

# Supplementary Private Health Insurance in Selected Countries: Lessons for EU Governments?

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## Abstract

A famous idea to maintain affordable health expenditures is to cut back statutory health insurance (SHI) to a basic insurance and to introduce supplementary private health insurance (PHI), permitted to cover the remaining benefits and to apply managed care mechanisms. The measure is supposed to lower public health expenditures and to enhance cost efficiency and quality of service. To test these reasonings, the paper draws empirical evidence from the health systems of Australia, Canada and Switzerland. PHI fails to meet the claims in these countries, since it performs worse than SHI concerning cost development and cannot be expected to improve quality. Cream skimming and adverse selection arise instead. Therefore, regulations and incentives are necessary, but they might counteract the aim of lowering public health expenditures.

JEL Code: H51, G22, I11, I18, L10.

Keywords: private health insurance, supplementary, country survey.

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# 1 Introduction

Privatizing social security benefits has been a popular measure in EU countries over recent years. This is particularly the case for pension systems but also concerns national health financing systems. According to the European Commission (2005, 2008), enforcing private health insurance (PHI) seems to be an appropriate method in order to enable a rational use of health resources and to maintain affordable health expenditures. Following this rationale, a promising implementation might be to introduce a basic, statutory health insurance (SHI), supplemented by voluntary PHI covering additional benefits. Since this is actually not completely new for most of European's mixed-financed health systems (Mossialos & Thomson 2002b), modification refers to the extend to which the basic system is responsible: In comparison to the *status quo* SHI—either financed by taxes or contributions—provides significantly fewer benefits, leaving a broader field for the supplementary market with private competition-based solutions.

What are the concrete properties of the supplementary PHI scheme? Following a popular definition by OECD (2004), supplementary PHI must not cover claims already covered by basic insurance. Taking this limit into account, the extend of coverage has to be negotiated by insurer and insuree. Health services neither covered by SHI nor PHI have to be payed out of pocket (OOP). Furthermore, private insurers are permitted to use managed care mechanisms, such as selective contracting with health service providers. The approach promises several advantages. Two of them are mentioned frequently:<sup>1</sup>

1. The broadening of the market for supplementary PHI and the free conditions for contracting should comply with intense competition—both among insurers and among health service providers—leading to increased cost efficiency and quality.
2. Reducing benefits of SHI should lower the financial burden of the public system.

This paper relates to the empirical-based literature on public and private health care markets in general.<sup>2</sup> It surveys selected countries regarding the points listed above, stressing point #1. Main questions of this paper are: Do PHI market outcomes lead to higher cost efficiency and higher quality of service in the private sector compared to the public sector? What are the impacts of supplementary

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<sup>1</sup>See for example Goldman (1995); Glied (2000); Cutler et al. (2000); Mays et al. (2004); Pati et al. (2005).

<sup>2</sup>For examples of recent literature surveying private health care markets in multiple countries, see in particular OECD (2004); Colombo & Tapay (2004); Mossialos & Thomson (2002a,b); Grefß (2006); Paolucci et al. (2007); Tuohy et al. (2004); Leu et al. (2008).

PHI markets on public health expenditures? And finally: What are the lessons from this survey for EU countries?

The methods applied are the following: First step is to select appropriate countries and to briefly describe their health system. The paper then follows a *structure, conduct and performance* (SCP) framework (Scherer & Ross 1990). However, SCP is not applied tightly, as to deduct performance straight from structure, but rather by emphasizing conduct. Since health care markets concern public interests and have special characteristics, analysis of structure particularly stresses governmental influences. The SCP approach has already been applied to several health insurance markets. A recent study by Hammer et al. (2008) uses SCP in order to analyze the Swiss health market, but focus on SHI. Mossialos & Thomson (2002a) apply SCP to PHI markets in European Countries, but do not refer to systems that fit the model described above. Furthermore, their study on performance lacks a comparison of costs. My paper measures performance of PHI in terms of development of costs compared to SHI using macro-data of OECD Health Data 2009 and related national data sources. More precisely, I refer to total expenditures on health and management expenditures. In order to identify performance in terms of health service quality and equity concerns, the paper refers to surveys in recent literature.

## 2 Selecting appropriate countries

As one purpose of this paper is to deduce lessons for EU governments, the countries to be surveyed should resemble EU countries concerning standard of living (expressed by GDP/capita) and life expectancy. A significant percentage of population should hold supplementary PHI and a significant share of total expenditures on health (TEH) should be claimed by the private sector. Which countries fulfil these conditions? A recent and rather suitable example within EU are the Netherlands after health care reform in 2006.<sup>3</sup> However, since the new system has been in progress for just three years, it is too early to draw reliable conclusions within the framework of this paper. As the scope is to look for expenditure development, it is no use surveying time series with substantial system changes. Business areas of PHI and SHI should be staple by and large. Otherwise, time series would depend on each other, comprising misleading information. Therefore, Australia (AUS), Canada (CAN) and Switzerland (CH) are left as appropriate objects. Table 1 gives an overview of health system relevant country data. It shows that the three countries match the proposed model. Country data are juxtaposed to EU(19)-average in order to have a benchmark.

As can be seen, key figures of the three relevant health insurance schemes are

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<sup>3</sup>See Grefß et al. (2007) for a short description.

Table 1: Country figures concerning health system for 2006/2007

Country	% Covered		% of TEH <sup>a</sup>			% TEH/GDP	Life Expect.	US\$-PPP GDP/cap
	SHI	PHI	SHI	PHI	OOP			
AUS	100	51.2	67.7	7.5	18.2	8.7	81.1	35 952
CAN	100	67.0	70.7	12.5	14.4	10.0	80.4	36 814
CH	100	27.0	59.1	9.1	30.8	11.3	81.7	38 119
EU(19) <sup>b</sup>	97.7	26.0	76.4	6.4	13.1	9.5	79.4	29 491

Sources: PHIAC (2009), OECD (2009) and BFS (2008)

<sup>a</sup> Missing values to 100% belong to further financing aggregates, unnecessary within the scope of this paper.

<sup>b</sup> Data in some cases are not as precise and not as up to date as for the other countries due to insufficient availability.

rather similar. Concerning SHI, there is no possibility to opt out of the system, which fixes coverage at 100%. The Australian and Canadian public health systems are financed almost totally by government. Insurance companies play literally no role for SHI there. However, in Switzerland they are the primary direct financing agents, responsible for about two-thirds of the Swiss public health expenditures. Insurers act as competing non-profit organizations in the regulated SHI market. Nevertheless, expenditures of SHI as a share of TEH are quite in the same range for the three countries. Although SHI coverage is slightly higher, shares of SHI expenditures are in each case lower than for EU(19), whereby this fits in with the presumption of shortened SHI benefits compared to *status quo*.

PHI coverage differs significantly, ranging from 27.0% in Switzerland to 67.0% in Canada. Considering past development, the Canadian figure has gradually increased over time. From 1988 to 2006, PHI expenditure grew more rapidly than OOP expenditure. Private insurance firms increased their share of private expenditures on health from 29.2% to 40.0%, while the proportion for expenditures OOP dropped from 58.1% to 48.6% (CIHI 2008). By contrast, coverage in Switzerland has declined sharply over the last decade, after introducing SHI in 1996. Coverage fell by more than 15 percentage points over the last 15 years. There had been a comparable development in Australia. Right after the statutory health system *Medicare* was introduced in 1984, PHI coverage dropped by more than 10% from the mid-1980s to the mid-1990s. Afterwards, governmental counter measures—particularly subsidies and tax incentives—have brought a trend reversal restoring the pre-1984 level nowadays. Despite these different developments, PHI expenditures as a share of TEH do not differ as much between AUS, CAN and CH. They all exceed the share for EU(19), regardless there are primary and duplicate PHI

systems responsible for comprehensive benefits in some EU countries.<sup>4</sup> Remarkably, in each surveyed country payments OOP play a more important role than PHI, leaving virtually much space for market expansion. This is particularly the case for Switzerland.

What are the benefits PHI is responsible for? In Australia, supplementary PHI can cover outpatient services for dental, optical, chiropractical, and psychological treatment as well as inpatient services for private beds in private and public hospitals (Colombo & Tapay 2003). Swiss private health insurers provide coverage for private beds, parts of dental service, aesthetic surgery, and ambulant nursing (Colombo et al. 2006). Canadians can buy PHI to cover expenses for pharmaceuticals as well as dental, optometrical, psychological, chiropractical, physiotherapeutical, homoeopathical, and home care services (Marchildon 2005; Health Canada 2005). In a nutshell, possible service coverage does not differ much among the three countries. This helps to compare their systems. It is worth mentioning that PHI is not just responsible for luxury benefits. Actually, there are essential benefits among them, which points out, that private health financing plays an important role in these countries.

### 3 Market structure

This paper does not apply the SCP approach in a very strict manner. Besides the hard figures, soft facts and qualitative information are considered. However, to start with some figures, have a look at Table 2, which gives a snapshot of market concentration. On the one hand, there are a couple of insurers in each of the PHI markets. On the other, markets slightly tend to concentrate and to be dominated, except for CAN. Both in AUS and CH, the leading insurer controls more than one-fourth of the market. In both countries a small group of competitors dominates a major share of contracts. Since health insurance is primarily a business on federal state level for each of the countries, there might be stronger market concentrations in some of the states, provinces or cantons, respectively. As Colombo & Tapay (2003) investigated in an earlier study, some Australian states face regional market shares of the largest competitor up to 70%.<sup>5</sup> Anyhow, the figures should not cause worry for two reasons: Firstly, since Kantzenbach (1967) we know that oligopolies can be highly competitive markets if product differentiation is low. Secondly, there is an efficiency trade off in insurance markets concerning market power and risk pooling. Hence, insurance markets are better off being a little concentrated than consisting of insurers too small to diversify risks effectively. Altogether, data in Table 2 show relatively good preconditions for competition.

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<sup>4</sup>Precisely in Germany, UK, Ireland, Greece, and Portugal (OECD 2009).

<sup>5</sup>Unfortunately there were no federal state level data available for the other countries.

Table 2: Number of competitors and market share for supplementary PHI

Country	# of Competitors	Market Share	
		Largest Comp.	6 Largest Comps.
AUS	38	28.7%	77.7%
CAN	117	< 15%	n.a.
CH	79	28.4%	68.0%

Sources: PHIAC (2008), CLHIA (2008), OECD (2009) and BPV (2009)

Despite the three PHI systems are similar in many respects, they vary in crucial details. In order to describe market structure, considerable differences concern profit orientation of insurers, contracting between insurers and insureds, regulation of insurers and products, and incentives to take out coverage.

For-profit organizations dominate the Swiss PHI market. Among them are both independent companies and subsidiaries of the social health insurers.<sup>6</sup> By contrast, in Australia only 7 out of 38 insurers are for-profit organizations (PHIAC 2009). There is no clear trend for Canada in this regard. However, Canada's PHI market stands out on other grounds: Supplementary PHI coverage usually comes with the job. 97% of contracts are group-based. They are negotiated and paid by the employer or trade unions (Marchildon 2005). This may explain the high percentage of PHI coverage shown in Table 1. And it may help to strengthen bargaining power to moderate contributions and costs. On the contrary, employment based contracts raise concerns, whether to speak of a voluntary market that enhances individuals freedom of choice. Such a trade off between cost containment and flexibility is not relevant to Australia or Switzerland, where single contracts are predominant.

Concerning governmental influence, PHI regulation is strictest in Australia: Private health insurers have to provide open enrolment, which means that they are not allowed to refuse applicants. Premia have to be community-rated and cannot be adjusted to individual risk (except for a certain loading against age, described below). In order to avoid bad effects of cream skinning and adverse selection under such a scheme, insurance funds belong to a reinsurance pool for financial equalization of different risk structures (Bowie & Adams 2004). Insurers are free to design new insurance products, but launching and pricing is controlled by Department of Health and Ageing (Colombo & Tapay 2003). The measure is to provide

<sup>6</sup>Since SHI companies themselves are not allowed to make profit, many of them founded subsidiaries for the supplementary PHI market, where generating profits is permitted.

freedom of choice and concomitantly to counteract risk segmentation through the back-door by launching products attractive for low risk groups only. Coverage contracts are not temporary, which spares insurees expensive contract prolongation at higher age (and thus, higher risk). Switching the insurer must be possible throughout the year, so as to force competition. All these points of regulation are actually more common to SHI than PHI. This points out the social responsibility, PHI is meant to assume in Australia. By contrast, none of the mentioned requirements are known to the Canadian or Swiss PHI market. They conduct in a rather unregulated framework which allows them to adjust premia to individual risk and to refuse high risks. While this raises equity concerns (Colombo & Tapay 2004; OECD 2004), these markets may be more efficient to contain health expenditures. Whether empirical evidence confirms an equality-efficiency trade off will be analyzed later on. So far, one is just able to divide the countries into two groups, the strictly regulated (AUS) and the rather unregulated (CAN & CH).

This finding is correlated to another public influence on the private markets, namely incentives. Incentives to take out supplementary PHI appear in each of the three countries, but their amount and design differ significantly. Australia introduced the most substantial incentives to PHI in order to stop decreasing coverage. Since 1997, the government is subsidizing the system by rebating contributions of persons who take out or already hold PHI. Initially, those subsidies were available only to low and medium income earners. However, since 1999 a 30% rebate on premia is being provided to all private health insurants. Moreover, Australia implemented an SHI levy surcharge to high income earners, who are not covered by PHI. In 2001, an inducement for people to maintain PHI coverage for entire life was established. This takes the form of a 2% loading for each year that a person exceeds 30 years of age at the time of joining a PHI fund. However, the maximum loading is capped to 70% (OECD 2009). Government established this incentive to make PHI attractive for low risks, mediating a better risk pool. In Switzerland there are only some tax deductions for insurees' contributions (Colombo et al. 2006). Canadian provinces offer tax deductibles for employers, buying PHI for their employees. Some provinces also subsidize some private services (Marchildon 2005). But in fact, if one is to build groups by the attribute of *public incentives* they are not supposed to differ from groups by the attribute *regulation*. Australian PHI faces considerable incentives, whereas Canadian and Swiss PHI do not as much.

## 4 Market conduct

This section looks at the behavior of market participants within the scope of market structure. It describes direct impacts of certain structures and policy measures.



A major finding is that despite the relative good preconditions, competition in the surveyed PHI markets is low. In each of the three countries, PHI market consolidates as the number of insurers shrinks. From 2006 to 2007, the Canadian market decreased by nine competitors (CLHIA 2007; 2008). A similar trend can be found for Australia (PHIAC 2009). Consolidation progressed even more sharply in Switzerland, since from 122 insurers in 2004 only 79 are left in 2008. Hefti & Frey (2008) suppose this trend to go on, which might become a problem in the future.

For present issues, switching of insurers as a key figure for health market competition turns out to be rare. A reason for this might be age reserves for PHI contributions. Usually, younger people taking out PHI pay in the first years of contract much more than they benefit in these years, in order to build age reserves for retirement years when they need more services at lower income. Insurees in high and middle ages face the problem that age reserves cannot be transferred to other insurers, generating high transaction costs of switching. For the special case of Switzerland, switching is additionally hindered by the double role of some insurers in SHI *and* PHI market. Despite social health insurers have to run their PHI activities in separate business units, separation is often not obvious to customers. Therefore, most of them take out SHI and PHI coverage at the same fund (BFS 2009), which ties them to their private health insurer and lowers switching probability (Beck et al. 2003). Furthermore, customer data collected in SHI may be used for marketing purposes in PHI (Leu et al. 2008). Also, PHI undesirably retroacts to SHI: While medical examination is not allowed in SHI it is a valid tool of risk selection in PHI. Thus, collected data in PHI may help to separate risks in SHI (Paolucci et al. 2007; Hammer et al. 2008; Dormont et al. 2009).

Weak competition is forwarded through insurers, segmenting the market by product differentiation. While this is advertised to enhance consumer choice, the measure intrinsically helps to classify risks. Australian insurers offer differentiated policies to select risks by demand (self-selection), as they are forbidden to refuse applicants. In 2003, there were more than 1600 PHI products available (Colombo & Tapay 2003). Apparently, the risk structure equalization scheme leaves some gaps for cream skinning, since it is calculated only by age and gender. If people self select by choosing a certain contract, insurers gain an edge of information over the risk equalization scheme. Swiss private health insurers segment their market as well, offering about 2000 different policies in 2008. But the usual way to select risks in unregulated markets is to examine the applicants' health before contracting. Canadian and Swiss insurers are bound to apply this expensive method, as they find themselves in a prisoners' dilemma, raising administrative costs in order to avoid adverse selection. If some would not examine applicants, but some of them do, the former would attract all the bad risks, leading to higher expenses and thus to higher contributions, making themselves unattractive to better risks. Therefore,

insurers in the unregulated markets rather compete by selecting good risks than offering better service or being more efficient in administration. Since there is open enrolment and community rating in Australia, health tests are not applied there. However, the Australian scheme bears other problems leading to adverse selection as well. While supplementary PHI is not mandatory but community rated, low risks find themselves better off opting out of coverage and paying on demand, leaving a pool with higher average risk behind (Paolucci et al. 2008). The problem occurs (to a lesser extent) to the other countries as well, since their PHI markets face information asymmetries between applicants and funds too.<sup>7</sup>

As stated at the beginning of this paper, broadening the field for supplementary PHI is supposed to enable selective contracting between insurers and health service providers. Private health insurers are allowed to negotiate service prices and refuse expensive or low-quality providers (Newhouse 1982). In comparison to simple reimbursement schemes, the measure should enforce quality and price competition of providers. Moreover, the active role of insurers is supposed to constrain over-utilization of health resources by customers. In fact, none of the surveyed PHI markets applies selective contracting or other measures of managed care, although they are permitted to. All funds serve as passive indemnity insurers. There may be at least three causes to that—two are supply-driven, the third one is demand-driven. Each group of stakeholders (insurers, providers, insureds) is involved: Firstly, insurers business area could be too small. That does not allow for high expenditures to benchmark quality, own investments to improve quality and bilateral negotiations (OECD 2004). Secondly, providers might refuse to negotiate prices on a bilateral level, as this would weaken their position, while augmenting their administrative effort (Nichols et al. 2004). Thirdly, customers demand supplementary PHI in order to enhance their freedom of choice and not to be restricted by their insurer. Hence, funds avoid offering restricted contracts.

Whatever the reasons might be, empirical evidence in this survey refutes two central reasonings to widen PHI responsiveness: Insurers do not play an active role in health service management as they do not employ managed care mechanisms. Moreover, funds do not compete as supposed to, since switching is low and cream skimming is in place. Hence, quality improvements and cost efficiency can not be

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<sup>7</sup>Therefore, adverse selection is one factor to explain the idle market space for PHI displayed in Table 1 by the high share of OOP payments vs. PHI expenditures. Another factor might be that many people cannot afford PHI and thus have to pay OOP when it comes to injury uncovered by SHI. In Canada, where PHI coverage is primarily employment linked, coverage underlies further obstacles, e.g. for the unemployed. Moreover, there are some business areas, such as co-payments, PHI must not cover and there might be some unprofitable business areas, insurers eschew to cover. Historical reasons may matter as well, since e.g. Swiss people have only been covered by a SHI since 1996. Financing health expenditures OOP is familiar to them.

expected from widening the field for PHI. The next section deals with measuring these expectations.

## 5 Market performance

This section looks at outcomes of competition concerning cost development and quality of service. To start with some pecuniary factors, see Figures 1 and 2. For each of the three countries, these figures compare expenditures of PHI vs. SHI. While Figure 1 displays TEH per insuree against time in order to express the development of contributions (or public expenses under a tax financed scheme), Figure 2 displays management expenses per insuree against time in order to express cost efficiency.<sup>8</sup> The left column of charts in each figure contains nominal costs. They are included as additional information to get a picture of the cost levels. However, it would be no use to draw comparison on these nominal grounds, as they are level-dependent. For TEH per insuree, SHI has a much higher level, since it covers more benefits. For management expenditures per insuree, PHI has a higher level, since there are additional expenditures for advertising etc., SHI may not face. This is why the right column of charts abstracts from levels and displays the development as an index with a basic year in order to make time series comparable. In fact this means, the figures compare cost developments, more precisely, accumulated growth rates of total expenditures and management expenditures of SHI and PHI for the longest available time series.

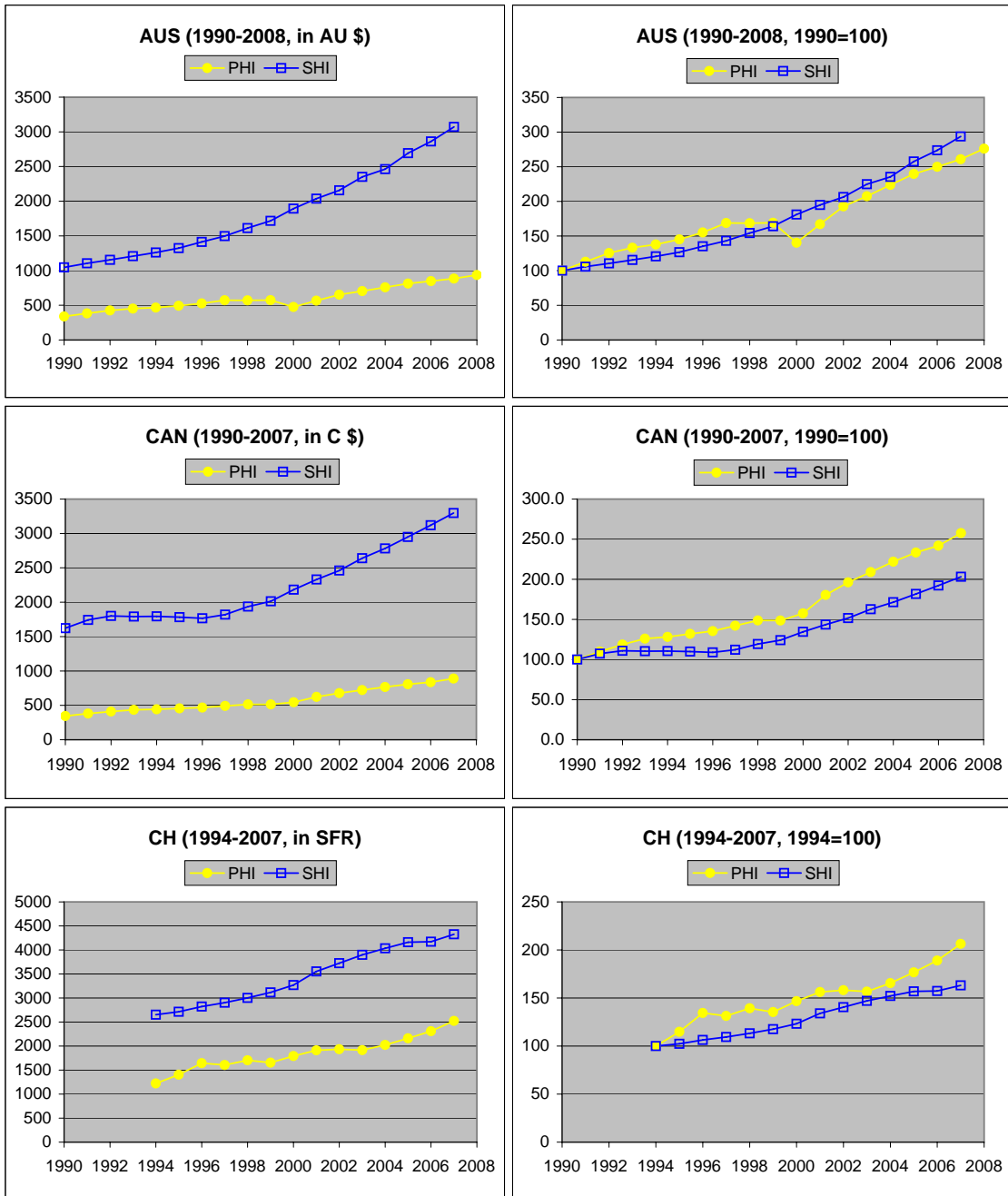
Concerning TEH, these data can not provide information about which one is cheaper in covering certain services, since these are just trends, and since PHI and SHI—by definition—do not have any covered services in common. But they are an indicator for what would have been the total costs, if any randomly chosen marginal service unit, currently covered by SHI, would have been covered by PHI, and *vice versa*.<sup>9</sup> Administrative task areas of SHI and PHI are not as discreet as covered benefits. In fact they coincide in several respects. Moreover, the levels of ME per insuree are pretty much the same. Hence, these series show, which one developed more efficiently in recent years.

What are the major findings of the comparison? Concerning TEH per insuree, PHI and SHI shape up with a slower growth for SHI in two of three countries, and rather similar for the third. The indexed time series have been tested for

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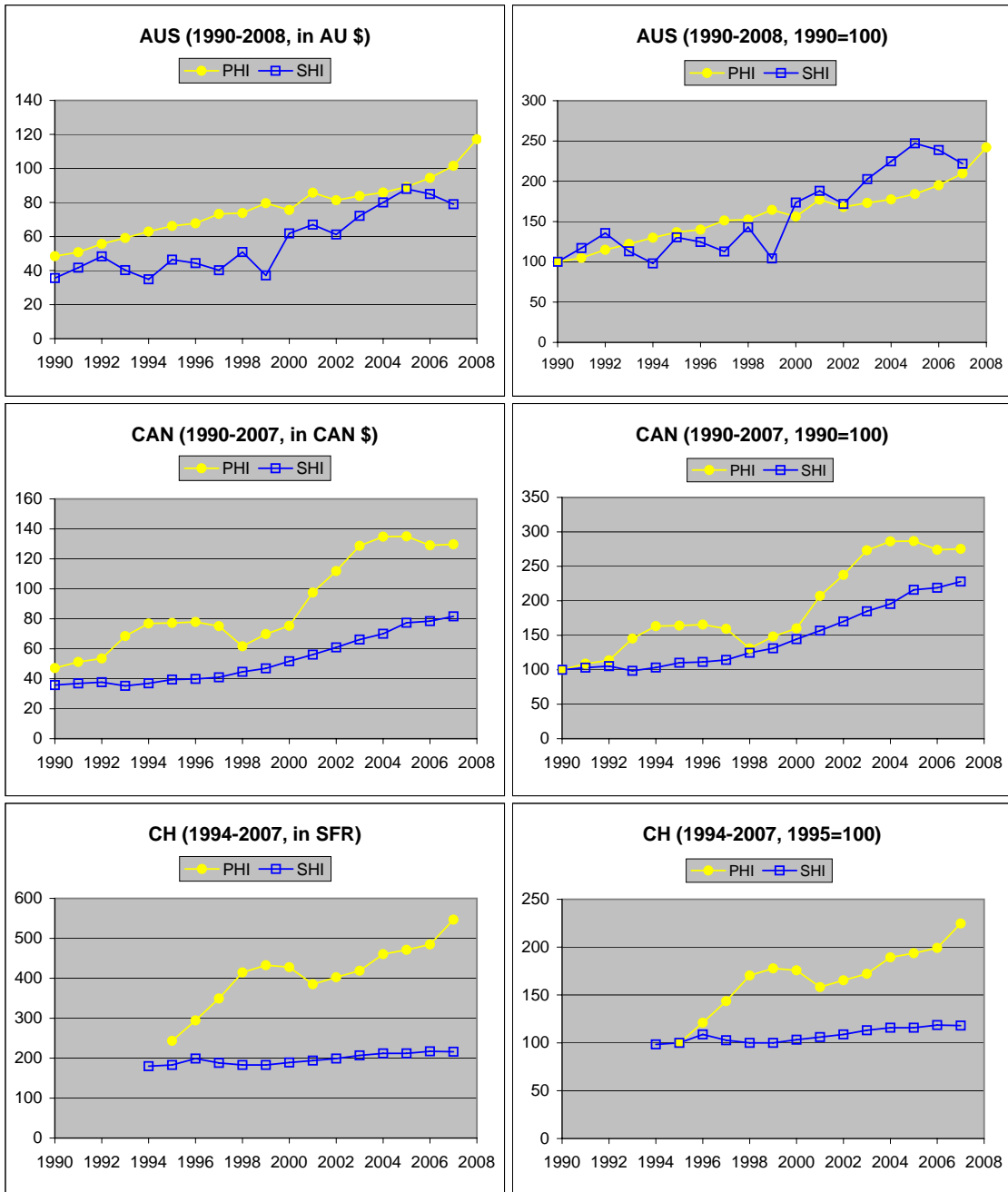
<sup>8</sup>Unfortunately, data could not be collected for the same period of time for each country. The figures display the longest continuously available time series. Within these years, responsiveness for benefits did not change substantial in the three countries.

<sup>9</sup>The dichotomy of benefits covered by SHI and PHI is actually advantageous, as data are not biased by cross-subsidizing from PHI patients to SHI patients, which in fact occurs in systems with primary or duplicate PHI.



Sources: OECD (2009), PHIAC (2009), AIHW (2009), CIHI (2008), BAG (2009), BFS (2004; 2009).

Figure 1: Total expenditures on health per insuree and year



Sources: OECD (2009), PHIAC (2009), AIHW (2009), CIHI (2008), BAG (2009), BFS (2004; 2009).

Figure 2: Management expenses per insuree and year

equality of means.<sup>10</sup> Means are significantly higher for PHI than SHI in Canada and Switzerland. The tests reject equality on a 5% level. For Australia, means of TEH per insuree show no significant difference. TEH grow faster for PHI before the considerable break in the time series and grow slower afterwards. Responsiveness of services did not change significantly over the considered period. Thus, it must have been prices that grew at a faster rate for PHI than for SHI. One might put these changes in relative prices down to changes in relative costs for the basket of services covered by PHI to those covered by SHI. Hence, one would doubt comparability of cost effectiveness along these figures. But this is only half the truth, since introducing PHI was meant to contain costs of services, which particularly includes negotiating moderate prices. Thus, as far as private health insurers perform worse than SHI in containing the price of any randomly chosen marginal benefit unit, shrinking the latter in favor of the former does not pay off from an expenditure point of view. Similar studies (Mossialos & Thomson 2002a; Grefß 2005) confirm these empirical findings for some European countries with different roles for PHI in their health system. Additionally, they find quality of service to be better enhanced by bargaining power of SHI.

Results are more distinct for management expenditures. As shown in Figure 2, administrative costs per insuree for PHI develop worse compared to SHI in two of three countries (CAN & CH) and develop similar in the third (AUS). Statistical tests verify these first impressions, since means differ significantly on a 5% level for CAN and CH, and do not for AUS. CIHI (2008) and (Mossialos & Thomson 2002b) announced analogous results for Canada and some European Countries. Economic theory considers high transaction costs to be inefficient if they can be avoided under an alternative system of funding and providing health care (Barr 1992). Thus, empirical evidence does not support expansion of PHI, but rather repelling it.

Australia plays a special role among the surveyed countries. It is the only country where PHI can compete with SHI concerning development of TEH and ME per insuree in recent years. Concurrently, Australia applies the strictest regulation, the largest public impact to take out PHI, and the lowest share of profit-oriented insurers. In a nutshell, it has the PHI scheme with the highest affinity to an SHI scheme. As insurers do not use health tests, they are able to release management expenses. In general, funds save costs for risk selection in comparison to the other countries. Thus, there is no regulation-efficiency trade off. At the same time, Australia stresses equality in PHI coverage like no other surveyed country (Colombo & Tapay 2003, 2004; OECD 2004). Taking this into account, empirical evidence shows no equality-efficiency trade off between unregulated and regulated PHI markets. Both aims are better met by regulated schemes.

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<sup>10</sup>See the statistical appendix for details of the tests.

If one is to look at the Australian chart in Figure 1 again, the break in the time series around 1999 attracts attention. It causes PHI to grow slower than SHI concerning TEH per insuree in subsequent years. The break is due to several measures at the end of the 1990s to encourage demand for PHI. Before these interventions, coverage fell rapidly and the PHI market was likely to break down by reason of adverse selection. As incentives worked and coverage grew fast, adverse selection could be curtailed and thus, contributions per insuree could fall. Hence, the rather good performance of Australian PHI is largely put down to subsidies and tax incentives. Maybe public expenses were lower, if supplementary services were covered by SHI, saving subsidies and costs of regulation.<sup>11</sup> The question, if subsidies are worth it, should be looked at in more detail in future research.

## 6 Conclusions

The paper aimed to test the widespread opinion that shrinking benefits of SHI in favor of PHI is likely to enable a rational use of health resources and to maintain affordable health expenditures. Thus, it surveyed health systems that promote a distinct role for PHI and strictly separate responsibilities between PHI and SHI, assigning SHI the role of a basic insurance and PHI the role of a supplementary insurance. Empirical evidence derives from the health insurance schemes of Australia, Canada and Switzerland that permit voluntary supplementary insurance in a regime with a mandatory basic insurance package. Coverable benefits do not differ very much, which makes the systems comparable.

Although market structures provide relatively good grounds for competition, markets conduct and perform not in the desired way. Insurers do not compete by quality or cost effectiveness, as they lack power to curtail costs of service and lack the incentive to utilize selective contracting or other measures of managed care. Since private health insurers in fact do not apply methods of active care management in any of the surveyed countries, no quality improvements or cost containments can be expected. Far from it, insurers find themselves in a prisoners' dilemma. They bear high expenses to select risks by health tests and product differentiation in order to avoid adverse selection against their competitors.

These findings come along with weak market performance in recent years, as total expenditures on health and management expenditures (both per insuree) grow

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<sup>11</sup>Besides preventing the supplementary PHI market to break down, subsidies had another aim: They should lower expenditures on public hospitalization, by shifting demand to the private sector, as PHI covers private hospitalization (Walker et al. 2007). However, this did not come true. While the measure can be called effective in supporting PHI in this scheme, it failed to lower the utilization of public services and therefore unburden the public budget.(Paolucci et al. 2008) In fact subsidies generated, rather than merely shifted, demand for health (Moorin & Holman 2006). Therefore, subsidies might cause higher costs than they save.

faster in comparison to SHI in two of the three countries. Thus, assuming any randomly chosen marginal benefit unit, currently covered by SHI, to have been covered by PHI in these years would have led to higher total health costs. Hence, shrinking benefits of SHI in favor of PHI seems not to be a measure to improve cost efficiency. Comparing management expenditures yields similar results. Since they grow faster for PHI accruing from a higher level, they do not support introduction of PHI by reasons of cost containment. Only the health system of Australia, where accumulated growth rates of PHI expenditures keep up with those of SHI, stands out from these findings. However, private insurance contracts are strictly regulated and intensively subsidized there, whereby PHI resembles SHI, stressing the importance of equality in the Australian PHI market. Unregulated PHI markets on the other hand lack equality, but do not yield better cost containment. Thus, there seems to be no trade off between equality and efficiency, making no good case for introducing lowly regulated PHI markets.

As either PHI performs worse than SHI or it has to be strictly regulated and subsidized by government, it is questionable whether introducing or forcing supplementary PHI is a useful measure to contain TEH. Shifting responsiveness from public to private sector in order to lower public expenditures, requires high subsidies that might even exceed the savings. If equal access to services and high coverage of certain services are health policy aims, it seems to be more effective to have them covered by SHI. If high coverage is not that favored, supplementary PHI might be a solution, but regulation has to be strict to promote equality and effectiveness. Experience from Australia shows that adverse selection can be defeated by moderate incentives to take out PHI.

To sum up, the two points listed in the first section can now be evaluated:

1. Free markets for supplementary PHI in this survey do not comply with intense competition—neither amongst insurers nor health service providers. They do not enforce higher quality or lower growth of costs, but risk selection. SHI schemes have performed better concerning costs over the last years. Only regulated PHI schemes could keep up with SHI. Additionally, SHI and regulated PHI guarantee more equality than unregulated PHI schemes.
2. Reducing benefits of SHI and widening the field of PHI has to be accommodated by subsidies and might not shift, but only generate further demand for health services. Therefore, public cost containment is at least questionable. Further research is needed at this point.

Empirical evidence shows the obstacles of introducing PHI in practice and cautions policy makers about setting effective regulation and moderate incentives.



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## Statistical Appendix

The following list shows statistical tests concerning equality of means of the indexed time series (right columns of Figures 1 and 2). Significant  $p$ -values ( $p < 0.05$ ) indicate considerable differences between two time series, respectively. Data were tested and put out with the statistical software R.

### Welch Two Sample t-test

```
data: meantest$TEH_AUS_PHI and meantest$TEH_AUS_SHI
t = 0.1603, df = 33.323, p-value = 0.8736
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
 -35.30451  41.34545
sample estimates:
mean of x mean of y
 177.6316  174.6111
```

### Welch Two Sample t-test

```
data: meantest$TEH_CAN_PHI and meantest$TEH_CAN_SHI
t = 2.1257, df = 29.765, p-value = 0.04194
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
  1.152207 58.070015
sample estimates:
mean of x mean of y
 166.0000  136.3889
```

### Welch Two Sample t-test

```
data: meantest$TEH_CH_PHI and meantest$TEH_CH_SHI
t = 2.1297, df = 24.738, p-value = 0.04334
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
  0.6689659 40.6167484
sample estimates:
mean of x mean of y
 150.7143  130.0714
```

Welch Two Sample t-test

data: meantest\$ME\_AUS\_PHI and meantest\$ME\_AUS\_SHI  
t = -0.0333, df = 30.544, p-value = 0.9737  
alternative hypothesis: true difference in means is not equal to 0  
95 percent confidence interval:  
-30.45222 29.47561  
sample estimates:  
mean of x mean of y  
157.7895 158.2778

Welch Two Sample t-test

data: meantest\$ME\_CAN\_PHI and meantest\$ME\_CAN\_SHI  
t = 2.3002, df = 30.292, p-value = 0.02850  
alternative hypothesis: true difference in means is not equal to 0  
95 percent confidence interval:  
4.893647 82.106353  
sample estimates:  
mean of x mean of y  
188.7222 145.2222

Welch Two Sample t-test

data: meantest\$ME\_CH\_PHI and meantest\$ME\_CH\_SHI  
t = 6.4886, df = 13.14, p-value = 1.938e-05  
alternative hypothesis: true difference in means is not equal to 0  
95 percent confidence interval:  
40.49927 80.86337  
sample estimates:  
mean of x mean of y  
168.5385 107.8571

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