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Income and the Demand for Complementary Health Insurance in France

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Abstract

This paper examines the demand for complementary health insurance (CHI) in the non-group market in France and the reasons why the near poor seem price insensitive. First we develop a theoretical model based on a simple trade-off between two goods: CHI and a composite good reflecting all other consumptions. Then we estimate a model of CHI consumption and empirically test the impact of potential determinants of demand for coverage: risk aversion, asymmetrical information, non-expected utility, the demand for quality and health, and supply-side factors such as price discrimination. We interpret our empirical findings in terms of crossed price and income elasticity of the demand for CHI. Last, we use these estimates of elasticity to simulate the effect of various levels of price subsidies on the demand for CHI among those with incomes around the poverty level in France. We find that the main motivation for purchasing CHI in France is protection against the financial risk associated with co-payments in the public health insurance scheme. We also observe a strong income effect suggesting that affordability might be an important determinant. Our simulations indicate that no policy of price subsidy can significantly increase the take-up of CHI among the near poor; any increase in the level of subsidy generates a windfall benefit for richer households.

Keywords: Demand for health insurance, Uninsured, Premium subsidies

JEL classification: D12, D81, I11, I18

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Income and the Demand for Complementary Health Insurance in France

Section 1 – Introduction

This study examines the demand for voluntary health insurance in France and, more specifically, the relationship between income and the quantity of private coverage individuals purchase on the non-group market.

Voluntary health insurance (VHI) plays an important role alongside the public scheme in European countries (Mossialos and Thomson, 2004, from now on MT2004). In some countries VHI serves some populations, whether they are allowed to opt out of the public scheme (Germany) or excluded from it (Netherlands); MT2004 suggest the name "substitutive health insurance" in this case. In other countries, VHI covers ancillary services not included in the public plan or, more importantly, extra-costs associated with "better perceived quality of care" such as choice of physician and shorter waiting times for non-emergency hospital care (Australia, Spain, and United Kingdom); this is referred to as "supplementary health insurance". Last, as is the case in France (and, to some extent for Medigap policies in the US), VHI covers co-payments (including over-billing) of the public scheme and is called complementary health insurance, or CHI (MT2004).

The rationale for mixed public-private systems is theoretically straightforward: equity and adverse selection provide compelling arguments for universal coverage by a public single insurer and single payer (or even, in the US case, for tax exemptions for employer-sponsored plans); however, the disconnection in public systems between what one pays and the coverage one benefits from exacerbates the tendency toward moral hazard extent in any insurance scheme. The political economy literature coins that tendency "over-insurance" and recommends that the public plan be limited to a basic level of coverage of what is deemed necessary[5] (Besley and Gouveia,1994). Individuals then have the option to voluntarily buy some individual health insurance if they are willing to get more than what this basic plan offers: the important thing here is that individuals have to pay the price of that insurance topping up the basic plan and, as a result, would purchase it only if the value they get from it exceeds the price they are charged for it. In that normative sense there could not be any "over-insurance" in VHI.

In the case of supplementary VHI the definition of what is necessary and should be included in the basic plan is clear and refers to clinical notions (the second principle in the constitution of the British NHS states that "access to services is based on clinical need, not ability to pay", Department of Health

5 In the German and Dutch cases the notion is that employees need compulsory public coverage whereas the self-employed, managers, and professionals are free to buy coverage (or not). In that case, moral hazard is controlled by the contribution rate: in short, low and middle income cannot "free ride" on the rich as in a system financed through general taxes.

2008). It is certainly not uncontroversial to determine what constitutes a clinically necessary time to access a hip replacement on a case-by-case basis but at least the principle is clear.

In CHI systems, such as the French, a health care good or service is classified as more or less necessary depending on the level of the co-payment in the public plan[6]. In such a system, the delimitation of what is necessary and what belongs to individual responsibility is a combination of characteristics of the good or service on one hand, and of the ability to pay of the insured on the other hand. Because a co-payment affects utilization through a price effect, and since price effects work differently at various income levels, in the French system the same service is deemed less necessary at the bottom of the income distribution than at the top[7]. Because CHI is almost never priced based on ability to pay (this happens in some public large employers but it remains exceptional) but rather on a mix of flat rate and risk adjustment (older insured tend to pay substantially more), the combination of co-payments in the basic scheme and voluntary CHI to reimburse those raises two equity issues: the cost of CHI relative to income is greater for those at the bottom of the income distribution if they decide to purchase it; if not the ability to access health care will be diminished, generating an income gradient of utilization of medically necessary goods and services. This translates in international comparisons of equity of health care utilization: for instance the horizontal inequity indices of ambulatory care utilization (probability of any visit to a GP in the past 12 months, total number of visits to a GP, probability of any visit to a specialist and total number of visits to a specialist) show levels of pro-rich inequity between three and ten times higher in France than in the United Kingdom (van Doorslaer and Masseria, 2004).

A logical response to such an unintended consequence of using co-payments as a way to limit what is necessary and falls in the public responsibility is to subsidize the purchase of CHI: if individuals are reimbursed a fraction of the cost of their CHI contract, fraction that diminishes when their income increases the government can make sure that no household has to spend more than a given share of its total income on CHI and that all households who are willing to buy have some CHI and can access necessary care. A first step in that direction was made in France in 2000 with the implementation of *Couverture Maladie Universelle Complémentaire* (CMU-C), a means-tested entirely free CHI coverage (see a detailed description in, e.g. Grignon *et al*. 2008). A second step was the creation of *Aide à l'acquisition d'une complémentaire santé* (ACS) in 2005, providing partial reimbursement of the cost of a non-group CHI contract for individuals living in households with income between 100% and 115% of the cut-off level for CMU-C (see below for a description of the scheme).

6 Since co-payments can be covered by a CHI policy they cannot control moral hazard but can split total cost of a service between a basic level of coverage and what is the individual's responsibility.

7 Another consequence of co-payments and CHI, and one that is more often mentioned in public debates is regressive financing: the same co-payment represents a larger share of a small budget and poorer households are hit harder Indeed any increase in the rate of co-payment hits harder at the bottom of the income distribution and we do not dispute it. However, in a static situation where co-payments are used to determine what is not medically necessary one should not be more concerned by the share of co-payments in total income than by the income related differential cost of buying a luxury car. As a result, we posit here that the only issue in a social insurance system with co-payments is that of income-related inequity in the utilization of health care services.

The implementation of CMU-C has demonstrated clearly that co-payment and CHI generate inequities in health care utilization: the utilization of health care by the 10% poorest in France went up to match the level of utilization of those with a private CHI when CMU-C was implemented (Grignon *et al*. 2008). However, the second step seems less of a success: despite what could be seen as a generous level of subsidy the take-up remains low (at between 10% and 20% of the target population, see Franc and Perronnin 2007). This lack of success raises the following question: by how much should the purchase of a private CHI be subsidized by the public purse and where should the income cut-off be?

In this research, we measure the efficiency of the subsidy: how high should the subsidy go to entice one individual to purchase a CHI contract, and what is the cost in windfall for those who receive the subsidy but were ready to purchase a CHI even without it? This is different from the efficiency of subsidizing SHI in the UK (Emmerson *et al*. 2001) or Spain (Lopez-Nicolas and Vera-Hernandez, 2008), measured as the gain in NHS resources when one individual uses their private SHI policy to access private health care. It is much closer to the `bang for the buck` approach of subsidies for private insurance in the US (Marquis and Long, 1995; Glied, 2001; Auerbach and Ohri, 2006; Gruber, 2007). We also investigate the welfare consequences of the lack of CHI: after all, not everybody should be covered by CHI and less than universal coverage for co-payment does not always entail a welfare loss (Gruber, 2008, Monheit and Primoff Vistnes, 2006). To address that issue we estimate a function of demand for CHI and we disentangle supply-side effects from behavioral and affordability ones. Our findings contribute mostly to the debate on co-payments and CHI in health care systems with a strong public single payer, such as those found in Europe. However, it might also be of interest to the debate in the US on policies such as subsidy to purchase private plans on the non-group market or tax credit to increase offerings of employer-sponsored plans aimed at increasing health insurance coverage (Glied 2001; Swartz, 2001; Zelenak, 2001).

To estimate the demand function for CHI in France we use a linked survey-claims dataset that provides individual-level information on CHI (premium paid and whether it is group or non-group), usual socio-demographics, attitudes toward risk and health, and administrative claims data on health care spending and co-payments left by the basic plan.

We model the demand for complementary health insurance as a simplified trade-off between two goods: CHI and a composite good reflecting all other consumptions. The model contains two important features: first, there is a minimum level of the composite good below which life is not sustainable, so that even an infinite level of CHI cannot compensate for a consumption level of the composite good below that minimum; second, the “minimum” level of CHI (the level for which they want to receive an infinite level of the composite good to be compensated and keep the same level of utility) is negative for

some individuals (recall they already benefit from basic coverage and lack of CHI only means co-payments).

Whereas most studies of demand for VHI model a binary variable indicating whether the individual is covered or not (e.g. Marquis and Long, 1995; Costa and Garcia, 2003; King and Mossialos, 2005; Auerbach and Ohri, 2006; Sabila and Ventelou, 2007) we model the premium paid (including 0s for the non-covered). This does not allow us to estimate a price elasticity of the demand for CHI in France but we want to model the effect of income, tastes, and supply-side features on the demand for CHI. A natural way of estimating the observed demand resulting from such an underlying utility maximizing behavior is the Tobit estimator: we use all the information available on the non- group market, including individuals without any CHI for which we treat the zero quantity as censored negative quantities.

Even though our econometric strategy does not allow us to estimate the price-elasticity of the demand for CHI, we use our model and the parameters estimated for the demand function to simulate the response of the demand for CHI to changes in the subsidy.

Our findings are as follows: The main motivation for purchasing CHI in France is protection against a financial risk (risk aversion). We also find a very small price effect on the decision to buy a policy among the near-poor, thus confirming findings on the decision to buy VHI based on other health care systems with a strong public payer (King and Mossialos, 2001, in the UK; Butler, 2001, in Australia; and Costa and Garcia, 2003, for Spain) but contrary to what is observed in the US (Auerbach and Ohri, 2006). We find a very strong income effect on the quantity of CHI demanded, confirming previous findings on the decision to buy non-group CHI in the US or in France (Sabila and Ventelou, 2007): in our model, individuals with an equivalized household income below €700 (approximately USD900) per month are unlikely to buy a CHI policy even if the price was heavily subsidized. Beyond that income level, most consumers would buy even with a small subsidy. These findings suggest that subsidizing the purchase of CHI is unlikely to be an efficient policy to increase coverage: targeted individuals will not buy anyway and those who already buy CHI without subsidy will benefit from a windfall profit, making the cost per unit increase in coverage very high.

Section 2 – Health Insurance in France

The market for voluntary, private health insurance in France is a market for complementary health insurance (CHI): all legal residents of France are covered by a *social scheme (Sécurité sociale)* financed out of ear-marked income tax (the “social contribution”). The basic plan provides medical, drug, and hospital insurance with almost no deductible (some were introduced on ambulatory care in 2007) and covers dental and eye care (but not prostheses or prescription glasses). User-fees are associated with coinsurance and provider over-billing, and a stop-loss clause so that all expenses are

covered above a specified level. As a result there is an inverted “tunnel” in the social scheme where low levels of spending are fully covered as are high levels, leaving a medium range of spending with user-fees, representing in some cases as much as 90% of total cost (for a detailed presentation of the French system, see Couffinhal and Franc, 2008).

Complementary plans work within the frame of rules and regulations devised by the social scheme to select the services and goods they cover, and even benefit from the prices negotiated at the national level for all coinsurances: e.g. there is a national retail price for prescription drugs, the social scheme reimbursing a given rate (which can be as low as 20%) and the complementary scheme complementing the reimbursement to 100% without excluding any drug that is on the social scheme’s formulary, and including a marginal number of drugs not reimbursed by the social scheme. There is no real competition between plans in terms of coinsurance since all CHI schemes provide full coverage. CHI policies differ in the amount they cover for over-billing, dental prostheses and prescription glasses (Bocognano *et al*, 1998; Couffinhal et Perronnin 2004). Over billing is rare for GP services (only 12% of GP over bill, Fennina and Geffroy, 2007), can be frequent (38% of specialists) but always limited in value (€27 on average, EcoSante, IRDES, 2007) for some ambulatory care specialties (ENT, eye specialists, dermatologists), very frequent and of a different magnitude for surgeons in private clinics (the social scheme reimburses a fee but private surgeons charge €75 on average above it). It is also important to note that CHI plans cover over-billing without any attempt at selecting procedures or providers and negotiating prices with providers.

Overall, approximately 78% of total health care expenditures are covered by the social scheme, with 13% covered by CHI and 9% out-of-pocket (Fennina and Geffroy; 2007, Couffinhal and Franc, 2008). Individuals without CHI still have access to medical care and the social scheme covers catastrophic expenditures. An individual’s average expenditures not covered by social insurance system are €421 per year (estimation by the authors based on a representative sample of administrative data), substantial if not catastrophic. These expenditures, however, are highly concentrated among a small number of individuals.

In 1999, 84% of the population had CHI. Since the introduction of CMU-C in 2000, 9% are without any coverage and 2.5% of the population is covered by low-quality CHI plans (not covering any over-billing or dental prosthesis or prescription glasses, Franc and Perronnin, 2006). ACS was introduced in 2005 and it works as a voucher: any eligible individual uses the voucher to get a rebate on the purchase of a non-group CHI contract[8] and the supplier of the contract gets reimbursed by the government. The voucher amounts to €75 per individual below age 25, €150 per individual ages 25 to 59, and €250 per individual ages 60 and older, to individuals living in households above the income cut-off for CMU-C

8 Almost all individual market contracts are eligible: minor restrictions apply to make sure the contract follows the general rules implemented by the public fund, namely a GP gatekeeper.

and below 115% of the cut-off (120% since January 2007). The expected target was 2 million people (approximately 3.5% of the population), but only 240,000 had taken it up in November 2006 (and 330,000 overall after the increase in the cut-off income to 120%, according to the Fonds CMU). The average subsidy amounts to almost 40% of the average premium paid by ACS beneficiaries (Franc and Perronnin, 2007), and represents 25% of the average premium on the non-group market (ACS vouchers are used to purchase lower quality contracts). Still, even with this generous subsidy, the subsidy never really took off.

A number of factors potentially explain this low up-take. Aggregate data shows a loading fee in 2003 of approximately 20% on average for CHI in France, which is somewhat higher than what is observed in other setting (e.g. Gruber (2008) reports 12% for the US) and might indicate one or both of a low level of competition or too many small firms in the business. Out of what is paid out to individuals by supplementary insurers we estimate that approximately 80% goes to reimburse users' fees of the social scheme with the remaining paying for services not covered by social insurance such as in vitro fertilization or alternative medicines[9].

Despite the stop-loss on catastrophic spending user's fee is concentrated on a subset of individuals. In our dataset, which is a representative sample of individuals and administrative claims for reimbursement to the social scheme, we are able to describe the distribution of the costs left to patients by the social scheme, as well as the distribution of costs for a variety of services (hospital, GPs, specialists, drugs, dental care, prescription glasses, transports). Among both those with and without CHI in 2004, the 20% top spenders represent 60% of total user charges. The average yearly user charge in the top 20% is €1,327, versus €182 among the remaining 80%. Among those without CHI the 20% top spenders account for 80% of total user fees, and lower averages (€1,235 and €109 respectively). User charge is more concentrated on hospital, dental and glasses: over these three types of service, the 10% top spenders account for 72% of charges, with an average of €782.

9 The estimation is as follows: the average user fee is €421 in 2004 and 60% of user fees are paid for by CHI. Multiplying 60% of €421 by 60 million residents of France yield a total paid on reimbursing user fees of 15.156 billion € for the year 2004. Over the total outlay from CHI in the Health accounts for the same year (18.966 billion €) this yields a ratio of 80%

Table 1: Concentration (p% top spenders accounting for X% total spending), average spending among p% top spenders and (1-p)% others, for each type of service.

Service	Probability (top spenders)	Share of total	Average spending --top spenders (in €)	Average spending others (in €)
Hospital	5	77%	985	7
Dental prostheses	5	79%	287	1
Prescription glasses	5	67%	356	3
Drugs	20	58%	330	29
Over-billing -- Specialists	20	69%	123	7
Over-billing GPs	20	60%	64	11
Other	20	71%	404	11

From these observations it seems clear that reducing the financial risk stemming from the user charges left by the *social basic scheme* could be an important motivation to purchasing CHI.

Individuals can access CHI through an employer-sponsored contract or on the non-group market. Self-reports (ESPS 2004, un-weighed, available on IRDES website[10]) indicate that 39% of contracts are through an employer and 2% through a pool for self-employed. Another 39% are obtained on the non-group market, and 15% are mixed: these are contracts subscribed by retirees as maintaining the coverage they had through their previous occupation (insurers cannot deny coverage and cannot increase premiums by more than 50%). The non-group market is more important in France than in the US because individuals over the age of 65 are still willing to purchase private insurance. In France contributions paid for directly by employers to a CHI contract are not taxed (even though they could be considered in-kind wages) but there is no tax credit for individuals purchasing CHI on the non-group market or on the employee's share of the contribution in the group market.

Who are the non-covered for CHI in France? Based on our survey for 2004 the mean equivalized household income of the non-covered is €844 per month, compared to €1,382 among those who buy CHI. Among those with an income per unit below €1,000, the proportion of non-covered is 24%, versus 4% only among those with an income with more than €1,900. However, 25% of the non-covered have equivalized incomes of more than €1,000, implying that income is not the only cause of non-purchase of CHI (some individuals do not buy even though it is affordable). Living in Paris is a main factor of non-coverage: 19% of Parisians do not purchase CHI, versus 7% of individuals in rural areas. Age is not a major factor of non-coverage, with 15% of those younger than 30 being non-covered, versus 11% among the 65 and over.

[10] http://www.irdes.fr/EspaceRecherche/Enquetes/ESPS/Dictionnaire2004/fjaune/fjaune_obtent.html

Section 3 – A model of the Demand for Complementary Health Insurance

We develop a model of demand for complementary health insurance that explicitly incorporates a threshold of affordability. Assume that individuals maximize utility over two goods: CHI, which they consume a quantity x, and a composite consumption, which they consume a quantity c, under a binding budget constraint based on current income y (no saving or borrowing):

Max U(c; x) s.t. π.x + *c* = y (1)

Where:

c = the numéraire,

π = the relative price of CHI

In such a model, health care insurance and other consumptions can always be traded off at the margin. To model zero-expenditure on the health insurance good, however, we must assume two things: first, individuals need a minimum level of the composite good to survive; if c were to fall below that level, no amount of x could offset the disutility generated. Second, a positive utility can be obtained even when x is negative, subject to c being large enough to compensate.

We generate rational zero-expenditures on x based on the following utility function:

$$U(c;x) = \left[\max(0;(c-\overline{G})\right]^{\alpha}(x+x^{0})^{1-\alpha} \quad (2)$$

where:

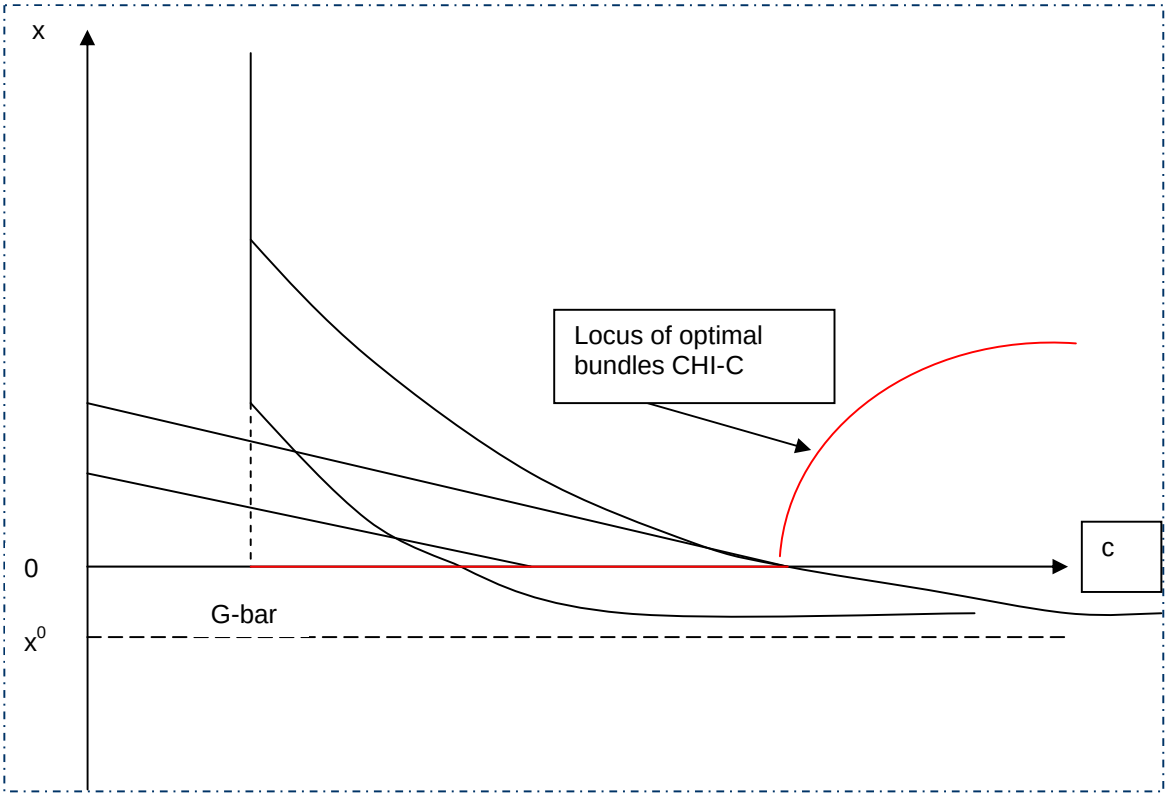
$\overline{G}$ = the minimum consumption of the composite good needed to survive; $\overline{G}$ is a concept linked to affordability and sometimes referred to as “left to survive” (Murray *et al*. 2000; Bundorf and Pauly, 2006). It relates to a general perception of a hierarchy of needs (where CHI would come last) as has been suggested by Maslow (1970). It says in substance that families become risk-averse when other needs are satisfied, and it is supported by some empirical evidence: Starr-McCluer, (1996) finds that uninsured households save less on average than insured ones, other things being equal, and even controlling as far as possible for selectivity (behavioral selection), which suggests that affordability explains more than aversion to risk of coverage and savings behaviors.

x^{0} = a level of insurance coverage such that the marginal rate of substitution between the consumption good and insurance is infinite. -x0 is a level of insurance coverage below the current level offered by the *public mandatory scheme* (*Sécurité sociale*) that would have to be reached to decrease utility to 0 (or that would require an infinite level of c to be compensated for in utility terms). This does not mean the mandatory scheme covers “too much” in any sense but simply that it is above and beyond the sheer minimum individuals can cope with. Introducing that threshold below the public scheme is the main innovation of our model and the main rationale for being non-insured even though risk aversion is

greater at low levels of income. Also: 0-expenditure could be generated with a positive or null x^0 and supply-side constraints such that a minimal quantity of x1 > x0 has to be sold to each customer (Bradley, 2008)[11].

Graphically, such a utility function is a standard Cobb-Douglas where c and x are substitute in the middle range and complements at low values, low being positive for c and negative for x. Figure 1 shows a first iso-utility curve intersecting the horizontal axis (consumption of CHI is zero) before the optimal solution in CHI (when the budget constraint is tangents to the curve) and a iso-utility curve to the north-east (hence for a higher budget level) intersecting the horizontal axis right when the budget line tangents the curve. When income is larger (iso-utility to the north-east) the optimal bundle includes a positive amount of CHI.

Figure 1: Iso-utility curves in the two-goods space with a positive minimum level of composite good and a negative minimum level of CHI.



11 Bradley also suggests another source of non-affordability namely individual variation in the price of insurance: if loading fees increase with some non-health related characteristics, then individuals with the same preferences and budget will make different purchasing decisions. This would of course be a rather crucial determinant of non-insurance if the poor were systematically over-charged by all insurers (e.g. based on the false assumption that the poor are less careful or more prone to moral hazard) and there would not be much cause for subsidizing the price of complementary health insurance in that situation. Such an income-based price discrimination does not seem to be observed on the market for CHI in France (see footnote 8 for empirical findings on this issue in the French case).

Figure 1 reads as follows:

The iso-utility curve crosses the axis when the slope is greater than the price line at low income levels but after at higher income levels (so that there are only corner solutions below a given income level and inner ones above it).

The determination of the level of utility (and, therefore, of the budget level) at which the individual chooses to buy at least some CHI coverage is easily derived from the utility function:
First, we derive the expression of c as a function of x (iso-utility curves in the (c,x) space):

$$U(c;x) = v, c > \overline{G} \Leftrightarrow (c-\overline{G})^{\alpha} = v(x+x^0)^{\alpha-1} \Leftrightarrow c = \overline{G} + \left[v(x+x^0)^{\alpha-1}\right]^{\frac{1}{\alpha}} \quad (3)$$

From (3), the slope of the iso-utility curve is:

$$\left.\frac{dc}{dx}\right|_{U=v} = \frac{\alpha-1}{\alpha} v^{\frac{1}{\alpha}} (x+x^0)^{-\frac{1}{\alpha}} \quad (4)$$

The optimum value of x, x*, is given by:

$$\left.\frac{dc(x^*)}{dx}\right|_{U=v} = -\pi \Leftrightarrow \frac{1-\alpha}{\alpha} v^{\frac{1}{\alpha}} (x^*+x^0)^{-\frac{1}{\alpha}} = \pi \Leftrightarrow x^* = \left[\frac{\pi\alpha}{1-\alpha}\right]^{-\alpha} v - x^0 \quad (5)$$

Hence, there is a value $\underline{v}$ such that if $v < \underline{v}$ then $x^*(v) < 0$: there is no purchase of CHI for these accessible levels of utility. Hence, if income is not large enough to grant $\underline{v}$ individuals will rationally decide they need a negative level of CHI; they would even be happy to partially opt out of the basic plan if that could allow them to cut their contribution to the public plan. From equation (5), we find the minimum level of utility at which individuals start buying CHI as:

as: $\underline{v} = x^0 \left[\frac{\pi\alpha}{1-\alpha}\right]^{\alpha}$ (6).

The derivation above shows that rational individuals can make the decision not to purchase CHI when their income is below a level that would yield a utility level below that minimum $\underline{v}$. Of course, all that is observed is that below that level individuals do not buy CHI, and above it they buy some. What looks like a dichotomous discrete decision (and is very often modeled as such, as we will describe in our method section) is here modeled as a continuous decision where the underlying decision is observed with censoring.

In our model, all individuals share the same rational behaviour, most importantly the same underlying relationship between income and quantity of CHI purchased. Our empirical estimation is aimed at estimating that underlying relationship which reflects affordability of CHI for a given level of income. Individuals differ around that underlying effect of income in their preferences for insurance, and this is reflected in the parameter x^0 that is allowed to vary across individuals in our models (as taste shifters). We detail below in the next section the preference shifters that we use to characterize tastes and individual variation around affordability.

We will use the parameters (slope of the income effect and taste shifters) estimated in our econometric estimation to simulate the effect of a price subsidy on the quantity of coverage individuals, at a given level of income, would purchase on average. We use the model to derive a response function of coverage to price and, therefore, to the level of the subsidy and we are able to get this without directly estimating the price-elasticity of the demand for CHI.

The derivation of the effect of the subsidy works as follows:

The relationship between x* and y is straightforward, and we will use it to evaluate the parameters of interest {π, α, x0}:

Substituting c = y – πx in $U(c;x) = (c - \overline{G})^{\alpha}(x + x^0)^{1-\alpha}$ yields:

U(x) = $(y - \pi x - \overline{G})^{\alpha}(x + x^0)^{1-\alpha}$

Maximizing over x we get:

$$-\pi\alpha(y - \pi x^* - \overline{G})^{\alpha-1}(x^* + x^0)^{1-\alpha} + (1-\alpha)(y - \pi x^* - \overline{G})^{\alpha}(x^* + x^0)^{-\alpha} = 0$$

$$\Leftrightarrow \frac{x^* + x^0}{y - \pi x^* - \overline{G}} = \frac{1-\alpha}{\pi\alpha}$$

Therefore, the demand curve is simply:

$$x^* = \frac{1-\alpha}{\pi} y - \left[\frac{1-\alpha}{\pi}\overline{G} + \alpha x^0\right] \qquad (7).$$

We use (7) to simulate the impact of a price subsidy. The price subsidy is simulated as a reduction in π, the price of coverage (loading fee). All we need to do is to use (7) to calculate the percentage of individuals at a given level y with an x* at least equal to an arbitrary level (what the government wants individuals to buy) for all levels of price below the market price.

Our empirical model provides an estimate for the slope of the income effect, therefore providing a value for $(1-\alpha)/\pi$ in equation (7). The empirical model also provides a value for the second member on the right-hand side of equation (7), which is the taste shifter x^0 plus a constant, and we use that value for each individual in our sample to calculate an individual value for x*.

In order to derive numerical values for x^0, and then, x* we need to assign values to two parameters: $\overline{G}$ and π. $\overline{G}$ is given by the CMU-C cut-off income, and we use a reasonable assumption for the loading fee π.

Section 4 –Data and Method

4.1 Data

Our dataset is a survey on health, health care, and health insurance linked to administrative claims data on expenditures on health care for each type of service (hospital stays, visits, dental care). The survey was conducted in 2004, and administrative claims data covers the period January to December of 2004. For each type of services administrative claims data indicates the total amount spent during the year by the individual, as well as the share reimbursed by the social scheme. Hence, we know the total amount of user's charges paid by the individual or their complementary insurance.

We drop all individuals with CHI obtained through their employer (even partially) and restrict our population to those with a non-group contract (including retirees) and those with no CHI at all. The reason for doing it is that individuals who benefit from some contribution from an employer (or spouse's employer) cannot always tell the true value of the premium paid and would not know the share of the contribution (if any) they paid out of their own pocket. We therefore keep the 9% of the population who are not covered as well as 33% of the population who purchased their policy on the non-group market only (33% is the product of 39% and 84%: 84% are covered privately and 39% of those covered privately purchased on the non-group market without any contribution from an employer). Overall, then our sub-sample is comprised of 42% of the initial population; non-covered represent 21% of our study sample (versus 9% of total population, when those covered on the group market are included).

An implication of restricting our sample to those individuals is that we neglect the selection process in the group market and assume all individuals offered some employer-sponsored contract (either directly or as spousal benefits) took it up. We therefore assume that those without CHI are individuals who are

on the market for non-group contracts and renounced these contracts, but never had access to group contracts that they declined. This is certainly a strong assumption if one believes individuals may reject an employer plan they deem too generous and expensive, or select jobs according to their offering good quality employer-sponsored CHI. The only data available in our sample regards civil servants: in France, all civil servants are offered a group contract that they are free to reject and, as a result, it is the only group for whom we can be sure they were offered such a plan; our survey indicates that, out of the 396 respondents who report working as civil servants or for public entities, 24 only are without CHI. Generalizing from civil servants we make the assumption that individuals will tend to take up an employer's plan which is almost certainly cheaper than any non-group coverage[12].

Not all respondents who reported some non-group coverage answered the questions on CHI, income, or health. We treat missing values for independent variables as follows. For categorical variables (education or health status) we include all observations but define one category as "missing". For continuous variables we test two strategies: (1) we categorized the variable, created a "missing" category just as for other categorical variables, and included all observations; and (2) retained the continuous specification of the variable but dropped all observations with a missing value. We exclude 721 observations with missing information on the premium paid for CHI, which preclude constructing the dependent variable (19% of those with non-group CHI). As described below we control the impact of exclusions based on a sample selection model. See table 2 for the impact of various exclusions on our analysis sample.

Table 2: Sample size and exclusions

Samples	Total sample	Subset with information on premium	Subset with information on income and premium	Subset with information on all independent variables
Individuals with no group CHI (including those with no CHI)	5,106	4,385	3,644	3,618
Individuals with a non-group CHI policy	3,762	3,041	2,658	2,645

12 The plan offered to civil servants is not very generous and it might therefore be somewhat presumptuous to generalize from this small population. On the other hand the plan offered to civil servants is not the most cost effective of all group plans.

4.2 Estimation strategy

Dependent variable:

The typical econometric model of demand of non-group health insurance (in the US: Marquis and Long, 1995; Auerbach and Ohri, 2006; in France: Saliba and Ventelou, 2007) examines the dichotomous decision to purchase or not purchase insurance. In the French case, the proportion of individuals with CHI is higher and it is of greater interest to understand the quantity demanded rather than the probability of having any coverage.

On the right hand side of the equation are found: income, taste shifters (education, health status), and a price variable. US studies construct the price variable as a premium for a standard plan with $1,000 deductible (Auerbach and Ohri, 2006). The premium is imputed on individuals based on their individual (age, gender, health status) and local (state level) characteristics (medical price index and policies affecting community rating). In the case of CHI in France, Saliba and Ventelou (2007) identify a premium effect but it is not clear exactly how it is calculated and they do not present any elasticity result.

Our empirical approach is to model the quantity of coverage demanded rather than the probability of being uninsured (in the U.S., Thomas (1995) uses the same strategy). This is similar to estimating the latent variable underlying the binary choice of being insured or not. However, it puts emphasis on different dimensions of the demand function: in the binary choice models, “price” is measured as the premium paid by an individual with a given level of risk for a standardized contract (and level of coverage). The price elasticity reflects mostly the underlying risk of the individual and, less importantly any local (state) regulations affecting rating (e.g. community rating). In such specifications, price influences demand in two opposite directions: as any price of a standard good, a higher premium yields a lower quantity demanded; but, simultaneously, since a higher risk-adjusted premium reflects a higher “need”, a higher premium yields a higher level of demand. Econometrically, the price variable is not exogenous in these models.

In this strategy the true price of insurance is the loading fee (premium divided by expected benefit) and demand is the quantity of coverage, defined as expected benefit given the parameters of the plan such as deductibles and co-insurance rates. However, we cannot replicate Thomas’s strategy: we do not know the detailed parameters of the plan each individual buys and, as a result, we cannot calculate the expected benefit[13]. We use the premium paid per person covered by the contract as our dependent

[13] We are able to construct some rough measure of the level of coverage: a sub-sample of respondents was interviewed four years before and asked to describe the guarantees on their policy (at the time of this prior interview, which means there is no certainty it is the same policy for which the premium is known). Based on these self-reports we are able to

variable (for the measurement of the variable see below): as a result we model the consumption of insurance (unit price by volume) rather than the quantity.
One consequence is that we do not have any real price variable: we do not observe the loading fee at the individual level. We use proxies based on the risk adjusters (mostly age, gender and family size) of CHI operators and regional dummies to control for variations in medical and dental prices and for variations in the unit price of coverage charged to the individual[14]. We will estimate the price elasticity of the demand for CHI based on our calibration of the utility function: the econometric equation will yield values for the iso-utility curves and the budget line which will allow us to calculate the slope of the demand line (quantity-price response).

Although we do not observe the parameters of an individual's CHI plan and, as a result, cannot estimate the expected benefit, our dataset does link the premium paid for coverage with a set of variables rarely observed in the same dataset: health care expenditures, income, demographics (education, occupation, health status).

Calculation of the premium was, in most cases, straightforward. The individual is covered by one contract only and we know how many individuals are covered by the non-group contract (these are members of the same household). We calculate the value of CHI consumed by that individual as total premium paid divided by the number of persons covered. Some cases are trickier though, when the same individual is covered by several contracts. In such a case we calculate , for each of these contracts, the value of insurance per person in the contract, and we sum these values to measure the total value of consumption of CHI by that individual. We exclude individuals with at least one employer-sponsored CHI therefore we calculate the total value of non-group CHI per individual. In these cases the value of the variable Covpers in the model is the average over all contracts (usually two) of the number of individuals covered by each contract. The average total premium on the non-group market is €527 per year.

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categorize the policies into four categories (low coverage, medium, high coverage with an emphasis on dental care, and high coverage with an emphasis on eye care). Our calculations show a strong and positive correlation between premiums and quality and, more importantly, no price discrimination effect: for a given level of quality, age, and family size, the premium paid is independent of household's income. We therefore reject the hypothesis that insurers charge higher premiums on poorer households for the same level of quality. Data are not presented here but are available on request.

14 This is based on an assumption that the loading fee does not vary across regions or départements in France. A recent study shows variations in the average premium for a given policy according to location in France (*60 millions de consommateurs*, 2008) but this does not prove that the loading fee per se varies: we interpret these variations as reflecting variations in the price of medical services across regions rather than variations in loading fees. Such an interpretation is reasonable because it is now more and more often the case that individuals purchase CHI online, by mail, or through brokers and would not, as a result, be constrained to pay a higher price per unit of coverage than in a neighboring region.

Independent variables:

Income is our main variable of interest in the econometric equation. It reflects the effect of the budget line on the iso-utility curve in the two-goods space. Individuals who did not report on the value of their income are imputed the median of their income class when this information is available in the survey. We define household income as income per consumption units based on the CMU equivalence scale (which is similar to the OECD scale) which assigns a weight of 1 for the first individual in the household, .5 fors the second one, .3 fors the third and fourth ones, and .4 thereafter. When working with categorical income we define the following seven categories: income below €700 per month (the cut-off for ACS); 700 to 999; 1,000 to 1,299; 1,300 to 1,599; 1,600 to 1,899; 1,900 to 2,199; and 2,200 and above.

Since the premium paid by an individual is a function of the level of coverage (how much of the over-billing is covered by the plan) and of the expected cost of the individual, we enter the main variables used by insurers to charge the insured: age and family size.

The shape of the iso-utility curve depends on the utility of being covered.
We describe it as follows:

Risk reduction: Individuals purchase insurance to reduce the financial risk of having to spend for treatment when sick (they protect their wealth). Two main theoretical frameworks of risk reduction lead to different ways of measuring the gain of CHI in reducing risk.

> Expected utility: Under the assumption that the amount spent on medical care in a given year is a random variable, individuals with a concave utility of wealth are better off with full coverage and are therefore willing to pay a certain actuarially fair premium to reduce the uncertain loss generated by user charges. In this standard expected utility framework, the poor are more willing to purchase insurance (under the standard assumption that the utility function is of the decreasing absolute risk aversion type) and we expect that introducing such a variable will increase the positive effect of income on the amount of CHI an individual purchases. We calculate the value of risk reduction according to the expected utility theory as follows:
> We introduce the risk reduction motive in our demand equation as the risk premium:
> $P(Y) = Y - U^{-1}[(1-p)U(Y)+pU(Y-D)]$ with Y the income (wealth) of the individual, p the probability to be in the top spenders population, and D the average amount of spending within that population. Following our estimation in section 2 we use 0.2 for p and 1,235 for a value of D. We model U as $Y^{1/2}$ in our baseline scenario.

Another model of risk reduction is the prospect theory (Khaneman and Tversky, 1978): according to that theory the value of risk reduction is independent of income and increases at a decreasing rate with the value of damage (yearly user charge). We enter it in our demand equation as follows: we use the administrative data to calculate expected values of spending over various sub-populations defined by health status that we impute to individuals according to their health status.

Attitude toward risk and uncertainty: Barsky *et al* (1997) and Monheit and Primoff Vistnes (2006) have demonstrated that attitudes toward risk and preferences regarding insurance are important determinants of the purchase of group insurance as people seek jobs offering employer-sponsored insurance. We enter variables describing general atttudes toward risk in the model; however none of these variables reached significance in .our estimations and we ultimately dropped these from our preferred model.

Commitment to spend on health care: individuals bind themselves into consuming health care (e.g. dental prostheses) that will be beneficial in the long run but is not needed in the short run. They anticipate that they will need to spend on dental care or prescription glasses and they use the CHI as an ear-marked saving device. The main reason for such a costly behavior (they have to pay the 20% loading fee on top of medical costs) is that they do not trust themselves in spending the money on these goods or services (e.g. if they had saved ahead of time). To account for such a motive, we enter the individual amount of user charges during the calendar year of the interview in the right hand side of our demand equation.

Our model does not encompass Nyman's (1999) suggestion that individuals purchase insurance in part to gain access to treatments that they would never be able to afford with their income or even their accumulated savings and credit. Such a motive is credible in the American context but seems unlikely in the case of CHI in France because individuals in need of a very expensive treatment get full coverage through the social scheme.

Specification:

In order to provide the intuition of the relationships we want to estimate, we start with a simple OLS (model 1 below). However, because we want to model a demand function with unobserved (censored) negative utilities, the Tobit is the best-suited estimator and will be our preferred strategy. We use the sample of individuals who are not covered on the group market, which includes those with a CHI policy and those who answered they had no coverage at all. Our dependent variable takes the value of the premium for those with a CHI policy on the non-group market and who agreed to provide a value for the

premium and a value of 0 for those who are not covered. The problem with that population is that a substantial proportion of the population was not able (or not willing) to report a value for the premium paid for their CHI policy and, as a result, cannot be used in the model. A first consequence is that non-covered individuals (for whom the dependent variable is always known) represent a larger share of the sample of individuals with non-group CHI and information on premium (including those with no CHI) than of the true population (approximately 31% instead of 26%). Finally, the non-covered represent 27% of the sample used to run the model 2 below (subset with information on all variables).

We also run a Heckman sample-selection model: a first equation (Logit) estimates the probability that an individual will not report the value of the premium for their CHI policy on the following variables: age, gender, education, self-assessed health, and site and type of conurbation (rural, urban lower than 200,000, urban larger than 200,000, Paris). We then use the inverse Mill's ratio (IMR) in an OLS estimate of the premium, estimated on the sub-population with no coverage or a coverage with a reported premium (model 3 below).

We also run a sensitivity check on the effect of non-responses on the income variable: in the OLS version, we include income as a categorical (rather than continuous, with seven categories) variable and we run two estimations, one restricted to the population with a reported income, and one on the total population with 'non reported income' being one supplementary category. Results (not reported here but available on request) confirm that excluding observations with missing income does not change the coefficients and significance values. In the sample-selection model, we also tried with a first step where the non response bias on premium is controlled for a dummy variable taking the value 1 for individuals who refused to provide information on their income. This improves substantially the fit of the first step but leaves the coefficients on income unchanged in the second step.

One thing we were not able to assess empirically is the assumption in the Tobit that the same determinants are at play for the selection process (to buy or not a CHI) and conditional consumption (once the decision has been made, how much of CHI to purchase). It is possible that individuals anticipating higher premiums are deterred from seeking CHI in the first place, and, as a result, some characteristics, such as age would have a negative impact on the probability and a positive one on conditional consumption. This is not likely for CHI in France, however, since we observe that individuals who pay higher premiums (e.g., the elderly) are also more likely to be covered.

Moreover, because the origin of censoring might come from a supply side issue (the transaction costs of supplying a low level of CHI might be too high) as well as from the demand side issue tested so far, we re-estimate the demand function with a censoring threshold at 200 instead of 0 (it appears that very few contracts are worth less than €200 per year and per person in our dataset). The findings are not

qualitatively changed: the slope for income is slightly steeper as is the impact of going from 1 to 2 persons covered.

Section 5 – Results

In this section we present the results of the models where variables which were never significant (over all models) are excluded. These variables are sex, self-assessed health, and attitudes toward risk. The fact that health does not affect the amount of premium confirms the absence of adverse selection in the choice of CHI in France already shown in Buchmueller *et al*. 2004 (if anything there would be a small propitious selection effect, individuals in better health being also more likely to purchase a policy).

Table 3: Estimates, three main models (OLS, Tobit and Heckit): dependent is the value of the premium paid.

Variable	Model 1	Model 2	Model 3
	OLS	Tobit	Sample selection
Constant	232.54 ***	-666.71 **	372.55 ***
User charge	28.38 **	63.42 ***	26.65 *
User charge squared	-1.42	-4.39 **	-1.27
Age	-0.87	2.45 **	-1.34
Age squared	0.07 ***	0.06 ***	0.08 ***
Number of covered persons (NCP)	-70.61 ***	467.59 ***	-68.42 ***
NCP, squared	4.61	-70.19 ***	4.36
Income/1000	189.63 ***	223.13 ***	183.12 ***
Income/1000, squared	-25.02 ***	-30.36 ***	-24.41 ***
Income/1000, cubic	0.80 ***	1.03 ***	0.78 ***
Risk premium	6.87 ***	1.69	6.65 ***
IMR			-421.92 **
# Observations	2645	3618	2641
Adjusted R2 (Log Likelihood)	0.2790	-19590	0.28
Scale		346.25	

*, **, ***: significant at 10%, 5% and 1% level.

The variables used by insurers to determine the premiums (risk-related variables): age, age squared, and the number of persons covered (as well as its squared value) are always significant and with the expected signs.

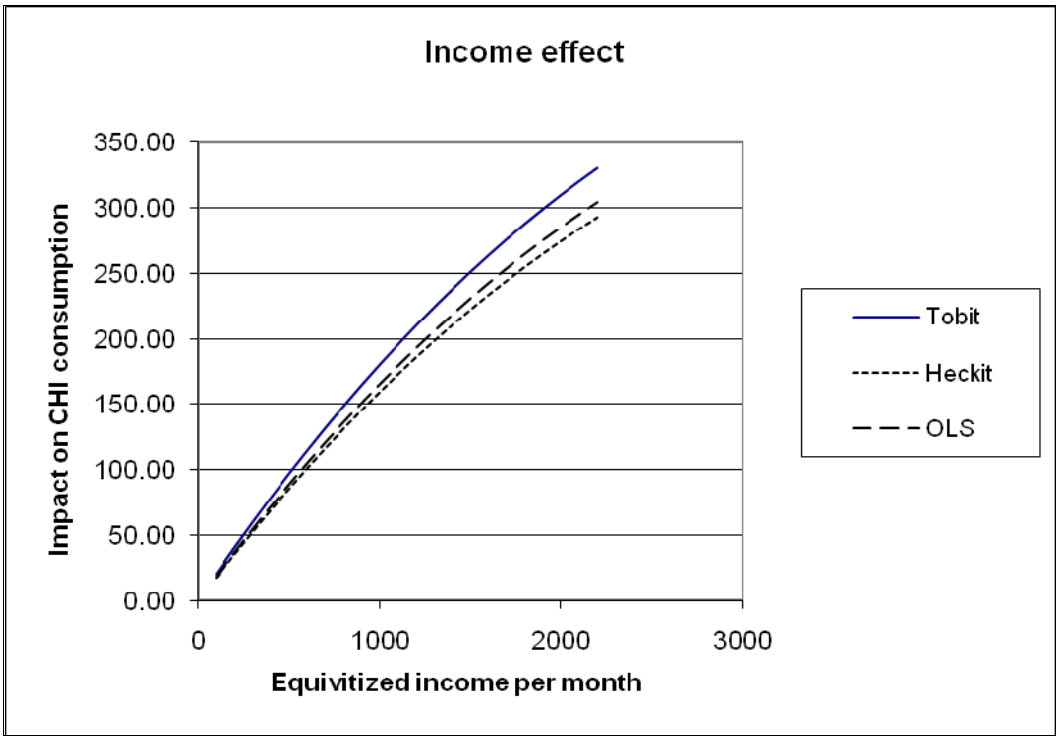
Consumption of CHI increases with age squared: for an individual aged 60 the premium is increased by €252, or 44% of the average (in model 1).
The fact that the premium decreases with the number of individuals in the contract is observed as well in the US (Gruber, 2008) and stems from a cross subsidy of large families by single individuals (insurers do not charge the same fee on families). There is no clear explanation for such a cross-subsidy except that insurers benefit from lower transaction costs when they enroll a whole family rather than separate individuals (personal communication from insurers in the Fédération Nationale de la Mutualité Française).

The commitment motive (social scheme user charge) is significant but its effect is limited: the variable is measured in €1,000, hence each supplementary € in user charges is associated with between €0.03 and €0.06 in terms of supplementary consumption of CHI. The risk premium is positive and significant in models 1 and 4, and positive but not significant in models 2 and 3. It is positive in all models indicating as expected that the poor are more willing to purchase (they benefit more from risk reduction) than the rich.

The IMR is significant indicating that, among respondents, not providing information on the premium paid is systematically linked to the value of insurance consumed. The coefficients on income are slightly different when this bias is controlled for but qualitative results are the same as in models 2 and 3. This is the main conclusion we draw from this estimate: even though the selection mechanism of non-reporting on the premium is systematically linked to the level of the premium, not accounting for it biases the coefficients on other determinants (mostly income) only minimally. As a result, we will use a simple version of the Tobit estimator without correcting for the non-reporting bias.

Last the income effect is strong and always significant and, as expected, steeper when the Tobit estimator is used. It is summarized in figure 2.

Figure 2: Effect of income on the reported premium paid for non-group CHI (0 if no CHI) according to various models (for the Tobit we report for the latent variable; for the Heckit, we report the second step with the control for IMR).



The slope around 1000 is approximately 0.14. Hence $\pi = (1-\alpha)/0.14$ (8)

Section 6 – Simulations of the Impact of Premium Subsidies on the Demand for CHI

We need a "reasonable" assumption for π. We assume a loading fee π = 1.3. This is based on aggregate data indicating a loading fee of 20% on all group and non-group contracts and the knowledge that non-group policies are usually more expensive. Based on (8), such a choice yields α = 0.82, which is plausible.

For each individual, the negative value of "minimum" CHI is given by:
x^0 = (-Tobit(i) -0.14*G)/0.82

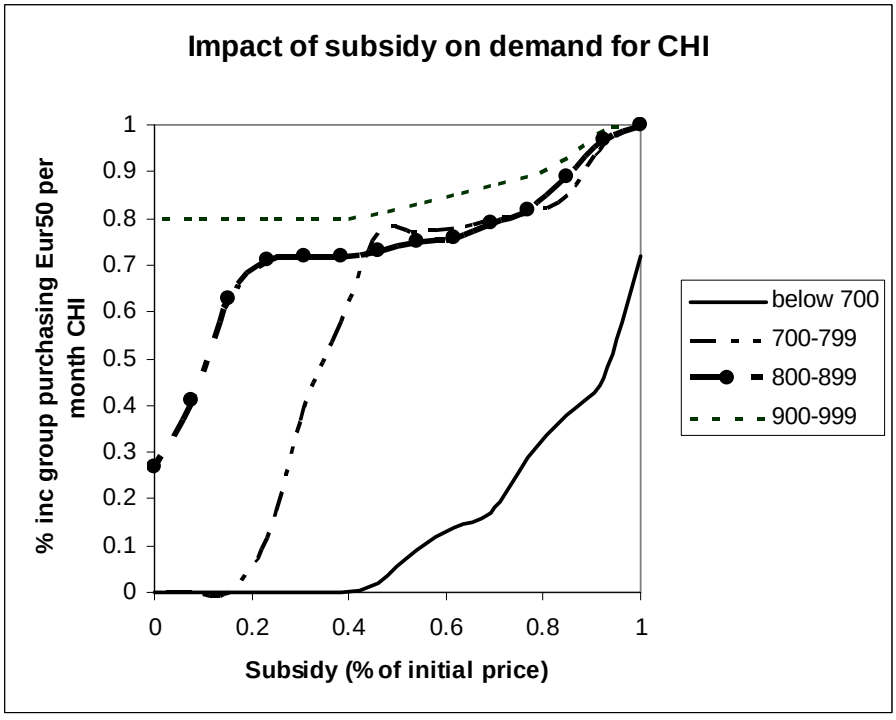
Where Tobit(i) is the predicted value from the model neutralizing the effect of income (but including the random value from the residual) for the individual i. For each individual in our sample, we draw a random number in a normal distribution with a mean of 0 and a standard deviation of the Scale

parameter from the tobit. We use the predicted deterministic values for the un-censored demand for CHI (the latent variable) and the random number to generate these Tobit(i) for each observation i.

We then run the simulations as follows: once we know x0, we can calculate the demand for CHI as a function of its price π ($x = \frac{(1-\alpha)(y-\overline{G})}{\pi} - \alpha x^0$), and, given a target consumption of CHI (the 'appropriate' level the government wants to encourage, x*), the implicit price that CHI should be charged to make sure individuals will buy it: $\hat{\pi} = \frac{(1-\alpha)(y-\overline{G})}{x^* + \alpha x^0}$

We run two sets of simulations, one using a target level (appropriate quantity of insurance) x* = €50, meaning €600 per year and person, somewhat higher than the €527 average of non-group premiums, and the second one based on a monthly premium of €44 (or €528 per year).

Figure 3: Relationship between the subsidy level and the proportion of individuals willing to buy the level of CHI deemed appropriate by the government, here assumed at €50 per month.



Among those with less than €700 per month (close to the ACS cut-off income threshold at 675[15]), 54% would buy less than x* with a price as low as 0.1 (meaning a subsidy of 1.2/1.3 = 92%), and still 38%

15 It must be noted that some individuals in our sample report incomes that would make them eligible to *CMU-C*, i.e. below €587 per month, even though they do not state they actually benefit from it. We have no way of deciding whether they under-report their income, are eligible to CMU but did not claim it, or failed to report their being covered by it. As a result, we decided to include these observations in our study and simulation (we have excluded all individuals reporting they are covered by CMU, however).

would be in the same situation with a price of 0. Above the cut-off threshold and below €800, a price of 0.8 would deter 42% of consumers to buy the target level of CHI, but a price of 0.7 would convince 77% of them; the gain is almost flat after that (with 80% reaching the appropriate level for a price of 0.4) until 0.1 where it goes up to 96%. Subsidizing the cost of CHI by approximately 50% (0.7/1.3) seems to be efficient in that income bracket. Between €800 and 900 per month, the efficient level of price is 1.0 (no loading fee at all, meaning a subsidy of 1/1.3 = 23%), where 71% reach the appropriate level (up from 63% with a price of 1.1).

Below the ACS cut-off income threshold, older customers (65+) might be easier to convince: with a price of 0.2 (subsidy of 85%) 54% of them buy the appropriate level (versus 30% only among the young and adults). Similarly, with a price of 0.7, 93% of the 65+ in the income bracket €700-799 buy the target level of CHI. One has to keep in mind, however, that, since insurers charge more for elderly individuals, any proportional subsidy will be more costly to the public purse when targeted on the elderly.

With a target at €44 instead of 50, no much changes below the ACS threshold; however, the efficient price for the 700-799 income bracket is now 0.8 (38% subsidy) and 1.2 (8% subsidy) for the €800-899 income bracket.

Conclusion

We have investigated the determinants of the demand for complementary health insurance (CHI) in France. We estimate a Tobit where total consumption of CHI (premium paid, which is the quantity of coverage multiplied by its unit price) is the dependent variable. We find that the main motivation for purchasing CHI in France is the reduction of the financial risk left by the basic social scheme. We also find a very strong income effect: the consumption of CHI increases (at a decreasing rate) with income. We then turn to the relationship between income and demand with an aim at simulating the effect of various subsidizing mechanisms on the purchase of “appropriate” contracts of CHI. We find that individuals with an income below €700 per month and consumption unit are very unlikely to buy an “appropriate” quantity of CHI even if the unit price was heavily subsidized. Beyond that income level, most consumers would buy the appropriate level even with a small subsidy. These findings suggest that subsidizing the purchase of CHI might not be the most efficient policy: targeted individuals will not buy anyway and the ‘bang for the buck’ will always be very low (those who already buy CHI without subsidy will benefit from a windfall profit that will be very costly for the public purse). This suggests that the 2005 income-tested subsidy for the purchase of reasonable quality complementary health insurance (ACS) is not the suitable policy to reduce the number of uninsured in France.

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Income and the Demand for Complementary Health Insurance in France

Michel Grignon (McMaster University; Irdes), Bidénam Kambia-Chopin (Irdes)

This paper examines the demand for complementary health insurance (CHI) in the non-group market in France and the reasons why the near poor seem price insensitive. First we develop a theoretical model based on a simple trade-off between two goods: CHI and a composite good reflecting all other consumptions. Then we estimate a model of CHI consumption and empirically test the impact of potential determinants of demand for coverage: risk aversion, asymmetrical information, non-expected utility, the demand for quality and health, and supply-side factors such as price discrimination. We interpret our empirical findings in terms of crossed price and income elasticity of the demand for CHI. Last, we use these estimates of elasticity to simulate the effect of various levels of price subsidies on the demand for CHI among those with incomes around the poverty level in France. We find that the main motivation for purchasing CHI in France is protection against the financial risk associated with copayments in the public health insurance scheme. We also observe a strong income effect suggesting that affordability might be an important determinant. Our simulations indicate that no policy of price subsidy can significantly increase the take-up of CHI among the near poor; any increase in the level of subsidy generates a windfall benefit for richer households.

L'impact du revenu sur la demande de couverture complémentaire santé

Michel Grignon (McMaster University ; Irdes), Bidénam Kambia-Chopin (Irdes)

Nous étudions la demande de couverture complémentaire santé individuelle en France ainsi que les motifs qui expliquent pourquoi la demande d'assurance des individus aux revenus modestes n'est pas sensible au montant de la prime d'assurance. Dans un premier temps, nous développons un modèle théorique d'arbitrage entre deux biens : la complémentaire santé et un bien composite reflétant toutes les autres consommations. Dans un second temps, nous estimons un modèle de consommation d'assurance et testons l'effet des déterminants de la demande d'assurance à savoir l'aversion au risque, les asymétries d'information, la théorie de la non-espérance d'utilité et des facteurs liés à l'offre d'assurance tels que la discrimination par les prix. Nous trouvons que la consommation d'assurance complémentaire s'explique par un comportement de réduction du risque financier associé aux débours pour les soins de santé dans le cadre du modèle standard de l'utilité espérée. Ces résultats sont ensuite utilisés pour simuler l'impact des variantes de l'Aide à l'acquisition d'une complémentaire santé (ACS) sur l'achat d'une couverture complémentaire. Les résultats des simulations indiquent que l'incitation financière ne fonctionne pas dans le sens voulu : ceux qui sont sensibles à la subvention de l'achat de leur assurance achètent déjà le produit et ceux qui ne l'achètent pas ne changent pas leur comportement même avec une forte subvention. En conclusion, il vaudrait mieux augmenter le plafond de ressources de la CMU-C si on veut modifier sensiblement les comportements de couverture.

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