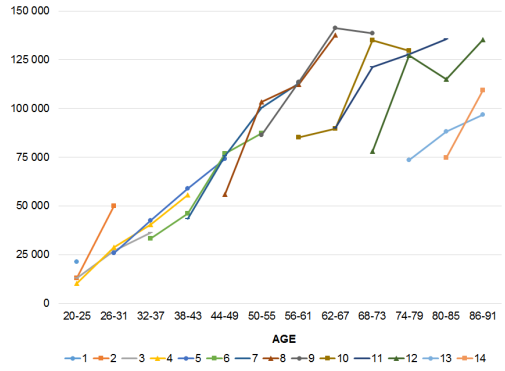
Data: *HWS.*

Longitudinal analysis Following each cohort across the four surveys provides quite a different picture (see Figure 7). Here, evolutions for a same cohort reflect the age effect mixed with the time one, whereas vertical differences between cohorts at the same age measure the cohort effect mixed with the time one. Between 1992 and 2010, we observe no clear sign of decumulation. Most of groups increase their mean gross and financial wealth; only older cohorts, for instance households from 62 to 67 (cohort 11) in 1992, show a relative stagnation of their average gross wealth, and no clear path with regard to financial portfolio (in mean and median terms). These patterns appear relatively similar to the profiles found by Attanasio [1993] in his cohort analysis of American households' total financial assets on the period 1980-1990. A second observation is that birth cohort groups show a similar pattern of building up during their working life, with - at a given age - close mean amounts of financial assets (in real terms) between 20 and 60 years old. After 60 years old, they experience different financial wealth - regarding mean figures - with an upward shift observed in favor of generations that became retired in the 2000s compared to oldest ones. Yet, because of the propensity of HWS to under-estimate amounts of financial assets in particular for wealthier households (due to a weak presence in the sample and a larger under-estimation of assets hold by the richest, cf. Appendix B) along with the highly concentrated distribution of financial assets, looking at median evolutions appears more representative, even if it cannot reflect the large diversity of age-patterns according to the level of income or education (see part 4.2). Figure 7d does not indicate clear differences in financial accumulation between generations (note that the 1998 amount estimations of financial assets suffer from technical issues, which mainly explain the peaks observed at later ages). So, if an upward shift is visible on gross wealth, we cannot conclude on such a finding regarding financial assets. Besides, the differential evolution in mean and in median should not be investigated too much as it could indicate a distortion of the financial wealth dispersion across the period as well as measurement issues.

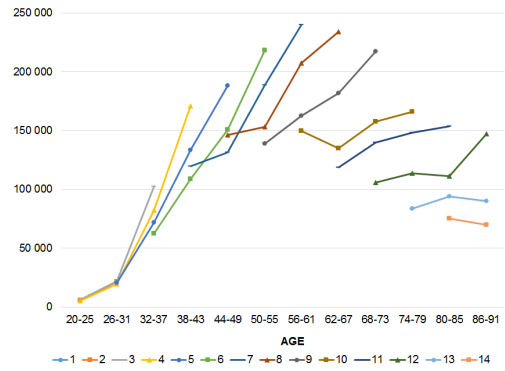
Figure 7: Evolution of household wealth over lifespan, longitudinal analysis



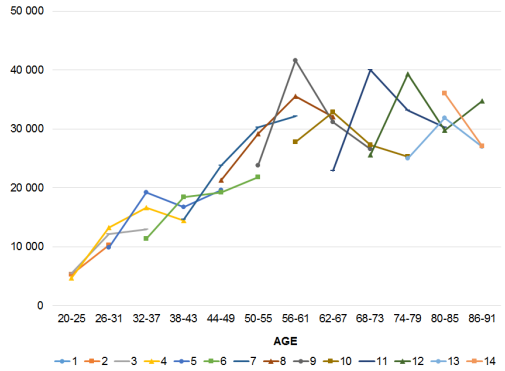
(a) Gross wealth (in 2009 euros), Mean



(b) Financial assets (in 2009 euros), Mean



(c) Gross wealth (in 2010 euros), Median



(d) Financial assets (in 2009 euros), Median

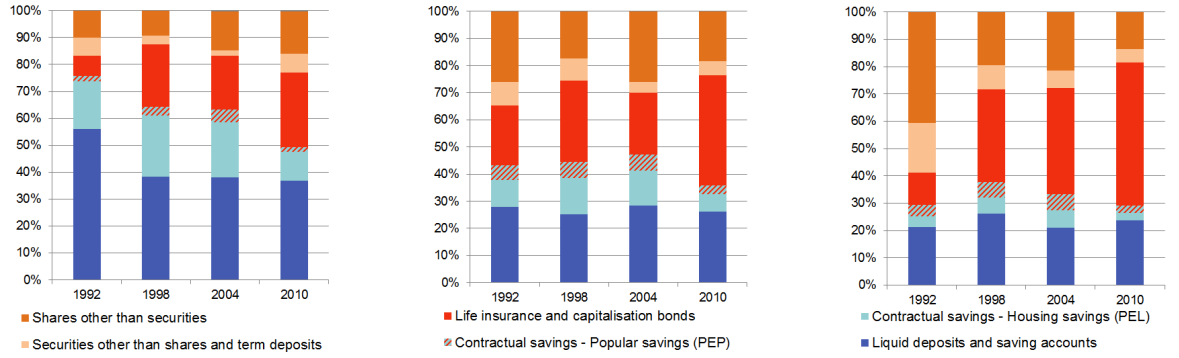
Data: *HWS.*

As cohort groups can be only tracked on a 20 years period, we cannot compare them at each age; however, these graphs challenge the life-cycle hypothesis and might suggest the existence of other dominant deter-

minants in wealth building that intermix with age over the period. Thus, the life-cycle-hypothesis needs to be questioned. Such an approach requires to go further than descriptive statistics since it only allows to separate two effects, leaving the impact of the third one impossible to quantify. In the first case, we look at age and period effects, missing the birth cohort effect. In the second case, with the longitudinal analysis, we can observe age and birth cohort effects but missing time effects. We then adopt a strategy which aims at disentangling the age effect from other associated effects (date of birth or date of observation) that commonly affect financial assets accumulation.

A look at portfolio allocation Before proceeding with the modeling part, let's display what descriptive statistics provide in terms of asset allocation. Behind volume changes illustrated previously there are important shifts in portfolio allocation across the lifespan (Figure 8). Young people start to accumulate liquid and safe assets (savings accounts, home savings plan) which respond to both precautionary and home ownership motives. Diversification comes afterwards, with a greater investment in equity and life-insurance that turns noticeable at the late thirties. With retirement, we observe a reshaping of households' portfolio with life-insurance taking a predominant place. This behavior pattern is seen for each cohort of our pooled cross-sections sample. That is to say, for a given age, cohorts' portfolio present a quite similar allocation in terms of liquidity or risk features, even if we observe substitutions between some asset classes (Figure 9). For instance, households aged 44-49 in 2010 hold proportionately more life insurance and less shares than the same age class in 1992. If it cannot be concluded about the long-term stability of this pattern, as we only observe cohorts during twenty years, the presence of both an age and a cohort effect on financial allocation is obvious.

Figure 8: Evolution of household portfolio structure over lifespan, longitudinal analysis

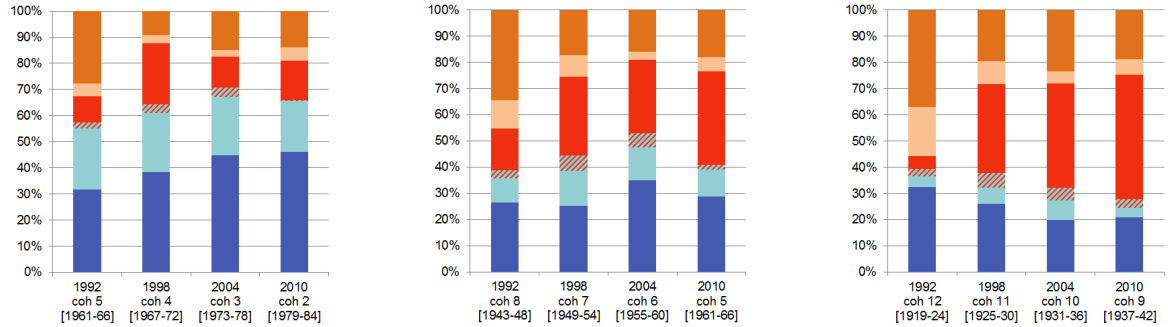


(a) Young, from 20-25 years old in 1992 to 38-43 years old in 2010 (cohort 4)

(b) Intermediate, from 38-43 years old in 1992 to 56-61 years old in 2010 (cohort 7)

(c) Senior, from 62-67 years old in 1992 to 80-85 years old in 2010 (cohort 11)

Figure 9: Evolution of household portfolio structure over lifespan, cross-sectional analysis



(a) Young, 26-31 years old

(b) Intermediate, 44-49 years old

(c) Senior, 68-73 years old

Data: *HWS.*

Note: Seniors surveyed in HWS differs from seniors in the total population as people living in retirement home are not included in the sample.

3 Exploring the Life-Cycle Hypothesis through modeling

3.1 Disentangling age, cohort and period effects

Thereby, we implement a model which tries to explain wealth accumulation for different households according to the three major effects previously mentioned: age, cohort and period. Through HWS cross sections, we have quasi-panel data. Thus, we observe in period t for an individual i his age denote a_{it}, from which we can construct a year of birth (cohort) variable, $c_i = t - a_{it}$. For this individual, we observe the financial assets accumulation Y_{it}.

Consequently, we obtain the following specification:

$$Y_{it} = \mu_1 + \sum_a \alpha_a d_{it}^a + \sum_c \gamma_c d_i^c + \sum_t \pi_t d_t + \epsilon_{it} \tag{1}$$

where the different dummies are described by the following definitions:

$$\textbf{For the age effect: } d_{it}^a = \begin{cases} 1 & \text{if person } i \text{ is aged } a \text{ at the year } t \text{ of the survey} \\ 0 & \text{if not} \end{cases}$$

The coefficient of age effect summarizes all the effect linked to the age of the household.

$$\textbf{For the cohort effect: } d_i^c = \begin{cases} 1 & \text{if person } i \text{ was born in year } c \\ 0 & \text{if not} \end{cases}$$

The coefficient of cohort effect summarizes the effect linked to the birth cohort of the household.

$$\textbf{For the period effect: } d_t = \begin{cases} 1 & \text{if wealth was recorded for person } i \text{ at the year } t \\ 0 & \text{if not} \end{cases}$$

The coefficient of period effect captures either measurement errors or macroeconomic shocks that occur at the time of the survey.

This model brings out clearly that the additivity imposes quite strong restrictions on the description of the evolution of the wealth accumulation since all "cross terms" (for example the effects linked to a mix between cohort and period effects $d_i^c * d_t$) are dumped into the residual term ϵ_{it}.

Two sets of identification problems arise. First, each of the sets dummies sums to one. This problem of colinearity can be dealt by setting coefficients to zero for a particular population, which will be considered as the reference population (e.g. the youngest age for the age coefficient). The second issue is quite more challenging. Estimation in this case is problematic because we expect each variable to be linearly related to Y_{it} while at the same time A, P and C are linearly related to each other. The linear dependency of the three temporal dimensions always creates an identification problem: Age, Period (year of the survey), and Cohort (year of birth) are exact linear functions of each other because of the identity Age = Period – Cohort. Thus we cannot estimate unique effects of each of these three variables.

These two identification issues reveals a linear simultaneous equation system with fewer equations than unknowns. This is the heart of the APC model. Many solutions to the APC problem have been suggested. Most of them use assumptions or prior information to transform the underlying problem into a well-posed system. Tackling the APC identification issue remains difficult and the debate is always lively in the econometricians' community. For example, Heckman consider this identification issue as an intractable problem without imposing constraints.

"The age-period-cohort effect identification problem arises because analysts want something for nothing: a general statistical decomposition of data without specific subject matter motivation underlying the decomposition. In a sense it is a blessing for social science that a purely statistical approach to the problem is bound to fail." (Heckman and Robb [1985])

3.2 Tackling the APC identification scheme

The technical APC literature has focused on introducing restrictions on parameters in order to identify the model. Many solutions have been suggested to disentangle these three effects. Among others, a first set of strategies imposes restrictions on the time coefficients, as in Deaton and Paxson [1994]. Another solution is to proxy one of the APC variables to remove the collinearity. Kapteyn, Alessie, and Lusardi [2005] adopt this strategy using as proxies for the cohort effect the aggregate level of gross national product and changes in Social Security.[15] A different approach is implemented by Yang, Fu, and Land [2004] who developed an Intrinsic Estimator method (IE) that introduces a constraint based on factorial analysis (either through the projection method or the principle components regression method). Each strategy owns its own limits, often impeded by constraints that appear arbitrary.[16]

The remark from Heckman and Robb encourages us to develop a readable identification method that allows us to understand the constraints and their implications on the results. In our paper, we choose to focus on two methods, the one from Deaton and Paxson [1994] and the one from Chauvel [2013a].

3.3 Deaton and Paxson as a first step

In this part, we use the seminal methodology developed by Deaton and Paxson [1994]. Their paper examines issues of life-cycle savings, growth and aging in Taiwan based on the study of 15 consecutive household income and expenditure surveys from 1976 through 1990. Their paper is mainly concerned about savings and consumption, thus flow variables. Thereby consumption is decomposed into the three components. We adopt their model for financial assets accumulation, thus stock variable.

3.3.1 Identification strategy

To be able to identify the three effects, they restrict time coefficients imposing two constraints: period effects sum to zero (equation 2) and are orthogonal to a time trend (equation 3), forcing any time trend to appear as a combination of age and cohort effects and therefore to be predictable. Their approach allow the model to be just identified. Formally, they impose:

Deaton and Paxson's identification strategy

$$\sum_t \pi_t = 0 \tag{2}$$

$$\sum_t t * \pi_t = 0 \tag{3}$$

Indeed, macroeconomic time evolution is decomposed into two part: a trend and a cycle. The cycle is completely imputed to the period effect and the trend is charged to both age and cohort effect without any additional information. Thus period effects reflect shocks affecting the full population at a given date. Period effect is constrained to represent a complete cycle that means zero effect on wealth accumulation over the time sample and also a null effect on the accumulation trend.

[15] Focusing on household gross wealth accumulation over life cycle in Netherlands, the authors use two indicators - productivity growth and changes in Social Security benefits - to proxy economic factors and capture the differences in wealth accumulation across generations. Note that they obtain very similar results on age profile with the Deaton and Paxson specification in a previous version of their paper.

[16] For those who want to explore further, see Chauvel [2013a] for a summary of the methods implemented in the literature.

3.3.2 Results

Following the model developed by Deaton and Paxson, we represent two graphs for each set of estimation namely the age effect and the cohort effect (Figures 10a and 10b).[17] Each effect is shown with its 95% confidence interval (dashed lines). Estimation results can also be found in Appendix D.

To avoid potential bias due to edge effects for younger and for older, we limit the sample of the econometric analysis. Indeed, the survey may have potentially strong selection bias for these both populations. A first bias appears with the young population surveyed. It is likely that youngest people independent from their parents have some other specific characteristics, which could affect wealth accumulation. Thus keeping only households whose age is over 25 reduces the bias and does not compromise our estimations. A second bias appears at older ages for two reasons: 1) differential mortality is correlated with wealth, thus it is likely that lively older households might be richer, 2) surveys do not take into account people living in retirement home and introduce a selection bias when surveying the elderly. In both cases, high savers are more likely to remain in their homes at old age, implying potential bias at the upper end of the age distribution. Keeping only households whose age is under 79 reduces the bias and limits the risk of compromising our estimations.

The results do not seem completely in line with the traditional Life-Cycle-Hypothesis as there is no sign of clear decumulation after retirement (see Figures 10a and 10b, coefficient table in Appendix D). The profile shows a clear accumulation of total financial assets until the age of 55. Then accumulation seems to stagnate. At the early age, there is a sharp increase in the accumulation process. This result could be explained by different motives or characteristics covered by the age-pattern such as the willingness to accumulate financial assets for the purpose of a real estate purchase. After thirty, the accumulation of financial assets continues to grow at a slower pace until the age of retirement. After the retirement, French households do not seem to decumulate financial assets. The same model is estimated with gross wealth (see Figures 11a and 11b, coefficient table in Appendix E). The shape of the age-pattern exhibits a similar curve (with a clear difference of scale). To our knowledge, no study estimated household age-wealth profile tackling the APC issue. Similar findings are, though, shown by studies based on descriptive cohort analysis of repeated cross-sections. Studying the income, asset and decumulation patterns of over 10,000 age pensioners in Australia, Wu, Asher, Meyricke, and Thorp [2014] show that age pensioners, on average, preserve both financial and residential wealth. Furthermore, the absence of (or very low) decrease in housing equity and home ownership among elderly people appears well documented in literature (see Chiuri and Japelli [2010], Angelini, Brugiavini, and Weber [2011], Nakajima and Telyukova [2011], Banks, Blundell, Oldfield, and Smith [2012]). For financial assets, there are fewer studies with contrasted results. Using the SHARE (Survey of Health, Ageing, and Retirement in Europe) survey, Romiti and Rossi [2014] show that elderly households from a sample of 11 European countries mildly decumulate their assets as they age. If the elderly seem to be reluctant to decumulate in particular their housing wealth, the authors report a decline in financial wealth among the observed cohort groups.

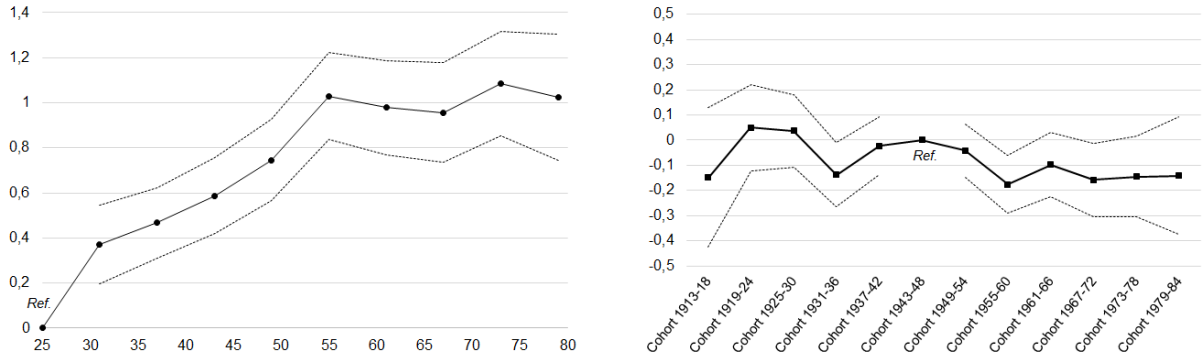
Several elements could explain the absence of decumulation of French elderly: the willingness to save for transmission to offsprings, the French social welfare model (pay-as-you-go pension system with relatively high replacement rates, protective social security scheme) that reduces the need to dissave after retirement, or the need to save for new costs associated with the old-age dependency. Financial literacy could also be part of the answer. A growing strand of literature look at the role played by this factor in saving decisions and wealth accumulation.[18] Low financial knowledge could notably explain the existence of unbalanced portfolios with a dominance of illiquid asset (such as housing wealth), which are difficult to liquidate to smooth consumption. Households with low financial knowledge might also be less aware of the financial products available to deplete their stock of assets efficiently. These hypotheses suggested by Romiti and Rossi [2014] are tested on SHARE data. Results show that higher financial literacy reduces portfolio

[17] Identification constraints are implemented through dummies' transformations as in Boissinot (2007), see Appendix D.
[18] See Lusadi and Mitchell [2014] for an overview of this body of economic research.

imbalance and fosters both net worth and housing wealth decumulation (through a reduction in home-ownership), but does not have any impact on financial wealth. Regarding financial assets, the absence of a decreasing trend after retirement could result from reallocations from housing or professional assets to financial ones, with the sale of estates at old age, the moving into smaller units or through home equity release products. However, as seen before, this type of asset reallocation should be on a small scale. In France, the last housing survey ('Logement' 2006) indicated that the ratio of owner-occupied only decline after 80 years old, and the part of French households over 60 years who moved in a new unit in the last four years was rather low (10,2%, see Driant [2010] for more detailed statistics). Furthermore, operations or financial services allowing to release equity from housing assets (life annuity sales ('viager') and equity release mortgages ('prêt viager hypothécaire')) remain scarce in France, with a relatively low level of success.

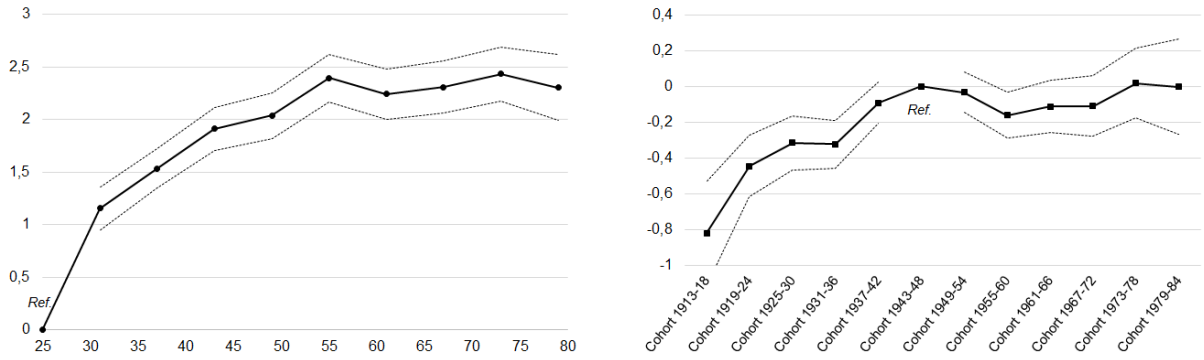
As regards the cohort effect, coefficients in the estimation on financial assets exhibit a flat curve around zero. Consequently, the method implemented shows no significant birth cohort effect on financial wealth accumulation. It means that no cohort has benefited from particular conditions on financial markets or of a different nature. However, the pattern of the cohort effect on gross wealth exhibits a clear growing trend that stopped for cohorts born in the beginning of the fifties and remains flat then. These results are in line with the existent literature dealing with French households' gross wealth accumulation (see Guillerm [2015]) and show a continuous increase in gross wealth from generations born in the 1910s until the baby boom ones, and a stagnation afterwards. Both estimations thus suggest that the wealth disparities observed between generations come exclusively from the real estate sector. As indicated in Arrondel and Masson [2013], the oldest cohorts have benefited from a strong policy in favor of home-ownership in the 1950s and the 1960s associated with low or even negative real interest rates due to a high inflation, whereas the rise in prices has disadvantaged the youngest generations.

Figure 10: Financial Wealth: coefficients obtained by Deaton-Paxson method



(a) Age coefficient (b) Cohort coefficient

Figure 11: Gross Wealth: coefficients obtained by Deaton-Paxson method



(a) Age coefficient (b) Cohort coefficient

Note: Age is modeled using a piecewise linear function in order to suit better the representation of this continuous variable. Figures show age coefficients after recalculation from estimated coefficients displayed in Appendix D.

3.3.3 Robustness checks

Dealing with weightings. Regressions take into account survey weights. This choice is not obvious as results differ substantially with and without weighting: the estimation on unweighted data shows the existence of a significant linear cohort effect on financial wealth, increasing over generations (see Figures 12a and 12b). After conducting various tests to understand the contribution of weights, we suspect that this discrepancy could be explained by the discontinuity of collection and sampling[19] methods between the first three surveys and the 2010 one.

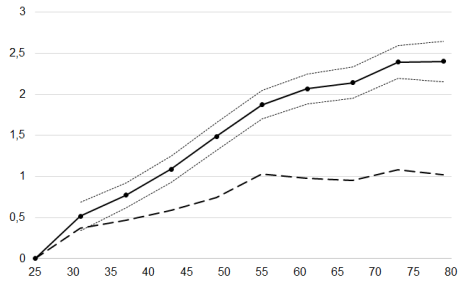
Dealing with representativeness. After realignment, cross-sections show coverage rates compared to national accounts close to 80% but not equal and that tend to decrease from 1992 to 2010 with a little peak for the 1998 survey (cf. Figure 5). As indicated in the previous section, the remained gap is mainly explained by the difference of scope between the one from national accounts and the retained one for financial assets in this paper (excluding retirement savings, non quoted shares reported as professional assets in HWS, etc.). By failing to take account a part of the financial portfolio as defined in national accounts, we may overlook a growing trend over generations, lowering real amounts of financial assets in the 2000s compared to the 1900s. To be sure these differences in representativeness do not distort our results, we run the previous APC estimation on total financial assets amounts completely realigned on national accounts.[20] The cohort effect is, as expected, more pointing upward than in the reference case but remains globally not statistically different from zero (see Figures 13a and 13b).

Dealing with self-employed people. Previous estimations are computed on the whole population. But households may have specific financial accumulation process according to their occupation status. Indeed, for self-employed people (including farmers), the boundary between personal financial wealth and professional assets is often blurred and hard to catch in surveys, which may disturb estimations. That is why it is common practice to exclude self-employed people - or at least farmers - from the sample. We test the robustness of our estimations successively exiting farmers and self-employed people as a whole. Results and patterns do not significantly change (see Figures 14a and 14b for the second case tested).

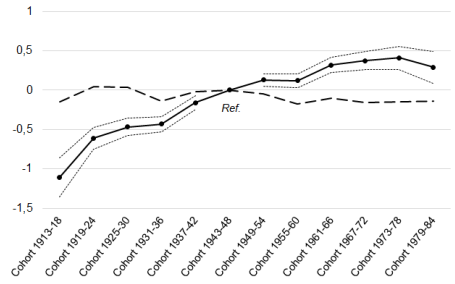
Dealing with household structure. The age-pattern of financial accumulation displayed above is certainly affected by household structure, as living as a couple or becoming widowed directly impact the amount of the household financial assets. To remove this structure effect and check the Life-Cycle Hypothesis at an individual level, we conduct the same estimation as before with the dependent variable defined as the financial wealth divided by the number of adults in the households (in log terms). Results show a quite similar pattern to the households' case regarding cohort effect, but slightly differ about the age effect (see Figures 15a and 15b). Whereas a stagnation was recorded at the households' level, individuals' amount of financial assets keeps on growing after retirement, supporting the absence of decumulation expected by the LCH. This phenomenon can be easily explained by the reduction in the household size in old age due to the spouse's death and the partial or complete transmission of wealth to the living spouse.

[19] Aside from the fact that populations surveyed in 2010 were selected from the housing tax files instead of census data for previous surveys, wealthier households were oversampled in the 2010 cross section.

[20] Uniform realignment for each household and for each financial assets category, which is consequently less precise at a microeconomic level than the one realized for the restricted scope.

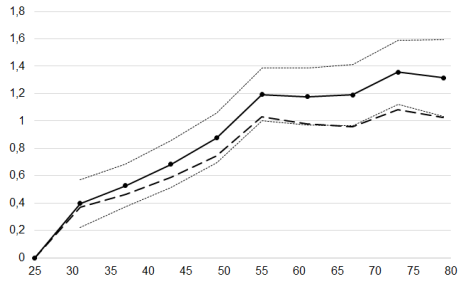


(a) Age coefficient

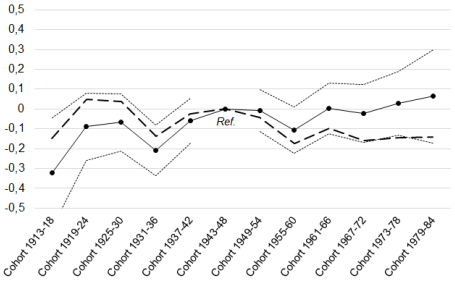


(b) Cohort coefficient

Figure 12: Financial Wealth: coefficients obtained by Deaton-Paxson method without weighting (reference case in dotted line)

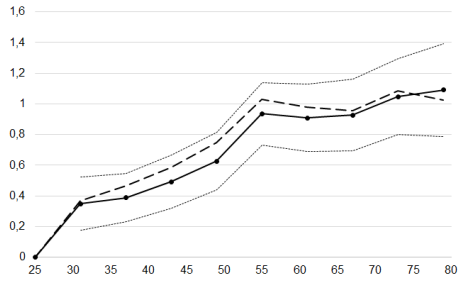


(a) Age coefficient

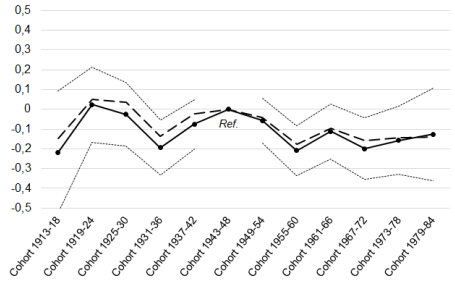


(b) Cohort coefficient

Figure 13: Financial Wealth: coefficients obtained by Deaton-Paxson method with complete realignment on National Account (reference case in dotted line)

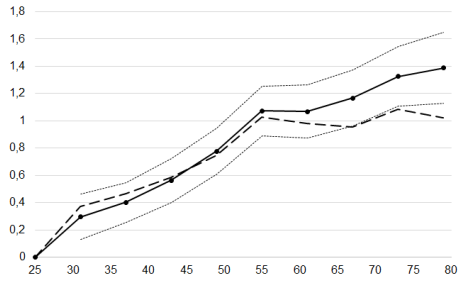


(a) Age coefficient

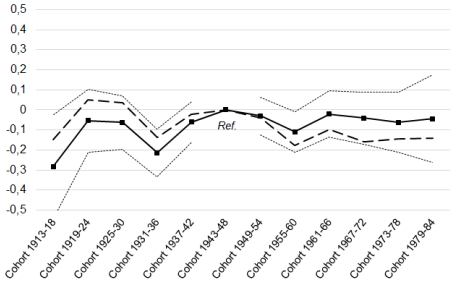


(b) Cohort coefficient

Figure 14: Financial Wealth: coefficients obtained by Deaton-Paxson method exiting self-employed people and farmers (reference case in dotted line)



(a) Age coefficient



(b) Cohort coefficient

Figure 15: Financial Wealth: coefficients obtained by Deaton-Paxson method with financial wealth divided by the number of adults in the household (reference case in dotted line)

3.3.4 Caveats due to the constraints imposed

The method developed by Deaton and Paxson brings a convenient way to answer the APC problem, even if their identification strategy rises some issues as to the proper disentangling of age and cohort effects.

Firstly, we apply their model to a stock variable instead of a flow variable. Thus, if period effects may not explain secular changes in consumption or earnings, this assumption may not hold in the case of wealth accumulation as macro shocks can durably affect the amount of assets. As a consequence, in respect to the assumption made on the period effect, age and cohort coefficients could embed a macroeconomic trend which is notably difficult to distinguish from the accumulation profile only attributable to the age. In the case of housing wealth, housing price evolution in the 2000s (considered as a period effect) may have explained a significant share of the linear trend observed over the period, and thus both should not be orthogonal. By definition, the same argument can be opposed concerning gross wealth. In the case of financial wealth, the existence of determinist macro shocks is less obvious. Evolutions on stock markets are more volatile and only partially pass on to the level of financial assets, as shares represent a small part of households' portfolio. Thus the bias seems weaker but still should be taken with caution.

Secondly, a consequence of these constraints is the uniformity of time shocks, affecting all households in the same way regardless of age. Yet, the uniformity of these shocks can be challenged. Households differ in asset portfolios choices and therefore cannot benefit in the same way from the same macroeconomic shocks.

Thirdly Deaton [1997] points out another problem:

> "This procedure is dangerous when there are few surveys, where it is difficult to separate trends from transitory shocks[...]Only when there are sufficient years for trend and cycle to be separated can we make the decomposition with any confidence"

With only four cross-sections, but a 20-year period, recovering correct business-cycle effects might be complicated.

These limits enhance to back our findings by testing a different modeling. We tackle the first limit using the identification strategy developed by Chauvel [2013a], where no restrictive assumption is imposed on the form of the period effect. We believe this approach could better fit the stock issue.

3.4 Chauvel detects fluctuations around linear trends

Chauvel [2013a] identifies two major problems of APC modeling. The first difficulty relies in the analysis of the long term linear trend. The author puts forwards the fact that distinguishing age, cohort and period effects in the linear trend is doomed to be uncertain since it requires to impose arbitrary constraints. According to Chauvel [2013a], only fluctuations above and below the trend contain meaningful information that can be truly interpreted. The definition of a "detrended" cohort effect (over or below the linear trend) is the one solution in order to identify specific cohort behaviors. The second problem with usual APC models is that they suppose the cohort effect to be stable over life course whereas they are not designed to test this hypothesis and there is no reason why this effect could not vanish or be reinforced over age-span.

3.4.1 Identification strategy

Consequently, Chauvel [2013a] suggests an APC-Detrended model which focuses exclusively on the fluctuations of the effects of age, cohort and period around their respective linear trend, i.e. the non-linear effects when linear trends are absorbed (APC-detrended coefficients or APCD).[21] This decomposition thus aims at

[21] Chauvel [2013b] also suggests an APC-Hysteresis model which addresses the question of the cohort effect stability over life-span. In accordance with his second criticism, Chauvel highlights the importance of identifying whether the differential effect across cohorts is durable, or only due to a specific moment in the early life of cohorts, or conversely appears as a specific

detecting accelerations or decelerations in age, cohort or period trends, and provide indications on relative intercohort differences. We take a step back from absolute progression and wonder, given a macroeconomic trend for instance reflecting global rising standards of living, whether each cohort profits in the same way from this linear trend or whether some have relatively more benefited from it than others.

In practice, Chauvel imposes three sets of technical constraints to provide a unique decomposition of the deviations of APC variables around their respective mean and with a zero slope. The first set of constraints implies that coefficients of age, cohort and period vectors respectively sum to zero and thus appear as deviation to their respective mean. It tackles the first identification issue mentioned above (dummies sum to one). The second set of constraints implies coefficients to be detrended, imposing that the slope of these coefficients is null (equation 4). It tackles the second identification issue (colinearity of variables). The third set removes the first and the last observed cohorts (equation 7). Besides, linear trends are absorbed by two time parameters. Contrary to Deaton-Paxson, this method allows to remain agnostic on the nature of the trend. Formally he imposes the following restrictions (developed in further details in Appendix E):

Chauvel's identification strategy

Firstly: The first step of Chauvel's indentification strategy corresponds to re-express each effect as a deviation from the mean. This centering creates no distortion with respect to assessing patterns in estimated effects. The coefficients α_a^*, γ_c^* and π_t^* are deviation to the mean.

Secondly:

$$\sum_a age * \tilde{\alpha_a^*} = 0 \quad \sum_c cohort * \tilde{\gamma_c^*} = 0 \quad \sum_t period * \tilde{\pi_t^*} = 0 \tag{4}$$

with the linear trend:

$$age = a - \frac{(a_{max} + a_{min})}{2}, \quad cohort = c - \frac{(c_{max} + c_{min})}{2}, \quad period = t - \frac{(t_{max} + t_{min})}{2}$$

with $\tilde{\alpha_a^*}$, $\tilde{\gamma_c^*}$ and $\tilde{\pi_t^*}$ are for each effect the curvature component. The curvature component is given, for the age effects for example, with the linear trend removed:

$$\tilde{\alpha_a^*} = \alpha_a^* - age * \alpha_L \tag{5}$$

where in this case α_L, the linear trend can be described by:

$$\alpha_L = A * \sum_a age * \alpha_a^* \tag{6}$$

Thirdly:

$$min(c) < c < max(c) \tag{7}$$

3.4.2 Results

Following the APCD model presented above, Figures 16a and 16b present the relative age and cohort effects (coefficient table in Appendix F). Each effect is shown with its 95% confidence interval (dashed lines).

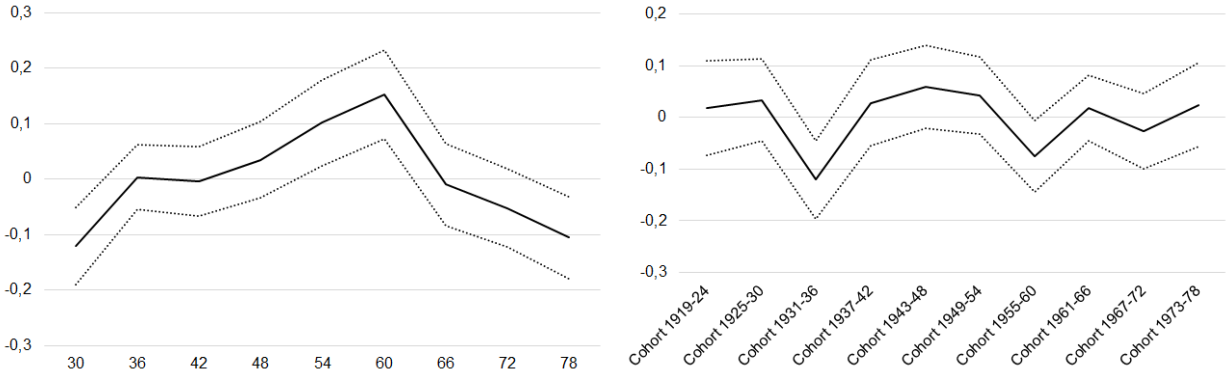
The relative ("detrended") age effect exhibits a bell-shaped curve that looks like to the age-pattern obtained with Deaton and Paxson's methodology removing the linear trend. Thus in the early age, households begin with an amount lower than the mean one observed on the entire lifespan but tend to accumulate rapidly until their mid-thirties. Then households continue to accumulate at a faster rate than the average rate. Then after sixty, French households tend to accumulate at a slower pace than the average (without knowing the slope of the trend, no conclusion can be drawn on the existence of an absolute decumulation).

cohort trait that increases with age. As we do not find significant differential cohort effects regarding financial wealth, this aspect is not developed in this paper.

Concerning relative cohort effects, results are similar to the Deaton and Paxson's modeling. No cohort seems to have benefited more than the other ones from a particular economic situation for financial wealth building. Two cohorts seem evenly to have been weakly disadvantaged compared to the mean: people born between 1931 and 1936 and between 1955 and 1960. Therefore, Chauvel's method indicates no clear specific detrended cohort effect looking at household financial assets. In other words, birth cohorts could have experienced different levels of wealth accumulation (in absolute real terms) across the period, but, given the macroeconomic trend, none of them has been relatively advantaged compared to others.

Results with Chauvel's modeling appear therefore in line with the previous findings even if these last estimates should be considered cautiously. As other APC identification strategies, APCD modeling has a range of limits. The major issue lies in the lost of valuable information since we cannot compare generations together in absolute terms. So, knowledge and understanding of the phenomena remains relative to an unknown term and limited.

Figure 16: Financial Wealth: coefficient obtained by the APC-detrended methodology



(a) "Detrended" age coefficient

(b) "Detrended" cohort coefficient

To conclude part 3, results from Deaton and Paxson methodology (section 3.3) suggest regarding financial assets the absence of decumulation in absolute terms after retirement, contradicting the traditional LCH. Our findings also indicate no significant birth cohort effects (both in absolute and relative terms).

4 Dealing with other determinants of financial assets building

In his work on the accumulation of household total wealth, Wolff [1981] tests the validity of the LCH in the United-States based on cross-sectional sample. Using age-wealth regressions, the author's results are twofold. Firstly, the extremely low R^2 he found in his simple age-wealth regressions (that echoes the low R^2 obtained in our own estimations with Deaton and Paxson modeling, cf. tables in Appendix D) should indicate that the age and the life-cycle model associated explains only a small part of the overall variation of wealth across households. By constituting subgroups from the total sample (by income level, diplomas, etc.), he shows that the LCH theory is not valid for all groups of people,[22] and criteria such as education level or location contribute substantially to explain wealth accumulation. This study is supported by one of the conclusion of Attanasio [1994] on the US who brings out large differences in the dynamics of savings across education groups.

These studies shed some light on the importance of other determinants than age in household wealth accumulation. Furthermore, as we find no evidence of significant discrepancies between birth cohort groups as regards financial asset building, we can surmise that the highly concentrated structure of financial wealth

[22]Poor people, who do not receive sufficient earnings, can not accumulate over the age whereas at the opposite the richest acquire their wealth from inheritance. So the only people whose savings behaviour could be described by the LCH corresponds to the population of white, urban, educated middle class people. He concludes that this theory can only account for the acquisition of about a quarter of the household wealth in the United-States.

distribution reflects strong disparities within generations. This section aims precisely at looking into the main determinants of these inequalities. We test the effects of profession, family type, diplomas, housing occupation status and legacy on being part of the top 10% wealthiest households in terms of financial asset, implementing cross-sectional logistic regressions. The idea is to give some basic insights on the impact of these determinants on financial wealth, and how they could evolve over the period.[23]

4.1 Overview of other determinants than age and birth cohort

We look at the effect of six socio-economic factors often identified in the literature[24] (age class, profession, family type, diplomas, housing occupation status, legacy or bequest) on being part of the top 10% of the richest families in terms of financial asset. The choice of the dependent variable is motivated by the highly concentrated structure of financial wealth distribution. Four logistic regressions are run on each cross-section.[25] Table 2 presents the results for each period. Note that the results are displayed as odds ratio and represent the odds of being part of the top decile group rather than not, according to a variable, all other things in the model being equal.

For each cross-section, the factors included in the specification are all statistically significant (Wald tests). Concerning socio-professional category, liberal professions, independent professionals and executives have the greater odds to belong to the top decile group: other characteristics being fixed, a household in which the reference person is a manual worker is between 3.5 and 5.5 times (according to the period) less likely to be part of the top 10% of the richest families in terms of financial assets than executives (*'Other managers and higher intellectual profession'*), and between 6.3 and 10.3 times less likely compared to liberal professions. Along with this result, holding a postgraduate degree appears as a strong advantage: leaving school without formal qualifications divides by more than 5 (6.0 in 1992, 5.0 in 1998, 5.2 in 2004 and 12.3 in 2010) the odds of belonging to the richest 10% of households compared to holding a postgraduate degree. Thus, both occupation and level of qualification affect the financial wealth ladder as they strongly reflect household's incomes and, through it, its saving possibilities.

Some events or strategic investment choices, such as receiving a bequest or becoming property owners, also impact the financial wealth distribution. A household who received a bequest or a legacy is around 2 times more likely to be part of the top 10% of the richest families in terms of financial assets than a household who never or has not yet inherited. Regarding the housing occupation status, households that have already built housing wealth (*'owner-occupiers'*) are also more likely to be part of the richest in financial assets than homebuyers and tenants, other observed characteristics being equal. Aside from their potential greater savings capacity (since they do not have to carry mortgage or rent repayments), other unobserved factors must come into play affecting both housing and financial wealth (past and present incomes, transfer of an undertaking, amount of inheritance). Lastly, we find no clear distinction between homebuyers and tenants as the difference between their coefficients do not appear statistically different.

Another finding lies in the fact that coefficients remained globally unchanged over the period, reflecting the stability of socio-economic determinants on financial assets buildings in the top of the distribution. The one notable exception relates to bequest and legacy whose impact tend to be more important through successive surveys. This results is in line with Piketty's recent works on French data, see for instance Piketty [2011] which relates the growing weight of inheritance in French economy with an increase in annual flow of inheritance as fraction of national income that sharply accelerates from the 1980s.
To sum up, the marked differences in odds ratio between categories of each factor confirm the existence of important disparities among birth cohort groups, even if the model only captures a minor part of the

[23] Socio-economic determinants of financial wealth could easily be investigated further by using the full potential of the pooled-HWS database. In particular, the estimation of simultaneous quantile regressions should be very informative, despite the methodological concerns it brings, for example regarding weights.
[24] See for example Lamarche and Salembier [2012].
[25] For technical information about logistic regressions see for example Le Blanc, Lollivier, Marpsat, and Verger [2000].

Table 2: Effect of different determinants on being part of the top decile group of financial wealth

	1992		1998		2004		2010	
	Odds Ratios	Significance threshold	Odds Ratios	Significance threshold	Odds Ratios	Significance threshold	Odds Ratios	Significance threshold
Age class								
Under 30	0,46	**	0,15	***	0,12	***	0,35	***
Between 30 and 39	0,69	**	0,58	***	0,58	***	0,59	***
Between 40 and 49	*Ref.*		*Ref.*		*Ref.*		*Ref.*	
Between 50 and 59	1,69	***	1,58	***	1,04		1,15	
Between 60 and 69	1,71	***	1,74	***	1,05		1,44	**
Over 70	1,91	***	1,62	***	1,16		1,68	***
Socio-professional category								
Never worked or long-term unemployed	0,42		0,18	**	0,15	*	0,50	**
Farmers	0,39	***	0,84		0,75		2,95	***
Craftmen, tradesmen, business owneers	1,04		0,90		1,14		1,12	
Liberal profession	1,85	***	1,94	***	1,92	***	1,77	***
Other managers and higher intellectual professions	*Ref.*		*Ref.*		*Ref.*		*Ref.*	
Technicians and associate professionals	0,47	***	0,61	***	0,50	***	0,61	***
Employees	0,27	***	0,40	***	0,47	***	0,32	***
Manual workers	0,18	***	0,23	***	0,26	***	0,28	***
Family type								
Single males or females	*Ref.*		*Ref.*		*Ref.*		*Ref.*	
Single-parent family	0,89		1,10		0,82		0,55	***
Couples with no children	1,77	***	1,69	***	1,81	***	1,40	***
Couples with children	1,52	**	1,54	***	1,50	***	1,28	*
Other	1,70	**	2,01	***	1,06		1,07	
Diplomas								
No diplomas	0,17	***	0,20	***	0,19	***	0,08	***
Primary school certificate	0,31	***	0,30	***	0,29	***	0,14	***
Vocational aptitude/studies certificates (CAP/BEP)	0,26	***	0,38	***	0,29	***	0,23	***
Junior secondary school certificate	0,38	***	0,65	***	0,39	***	0,26	***
'Professional' high school degree	0,57	**	0,54	***	0,50	***	0,41	***
'General' high school degree	0,52	***	0,70	**	0,61	***	0,42	***
Undergraduate and graduate degrees	0,45	***	0,71	**	0,64	***	0,47	***
Postgraduate degree and 'Grandes Ecoles'	*Ref.*		*Ref.*		*Ref.*		*Ref.*	
Housing occupation status								
Homebuyers	0,57	***	0,42	***	0,35	***	0,37	***
Owner-occupiers	*Ref.*		*Ref.*		*Ref.*		*Ref.*	
Tenants	0,48	***	0,53	***	0,43	***	0,43	***
Other	0,54	**	0,94		0,81		1,15	
Legacy or bequest								
No	*Ref.*		*Ref.*		*Ref.*		*Ref.*	
Yes	1,82	***	1,83	***	2,31	***	2,40	***
Pseudo R^2	0,21		0,20		0,23		0,22	
Hosmer-Lemeshow test (Prob>F)	0,00		0,57		0,00		0,09	

*Data: HWS. *** significant at the 1% threshold, ** significant at the 5% threshold, * significant at the 10% threshold.*
Note: The characteristics are those of the reference person in each household. Lecture: compared to a reference household (in which the reference person is a single person between 40 and 49 years old, owner-occupier, executive, with a postgraduate degree and who has never inherited), having received a legacy or a bequest multiplies by 1.82 the probability of being in the top decile group by financial wealth, other observed characteristics being equal, in 1992.
The Hosmer-Lemeshow test is a goodness-of-fit test for logistic regression. The higher the p-value, the more the model fit the data.

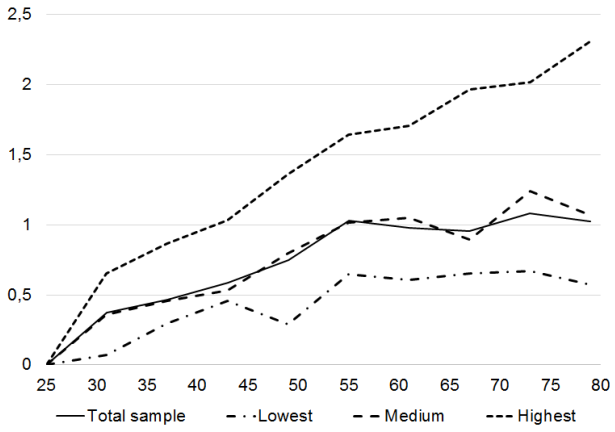
variability (goodness-of-fit tests show evidence of lack of fit). Among the tested factors, the age and the level of qualification or the profession, emerge strongly, with the largest variance between odds ratio.

4.2 An analysis according to relative diplomas

The strong disparities in financial assets among birth cohort groups put forward the role of other key determinants of accumulation, such as diploma, and wonder about the heterogeneity of age-patterns of financial wealth buildings. Indeed, as it is suggested by descriptive statistics broken by relative diplomas (see Appendix H), the mean financial wealth age-pattern could be poorly representative given the financial wealth gaps between the lowest and the highest relative degree groups. Age-patterns are then estimated on different categories of qualification using the same APC-modeling as in section 4.3. Education is chosen for both its marked influence on households' level of financial assets (as a proxy of the level of incomes) and its stability over time. The level of qualification evolves rarely across the life-time, contrary to other socio-demographic variables such as the occupational category, the family or the housing occupational status. To counter problems coming from the change in the qualification structure over generations, with the democratization of higher education, we build relative degrees for each cohort. We separate each cohort into three groups as explained in the Appendix G.

Following the Deaton and Paxson method, we estimate age coefficients and then retrace the age profile for each of the three relative degree groups. Figure 17 exhibits three very different patterns, which reveal their different savings abilities and preferences. The holders of lowest diplomas show low accumulation over time. Their barely flat pattern could be explained by strong budget and liquidity constraints. Consequently, their savings efforts only allow them to maintain a buffer stock that responds to a precautionary motive. The holders of the medium diploma show a similar pattern to the one estimated on the whole population, with a financial portfolio growing between 25 and 55 years old and remained flat afterwards. In contrast, the holders of the highest degrees exhibit a continuously increasing curve, with mean amounts of financial assets far above the two other groups. The gap between them and the two other groups also increases sharply with age, notably reflecting an ability to save all over their lifetime but also an active management of their wealth when or after retiring with operations transferring housing and professional assets into financial ones (sale of real estate properties, transfer of an undertaking or of a part of it, etc.). The sharp rise in their life cycle pattern between 70 and 80 years old could also reflect a strong taste for inheritance among this population.

Figure 17: Age-pattern accumulation of financial assets in respect to the relative diploma, from Deaton & Paxson modeling



Data: *HWS*

Therefore, the mean financial wealth age-pattern proves to have little significance, covering diverse behaviors that are related to different orders of magnitude and allocation of financial assets. This feature should be

borne in mind when modeling household portfolio choices and recall the need for taking into account budget and liquidity constraints.

5 Composition changes in household portfolio and the expansion of life insurance

As discussed in part 2 (see Figure 1), there were some significant changes in French household portfolio composition over the past two decades, with – as the most striking change – the sharp rise in the proportion of financial assets held in life insurance. Life insurance entered in an upward phase in the latter half of the 1980s and has been continually expanding, from 6.3% of household portfolio in 1986 to almost 40% in late 2010. If there is a general agreement on the explicative factors (easily shaped product with a favorable tax status), the nature of this growth has been poorly documented. With regard to the extensive margin, the share of households holding a life insurance contract (credit insurance excluded) or a pension plan moved from 40% in 1991 to 50% in 2009. This section aims looking into the intensive margin, and then to determine who have supported this trend.

5.1 Focus on life insurance expansion: the breakdown of flows into 'volume' and 'prices'

A first question is how life insurance has gathered momentum, and, more specifically, in which part net inflows, that inform on the product's attractiveness, have fueled this growth over the period. Generally, stocks of saving products change according to three drivers: net inflows (i.e. new deposits less withdrawals), capitalization of interest on existing deposits and variation in valuation when the stock price fluctuates:

$$Outstanding_t = Outstanding_{t-1} + Valuation_t + Interest\ capitalization_t + Net\ inflows_t \tag{8}$$

Changes in valuation are extracted from national financial accounts. Yearly interest incomes come from statistics on life-insurers' mean returns.[26] Net inflows are therefore determined by the capital accumulation equation. The proper identification of these three drivers requires us to be able to track flows at a disaggregated level, with both amounts and time of every households' investment and benefit or surrender. Because of a lack of yearly panel data, the simple computation indicated in equation 8 cannot be made. We then adopt a basic approach in which net inflows are computed as the stocks observed in a cross-section less the stocks observed in the previous one (6 years before) affected by the valuation change over the period and augmented by interest capitalization. To approach actual flows - and to be thus able to estimate the proper outstanding amount upon which yearly interest payments are based and which is subject to revaluation - we rebuilt annual outflows assuming that the rate of benefits and surrenders on total outstanding is constant every year, equal to the mean rate observed on available data (between 2001 and 2010).[27]

The simplifying assumption about outflows is made because of the lack of anterior data and may slightly underestimate the capitalization of interest in the 1990's - and mechanically overestimate net inflows - as one may suppose that outflows were lower in this period of sharp expansion. This basic approach has the advantage to give a rough estimate of the respective part of each driver over the different periods, even if results have to be taken with caution.

[26] Sources: FFSA, AFER. For the sake of convenience, we use the average rate of return of euro-denominated life insurance contracts, which represent 82% of total stocks in late 2009.

[27] Sources: FFSA. In practice, annual average gross flows between two cross-sections are then computed as follows:

$$Gross\ \bar{flows}_{t0-t6} = \frac{Outstanding_{t6} - Outstanding_{t0}(1-S)^6 \prod_{i=1}^{6}(1+V_i+I_i)}{1+\sum_{i=1}^{5}(1-S)^i \prod_{k=1}^{i}(1+V_{k+1}+I_{k+1})} \tag{9}$$

with S = the mean rate of withdrawals (benefits and surrenders), V_i = the valuation change at date i, and I_i = the nominal return rate at date i.

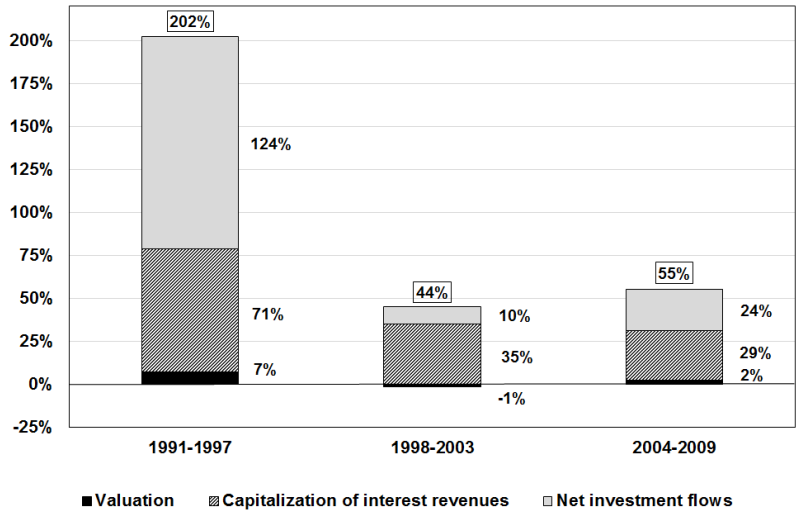
Figure 18 below displays respective contributions of valuation changes, interest capitalization flows in nominal terms and net investment flows to the expansion of life insurance stocks since the early 1990s.[28] The scope retained for the breakdown is extended beyond life insurance alone and encompasses capitalization bonds and popular savings plans (PEP).[29]

First of all, valuation changes are of low order since only a minority of products shows a return directly linked to the market performance of life insurers' invested equity assets ('unit-linked' products). Capital is guaranteed in the great majority of cases, with 'euro-denominated' products representing 82% of life insurance total stocks in late 2009.

Furthermore, the capitalization of interest revenues plays a significant part in life insurance stocks growth, ensuring a 'passive' growth for insiders of more than 70% over 1991-1997, 35% over 1998-2003 and about 30% over 2004-2009 thanks to relatively high returns, especially in the 1990s (Figure 4).

Finally, net investment flows (new investments minus surrenders and benefits) largely contributed to the sharp increase over 1991-1997, accounting for almost two-thirds of the total growth (124 percentage points on the +202% total growth). Thus, life insurance expansion over the subperiod was mainly fueled by households' new investments, supported by good market performances (through positive valuation) and high returns. The subperiod 1998-2003 is characterized by a loss of momentum, probably partly due to the 1997-1998 reform of taxation scheme (see Box 1) and the IT bubble burst: net investment flows shrank and contributed to only one quarter of total growth over the period (10 pp on the +44% total growth). Life insurance had a relative revival in the second part of the 2000s with renewed dynamism of net investment flows (24 pp on the +55% total growth) in a context of lower returns over the 2004-2009 period.

Figure 18: Contributions of net inflows, interest capitalization and valuation to the growth of life insurance stocks



Data: *HWS, Banque de France, INSEE, FFSA, AFER.*

The conclusion of this preliminary work is twofold. On the one hand, about half of life insurance growth observed in the 2000s results from its expansion in the previous decade thanks to both size and long-term detention effects through interest revenues capitalization. On the other hand, life insurance does not only rely on its past achievements continuing to draw new investment flows in the 2000s, in particular on the

[28] With data back to 1991, our sample covers almost completely the life insurance expansion, even if an analysis on the entire period of boom would has been preferable.

[29] The point is to follow a homogeneous category of saving products with the same structure and tax characteristics. Pension savings schemes are then excluded for their differences of shape (much less liquid for instance) and for not being largely filled with data. On the contrary, popular saving plans are included. These savings vehicles share many characteristics with life insurance as length of detention (tax treatment encourages the holding for more than 8 years in both cases) or detention motives (long-term savings, retirement). Besides, PEP insurance type appears actually as a life insurance contract, but because data in 1992 and 1998 surveys do not enable to differentiate between the two types (banking ones/insurance ones), both types are included. To sum up, the scope is life insurance (except annuity contracts), capitalization bonds and PEP.

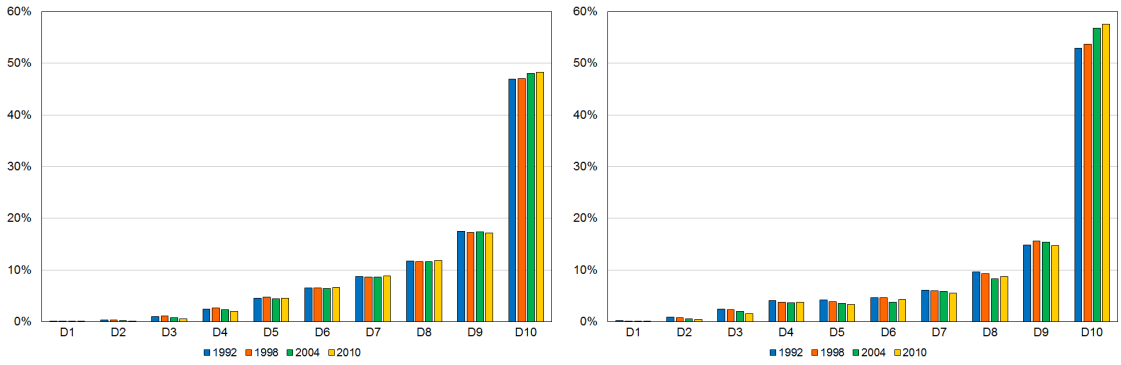
period 2004-2009 where these flows accounted for a large part of life insurance stocks growth.

5.2 An analysis of household portfolio along the wealth distribution

Beyond macroeconomic trends, the use of our micro database allows to understand who supported them. A starting point consists in looking at the share of financial assets held by each wealth class over the period. Note that wealth classes are defined as gross wealth decile groups. By defining them this way, groups can truly reflect the household's position on the wealth ladder and are not affected by a change of structure in household's wealth, for example following a housing transaction or the sale of a business. The results displayed in Figure 19 are informative in two points. First, as it is well-known, financial assets are highly concentrated: the richest 30% of households (as ranked by gross wealth) held about 80% of all outstanding stock in 2010, and more than 55% for the top 10% group. Second, this distribution remained relatively stable over the period, with only a slight increase in the top decile group share in the 2000's. It appears that each (cross-section) wealth class has benefited globally in the same way from the growth in financial assets observed at the macroeconomic level from the beginning of the 1990's, even if the households found in each class may be different over the period according to criteria such as age, diploma or household structure.

Figure 19: Wealth distribution by gross wealth class

(a) Gross wealth (b) Financial assets



Data: *HWS.*

With regard to the changing structure of household financial portfolio (illustrated at the macro level in Figure 1), we use the HWS data set to analyze the investment choices of the different wealth classes over the past two decades. Figure 20 shows the changes in the composition of the financial portfolio of four selected groups (the second, the middle and the two highest decile groups).

As might be expected, the cross-sectional differences between wealth groups are striking. Whereas the bottom decile group holds a portfolio almost entirely made up of safe liquid assets, portfolios diversify and become more invested in risky assets as groups get richer. For instance, liquid savings deposits and accounts represent more than 95% of the financial assets held by the lower decile group, against around 85% for the second lowest one, 50% for the middle one, and respectively 30% and 15% for the two highest ones over the period. On the contrary, life insurance and securities are almost absent in the portfolio of the lowest decile groups (less than 5% of the outstanding for the lowest decile group) but steadily amount over the period around 35% of the financial assets of the middle wealth group and respectively 60% and 80% for the two upper ones (D9-D10).

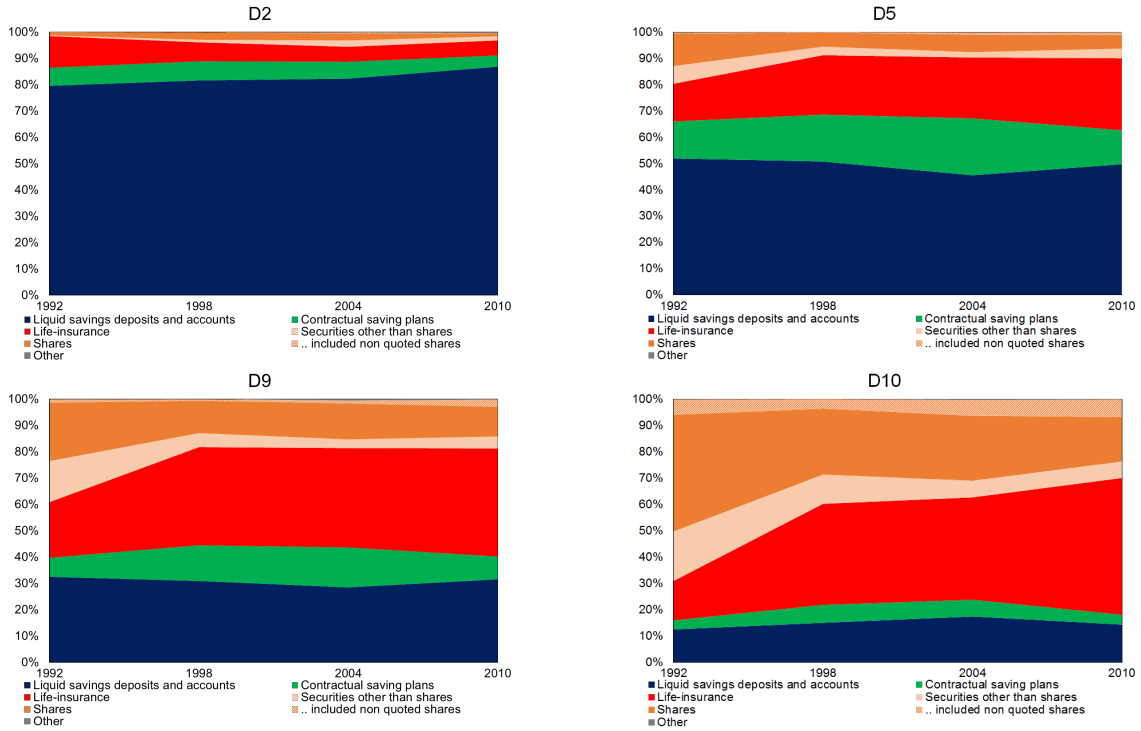
In line with national financial accounts, we note a drop in the proportion of securities in household portfolio along with a jump of the life insurance share in the 1990s and, to a lesser extent, in the second half of the 2000s. A noticeable feature lies in the fact that wealth groups supported differently these trends:

- the life insurance share of the three poorest groups remained unchanged (or declined) over the period,

- the next five decile groups experienced an increase of the share of financial assets held in life insurance between 1992 and 1998, it then remained more or less constant,
- the life insurance share shot up in the portfolio of the two richest groups between 1992 and 1998, stabilized on the next 6 years, and then rebounded between 2004 and 2010.

If the distribution of the total financial assets stocks remained steady over the period, the structure of wealth groups portfolio evolved differently: the distortion toward life insurance was driven by households above the fourth decile and, among these groups, the richest one seems to have played a more supportive role.

Figure 20: Structure of households' financial assets by wealth class



Data: *HWS.*

Another way to portray differences is to take a specific look at the share of life insurance in the financial assets held by each wealth group over the period. Figure 21 confirms earlier findings.

Firstly, a great majority of French households supported the expansion phase of life insurance in the 1990s. Decile groups 4 to 10 saw an increase in the share of life insurance in their portfolio, that is to say every household holding a sufficient amount of financial assets to be able to diversify its asset base has reshaped its investments toward life insurance. This remodeling was far more pronounced for the higher decile groups: while the part of life insurance rose from 14% in 1992 to 23% in 1998 in the middle decile group portfolio, it climbed from 15% to 38% for the richest group, whose proportion of securities held directly shrank, at the same time, from around 70% to 40%. As a result, and despite the popularization of the product, life insurance outstanding stocks became more unequally distributed, the top decile group accounting for about 60% of the stocks in the late of the 1990s (compared with 47% in 1992).

Secondly, the second (much more limited) expansive phase observed in the second half of the 2000s was entirely supported by the richest and more particularly by the top 10% of households. Their stock of financial assets held in life insurance jumped from 40% to 53% between 2004 and 2010, so that they own nearly 70% of life insurance outstanding amounts in the late 2000s.

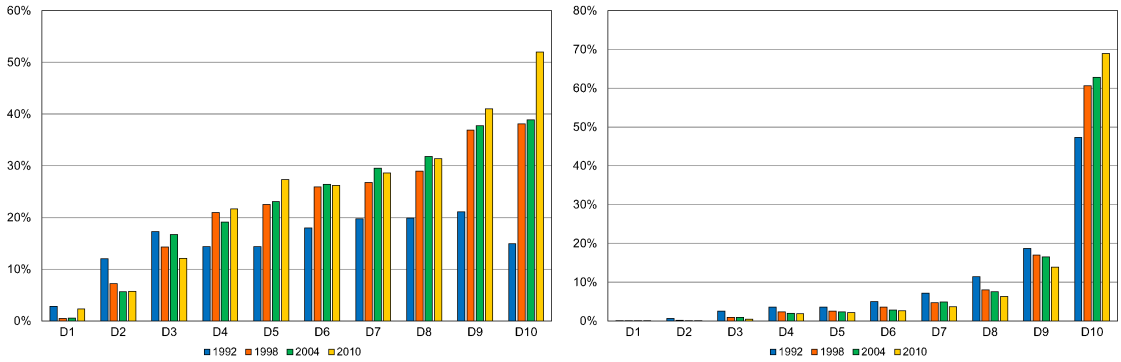
Finally, as mentioned before, households found in each decile groups may be different over the period; however the top 10% richest group remained particularly stable in terms of households' characteristics,

gathering a population who is older, more qualified, more frequently owner's principal residence and who is more likely to have inherited or received a donation (see Appendix I).

Figure 21: Focus on life insurance

(a) Share of life insurance in financial assets by wealth class

(b) Distribution of life insurance outstandings by wealth class



Data: *HWS.*

To sum up, it appears that the sharp distortion of French households' portfolio in the 1990s toward life insurance observed at an aggregate level in national accounts reflects a widespread change in investing choices: a large majority of households gradually moved, at their own levels, toward life insurance (or similar investments). This shift was also substantially larger for the richest groups who continued to switch to life insurance in the 2000s, as directly-held equity investments started being used less as savings vehicles. Often referred to as a "Swiss army knife" product, life insurance thus became an investment favored by both upper and relatively lower class investors.

Conclusion

This work attempts to analyze the macroeconomic evolution of French households' financial portfolio observed during the last two decades (1992-2010). More precisely, this study focuses on the increase in stocks mainly fueled by net investment inflows and the distortion of its structure, by looking into the microeconomic determinants that drive savers' accumulation. For this purpose, we mobilize both surveys and national account data. We build a longitudinal database from HWS cross-sections broken down into financial asset categories and aligned on national accounts that proves to be very useful for the analysis of French household portfolio choices.

We first look at age and generation effects on household financial assets building over the period. Several strategies have been proposed in the Age-Period-Cohort literature to disentangle this two effects associated with time. We rely here on the leading Deaton-Paxson method. We show that no generation among our sample seems to have been more advantaged or disadvantaged compared to others in their financial wealth accumulation process over life cycle. This result seems to be corroborated by the APCD methodology developed by Chauvel based on a different identification strategy. It suggests that long-term changes in the economic or demographic conditions (for example in terms of productivity, unemployment rate, social security benefits or with people living apart), taken as a whole, have not significantly affected household saving behaviors regarding financial assets accumulation, and that global preferences in that matter (mixing precautionary, bequest and retirement motives) have remained broadly unchanged. This result contrasts with common findings on gross wealth in line with the idea of growing wealth disparities in the expense of the youngest generations in France: a continuous increase in gross wealth from generations born in the 1910s until the baby boom ones born in the 1950s, and a stagnation afterwards. Therefore, we suggest that generational cleavages observed on gross wealth stems from the housing part, while French households exhibit similar financial accumulation patterns across generations.

This model also allows us to challenge the traditional Life-Cycle-Hypothesis. The Deaton-Paxson method exhibits no clear decumulation process after retirement regarding financial assets. Furthermore, the absence of a significant cohort effect suggests that the observed dispersion of financial wealth is mainly explained by intra-cohort rather than by inter-cohort variability, for instance according to the level of education. Households with low educational attainment present a flat profile of financial assets building whereas the holders of the highest degrees show a lifelong accumulation that is not slowing after retirement. Thus, the mean financial wealth age-pattern covers very different behaviors, related to different orders of magnitude and allocation of financial assets. This feature should be borne in mind when modeling household portfolio choices and recall the need for taking into account liquidity constraints.

We complete our approach by an analysis of the portfolio diversification by wealth class. Investigating the sharp rise of the part of financial assets held in life insurance at a macro level over the last twenty years, we find that French households of all levels of wealth gradually moved toward it in the 1990s. Behind this widespread change of investment choices, we notice some differences in wealth groups' behaviors. Particularly, the 10% richest have more strongly supported the rapid development of life insurance occurred in the two last decade and especially in the 2000s.

Based on those results, it would be interesting to look further into two particular issues. Firstly, additional informations on wealth structure evolution across lifespan - namely transfers between housing, financial and professional holdings - could bring a clearer picture of microeconomic savings behavior of French households and highlight some specific patterns. It would require the exploitation of panel data to follow individual investments year after year. Such an analysis should soon be possible since the Household Wealth Survey is henceforth panelized, from the wave launched in the end of 2014. It paves the way for valuable works on household portfolio choices. Secondly, as mentioned before, the non significant cohort effect reflects the absence of global differences in financial wealth building across generations. However, it may result from different forces related to economic and demographic conditions or to preferences that offset each other, affecting saving patterns in opposite directions. As in Kapteyn et al. [2005], the role of some specific factors could be therefore investigated, such as the evolution in social security benefits (that should have led to a decrease in precautionary and retirement motives) or changes in unemployment rate (with a supposed opposite effect on the precautionary motive).

Bibliography

Viola Angelini, Agar Brugiavini, and Guglielmo Weber. Does downsizing of housing equity alleviate financial distress in old age? In *The individual and the welfare state. Life history in Europe.*, pages 93–101. Börsch-Span, A., Brandt, M., Hank, K., and Schröder, M., editors, 2011.

Luc Arrondel. Patrimoine et actifs financiers en 1992. Papers 29, Laval - Laboratoire Econometrie, 1995.

Luc Arrondel and André Masson. Hypothèse du cycle de vie, diversification et composition du patrimoine : France 1986. *Annales d'économie et de statistiques*, 17, 1990.

Luc Arrondel and André Masson. *L'épargnant dans un monde en crise : ce qui a changé.* Paris, Editions rue d'Ulm, 2011.

Luc Arrondel and André Masson. Transferts publics et privés entre générations. enjeux idéologiques et perspectives (2) : Comment rendre la société française moins patrimoniale. *Futuribles*, 393:31–49, 2013.

Luc Arrondel, François Guillaumat-Taillet, and Daniel Verger. Montants du patrimoine et des actifs : qualité et représentativité des déclarations des ménages. *Economie et Statistique*, 296(1), 1996.

Orazio Attanasio. Personal saving in the united states. In *International Comparisons of Household Saving*, pages 57–124. University of Chicago Press, 1994.

Orazio Attanasio. A cohort analysis of saving behavior by US households. *Journal of Human Ressources*, 33: 575–609, 1998.

Orazio P Attanasio. An analysis of life-cycle accumulation of financial assets. *Ricerche Economiche*, 47(4):323–354, 1993.

James Banks, Richard Blundell, Zoë Oldfield, and James Smith. Housing mobility and downsizing at older ages in Britain and and the USA. *Economica*, (79(1)):1–26, 2012.

Omar Birouk, Alain-Nicolas Bouloux, Sarah Gandolphe, Gael Hauton, and Sandrine Viol. Insurance companies' investments at the end of 2010. *Quaterly Selection of Articles, No. 23, Banque de France*, 2011.

Jean Boissinot. Consumption over the life cycle: facts for France. *Document de travail G2007/09- Insee*, 2007.

Jean Boissinot and Adrien Friez. Épargne et patrimoine des ménages : données macroéconomiques et données d'enquêtes. *L'économie française, Insee Références*, pages 99–135, 2006.

Martin Browning and Annamaria Lusardi. Household saving: Micro theories and micro facts. *Journal of Economic literature*, pages 1797–1855, 1996.

Hélène Chaput, K-H Luu Kim, Laurianne Salembier, and Julie Solard. Les inégalités de patrimoine s'accroissent entre 2004 et 2010. *Insee Première*, 1380, 2011.

Louis Chauvel. *Le destin des générations. Structure sociale et cohortes en France du XXe siècle aux années 2010.* Paris, PUF, coll. Quadrige, 2010.

Louis Chauvel. Spécificité et permanence des effets de cohorte: le modèle APCD appliqué aux inégalités de générations, France/États-unis, 1985-2010. *Revue française de sociologie*, 54(4):665–705, 2013a.

Louis Chauvel. Age-period-cohort with hysteresis, APC-H model/a method. 2013b.

Maria Concetta Chiuri and Tullio Japelli. Do the elderly reduce housing equity? an international comparison. *Journal of Population Economics*, (23(2)):643–663, 2010.

Marie Cordier and Pauline Girardot. Comparaison et recalage des montants de l'enquête patrimoine sur la comptabilité nationale. *Document de travail F0702, Insee*, 2007.

Marie Cordier, Cédric Houdré, and Catherine Rougerie. Les inégalités de patrimoine des ménages entre 1992 et 2004. *Les revenus et le patrimoine des ménages*, pages 47–58, 2006.

Angus Deaton. Saving and Growth. Technical report, 1997.

Angus Deaton and Christina Paxson. Saving, growth and aging in Taiwan. In *Studies in the Economics of Aging*, pages 331–362. University of Chicago Press, 1994.

Alexis Direr and Eric Yayi. Portfolio choice over the business cycle and the life cycle. 2013.

Jean-Claude Driant. La mobilité résidentielle des ménages âgés. *Changer de résidence ? Changer de pays ?, Les comportements résidentiels des retraités, Plan urbanisme construction architecture*, 2010.

Sébastien Durier, Richet-Mastain Lucile, and Mélanie Vanderschelden. Une décomposition du compte de patrimoine des ménages de la comptabilité nationale par catégorie de ménages en 2003. *Document de travail F1204, Insee*, 2012.

Denis Fougère and Mathilde Poulhès. La propriété immobilière : quelle influence sur le portefeuille financier des ménages ? *Economie et Statistiques*, 472-473:213–231, 2014.

Bertrand Garbinti and Pierre Lamarche. Qui épargne ? qui déserpargne ? *Les revenus et le patrimoine des ménages*, 2014.

Bertrand Garbinti, Pierre Lamarche, and Laurianne Salembier. Héritages, donations et aides aux ascendants et descendants. *Les revenus et le patrimoine des ménages*, 2012.

Pauline Girardot and Denis Marionnet. La composition du patrimoine des ménages entre 1997 et 2003. *Bulletin de la Banque de France*, 167:23–41, 2007.

Norval Glenn. *Cohort analysis*. Beverly Hills: Sage, 1977.

Marine Guillerm. Les méthodes de pseudo-panel. *Document de travail M2015/02 - Insee*, 2015.

James Heckman and Richard Robb. Using longitudinal data to estimate age, period and cohort effects in earnings equations. *In Mason, William M. and Stephen E. Fienberg: Cohort Analysis in Social Research. Beyond the Identification Problem*, pages 137–150, 1985.

Theodore R Holford. The estimation of age, period and cohort effects for vital rates. *Biometrics*, pages 311–324, 1983.

Tullio Japelli. The age-wealth profile and the life-cycle hypothesis: A cohort analysis with a time series of cross-sections of Italian households. *CEPR Working Paper n. 1251*, 1995.

Arie Kapteyn, Rob Alessie, and Annamaria Lusardi. Explaining the wealth holdings of different cohorts: Productivity growth and social security. *European Economic Review*, 49(5):1361–1391, 2005.

John Maynard Keynes. *General theory of employment, interest and money*. London: Macmillan, 1936.

Wojciech Kopczuck and Joseph Lupton. To leave or not to leave: The distribution of bequest motives. *Review of Economic Studies*, 74(1):207–235, 2007.

Pierre Lamarche and Laurianne Salembier. Les déterminants du patrimoine : facteurs personnels et conjoncturels. *Les revenus et le patrimoine des ménages*, 2012.

David Le Blanc, Stéfan Lollivier, Maryse Marpsat, and Daniel Verger. *L'économétrie et l'étude des comportements, Présentation et mise en œuvre de modèles de régression qualitatifs, Les modèles univariés à résidus logistiques ou normaux (LOGIT, PROBIT).* INSEE, 2000.

Stéphan Lollivier and Daniel Verger. D'une variable discrète à une variable continue : une application de la méthode des résidus simulés. *in Mélanges en l'honneur de Edmond Malinvaud, Economica*, 1988.

Annamaria Lusadi and Olivia Mitchell. The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, pages 5–44, 2014.

Franco Modigliani and Richard Brumberg. Utility analysis and the consumption function: An interpretation of cross-section data. *K.K. Kurihara ed. Post-Keynesian Economics. New Brunswick: Rutgers University Press*, 1:388–436, 1954.

Franco Modigliani and Richard Brumberg. Utility analysis and aggregate consumption functions: An attempt at integration. *i A. Abel (red.), The collected papers of Franco Modigliani*, 2, 1979.

Makoto Nakajima and Irina Telyukova. Home equity in retirement. *NFI working paper*, 2011.

Thomas Piketty. On the long-run evolution of inheritance: France 1820-2050. *The Quaterly Journal of Economics*, 126(3):1071–1131, 2011.

Thomas Piketty and Gabriel Zucman. Wealth and inheritance in the long run. *Handbook of Income Distribution*, vol. 2, 2015.

Agnese Romiti and Mariacristina Rossi. Wealth decumulation, portfolio composition and financial literacy among European elderly. *Working Paper*, 2014.

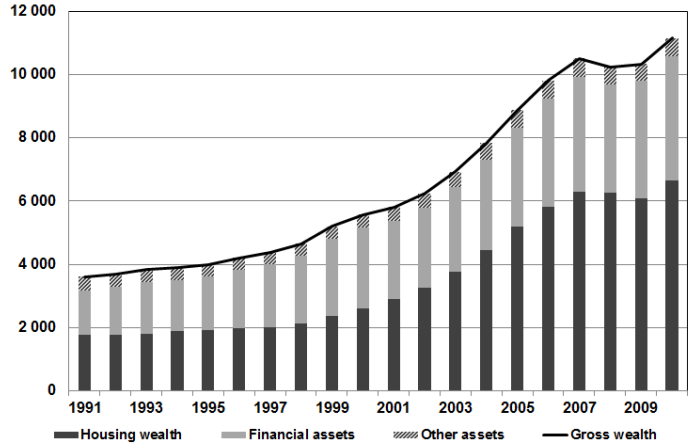
Edward N Wolff. The accumulation of households wealth over the life-cycle: a microdata analysis. *Review of Income and Wealth*, 27(1):75–96, 1981.

Shang Wu, Anthony Asher, Ramona Meyricke, and Susan Thorp. Age pensioner profiles: A longitudinal study of income, assets and decumulation. *Working Paper*, 2014.

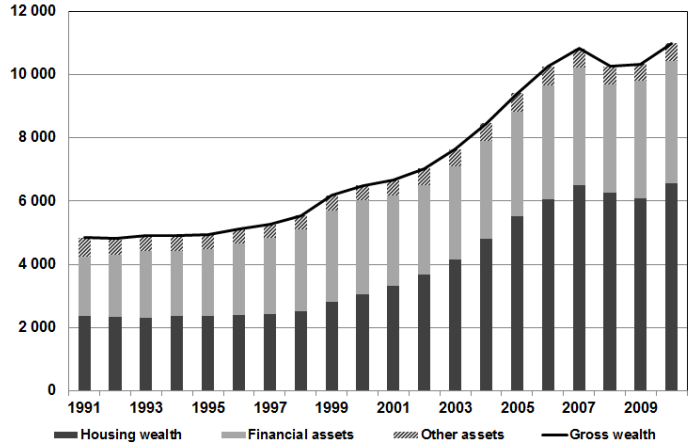
Yang Yang, Wenjiang J Fu, and Kenneth C Land. A methodological comparison of age-period-cohort models: The intrinsic estimator and conventional generalized linear models. *Sociological methodology*, 34(1):75–110, 2004.

A Current prices, constant prices, ratio with GDI

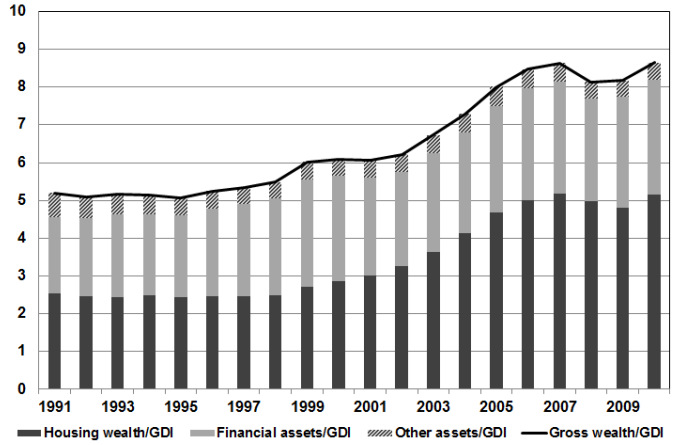
Figure 22: Evolution and structure of household gross wealth



(a) Current prices, in billions



(b) Constant prices (100=2009), in billions



(c) Ratio with GDI

Data: *INSEE, Banque de France.*

B The estimation of household wealth: two irreconcilable data sources?

Two data sources are used in this study: financial national accounts and household wealth surveys. If these data complement each other, building the bridge between macro and micro sources is no easy task due major methodological differences.

B.1 Data

National Financial Accounts Macro data are derived from National Financial Accounts provided by the French central bank. They offer a comprehensive description of all financial assets and liabilities held by institutional sectors (households, public administrations, non-financial corporations) from 1977. Stocks, net investment flows, valuation and other volume changes are presented for each operation.

The Household Wealth Survey Micro data rely on repeated cross-sections of the INSEE Household Wealth survey. It has been conducted every six years since 1986. It was called "Financial Assets Survey" until 1992 and then "Household Wealth Survey" in 1998, 2004 and 2010. These surveys provide a wide range of information on factors accounting for wealth accrual over the lifespan (family and professional biography, income and financial situation, inheritances and transfers, motives for the holding of the different asset). With regard to amount data, the stocks of financial assets are essentially requested in wealth "brackets", because declarations on exact amounts appear of very poor quality. For each of the four surveys, works have been done to rebuild continuous amounts implementing the method of simulated residuals (Lollivier and Verger [1988]). Our analysis is based on these simulated amounts.[30]

B.2 Some important gaps between micro and macro data

In spite of simulated amounts, and as it is commonly observed on household surveys on this topic, French Household Wealth surveys still suffer from low recovery rates on a wide range of assets amounts. A number of reasons explain the inherent difficulty to measure household wealth through a survey. First, important disparities exist in the scope chosen between the Household Wealth survey and national accounts that can explain some of the low recovery. Disparities can be geographic since the Household Wealth survey only cover metropolitan France (except in the case of the 2010 wave) whereas national financial accounts encompass overseas departments, or can result from different valuation choices. For instance, an estimation of outstanding life insurance in annuity is not provided in surveys contrary to national financial accounts. Second, the reluctance of the respondents to answer questions about wealth and income (deliberate concealment or under-declaration) can play a part, respondents sometimes have lingering concerns about the legitimacy of the survey or about the extent of its commitment to preventing disclosure. Third, the values of assets and liabilities are generally hard to report accurately: respondents may not know the current market value of some of their assets (like shares) or the exact value of some very fluctuating assets (like checking accounts). They may also forget to report some of their assets or debts. Finally, because the ownership of wealth is relatively concentrated, the sampling design is not likely to contain enough wealthy households to provide good representation of the full distribution of wealth.[31]

The under-representation is particularly significant for households' financial assets, the total household financial wealth being equal to just over one-third on average of the national accounts figures. Representativeness also shows dramatic variations among financial assets – from around 50% for saving accounts and contractual savings (F291 and F293 in NA) to less than 20% for the category "other deposit" (F292). Percentages go far below for specific assets that are particularly difficult to assess, as discussed above, because their market valuation is hard to evaluate (non-quoted shares), their stocks fluctuate a lot (checking accounts), or because the sums invested are not strictly equal to the amounts received (retirement plans to be paid as an annuity). To overcome this issue, the decision has been made to realign survey data on national accounts figures.

[30] The method implemented for each wave is not entirely homogeneous in time but is based on the same approach and using the same set of variables.

[31] Improvements have been made on this particular points in the latest wave of 2010. Yet, we use the 'constant methodology' version of the survey to preserve homogeneity among surveys.

B.3 Method of realignment

The first step relies in building a proper correspondence table between categories of financial assets in national accounts and surveys. Yet, the two classifications differ in some points. In particular, the one in Household Wealth surveys is narrower than the one in National financial accounts, with some financial operations registered in National financial accounts not, or partially, covered by HWS.[32]

Realignment requires then to delimit a **restricted scope** of comparable financial assets in National financial accounts (when the comparison is possible). It supposes to be able to drill down into a finer level of classification than the one supplied by released national accounts. That is why we rely on previous works conducted on this area, by or in association with the Demographic and Social Statistics Directorate at INSEE. The coefficients applied come from the following works: Arrondel, Guillaumat-Taillet, and Verger [1996] for the 1992 wave (approach based on the sum of assets), Cordier and Girardot [2007] for the 1998 one, Durier, Lucile, and Vanderschelden [2012] for the 2004 one, preliminary coefficients for the 2010 wave have been provided by INSEE, for which work is ongoing). In each case, the method of realignment implemented lies on two main principles:

- realignment varies by class of financial assets in order to counter the important disparities of under-declaration according to the nature of the product,
- treatment is uniform for all households. This appears a strong assumption as all households could not under-declare in the same way according to their age, their diplomas, their localization, etc. But, uniform treatment appears as our best solution since i) it is available for each survey, and ii) given the lack of exogenous data on household underreporting or no response, a double realignment by assets and by household characteristics does not provide a significant improvement compared to uniform readjustment (cf. Durier et al. [2012]).

B.4 Scope for financial assets

Finally, successive survey waves need to be harmonized to complete the exercise. Actually, some changes in the precision of the information collected occurred over the waves. To counter this bias, we follow a scope of financial assets as homogeneous as possible across surveys. Thus, it has been shaped as follow:

- retirement savings are excluded from our scope accounts since they are not or very poorly reported across surveys;
- distinction between the two forms of popular savings schemes (banking or insurance PEP) are not available as regard to amount data in the 1992 and 1998 waves. A reallocation into their respective national accounts categories could not have been done, so that PEP have been treated as an independent category;
- non-quoted shares and other equity do not include shares of firms whose the officer is a member of the household (classified in professional wealth in HWS). Even after realignment, non-quoted shares show a particularly low representativeness rate across surveys (between 13% and 31% over the four waves), explaining, on their own, most of the gap between national accounts figures and surveys ones after realignment (illustrated in Table 4). This gap reflects - in national accounts and surveys - both a broader issue of valorization of non-quoted shares and other equity, and the difficulty in distinguishing professional from financial wealth. While a portion of non-quoted shares held by households and recorded as such in national financial accounts is potentially referenced in the professional table of HWS, we did not transfer them in household financial wealth. As such, we intend to follow financial assets held for wealth accumulation motives and subjected to traditional portfolio choices.
- furthermore, no realignment has been made on housing and professional wealth, as it is not the core of our study and there is no consensus about the relevance of doing it on housing wealth. So the gross wealth is only readjust on financial assets.

[32] No stock data are, for instance, delivered on some specific instruments such as 'insurance technical reserves for premium and claims' or 'trade credits and advances' in Household Wealth surveys.

Table 3: Gross, housing and financial wealth in national accounts and Household wealth surveys (reported and aligned data)

in billions of euros	**Survey 1992**		**Survey 1998**		**Survey 2004**		**Survey 2010**	
National accounts								
Gross wealth	3 607		4 376		6 929		10 339	
Housing wealth	1 767	*49.0%*	2 014	*46.0%*	3 755	*54.2%*	6 087	*58.9%*
Financial assets	1 402	*38.9%*	2 000	*45.7%*	2 688	*38.8%*	3 700	*35.9%*
Financial assets (restricted scope)	1 216		1 805		2 455		3 337	
Survey								
Gross wealth	2 224		2 835		4 076		6 442	
Housing wealth	1 508	*67.8%*	1 673	*59.0%*	2 723	*66.8%*	4 279	*66.4%*
Financial assets	424	*19.1%*	763	*26.9%*	798	*19.6%*	1 273	*19.8%*
Survey - aligned data								
Gross wealth	2 793		3 630		5 259		7 631	
Housing wealth	1 508	*54.0%*	1 673	*46.1%*	2 723	*51.8%*	4 279	*56.1%*
Financial assets	1 018	*36.4%*	1 559	*42.9%*	1 981	*37.7%*	2 550	*33.4%*

Note : The restricted scope includes: transferable deposits, sight deposits, term deposits, contractual savings, securities other than shares, loans, quoted and unquoted shares, other equity, securities in money-market CIS, securities in general-purpose CIS, net equity of households in life insurance and pension funds reserves.

Table 4: Representativeness in respect to national accounts

	Survey 1992	**Survey 1998**	**Survey 2004**	**Survey 2010**
Gross wealth (survey/NA)	61.7%	64.8%	58.8%	62.3%
Housing wealth (survey/NA)	85.3%	83.1%	72.5%	70.3%
Financial assets (survey/NA)	34.9%	42.3%	32.5%	38.2%
Gross wealth (aligned data/NA)	77.4%	83.0%	75.9%	73.8%
Housing wealth (aligned data/NA)	85.3%	83.1%	72.5%	70.3%
Financial assets (aligned data/NA)	83.7%	86.3%	80.7%	76.4%

Note : Representativeness rates for financial assets are computed with respect to the amount in national accounts built on the restricted scope.

Figure 23: Structure of households' financial assets, non-quoted shares included

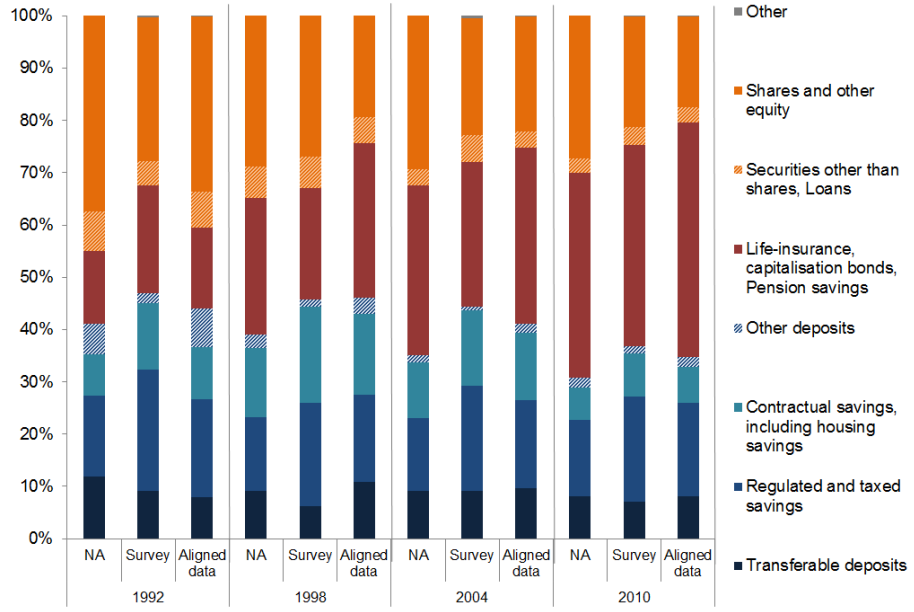
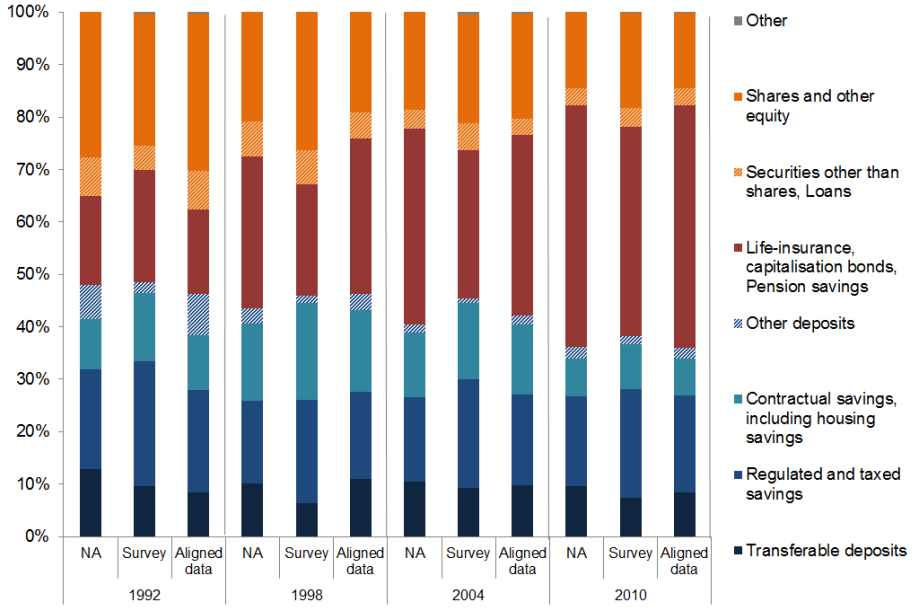


Figure 24: Structure of households' financial assets, non-quoted shares excluded



C Shaping birth cohorts in surveys

To be able to follow households' wealth behavior across surveys, each sample is organized into households' groups according to their date of birth. The study relies on the observation of fourteen cohorts, built in steps of six years, which range from people born between 1907 and 1912 for the oldest to people born between 1985 and 1990 for the youngest (Cohorts 1 to 14 in Table 6).

Cohorts in each survey need 1) to achieve a sufficiently large cell size to avoid extreme points skewing the means of the variables we use, and 2) to be relatively homogeneous (in matter of diploma, socio-professional category, etc.). It is therefore necessary to exclude from our sample groups with less than 100 households (see in Table 5). Furthermore, figures in Appendix G also show that homogeneity in diploma is broadly respected.

Table 5: Number of households by birth cohort

Cohort	Year of birth	Survey 1992	Survey 1998	Survey 2004	Survey 2010
1	[1985 ; 1990]	0	0	18	230
2	[1979 ; 1984]	0	19	397	588
3	[1973 ; 1978]	7	342	693	844
4	[1967 ; 1972]	310	885	982	1165
5	[1961 ; 1966]	873	1151	1057	1440
6	[1955 ; 1960]	1408	1252	1104	1513
7	[1949 ; 1954]	1429	1378	1120	1615
8	[1943 ; 1948]	1179	1237	986	1684
9	[1937 ; 1942]	882	971	843	1205
10	[1931 ; 1936]	968	951	886	1130
11	[1925 ; 1930]	1049	884	848	877
12	[1919 ; 1924]	820	647	553	423
13	[1913 ; 1918]	309	295	160	51
14	[1907 ; 1912]	218	165	42	10
15	[1901 ; 1906]	58	29	3	0
	Outside the range	13	1	0	13
	Selected sample	**9452**	**10158**	**9629**	**12765**
	Total survey	9530	10207	9692	12788
	out	78	49	63	23

Table 6: Age of households by birth cohort

Cohort	Year of birth	Age in 1992	Age in 1998	Age in 2004	Age in 2010
1	[1985 ; 1990]	2 - 7	8 - 13	14 - 19	20 - 25
2	[1979 ; 1984]	8 - 13	14 - 19	20 - 25	26 - 31
3	[1973 ; 1978]	14 - 19	20 - 25	26 - 31	32 - 37
4	[1967 ; 1972]	20 - 25	26 - 31	32 - 37	38 - 43
5	[1961 ; 1966]	26 - 31	32 - 37	38 - 43	44 - 49
6	[1955 ; 1960]	32 - 37	38 - 43	44 - 49	50 - 55
7	[1949 ; 1954]	38 - 43	44 - 49	50 - 55	56 - 61
8	[1943 ; 1948]	44 - 49	50 - 55	56 - 61	62 - 67
9	[1937 ; 1942]	50 - 55	56 - 61	62 - 67	68 - 73
10	[1931 ; 1936]	56 - 61	62 - 67	68 - 73	74 - 79
11	[1925 ; 1930]	62 - 67	68 - 73	74 - 79	80 - 85
12	[1919 ; 1924]	68 - 73	74 - 79	80 - 85	86 - 91
13	[1913 ; 1918]	74 - 79	80 - 85	86 - 91	92 - 97
14	[1907 ; 1912]	80 - 85	86 - 91	92 - 97	98 - 103
15	[1901 ; 1906]	86 - 91	92 - 97	98 - 103	104 - 109

Note: Boxes in dark grey are excluded from the selected sample of this study, those in light grey are also excluded from econometric estimates.

D Estimation results for Deaton and Paxson modeling

The implementation of the Deaton and Paxson identification constrains implies the following transformations on period dummies (cf. Boissinot [2007]):

$$d_0^* = d_1^* = 0 \tag{10}$$

$$d_{t_j}^* = d_{t_j} - (\frac{t_j - t_1}{t_1 - t_0} * d_{t_1} - \frac{t_j - t_0}{t_1 - t_0} * d_{t_0}), \forall j > 2 \tag{11}$$

Concerning age, we approximate the dependency using a piecewise linear function. With this econometric specification, modeling is more flexible and probably better suited to the representation of a continuous phenomenon such as age (see for example Le Blanc et al. [2000]).

In the following estimation table, Age_a coefficients refers to α^* coefficients in the general specification written in (1), $Cohort\_c$ coefficients to the γ^* coefficients, and d^*_t coefficients to the $\pi*$ coefficients of the transformed period dummies (see above).

The age effect is obtained by summing age dummies: $Age\_coefficient = \sum_{i=0}^{8} \alpha_i * Age\_i$ (as in Figure 10a).

With: $a_0 = 25; a_1 = 31; a_2 = 37; a_3 = 43; a_4 = 49; a_5 = 55; a_6 = 61; a_7 = 67; a_8 = 73; a_9 = 79;$
$Age\_0 = (age - a_0) * (age >= a_0) * (age < a_1) + (a_1 - a_0) * (age >= a_1);$
$Age\_1 = (age - a_1) * (age >= a_1) * (age < a_2) + (a_2 - a_1) * (age >= a_2);$
$Age\_2 = (age - a_2) * (age >= a_2) * (age < a_3) + (a_3 - a_2) * (age >= a_3);$
$Age\_3 = (age - a_3) * (age >= a_3) * (age < a_4) + (a_4 - a_3) * (age >= a_4);$
$Age\_4 = (age - a_4) * (age >= a_4) * (age < a_5) + (a_5 - a_4) * (age >= a_5);$
$Age\_5 = (age - a_5) * (age >= a_5) * (age < a_6) + (a_6 - a_5) * (age >= a_6);$
$Age\_6 = (age - a_6) * (age >= a_6) * (age < a_7) + (a_7 - a_6) * (age >= a_7);$
$Age\_7 = (age - a_7) * (age >= a_7) * (age < a_8) + (a_8 - a_7) * (age >= a_8);$
$Age\_8 = (age - a_8) * (age >= a_8) * (age < a_9) + (a_9 - a_8) * (age >= a_9).$

Dependent variable: Log financial assets, in real terms

	Coef.	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Age_0	0.062	0.015	4.180	0.000	0.033	0.091
Age_1	0.016	0.012	1.320	0.188	-0.008	0.040
Age_2	0.020	0.012	1.740	0.081	-0.003	0.043
Age_3	0.026	0.012	2.160	0.031	0.002	0.050
Age_4	0.047	0.013	3.660	0.000	0.022	0.073
Age_5	-0.009	0.014	-0.620	0.538	-0.036	0.019
Age_6	-0.004	0.015	-0.250	0.801	-0.032	0.025
Age_7	0.021	0.015	1.440	0.149	-0.008	0.050
Age_8	-0.010	0.021	-0.480	0.633	-0.052	0.031
d*_1992	*(omitted)*					
d*_1998	*(omitted)*					
d*_2004	0.040	0.021	1.930	0.054	-0.001	0.081
d*_2010	-0.066	0.014	-4.720	0.000	-0.094	-0.039
Cohort 1913-18	-0.148	0.141	-1.050	0.292	-0.424	0.127
Cohort 1919-24	0.049	0.087	0.570	0.571	-0.121	0.220
Cohort 1925-30	0.037	0.074	0.500	0.614	-0.107	0.181
Cohort 1931-36	-0.138	0.065	-2.130	0.033	-0.265	-0.011
Cohort 1937-42	-0.023	0.058	-0.390	0.693	-0.137	0.091
Cohort 1943-48	*Ref.*					
Cohort 1949-54	-0.042	0.053	-0.780	0.435	-0.146	0.063
Cohort 1955-60	-0.175	0.059	-2.960	0.003	-0.292	-0.059
Cohort 1961-66	-0.097	0.065	-1.500	0.133	-0.225	0.030
Cohort 1967-72	-0.159	0.074	-2.140	0.033	-0.304	-0.013
Cohort 1973-78	-0.145	0.082	-1.760	0.079	-0.306	0.017
Cohort 1979-84	-0.142	0.119	-1.190	0.234	-0.375	0.092
Constant	9.143	0.093	98.490	0.000	8.961	9.325
R^2	0.033					

Dependent variable: Log gross assets, in real terms

	Coef.	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Age_0	0.192	0.018	10.920	0.000	0.158	0.227
Age_1	0.064	0.015	4.230	0.000	0.034	0.093
Age_2	0.063	0.014	4.510	0.000	0.035	0.090
Age_3	0.021	0.014	1.480	0.138	-0.007	0.049
Age_4	0.059	0.014	4.150	0.000	0.031	0.087
Age_5	-0.025	0.015	-1.730	0.084	-0.054	0.003
Age_6	0.011	0.015	0.740	0.456	-0.018	0.041
Age_7	0.021	0.015	1.390	0.165	-0.009	0.050
Age_8	-0.021	0.022	-0.970	0.332	-0.064	0.022
d*_1992	*(omitted)*					
d*_1998	*(omitted)*					
d*_2004	0.005	0.024	0.210	0.831	-0.041	0.052
d*_2010	0.011	0.016	0.700	0.484	-0.020	0.042
Cohort 1913-18	-0.820	0.147	-5.580	0.000	-1.108	-0.532
Cohort 1919-24	-0.445	0.088	-5.040	0.000	-0.618	-0.272
Cohort 1925-30	-0.316	0.077	-4.090	0.000	-0.467	-0.164
Cohort 1931-36	-0.324	0.068	-4.730	0.000	-0.458	-0.190
Cohort 1937-42	-0.093	0.059	-1.570	0.116	-0.208	0.023
Cohort 1943-48	*Ref.*					
Cohort 1949-54	-0.033	0.057	-0.580	0.564	-0.144	0.079
Cohort 1955-60	-0.161	0.066	-2.450	0.014	-0.290	-0.032
Cohort 1961-66	-0.113	0.074	-1.520	0.127	-0.257	0.032
Cohort 1967-72	-0.110	0.087	-1.270	0.206	-0.281	0.060
Cohort 1973-78	0.017	0.099	0.170	0.865	-0.178	0.212
Cohort 1979-84	-0.002	0.137	-0.020	0.986	-0.270	0.265
Constant	9.341	0.108	86.440	0.000	9.129	9.553
R^2	0.065					

E Technical details on Chauvel's APC-D methodology

See Chauvel [2013b] or Holford [1983] for the seminal version of the model. The APC-Detrended model absorbs the linearity and exhibits deviation to a time trend. But the model still requires to set some technical constraints to provide a unique decomposition. The model, when combined with an appropriate set of technical limitations provides a unique decomposition of the fluctuations of the age, period and cohort variables around their average and at a zero slope.
Remember our modele specification:

$$Y_{it} = \mu_1 + \sum_a \alpha_a d_{it}^a + \sum_c \gamma_c d_i^c + \sum_t \pi_t d_t + \epsilon_{it} \tag{12}$$

First set of constraint It is helpful to work with an equivalent form of this model. In particular, let us define the parametric means:

$$\bar{\alpha} = \frac{1}{a}\sum_a \alpha_a \qquad \bar{\gamma} = \frac{1}{c}\sum_c \gamma_c \qquad \bar{\pi} = \frac{1}{t}\sum_t \pi_t$$

Thus the previous model (12) can be rewritten as :

$$Y_{it} = \mu_1^* + \sum_a \alpha_a^* d_{it}^a + \sum_c \gamma_c^* d_i^c + \sum_t \pi_t^* d_t + \epsilon_{it} \tag{13}$$

With:

$$\mu_1^* = \mu_1 + \bar{\alpha} + \bar{\gamma} + \bar{\pi} \qquad \alpha_a^* = (\alpha_a - \bar{\alpha}) \qquad \gamma_c^* = (\gamma_c - \bar{\gamma}) \qquad \pi_t^* = (\pi_t - \bar{\pi})$$

Clearly, then we have:

$$\sum_a \alpha_a^* = 0 \qquad \sum_c \gamma_c^* = 0 \qquad \sum_t \pi_t^* = 0$$

It is important to emphasize that the reparameterized model (13) simply re-expresses each effect in model(12) as a deviation from the mean of all effects of that type, and such centering creates no distortion with respect to assessing patterns in estimated effects.

Second set of constraint The method proposes by Holford [1983] for characterizing the effects of time is to decompose the trend in two components: linear trend and curvature or deviations from linearity.
In the case of the age effects α_a^*, the linear trend can be described by:

$$\alpha_L = A * \sum_a age * \alpha_a^* \tag{14}$$

where

$$age = a - \frac{(a_{max} + a_{min})}{2} \qquad A = \frac{1}{\sum_a age^2}$$

Thus, the curvature component is given by the age effects with the linear trend removed:

$$\tilde{\alpha_a^*} = \alpha_a^* - age * \alpha_L \tag{15}$$

In the case of age, it is clear that $\tilde{\alpha_a^*}$ have the linear trend removed since :

$$\sum_a age * \tilde{\alpha_a^*} = \sum_a age * \alpha_a^* - \sum_a age * (age * \alpha_L) \tag{16}$$

$$= \sum_a age * \alpha_a^* - \alpha_L * \sum_a age^2 \tag{17}$$

$$= \frac{\alpha_L}{A} - \alpha_L * \frac{1}{A} \tag{18}$$

$$= 0 \tag{19}$$

Similarly for the cohort effects and the period effects, we define $\tilde{\gamma_c^*}$, γ_L, $\tilde{\pi_t^*}$ and π_L. The curvature components is thus orthogonal to the trend. Consequently if we impose directly this orthogonality of the coefficient, we are sure

to found the linear trend. For the three effects we impose a set of constraints.

$$\sum_a age * \tilde{\alpha_a^*} = 0 \qquad \sum_c cohort * \tilde{\gamma_c^*} = 0 \qquad \sum_t period * \tilde{\pi_t^*} = 0$$

Where:

$$age = a - \frac{(a_{max} + a_{min})}{2} \tag{20}$$

$$cohort = c - \frac{(c_{max} + c_{min})}{2} \tag{21}$$

$$period = t - \frac{(t_{max} + t_{min})}{2} \tag{22}$$

The APCD-model Trough these constraints, the model becomes more interpretable. Thus, the age coefficient, once the trend has been absorbed, reveals potentially curved LCH pattern. The cohort coefficient reveals an eventual specific behavior of a particular cohort, if the corresponding coefficient is significantly different from zero. The period coefficient correspond to the positive or negative influence of the macroeconomic shocks on the variable and also indicates the eventual discontinuities in the data collect. With these constraints, the model (13) could be decomposed as follows:

$$\begin{aligned} Y_{it} = \mu_1^* &+ \sum_a \tilde{\alpha_a^*} * d_{it}^a + \sum_c \tilde{\gamma_c^*} * d_i^c + \sum_t \tilde{\pi_t^*} * d_t \\ &+ \sum_a (age * \alpha_L) * d_{it}^a + \sum_c (cohort * \gamma_L) * d_i^c + \sum_t (period * \pi_L) * d_t + \epsilon_{it} \end{aligned} \tag{23}$$

$$\begin{aligned} Y_{it} = \mu_1^* &+ \sum_a \tilde{\alpha_a^*} d_{it}^a + \sum_c \tilde{\gamma_c^*} d_i^c + \sum_t \tilde{\pi_t^*} d_t \\ &+ \alpha_L * \sum_a age * d_{it}^a + \gamma_L * \sum_c cohort * d_i^c + \pi_L * \sum_t period * d_t + \epsilon_{it} \end{aligned} \tag{24}$$

Which gives, due to the dummies:

$$\begin{aligned} Y_{it} = \mu_1^* &+ \sum_a \tilde{\alpha_a^*} d_{it}^a + \sum_c \tilde{\gamma_c^*} d_i^c + \sum_t \tilde{\pi_t^*} d_t \\ &+ \alpha_L * age + \gamma_L * cohort + \pi_L * period + \epsilon_{it} \end{aligned} \tag{25}$$

And as $period = cohort + age + Cst$, previous equation becomes:

$$\begin{aligned} Y_{it} = \mu_2^* &+ \sum_a \tilde{\alpha_a^*} d_{it}^a + \sum_c \tilde{\gamma_c^*} d_i^c + \sum_t \tilde{\pi_t^*} d_t \\ &+ \alpha_L * age + \gamma_L * cohort + \pi_L * (cohort + age) + \epsilon_{it} \end{aligned} \tag{26}$$

And then:

$$\begin{aligned} Y_{it} = \mu_2^* &+ \sum_a \tilde{\alpha_a^*} d_{it}^a + \sum_c \tilde{\gamma_c^*} d_i^c + \sum_t \tilde{\pi_t^*} d_t \\ &+ (\alpha_L + \pi_L) * age + (\gamma_L + \pi_L) * cohort + \epsilon_{it} \end{aligned} \tag{27}$$

Thus, we can rewrite the model (12) as follow and define the APC-Detrended model:

$$\begin{cases} Y_{it} = \mu_2^* + \sum_a \tilde{\alpha_a^*} d_{it}^a + \sum_c \tilde{\gamma_c^*} d_i^c \\ \qquad\qquad + \sum_t \tilde{\pi_t^*} d_t + (\alpha_0) * age + (\gamma_0) * cohort + \epsilon_{it} \\ \\ \begin{cases} t = c + a \\ \sum_a \tilde{\alpha_a^*} = \sum_c \tilde{\gamma_c^*} = \sum_t \tilde{\pi_t^*} = 0 \\ \sum_a age * \tilde{\alpha_a^*} = \sum_c cohort * \tilde{\gamma_c^*} = \sum_t period * \tilde{\pi_t^*} = 0 \\ min(c) < c < max(c) \text{ (additional constraint on the exclusion of the first and the last observed cohorts)} \\ \alpha_0 = \alpha_L + \pi_L \text{ and } \gamma_0 = \gamma_L + \pi_L \end{cases} \end{cases} \tag{28}$$

These vectors exclusively reflect the non-linear effect of age, period and cohort, as we assign two sets of constraints: each vector sums up to zero and has a slope of zero. These vectors are null when the age, period or cohort effects are linear. The terms $\alpha_0 * age$ and $\gamma_0 * cohort$ absorb the linear trend.

F Estimation results for Chauvel modeling

Dependent variable: Log financial assets, in real terms

	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Age [25-30]	-0.121	0.035	-3.430	0.001	-0.190	-0.052
Age [31-36]	0.003	0.030	0.110	0.910	-0.055	0.062
Age [37-42]	-0.004	0.032	-0.130	0.899	-0.067	0.059
Age [43-48]	0.035	0.035	0.980	0.326	-0.034	0.104
Age [49-54]	0.102	0.040	2.570	0.010	0.024	0.179
Age [55-60]	0.153	0.041	3.760	0.000	0.073	0.233
Age [61-66]	-0.010	0.038	-0.260	0.793	-0.084	0.065
Age [67-72]	-0.052	0.036	-1.460	0.144	-0.123	0.018
Age [73-78]	-0.105	0.038	-2.800	0.005	-0.179	-0.032
d_1992	-0.088	0.013	-6.620	0.000	-0.114	-0.062
d_1998	0.111	0.019	5.690	0.000	0.073	0.149
d_2004	0.042	0.021	2.010	0.044	0.001	0.084
d_2010	-0.065	0.014	-4.630	0.000	-0.093	-0.038
Cohort 1919-24	0.018	0.046	0.400	0.692	-0.072	0.109
Cohort 1925-30	0.033	0.041	0.820	0.412	-0.046	0.113
Cohort 1931-36	-0.120	0.039	-3.110	0.002	-0.196	-0.044
Cohort 1937-42	0.028	0.042	0.650	0.515	-0.055	0.111
Cohort 1943-48	0.059	0.041	1.440	0.150	-0.021	0.139
Cohort 1949-54	0.042	0.038	1.100	0.270	-0.033	0.117
Cohort 1955-60	-0.076	0.035	-2.160	0.031	-0.145	-0.007
Cohort 1961-66	0.018	0.033	0.560	0.575	-0.046	0.082
Cohort 1967-72	-0.026	0.037	-0.710	0.477	-0.099	0.046
Cohort 1973-78	0.024	0.041	0.580	0.562	-0.057	0.105
Rescale coh (γ_0)	-0.174	0.097	-1.800	0.072	-0.364	0.016
Rescale age (α_0)	0.430	0.050	8.580	0.000	0.332	0.529
Constant	9.818	0.013	743.330	0.000	9.792	9.843

G Building relative diplomas

The value of a degree in society changes over time. Significant changes in household degree distribution are illustrated by Figure 26. To compare degree levels over the four HWS cross-sections, we build a relative diploma variable, following Cordier et al. [2006]. For a given cohort, households are distributed equally (or the closest thing to it) between three categories:

- relative diploma=1 for low or no degree
- relative diploma=2 for medium degree
- relative diploma=3 for high degree

For each cohort, classification is established the first time it appears in our pooled cross-sections database and remains stable for next HWS cross-sections (Figure 25).

Students are excluded, since we are not able to define their highest qualification obtained.

Figure 25: Distribution by relative diploma in birth cohorts

Cohort	Year of birth	Relative degree	Survey 1992		Survey 1998		Survey 2004		Survey 2010		Classification
1	[1985 ; 1990]	1st tertile							76	50,7%	0 1 2 3
		2nd tertile							38	25,3%	4 5
		3rd tertile							36	24,0%	6 7
2	[1979 ; 1984]	1st tertile					93	43,9%	195	33,9%	0 1 2 3
		2nd tertile					50	23,6%	104	18,1%	4 5
		3rd tertile					69	32,5%	276	48,0%	6 7
3	[1973 ; 1978]	1st tertile			73	36,3%	192	28,9%	254	30,3%	0 1 2
		2nd tertile			87	43,3%	154	23,2%	179	21,4%	3 4 5
		3rd tertile			41	20,4%	318	47,9%	405	48,3%	6 7
4	[1967 ; 1972]	1st tertile	108	46,6%	269	31,4%	410	42,0%	500	43,0%	0 1 2
		2nd tertile	71	30,6%	223	26,0%	99	10,1%	142	12,2%	3 4
		3rd tertile	53	22,8%	365	42,6%	467	47,8%	521	44,8%	5 6 7
5	[1961 ; 1966]	1st tertile	370	42,8%	444	38,9%	535	51,0%	715	49,7%	0 1 2
		2nd tertile	235	27,2%	319	28,0%	113	10,8%	176	12,2%	3 4
		3rd tertile	259	30,0%	377	33,1%	402	38,3%	548	38,1%	5 6 7
6	[1955 ; 1960]	1st tertile	282	20,1%	267	21,3%	189	17,2%	241	16,0%	0 1
		2nd tertile	692	49,2%	547	43,7%	459	41,7%	622	41,2%	2 3
		3rd tertile	432	30,7%	438	35,0%	453	41,1%	646	42,8%	4 5 6 7
7	[1949 ; 1954]	1st tertile	366	25,6%	329	23,9%	255	22,8%	326	20,2%	0 1
		2nd tertile	629	44,1%	553	40,2%	402	35,9%	604	37,4%	2 3
		3rd tertile	432	30,3%	495	35,9%	463	41,3%	684	42,4%	4 5 6 7
8	[1943 ; 1948]	1st tertile	358	30,4%	387	31,3%	276	28,0%	500	29,7%	0 1
		2nd tertile	410	34,8%	459	37,2%	319	32,4%	543	32,3%	2 3
		3rd tertile	411	34,9%	389	31,5%	390	39,6%	640	38,0%	4 5 6 7
9	[1937 ; 1942]	1st tertile	353	40,0%	418	43,0%	359	42,6%	464	38,5%	0 1
		2nd tertile	285	32,3%	294	30,3%	246	29,2%	373	31,0%	2 3
		3rd tertile	244	27,7%	259	26,7%	238	28,2%	368	30,5%	4 5 6 7
10	[1931 ; 1936]	1st tertile	243	25,1%	309	32,5%	230	26,0%	301	26,6%	0
		2nd tertile	450	46,5%	445	46,8%	378	42,7%	510	45,1%	1 2
		3rd tertile	275	28,4%	197	20,7%	278	31,4%	319	28,2%	3 4 5 6 7
11	[1925 ; 1930]	1st tertile	306	29,2%	273	30,9%	232	27,4%	208	23,7%	0
		2nd tertile	409	39,0%	301	34,0%	317	37,4%	300	34,2%	1
		3rd tertile	334	31,8%	310	35,1%	299	35,3%	369	42,1%	2 3 4 5 6
12	[1919 ; 1924]	1st tertile	224	27,3%	195	30,1%	164	29,7%	100	23,6%	0
		2nd tertile	357	43,5%	251	38,8%	204	36,9%	164	38,8%	1
		3rd tertile	239	29,1%	201	31,1%	185	33,5%	159	37,6%	2 3 4 5 6
13	[1913 ; 1918]	1st tertile	121	39,2%	112	38,0%	43	26,9%			0
		2nd tertile	107	34,6%	99	33,6%	67	41,9%			1
		3rd tertile	81	26,2%	84	28,5%	50	31,3%			2 3 4 5 6
14	[1907 ; 1912]	1st tertile	74	33,9%	74	44,8%					0
		2nd tertile	95	43,6%	61	37,0%					1
		3rd tertile	49	22,5%	30	18,2%					2 3 4 5 6
15	[1901 ; 1906]	1st tertile									0
		2nd tertile									1
		3rd tertile									2 3 4 5 6

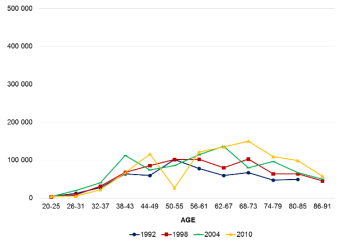
Note: Classification numbers in the right-hand column refer to the following levels of education: '0' for no diploma, '1' for primary school certificate, '2' for vocational aptitude or studies certificate, '3' for junior secondary school certificate, '4' for professional high school degree, '5' for general high school degree, '6' undergraduate and graduate degrees, '7' for postgraduate degree and 'Grandes Ecoles'.

Figure 26: Distribution by degree in birth cohorts

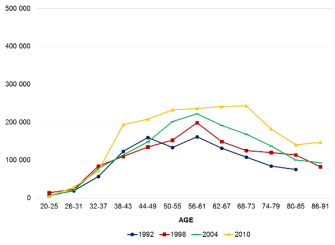
Cohort	Year of birth	Degree	Survey 1992		Survey 1998		Survey 2004		Survey 2010	
1	[1985 ; 1990]	No diplomas							17	11,3%
		Primary school certificate							0	0,0%
		Vocational aptitude/studies certificates (CAP/BEP)							42	28,0%
		Junior secondary school certificate							17	11,3%
		'Professional' high school degree							28	18,7%
		'General' high school degree							10	6,7%
		Undergraduate and graduate degrees							29	19,3%
		Postgraduate degree and 'Grandes Ecoles'							7	4,7%
2	[1979 ; 1984]	No diplomas					18	8,5%	41	7,1%
		Primary school certificate					0	0,0%	1	0,2%
		Vocational aptitude/studies certificates (CAP/BEP)					62	29,2%	134	23,3%
		Junior secondary school certificate					13	6,1%	19	3,3%
		'Professional' high school degree					27	12,7%	77	13,4%
		'General' high school degree					23	10,8%	27	4,7%
		Undergraduate and graduate degrees					42	19,8%	186	32,3%
		Postgraduate degree and 'Grandes Ecoles'					27	12,7%	90	15,7%
3	[1973 ; 1978]	No diplomas			33	16,4%	37	5,6%	64	7,6%
		Primary school certificate			1	0,5%	1	0,2%	1	0,1%
		Vocational aptitude/studies certificates (CAP/BEP)			39	19,4%	154	23,2%	189	22,6%
		Junior secondary school certificate			41	20,4%	16	2,4%	24	2,9%
		'Professional' high school degree			23	11,4%	83	12,5%	113	13,5%
		'General' high school degree			23	11,4%	55	8,3%	42	5,0%
		Undergraduate and graduate degrees			31	15,4%	139	20,9%	269	32,1%
		Postgraduate degree and 'Grandes Ecoles'			10	5,0%	179	27,0%	136	16,2%
4	[1967 ; 1972]	No diplomas	43	18,5%	108	12,6%	112	11,5%	115	9,9%
		Primary school certificate	6	2,6%	5	0,6%	9	0,9%	11	0,9%
		Vocational aptitude/studies certificates (CAP/BEP)	59	25,4%	156	18,2%	289	29,6%	374	32,2%
		Junior secondary school certificate	58	25,0%	162	18,9%	41	4,2%	40	3,4%
		'Professional' high school degree	13	5,6%	61	7,1%	58	5,9%	102	8,8%
		'General' high school degree	16	6,9%	79	9,2%	74	7,6%	52	4,5%
		Undergraduate and graduate degrees	33	14,2%	196	22,9%	181	18,5%	284	24,4%
		Postgraduate degree and 'Grandes Ecoles'	4	1,7%	90	10,5%	212	21,7%	185	15,9%
5	[1961 ; 1966]	No diplomas	135	15,6%	162	14,2%	130	12,4%	176	12,2%
		Primary school certificate	12	1,4%	24	2,1%	14	1,3%	17	1,2%
		Vocational aptitude/studies certificates (CAP/BEP)	223	25,8%	258	22,6%	391	37,2%	522	36,3%
		Junior secondary school certificate	177	20,5%	265	23,2%	66	6,3%	77	5,4%
		'Professional' high school degree	58	6,7%	54	4,7%	47	4,5%	99	6,9%
		'General' high school degree	54	6,3%	90	7,9%	72	6,9%	99	6,9%
		Undergraduate and graduate degrees	143	16,6%	182	16,0%	145	13,8%	262	18,2%
		Postgraduate degree and 'Grandes Ecoles'	62	7,2%	105	9,2%	185	17,6%	187	13,0%
6	[1955 ; 1960]	No diplomas	194	13,8%	190	15,2%	136	12,4%	173	11,5%
		Primary school certificate	88	6,3%	77	6,2%	53	4,8%	68	4,5%
		Vocational aptitude/studies certificates (CAP/BEP)	419	29,8%	285	22,8%	388	35,2%	518	34,3%
		Junior secondary school certificate	273	19,4%	262	20,9%	71	6,4%	104	6,9%
		'Professional' high school degree	79	5,6%	71	5,7%	58	5,3%	84	5,6%
		'General' high school degree	84	6,0%	81	6,5%	85	7,7%	85	5,6%
		Undergraduate and graduate degrees	174	12,4%	175	14,0%	129	11,7%	239	15,8%
		Postgraduate degree and 'Grandes Ecoles'	95	6,8%	111	8,9%	181	16,4%	238	15,8%
7	[1949 ; 1954]	No diplomas	181	12,7%	146	10,6%	129	11,5%	155	9,6%
		Primary school certificate	185	13,0%	183	13,3%	126	11,3%	171	10,6%
		Vocational aptitude/studies certificates (CAP/BEP)	450	31,5%	342	24,8%	333	29,7%	486	30,1%
		Junior secondary school certificate	179	12,5%	211	15,3%	69	6,2%	118	7,3%
		'Professional' high school degree	79	5,5%	75	5,4%	51	4,6%	57	3,5%
		'General' high school degree	64	4,5%	105	7,6%	81	7,2%	113	7,0%
		Undergraduate and graduate degrees	180	12,6%	181	13,1%	112	10,0%	255	15,8%
		Postgraduate degree and 'Grandes Ecoles'	109	7,6%	134	9,7%	219	19,6%	259	16,0%
8	[1943 ; 1948]	No diplomas	171	14,5%	184	14,9%	128	13,0%	237	14,1%
		Primary school certificate	187	15,9%	203	16,4%	148	15,0%	263	15,6%
		Vocational aptitude/studies certificates (CAP/BEP)	299	25,4%	313	25,3%	248	25,2%	425	25,3%
		Junior secondary school certificate	111	9,4%	146	11,8%	71	7,2%	118	7,0%
		'Professional' high school degree	71	6,0%	47	3,8%	48	4,9%	43	2,6%
		'General' high school degree	77	6,5%	107	8,7%	71	7,2%	119	7,1%
		Undergraduate and graduate degrees	126	10,7%	114	9,2%	96	9,7%	228	13,5%
		Postgraduate degree and 'Grandes Ecoles'	137	11,6%	121	9,8%	175	17,8%	250	14,9%
9	[1937 ; 1942]	No diplomas	148	16,8%	198	20,4%	171	20,3%	203	16,8%
		Primary school certificate	205	23,2%	220	22,7%	188	22,3%	261	21,7%
		Vocational aptitude/studies certificates (CAP/BEP)	228	25,9%	217	22,3%	202	24,0%	300	24,9%
		Junior secondary school certificate	57	6,5%	77	7,9%	44	5,2%	73	6,1%
		'Professional' high school degree	42	4,8%	49	5,0%	24	2,8%	14	1,2%
		'General' high school degree	61	6,9%	73	7,5%	44	5,2%	86	7,1%
		Undergraduate and graduate degrees	53	6,0%	67	6,9%	48	5,7%	107	8,9%
		Postgraduate degree and 'Grandes Ecoles'	88	10,0%	70	7,2%	122	14,5%	161	13,4%
10	[1931 ; 1936]	No diplomas	243	25,1%	309	32,5%	230	26,0%	301	26,6%
		Primary school certificate	275	28,4%	284	29,9%	216	24,4%	297	26,3%
		Vocational aptitude/studies certificates (CAP/BEP)	175	18,1%	161	16,9%	162	18,3%	213	18,8%
		Junior secondary school certificate	63	6,5%	48	5,0%	51	5,8%	80	7,1%
		'Professional' high school degree	31	3,2%	22	2,3%	33	3,7%	15	1,3%
		'General' high school degree	58	6,0%	44	4,6%	58	6,5%	56	5,0%
		Undergraduate and graduate degrees	50	5,2%	40	4,2%	47	5,3%	65	5,8%
		Postgraduate degree and 'Grandes Ecoles'	73	7,5%	43	4,5%	89	10,0%	103	9,1%
11	[1925 ; 1930]	No diplomas	306	29,2%	273	30,9%	232	27,4%	208	23,7%
		Primary school certificate	409	39,0%	301	34,0%	317	37,4%	300	34,2%
		Vocational aptitude/studies certificates (CAP/BEP)	104	9,9%	94	10,6%	85	10,0%	83	9,5%
		Junior secondary school certificate	46	4,4%	51	5,8%	43	5,1%	57	6,5%
		'Professional' high school degree	15	1,4%	20	2,3%	11	1,3%	11	1,3%
		'General' high school degree	68	6,5%	79	8,9%	63	7,4%	69	7,9%
		Undergraduate and graduate degrees	46	4,4%	29	3,3%	24	2,8%	58	6,6%
		Postgraduate degree and 'Grandes Ecoles'	55	5,2%	37	4,2%	73	8,6%	91	10,4%
12	[1919 ; 1924]	No diplomas	224	27,3%	195	30,1%	164	29,7%	100	23,6%
		Primary school certificate	357	43,5%	251	38,8%	204	36,9%	164	38,8%
		Vocational aptitude/studies certificates (CAP/BEP)	56	6,8%	42	6,5%	38	6,9%	26	6,1%
		Junior secondary school certificate	23	2,8%	29	4,5%	32	5,8%	34	8,0%
		'Professional' high school degree	13	1,6%	10	1,5%	6	1,1%	3	0,7%
		'General' high school degree	87	10,6%	62	9,6%	54	9,8%	34	8,0%
		Undergraduate and graduate degrees	27	3,3%	29	4,5%	14	2,5%	19	4,5%
		Postgraduate degree and 'Grandes Ecoles'	33	4,0%	29	4,5%	41	7,4%	43	10,2%
13	[1913 ; 1918]	No diplomas	121	39,2%	112	38,0%	43	26,9%	17	33,3%
		Primary school certificate	107	34,6%	99	33,6%	67	41,9%	18	35,3%
		Vocational aptitude/studies certificates (CAP/BEP)	16	5,2%	11	3,7%	11	6,9%	1	2,0%
		Junior secondary school certificate	15	4,9%	11	3,7%	9	5,6%	6	11,8%
		'Professional' high school degree	4	1,3%	4	1,4%	1	0,6%	0	0,0%
		'General' high school degree	24	7,8%	36	12,2%	14	8,8%	4	7,8%
		Undergraduate and graduate degrees	8	2,6%	12	4,1%	4	2,5%	2	3,9%
		Postgraduate degree and 'Grandes Ecoles'	14	4,5%	10	3,4%	11	6,9%	3	5,9%
14	[1907 ; 1912]	No diplomas	74	33,9%	74	44,8%				
		Primary school certificate	95	43,6%	61	37,0%				
		Vocational aptitude/studies certificates (CAP/BEP)	3	1,4%	4	2,4%				
		Junior secondary school certificate	6	2,8%	5	3,0%				
		'Professional' high school degree	1	0,5%	1	0,6%				
		'General' high school degree	21	9,6%	14	8,5%				
		Undergraduate and graduate degrees	11	5,0%	4	2,4%				
		Postgraduate degree and 'Grandes Ecoles'	7	3,2%	2	1,2%				
15	[1901 ; 1906]	No diplomas								
		Primary school certificate								
		Vocational aptitude/studies certificates (CAP/BEP)								
		Junior secondary school certificate								
		'Professional' high school degree								
		'General' high school degree								
		Undergraduate and graduate degrees								
		Postgraduate degree and 'Grandes Ecoles'								

H Evolution of household gross and financial wealth over lifespan, by relative diploma

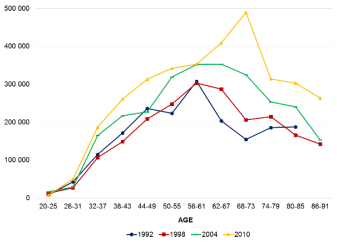
Figure 27: Evolution of household gross wealth over lifespan, cross-sectional analysis



(a) Relative diploma=1, Median

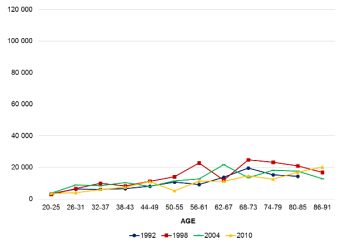


(b) Relative diploma=2, Median

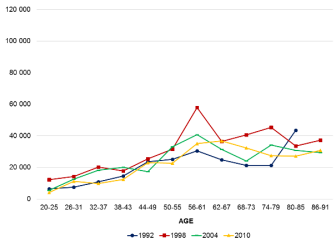


(c) Relative diploma=3, Median

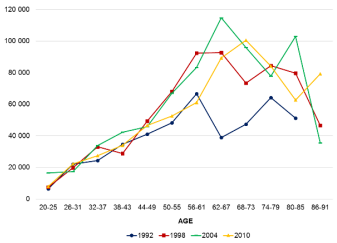
Figure 28: Evolution of household financial wealth over lifespan, cross-sectional analysis



(a) Relative diploma=1, Median

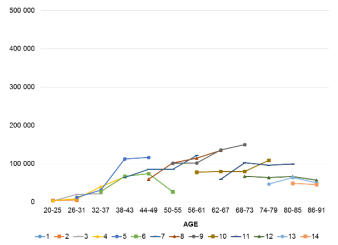


(b) Relative diploma=2, Median

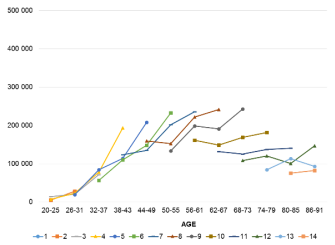


(c) Relative diploma=3, Median

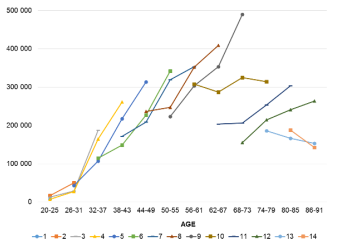
Figure 29: Evolution of household gross wealth over lifespan, cohort analysis



(a) Relative diploma=1, Median

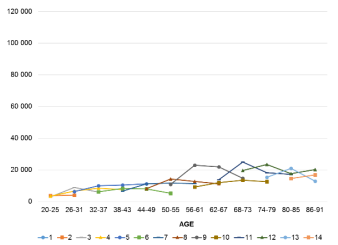


(b) Relative diploma=2, Median

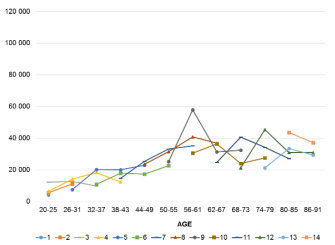


(c) Relative diploma=3, Median

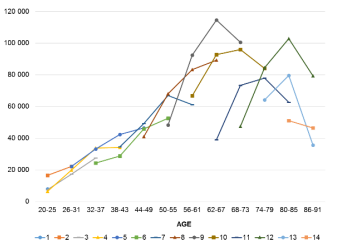
Figure 30: Evolution of household financial wealth over lifespan, cohort analysis



(a) Relative diploma=1, Median



(b) Relative diploma=2, Median



(c) Relative diploma=3, Median

I Composition of the top gross wealth decile group over the period

	D10 - Gross wealth decile				Total sample			
	1992	1998	2004	2010	1992	1998	2004	2010
Age Class								
Under 30	1.0%	1.5%	0.8%	1.7%	13.5%	13.3%	11.7%	12.9%
30-40	14.0%	10.4%	9.2%	11.9%	20.8%	19.7%	19.3%	17.8%
40-50	25.8%	23.7%	22.0%	17.9%	19.8%	20.7%	19.9%	17.7%
50-60	25.1%	28.6%	28.8%	27.2%	15.2%	15.0%	17.2%	18.1%
60-70	20.4%	17.9%	17.6%	23.4%	15.8%	13.8%	13.1%	14.9%
70 & over	13.7%	17.9%	21.6%	18.0%	15.0%	17.7%	18.8%	18.6%
Birth cohort								
1				0.2%				4.1%
2			0.2%	1.5%			3.7%	8.8%
3		0.2%	0.7%	4.2%		3.3%	7.8%	9,6%
4	0.0%	1.3%	2.9%	10.2%	4.0%	9.9%	11.4%	11.7%
5	1.5%	4.8%	11.1%	10.6%	10.4%	11.6%	11.7%	11.0%
6	6.7%	8.5%	11.3%	14.5%	12.3%	12.0%	12.0%	9.9%
7	12.1%	15.0%	17.7%	17.7%	13.3%	12.3%	11.8%	11.4%
8	17.6%	18.6%	16.7%	15.6%	11.8%	10.9%	9.4%	10.3%
9	13.9%	15.8%	11.8%	10.6%	8.7%	8.6%	8.0%	6.9%
10	15.5%	10.3%	9.5%	6.6%	9.4%	7.7%	7.9%	7.0%
11	12.6%	12.0%	10.5%	5.6%	9.6%	8.9%	8.5%	6.2%
12	9.2%	8.1%	6.1%	2.9%	9.1%	8.0%	5.9%	3.2%
13	4.9%	3.7%	1.7%		6.4%	4.3%	1.9%	
14	6.0%	1.7%			5.1%	2.6%		
Education achievement								
No diplomas	8.3%	8.7%	8.4%	5.6%	23.3%	21.4%	20.5%	18.3%
Primary school certificate	15.8%	14.6%	13.1%	7.7%	20.6%	18.0%	16.8%	13.1%
Vocational aptitude/studies certificates (CAP/BEP)	13.8%	14.5%	17.0%	23.9%	20.0%	18.2%	26.0%	25.9%
Junior secondary school certificate	6.6%	12.7%	5.2%	5.8%	10.5%	12.7%	5.1%	5.8%
'Professional' high school degree	6.4%	5.1%	6.0%	5.1%	3.9%	4.0%	4.9%	6.2%
'General' high school degree	13.1%	14.6%	10.0%	9.1%	7.3%	8.4%	7.6%	7.0%
Undergraduate and graduate degrees	13.2%	12.8%	10.0%	18.6%	9.1%	11.0%	8.0%	16.2%
Postgraduate degree and 'Grandes Ecoles'	22.9%	17.1%	30.3%	24.3%	5.3%	6.3%	11.2%	7.6%
Relative diploma								
1st tertile	14.1%	15.1%	18.0%	16.5%	33.2%	32.8%	39.5%	38.1%
2nd tertile	26.8%	31.7%	24.1%	26.7%	37.9%	35.7%	30.4%	28.7%
3rd tertile	59.0%	53.2%	57.8%	56.8%	27.6%	29.2%	28.4%	31.1%
Occupation								
In employment	66.4%	58.6%	56.2%	51.1%	59.3%	55.5%	55.9%	50.5%
Unemployed persons	1.4%	2.2%	2.3%	2.1%	5.1%	6.1%	6.3%	6.1%
Students. apprendices and trainees	0.0%	0.1%	0.1%	0.1%	1.4%	2.3%	1.7%	2.1%
Pensioners	29.5%	35.4%	39.1%	41.3%	28.2%	30.2%	32.0%	34.8%
Housewives	0.4%	0.7%	0.9%	3.9%	1.3%	1.0%	1.2%	4.0%
Other	2.4%	3.1%	1.4%	1.5%	4.7%	4.8%	3.0%	2.6%
Socio-professional category								
Never worked or long-term unemployed	0.1%	0.1%	0.0%	1.4%	2.2%	2.8%	1.9%	6.9%
Farmers	12.0%	13.7%	11.9%	12.5%	6.1%	5.0%	4.5%	2.1%
Craftmen. tradesmen. business owneers	26.2%	23.9%	22.0%	24.5%	8.9%	8.7%	8.7%	8.0%
Liberal profession	7.9%	6.0%	6.6%	11.9%	1.2%	1.0%	1.3%	2.1%
Other managers and higher intellectual professions	31.0%	28.7%	34.1%	29.3%	11.0%	12.0%	13.6%	14.9%
Technicians and associate professionals	14.7%	15.9%	14.3%	13.3%	18.5%	18.9%	19.6%	22.8%
Employees	4.2%	6.9%	5.7%	4.4%	18.3%	19.5%	19.3%	19.0%
Manual workers	3.9%	5.0%	5.5%	2.7%	33.9%	32.1%	31.1%	24.1%
Family type								
Single males or females	12.8%	14.5%	14.9%	18.5%	25.7%	29.7%	29.7%	35.1%
Single-parent family	2.9%	2.8%	2.7%	2.9%	6.1%	6.4%	7.8%	8.0%
Couples with no children	34.8%	38.9%	43.8%	42.3%	26.4%	26.1%	27.7%	27.4%
Couples with children	44.7%	39.2%	35.7%	35.0%	38.7%	33.7%	32.0%	27.8%
Other	4.8%	4.6%	2.9%	1.3%	3.1%	4.2%	2.8%	1.7%
Housing occupation status								
Homebuyers	33.1%	26.3%	21.9%	24.7%	24.3%	22.5%	21.8%	20.6%
Owner-occupiers	54.9%	62.1%	67.5%	67.1%	29.8%	30.9%	34.0%	35.0%
Tenants	8.5%	7.6%	7.2%	4.8%	39.1%	39.2%	38.8%	38.4%
Other	3.6%	4.0%	3.4%	3.5%	6.8%	7.3%	5.4%	6.0%
Legacy or bequest								
No	24.8%	31.8%	27.3%	29.6%	54.0%	62.6%	62.1%	59.8%
Yes	75.2%	68.2%	72.7%	70.4%	46.0%	37.4%	37.9%	40.2%

Liste des documents de travail de la Direction des Études et Synthèses Économiques

G 9001 J. FAYOLLE et M. FLEURBAEY
Accumulation, profitabilité et endettement des entreprises

G 9002 H. ROUSSE
Détection et effets de la multicolinéarité dans les modèles linéaires ordinaires - Un prolongement de la réflexion de BELSLEY, KUH et WELSCH

G 9003 P. RALLE et J. TOUJAS-BERNATE
Indexation des salaires : la rupture de 1983

G 9004 D. GUELLEC et P. RALLE
Compétitivité, croissance et innovation de produit

G 9005 P. RALLE et J. TOUJAS-BERNATE
Les conséquences de la désindexation. Analyse dans une maquette prix-salaires

G 9101 Équipe AMADEUS
Le modèle AMADEUS - Première partie - Présentation générale

G 9102 J.L. BRILLET
Le modèle AMADEUS - Deuxième partie - Propriétés variantielles

G 9103 D. GUELLEC et P. RALLE
Endogenous growth and product innovation

G 9104 H. ROUSSE
Le modèle AMADEUS - Troisième partie - Le commerce extérieur et l'environnement international

G 9105 H. ROUSSE
Effets de demande et d'offre dans les résultats du commerce extérieur manufacturé de la France au cours des deux dernières décennies

G 9106 B. CREPON
Innovation, taille et concentration : causalités et dynamiques

G 9107 B. AMABLE et D. GUELLEC
Un panorama des théories de la croissance endogène

G 9108 M. GLAUDE et M. MOUTARDIER
Une évaluation du coût direct de l'enfant de 1979 à 1989

G 9109 P. RALLE et alii
France - Allemagne : performances économiques comparées

G 9110 J.L. BRILLET
Micro-DMS ***NON PARU***

G 9111 A. MAGNIER
Effets accélérateur et multiplicateur en France depuis 1970 : quelques résultats empiriques

G 9112 B. CREPON et G. DUREAU
Investissement en recherche-développement : analyse de causalités dans un modèle d'accélérateur généralisé

G 9113 J.L. BRILLET, H. ERKEL-ROUSSE, J. TOUJAS-BERNATE
"France-Allemagne Couplées" - Deux économies vues par une maquette macro-économétrique

G 9201 W.J. ADAMS, B. CREPON, D. ENCAOUA
Choix technologiques et stratégies de dissuasion d'entrée

G 9202 J. OLIVEIRA-MARTINS,
J. TOUJAS-BERNATE
Macro-economic import functions with imperfect competition - An application to the E.C. Trade

G 9203 I. STAPIC
Les échanges internationaux de services de la France dans le cadre des négociations multilatérales du GATT
Juin 1992 (1ère version)
Novembre 1992 (version finale)

G 9204 P. SEVESTRE
L'économétrie sur données individuelles-temporelles. Une note introductive

G 9205 H. ERKEL-ROUSSE
Le commerce extérieur et l'environnement international dans le modèle AMADEUS (réestimation 1992)

G 9206 N. GREENAN et D. GUELLEC
Coordination within the firm and endogenous growth

G 9207 A. MAGNIER et J. TOUJAS-BERNATE
Technology and trade: empirical evidences for the major five industrialized countries

G 9208 B. CREPON, E. DUGUET, D. ENCAOUA et P. MOHNEN
Cooperative, non cooperative R & D and optimal patent life

G 9209 B. CREPON et E. DUGUET
Research and development, competition and innovation: an application of pseudo maximum likelihood methods to Poisson models with heterogeneity

G 9301 J. TOUJAS-BERNATE
Commerce international et concurrence imparfaite : développements récents et implications pour la politique commerciale

G 9302 Ch. CASES
Durées de chômage et comportements d'offre de travail : une revue de la littérature

G 9303 H. ERKEL-ROUSSE
Union économique et monétaire : le débat économique

G 9304 N. GREENAN - D. GUELLEC /
G. BROUSSAUDIER - L. MIOTTI
Innovation organisationnelle, dynamisme technologique et performances des entreprises

G 9305 P. JAILLARD
Le traité de Maastricht : présentation juridique et historique

G 9306 J.L. BRILLET
Micro-DMS : présentation et propriétés

G 9307 J.L. BRILLET
Micro-DMS - variantes : les tableaux

G 9308 S. JACOBZONE
Les grands réseaux publics français dans une perspective européenne

G 9309 L. BLOCH - B. CŒURE
Profitabilité de l'investissement productif et transmission des chocs financiers

G 9310 J. BOURDIEU - B. COLIN-SEDILLOT
Les théories sur la structure optimale du capital : quelques points de repère

G 9311 J. BOURDIEU - B. COLIN-SEDILLOT
Les décisions de financement des entreprises françaises : une évaluation empirique des théories de la structure optimale du capital

G 9312 L. BLOCH - B. CŒURÉ
Q de Tobin marginal et transmission des chocs financiers

G 9313 Équipes Amadeus (INSEE), Banque de France, Métric (DP)
Présentation des propriétés des principaux modèles macroéconomiques du Service Public

G 9314 B. CREPON - E. DUGUET
Research & Development, competition and innovation

G 9315 B. DORMONT
Quelle est l'influence du coût du travail sur l'emploi ?

G 9316 D. BLANCHET - C. BROUSSE
Deux études sur l'âge de la retraite

G 9317 D. BLANCHET
Répartition du travail dans une population hétérogène : deux notes

G 9318 D. EYSSARTIER - N. PONTY
AMADEUS - an annual macro-economic model for the medium and long term

G 9319 G. CETTE - Ph. CUNÉO - D. EYSSARTIER - J. GAUTIÉ
Les effets sur l'emploi d'un abaissement du coût du travail des jeunes

G 9401 D. BLANCHET
Les structures par âge importent-elles ?

G 9402 J. GAUTIÉ
Le chômage des jeunes en France : problème de formation ou phénomène de file d'attente ?
Quelques éléments du débat

G 9403 P. QUIRION
Les déchets en France : éléments statistiques et économiques

G 9404 D. LADIRAY - M. GRUN-REHOMME
Lissage par moyennes mobiles - Le problème des extrémités de série

G 9405 V. MAILLARD
Théorie et pratique de la correction des effets de jours ouvrables

G 9406 F. ROSENWALD
La décision d'investir

G 9407 S. JACOBZONE
Les apports de l'économie industrielle pour définir la stratégie économique de l'hôpital public

G 9408 L. BLOCH, J. BOURDIEU,
B. COLIN-SEDILLOT, G. LONGUEVILLE
Du défaut de paiement au dépôt de bilan : les banquiers face aux PME en difficulté

G 9409 D. EYSSARTIER, P. MAIRE
Impacts macro-économiques de mesures d'aide au logement - quelques éléments d'évaluation

G 9410 F. ROSENWALD
Suivi conjoncturel de l'investissement

G 9411 C. DEFEUILLEY - Ph. QUIRION
Les déchets d'emballages ménagers : une analyse économique des politiques française et allemande

G 9412 J. BOURDIEU - B. CŒURÉ -
B. COLIN-SEDILLOT
Investissement, incertitude et irréversibilité
Quelques développements récents de la théorie de l'investissement

G 9413 B. DORMONT - M. PAUCHET
L'évaluation de l'élasticité emploi-salaire dépend-elle des structures de qualification ?

G 9414 I. KABLA
Le Choix de breveter une invention

G 9501 J. BOURDIEU - B. CŒURÉ - B. SEDILLOT
Irreversible Investment and Uncertainty:
When is there a Value of Waiting?

G 9502 L. BLOCH - B. CŒURÉ
Imperfections du marché du crédit, investissement des entreprises et cycle économique

G 9503 D. GOUX - E. MAURIN
Les transformations de la demande de travail par qualification en France
Une étude sur la période 1970-1993

G 9504 N. GREENAN
Technologie, changement organisationnel, qualifications et emploi : une étude empirique sur l'industrie manufacturière

G 9505 D. GOUX - E. MAURIN
Persistance des hiérarchies sectorielles de salaires: un réexamen sur données françaises

G 9505 Bis D. GOUX - E. MAURIN
Persistence of inter-industry wages differentials: a reexamination on matched worker-firm panel data

G 9506 S. JACOBZONE
Les liens entre RMI et chômage, une mise en perspective
NON PARU - article sorti dans Économie et Prévision n° 122 (1996) - pages 95 à 113

G 9507 G. CETTE - S. MAHFOUZ
Le partage primaire du revenu
Constat descriptif sur longue période

G 9601 Banque de France - CEPREMAP - Direction de la Prévision - Érasme - INSEE - OFCE
Structures et propriétés de cinq modèles macro-économiques français

G 9602 Rapport d'activité de la DESE de l'année 1995

G 9603 J. BOURDIEU - A. DRAZNIEKS
L'octroi de crédit aux PME : une analyse à partir d'informations bancaires

G 9604 A. TOPIOL-BENSAÏD
Les implantations japonaises en France

G 9605 P. GENIER - S. JACOBZONE
Comportements de prévention, consommation d'alcool et tabagie : peut-on parler d'une gestion globale du capital santé ?
Une modélisation microéconométrique empirique

G 9606 C. DOZ - F. LENGLART
Factor analysis and unobserved component models: an application to the study of French business surveys

G 9607 N. GREENAN - D. GUELLEC
La théorie coopérative de la firme

G 9608 N. GREENAN - D. GUELLEC
Technological innovation and employment reallocation

G 9609 Ph. COUR - F. RUPPRECHT
L'intégration asymétrique au sein du continent américain : un essai de modélisation

G 9610 S. DUCHENE - G. FORGEOT - A. JACQUOT
Analyse des évolutions récentes de la productivité apparente du travail

G 9611 X. BONNET - S. MAHFOUZ
The influence of different specifications of wages-prices spirals on the measure of the NAIRU: the case of France

G 9612 PH. COUR - E. DUBOIS, S. MAHFOUZ, J. PISANI-FERRY
The cost of fiscal retrenchment revisited: how strong is the evidence?

G 9613 A. JACQUOT
Les flexions des taux d'activité sont-elles seulement conjoncturelles ?

G 9614 ZHANG Yingxiang - SONG Xueqing
Lexique macroéconomique Français-Chinois

G 9701 J.L. SCHNEIDER
La taxe professionnelle : éléments de cadrage économique

G 9702 J.L. SCHNEIDER
Transition et stabilité politique d'un système redistributif

G 9703 D. GOUX - E. MAURIN
Train or Pay: Does it Reduce Inequalities to Encourage Firms to Train their Workers?

G 9704 P. GENIER
Deux contributions sur dépendance et équité

G 9705 E. DUGUET - N. IUNG
R & D Investment, Patent Life and Patent Value
An Econometric Analysis at the Firm Level

G 9706 M. HOUDEBINE - A. TOPIOL-BENSAÏD
Les entreprises internationales en France : une analyse à partir de données individuelles

G 9707 M. HOUDEBINE
Polarisation des activités et spécialisation des départements en France

G 9708 E. DUGUET - N. GREENAN
Le biais technologique : une analyse sur données individuelles

G 9709 J.L. BRILLET
Analyzing a small French ECM Model

G 9710 J.L. BRILLET
Formalizing the transition process: scenarios for capital accumulation

G 9711 G. FORGEOT - J. GAUTIÉ
Insertion professionnelle des jeunes et processus de déclassement

G 9712 E. DUBOIS
High Real Interest Rates: the Consequence of a Saving Investment Disequilibrium or of an insufficient Credibility of Monetary Authorities?

G 9713 Bilan des activités de la Direction des Études et Synthèses Économiques - 1996

G 9714 F. LEQUILLER
Does the French Consumer Price Index Overstate Inflation?

G 9715 X. BONNET
Peut-on mettre en évidence les rigidités à la baisse des salaires nominaux ?
Une étude sur quelques grands pays de l'OCDE

G 9716 N. IUNG - F. RUPPRECHT
Productivité de la recherche et rendements d'échelle dans le secteur pharmaceutique français

G 9717 E. DUGUET - I. KABLA
Appropriation strategy and the motivations to use the patent system in France - An econometric analysis at the firm level

G 9718 L.P. PELÉ - P. RALLE
Âge de la retraite : les aspects incitatifs du régime général

G 9719 ZHANG Yingxiang - SONG Xueqing
Lexique macroéconomique français-chinois, chinois-français

G 9720 M. HOUDEBINE - J.L. SCHNEIDER
Mesurer l'influence de la fiscalité sur la localisation des entreprises

G 9721 A. MOUROUGANE
Crédibilité, indépendance et politique monétaire
Une revue de la littérature

G 9722 P. AUGERAUD - L. BRIOT
Les données comptables d'entreprises
Le système intermédiaire d'entreprises
Passage des données individuelles aux données sectorielles

G 9723 P. AUGERAUD - J.E. CHAPRON
Using Business Accounts for Compiling National Accounts: the French Experience

G 9724 P. AUGERAUD
Les comptes d'entreprise par activités - Le passage aux comptes - De la comptabilité d'entreprise à la comptabilité nationale - *A paraître*

G 9801 H. MICHAUDON - C. PRIGENT
Présentation du modèle AMADEUS

G 9802 J. ACCARDO
Une étude de comptabilité générationnelle pour la France en 1996

G 9803 X. BONNET - S. DUCHÊNE
Apports et limites de la modélisation « Real Business Cycles »

G 9804 C. BARLET - C. DUGUET - D. ENCAOUA - J. PRADEL
The Commercial Success of Innovations
An econometric analysis at the firm level in French manufacturing

G 9805 P. CAHUC - Ch. GIANELLA - D. GOUX - A. ZILBERBERG
Equalizing Wage Differences and Bargaining Power - Evidence form a Panel of French Firms

G 9806 J. ACCARDO - M. JLASSI
La productivité globale des facteurs entre 1975 et 1996

G 9807 Bilan des activités de la Direction des Études et Synthèses Économiques - 1997

G 9808 A. MOUROUGANE
Can a Conservative Governor Conduct an Accomodative Monetary Policy?

G 9809 X. BONNET - E. DUBOIS - L. FAUVET
Asymétrie des inflations relatives et menus costs : tests sur l'inflation française

G 9810 E. DUGUET - N. IUNG
Sales and Advertising with Spillovers at the firm level: Estimation of a Dynamic Structural Model on Panel Data

G 9811 J.P. BERTHIER
Congestion urbaine : un modèle de trafic de pointe à courbe débit-vitesse et demande élastique

G 9812 C. PRIGENT
La part des salaires dans la valeur ajoutée : une approche macroéconomique

G 9813 A.Th. AERTS
L'évolution de la part des salaires dans la valeur ajoutée en France reflète-t-elle les évolutions individuelles sur la période 1979-1994 ?

G 9814 B. SALANIÉ
Guide pratique des séries non-stationnaires

G 9901 S. DUCHÊNE - A. JACQUOT
Une croissance plus riche en emplois depuis le début de la décennie ? Une analyse en comparaison internationale

G 9902 Ch. COLIN
Modélisation des carrières dans Destinie

G 9903 Ch. COLIN
Évolution de la dispersion des salaires : un essai de prospective par microsimulation

G 9904 B. CREPON - N. IUNG
Innovation, emploi et performances

G 9905 B. CREPON - Ch. GIANELLA
Wages inequalities in France 1969-1992
An application of quantile regression techniques

G 9906 C. BONNET - R. MAHIEU
Microsimulation techniques applied to intergenerational transfers - Pensions in a dynamic framework: the case of France

G 9907 F. ROSENWALD
L'impact des contraintes financières dans la décision d'investissement

G 9908 Bilan des activités de la DESE - 1998

G 9909 J.P. ZOYEM
Contrat d'insertion et sortie du RMI
Évaluation des effets d'une politique sociale

G 9910 Ch. COLIN - Fl. LEGROS - R. MAHIEU
Bilans contributifs comparés des régimes de retraite du secteur privé et de la fonction publique

G 9911 G. LAROQUE - B. SALANIÉ
Une décomposition du non-emploi en France

G 9912 B. SALANIÉ
Une maquette analytique de long terme du marché du travail

G 9912 Ch. GIANELLA

Bis Une estimation de l'élasticité de l'emploi peu qualifié à son coût

G 9913 Division « Redistribution et Politiques Sociales »
Le modèle de microsimulation dynamique DESTINIE

G 9914 E. DUGUET
Macro-commandes SAS pour l'économétrie des panels et des variables qualitatives

G 9915 R. DUHAUTOIS
Évolution des flux d'emplois en France entre 1990 et 1996 : une étude empirique à partir du fichier des bénéfices réels normaux (BRN)

G 9916 J.Y. FOURNIER
Extraction du cycle des affaires : la méthode de Baxter et King

G 9917 B. CRÉPON - R. DESPLATZ - J. MAIRESSE
Estimating price cost margins, scale economies and workers' bargaining power at the firm level

G 9918 Ch. GIANELLA - Ph. LAGARDE
Productivity of hours in the aggregate production function: an evaluation on a panel of French firms from the manufacturing sector

G 9919 S. AUDRIC - P. GIVORD - C. PROST
Évolution de l'emploi et des coûts par qualification entre 1982 et 1996

G 2000/01 R. MAHIEU
Les déterminants des dépenses de santé : une approche macroéconomique

G 2000/02 C. ALLARD-PRIGENT - H. GUILMEAU - A. QUINET
The real exchange rate as the relative price of nontrables in terms of tradables: theoretical investigation and empirical study on French data

G 2000/03 J.-Y. FOURNIER
L'approximation du filtre passe-bande proposée par Christiano et Fitzgerald

G 2000/04 Bilan des activités de la DESE - 1999

G 2000/05 B. CREPON - F. ROSENWALD
Investissement et contraintes de financement : le poids du cycle
Une estimation sur données françaises

G 2000/06 A. FLIPO
Les comportements matrimoniaux de fait

G 2000/07 R. MAHIEU - B. SÉDILLOT
Microsimulations of the retirement decision: a supply side approach

G 2000/08 C. AUDENIS - C. PROST
Déficit conjoncturel : une prise en compte des conjonctures passées

G 2000/09 R. MAHIEU - B. SÉDILLOT
Équivalent patrimonial de la rente et souscription de retraite complémentaire

G 2000/10 R. DUHAUTOIS
Ralentissement de l'investissement : petites ou grandes entreprises ? industrie ou tertiaire ?

G 2000/11 G. LAROQUE - B. SALANIÉ
Temps partiel féminin et incitations financières à l'emploi

G2000/12 Ch. GIANELLA
Local unemployment and wages

G2000/13 B. CREPON - Th. HECKEL
- Informatisation en France : une évaluation à partir de données individuelles
- Computerization in France: an evaluation based on individual company data

G2001/01 F. LEQUILLER
- La nouvelle économie et la mesure de la croissance du PIB
- The new economy and the measure ment of GDP growth

G2001/02 S. AUDRIC
La reprise de la croissance de l'emploi profite-t-elle aussi aux non-diplômés ?

G2001/03 I. BRAUN-LEMAIRE
Évolution et répartition du surplus de productivité

G2001/04 A. BEAUDU - Th. HECKEL
Le canal du crédit fonctionne-t-il en Europe ? Une étude de l'hétérogénéité des comportements d'investissement à partir de données de bilan agrégées

G2001/05 C. AUDENIS - P. BISCOURP - N. FOURCADE - O. LOISEL
Testing the augmented Solow growth model: An empirical reassessment using panel data

G2001/06 R. MAHIEU - B. SÉDILLOT
Départ à la retraite, irréversibilité et incertitude

G2001/07 Bilan des activités de la DESE - 2000

G2001/08 J. Ph. GAUDEMET
Les dispositifs d'acquisition à titre facultatif d'annuités viagères de retraite

G2001/09 B. CRÉPON - Ch. GIANELLA
Fiscalité, coût d'usage du capital et demande de facteurs : une analyse sur données individuelles

G2001/10 B. CRÉPON - R. DESPLATZ
Évaluation des effets des dispositifs d'allégements de charges sociales sur les bas salaires

G2001/11 J.-Y. FOURNIER
Comparaison des salaires des secteurs public et privé

G2001/12 J.-P. BERTHIER - C. JAULENT - R. CONVENEVOLE - S. PISANI
Une méthodologie de comparaison entre consommations intermédiaires de source fiscale et de comptabilité nationale

G2001/13 P. BISCOURP - Ch. GIANELLA
Substitution and complementarity between capital, skilled and less skilled workers: an analysis at the firm level in the French manufacturing industry

G2001/14 I. ROBERT-BOBEE
Modelling demographic behaviours in the French microsimulation model Destinie: An analysis of future change in completed fertility

G2001/15 J.-P. ZOYEM
Diagnostic sur la pauvreté et calendrier de revenus : le cas du "Panel européen des ménages »

G2001/16 J.-Y. FOURNIER - P. GIVORD
La réduction des taux d'activité aux âges extrêmes, une spécificité française ?

G2001/17 C. AUDENIS - P. BISCOURP - N. RIEDINGER
Existe-t-il une asymétrie dans la transmission du prix du brut aux prix des carburants ?

G2002/01 F. MAGNIEN - J.-L. TAVERNIER - D. THESMAR
Les statistiques internationales de PIB par habitant en standard de pouvoir d'achat : une analyse des résultats

G2002/02 Bilan des activités de la DESE - 2001

G2002/03 B. SÉDILLOT - E. WALRAET
La cessation d'activité au sein des couples : y a-t-il interdépendance des choix ?

G2002/04 G. BRILHAULT
- Rétropolation des séries de FBCF et calcul du capital fixe en SEC-95 dans les comptes nationaux français
- Retropolation of the investment series (GFCF) and estimation of fixed capital stocks on the ESA-95 basis for the French balance sheets

G2002/05 P. BISCOURP - B. CRÉPON - T. HECKEL - N. RIEDINGER
How do firms respond to cheaper computers? Microeconometric evidence for France based on a production function approach

G2002/06 C. AUDENIS - J. DEROYON - N. FOURCADE
L'impact des nouvelles technologies de l'information et de la communication sur l'économie française - un bouclage macro-économique

G2002/07 J. BARDAJI - B. SÉDILLOT - E. WALRAET
Évaluation de trois réformes du Régime Général d'assurance vieillesse à l'aide du modèle de microsimulation DESTINIE

G2002/08 J.-P. BERTHIER
Réflexions sur les différentes notions de volume dans les comptes nationaux : comptes aux prix d'une année fixe ou aux prix de l'année précédente, séries chaînées

G2002/09 F. HILD
Les soldes d'opinion résument-ils au mieux les réponses des entreprises aux enquêtes de conjoncture ?

G2002/10 I. ROBERT-BOBÉE
Les comportements démographiques dans le modèle de microsimulation Destinie - Une comparaison des estimations issues des enquêtes Jeunes et Carrières 1997 et Histoire Familiale 1999

G2002/11 J.-P. ZOYEM
La dynamique des bas revenus : une analyse des entrées-sorties de pauvreté

G2002/12 F. HILD
Prévisions d'inflation pour la France

G2002/13 M. LECLAIR
Réduction du temps de travail et tensions sur les facteurs de production

G2002/14 E. WALRAET - A. VINCENT
- Analyse de la redistribution intragénérationnelle dans le système de retraite des salariés du privé - Une approche par microsimulation
- Intragenerational distributional analysis in the french private sector pension scheme - A microsimulation approach

G2002/15 P. CHONE - D. LE BLANC - I. ROBERT-BOBEE
Offre de travail féminine et garde des jeunes enfants

G2002/16 F. MAUREL - S. GREGOIR
Les indices de compétitivité des pays : interprétation et limites

G2003/01 N. RIEDINGER - E.HAUVY
Le coût de dépollution atmosphérique pour les entreprises françaises : Une estimation à partir de données individuelles

G2003/02 P. BISCOURP et F. KRAMARZ
Création d'emplois, destruction d'emplois et internationalisation des entreprises industrielles françaises : une analyse sur la période 1986-1992

G2003/03 Bilan des activités de la DESE - 2002

G2003/04 P.-O. BEFFY - J. DEROYON - N. FOURCADE - S. GREGOIR - N. LAÏB - B. MONFORT
Évolutions démographiques et croissance : une projection macro-économique à l'horizon 2020

G2003/05 P. AUBERT
La situation des salariés de plus de cinquante ans dans le secteur privé

G2003/06 P. AUBERT - B. CRÉPON
Age, salaire et productivité
La productivité des salariés décline-t-elle en fin de carrière ?

G2003/07 H. BARON - P.O. BEFFY - N. FOURCADE - R. MAHIEU
Le ralentissement de la productivité du travail au cours des années 1990

G2003/08 P.-O. BEFFY - B. MONFORT
Patrimoine des ménages, dynamique d'allocation et comportement de consommation

G2003/09 P. BISCOURP - N. FOURCADE
Peut-on mettre en évidence l'existence de rigidités à la baisse des salaires à partir de données individuelles ? Le cas de la France à la fin des années 90

G2003/10 M. LECLAIR - P. PETIT
Présence syndicale dans les firmes : quel impact sur les inégalités salariales entre les hommes et les femmes ?

G2003/11 P.-O. BEFFY - X. BONNET - M. DARRACQ-PARIES - B. MONFORT
MZE: a small macro-model for the euro area

G2004/01 P. AUBERT - M. LECLAIR
La compétitivité exprimée dans les enquêtes trimestrielles sur la situation et les perspectives dans l'industrie

G2004/02 M. DUÉE - C. REBILLARD
La dépendance des personnes âgées : une projection à long terme

G2004/03 S. RASPILLER - N. RIEDINGER
Régulation environnementale et choix de localisation des groupes français

G2004/04 A. NABOULET - S. RASPILLER
Les déterminants de la décision d'investir : une approche par les perceptions subjectives des firmes

G2004/05 N. RAGACHE
La déclaration des enfants par les couples non mariés est-elle fiscalement optimale ?

G2004/06 M. DUÉE
L'impact du chômage des parents sur le devenir scolaire des enfants

G2004/07 P. AUBERT - E. CAROLI - M. ROGER
New Technologies, Workplace Organisation and the Age Structure of the Workforce: Firm-Level Evidence

G2004/08 E. DUGUET - C. LELARGE
Les brevets accroissent-ils les incitations privées à innover ? Un examen microéconométrique

G2004/09 S. RASPILLER - P. SILLARD
Affiliating versus Subcontracting: the Case of Multinationals

G2004/10 J. BOISSINOT - C. L'ANGEVIN - B. MONFORT
Public Debt Sustainability: Some Results on the French Case

G2004/11 S. ANANIAN - P. AUBERT
Travailleurs âgés, nouvelles technologies et changements organisationnels : un réexamen à partir de l'enquête « REPONSE »

G2004/12 X. BONNET - H. PONCET
Structures de revenus et propensions différentes à consommer - Vers une équation de consommation des ménages plus robuste en prévision pour la France

G2004/13 C. PICART
Évaluer la rentabilité des sociétés non financières

G2004/14 J. BARDAJI - B. SÉDILLOT - E. WALRAET
Les retraites du secteur public : projections à l'horizon 2040 à l'aide du modèle de microsimulation DESTINIE

G2005/01 S. BUFFETEAU - P. GODEFROY
Conditions de départ en retraite selon l'âge de fin d'études : analyse prospective pour les générations 1945 à1974

G2005/02 C. AFSA - S. BUFFETEAU
L'évolution de l'activité féminine en France : une approche par pseudo-panel

G2005/03 P. AUBERT - P. SILLARD
Délocalisations et réductions d'effectifs dans l'industrie française

G2005/04 M. LECLAIR - S. ROUX
Mesure et utilisation des emplois instables dans les entreprises

G2005/05 C. L'ANGEVIN - S. SERRAVALLE
Performances à l'exportation de la France et de l'Allemagne - Une analyse par secteur et destination géographique

G2005/06 Bilan des activités de la Direction des Études et Synthèses Économiques - 2004

G2005/07 S. RASPILLER
La concurrence fiscale : principaux enseignements de l'analyse économique

G2005/08 C. L'ANGEVIN - N. LAÏB
Éducation et croissance en France et dans un panel de 21 pays de l'OCDE

G2005/09 N. FERRARI
Prévoir l'investissement des entreprises
Un indicateur des révisions dans l'enquête de conjoncture sur les investissements dans l'industrie.

G2005/10 P.-O. BEFFY - C. L'ANGEVIN
Chômage et boucle prix-salaires :
apport d'un modèle « qualifiés/peu qualifiés »

G2005/11 B. HEITZ
A two-states Markov-switching model of inflation in France and the USA: credible target VS inflation spiral

G2005/12 O. BIAU - H. ERKEL-ROUSSE - N. FERRARI
Réponses individuelles aux enquêtes de conjoncture et prévision macroéconomiques :
Exemple de la prévision de la production manufacturière

G2005/13 P. AUBERT - D. BLANCHET - D. BLAU
The labour market after age 50: some elements of a Franco-American comparison

G2005/14 D. BLANCHET - T. DEBRAND -
P. DOURGNON - P. POLLET
L'enquête SHARE : présentation et premiers résultats de l'édition française

G2005/15 M. DUÉE
La modélisation des comportements démographiques dans le modèle de microsimulation DESTINIE

G2005/16 H. RAOUI - S. ROUX
Étude de simulation sur la participation versée aux salariés par les entreprises

G2006/01 C. BONNET - S. BUFFETEAU - P. GODEFROY
Disparités de retraite de droit direct entre hommes et femmes : quelles évolutions ?

G2006/02 C. PICART
Les gazelles en France

G2006/03 P. AUBERT - B. CRÉPON -P. ZAMORA
Le rendement apparent de la formation continue dans les entreprises : effets sur la productivité et les salaires

G2006/04 J.-F. OUVRARD - R. RATHELOT
Demographic change and unemployment:
what do macroeconometric models predict?

G2006/05 D. BLANCHET - J.-F. OUVRARD
Indicateurs d'engagements implicites des systèmes de retraite : chiffrages, propriétés analytiques et réactions à des chocs démographiques types

G2006/06 G. BIAU - O. BIAU - L. ROUVIERE
Nonparametric Forecasting of the Manufacturing Output Growth with Firm-level Survey Data

G2006/07 C. AFSA - P. GIVORD
Le rôle des conditions de travail dans les absences pour maladie

G2006/08 P. SILLARD - C. L'ANGEVIN - S. SERRAVALLE
Performances comparées à l'exportation de la France et de ses principaux partenaires
Une analyse structurelle sur 12 ans

G2006/09 X. BOUTIN - S. QUANTIN
Une méthodologie d'évaluation comptable du coût du capital des entreprises françaises : 1984-2002

G2006/10 C. AFSA
L'estimation d'un coût implicite de la pénibilité du travail chez les travailleurs âgés

G2006/11 C. LELARGE
Les entreprises (industrielles) françaises sont-elles à la frontière technologique ?

G2006/12 O. BIAU - N. FERRARI
Théorie de l'opinion
Faut-il pondérer les réponses individuelles ?

G2006/13 A. KOUBI - S. ROUX
Une réinterprétation de la relation entre productivité et inégalités salariales dans les entreprises

G2006/14 R. RATHELOT - P. SILLARD
The impact of local taxes on plants location decision

G2006/15 L. GONZALEZ - C. PICART
Diversification, recentrage et poids des activités de support dans les groupes (1993-2000)

G2007/01 D. SRAER
Allègements de cotisations patronales et dynamique salariale

G2007/02 V. ALBOUY - L. LEQUIEN
Les rendements non monétaires de l'éducation : le cas de la santé

G2007/03 D. BLANCHET - T. DEBRAND
Aspiration à la retraite, santé et satisfaction au travail : une comparaison européenne

G2007/04 M. BARLET - L. CRUSSON
Quel impact des variations du prix du pétrole sur la croissance française ?

G2007/05 C. PICART
Flux d'emploi et de main-d'œuvre en France : un réexamen

G2007/06 V. ALBOUY - C. TAVAN
Massification et démocratisation de l'enseignement supérieur en France

G2007/07 T. LE BARBANCHON
The Changing response to oil price shocks in France: a DSGE type approach

G2007/08 T. CHANEY - D. SRAER - D. THESMAR
Collateral Value and Corporate Investment
Evidence from the French Real Estate Market

G2007/09 J. BOISSINOT
Consumption over the Life Cycle: Facts for France

G2007/10 C. AFSA
Interpréter les variables de satisfaction : l'exemple de la durée du travail

G2007/11 R. RATHELOT - P. SILLARD
Zones Franches Urbaines : quels effets sur l'emploi salarié et les créations d'établissements ?

G2007/12 V. ALBOUY - B. CRÉPON
Aléa moral en santé : une évaluation dans le cadre du modèle causal de Rubin

G2008/01 C. PICART
Les PME françaises : rentables mais peu dynamiques

G2008/02 P. BISCOURP - X. BOUTIN - T. VERGÉ
The Effects of Retail Regulations on Prices
Evidence form the Loi Galland

G2008/03 Y. BARBESOL - A. BRIANT
Économies d'agglomération et productivité des entreprises : estimation sur données individuelles françaises

G2008/04 D. BLANCHET - F. LE GALLO
Les projections démographiques : principaux mécanismes et retour sur l'expérience française

G2008/05 D. BLANCHET - F. TOUTLEMONDE
Évolutions démographiques et déformation du cycle de vie active : quelles relations ?

G2008/06 M. BARLET - D. BLANCHET - L. CRUSSON
Internationalisation et flux d'emplois : que dit une approche comptable ?

G2008/07 C. LELARGE - D. SRAER - D. THESMAR
Entrepreneurship and Credit Constraints - Evidence from a French Loan Guarantee Program

G2008/08 X. BOUTIN - L. JANIN
Are Prices Really Affected by Mergers?

G2008/09 M. BARLET - A. BRIANT - L. CRUSSON
Concentration géographique dans l'industrie manufacturière et dans les services en France : une approche par un indicateur en continu

G2008/10 M. BEFFY - É. COUDIN - R. RATHELOT
Who is confronted to insecure labor market histories? Some evidence based on the French labor market transition

G2008/11 M. ROGER - E. WALRAET
Social Security and Well-Being of the Elderly: the Case of France

G2008/12 C. AFSA
Analyser les composantes du bien-être et de son évolution
Une approche empirique sur données individuelles

G2008/13 M. BARLET - D. BLANCHET -
T. LE BARBANCHON
Microsimuler le marché du travail : un prototype

G2009/01 P.-A. PIONNIER
Le partage de la valeur ajoutée en France, 1949-2007

G2009/02 Laurent CLAVEL - Christelle MINODIER
A Monthly Indicator of the French Business Climate

G2009/03 H. ERKEL-ROUSSE - C. MINODIER
Do Business Tendency Surveys in Industry and Services Help in Forecasting GDP Growth?
A Real-Time Analysis on French Data

G2009/04 P. GIVORD - L. WILNER
Les contrats temporaires : trappe ou marchepied vers l'emploi stable ?

G2009/05 G. LALANNE - P.-A. PIONNIER - O. SIMON
Le partage des fruits de la croissance de 1950 à 2008 : une approche par les comptes de surplus

G2009/06 L. DAVEZIES - X. D'HAULTFOEUILLE
Faut-il pondérer ?… Ou l'éternelle question de l'économètre confronté à des données d'enquête

G2009/07 S. QUANTIN - S. RASPILLER - S. SERRAVALLE
Commerce intragroupe, fiscalité et prix de transferts : une analyse sur données françaises

G2009/08 M. CLERC - V. MARCUS
Élasticités-prix des consommations énergétiques des ménages

G2009/09 G. LALANNE - E. POULIQUEN - O. SIMON
Prix du pétrole et croissance potentielle à long terme

G2009/10 D. BLANCHET - J. LE CACHEUX - V. MARCUS
Adjusted net savings and other approaches to sustainability: some theoretical background

G2009/11 V. BELLAMY - G. CONSALES - M. FESSEAU - S. LE LAIDIER - É. RAYNAUD
Une décomposition du compte des ménages de la comptabilité nationale par catégorie de ménage en 2003

G2009/12 J. BARDAJI - F. TALLET
Detecting Economic Regimes in France: a Qualitative Markov-Switching Indicator Using Mixed Frequency Data

G2009/13 R. AEBERHARDT - D. FOUGÈRE - R. RATHELOT
Discrimination à l'embauche : comment exploiter les procédures de *testing* ?

G2009/14 Y. BARBESOL - P. GIVORD - S. QUANTIN
Partage de la valeur ajoutée, approche par données microéconomiques

G2009/15 I. BUONO - G. LALANNE
The Effect of the Uruguay round on the Intensive and Extensive Margins of Trade

G2010/01 C. MINODIER
Avantages comparés des séries des premières valeurs publiées et des séries des valeurs révisées - Un exercice de prévision en temps réel de la croissance trimestrielle du PIB en France

G2010/02 V. ALBOUY - L. DAVEZIES - T. DEBRAND
Health Expenditure Models: a Comparison of Five Specifications using Panel Data

G2010/03 C. KLEIN - O. SIMON
Le modèle MÉSANGE réestimé en base 2000
Tome 1 – Version avec volumes à prix constants

G2010/04 M.-É. CLERC - É. COUDIN
L'IPC, miroir de l'évolution du coût de la vie en France ? Ce qu'apporte l'analyse des courbes d'Engel

G2010/05 N. CECI-RENAUD - P.-A. CHEVALIER
Les seuils de 10, 20 et 50 salariés : impact sur la taille des entreprises françaises

G2010/06 R. AEBERHARDT - J. POUGET
National Origin Differences in Wages and Hierarchical Positions - Evidence on French Full-Time Male Workers from a matched Employer-Employee Dataset

G2010/07 S. BLASCO - P. GIVORD
Les trajectoires professionnelles en début de vie active : quel impact des contrats temporaires ?

G2010/08 P. GIVORD
Méthodes économétriques pour l'évaluation de politiques publiques

G2010/09 P.-Y. CABANNES - V. LAPÈGUE - E. POULIQUEN - M. BEFFY - M. GAINI
Quelle croissance de moyen terme après la crise ?

G2010/10 I. BUONO - G. LALANNE
La réaction des entreprises françaises à la baisse des tarifs douaniers étrangers

G2010/11 R. RATHELOT - P. SILLARD
L'apport des méthodes à noyaux pour mesurer la concentration géographique - Application à la concentration des immigrés en France de 1968 à 1999

G2010/12 M. BARATON - M. BEFFY - D. FOUGÈRE
Une évaluation de l'effet de la réforme de 2003 sur les départs en retraite - Le cas des enseignants du second degré public

G2010/13 D. BLANCHET - S. BUFFETEAU - E. CRENNER S. LE MINEZ
Le modèle de microsimulation Destinie 2 : principales caractéristiques et premiers résultats

G2010/14 D. BLANCHET - E. CRENNER
Le bloc retraites du modèle Destinie 2 : guide de l'utilisateur

G2010/15 M. BARLET - L. CRUSSON - S. DUPUCH - F. PUECH
Des services échangés aux services échangeables : une application sur données françaises

G2010/16 M. BEFFY - T. KAMIONKA
Public-private wage gaps: is civil-servant human capital sector-specific?

G2010/17 P.-Y. CABANNES - H. ERKEL-ROUSSE - G. LALANNE - O. MONSO - E. POULIQUEN
Le modèle Mésange réestimé en base 2000 Tome 2 - Version avec volumes à prix chaînés

G2010/18 R. AEBERHARDT - L. DAVEZIES
Conditional Logit with one Binary Covariate: Link between the Static and Dynamic Cases

G2011/01 T. LE BARBANCHON - B. OURLIAC - O. SIMON
Les marchés du travail français et américain face aux chocs conjoncturels des années 1986 à 2007 : une modélisation DSGE

G2011/02 C. MARBOT
Une évaluation de la réduction d'impôt pour l'emploi de salariés à domicile

G2011/03 L. DAVEZIES
Modèles à effets fixes, à effets aléatoires, modèles mixtes ou multi-niveaux : propriétés et mises en œuvre des modélisations de l'hétérogénéité dans le cas de données groupées

G2011/04 M. ROGER - M. WASMER
Heterogeneity matters: labour productivity differentiated by age and skills

G2011/05 J.-C. BRICONGNE - J.-M. FOURNIER V. LAPÈGUE - O. MONSO
De la crise financière à la crise économique L'impact des perturbations financières de 2007 et 2008 sur la croissance de sept pays industrialisés

G2011/06 P. CHARNOZ - É. COUDIN - M. GAINI
Wage inequalities in France 1976-2004: a quantile regression analysis

G2011/07 M. CLERC - M. GAINI - D. BLANCHET
Recommendations of the Stiglitz-Sen-Fitoussi Report: A few illustrations

G2011/08 M. BACHELET - M. BEFFY - D. BLANCHET
Projeter l'impact des réformes des retraites sur l'activité des 55 ans et plus : une comparaison de trois modèles

G2011/09 C. LOUVOT-RUNAVOT
L'évaluation de l'activité dissimulée des entreprises sur la base des contrôles fiscaux et son insertion dans les comptes nationaux

G2011/10 A. SCHREIBER - A. VICARD
La tertiarisation de l'économie française et le ralentissement de la productivité entre 1978 et 2008

G2011/11 M.-É. CLERC - O. MONSO - E. POULIQUEN
Les inégalités entre générations depuis le baby-boom

G2011/12 C. MARBOT - D. ROY
Évaluation de la transformation de la réduction d'impôt en crédit d'impôt pour l'emploi de salariés à domicile en 2007

G2011/13 P. GIVORD - R. RATHELOT - P. SILLARD
Place-based tax exemptions and displacement effects: An evaluation of the Zones Franches Urbaines program

G2011/14 X. D'HAULTFOEUILLE - P. GIVORD - X. BOUTIN
The Environmental Effect of Green Taxation: the Case of the French "Bonus/Malus"

G2011/15 M. BARLET - M. CLERC - M. GARNEO - V. LAPÈGUE - V. MARCUS
La nouvelle version du modèle MZE, modèle macroéconométrique pour la zone euro

G2011/16 R. AEBERHARDT - I. BUONO - H. FADINGER
Learning, Incomplete Contracts and Export Dynamics: Theory and Evidence form French Firms

G2011/17 C. KERDRAIN - V. LAPÈGUE
Restrictive Fiscal Policies in Europe: What are the Likely Effects?

G2012/01 P. GIVORD - S. QUANTIN - C. TREVIEN
A Long-Term Evaluation of the First Generation of the French Urban Enterprise Zones

G2012/02 N. CECI-RENAUD - V. COTTET
Politique salariale et performance des entreprises

G2012/03 P. FÉVRIER - L. WILNER
Do Consumers Correctly Expect Price Reductions? Testing Dynamic Behavior

G2012/04 M. GAINI - A. LEDUC - A. VICARD
School as a shelter? School leaving-age and the business cycle in France

G2012/05 M. GAINI - A. LEDUC - A. VICARD
A scarred generation? French evidence on young people entering into a tough labour market

G2012/06 P. AUBERT - M. BACHELET
Disparités de montant de pension et redistribution dans le système de retraite français

G2012/07 R. AEBERHARDT - P GIVORD - C. MARBOT
Spillover Effect of the Minimum Wage in France: An Unconditional Quantile Regression Approach

G2012/08 A. EIDELMAN - F. LANGUMIER - A. VICARD
Prélèvements obligatoires reposant sur les ménages : des canaux redistributifs différents en 1990 et 2010

G2012/09 O. BARGAIN - A. VICARD
Le RMI et son successeur le RSA découragent-ils certains jeunes de travailler ? Une analyse sur les jeunes autour de 25 ans

G2012/10 C. MARBOT - D. ROY
Projections du coût de l'APA et des caractéristiques de ses bénéficiaires à l'horizon 2040 à l'aide du modèle Destinie

G2012/11 A. MAUROUX
Le crédit d'impôt dédié au développement durable : une évaluation économétrique

G2012/12 V. COTTET - S. QUANTIN - V. RÉGNIER
Coût du travail et allègements de charges : une estimation au niveau établissement de 1996 à 2008

G2012/13 X. D'HAULTFOEUILLE - P. FÉVRIER - L. WILNER
Demand Estimation in the Presence of Revenue Management

G2012/14 D. BLANCHET - S. LE MINEZ
Joint macro/micro evaluations of accrued-to-date pension liabilities: an application to French reforms

G2013/01-F1301 T. DEROYON - A. MONTAUT - P-A PIONNIER
Utilisation rétrospective de l'enquête Emploi à une fréquence mensuelle : apport d'une modélisation espace-état

G2013/02-F1302 C. TREVIEN
Habiter en HLM : quel avantage monétaire et quel impact sur les conditions de logement ?

G2013/03 A. POISSONNIER
Temporal disaggregation of stock variables - The Chow-Lin method extended to dynamic models

G2013/04 P. GIVORD - C. MARBOT
Does the cost of child care affect female labor market participation? An evaluation of a French reform of childcare subsidies

G2013/05 G. LAME - M. LEQUIEN - P.-A. PIONNIER
Interpretation and limits of sustainability tests in public finance

G2013/06 C. BELLEGO - V. DORTET-BERNADET
La participation aux pôles de compétitivité : quelle incidence sur les dépenses de R&D et l'activité des PME et ETI ?

G2013/07 P.-Y. CABANNES - A. MONTAUT - P.-A. PIONNIER
Évaluer la productivité globale des facteurs en France : l'apport d'une mesure de la qualité du capital et du travail

G2013/08 R. AEBERHARDT - C. MARBOT
Evolution of Instability on the French Labour Market During the Last Thirty Years

G2013/09 J-B. BERNARD - G. CLÉAUD
Oil price: the nature of the shocks and the impact on the French economy

G2013/10 G. LAME
Was there a « Greenspan Conundrum » in the Euro area?

G2013/11 P. CHONÉ - F. EVAIN - L. WILNER - E. YILMAZ
Introducing activity-based payment in the hospital industry : Evidence from French data

G2013/12 C. GRISLAIN-LETRÉMY
Natural Disasters: Exposure and Underinsurance

G2013/13 P.-Y. CABANNES - V. COTTET - Y. DUBOIS - C. LELARGE - M. SICSIC
French Firms in the Face of the 2008/2009 Crisis

G2013/14 A. POISSONNIER - D. ROY
Households Satellite Account for France in 2010. Methodological issues on the assessment of domestic production

G2013/15 G. CLÉAUD - M. LEMOINE - P.-A. PIONNIER
Which size and evolution of the government expenditure multiplier in France (1980-2010)?

G2014/01 M. BACHELET - A. LEDUC - A. MARINO
Les biographies du modèle Destinie II : rebasage et projection

G2014/02 B. GARBINTI
L'achat de la résidence principale et la création d'entreprises sont-ils favorisés par les donations et héritages ?

G2014/03 N. CECI-RENAUD - P. CHARNOZ - M. GAINI
Évolution de la volatilité des revenus salariaux du secteur privé en France depuis 1968

G2014/04 P. AUBERT
Modalités d'application des réformes des retraites et prévisibilité du montant de pension

G2014/05 C. GRISLAIN-LETRÉMY - A. KATOSSKY
The Impact of Hazardous Industrial Facilities on Housing Prices: A Comparison of Parametric and Semiparametric Hedonic Price Models

G2014//06 J.-M. DAUSSIN-BENICHOU - A. MAUROUX
Turning the heat up. How sensitive are households to fiscal incentives on energy efficiency investments?

G2014/07 C. LABONNE - G. LAMÉ
Credit Growth and Capital Requirements: Binding or Not?

G2014/08 C. GRISLAIN-LETRÉMY et C. TREVIEN
The Impact of Housing Subsidies on the Rental Sector: the French Example

G2014/09 M. LEQUIEN et A. MONTAUT
Croissance potentielle en France et en zone euro : un tour d'horizon des méthodes d'estimation

G2014/10 B. GARBINTI - P. LAMARCHE
Les hauts revenus épargnent-ils davantage ?

G2014/11 D. AUDENAERT - J. BARDAJI - R. LARDEUX - M. ORAND - M. SICSIC
Wage Resilience in France since the Great Recession

G2014/12 F. ARNAUD - J. BOUSSARD - A. POISSONNIER - H. SOUAL
Computing additive contributions to growth and other issues for chain-linked quarterly aggregates

G2014/13 H. FRAISSE - F. KRAMARZ - C. PROST
Labor Disputes and Job Flows

G2014/14 P. GIVORD - C. GRISLAIN-LETRÉMY - H. NAEGELE
How does fuel taxation impact new car purchases? An evaluation using French consumer-level dataset

G2014/15 P. AUBERT - S. RABATÉ
Durée passée en carrière et durée de vie en retraite : quel partage des gains d'espérance de vie ?

G2015/01 A. POISSONNIER
The walking dead Euler equation
Addressing a challenge to monetary policy models

G2015/02 Y. DUBOIS - A. MARINO
Indicateurs de rendement du système de retraite français

G2015/03 T. MAYER - C. TREVIEN
The impacts of Urban Public Transportation: Evidence from the Paris Region

G2015/04 S.T. LY - A. RIEGERT
Measuring Social Environment Mobility

G2015/05 M. A. BEN HALIMA - V. HYAFIL-SOLELHAC M. KOUBI - C. REGAERT
Quel est l'impact du système d'indemnisation maladie sur la durée des arrêts de travail pour maladie ?

G2015/06 Y. DUBOIS - A. MARINO
Disparités de rendement du système de retraite dans le secteur privé : approches intergénérationnelle et intragénérationnelle

G2015/07 B. CAMPAGNE - V. ALHENC-GELAS - J.-B. BERNARD
No evidence of financial accelerator in France

G2015/08 Q. LAFFÉTER - M. PAK
Élasticités des recettes fiscales au cycle économique : étude de trois impôts sur la période 1979-2013 en France

G2015/09 J.-M. DAUSSIN-BENICHOU, S. IDMACHICHE, A. LEDUC et E. POULIQUEN
Les déterminants de l'attractivité de la fonction publique de l'État

G2015/10 P. AUBERT
La modulation du montant de pension selon la durée de carrière et l'âge de la retraite : quelles disparités entre assurés ?

G2015/11 V. DORTET-BERNADET - M. SICSIC
Effet des aides publiques sur l'emploi en R&D dans les petites entreprises

G2015/12 S. GEORGES-KOT
Annual and lifetime incidence of the value-added tax in France

G2015/13 M. POULHÈS
Are Enterprise Zones Benefits Capitalized into Commercial Property Values? The French Case

G2015/14 J.-B. BERNARD - Q. LAFFÉTER
Effet de l'activité et des prix sur le revenu salarial des différentes catégories socioprofessionnelles

G2015/15 C. GEAY - M. KOUBI - G de LAGASNERIE
Projections des dépenses de soins de ville, construction d'un module pour Destinie

G2015/16 J. BARDAJI - J.-C. BRICONGNE - B. CAMPAGNE - G. GAULIER
Compared performances of French companies on the domestic and foreign markets

G2015/17 C. BELLÉGO - R. DE NIJS
The redistributive effect of online piracy on the box office performance of American movies in foreign markets

G2015/18 J.-B. BERNARD - L. BERTHET
French households financial wealth: which changes in 20 years?