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Abstract

In this study, we test hypotheses regarding the role of private insurance in a universal coverage system. First, we examine whether high out-of-pocket payment and low government financing in the Korean National Health Insurance (NHI) system may be a legitimate basis to propose the expansion of private insurance. Secondly, we seek for evidence that private insurance can be a solution to the financial deficit in the NHI account. Using data from the OECD Health Data 2007, we assess the current status of health care financing in the Korean NHI in comparison of selective developed countries. Although high OOP payment associated with uncovered services in the Korean NHI system are noted as an important issue to warrant attention of policy makers, we find little evidence that the enhanced role of private insurance markets can in practice, ensure better financial protection for the population as well as relieve the financing burden for the NHI payer.

Further, we conduct a micro-level analysis to examine whether private insurance plans may selectively enroll the low-risk population or the wealthy population, and may crowd out other precautionary assets. Using data from the Korean Longitudinal Survey of Ageing 2006, we compare the control group of older adults who have no private coverage with the counterpart group who holds private coverage. In both bivariate and multivariate analyses, we find that the younger and healthier population is more likely to be enrolled in private coverage. The affordability such as higher income and housing ownership is found important predictors for private insurance purchase. We find no evidence that private insurance participation may crowd out savings. The potential of informal support from children, in particular, the eldest son seem to be a substitute to private coverage for aging parents. Life insurance/annuities plan purchase appears to be positively correlated with private coverage purchase, implying that both plans are considered as means for risk-spreading in later years of life for aging population. The accumulated value of life insurance/annuities plans is, however, negatively associated with private coverage purchase.

Although further studies are warranted to provide conclusive policy suggestion regarding the adequate balance of private and universal coverage, we should acknowledge ambiguity of the effectiveness of private initiative in health care delivery in dealing with difficulties of universal coverage system.

Keywords: private insurance; national health insurance; Korea, health care financing; risk selection

JEL classification: I11, H51

Introduction

Evolution of Private Insurance in Korea

In the beginning era of the private health insurance market in Korea, there were only two types of products, one targeting medical expense for geriatric diseases and the other for women's diseases. Due to the limited managerial capability for underwriting and premium design, both plans did not proper in the market and extinguished in 1979 (Son, 2002).

In 1980, private insurance plans for cancers were newly introduced in the market, and the private insurance products became popular and diversified during 1990s, attracting the interest among the general public. By 2003, the private insurers further advance to provide plans for paying long-term care service and for supplementing medical expense for services which are excluded by the Korean National Health Insurance (NHI) plan (KIDI, 2005).

Although various private health insurance plans have been available and rapidly expanded in the market during 1970~ 1990s, the major player in health insurance provision has been the NHI plan. Launched in 1977, the NHI system completed universal coverage for all Korean citizens by 1989. In its early years, the NHI plan underwent public dissatisfaction regarding limited benefit and high cost sharing[1] as well as rapidly increasing expenditure caused by the expansion of covered population (Kwon, 2002; Kwon, 2008). The government implemented three major reforms to deal with unstable financing (Kwon, 2005). As a result, the coverage and benefits have been consistently expanded with relatively modest increase in contributions so that the benefit rate now reaches 63.6% in 2007 (NHIC, 2008).

Expansion of Private Insurance: Debate and Macro-Evidence

Nonetheless, both the government and the public have vividly expressed strong interest in enhancing the role of private insurance, accusing two primary problems of the NHI plan, limited coverage and weak financial protection. Enhancing the role of private insurers means that alike the NHI insurer, the private insurers make direct contract with providers and pays for the NHI-excluded services received by their customers.

There are three main controversies regarding the beneficial effects of private insurance in financing a national health insurance system. First, the private payers may reduce the burden of

[1] Kwon (2008) reported that the rate of out-of-pocket payment (OOP) out of total health expenditure was 62.5% in 1983. When the NHI plan completed the expansion of coverage to all citizens in 1989, the rate of OOP was still as high as 61.5%.

public financing for universal coverage. Secondly, the private insurance may reduce the out-of-pocket payment for individuals. Thirdly, the private initiatives in insurance market may be helpful for cost containment by promoting efficient management and market competition. We examine these arguments using data from the OECD Health Data, 2007.

Government financing

The Korean NHI plan has been criticized by limited benefit-in-kind and the insufficient public financing. Rapid expansion of universal coverage within a decade and subsequent drastic increase in total health spending has been causing constant financial deficit in the NHI account. It is often argued that the government should take a responsibility more actively in funding the NHI system. In Table 1, we compare the financing structure of the Korean NHI system with selective OECD countries. The government spending in health care as the percentage of total health expenditure (THE) is 11.9% in Korea, which is greatly limited compared to Canada (68.9%) and UK (87.1%). However, it does not necessarily mean that the government financing in Korea is inadequate because the national health systems in Canada and UK are primarily based on tax-financing. If the comparison is made with countries with social health insurance system such as Germany and Japan, the Korean government spending on universal coverage is found reasonable (9.5% in Germany; 15.9% in Japan).

We estimate the relationship the share of government financing in total health care expenditure and the share of private insurance financing in total private expenditure, controlling for the share of social security contribution in total health expenditure. Figure 1 illustrate that the predicted share of government spending in health care does not have any significant negative relationship with the private insurance financing.

Out-of-pocket payment

High out-of-pocket (OOP) spending is often regarded as evidence for the limited range of covered services in the Korean NHI plan. Upon the limited government financing, the role of private insurance is suggested as an alternative source of fund to offset high portion of OOP. Also, private insurance financing is preferred to direct OOP payment as it provides risk-pooling benefit for enrollees.

As shown in Table 1, total OOP spending including cost sharing payment for coverage services is 37.7% in Korea, which is substantially higher than in all other countries compared.[2] It

[2] The OECD average is 19.5% in 2005 (OECD Health Data, 2007).

is, however, interesting to note that the social security contributions and the OOP payment, if summed up, take similar portion out of total health expenditure across Germany, Japan and Korea. The social security contribution (as % of THE) in health care financing accounts for 67.4% in Germany and 65.6% in Japan, both of which are much higher than 41.1% in Korea. As a result, when we compare the total contributions made by individuals calculated as the sum of the social security contributions and total OOP spending, there finds little difference across Germany (80.5%), Japan (80.9%) and Korea (78.8%). It suggests that low OOP payment in Germany and Japan is possible thank to high contribution in social security payment, but by the support from private insurers. In this regard, the low benefit rate or high OOP payment in the Korean NHI system may be an issues associated with low social security contributions, not with the limited role of private insurance plans. Increase in the premium rate in the NHI plan to supply sufficient budget for the NHI plan, if politically feasible, may be an effective tool to reduce the portion of OOP financing in Korea.

As high OOP is mainly combined with low social security contributions in social insurance system, we need to address a more fundamental issue of what is the appropriate mix of individual responsibility and collective risk spreading in a NHI system. Given certain level of financing contributed by individuals, high OOP approach may focus on the individual discretion in use and costs of medical services while the NHI plan is bound to provide modest risk protection through premium -redistribution among the enrolled population. Germany and Japan appear to put more emphasis on the risk-sharing function of the universal coverage than the Korean NHI system does. If both the public and private sectors in Korea pursue to promote equity in health care and ask for strong social protection against risk in medical costs, there are two alternative ways: enhancing the role of social security payment or expanding the role of private insurance plan. Without the former, the latter approach alone may not guarantee the reduction in OOP payment.

Benefit improvement and cost containment

Another way of assessing the benefit of a NHI system is the range of covered services. Table 1 shows the percentage of OOP excluding payment for cost sharing in Japan and Korea. The rate of OOP for uncovered services in Korea is 23.4% out of THE while it is only 3.7% in Japan. It indicates that in the Korean NHI plan, about 62% of total OOP spending is paid for uncovered services. The wide range of excluded services in the NHI benefit package may be an

important issue to be concerned in reforming the Korean NHI system. Whether the expansion of private insurance market can be a solution to this issue, however, needs thorough investigation. If the uncovered services are necessary but inadequately excluded from the NHI benefit package, then it reasonable to invite the support of private coverage to finance them. If the uncovered services are excluded, however, because they are appraised as medically unnecessary or cost-ineffective, provision of supplementary private coverage for these services may lead to the increase in total health care spending, not necessarily accompanying the improvement of health in the population.

Well acknowledging the exclusion of necessary benefit-in-kind, the Korean government set the procedural plan to extend the NHI benefit package, such as inpatient meals and therapeutic care for cancer patients as the primary part of the Plan for Advancing Health Care Industry in 2005. Under the Plan, the benefit rate of the Korean NHI is targeted to reach 71.5% by 2008. As the NHI benefit package is expected to improve further, the expansion of private insurance is likely to be a second drive for more use of medical services and consequently, an increase in total health spending. Figure 1 illustrate the positive relationship between total health expenditure as the percentage of GDP and the rate of private insurance financing out of total private financing. The OLS estimation also shows that given the sharing of public financing held constant, relatively high portion of private insurance financing in total private expenditure is positively associated with total health spending.

Hypothetically, the expansion of private insurance may provide various benefits to the public insurer and the general population. The insufficient ranges of benefit coverage in the NHI plan and the high portion of OOP payment are the typical basis to support the supplementary private plans additional to the national plan. We find that none of these arguments are empirically substantiated. There are other possible benefits of the expansion of private insurance plans this study is unable to address, such as individual satisfaction from diverse plan design and copayment schedule, low premium due to market competition, and advances in medical technology initiated by private entities. Serious inspection on validity of these benefits is prerequisite for put any policy in effect.

The Role of Private Insurance Plan: Micro-evidence

In the opposite side of the debate, there are precautious voices hovering around the idea of 'enhancing' the role of private sector in provision of insurance coverage. There are two primary concerns regarding possible hazards of private insurance. First, the private insurers typically screens risk level of potential enrollees prior to enrollment. If an individual is recognized as the high-risk type, the private insurers may refuse to enroll him/her or raise the premium schedule. Also the range of benefit in a private plan is more generous in plans of high premium rates. These characters, underwriting practice and differentiated benefit package, of private insurers may cause disparities in access to care, in quality of care, and in use of care by health risk and income level of individuals, and it would undermine overall equity in health care delivery.

Secondly, the additional premium payment and moral hazard effect of the supplementary private coverage on use and costs for care may bring a heavy load on the already rapidly increasing total health expenditure mostly financed by the NHI payer (Figure 2). Also, if the private insurers dominate the market, it may damage the financial statue of the NHI plan even further, eventually ending up with the 'privatization' of the NHI plan. From the opponents' point of view, the enhanced role of supplementary private coverage is regarded as the presage of the fundamental paradigm shift in the Korean health care system from government-oriented to market-oriented.

Since 1994 when the government officially demonstrates its interest on industrializing health care markets as the next generation drive for economic growth[3], policy debates have been enormously agitated among involving stakeholders, both private and public. None of debates and the governmental drive toward the enlarged role of private sector in health care, however, is supported by empirical evidence and this renders further progress of the Plan stagnated.[4] There are few studies analyzing how individuals respond to private insurance plans in terms of plan

[3] The idea of supplementary private coverage for exclude services was first initiated by Committee for Health Care Coverage Reform in 1994, and also suggested by Committee for Health Care Reform in 1997. In 2000, Committee of Regulatory Reform again raises this issue. In 2005, Presidential Committee for Healthcare Industry Innovation is formulated to materialize policy strategies for enhancing the role of private insurance.

[4] As of June 22, 2008, the government and the ruling party of the National Assembly reached to a consensus not to pursue the Plan for advancing supplementary private insurance plans. Under the Plan, the private insurers are not allowed any longer to sell a plan which compensates for cost-sharing payment associated with the NHI-covered services. This is regarded as an excessive government regulation threatening the development of the private insurance industry.

participation and use of medical services under universal coverage system.[5] Liu and Chen (2002) examine the private health insurance purchasing decisions among Taiwanese population. Liaropoulos (1995) and Sapelli and Vial (2003) study the case of Chilean health insurance and the role of private insurance in Greece, respectively. The existing literature for the case of Korea is limited to policy discussion on alternative approaches to private insurance (Kim, 2002; Kang, et al., 2004), to the survey of international system comparison (Kim, 2003; Chun, 2007); or based on the localized evidence from a survey of certain region (Park, 2006) or on the case of a single large hospital (Lim, et al., 2007a, 2007b; Yoon, et al., 2008). Neither of which is eligible to represent the entire population and provide generalized implications.

This study is one of the first attempts to understand the characteristics of private insurance enrollees in comparison of non-enrollees under the Korean national health insurance plan. Using data from the Korean Longitudinal Study of Ageing (KLoSA) 2006 wave, we examine demographic factors, socioeconomic conditions, and health measures in regard to how they are associated with private plan enrollment status of the older adult population in Korea. Both bivariate analysis and logistic regression models are explored to determine the marginal effects of these covariates on demand for private insurance coverage.

In the analysis, we identify risk selection effect, wealth effect and crowding-out effect of private insurance purchase (Wolfe and Goddeeris, 1991; Ettner, 1997; Sapelli and Vial, 2003). First, we examine whether low-risk population is selectively enrolled in private coverage. Secondly, we test whether people with greater wealth is more likely to buy private coverage. Finally, we investigate whether private insurance purchase substitutes the accumulation of other precautionary assets.

Data and Sample

We use data from the 2006 wave of the Korean Longitudinal Survey of Ageing (henceforth, KLoSA). KLoSA is a nationally representative biannual survey conducted by the

[5] There is a great deal of studies on private insurance in the U.S. (Wolfe and Goddeeris, 1991). As the U.S. system is not based on universal coverage, findings and implication from those studies are not compatible with countries of national or social health insurance.

Korea Labor Institute (KLI) in 2006. This survey collects comprehensive information for the civilian non-institutionalized older adult population (aged 45 or more) residing in South Korea.[6]

Questionnaires are categorized into six chapters by topic: A- Demographics, B- Family, C- Health, D- Employment, E- Income, F- Assets, G- Subjective Expectations and Satisfaction. Total 10,254 individuals are survey for all of chapters. As the survey is targeted to the aging population, detailed information on health conditions, labor market activities such as retirement status, income and transfer from/to family members, and assets such as life insurance and annuities are available to assess the present and future financial capacity of the near-elderly and elderly population. Medical care use and out-of-pocket payment are also reported by categories of service type such as hospital inpatient care, dental care, oriental care, and outpatient/office-based care.

We identify the universal coverage status (NHI or Medical Aid), type of NHI plans (Employed or Self-employed), and the private coverage status (having a private plan or not) of each surveyed individual. Our final sample includes individuals who are beneficiaries of the NHI coverage and are identified with their private coverage status (N=9,567)

Table 1 reports the composition of our sample by insurance status. 93.7% of total 10,207 older adults who are identified with the type of universal coverage are the NHI enrollees while the remaining 6.3% are the Medical Aid beneficiaries. These figures illustrate that the Korean NHI system has succeeded to ensure the universal coverage for all citizens. 33.5% of the NHI enrollees report to have at least one private insurance plan while only 13.3% of the Medical Aid beneficiaries do the same. There are little difference in the tendency of private insurance demand between the employment NHI members (33.7%) and the self-employment NHI members (33.3%)[7]

[6] The second wave of KLoSA survey is in progress since July 2008, extending the sample to the institutionalized population of older adults. Residents in Jeju Island are excluded in sampling (KLoSA codebook, 2006)

[7] There are few studies to measure the average rate of private insurance enrollment. Yoon(2008) and Park (2006) report that the rates are as high as 63.7% and 67.3%, respectively. Yoon (2008) used the sample of aged 0-70 of which 63.6% is of aged less than 40. Park (2006) surveyed graduate students in a university and their parents in Pusan, Korea, thus the sample size being small as 554. As both studies represent the population that are relatively younger than those captured in the KLoSA, the average participation rate in private insurance seems to be overestimated, reflecting that the younger population has stronger association with private coverage. In another study using data from a nationally representative survey, the Korean Labor and Income Panel Survey(KLIPS), the rate of private coverage participation among older adults of aged 40 or older was found as 35.9% (Kim, 2005), which is consistent what this study finds.

Descriptive Results

Table 2 shows the demographic and socioeconomic characteristics of the older adults by their participation status in private coverage. 60.7% of individuals who possess a private insurance plan are aged 45-54 while there are only 9.2% of private plan enrollees who are aged 65 or older. Across the age groups, the rates of private insurance participation decline from are 61.6% for the group of age 45-54 to 7.83% for the elderly. It suggests that with aging, an individual is more likely to go without a private insurance plan and thus to exclusively depend on the NHI program for financial protection against potential medical costs.

Individuals with private coverage also find more likely to attain high education: 17.9% of the private plan enrollees report college or higher levels of schooling completed while only 8.3% of those without private plan do and more than 70% of them are found to achieve the education as low as the middle school level.

Being married, having a larger household size, and living in a Metropolitan Statistical Area (MSA) are the characteristics positively associated with private coverage participation. Looking at the role of children factors, it is interesting to note that less number of children, having no son, and having the first child as daughter are negatively related with private plan possession. Also individuals with private plan report smaller amount of financial transfer from their children received during 2005. These indicate that if children, in particular, the eldest son as the first child are recognized by the aging parents as the informal safety net for the potential health care costs or for the provision of needed care, parents may substitute the formal protection of private plan by the support from children or the eldest son.[8]

The status of labor market activity plays a meaningful role in private insurance purchase decisions among the older adults. About 36% of the sample individuals reported that they are currently working either as employees or self-employees, and 19% report to be retired. The current employment is positively correlated with private plan possession while weak or finished labor market participation has a negative effect.

We further assess the extensive set of health characteristics of our sample individuals and investigate how these factors are associated with private coverage participation. Results are

[8] If parents have no employment or income which can be based for the NHI premium assessment and payment, they are enrolled in the NHI plan as dependents of their eldest son or the first son-in-law who is capable of paying the premium from employment.

presented in Table 3. Across all of 11 measures of health conditions, individuals of private plan tend to report better health status. Those who have a private coverage in addition to the NHI coverage are more likely than those who have no private plan to report better self-rated health condition (2.57 with private coverage versus 3.16 without it)[9]. They are less likely to experience limitations in working due to health problems (2.66 versus 3.19)[10], and to have limitations in activities of daily living (ADL) (.994 versus .941) and instrumental activities of daily living (IADL) (.943 versus .826). Among those who experience any limitations in ADL and IADL, the private plan enrollees report smaller number of activities than the NHI plan only individuals (2.72 versus 3.86 for ADL; 2.18 versus 4.25 for IADL). Individuals with private plan is less like than those without one to be diagnosed of having disabilities and to be of less number of chronic diseases such as hypertension, diabetes, heart diseases, arthritis, and depression. Also those with private plan are slightly less obese and to disclose higher overall satisfaction with their health condition than those with no private plan. These differences are statistically significant at the 1% level.

There is little statistically significant association between current smoking status and private coverage status. The status of being non-smokers, quitters, or current smokers does not have strong statistical association with private plan purchase while the private plan enrollees show shorter duration of smoking and higher intensity of smoking. The current status of alcoholic drinking is positively associated with having private coverage, which may be accounted for the fact that the younger working population is more likely to have a private plan and they are more likely to expose themselves to drinking as a mean of social networking. The duration and intensity of drinking, however, are more moderate for private plan enrollees than the NHI coverage only individuals. Again, all of these differences are statistically significant at the 5% level.

Finally, we consider income and assets factors as determinants of private coverage participation decisions of the older adults. Those with higher personal income and higher family income are more likely to have a private insurance plan. Similarly, those who hold greater assets

[9] Note that the self-rated health status is coded as a descending order as follows: 1 = excellent, 2 = very good, 3 = fair, 4= poor, 5= very poor.

[10] The respondents are asked to scale their extent of agreement to the following statement, “Do you experience limitations in working due to your health condition?” as 1 = very much, 2 = somewhat, 3 = not really, 4 = not at all).

of various types show stronger tendency to have private coverage. For example, real estate asset measured by housing ownership and value of housing owned is positively related with private coverage. Life insurance and annuities as well as financial assets such as cash, savings, and stocks also have a positive association with private plan purchase. These differences are substantially large (3.7% versus 23.5% for having a life insurance/annuities plan) and statistically significant at the 1% significance level.

Estimation Results

The private insurance purchase decisions among older adults are estimated using a logistic regression models by sequential inclusion of covariates. In Table 5, estimated odds ratios are presented for four different models.

Demographic Factors

Model (1) controls for demographic and income factors and finds that aging and low educational attainment have negative effects whereas being female, being married, being currently at work increase the probability of an older adult individual having a private insurance plan. These results confirm findings in the bivariate analysis that the younger, more educated, working population with high income is more likely to demand private coverage in addition to the universal NHI coverage. It may be because they can afford to pay another set of premium for a supplementary private plan when the NHI premium is deducted from payroll or is voluntary paid by separate billing. Also, as they are relatively young and actively involved in labor market, the private insurers would invite them into their plans and offer a fairly small amount of monthly premium.

Health Conditions and Risk Selection Effect

In Model (2), we extend the set of covariates into health-related factors. Column 2 in Table 2 presents that health conditions are important predictors for the private coverage purchase decisions among older adult individuals. Those reporting higher self-rated health status and not experiencing limitations in working and IADL are more likely to have private coverage. The presence of disabilities and chronic diseases diagnosed by medical professionals has no significance in explaining private plan purchase decisions.

It is noteworthy that the present health risks, such as limitations in IADL, have negative effects on private plan enrollment whereas the potential health risk factors, such as obesity and

drinking, have positive effects. The former may be interpreted as the outcome of the underwriting practice of private insurers based on health risks. Unlike age, gender, educational background and working status, the present health problems like limitations in IADL, however, potential health risks or unhealthy life style may not be the available information for insurers to screen out high-risk individuals prior to enrolling them. As a consequence, cream-skimming activity of private insurers is unable to exclude individuals of obesity and of alcoholic drinking.

Individuals of having advantage in information on health risks, then, may self-select themselves into private coverage based on their own private assessment on the possibility of health problems in the future. Individuals who are overweight and keep drinking may have greater concern about their future health risk since obesity and drinking are medically recognized as key causes of chronic diseases in the middle or older aged population. Thus, they may opt themselves to acquire supplement financial protection against possible large medical bills when they are diagnosed of any health problems.

Support from Children

In Model (3), we test whether informal support from children may substitute formal protection from private insurance plans for the aging parents by further including five proxies for the characteristics of children. Findings show that with more children and having a son as the eldest child, their parents are less likely to have private coverage. It suggests the dependency of aging adults on their children, in particular, the first son as the eldest of all children, for future risk in financing medical costs. The amount of monetary transfer from children does not make a significant difference in private coverage participation of parents. It is interesting to note that higher education of the first child is positively associated with private plan purchase of parents. This may imply that parents who invest more on their children's education are more likely to invest on their own future by willingly paying additional premium for private coverage.

Wealth and Crowding-Out Effect

Model (4) extends the scope of covariates into real estate assets, financial assets, and life insurance/annuities assets in explaining individual decision of private plan purchase. Those who own a house increases the probability of having a private plan, suggesting that the affordability may be an important factor. We find no evidence that private insurance purchase is associated with the reduction in financial assets such as savings.

On the other hand, if an individual has a life insurance plan or annuities, he/she is highly likely to have a private insurance plan as well. This suggests that individual preference for acquiring financial protections through any form of insurance operates consistently regardless of the purpose of insurance, either for income compensation or for medical expense financing. Total value of life insurance/annuities assets, however, slightly reduces the probability of having private health insurance plan, which may be accounted for that given the disposal budget for premium payment, an individual may scale down a bit the benefit of life insurance or annuities so that they can afford to pay premium for private coverage.

Figure 1 illustrates the predicted probability of having supplementary private coverage for the NHI enrolled older adults across age. It is evident that the rate of private coverage purchase declines with age, indicating that the aging population may be underserved by private insurance markets. Since they are the vulnerable population in terms of health and economic risks, the lack of private coverage among the aging population may induce serious challenge in ensuring them the equal access to and use of needed care relative to the population who are younger and have private coverage.

Conclusion

In this study, we examine macro and micro evidence for the role of private insurance under the universal coverage system. Our analysis using the OECD Health Data 2007 finds that private insurance payment does not necessarily relate with low government financing, low OOP payment or low total health expenditure. At individual level, we further investigate how people respond to supplementary private health insurance coverage in terms of demand of private coverage and use of services. Findings from the older adults sample surveyed in the KLoSA 2006 suggest the possibility of selective enrollment of low risk individual in private plans. The current health conditions observable to insurers are negatively related with private coverage participation, but the private information on potential health risk factors are positively related with the private plan purchase.

Higher family income and greater assets are found positively associated with private coverage purchase, indicating the presence of wealth effect in the demand for private coverage. We find no evidence for crowding out effect of private insurance plan in financial assets. Having life insurance/annuities plan also increases the likelihood of purchasing private coverage. It

indicates that preference for insurance as a mean of protection from future risks may lead individuals to obtain private health coverage for health risks, and life insurance plans for income risks.

Financial transfer from children seems insignificant in parents' decision on private insurance plan purchase. Having the eldest child as son, however, significantly reduces the probability of having private coverage, suggesting than parents' expectation or dependency on the support from their eldest son may be regarded as a substitute to private coverage.

Insurance is an important armor for individuals living with uncertainty. With limited coverage rate and high out-of-pocket payment portion in financing, the Korean NHI system is challenged to reform to meet the basic needs of the public. Expansion of the private insurance market is a multifaceted strategy. If private coverage can successfully fill the loophole in the NHI, the benefit of private coverage should be distributed in the population with equity. If private coverage is not necessarily beneficial to help both individuals and the NHI corporation finance the entire health care system adequately, we have little basis to step forward to this issue of private insurance expansion. Private coverage does not come for free and also it may change the behavior of an individual regarding to health care use and financial asset management. Additional premium for private plan and induced demand for care may generate extra financial burden on the NHI system.

Flexible and customized benefit design and copayment schedule as well as market competition among various private plans may produce efficiency gain and consumer satisfaction. However, differentiation of private insurance products often ends up with patient dumping, as notoriously recognized in the U.S. The marketing strategies of private insurers and complex plan designs may confuse consumers so that they are unable to make the optimal choice by themselves and, thus, stay with the present plan even when it is not the best for them anymore. Since individual consumers may have insufficient expertise to fully understand the terms in their plan contracts, they are possible subjective to the insurers in the same way that they are to the medical professionals. The information asymmetry between consumers and insurers renders the consumer benefit from greater private insurance marker questionable.

As a profit-pursuing entity, private insurers are likely to bring about innovative management scheme to monitor consumer and also providers. Risk-selection practice in screening enrollees may be the primary part of managing a private plan to be profitable and

fiscally feasible. Collaboration between large general nonprofit hospitals established by large corporation and private insurance plans operated by the same large corporation may capture a dominating power over the entire market and this is one of the concerns among those who demonstrate conservative view on the enhanced role of private insurance market.

This study provides evidence that private insurance demand is concentrated on low-risk population than on high-risk population, which is the consequence of both underwriting and self-selection. It sheds a light that we need to take careful step to reform the public-private mix in the provision of coverage unless we are ready to afford limited risk-pooling and equity in health care for all citizens. Further studies should follow to nourish the policy discussion with empirical evidence on the role of private-public mix in financing, consumer satisfaction and health outcomes, and practices of medical providers.

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Table 1. Health Care Financing Structure

	Sources of financing (% of Total health expenditure)					
	Public			Private		
	Total	Gov't	Social security	Total	Total OOP (OOP excluding cost sharing)	Private insurance
Canada	70.4	68.9	1.5	29.6	14.4	12.9
United Kingdom	87.1	87.1	0.0	12.9	-	-
Germany	76.9	9.5	67.4	23.1	13.1	9.2
Japan	81.5	15.9	65.6	18.3	15.3 (3.7)	2.4
Korea	53.0	11.9	41.1	47.0	37.7 (23.4)	3.4

Source: OECD Health Data, 2007. Canada, UK and Korea in 2006; Germany in 2005; Japan in 2002 (for public financing) and in 2004 (for private financing)

Table 2. Insurance Status of Older Adults (aged 45 or more)

		Having private coverage	
	Total	No	Yes
Having universal coverage	10207 (100%)	6937 (67.8%)	3208 (32.2%)
National health insurance	9567 (93.7%)	6359 (66.5%)	3208 (33.5%)
Employed	5829 (61.0%)	3865 (66.3%)	1964 (33.7%)
Self-employed	3731 (39.0%)	2489 (66.7%)	1244 (33.3%)
Medical aid	640 (6.27%)	555 (86.7%)	85 (13.3%)

Table 3. Demographic and Socioeconomic Characteristics of Older Adults (by Private Insurance Status)

	Total	No private insurance	Having a private insurance
Sample size	9567	.678	.322
Age			
45-54	.330	.190** [.384]	.607 [.616]
54-64	.277	.265** [.635]	.302 [.365]
65 or older	.392	.544** [.922]	.092 [.078]
Gender			
Male	.439	.446*	.425
Female	.561	.554*	.575
Education			
Less than high school education	.612	.703**	.432
High school graduated	.272	.213**	.388
More than high school education	.115	.083**	.179
Marital status			
Married	.793	.740**	.897
Been married	.199	.251**	.097
Never married	.007	.008	.006
Family structure			
Household size	3.02	2.88**	3.29
The number of children (alive)	3.00	3.30**	2.39
Having a son	.883	.901**	.847
First child being son	.542	.554**	.519
Amount of financial aid from children (in KW10000, during 2005)	130.9	161.0**	71.2
Overall satisfaction in the relationship with children (0 not at all – 100 very much)	74.9	72.6**	79.5
Regions of residence			
MSAs	.447	.429**	.483
Non-MSA	.553	.571**	.517
Labor market status			
Currently working	.362	.275**	.534
Retired	.190	.222**	.127
Unemployed or OLF	.448	.503**	.340

Note: * and ** indicate statistical significance in the mean equivalence test at the 5% and 1% level, respectively.

Table 4. Health-Related Characteristics of Older Adults (by Private Insurance Status)

	Total	No private insurance	Having a private insurance
Sample size	9567	.678	.322
Health conditions			
Self-rated (1 excellent ~ 5 very poor)	2.97	3.16**	2.57
Limitation in working due to health (1 very much ~ 4 not at all)	2.84	2.66**	3.19
No limitation in ADL	.959	.941**	.994
ADL index (1-7)	3.81	3.86**	2.72
No limitation in IADL	.865	.826**	.943
IADL index (1-7)	3.96	4.25**	2.18
Have disabilities	.056	.068**	.031
No chronic diseases diagnosed	.521	.457**	.649
The number of chronic diseases (1-7)	1.53	1.57**	1.38
Obesity (1 extreme obesity ~ 5 underweight)	3.28	3.33**	3.17
Overall satisfaction in health condition (0 not at all ~ 100 very much)	57.0	52.7**	65.5
Smoking			
Non-smoker	.715	.712	.722
Past smoker	.094	.098*	.086
Current smoker	.191	.190	.192
Duration of smoking (months)	399.1	427.1**	342.0
Intensity of smoking (cigarettes smoked per day)	16.4	15.8**	17.5
Alcohol drinking			
Non-drinker	.551	.585**	.484
Past drinker	.064	.075**	.042
Current drinker	.385	.340**	.474
Duration of drinking (months)	379.9	417.2**	320.4
Intensity of drinking (0 normal, 1 excessive, 2 addictive)	.332	.347*	.311

Note: * and ** indicate statistical significance in the mean equivalence test at the 5% and 1% level, respectively.

Table 5. Income and Assets of Older Adults (by Private Insurance Status)

(in KW millions)		Total	No private insurance	Having a private insurance
Sample size		9567	.678	.322
Income				
Personal income	Current workers	22.2	20.6**	23.8
	Retirees	7.24	6.85*	8.60
	Unemployed or OLS	4.06	3.80*	4.82
Family income		20.0	16.6**	26.7
Asset				
Housing ownership		.788	.776**	.808
Value of owned housing		104.7	96.9**	120.1
Financial assets		10.1	6.42**	17.34
Having a life insurance/annuities plan		.103	.037**	.235
Life insurance/annuities assets		1.88	.801**	4.01

Note: Total annual personal income is obtained for those who are currently working either as firm employees or self-employees

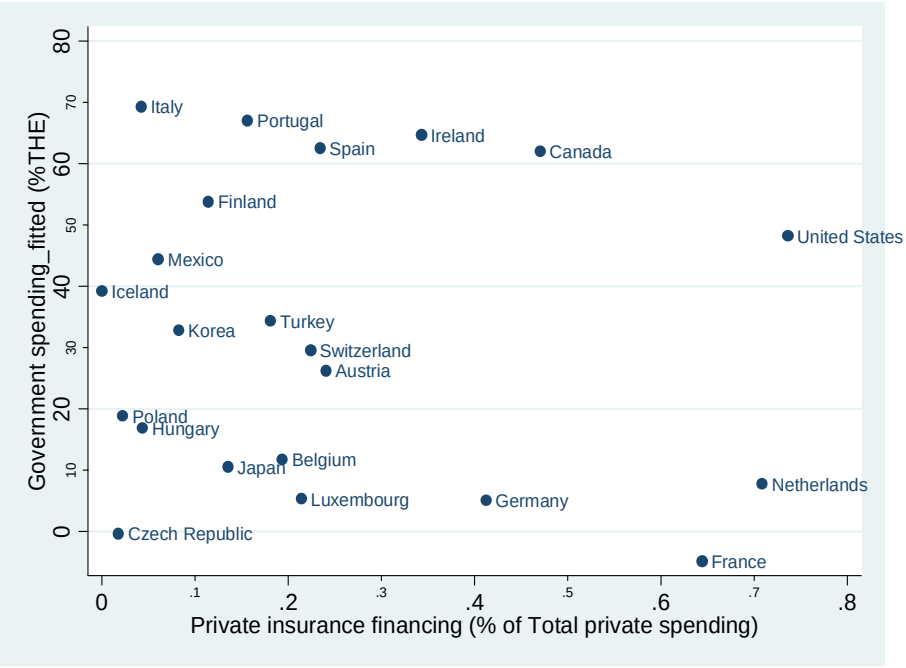
Table 6. Logistic Estimation of Private Insurance Purchase (Odds Ratio)

Variables	Model (1)		Model (2)		Model (3)		Model (4)	
	OR	Std.err	OR	Std.err	OR	Std.err	OR	Std.err
Demographics and Income								
Age55	.473**	.028	.508**	.031	.511**	.033	.547**	.037
Age65	.091**	.007	.112**	.010	.133**	.013	.152**	.015
Male	.502**	.032	.417**	.035	.430**	.037	.423**	.038
High school graduated	1.38**	.084	1.29**	.081	1.19**	.077	1.19**	.078
More than high school	1.85**	.157	1.70**	.147	1.53**	.136	1.40**	.129
Currently married	1.56**	.122	1.48**	.119	1.32**	.114	1.28**	.112
Household size	1.03	.021	1.04	.022	1.06*	.023	1.06**	.023
MSA residence	1.12*	.057	1.12*	.058	1.07	.057	1.10	.060
Currently working	2.04**	.135	1.80**	.122	1.80**	.125	1.79**	.126
Retired	1.51**	.120	1.56**	.129	1.53**	.128	1.53**	.131
Family income	1.00**	.001	1.00**	.001	1.00**	.001	1.00	.001
Health Conditions								
Self-rated health status			.918*	.035	.930	.036	.916*	.037
Limitations in working due to health			1.21**	.049	1.21**	.049	1.15**	.048
ADL index (0-7)			1.02	.098	1.03	.100	1.02	.100
IADL index (0-7)			.843**	.037	.844**	.037	.853**	.038
Having disabilities			.872	.121	.848	.121	.862	.124
The number of chronic diseases			.994	.036	.984	.036	.988	.037
Obesity			.877**	.026	.883**	.027	.885**	.027
Non-smoker			1.00	.076	.980	.076	.968	.077
Non-drinker			.676**	.043	.686**	.044	.693**	.046
Support from Children								
Total number of children					.908**	.026	.899**	.026
Having son					1.08	.100	1.08	.102
First children being son					.851**	.051	.844**	.051
Education attainment of first child					1.16**	.027	1.15**	.027
Financial aid from children					1.00	.0001	1.00	.0001
Assets								
Housing ownership							1.34**	.092
Financial assets							1.00*	.0001
Having a life insurance/annuities plan							3.46**	.327
Life insurance/annuities assets							.994**	.002

Table 6. (con't)

	Model (1)	Model (2)	Model (3)	Model (4)
Log-likelihood	-4732.6	-4570.8	-4419.3	-4301.2
LR test	2740.0	2837.9	2833.5	3061.5
Pearson goodness-of-fit test (Chi-sq)	5950.2**	8930.9	8746.4	8695.7
Pseudo-R^2	.225	.237	.243	.263

Figure 1. Government Financing and Private Insurance Financing



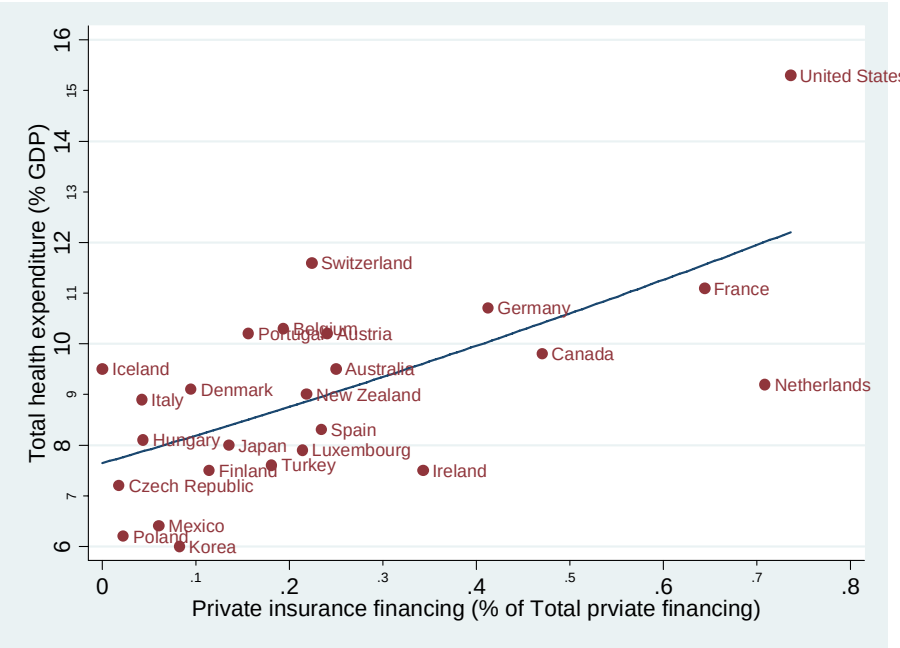
Source: OECD Health Data, 2007

OLS Line: GOV = 70.0 – 14.2*r_PRVINS – 0.878*SSC

t-value: (12.95) (-1.21) (-9.13)

R-sq = 0.82

Figure 2. Private Insurance and Total Health Expenditure among OECD Countries



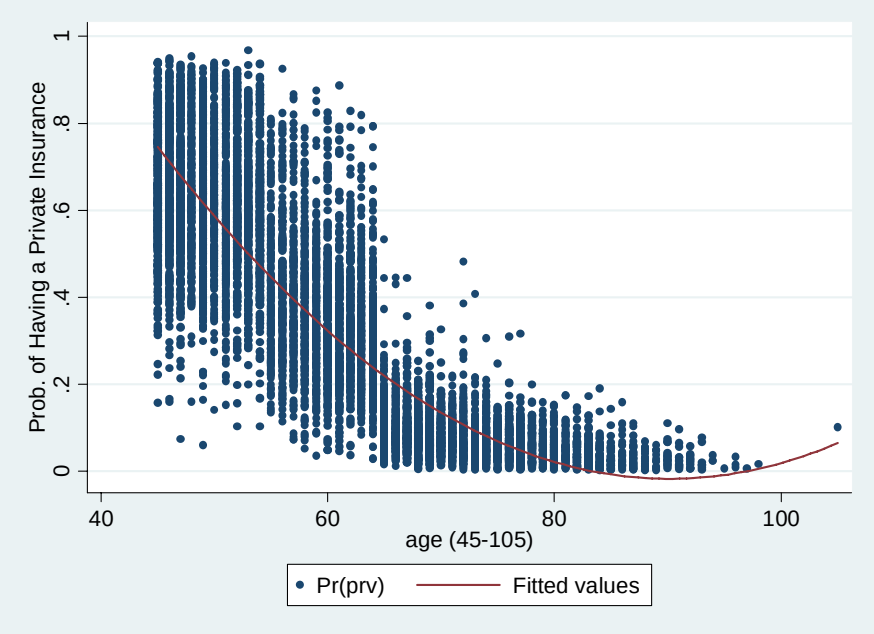
Source: OECD Health Data, 2007

OLS Line: THE = 7.92 + 6.09*r_PRVINS – 0.005*PUB

t-value: (3.54) (3.83) (-0.16)

R-sq = 0.42

Figure 3. Predicted Probability of Having a Private Insurance (by Age)



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