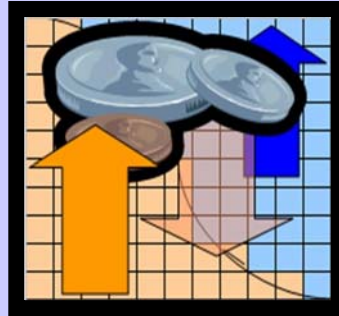




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Financial burden of health payments in France: 1995 – 2006

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**Financial burden of health payments
in France: 1995 – 2006**

by

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**World Health
Organization**

*GENEVA
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SUMMARY

The objective of this paper is to study the financial burden of health payments and their determinants in France applying a catastrophic health expenditure methodology (i.e. health payments that equal or exceed a threshold of household's capacity to pay). An analysis of the progressivity of health insurance contributions and out-of-pocket payments is also carried out using progressivity indexes.

Using French household budget surveys from 1995, 2001 and 2006, we find that the proportion of health payments in the total expenditure of households has decreased on average from 5.2% in 1995 to 4.2% in 2001 and to 3.3% in 2006. A few households faced high burden health expenditure, i.e. health expenditure that exceed 25% of their capacity to pay (5.9% in 1995, 3.8% in 2001 and 2.6% in 2006), but most of them were in the richest quintile.

In French health financing system where basic service package is covered by public insurance, the voluntary based private health insurance significantly reduces the incidence of high burden expenditure and contributes to improving financial protection. In contrast, it does not add to the equity in health financing as private insurance contributions are regressive.

1. Introduction

One of the main objectives of health financing is to provide financial protection to individuals against health shocks. Most countries deal with this issue by increasing risk pooling mechanisms to finance health care and lower the burden of out-of-pocket health payments (OOP). Indeed, it is crucial that the relative contribution made through OOP is not too high, as it can lead individuals to reduce basic spending on other items or even to prevent them from seeking or obtaining care. For some households, OOP can be catastrophic if they have to spend a large share of their net income. Some of them can even be pushed into poverty because of health payments (Cavagnero et al. 2006).

The French health system provides universal coverage to its population and 90% of total health financing is through risk pooling mechanisms (public and private). The social health insurance provides health coverage to the vast majority of the population and finances more than three-quarters of the total national health expenditure. However, the public insurance coverage is incomplete particularly for physician services, drugs and other medical goods.

Most people have private complementary insurance and contribute to health financing through OOP. Over the last years, complementary voluntary health insurance coverage and contributions have increased due to the demand for better coverage and the slow but significant erosion of the proportion of health care costs reimbursed by the statutory health insurance system (Sandier et al. 2004).

The main objective of this paper is to study the financial burden of health payments and equity in health financing in France. The paper applies methods from a growing body of literature to estimate the burden of health expenditure and its impact on poverty (Xu et al. 2003, O'Donnell et al. 2007, Wagstaff 2007).

Using French household budget surveys from 1995, 2001 and 2006, the study analyzes the financial burden of health payments and their determinants. A catastrophic health expenditure framework is applied (Xu et al. 2003), whereby health payments that equal or exceed a threshold of household's capacity-to-pay are considered as high burden or catastrophic health expenditure. Equity of private health payments including both OOP and private insurance premiums is also assessed using progressivity indexes.

The paper is organized as follows: section 2 presents an overview of the French health system and section 3 the health insurance schemes. The data and methodologies are discussed in section 4. Section 5 analyses the burden of health payments. Finally discussion and concluding remarks are presented in sections 6 and 7.

2. Overview of the French health system

France is one of the richest countries in the world with a gross domestic product (GDP) per capita of €28,601. It has a population of 61 million. However, France faces some challenges in terms of health financing. Real GDP growth has slowed down over the last years (from 3.9% in 2000 to 2.2% in 2006) and the population is ageing¹.

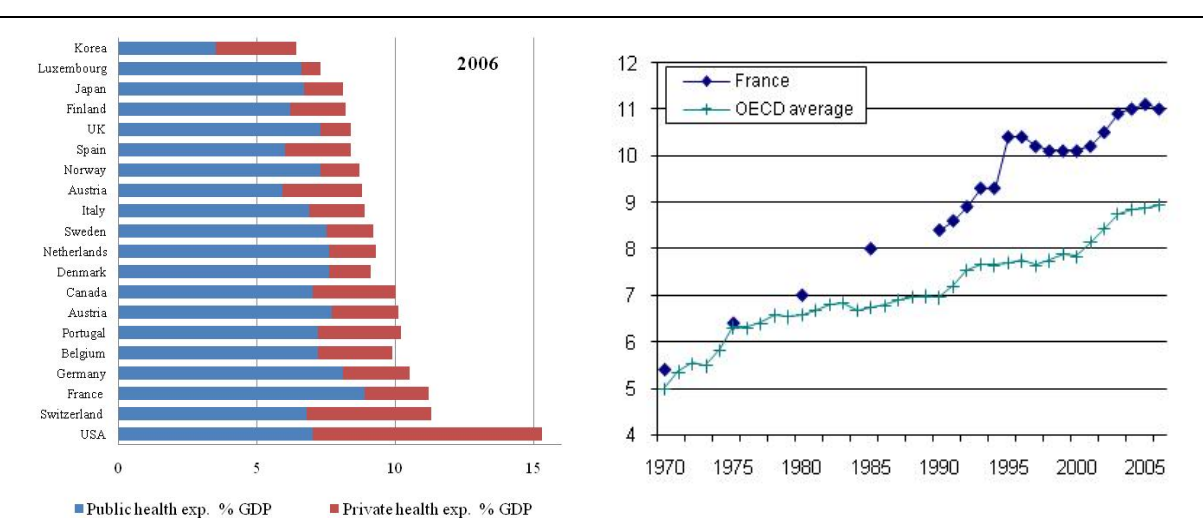
¹ See Table A.1 in the appendix for economic and demographic indicators in France.

2.1 Overall health financing numbers

The French health system is regarded as delivering high quality services, with moderate freedom of choice, direct access to specialists² and generally has no waiting lists for treatment. But the health care system is relatively expensive by international standards and cost containment remains at the heart of reforms since the late 1970s.

Health care expenditure reached €198 billion in 2006, i.e. €3,132 per capita (Table A.2 in Appendix). With 11% of GDP devoted to health care, France is the third largest country in terms of health spending, after the USA and Switzerland (Figure 1), thus ranking second in Europe with respect to GDP allocated to health. Moreover, the decreased expenditure growth that most countries achieved during the 1980s has only been reached in France in the second half of the 1990s (Mougeot 1999).

Figure 1. Health expenditure as a % of GDP in selected OECD countries



Source: Eco-Santé France (IRDES 2008a).

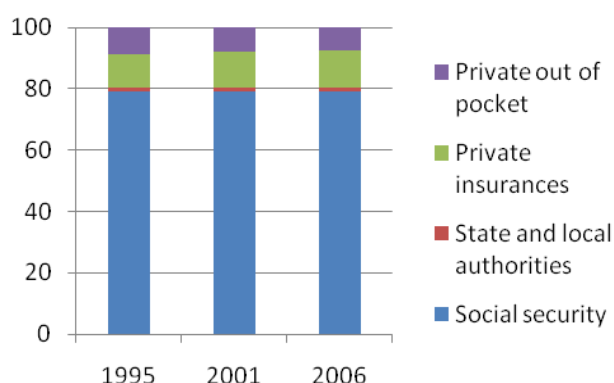
The French health system was inspired by the Bismarckian model, with health insurance funds under State supervision. Today it can be characterized as a mixed system combining publicly funded and private health insurance. The health financing structure (Figure 2) channels a major share of expenditure through the public health insurance system (79.1%). Complementary private health insurance contributes for 12.1% of the total health expenditure³. Households contribute to 7.6% through out-of-pocket payments. OOP may be an obstacle to health care consumption and impede some people from using health care services. Indeed in 2006, 14% of the population did not use health care services for financial reasons⁴ (IRDES 2008b). OOP may also have catastrophic consequences for some people (cf. Section 5). Finally, the State and local authorities contribute a modest 1.2% to health financing. This distribution has remained relatively stable since 1995.

² Since 2004, the referring doctor reform limits the access to specialists. Individuals can still consult directly a specialist but they are less reimbursed by the public system.

³ Public and complementary insurance schemes are discussed in detail in section 3.

⁴ This mainly concerned dental care (63%), optical goods (25%) and specialist practitioners' consultations (16%)

Figure 2. Health financing structure, by financing agent



Source : Eco-Santé France (IRDES 2008a).

2.2 Health service delivery

Inpatient services are delivered by three categories of hospitals: public, private non-for-profit and private-for-profit hospitals. Public hospitals account for 31% of all hospitals and 66% of inpatient beds. Private non-profit hospitals account for 30% of hospitals and 15% of inpatient beds. Private for-profit hospitals account for 39% of all hospitals in France and 20% of all inpatient beds (45% of surgical beds and 33% of obstetric beds) (Ministère de la Santé et des Solidarités 2006, Sandier et al. 2004).

Beyond public hospitals, the Public Hospital Service (SPH) includes private hospitals allowed to provide the SPH. The SPH lists all public hospitals and two-thirds of private non-profit hospitals and represents three quarters of all beds offered by the hospital system⁵. Thus, public and private hospitals involved in the SPH are responsible for ensuring equal access to the care they provide. They are open to all persons requiring their services and are not allowed to make any discrimination between patients. They must be able to accommodate day and night, in an emergency, or to ensure admission to any other public service facility.

Private hospitals that are not participating in the Public Hospital Service (SPH)⁶ provide over a third of inpatient stays involving medical, surgical and obstetric procedures and almost 50% of minor surgical or outpatient cases. These latter invest in relatively minor surgical procedures, carrying out three quarters of cataract surgical procedures and around 60% of admissions for digestive system disorders (e.g. appendectomies, treatment of abdominal hernias, cholecystectomies). It is much less involved in emergency admission or rehabilitation, accounting for just over a quarter of these types of hospital stays. Their involvement with patients needing long-term care or psychiatric treatment is even more marginal (Sandier et al. 2004).

Primary and secondary health care that does not require hospitalization is delivered by self-employed doctors, dentists and medical auxiliary staff working in their own practices, and to a lesser extent, by salaried staff in hospitals and clinics. Almost all self-employed health care

⁵ Non-profit hospitals that are 'participants in public service' carry out public functions such as emergency care, teaching and social programs for deprived populations.

⁶ They represent approximately half of total hospitals and a quarter of inpatient beds.

professionals practice within the framework of the national agreements signed by the professionals' representatives and the health insurance funds.

3. Health insurance schemes

3.1 Mandatory health insurance

Public health insurance is part of the social security system, which was established in 1945. The system has evolved over time: workers and their families were the first to be covered but coverage was extended to other population groups over the next several decades (Table A.3 in Appendix). Today, the system provides universal health coverage. Table A.4 in Appendix presents an overview of the mandatory health coverage and health insurance in France.

3.1.1. Institutional arrangements

Due to the Bismarckian origins of the system, workers and their families are affiliated with public insurance funds on a work-related basis, grouped by professional categorization (i.e. for each scheme, illness risks of the population are covered by the resources collected from this population). However, as some professional groups are now ageing and need more protection, some funds show a deficit, and transfers between different schemes have been introduced.

The main fund (CNAMTS) covers 84.1% of the population, mostly private sector employees and their families. The other schemes provide health coverage to 14.5% of the population: MSA covers farmers and agricultural employees; CANAM covers craftsmen and self-employed people, including self-employed professionals such as lawyers; there are also special statutory funds for certain public sector employees (e.g. National Railway Company, the clergy, National Bank) and for miners (See Table A.4 in the Appendix for more details).

Since 2000, public health insurance has been supplemented by two other systems which extend statutory coverage to people outside the social security system: the 'Couverture Maladie Universelle' (CMU) and the 'Aide Médicale d'Etat' (AME). The CMU establishes universal health coverage, giving statutory health coverage on the basis of residence in France. Persons who cannot be covered by the social security system are entitled to coverage (2.3% of total population in 2005, Table A.3 in Appendix). The CMU is partly directly financed by the government: the beneficiaries with low revenues do not pay contributions whereas those whose revenues exceeding a threshold pay 8% of their total revenue⁷. In contrast, the AME is completely paid by the government and covers medical expenses of people who live in France but in an irregular residential situation and without resources.

3.1.2. Health care benefits

All the different schemes generally provide the same benefit package⁸. Different reimbursement rates are determined by the government⁹ according to the type of goods and services. In order to give a sense of responsibility, the system generally makes people pay

⁷ This threshold is set every year. It was set at €8,774 per year for the 1/10/2008 to 30/09/2009 period.

⁸ With the exception of the CMU, which covers much more.

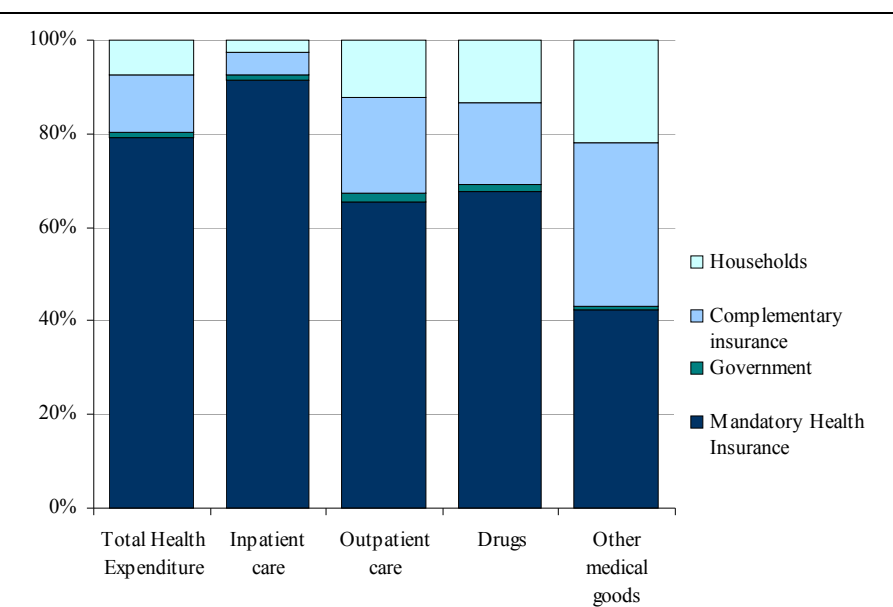
⁹ The government sets the reimbursement rates and the conventional fees for each medical service. A general practitioner is free to charge the fee that he wishes for a consultation, but the social security system only reimburses it at a pre-set rate (in 2006, it reimbursed 70% of 20 Euros). The same process applies to medicine: the Ministry of Health negotiates prices of medicine with the manufacturers and a board of experts decides if the medicines provide enough valuable medical benefit to be reimbursed (and sets the rate of reimbursement).

first¹⁰. The patients then inform their insurance funds about their use of health care and the fees paid¹¹ and generally get reimbursed a few days later.

Public coverage for inpatient care is quite complete; the system finances 91.4% of the inpatient costs (Figure 3). In theory, people have to pay 20% of the costs and a €15 daily charge (‘forfait hospitalier’), but in many particular cases these patient contributions are discounted¹².

Public coverage is less complete for physician services and medicine, though it still accounts for 65.6% and 67.5% of total spending on these categories, respectively. In the case of physician services, patients are responsible for the payment of the ‘ticket modérateur’, a copayment representing 30% of the conventional tariff. The purpose of the ‘ticket modérateur’ is to reduce the moral hazard associated with insurance coverage. Patients are also responsible for physician fees that exceed the conventional tariff. For prescriptions drugs and medical goods, the ‘ticket modérateur’ ranges from 0% to 65%.

Figure 3. Structure of health expenditure, by financing agent



Source : Eco-Santé France (IRDES 2008a)

The category *other medical goods* includes, for example, eyeglasses and prostheses. Only 42.4% of this spending is financed by the public system. While the statutory public insurance scheme provides reimbursement for spending on these goods, the reimbursement rates are extremely low compared to market prices. Moreover, the public system provides no reimbursement for the cost of contact lenses in most cases.

¹⁰ Except for inpatient care and drug expenditure for which patients only pay the non-reimbursed part of the fees.

¹¹ Either by sending a special form (“Feuille de soins”) partially filled in by their health care provider, or by presenting their ‘Carte Vitale’ to their provider. The Carte Vitale was created in 1999. It is a smart card verifying people are insured and facilitating the reimbursement process: it allows for rapid communication to the public and private insurance funds concerning the care and the fees of the patient. Furthermore, it also contains (encrypted) medical information about the patient.

¹² Particular cases that lead to discounts: people insured by CMU, stays longer than one-month, different types of illnesses, etc.

3.1.3. Financing of the mandatory health scheme

Today, the mandatory health insurance is mainly financed by two different sources: one of Bismarckian type (contributions based on worker wages) and one of Beveridgian type (income taxes) (Sauvignet 2005).

Workers and employers contribute to the financing of the public scheme through payroll taxes, which, in the general scheme, represent 0.75% and 12.8% of the gross salary, respectively¹³. Overall, these contributions account for 43% of the revenue of the general scheme of the mandatory health insurance. Resources are collected by the companies and then transferred to their collection organization (called URSSAF). These contributions are then brought back up to the Central Agency of the Social Security Organisms (ACOSS) and are made available to be used for health care reimbursements.

As these contributions are not sufficient to fund the system, people now also contribute by paying income taxes, which are placed into the public system. This is the case of the 'Contribution Sociale Generalisée' (CSG) introduced in 1991. This tax has the advantage of having a larger tax base as it includes both labour and capital revenues: all people contribute as long as they receive an income in France. The rate of the health branch of the CSG¹⁴ represents 5.25% of labour revenues and 5.95% of capital revenues¹⁵. This revenue accounts for 36% of the resources of the general scheme¹⁶ (in 2002). Other taxes, such as for example tobacco and alcohol taxes, pollution taxes and the CRDS¹⁷, also contribute to financing the mandatory public system, but only marginally.

The French public health system faces important difficulties: the deficit of the general health insurance scheme was 5.9 billion Euros in 2006 (Commission de Comptes de la Sécurité Sociale 2008). With health expenditure rising faster than receipts, the financial situation of the public health insurance funds worsened during the 1980s and the early 1990s. The gap between spending and the resources available led the government to launch a series of stabilisation plans. Up to the mid-1990s, the reforms implemented intended to balance the health insurance accounts that relied largely on short term measures. Their main objective was to cover ex post the deficits of the health insurance funds, mostly by increasing patients' contributions with higher social contributions and co-payments (Imai et al., 2000). In 1996, the Juppé Plan introduced structural measures through amendments to the Constitution. Now, Parliament adopts every year a national health spending objective that sets targets for the expenditure and reimbursements made by the mandatory basic schemes¹⁸. Table B.1 in Appendix presents an overview of the main reforms.

¹³ The contributions are different in the other schemes. For example, the contributions of self-employed people, who are attached to the 'Régime Social des Indépendants', vary from 5.9% to 6.5% of their professional income.

¹⁴ The CSG finances three branches of the social security system: family, old age, and health.

¹⁵ These are the main rates, but there are some exceptions: it varies from 3.8% to 7.25% depending on the type of revenue.

¹⁶ People belonging to other schemes contribute in the same manner to the CSG.

¹⁷ The 'Contribution au Remboursement de la Dette Sociale' (CRDS) is a tax based on all revenues, with a rate of 0.5%, aiming at lowering the global deficit of the social security system.

¹⁸ It comprises a spending target for ambulatory care (e.g. private fees, prescriptions, and per diem sickness benefit), a target for public hospitals, a target for private clinics and a target for the medical-social sector.

3.2 Complementary private health insurance

Private health insurance (PHI) serves a complementary function in the French system, reimbursing patients for the cost sharing elements of the public system and for medical goods and services for which public reimbursement levels fall below market prices (Buchmueller and Couffinhal 2004). In 2006, PHI financed 12.1% of the current health expenditure. Coverage has expanded greatly over the past decades from 69% of the population in 1981 to 93% in 2006 (INSEE 2007, IRDES 2008a)¹⁹.

3.2.1. Institutional arrangements

Three different types of organizations are authorized to provide a complementary private health insurance: mutual insurance companies, foresight institutions and private insurance companies (the latter being the only profit-making type). They generally refund the full ‘ticket modérateur’ of the basic scheme, thus cancelling out moderating effects on consumption.

Different types of contracts are provided by these agencies: collective contracts and individual contracts. The collective contracts are for firms to cover their employees; they are generally provided by mutual companies or foresight institutions and they insure redistribution between risks. As they are collective, these contracts are limited according to professions or employers. For instance, the MGEN (a French mutual company) provides insurance contracts to employees of the Ministry of Education, Culture and Sports. Meanwhile, people who cannot be covered through their company usually subscribe to individual contracts. However, these rely more on a competitive market: the premium depends on the selected coverage but also on the risks of the insured people.

There is also a free complementary insurance system for the poorest individuals, provided by the government: only people with low revenues (lower than €8,644 Euro per year) can subscribe to the ‘Couverture Maladie Universelle Complémentaire’ (CMU-C). This scheme had 4.8 million beneficiaries in 2006, which represents 7.5% of the population.

3.2.2. Private health insurance benefits

PHI generally covers medical goods and services expenses that are not or only partially reimbursed by the mandatory health system. Dental care and optical goods represent one-quarter of complementary insurance expenditure (Couffinhal and Perronnin 2004).

Complementary insurance services differ on many points, such as the benefit package and the premium. Some contracts only cover the ‘ticket modérateur’, whereas other contracts cover almost all that is not reimbursed by the Social Security. Between these extremes, contracts may differ on many points such as the rates of coverage, the complementary indemnities for the non-working days, or the reimbursement of optical and dental services. In fact, collective contracts generally have better benefits than individual contracts as companies often participate in their financing (generally for 50% of the premium) (Couffinhal and Perronnin 2004). Consequently, individuals who do not have a stable job, and then who cannot benefit from such collective contracts, get smaller benefit package from private insurance relative to price. More generally, poorer households devote a larger part of their income to complementary insurance compared to richer households (IRDES 2008b),

¹⁹ In 2006, 7% of the population was not covered by complementary insurance, and 54% of them were low income individuals. Unemployed people are the most affected as 18% of this group is not covered: they face both financial obstacles and limited access (as they cannot benefit from collective contracts) (IRDES 2008b).

but they pay lower premiums and benefit from lower coverage. These facts underline that there are inequities in access to complementary health insurance. The CMU-C tries to deal with this but since only the poorest households can subscribe to it, it is still a problem for ‘almost poor’ people²⁰.

4. Data and methods

4.1 Data description

The data used in this study are from the Family Budget Surveys conducted by the French Office of Statistics and Economic Studies (INSEE) in 1994-95, 2000-01, and 2005-06²¹. These surveys represent data for one year (divided into eight periods of six weeks in order to control for seasonal effects²²). The surveys contain data from 10,240 metropolitan French households in 2006, 10,305 in 2001 and 9,634 in 1995²³.

The Family Budget Surveys consist of three visits to each household during a two-week period. Two data collection instruments are used:

- The recording of daily expenditure using a diary which is given to the household for 14 days: the household records all types of expenditure made during that period²⁴;
- A questionnaire²⁵, divided in three parts, used to record the socio-demographic characteristics of the household, its revenues and qualitative information describing its financial situation. The questions also concern expenditure that may not be described in the diaries, such as durable goods expenditure or recurrent expenditure. The latter includes some information about health service utilization and expenditure: the surveys inquire about inpatient care during the last 12 months and the resulting OOP. In addition, the 2000-01 and 2005-06 surveys integrate questions about chronic diseases which resulted in health care utilization²⁶.

The data on health expenditure collected from the diaries should be interpreted with caution. Indeed, households are requested to report in their diaries out-of-pocket health expenditure, i.e. payments net of any reimbursement received from insurances. However many households may report their payments without considering their forthcoming insurance reimbursements (either because they forget the rules concerning the diary account or because they are unable to assess the amount that will be reimbursed). This is often the case for prescribed drugs and outpatient payments²⁷ which might be overestimated in the Family Budget Surveys (Bellamy 2008). On the contrary, the payments concerning inpatient care may not be overestimated as the bill is often already net of insurance reimbursements.

²⁰ This problem is lowering as since 2005, the government provides financial assistance to people whose revenues are 15% higher than the CMU-C threshold to get complementary insurance.

²¹ See INSEE 1997, 2000 and 2007.

²² The 2005-06 survey was conducted between March 2005 and March 2006; the 2000-01 survey between May 2000 and May 2001; the 1994-95 survey between October 1994 and September 1995.

²³ The number of individuals in the survey was 25,634 in 2006, 25,803 in 2001 and 25,032 in 1995.

²⁴ The diary is given during the first visit, the recording is checked during the second visit and it is collected during the third visit.

²⁵ This is a Computer Assisted Personal Interview questionnaire.

²⁶ The recall period is six months for 1995 and 2001 (for the inpatient care, as well as for the chronic disease and medical goods). For 2006, the recall period is twelve months for the inpatient care and for the medical goods. For chronic disease, the recall period for the related health expenditure is two months.

²⁷ At least 70% of the households who had seen a general practitioner have reported amounts that are not net of any insurance in the 2006 survey (Bellamy 2008).

4.2 Methods

4.2.1. Methodology for high burden health expenditure assessment

In order to assess financial protection provided to the population, we use a measure of the financial burden proposed by the World Health Organization (Xu et al. 2003). It consists of determining the proportion of households facing high burden health expenditure. In addition, we determine the proportion of households that fall below the poverty line due to OOP.

The analysis focuses on out-of-pocket payments on health, defined as payments made by households at the point of receiving health services net of any insurance reimbursement. Health spending represents a high burden when a household must reduce its basic expenditure over a period of time to cope with health costs. We define high burden health expenditure as occurring when a household's total out-of-pocket health payments equal or exceed 25% of its capacity to pay (or non subsistence spending). We additionally used a 40% threshold to assess the extent of catastrophic health payments.

We first estimate household's non subsistence income, called capacity to pay (ctp_h). We can define it as the total household income minus its subsistence expenditure (se_h). Household income is measured by total consumption expenditure (exp_h). Reported consumption expenditure²⁸ is used in the analysis in preference to reported income for two main reasons. First, the variance of current expenditure is smaller than the variance of current income over time. Income data reflect random shocks, and expenditure data better reflects the notion of effective income. Secondly, in most household surveys, expenditure data are more reliable than income data (Cavagnero et al. 2006).

Household subsistence expenditure can be defined and measured in many ways. Here we use a food share based poverty line for estimating it. This poverty line (se_{45-55h}) corresponds to the food expenditure of households whose food expenditure share of total household expenditure was the median in the country. In order to minimize measurement errors, we use the average food expenditure of households whose food expenditure share of total household expenditure is within the 45th and 55th percentile of the total sample, adjusted for the size of households²⁹.

Household capacity to pay is therefore: $ctp_h = exp_h - se_{45-55h}$

Some household may report food expenditure that is lower than subsistence spending ($se_h > food_h$). That indicates that the household's food expenditure is under the estimated poverty standard for that country. Such a situation can result from the fact that reported food expenditure in the survey does not consider food subsidies, coupons, self production and other non cash means of food consumption. In that case, the non food expenditure is used as non subsistence spending. Then the capacity to pay is expressed as follows:

²⁸ Household expenditure comprises both monetary and in kind payments on all goods and services, and the money value of the consumption of home-made products. However, the 2001 survey only provides data on monetary consumption; no information on the money value of home-made products is available.

²⁹ Food expenditure was adjusted for household size according to a consumption equivalence scale. Indeed food consumption increases with additional household members but this increase in consumption is less than proportional to the increase in household size. This adjustment is calculated as: $eqsize = hsize^\beta$ where $eqsize$ represents the number of consumption equivalents in the household and $hsize$ is the actual size. The value of the parameter β has been estimated from previous studies based on 59 countries household survey data, and it equals 0.56.

$$ctp_h = \begin{cases} exp_h - se_h & \text{if } se_h \leq food_h \\ exp_h - food_h & \text{if } se_h > food_h \end{cases}$$

The burden of health expenditure is defined as out-of-pocket payments on health as a percentage of a household's capacity to pay:

$$oopctp_h = \frac{oop_h}{ctp_h}$$

A household is considered to be facing high burden expenditure when total out-of-pocket health payments equal or exceed 25% of the household's capacity to pay. A dummy variable (HBoop) reflecting the presence of high burden payments is constructed:

$$HBoop_h = \begin{cases} 1 & \text{if } oopctp_h \geq 0.25 \\ 0 & \text{if } oopctp_h < 0.25 \end{cases}$$

The estimated basic subsistence need of a household, se_h , also serves as poverty line for analyzing the poverty impact of out-of-pocket health payments. A non-poor household is impoverished by health payments when it becomes poor after paying for health services. This is when a household's expenditure net of OOP falls below the household poverty line.

4.2.2. Methodology of high burden health expenditure determinants

We analyze the determinants of high burden expenditure using a logistic regression model: the dependent variable (HBoop) is a dichotomous variable defined as 1 when a household faced high burden health payments and 0 otherwise. Based on the logistic distribution function, the probability of a household facing high burden expenditure is:

$$P = E(HBoop | X) = \text{Pr ob}(HBoop = 1|X) = F(X'\beta) = e^{X'\beta} (1 + e^{X'\beta})^{-1}$$

Where X is the vector of independent variable and β is the coefficients' vector.

After a logit transformation, we get the following linear function:

$$\ln\left(\frac{P}{1-P}\right) = \ln\left(\frac{\text{Pr ob}(HBoop = 1|X)}{\text{Pr ob}(HBoop = 0|X)}\right) = X'\beta$$

This logistic model is estimated by maximum likelihood. We can analyze the determinants of high burden expenditure by studying the coefficients (β), but we chose to develop the analysis by presenting the odds ratios (OR), thus describing how often an event happens, relative to how often it does not. It can be written as follows:

$$OR = \frac{P}{1-P} = \frac{\text{Pr ob}(HBoop = 1|X)}{\text{Pr ob}(HBoop = 0|X)} = e^{X'\beta}$$

They are ranged from 0 when $\text{Prob}(HBoop=1|X)=0$ to $+\infty$ when $\text{Prob}(HBoop=1|X)=1$ and are associated with each explanatory variable. An odds ratio greater than 1 means the factor increases the risk of incurring high burden health payments, while a ratio smaller than 1 indicates a decrease in risk.

5. Results

5.1 Out-of-pocket payments

5.1.1. Level and structure of OOP

According to the surveys, out-of-pocket health expenditure continuously decreased between 1995, 2001 and 2006 (Figure 6). In 1995, households spent on average €818 per year for health services compared to €675 in 2001 and €637 in 2006³⁰. OOP also decreased in relative terms (Figure 7): they represented on average 5.2% of total household expenditure in 1995, 4.2% in 2001 and 3.3% in 2006. This is compensated by a higher contribution of complementary insurance.

The structure of out-of-pocket health payments varied a lot between 1995, 2001 and 2006 (Figures 4 and 5). In 1995, the largest proportion of OOP spending was on medicines (48%). However, it continuously decreased and fell to the third largest category in 2006, with spending of €169 per household and a 27% share of total OOP. The second largest item in 1995 was outpatient care with a 45% share of total out-of-pocket payments. It reached the first place in 2001 (with 53%) and it remains there even after decreasing in 2006 (39%).

Very little was spent on therapeutic equipment in 1995 (3% of total expenditure, or €26 per household per year). This expenditure increased dramatically: in 2001, it represented 10% of total payments with €66 per household. In 2006, it increased to the second largest proportion of OOP with a 32% share and a spending of €204 per year. Indeed, the optical market, which represents the largest spending among therapeutic equipments, observed a high growth during this decade (Fenina et al. 2008)³¹. In addition, these medical goods were and are still marginally reimbursed by the Social Security. Lastly, OOP expenditure on inpatient services was and is still a small proportion of total out-of-pocket expenditure (2.5% in 2006), since it was always largely covered by public insurance.

Figure 4. Structure of health expenditure, in current Euros

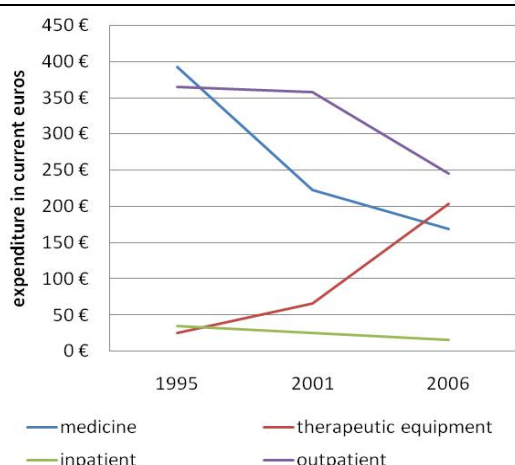
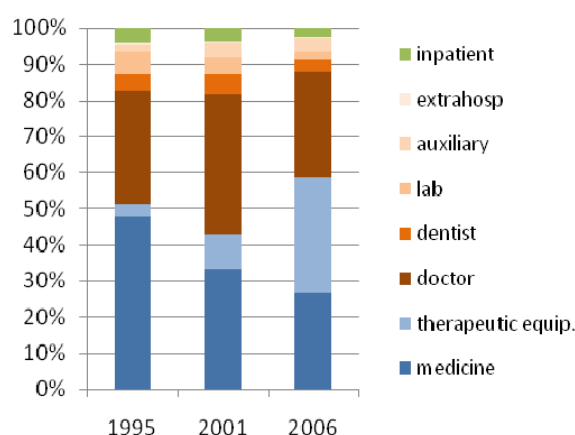


Figure 5. Structure of health payments, in % of total out-of-pockets



Source: Family Budget Survey, INSEE (1995, 2001 and 2006).

³⁰ These amounts are in current Euros. Since there was inflation during the 1995-2006 period, these figures suggest that the out-of-pocket health expenditure observed a real diminution.

³¹ According to the Family Budget Survey from 1995, the optical products already represented 45% of therapeutic equipment expenditure. Available data do not allow quantifying the growth mentioned by Fenina et al. (2008) over the last years.

5.1.2. Distribution of OOP

Total out-of-pocket health payments vary enormously across income groups³² for all three years (Figures 6 and 7). Richer households spend more for their health, in absolute terms and in relative terms. Indeed, in 2006, the poorest quintile spent on average €198 for health and then devoted 2.6% of its total expenditure, whereas the richest spent €1,447 which represents 4.2% of its total budget. These numbers indicate some form of progressivity of out-of-pocket health expenditure.

Figure 6. OOP, in current Euros

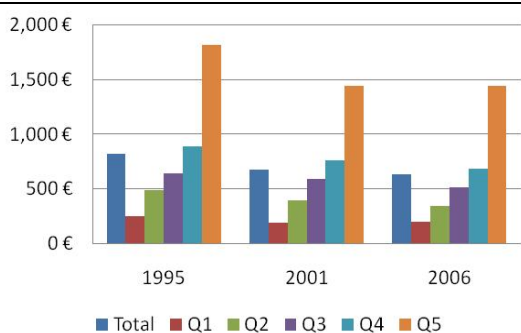
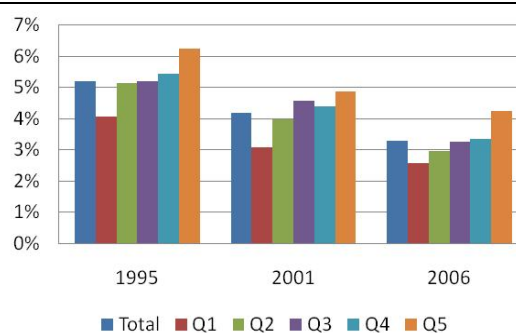


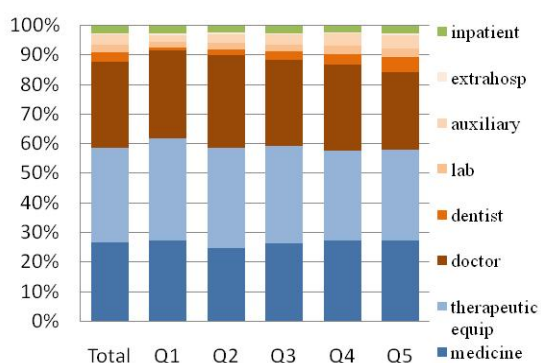
Figure 7. OOP, % of total expenditure



Source: Family Budget Survey, INSEE (1995, 2001 and 2006).

In contrast, the structure of OOP varies slightly across expenditure quintiles (Figure 8). In 2006, the three largest shares of OOP health expenditure (medicine, therapeutic equipment and doctor) do not show large differences between quintiles. However, for other outpatient care, we observe inequities related to dental care, lab tests and health auxiliary consultations. The poorest quintile only devotes 1.1% of its OOP health expenditure to dental care whereas the richest devotes 5.1%. The poorest households spend a very small share of their OOP health payments on lab tests and health auxiliary consultations (1.8% and 2.4%). The richest spend almost twice as much: 3.1% and 4.5%. In fact, these services are relatively expensive and weakly reimbursed by public insurance system: financial barriers usually impede poorer households from using these health services.

Figure 8. OOP by expenditure quintiles, 2006



Source: Family Budget Survey, INSEE (2006).

³² Income groups designate total expenditure quintiles: the first expenditure quintile is the poorest; the fifth quintile the richest.

5.1.3. Progressivity analysis of OOP

Progressivity of the health finance is an equity concept. A system is considered progressive if payments from wealthy people - relative to their capacity to pay – are higher than payments from poorer individuals (O’Donnell et al. 2007).

The most direct means of assessing progressivity of health payments is to examine their share of household capacity to pay by quintile. Another means to assess progressivity is to compare the concentration curves for health payments with the Lorenz curve for capacity to pay. If payments towards health care always account for the same proportion of capacity to pay, the share of health payments contributed by any group must correspond to its share of capacity to pay, and the concentration curve lies on top of the Lorenz curve. In a progressive system, the share of health payments contributed by the poor will be less than their share of capacity to pay, and the Lorenz curve will dominate the concentration curve.

We use both methods to analyze the extent to which health payments are proportional to household’s capacity to pay, considering successively OOP and PHI premiums.

As suggested by the previous analysis of OOP across expenditure quintile (cf. Figure 7), OOP relative to capacity to pay increased across capacity to pay quintiles in 2006, indicating some progressivity (Figure 9). Looking at previous years does not provide such a clear picture and we are not able to find conclusive evidence about progressivity of OOP neither in 1995 nor in 2001³³.

The concentration curve of the out-of-pocket health payments appears to lie below the Lorenz curve (Figure 10). Indeed, in 2006, the test of dominance confirms the progressivity, albeit weak, of these payments (Table A.6 in Appendix). This conclusion corroborates with the analysis of the quintile shares of OOP, as well as with the Kakwani index, which is significantly positive. OOP in 1995 are also progressive. For 2001, the results do not provide strong evidence; tests and figures suggest proportionality of out-of-pocket health payments.

Figure 9. Out-of-pocket health payments as a share of capacity to pay by capacity to pay quintile, 2006

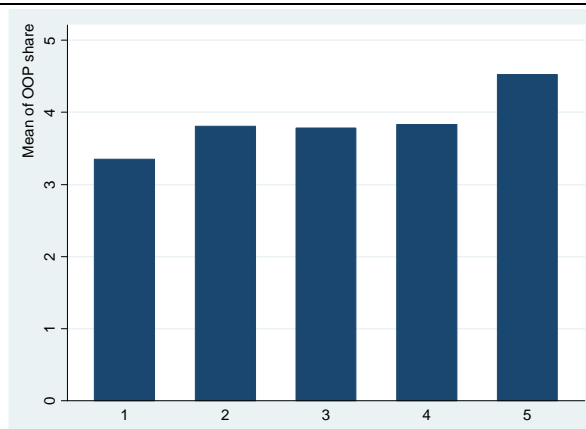
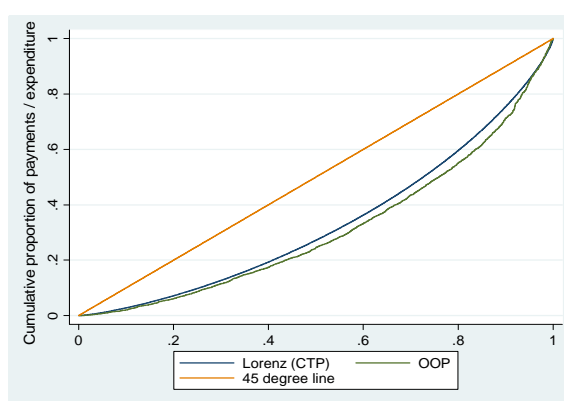


Figure 10. Lorenz curve of capacity to pay (CTP) and concentration curves of out-of-pocket, 2006



Source: Authors calculations.

³³ The corresponding figures are reported in Figure A.1 in Appendix.

5.1.4. High burden out of pocket health payments and poverty impact

On average, the share of a household's out-of-pocket payments to its capacity to pay has continuously decreased from 6.3% in 1995, to 5% in 2001, and to 3.9% in 2006. Figure 11 shows that the proportion of households who spent more than 10% of their capacity to pay for health has also fallen from 21% in 1995 to 11% in 2006. Moreover, the proportion of those who were subjected to a high burden of health payments (i.e. who spent more than 25% of their capacity to pay for health) has declined as well from 5.9% to 2.6%. Finally, the share of households incurring catastrophic health payments (i.e. health spending exceeding 40% of their capacity to pay) has decreased from 2% in 1995 to 1% in 2006 (Figure 12) and affected 245,455 households in 2006.

The same trend can also be observed for each component of out-of-pocket expenditure. High burden OOP were least important for inpatient payments: 0.1% of the households spent more than 25% of their capacity to pay for inpatient care in 1995 whereas this proportion was 2% and 1.8% for drugs and outpatient care, respectively. Households incurring high burden payments because of drugs and outpatient care decreased over the period. The figures show that high burden expenditure for inpatient care was very low over the period, which confirms the high level of coverage in the French health system for this category of care³⁴.

Figure 11. Burden of out-of-pocket payments

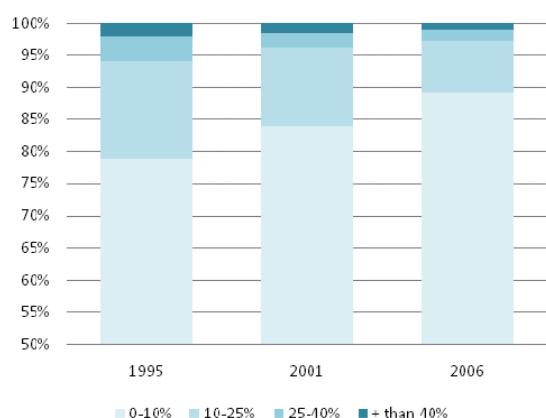
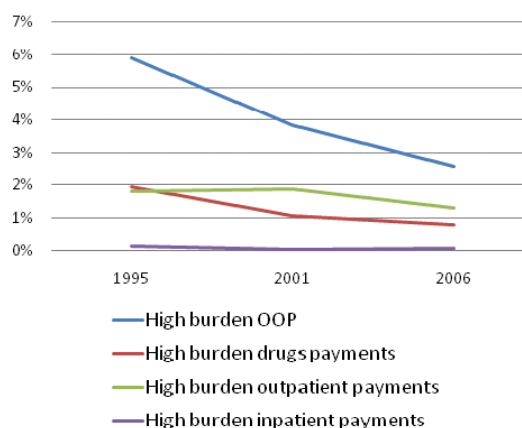


Figure 12. High burden OOP health payments



Source: Family Budget Survey, INSEE (1995, 2001 and 2006).

Note: High burden OOP health payments refer to OOP health payments that exceed 25% of household's capacity to pay.

Figure 13 shows that high burden OOP occurred in a comparable manner in all income groups in 1995 (but slightly more in the last quintile). From 2001, a different picture appears as the relative importance of high burden OOP has increased in the richest quintile. The last quintile is the most affected by high burden OOP (4% of households in 2006) and the relative situation of this quintile becomes worse with a 40% threshold of OOP compared to CTP (Cf. Figure A.2 in Appendix). This result does not seem to be related to the structure of OOP as it is roughly the same for all the quintiles (Figure 8, Section 5.1). However, the structure of OOP for households who faced high burden expenditure (Figure 14) indicates that the sources of the burden are different across quintiles. In the first quintile, the share of doctors' consultations and of drugs expenditure are relatively more important (34.6% and

³⁴ Looking at only households who had positive OOP health spending: in 2006, 1.6% of them spent more than 25% of their capacity to pay for inpatient care whereas this proportion was 1.6% and 3.9% for drugs and outpatient care, respectively.

26.5% respectively), whereas in the last quintile dentists and therapeutic equipments represent a large part of out-of-pocket expenditure (35.3% and 32.7%, respectively).

Figure 13. High burden OOP by expenditure quintiles

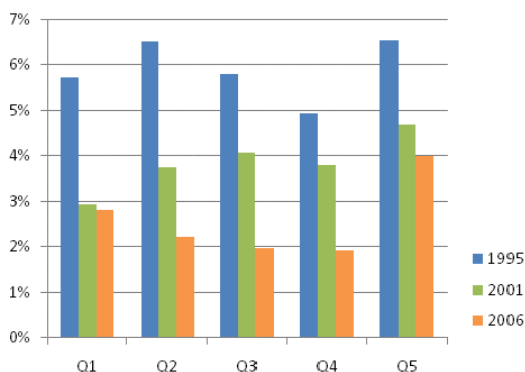
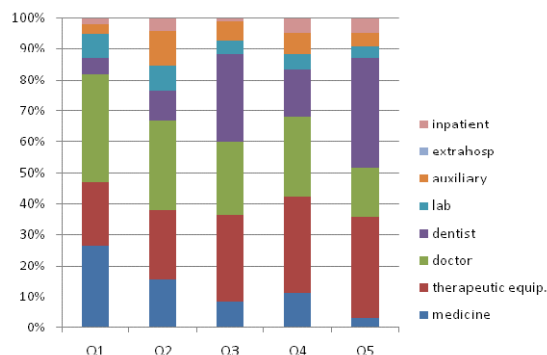


Figure 14. Structure of out-of-pocket expenditure for households who had high burden payments, 2006

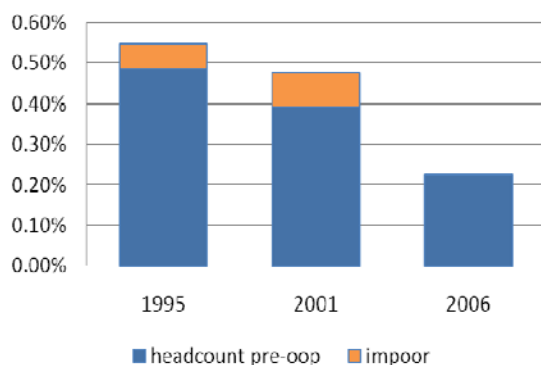


Source: Family Budget Survey, INSEE (1995, 2001 and 2006).

Note: High burden payments refer to OOP health payments that exceed 25% of household's capacity to pay.

Finally very few households were pushed under the poverty line after paying for health services over the period from 1995 to 2006. Our estimates show that OOP pushed 0.06% and 0.08% of the households into poverty in 1995 and 2001, respectively. This represents 14,381 households (35,380 individuals) in 1995 and 20,275 households (49,295 individuals) in 2001 and they all belong to the first expenditure quintile. No households were pushed into poverty in 2006 because of OOP (Figure 15).

Figure 15. Poverty headcount



Source: Family Budget Survey, INSEE (1995, 2001 and 2006).

Note: High burden OOP refer to OOP health payments that exceed 25% of household's capacity to pay.

5.1.5. Determinants of high burden OOP health expenditure

Many variables are associated with high OOP³⁵. Results for the regressions for the three periods are presented in Table 2³⁶.

³⁵ See Table A.7 in Appendix for descriptive statistics.

³⁶ See Tables A.8, A.9 and A.10 in Appendix for more detailed results.

The structure of a household influences the probability of facing high burden OOP. Female-headed households and the number of senior members – aged 65 and above – in the household are positively and significantly associated with high burden health expenditure. On the contrary, the number of children under five years old is negatively related to a high burden of OOP health payments, in 2001 and 2006. On the other hand, household size does not seem to influence the probability of facing higher health payments.

The amount of private health insurance premiums³⁷ significantly lowers the probability of facing high burden OOP in 2001 and 2006³⁸. Income is tested with dummy variables representing expenditure quintiles. Interestingly, households in the fifth expenditure quintile are those with a high risk factor for financial burden. This confirms the results from the descriptive analysis.

The level of education of the household head is also tested with dummy variables (Cf. Tables A.8, A.9 and A.10 in Appendix). The results show that households in higher education groups are less likely to face high burden payments.

An analysis of the main regions was performed (Cf. Tables A.8, A.9 and A.10 in Appendix). Only the South West region in 2006 and the Middle East in 2001 show a negative and significant association with high burden payments.

Finally, additional thresholds of high burden payments (20%, 30% and 40%) were used for the regression analysis (Cf. Table A.12 in Appendix). The results are quite similar to the previous ones, particularly for the richest quintile for which the probability to face high burden health payments is relatively higher. PHI premiums tend on the whole to lower high burden payments. However, the significance varies across years and thresholds, suggesting a weaker robustness.

Table 2. Determinants of high burden OOP, odds ratios

Variables	1995	2001	2006
Male head	0.669*** <i>0.077</i>	0.622*** <i>0.085</i>	0.798 <i>0.110</i>
Household size	1.018 <i>0.041</i>	1.062 <i>0.058</i>	0.940 <i>0.066</i>
Private Insurance premiums	0.871 <i>0.076</i>	0.645*** <i>0.085</i>	0.835** <i>0.081</i>
Senior	1.991*** <i>0.129</i>	2.049*** <i>0.171</i>	1.870*** <i>0.180</i>
Child	0.833 <i>0.115</i>	0.421*** <i>0.129</i>	0.681* <i>0.154</i>
Quintile 2	1.436** <i>0.218</i>	1.583** <i>0.301</i>	0.951 <i>0.216</i>
Quintile 3	1.418** <i>0.226</i>	1.988*** <i>0.390</i>	0.962 <i>0.214</i>
Quintile 4	1.325* <i>0.226</i>	2.267*** <i>0.390</i>	1.061 <i>0.214</i>

³⁷ We consider here the amount of private health insurance premiums per household as it provides a rough estimation of the extent of coverage. Another way to test the impact of private health insurance would be to use a dummy variable indicating if the household is insured and then had any health insurance spending (=1 if yes, and 0 otherwise). These two variables don't take into account households insured without paying health insurance premiums (e.g. CMU-C). We also ran the regressions with this dummy variable and the results are comparable with the ones with the amount of health insurance premiums.

³⁸ Considering a higher threshold to estimate the burden of OOP (40% of CTP), the amount of private health insurance premiums is negatively associated with catastrophic payments in 1995, 2001 and 2006 (Cf. Table A.11 in Appendix).

	<i>0.223</i>	<i>0.442</i>	<i>0.245</i>
Quintile 5	2.043***	3.420***	2.563***
	<i>0.337</i>	<i>0.666</i>	<i>0.519</i>
Nb. of observations	9394	10122	10215
Wald chi2(20)	234	207	135
Prob>chi2	0.000	0.000	0.000
Pseudo R2	0.056	0.064	0.055

Source: Authors calculations.

Notes: Robust standard errors in italic, *** (P>z) <1%, ** 5%, * 10%

High burden OOP refer to OOP health payments that exceed 25% of household's capacity to pay.

5.2 Private health insurance

5.2.1. Levels and trends in private health insurance premiums

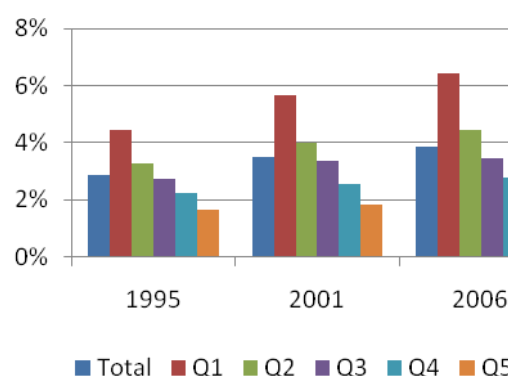
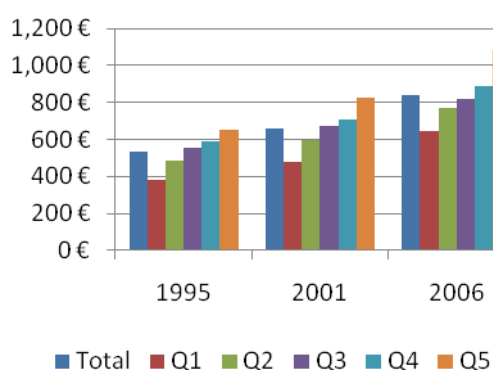
According to the surveys, PHI premiums continuously increased between 1995, 2001 and 2006 (Figure 16). In 1995, households spent on average €531 per year for complementary health insurance compared to €656 in 2001 and €842 in 2006. PHI premiums slightly increased in relative terms (Figure 17) from 3% of total household expenditure in 1995 to 4% in 2006.

5.2.2. Distribution of private health insurance

Insurance premiums vary a lot across income groups³⁹, for all three years. In absolute terms, richer households spend more for their private health insurance (Figure 16). For instance, in 2006, the poorest quintile spent on average €645 whereas the richest spent almost twice this amount (€1080). However, poorer households devote a larger share of their budget to health insurance premiums (Figure 17): in 2006, the poorest quintile gave on average 6% of its total expenditure to private insurance premiums; this share was only 2% for the richest quintile. These numbers suggest an important regressivity of insurance premiums.

Figure 16. Insurance premiums, in current Euros

Figure 17. Insurance premiums, % of total health expenditure



Source: Family Budget Survey, INSEE (1995, 2001 and 2006).

³⁹ As for the OOP analysis, income groups designate total expenditure quintiles: the first expenditure quintile is the poorest; the fifth quintile the richest.

5.2.3. Progressivity analysis of health insurance premiums

Indeed, PHI premiums relative to capacity to pay appear to decrease dramatically across quintiles (Figure 18). This trend is also observed in 1995 and 2001 (Figure A.1 in Appendix). In Figure 19, the concentration curve of private insurance premium appears to dominate the Lorenz curve. The tests reported in Table A.6 in Appendix also confirm it. This table also shows that the cumulative shares of the first four quintiles are always significantly more important than the respective shares of capacity to pay. The Kakwani index⁴⁰ is always significantly negative. All of those tests firmly confirm the regressivity of the insurance premiums for all years (1995, 2001 and 2006).

Figure 18. Private insurance premiums as a share of capacity to pay by capacity to pay quintile, 2006

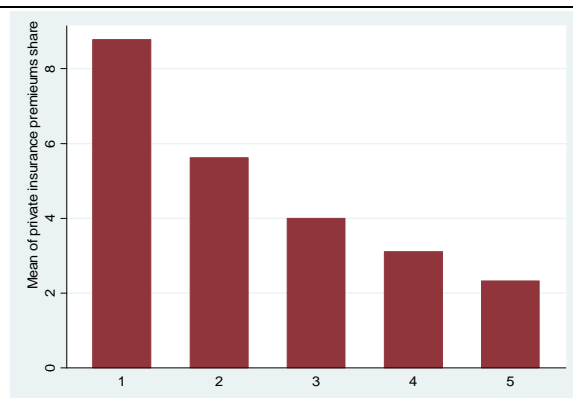
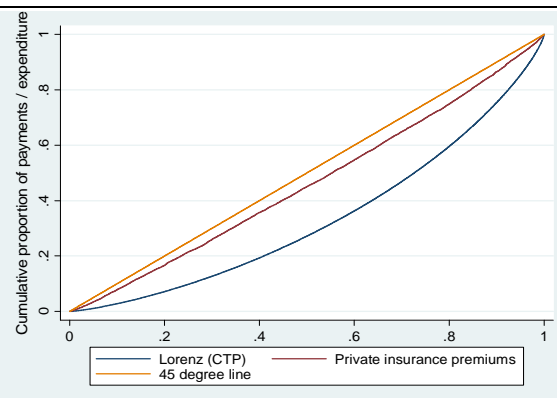


Figure 19. Lorenz curve of capacity to pay (CTP) and concentration curves of private insurance premiums, 2006



Source: Authors calculations.

6. Discussion

Using French household surveys, this paper studies the burden of health payments and equity in health financing in France. Despite data limitations, interesting results can be highlighted.

Out-of-pocket health payments decreased continuously from 1995 to 2006, in absolute and in relative terms. Furthermore, the burden of out-of-pocket health payments has decreased over the period. In 1995, high burden OOP affected 8.6% of the households. This decreased to 3.9% in 2006 and there was no impoverishment due to health payments.

Results from this study show that the OOP is progressive in 1995 and 2006. This reflects that the higher income group allocates more household budget on health related consumption. This could be explained by high income groups using more services, better quality of services or services with higher "hotel" costs.

Our analysis of the determinants shows that the burden of OOP is more pronounced in households headed by women, those with a high number of elderly members and for the richest quintile. Indeed, the richest quintile has a higher probability of facing high burden expenditure. This result can probably be explained by different service utilizations patterns

⁴⁰ The Kakwani index is twice the area between a payment concentration curve and the Lorenz curve and is calculated as $\pi K = C - G$, where C is the concentration index for health payments and G is the Gini coefficient of the capacity to pay variable. The value of this index varies from -2 to 1. A negative number indicates regressivity, whereas a positive number indicates progressivity.

in terms of frequency and type of services. For example, when removing the most expensive and least covered care (i.e. dental care and therapeutic equipment) from health expenditure, the number of households facing high burden payments in the richest quintile is not different from the other quintiles.

Some other factors seem to protect households from high burden OOP, such as education level and the amount of private insurance premiums paid. The latter is of particular importance as we observe a substitution between OOP health payments and private insurance in health financing over time (Table A.2 in Appendix). However, this instrument raises equity issues. Disparities in the access to a good complementary protection are highlighted in the literature: poorer households have lower access to contracts providing high benefits compared to richer households (IRDES 2008b). Our analysis confirms that private insurance is a significantly regressive way to finance health expenditure. Indeed, the poor devote a higher part of their capacity to pay for complementary insurance across the years analysed. In a study on thirteen OECD countries, Wagstaff et al. (1999) found the same result for France in 1989. Private insurance appears regressive in other countries such as Germany, Ireland, Spain, Switzerland and USA.

7. Conclusion

Overall, the French health financing system provides universal coverage. High burden and catastrophic expenditure are limited. The patterns of expenditure for households who encountered high burden expenditure suggest that poorer households were affected for outpatient and pharmaceutical services compared to richer households who faced a high burden mostly due to dental and therapeutic services. This coupled with twin findings of the protective effect of private health insurance and its regressivity suggest that there is room for further removing inequities in the system.

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APPENDIX

Table A.1. Economic and demographic environment in France

	1995	2000	2001	2005	2006
GDP (million constant Euros ⁱ)	1 255 096	1 441 372	1 468 116	1 565 595	1 599 524
GDP per capita (constant Euros ⁱ)	21123	23726	23996	24923	25311
Real GDP growth	2.1	3.9	1.9	1.9	2.2
Metropolitan population (million)	57.8	59.0	59.4	61.1	61.4
Urban rate	75	76	76	77	77
Employed pop. (%tot pop)	67	68.1	67.4	69.1	69
Pop. 45-64 years old ⁱⁱ (% tot pop)	22.0	23.3	23.6	24.8	25.1
Pop. 65 years old & + ⁱⁱ (%tot pop)	15.2	16.1	16.2	16.4	16.4
Pop. 80 years old & + ⁱⁱ (%tot pop)	4.1	3.7	3.9	4.6	4.8

Sources: Eco-Santé France (IRDES 2008) and INSEE (2008).

Notes: i) base 2000; ii) data on population structure in 2005 and 2006 are temporary.

Table A.2. Health financing – volume, level and structure

		1995	2001	2006
Current health expenditure (CHE)	CHE, Mos EUR	124301	155012	197920
	CHE/person, EUR	2092	2534	3132
	CHE/GDP, %	10.41	10.35	10.95
	Expenditure for Sick People (Mos EUR) (ESP)	108418	135237	174118
	ESP/CHE, %	87.2	87.2	88
Structure of the Expenditure for Sick People (ESP) financing	Share of ESP financed by the Social Security	79.3	79.3	79.1
	Share of ESP financed by the State and local authorities	1	1.2	1.2
	Share of ESP financed by private insurances	11	11.4	12.1
	<i>by mutual companies</i>	6.6	6.7	7
	<i>by private insurance companies</i>	3	2.4	2.9
	<i>by foresight institutions</i>	1.5	2.3	2.2
	Share of ESP financed by households	8.7	8.1	7.6
Structure of the current health expenditure	Share of inpatient care expenditure	79.3	79.3	79.1
	Share of outpatient care expenditure	1	1.2	1.2
	Share of medical goods	19.7	19.5	19.6
	Share of medicine	11	11.4	12.1
	Share of other medical goods	6.6	6.7	7

Source: Eco-Santé France (IRDES 2008).

Note: Current Health Expenditure measures the financial outlay of public and private providers in the field of health care. It includes sick pay, prevention, research, education and administrative costs and expenditure on medical services and goods. Expenditure for Sick People represents current health expenditure less the collective expenditure (administrative costs, education, research, collective prevention).

Table A.3. Insurance coverage

	1960	1970	1980	1990	1995	2000	2001	2005	2006
Coverage MHI (% tot. pop.)	76	95.6	99.1	99.4	99.4	99.9	99.9	99.9	99.9
Coverage MHI-General scheme (% tot. pop.)	52.6	71.4	79.9	79.8	83.2	84.1	83.2	86.6	u.
Coverage MHI-CMU (% tot. pop.)	n.e.	n.e.	n.e.	n.e.	n.e.	1.5	1.7	2.3	2.3

Source: Eco-santé France (IRDES 2008).

Note : n.e.=non existant, u.=unknown.

Table A.4. Overview of mandatory coverage health systems

Mandatory health coverage systems	Description	Managing agency	% of population covered	Sources of financing		Benefit package	Payment mechanisms
General scheme	Health coverage for salaried workers and their families	Caisse Nationale d'Assurance Maladie des Travailleurs Salariés (CNAMTS)	84.1%	Payroll taxes, representing 0.75% of gross salary for workers and 12.8% for employers for the general scheme and the salaried agricultural workers	"Contribution Sociale Généralisée" (CSG) representing 5.25% of labour revenues and 5.75% of capital revenues	Outpatient care	<p>Patients: Copayments: 30% for outpatient care, 20% for inpatient care and "forfait hospitalier" (15 Euros daily charge)</p> <p>Providers: Payment of public and private hospitals participating in the public hospital service through the "Tarification à l'Activité" (T2A) since 2007⁴¹</p> <p>Payment of self employed professionals and private hospitals through a fee for service fixed by convention with the health insurance. Possibility of exceeding fees for doctors in "Sector 2"⁴²</p>
Agricultural scheme	Health coverage for farmers, agricultural employees and their families	Mutualité Sociale Agricole (MSA)	6.1%	Payroll taxes, representing 10.8% of net salary for farmers			
Scheme for non-agricultural self-employed people	Health coverage for craftsmen and self-employed people	Caisse Nationale d'Assurance Maladie des Travailleurs indépendants et Artisans (CANAM)	4.9%	Payroll taxes, representing 5.9% to 6.5% of professional income			
Other statutory schemes	Health coverage for some public sector employees	Fund for each scheme	3.5%	Payroll taxes specific to each schemes		Inpatient care	
"Couverture Maladie Universelle" (CMU)	Health coverage for people who cannot be covered by the social security system	Fund CMU	2.2%	Government revenues, affected taxes (alcohol, tobacco) and contributions representing 8% of total revenues for people whose revenue exceeds 8,774 Euros per year (1/10/2008-30/09/2009 period)			
"Aide Médicale d'Etat" (AME)	Health coverage for people in an irregular situation and without resources	Fund CMU	0.3%	Government revenues			

Source: Commission de Comptes de la Sécurité Sociale 2008; Fonds CMU 2008; Boisguerin and Haury 2008.

⁴¹ Before 2007, public and private hospitals participating in the public hospital service were funded through a *global budget* transferred by health insurance funds. Under the "Plan hôpital 2007" and the "T2A reform", hospitals are now paid based on their activities (number and nature of visits and hospital stays realized).

⁴² Doctors can decide to practise in the "sector 1". In this case, they have to respect the tariffs fixed by the health insurance and they will serve as a basis for the reimbursement of patients. If they opt for "sector 2", they are able to offer rates relatively free.

Table A.5. Main reforms of the financing system since 1990

1991	Plan Bianco	<p>Reform intending to balance the health insurance accounts, including:</p> <ul style="list-style-type: none"> ▪ Increases in the social payroll taxes and the inpatient daily charge ▪ Cancellation of reimbursements of some drugs ▪ Introduction of the ‘Contribution Sociale Généralisée’ (CSG)
1993	Plan Veil	<p>Reform intending to balance the health insurance accounts, including:</p> <ul style="list-style-type: none"> ▪ Increases in the CSG, the copayment and the inpatient daily charge
1996	Plan Juppé	<p>Reform intending to balance the health insurance accounts, but with more structural measures, including:</p> <ul style="list-style-type: none"> ▪ Transfer of the health budget adoption to the Parliament: the Parliament now votes every year the national health spending objective (ONDAM) that sets the targets for the spending and the reimbursements made by the mandatory basic schemes ▪ Creation of regional hospital agencies (ARH) ▪ Increases in the CSG ▪ Creation of the ‘Contribution au remboursement de la dette sociale’ (CRDS), a tax based on work incomes, replacement incomes, assets incomes, investment incomes and other incomes, such as lottery-style games, horse bets and casinos
1997-1998		<ul style="list-style-type: none"> ▪ Transfer of a part of the payroll taxes to the CSG ▪ Cancellation of reimbursements of some drugs
1999		<ul style="list-style-type: none"> ▪ Creation of the personal health ID card (‘Carte Vitale’).
2000	Universal health coverage	<ul style="list-style-type: none"> ▪ Introduction of the ‘Couverture Maladie Universelle’ (CMU) and the ‘Aide Médicale d’Etat’ (AME) ▪ Introduction of the ‘Couverture Maladie Universelle Complémentaire’ (CMU-C)
2004	Plan Douste-Blazy	<p>Reform intending to balance the health insurance accounts, including:</p> <ul style="list-style-type: none"> ▪ Increase in the CSG and in the copayments ▪ Creation of a committee that alerts the government in case of too high expenditure by the mandatory insurance ▪ Introduction of coordinated treatment pathway with referring physician ▪ Introduction of personal medical files which contain medical information ▪ Creation of a new ‘Carte Vitale’ (with a photo of the patient) ▪ Creation of the ‘Union Nationale des Caisses d’Assurance Maladie’ (UNCAM). It puts together the three main health insurance schemes: the general one, the agricultural one, and the social scheme for independent professionals. Its role consists in running the conventional policy, defining the scope of services eligible for reimbursement, setting up healthcare reimbursement tariffs ▪ Creation of the ‘Aide Complémentaire Santé’ (ACS) bringing financial assistance to poor people, whose revenues are slightly higher than the CMU-C threshold to get a complementary insurance

Sources: Sauvignat (2005) and Sécurité Sociale (2009).

Table A.6. Distributional incidence of out-of-pocket health payments and insurance premiums in France

	1995			2001			2006		
	Equivalent household expenditure	Private insurance premiums	OOP payments	Equivalent household expenditure	Private insurance premiums	OOP payments	Equivalent household expenditure	Private insurance premiums	OOP payments
Equivalent household expenditure quintile									
Poorest 20%	7.08%	16.05%	6.33%	6.58%	16.47%	5.75%	7.17%	16.64%	6.11%
standard error	0.071	0.347	0.299	0.077	0.311	0.271	0.066	0.318	0.336
Poorest 40%	19.24%	34.08%	18.09%	17.91%	34.94%	17.57%	19.34%	35.72%	17.42%
standard error	0.133	0.434	0.965	0.170	0.382	0.594	0.128	0.421	0.627
Poorest 60%	36.10%	53.96%	33.61%	33.69%	54.98%	35.18%	36.28%	54.70%	33.20%
standard error	0.194	0.473	0.616	0.282	0.399	0.956	0.185	0.469	0.955
Poorest 80%	59.41%	75.60%	55.54%	55.83%	75.67%	57.84%	59.59%	74.91%	55.10%
standard error	0.237	0.458	1.382	0.414	0.351	1.294	0.225	0.468	1.285
Test of dominance									
- against 45° line	-	-	-	-	-	-	-	-	-
- against Lorenz curve		+	-		+	-		+	-
Concentration index (a)									
	0.334	0.086	0.377	0.374	0.077	0.356	0.332	0.078	0.377
standard error	0.002	0.006	0.015	0.005	0.005	0.013	0.002	0.006	0.012
Kakwani index									
		-0.248	0.043		-0.297	-0.018		-0.254	0.046
standard error		0.007	0.022		0.009	0.021		0.006	0.019

Source: Authors calculations.

Notes:

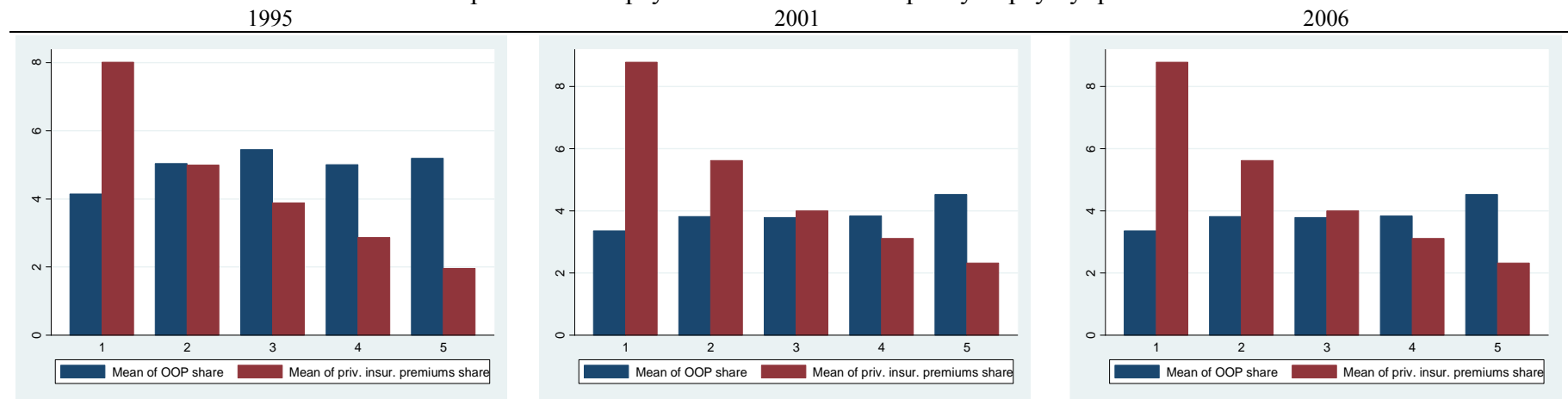
Dominance tests: - indicates the 45-degree line/Lorenz curve dominates the concentration curve
+ indicates the concentration curve dominates the 45-degree line/Lorenz curve
0 indicates non dominance

Dominance is rejected if there is at least one significant difference in one direction and no significant difference in the other, with comparisons at 19 quantiles and 5% significance level.

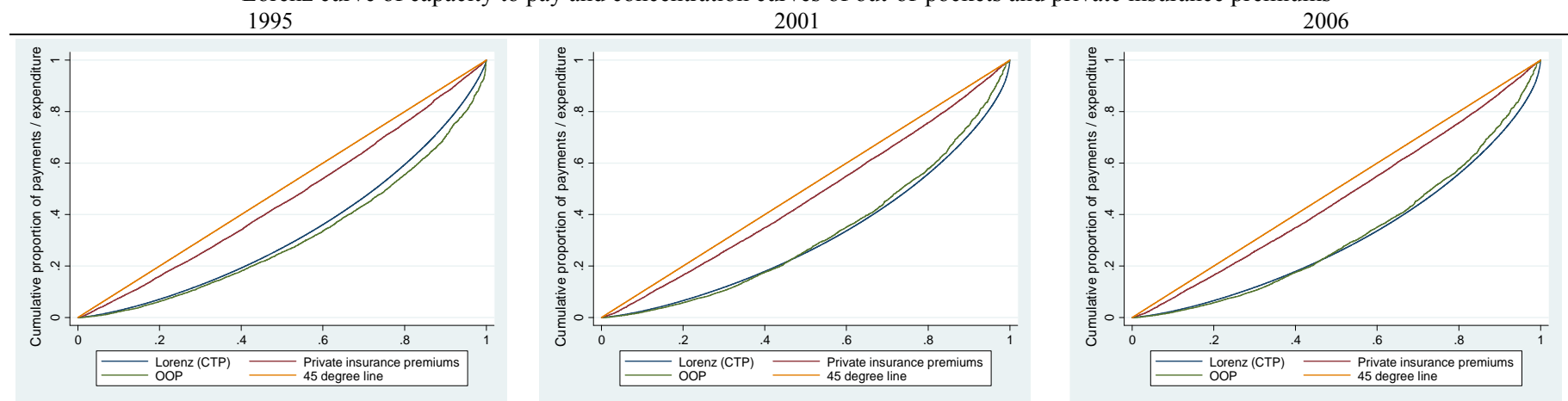
(a) Gini index for equivalent household expenditure.

Figure A.1. Progressivity of out-of-pocket health payments and private insurance premiums

Out-of-pocket health payments as a share of capacity to pay by quintiles

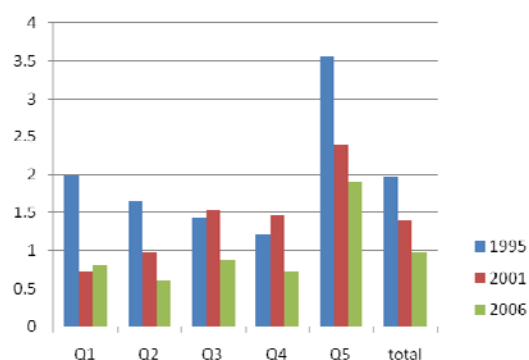


Lorenz curve of capacity to pay and concentration curves of out-of-pockets and private insurance premiums



Source: Authors calculations.

Figure A.2. Catastrophic OOP by expenditure quintiles



Source: Family Budget Survey, INSEE (1995, 2001 and 2006).

Note: Catastrophic OOP refer to OOP health payments that exceed 40% of household's capacity to pay.

Table A.7. Descriptive statistics of the determinants of catastrophic expenditure

Variable	Note	1995		2001		2006	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Male head	1, yes. 0,no.	0.744	0.436	0.746	0.436	0.586	0.493
Household size	Number of members	2.464	1.373	2.431	1.340	2.391	1.326
Priv. insurance	1, yes. 0,no.	0.777	0.416	0.830	0.376	0.838	0.369
Senior	Number of members older than 65	0.378	0.659	0.382	0.671	0.404	0.688
Child	Number of children under 5	0.156	0.435	0.151	0.427	0.154	0.435
Parisian Region	1, yes. 0,no.	0.193	0.395	0.181	0.385	0.179	0.383
Parisian Basin	1, yes. 0,no.	0.176	0.381	0.174	0.379	0.173	0.379
North	1, yes. 0,no.	0.061	0.240	0.065	0.246	0.067	0.250
East	1, yes. 0,no.	0.102	0.303	0.091	0.288	0.087	0.282
West	1, yes. 0,no.	0.141	0.348	0.135	0.342	0.141	0.348
SouthWest	1, yes. 0,no.	0.111	0.315	0.114	0.317	0.117	0.321
Middle East	1, yes. 0,no.	0.101	0.301	0.118	0.303	0.119	0.324
Mediterranean	1, yes. 0,no.	0.114	0.318	0.122	0.327	0.117	0.321
Educ0	No diploma (1, yes. 0, no.)	0.187	0.390	0.200	0.400	0.194	0.395
Educ1	Primary education (1, yes. 0, no.)	0.356	0.479	0.278	0.448	0.165	0.371
Educ2	Secondary education, junior(1, y. 0, n.)	0.257	0.437	0.281	0.449	0.314	0.464
Educ3	Secondary education, vocational(1, y. 0, n.)	0.014	0.119	0.020	0.139	0.063	0.244
Educ4	Secondary education, high school (1, y. 0,n)	0.181	0.385	0.217	0.412	0.072	0.259
Educ5	Tertiary education, vocational (1, y. 0, n.)	0.000	0.015	0.000	0.029	0.072	0.256
Educ6	Tertiary education, university (1, y. 0, n.)	0.001	0.024	0.001	0.025	0.120	0.325

Source: Authors calculations.

Table A.8. Determinants of high burden expenditure, 1995

Variables	Odds Ratio	dy/dx	Coef.	Robust Std. Err.	P>z
Male head	0.669	-0.021	-0.401	0.115	0.000
Household size	1.018	0.001	0.018	0.040	0.664
Private insurance premiums	0.871	-0.007	-0.138	0.087	0.114
Senior	1.991	0.033	0.689	0.065	0.000
Child	0.833	-0.009	-0.183	0.139	0.187
Parisian Basin	0.876	-0.006	-0.133	0.165	0.421
North	1.117	0.006	0.111	0.218	0.613
East	1.014	0.001	0.014	0.183	0.941
West	0.879	-0.006	-0.129	0.179	0.473
Southwest	1.222	0.010	0.200	0.177	0.257
Middle-East	0.852	-0.007	-0.160	0.197	0.416
Mediterranean	1.067	0.003	0.065	0.179	0.717
Quintile 2	1.436	0.019	0.362	0.152	0.017
Quintile 3	1.418	0.018	0.350	0.159	0.028
Quintile 4	1.325	0.014	0.282	0.168	0.093
Quintile 5	2.043	0.042	0.715	0.165	0.000
Educ 1	1.072	0.003	0.069	0.126	0.585
Educ 2	0.694	-0.016	-0.365	0.159	0.021
Educ 3	1.137	0.006	0.129	0.389	0.741
Educ 4	0.519	-0.026	-0.655	0.185	0.000
Constant			-2.983	0.205	0.000
nb obs	9394				
Wald chi2(20)	234				
Prob > chi2	0.000				
Pseudo R2	0.056				

Source: Authors calculations.

Notes: dy/dx corresponds to the marginal effects: it is for discrete change of dummy variable from 0 to 1. High burden OOP refer to OOP health payments that exceed 25% of household's capacity to pay.

Table A.9. Determinants of high burden expenditure, 2001

Variables	Odds Ratio	dy/dx	Coef.	Robust Std. Err.	P>z
Male head	0.622	-0.015	-0.475	0.136	0.000
Household size	1.062	0.002	0.061	0.055	0.271
Private insurance premiums	0.645	-0.012	-0.439	0.132	0.001
Senior	2.049	0.020	0.717	0.084	0.000
Child	0.421	-0.025	-0.864	0.305	0.005
Parisian Basin	0.744	-0.008	-0.296	0.195	0.129
North	0.877	-0.004	-0.132	0.259	0.611
East	1.017	0.000	0.017	0.214	0.937
West	0.921	-0.002	-0.082	0.204	0.689
Southwest	0.874	-0.004	-0.134	0.214	0.530
Middle-East	0.661	-0.010	-0.414	0.232	0.075
Mediterranean	0.969	-0.001	-0.031	0.204	0.878
Quintile 2	1.583	0.015	0.459	0.190	0.016
Quintile 3	1.988	0.024	0.687	0.196	0.000
Quintile 4	2.267	0.030	0.818	0.195	0.000
Quintile 5	3.420	0.051	1.230	0.195	0.000
Educ 1	0.950	-0.001	-0.052	0.152	0.733
Educ 2	0.774	-0.007	-0.256	0.175	0.142
Educ 3	0.262	-0.022	-1.339	0.816	0.101
Educ 4	0.462	-0.018	-0.772	0.203	0.000
Constant			-3.373	0.238	0.000
nb obs	10122				
Wald chi2(21)	207				
Prob > chi2	0.000				
Pseudo R2	0.064				

Source: Authors calculations

Notes: dy/dx corresponds to the marginal effects: it is for discrete change of dummy variable from 0 to 1. High burden OOP refer to OOP health payments that exceed 25% of household's capacity to pay.

Table A.10. Determinants of high burden expenditure, 2006

Variables	Odds Ratio	dy/dx	Coef.	Robust Std. Err.	P>z
Male head	0.798	-0.005	-0.225	0.138	0.101
Household size	0.940	-0.001	-0.061	0.070	0.378
Private insurance premiums	0.835	-0.004	-0.180	0.097	0.062
Senior	1.870	0.012	0.626	0.096	0.000
Child	0.681	-0.008	-0.384	0.225	0.088
Parisian Basin	0.837	-0.003	-0.178	0.231	0.441
North	0.701	-0.006	-0.355	0.345	0.303
East	0.819	-0.004	-0.200	0.288	0.488
West	0.899	-0.002	-0.106	0.248	0.670
Southwest	0.566	-0.009	-0.570	0.283	0.044
Middle-East	0.987	0.000	-0.013	0.249	0.959
Mediterranean	1.360	0.007	0.308	0.229	0.179
Quintile 2	0.951	-0.001	-0.050	0.228	0.827
Quintile 3	0.962	-0.001	-0.039	0.223	0.861
Quintile 4	1.061	0.001	0.060	0.231	0.796
Quintile 5	2.563	0.025	0.941	0.202	0.000
Educ 1	0.859	-0.003	-0.152	0.211	0.470
Educ 2	0.790	-0.004	-0.235	0.186	0.206
Educ 3	0.652	-0.007	-0.428	0.333	0.199
Educ 4	0.764	-0.005	-0.269	0.277	0.330
Educ 5	0.433	-0.012	-0.837	0.345	0.015
Educ 6	0.415	-0.013	-0.879	0.261	0.001
Constant			-3.396	0.305	0.000
nb obs	10215				
Wald chi2(22)	135				
Prob > chi2	0.000				
Pseudo R2	0.055				

Source: Authors calculations.

Notes: dy/dx corresponds to the marginal effects: it is for discrete change of dummy variable from 0 to 1. High burden OOP refer to OOP health payments that exceed 25% of household's capacity to pay.

Table A.11. Determinants of catastrophic expenditure, odds ratios

Variables	1995	2001	2006
Male head	0.467*** <i>0.087</i>	0.554** <i>0.128</i>	0.549*** <i>0.120</i>
Household size	1.080 <i>0.069</i>	0.960 <i>0.087</i>	0.857 <i>0.118</i>
Private insurance premiums	0.658** <i>0.113</i>	0.564** <i>0.157</i>	0.709* <i>0.134</i>
Senior	2.163*** <i>0.231</i>	2.326*** <i>0.314</i>	2.170*** <i>0.305</i>
Child	0.522** <i>0.172</i>	0.750 <i>0.312</i>	0.406 <i>0.234</i>
Quintile 2	1.147 <i>0.309</i>	1.780 <i>0.657</i>	0.970 <i>0.411</i>
Quintile 3	1.212 <i>0.351</i>	3.486*** <i>1.328</i>	1.745 <i>0.672</i>
Quintile 4	1.244 <i>0.386</i>	4.354*** <i>1.535</i>	1.666 <i>0.710</i>
Quintile 5	4.964*** <i>1.225</i>	8.962*** <i>3.208</i>	5.319*** <i>1.852</i>
Nb. of observations	9394	10122	10215
Wald chi2(20)	203	176	107
Prob>chi2	0.000	0.000	0.000
Pseudo R2	0.101	0.088	0.089

Source: Authors calculations.

Notes: Robust standard errors in parentheses, *** (P>z) <1%, ** 5%, * 10%.

Catastrophic OOP refer to OOP health payments that exceed 40% of household's capacity to pay.

Table A.12. Synthesis of results

	1995	2001	2006
Male head			
20%	---	---	--
25%	---	---	n.s
30%	---	---	---
40%	---	--	---
Household size			
20%	n.s	n.s	n.s
25%	n.s	n.s	n.s
30%	n.s	n.s	n.s
40%	n.s	n.s	n.s
Private Insurance premiums			
20%	--	n.s	n.s
25%	n.s	---	--
30%	--	n.s	n.s
40%	--	--	-
Senior			
20%	+++	+++	+++
25%	+++	+++	+++
30%	+++	+++	+++
40%	+++	+++	+++
Child			
20%	n.s	--	-
25%	n.s	---	---
30%	n.s	--	n.s
40%	--	n.s	n.s
Quintile 2			
20%	++	++	n.s
25%	++	++	n.s
30%	+	+++	n.s
40%	n.s	n.s	n.s
Quintile 3			
20%	+	+++	n.s
25%	++	+++	n.s
30%	+	+++	n.s
40%	n.s	+++	n.s
Quintile 4			
20%	++	+++	n.s
25%	+	+++	n.s
30%	n.s	+++	n.s
40%	n.s	+++	n.s
Quintile 5			
20%	+++	+++	+++
25%	+++	+++	+++
30%	+++	+++	+++
40%	+++	+++	+++
Education sup			
20%	---	---	---
25%	---	---	---
30%	---	---	---
40%	---	---	---

Source: Authors calculations.

Notes: Results come from Odds ratios regressions, ran on probability to face high OOP/CTP.

Different thresholds have been used to estimate the dependant variable "high OOP": 20% of CTP, 25%, 30% and 40%.

n.s: the variable is not significant;

-, -- and ---: the variable has a negative influence on the probability to face high OOP, with a 10%, 5% or 1% significance, respectively;

+, ++ and +++: the variable has a positive influence on the probability to face high OOP, with a 10%, 5% or 1% significance, respectively.