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Assessing and Discerning the Effects of Recent Private Health Insurance Policy Initiatives in Australia

by

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Abstract

Assessing and Discerning the Effects of Recent Private Health Insurance Policy Initiatives in Australia

The Australian government implemented several new policy initiatives during 1997–2000, with the stated aim of raising the take-up rate of private health insurance. Taken together, these policy initiatives were quite effective, the proportion of the population with private health insurance cover increased by more than 35%. However, much less clear is the effectiveness of different components of the policies, due to their sequential implementation. Since there are large cost differences in implementing these policies, an understanding of the effects of each policy is important for policymaking. This paper attempts to isolate the effects of different policies using the 1995 and 2001 National Health Survey data. The two datasets allow the estimation of private health insurance demands before and after the policy changes. The results were used to perform a counterfactual analysis of what would have happened had there been no new policies. Further, utilizing the age-specific aspect of Lifetime Health Cover, we are able to isolate its contribution to within 42% and 75% of the increase in private health insurance membership.

1 Introduction

The Australian health care system is based on an universal access principle, under which every person regardless of income is entitled to be a member of Medicare, a universal health insurance scheme. However, private health insurance (PHI) has always been a prominent feature of the Australian health system, despite the availability of a publicly funded alternative since 1975.[1] For much of the 1990s, some 30% to 40% of the population is covered by PHI. It is, however, plainly obvious that the coverage of PHI has been on a declining trend since the introduction of Medibank in 1975. There are a variety of reasons, not least of which is the appeal of the publicly funded alternative (Medibank/Medicare) to the masses.

With a purported goal of reducing the burden on public hospitals, the Australian government implemented a sequence of new policies during 1997-2000. The three major policy initiatives are, in chronological order: (i) The Private Health Insurance Incentives Scheme (PHIIS), introduced in 1997, which imposes a tax levy on high-income earners who do not have PHI, and a means-tested subsidy scheme for low-income earners who purchase PHI. (ii) A 30% premium rebate, introduced in 1999, to replace the means-tested subsidy under PHIIS. The 30% rebate is non-means tested, and applies to all private health insurance policies, including existing ones that were already in place. (iii) Lifetime Health Cover (LHC), introduced in 2000, permits a limited form of age-related risk rating by private health insurance funds. Under LHC, insurance funds are allowed to discriminate consumers by age at time of entry. The immediate aim of these policies was to raise the take-up rate of private health insurance (PHI). As a result of these policies, the proportion of the population with private hospital cover increased from 31% in 1999 to more than 45% in 2001, an increase of more than 14 percentage points in two years. Two components of the new policies, the 30% premium rebate and Lifetime Health Cover (LHC), have been widely regarded as the most effective in raising the PHI take-up rate. It is not clear, however, what proportion of the increase can be attributed to which of those policies.

Butler (2002) examines the trend in the proportion of population with private hospital insurance cover between June 1984 and March 2002. By noting the timing of the sequential policies introduced beginning in mid-1997, he argues that it was LHC that induced the bulk of the increase in PHI take-up rate. Using a similar policy timing idea

[1] The first universal health insurance system was announced in 1972 and put in place in 1975 under the name of Medibank. The name was changed to Medicare in 1984 following some major revamps of the scheme.

but with a more rigorous trend analysis, Frech et al. (2003) attempt to measure the relative impact of the different policies. They estimate that the 30% rebate lead to an 11% increase in PHI demand. However, they were not able to disentangle the effects of the rebate and the LHC. The substantial cost differences between the two policies have attracted heated debate among academics and policymakers as to the cost-effectiveness of each policy. Duckett and Jackson (2000) estimate that the 30% rebate costs more than $2 billions per year while LHC costs practically nothing to the government. From an economic efficiency point of view, it is clearly desirable to be able to distinguish the contributions of the two policies for better policymaking.

This paper departs from previous studies by using micro-level cross-section data to disentangle the effects of the two policies. We argue that although a significant proportion of the increase in PHI coverage occurred after the introduction of LHC, this policy was introduced *on top of*, not in place of, the 30% premium rebate and the tax levy under PHIIS. This means that the separate contributions of these policies cannot be readily inferred from time series data. Using cross-sectional micro-level data, this paper contributes to the discussion by providing separate estimates of the effects of the 30% rebate and LHC. A significant improvement over previous studies comes from our use of micro-level model of PHI demand, which allows us to take advantage of the design of the two policies to separate their effects. Using unit record data from the 1995 and 2001 National Health Survey (NHS) data, we estimate PHI demand equations before and after the implementation of the new policies, separately for single individuals and families. This allows us to construct a counterfactual scenario to measure the effects of the new policies on PHI take-up rate for those people who are highly unlikely to be covered without these new policies. Furthermore, utilizing the age criterion of the LHC policy, we are able to separately identify the contribution of LHC. For singles, we find that the LHC accounts for at least 42% and at most 61% of the total increase in take-up rate. For families, the corresponding figures are 42% and 78% of the total increase, respectively. The total effects of LHC, inclusive of singles and familes, are between 42% and 75% of the total increase. While these figures show the significant impact of LHC on PHI take-up, they are much lower than those suggested by previous studies.

The rest of this paper proceeds as follows. In section 2, we provide a brief discussion on the changes in the private health insurance policies. This will be followed by the empirical model specifications and an explanation of data and variable construction in section 3. In section 4 we discuss and interpret the empirical results. Section 5 concludes the paper.

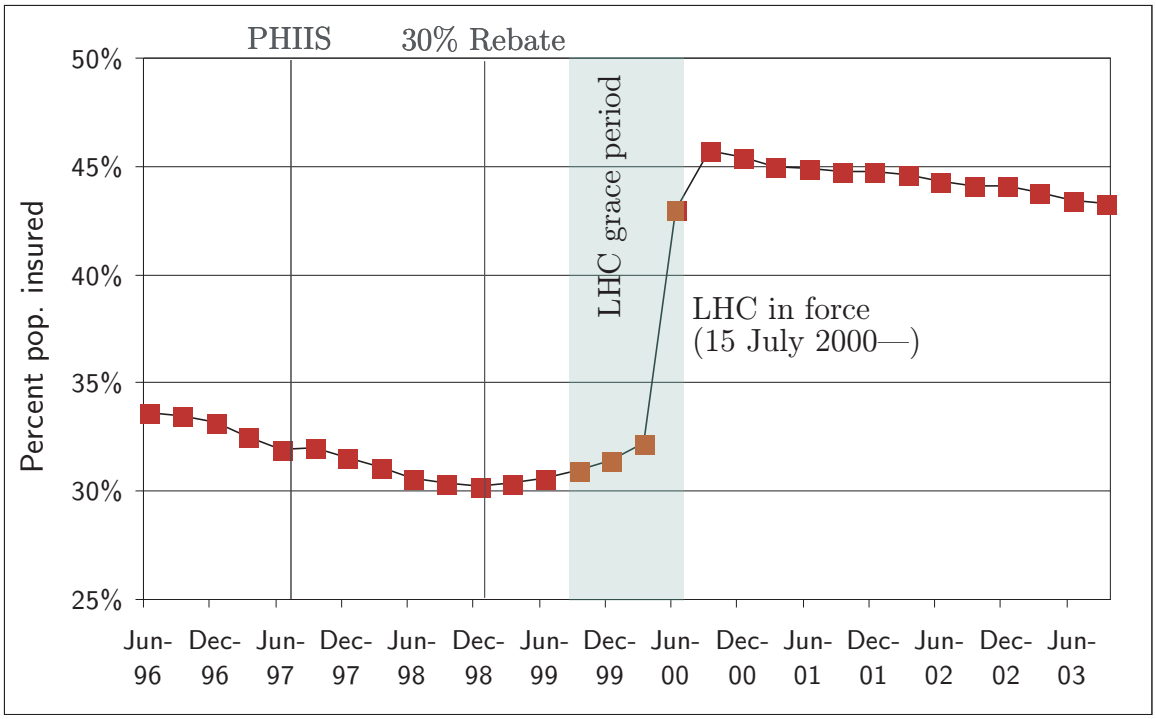
2 PHI Policy Changes

There are three major sets of PHI policy changes implemented between 1997 and 2000 which may affect PHI demand. The first set, introduced in 1997, includes a means-tested PHI premium subsidy and a 1% Medicare tax surcharge for high income earners who is not covered by an approved PHI policy. Then, in 1999, the means tested rebate was replaced with a non-means tested 30% premium rebate for all PHI policies. Finally, introduced in 2000, are Lifetime Health Cover (LHC), which allow health funds to discriminate consumers according to their age of entry into the fund. Because of the continuing decline in PHI take-up rate even after the introduction of the first set of policies, the 30% premium rebate and particularly LHC, have been widely regarded as the most effective policies and therefore are the focus of most earlier studies.

The basic idea of the LHC scheme is to induce the low risk population back into the private health insurance system. It was mainly a response to the findings that more and more low-risk individuals were leaving the PHI system, resulting in a system consisting mostly of the high-risk groups–a phenomenon often referred to as the "adverse selection spiral" (see for example, Industry Commission, 1997). Consequently, the scheme was designed around a financial penalty for the low risk groups. The target group was individuals between 30 and 65 years old. The amount of the penalty is set at 2% of the premium for each year beyond the age of 30 for anyone in the targeted population entering a health fund for the first time.

As can be seen from Figure 1, immediately following the introduction of LHC, PHI membership jumped from 31% of the population at the end of 1999 to more than 45% at the end of 2000. Thus, one is naturally tempted to attribute most of the effects to LHC. However, there are several plausible reasons why the effects of the 30% rebate should not be discounted entirely. First, only approximately 12% of the 2001 NHS respondents of age 30-65 years regarded LHC as one of the reasons for having PHI. Second, the same data reveal that the same age group only accounts approximately for 72% of the population with PHI. Lastly, consumer theory asserts that what matters in the end is whether or not having PHI is optimal given an individual's budget constraint. It is quite plausible then that the jump following the introduction of LHC would have been much smaller if PHI were still unaffordable in the absence of the rebate.

Figure 1: Proportion of Population with Private Health Insurance, 1996-2003



3 Empirical Framework and Data

The specification of our empirical models follows Cameron and Trivedi (1991), and is similar to other Australian studies, such as Hopkins and Kidd (1996) and Barret and Conlon (2003). The basic framework is motivated by the theory of consumer choice under uncertainty, where an individual only purchases PHI if the expected utility from purchasing exceeds that from not purchasing. The decision to purchase PHI can thus be specified as a discrete choice model. That is, defining the binary variable PHI as an observed random variable with value 1 if PHI is chosen, and value 0 otherwise. The probability of purchasing PHI is

$$\Pr[\text{PHI} = 1] = f(x, \beta) + e, \tag{1}$$

where x is a vector of observable individual characteristics, β is the corresponding vector of parameters to be estimated, and e is a random term representing the unobservables. We specify f so that (1) can be estimated as a standard logit model. Following the three studies cited above, x contains variables that capture variations in (i) expected medical needs (gender, family size, age, doctor visits); and (ii) risk aversion, preference as well as other socio-economic background (smoking, income, types of employment, residential area, and education). Missing from the list is the rate of insurance premium, which

unfortunately is not available from existing Australian data sets.

We estimate (1) twice, one for 1995 and one for 2001. The 2001 estimates provides variations in the marginal effects and the predicted probabilities across age groups. The 1995 estimation provides us with the average decision rules used by individuals before the set of the policy changes were in place. Thus, by applying the estimated 1995 "decision rule" on the 2001 population, we obtain estimates of what would have happened if there were no policy changes between the two period. Based on these estimates, we decompose the observed proportion of population with PHI in 2001 into (i) those who would have purchased PHI even when there were no policy change, and (ii) those who would not. Further, utilizing the age dependent design of the LHC policy, we separate the impact of LHC from that of the 30% premium rebates. This is done by taking the difference in the average probabilities between the LHC target group (age 30–65) and the non-target group (age 18–29).

The data for the estimation come from the Confidentialised Unit Record Files of the 1995 and the 2001 National Health Surveys. The interview of the 2001 survey took place between February and November 2001. Therefore, we are confident that it captured most, if not all, of the effects of PHI policy changes. In their original formats, these data sets contain respectively 26,862 and 53,828 unit records for 2001 and 1995. Given the plausibly different PHI decisions between singles and families, we split the data files accordingly and estimate (1) separately for singles and families in each survey. In addition, since the 2001 survey only randomly interviewed a single adult from a family type of households while the 1995 survey interviewed all adults in the sampled households, we randomly select a single adult from households in the 1995 data. This is to ensure that the two samples are comparable across time. Finally, there are several data cleaning steps that we take. These include dropping full-time students, non-family members, age below 18 for singles and age below 20 for families, and singles below age 22 who may be covered by family PHI. After all of these data preparation steps, we end up with useable records of, respectively for the 1995 and 2001 NHS, 4,648 and 4,710 singles and 7,059 and 9,543 families. Table 1 lists the variables used in the estimation. Note that all person description variables in the case of family units refer to the characteristics of the selected adult of the particular family.

In addition to variables listed in Table 1, we also include 13 regional dummy variables, which denote whether the unit's residence is in a metro or rural area in each state/territory, and 13 age dummy variables, with value 1 if the unit's age falls in the indicated age interval.

Table 1: List of variables in logit estimation

Dependent variable	
PHI	Private health insurance (1=Yes, 0=N0). 1=if hospital cover (with or without ancillary) is purchased. (for family, 1=if at least one family member has hospital cover).
Explanatory variables	
female	dummy, 1=female (not applicable for family units).
immig	dummy, 1=immigrant.
govcrd	dummy, 1=government concession/entitlement card holder.
stdinc	standardised value of annualised weekly income (actual - mean income).
stdinc2	squared standardised income.
famsize	number of persons living in the household (not applicable for singles).
childlt6	number of children of age ≤ 6 years (not applicable for singles).
degree	dummy, 1=has a Bachelor degree or higher.
diploma	dummy, 1=has an associate diploma.
postscd	dummy, 1=has basic, skilled, and/or other post-secondary qualifications.
admin	dummy, 1=occupation is in an administrative position.
trade	dummy, 1=occupation is trade.
clrksrv	dummy, 1=occupation is clerical or services.
prof	dummy, 1=occupation is in the professional category.
paraprof	dummy, 1=occupation is paraprofessional.
plantop	dummy, 1=occupation is categorized as plant operator.
drvisit1–4	dummy variables, 1=has a doctor visit within last 2 weeks, 2 weeks–3 months, 3–6 months, 6-12 months.
chdrvis1-4	Defined similarly as above for the children (not applicable for singles).
chnum	number of long-term chronic conditions.
chnumcld	number of long-term chronic conditions of the children (not applicable for singles).
smoker	dummy, 1=current regular smoker.

4 Results

Table 2 summarizes the estimated coefficients of the PHI demand model as specified in (1), for singles and families, and in 1995 and 2001. As can be seen from the table, most of the usual determinants of PHI demand are significant and have the expected signs. Demand is increasing in income, but this effect is diminishing as suggested by the negative sign of the squared income term. This probably captures the preference for private health care and at the same time the ability to afford the costs of the insurance. Comparing the coefficients of 1995 and 2001, we see that the signs of estimated coefficients are mostly as expected and consistent in both years. For examples, the coefficients for gender, income, education, occupation, risk aversion, and health risks are quite stable in both years. There is no variable which shows a significant reversal in sign from positive significant to negative significant or vice versa.

Contrary to what one would expect from adverse selection, smokers, whether single or in a family, are associated with significantly lower probabilities of having PHI in both years. One possible explanation is that this simply reflects the lower risk aversion of smokers, and this possibly dominates the higher health care needs consideration.

The signs of the estimated coefficients for doctor visits and the number of chronic conditions are consistent with usual expectations that they capture the expected medical needs in the future. All else equal, units with higher expected medical needs have on average higher probabilities for being covered with PHI. One particularly interesting finding from the family equation is that the coefficients on doctor visits suggest that, in 1995, the expected medical needs of the children seem to be more important than those of the adults. Also, in the same year, demand seems to increase with family size but at the same time decrease with the number of young children (aged less than six).

Some interesting results can be further revealed from comparisons between the 1995 and 2001 estimated coefficients. For example, if the policy changes induce more individual from the lower risk group to join PHI membership, we should see that the importance of the risk related variables to be lower in 2001. The doctor visits variables of singles and families, both adult and children, seem to indicate that this is the case. Except for "drvisit3" and "drvisit4" of families, the magnitudes of the estimated coefficients decrease between the two periods. However, the other risk-related variables, e.g., number of chronic conditions and smoking, seem to provide contradicting evidence.

Other interesting results come from the comparison of the age coefficients. Since all

other policy changes except LHC are basically age independent, we would expect that on average, the distance between LHC target group (age 30-65) and LHC non-target group (age 18-29 and age 65+) would increase. In other words, since the base age group (age 40–44) belongs in the LHC target group, the estimated coefficients of non-target group should be lower in 2001. The evidence seems to support this.

Since among our primary concerns is to isolate the effect of LHC, we examine the age coefficients in greater details. Table 3 presents the average marginal effects of all age variables with respect to the base age group (age 40–44) in 2001. In addition, the table also gives the predicted probabilities for the base age group so that the predicted probabilities of all other age groups can be inferred directly from their marginal effects. These age-dependent variations in predicted probabilities will allow the effects of LHC to be separated from other effects. To do this, we define three different age groups: 18-29, 30-69, and 70+. The first and third groups are, by the policy design, not LHC target groups. In addition, the first group's risk profile should not differ too much from the base age group and even from the entire LHC target group. It is also probably the least risky group. In other words, controlling for all other observable PHI determinants, their predicted probabilities would reflect more or less the effects of non-LHC policies, chiefly the 30% premium rebate. On the other hand, the third group can be considered as the highest risk group. Therefore, we can expect that the difference between Groups 1 and 2 is a much more accurate reflection of the LHC effects than the difference between Groups 2 and 3.

We first compute the average predicted probabilities of having PHI for Groups 1 and 2. For singles, the averages are 11.5% and 37.2%, respectively. For families, the corresponding figures are 27.6% and 58.3%. Then, by the above reasoning, the difference between the average probabilities of Groups 1 and 2 would represent the part of predicted probabilities in Group 2 which are not common to the two groups. Since the difference between these two age groups arises mostly from the fact that latter belongs in the LHC target group while the former is not, the difference is thus an estimate of the effect of LHC. The differences are 25.7 percentage points and 21.1 percentage points, respectively, for singles and families. Expressed as a percentage of the average predicted probabilities, LHC accounts for approximately 68% and 53%, respectively, of the average probabilities of having PHI for singles and families in Group 2.

Since we have isolated the effects of LHC on singles and families, the next step is to apply these percentages to arrive at estimates of the extent of the rise in PHI membership that can be attributed to LHC. To do this, we need to first estimate the rise in PHI

membership due to all policy initiatives introduced between 1995 and 2001. For this purpose, we create a hypothetical situation by applying the 2001 NHS data on the 1995 coefficient estimates. In so doing, we in effect "force" singles and families in 2001 to apply the decision rules as embodied in the 1995 coefficients, which presumably would not reflect the effects of policy initiatives introduced after 1995. In this sense, we create a hypothetical or counterfactual scenario to which we can compare the actual predicted probabilities for 2001 and arrive at estimates of the effects of the policy initiatives introduced after 1995.

Table 4 presents the results of the decomposition. Looking at the last column of the table, 36.9% of single individuals had PHI in 2001, and this consists of 21.4% who would have had PHI in 2001 even if the government introduced no new policy initiatives, and the other 15.5% who took up PHI in response to the new policy initiatives. Similarly for families, 51.9% had PHI in 2001, and this can be decomposed into 21.8% who would have had PHI even if there were no new policy initiatives, and the remaining 30.1% who were new to PHI memberships, presumably in response to the new policy initiatives.

Columns 2-4 of the same table provide a breakdown of the above figures into three age groups: Groups 1–3 that we defined above. For example, in column 3, we see that out of the 15.5 percentage points of singles who took up PHI in response to the new policies, approximately 9.4 percentage points (or 61% of 15.5) were from Group 2, the LHC target group. By design, we do not expect LHC to have any effects on the other two age groups. Thus, if we attribute all new PHI enrollees in the LHC target group to the effect of LHC, we can say that at most 61% of all singles who responded to the new policy initiatives were due to LHC. This forms the upper bound of the total effects of the LHC on singles. By the same reasoning, we obtain the upper bound of the LHC effect for families as 78%. Notice however that the true effects are probably much lower than these upper bounds since the latter are obtained on the assumption that individuals and families in Age Group 2 responded only to LHC and not other policy initiatives.

We next attempt to establish the lower bounds. First, we breakdown the proportion of new PHI enrollees in each age group into those who enrolled because of the LHC policy, and those who enrolled because of other policy initiatives. As argued earlier, we assume that none of the new enrollees in Groups 1 and 3 can be attributed to the effects of LHC. Applying the results discussed earlier and summarized in Table 3, we have as much as 6.4% of singles who were new PHI enrollees as a result of LHC. This is approximately 41% of the all singles who responded to the new policy initiatives. Since this figure is obtained by assuming that LHC does not affect the other two age groups, it represents

the lower bound of the LHC effect on singles. By the same reasoning, we arrive at the lower bound for families, which is estimated to be around 42%. We note that the true magnitude of the total effects should be much closer to the lower bound than to the upper bound. This is simply any effects of LHC on those in Groups 1 and 3, say because of confusion in understanding the regulations, would most likely be small.

Lastly, it is worth noting that a weighted average scheme can be used to obtain an interval estimate for the total effect of LHC on the whole population. Since approximately 20% of the respondents in the 2001 NHS are singles, thus a 1:4 ratio seems appropriate. Using this weight, we estimate that LHC accounts for between 42% and 75% of the rise in PHI membership in the Australian population. For reasons we mentioned above, we think the true value is likely to be much closer to the former than the latter.

5 Conclusion

Economic efficiency alone dictates that if a policy costs less and yields higher desired effects, then it should be a preferred option. Among the recent Australian private health insurance policy initiatives, the Lifetime Health Cover policy costs almost nothing while the 30% premium rebate costs approximately $2 billions per year. The crucial question is whether or not the latter, a much more expensive policy, is completely ineffective, as claimed by many authors and policy commentators.

By looking at time series data and noting the date of implementation, one gets the impression that Lifetime Health Cover seems to account for most of the increase in private health insurance take-up rates. Such a conclusion could be warranted if not for the following considerations. First, the 30% premium rebate pre-dated Lifetime Health Cover, thus the jump in private health insurance memberships one observes may very well be due to the rebate as well. Second, Lifetime Health Cover is very specific in its target groups and these target groups account for less than 72% of private health insurance membership in 2001. Moreover, a significant proportion of those in the target groups were in fact already covered by private health insurance before those policy initiatives were implemented. Thus, the increase in private health insurance memberships in these groups may not account for the bulk of the overall increase in private health insurance memberships. Third, data from the 2001 National Health Survey indicate that only a small fraction of people in the target groups cited Lifetime Health Cover as their reasons for purchasing private health insurance.

Mindful of these arguments, we proceed to untangle the effects of the Lifetime Health Cover from other policy initiatives. We do so by estimating private health insurance demand models using micro-level data before and after the policy initiatives were in place. The main findings are that Lifetime Health Cover accounts for at least 42% and at most 75% of the overall increase in private health insurance membership. We also argue that the true share of Lifetime Health Cover would probably be much closer to the lower bound. Thus, we can conclude that the contribution of the 30% premium rebate could be far more substantial than most authors and commentators believe.

There are several possibilities of how this study can be improved. First, in modeling private health insurance demand, we do not consider the fact that PHI in Australia is secondary to a freely available alternative, the Medicare. A more careful modeling of such duplicate cover, for example see Vera-Hernandez (1999), may result in more precise estimates. Another important improvement can be made by carefully taking into account the effects of the 1% Medicare levy on high income earners. This can be done, for example, by using the regression discontinuity approach by exploiting the fact that the levy only kicks in after a specific income threshold. This should result in a more precise accounting of the contributions of each policy initiative.

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Table 2: Coefficient Estimates of Logit Private Health Insurance Demand Models

Variables	Single				Family			
	1995		2001		1995		2001	
female	0.2490	(0.0854)	0.4677	(0.0803)				
famsize					0.1650	(0.0430)	-0.0348	(0.0356)
childlt6					-0.1502	(0.0911)	0.0905	(0.0750)
nochild					0.3293	(0.1012)	-0.1830	(0.0918)
immig	-0.5881	(0.0992)	1.0130	(0.8624)	-0.8946	(0.0646)	-0.4384	(0.3985)
govcrd	-1.1639	(0.1573)	-1.1936	(0.1338)	-1.3652	(0.0826)	-0.9957	(0.0780)
stdinc	0.7539	(0.0867)	0.8457	(0.0814)	0.1696	(0.0389)	0.9441	(0.0495)
stdinc2	-0.1512	(0.0285)	-0.0791	(0.0217)	0.1103	(0.0233)	-0.0831	(0.0256)
vicmet	0.2999	(0.1331)	0.3749	(0.1311)	0.0893	(0.1008)	0.1117	(0.0928)
qldmet	0.1236	(0.1960)	0.0825	(0.1649)	-0.1989	(0.1413)	-0.0411	(0.1072)
samet	0.7530	(0.1449)	0.4565	(0.1431)	0.2704	(0.1115)	0.4103	(0.1113)
wamet	0.5212	(0.1733)	0.6458	(0.1443)	0.0869	(0.1274)	0.4299	(0.1048)
tasmet	-0.0334	(0.3384)	0.6384	(0.2115)	0.5051	(0.2341)	0.8122	(0.1663)
nt	0.3271	(0.1789)	-0.3019	(0.2967)	0.1023	(0.1331)	-0.0526	(0.2159)
act	-0.1935	(0.1663)	0.1792	(0.1619)	-0.2587	(0.1288)	-0.1387	(0.1115)
nswrur	-0.1934	(0.2558)	-0.0283	(0.1612)	-0.3926	(0.1634)	-0.0394	(0.1072)
vicrur	0.1967	(0.2143)	0.0436	(0.1852)	-0.4134	(0.1481)	-0.1003	(0.1182)
qldrur	0.2227	(0.1787)	0.0617	(0.1561)	-0.0222	(0.1298)	0.2223	(0.1028)
sarur	0.0576	(0.2587)	-0.2687	(0.2298)	-0.4952	(0.1571)	0.0251	(0.1541)
warur	0.4528	(0.3529)	0.1089	(0.2548)	-0.1093	(0.1875)	0.1678	(0.1528)
tasrur	0.5069	(0.2279)	-0.0892	(0.2152)	-0.2500	(0.1720)	0.2487	(0.1385)
age1819	-0.7058	(0.2556)	-1.3256	(0.3916)				
age2024	-0.5952	(0.1870)	-0.9805	(0.2070)	-0.8098	(0.1636)	-1.6430	(0.1747)
age2529	-0.7007	(0.1949)	-1.0732	(0.1883)	-0.6603	(0.1274)	-1.0879	(0.1155)
age3034	-0.4292	(0.2089)	-0.1289	(0.1846)	-0.3250	(0.1126)	-0.4373	(0.1024)
age3539	-0.0543	(0.2156)	0.1032	(0.1927)	-0.1857	(0.1051)	-0.2344	(0.0927)
age4549	-0.0394	(0.2220)	0.2628	(0.1882)	0.3269	(0.1094)	0.2634	(0.1006)
age5054	0.4454	(0.2388)	0.3608	(0.1839)	0.5895	(0.1278)	0.5293	(0.1162)
age5559	0.7154	(0.2526)	0.6268	(0.1963)	1.2171	(0.1450)	0.8211	(0.1321)
age6064	1.3306	(0.2549)	0.7926	(0.2020)	1.2532	(0.1601)	1.0693	(0.1385)
age6569	1.4676	(0.2560)	1.0976	(0.2110)	1.5729	(0.1691)	1.4716	(0.1501)
age7074	1.5527	(0.2619)	1.0492	(0.2065)	1.6152	(0.1764)	1.6224	(0.1538)
age7579	1.6471	(0.2589)	0.8378	(0.2120)	1.4840	(0.2138)	0.9422	(0.1691)
age80p	1.5411	(0.2594)	1.0070	(0.2055)	1.5241	(0.2747)	1.0628	(0.2070)
degree	0.2789	(0.1372)	0.4850	(0.1252)	0.4173	(0.1021)	0.5120	(0.0884)
diploma	-0.0025	(0.1479)	0.4031	(0.1344)	0.2518	(0.0999)	0.3701	(0.0873)
postscd	0.2375	(0.1003)	0.2685	(0.0905)	0.0848	(0.0700)	0.1453	(0.0603)
admin	0.2777	(0.2132)	0.7642	(0.2176)	0.7530	(0.1181)	0.6337	(0.1248)
trade	0.0109	(0.1702)	-0.1349	(0.1907)	0.1020	(0.1112)	-0.0370	(0.1045)
prof	0.2484	(0.1867)	0.2224	(0.1727)	0.5331	(0.1197)	0.3187	(0.1009)
paraprof	0.0467	(0.2259)	0.3382	(0.1827)	0.5854	(0.1386)	0.5289	(0.1036)

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Variables	Single				Family			
	1995		2001		1995		2001	
clrksrv	0.3099	(0.1425)	0.3032	(0.1412)	0.5462	(0.0846)	0.4175	(0.0770)
plantop	-0.2266	(0.2478)	-0.1256	(0.2063)	0.1721	(0.1451)	-0.3568	(0.1183)
drvisit1	0.5043	(0.1390)	0.2887	(0.1305)	0.2329	(0.0968)	0.1767	(0.0845)
drvisit2	0.3347	(0.1304)	0.2949	(0.1261)	0.1585	(0.0896)	0.1669	(0.0812)
drvisit3	0.4567	(0.1448)	0.2341	(0.1418)	0.1374	(0.1013)	0.2790	(0.0900)
drvisit4	0.3406	(0.1537)	0.2039	(0.1522)	0.2009	(0.1070)	0.2942	(0.0944)
chnum	0.0350	(0.0196)	0.0703	(0.0259)	0.0196	(0.0149)	0.0533	(0.0172)
chnumcld					0.0061	(0.0460)	0.0580	(0.0422)
chdrvis1					0.4360	(0.1754)	0.1548	(0.1555)
chdrvis2					0.3993	(0.1637)	0.0777	(0.1417)
chdrvis3					0.3510	(0.1867)	0.0123	(0.1550)
chdrvis4					0.0618	(0.1994)	0.0121	(0.1740)
smoker	-0.6683	(0.0940)	-0.6513	(0.0885)	-0.5470	(0.0698)	-0.6587	(0.0614)
constant	-1.5804	(0.2494)	-2.3054	(0.8895)	-1.1047	(0.2178)	0.3206	(0.4356)
N	4648		4710		7059		9543	
PHI=1	25%		37%		44%		52%	

Figures in parentheses are standard errors

Table 3: Average Marginal Effects of Age on Probability of Having Private Health Insurance in 2001

Variables	Single		Family	
	Marginal effects	Pr[PHI=1]	Marginal effects	Pr[PHI=1]
Reference Group				
Age40–44*	–	0.2861	–	0.5099
Age Group 1				
Age18–19	-0.1960	0.0901	–	–
Age20–24	-0.1555	0.1306	-0.2762	0.2337
Age25–29	-0.1610	0.1251	-0.1914	0.3185
Within group average		0.1153		0.2761
Age Group 2				
Age30–34	-0.0164	0.2697	-0.0781	0.4317
Age35–39	0.0233	0.3094	-0.0420	0.4679
Age45–49	0.0526	0.3387	0.0472	0.5571
Age50–54	0.0714	0.3576	0.0942	0.6041
Age55–59	0.1197	0.4059	0.1435	0.6534
Age60–64	0.1491	0.4352	0.1821	0.6919
Age65–69	0.2031	0.4892	0.2408	0.7506
Within group average*		0.3722		0.5833
Age Group 3				
Age70–74	0.1941	0.4803	0.2616	0.7715
Age75–79	0.1552	0.4413	0.1610	0.6709
Age80 & above	0.1864	0.4726	0.1805	0.6904

* inclusive of reference age group

Table 4: Decomposition of Proportion With Private Health Insurance in 2001*

	Age Group			
	18–29**	30–69	70+	All
Singles	3.7	25.0	8.2	36.9
No policy change	0.8	15.6	4.9	21.4
Attributed to new policies	2.9	9.4	3.2	15.5
30% Premium Rebate	2.9	3.0	3.2	9.1
Lifetime Health Cover	0	6.4	0	6.4
Families	3.7	44.0	4.1	51.9
No policy change	0.3	20.6	1.0	21.8
Due to new policies	3.4	23.5	3.2	30.1
30% Premium Rebate	3.4	11.0	3.2	17.6
Lifetime Health Cover	0	12.5	0	12.5

* all figures are percentage points

** for families: 20-29