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ORIGINAL ARTICLE

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Chilean health insurance system: a source of inequity and selective social insecurity

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Abstract More than 20 years after its radical market-oriented reform, the Chilean health care system shows serious equity and fairness problems. Private insurance companies have used *ex-ante* as well as *ex-post* risk selection to avoid the affiliation of poorer and older enrolees presenting higher risks. The coexistence of a solidarity-driven public sector and a for-profit private sector operating with risk-adjusted premiums has led to a two-tier health insurance system. Unpredictable, often existentially threatening co-payments have become an serious problem for the users of the Chilean health care system, and coverage-lacks have become a major menace for patients. Private insurers supplement "Cream Skimming" and risk selection with contracts calling for significant out-of-pocket payments for health services. This article develops and applies a methodology to measure and compare systematically the impact of user charges for varying levels and complexity of treatment in the public and private health care sector. Co-payments in the private sub-sector show enormous variation, are hyper-regressive and discriminate not only against the ill, but also against the members of the lower socio-economic classes once they have passed the high access barriers. As cost-sharing affects the financial coverage and thus the accessibility of health care, it has become an important mechanism of quality skimping and active disenrolment. Private health insurance companies are relatively well prepared to cover costs for a wide array of traditional health problems; they fail, however, to respond for the costs of other leading diseases in Chile. The private system seems to be poorly prepared to face the challenges of the epidemiological transition in emerging countries.

Keywords Co-payment · Selection · Coverage · Health insurance · Social security

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Introduction

Chile was one of the first Western countries to subject its health care system to a fundamental reform, including the partial privatisation of social security in health care. In accordance with the global and national mainstream in the early 1980s, the Chilean reform was directed mainly by ideological interests (Reichard 1996). More than 20 years later, observations of the effects of market principles in health insurance allow for a series of general conclusions. The Chilean experience is of profound significance for assessing health system reforms in other developing countries, especially in terms of coverage, equity and risk selection in insurance markets.

Nearly all studies from Chile have focused on its intrinsic injustice and on the selection mechanisms applied by the private health insurance companies. Introduced during the dictatorship, their great success during the first 15 years was based mainly on "cream skimming" and risk selection. Nevertheless, there is little evidence-based knowledge about the financial burden customers in the public and private health care sector have to face. In keeping with a general tendency in Latin America (ILO/PAHO 1999), surveys from Chile (Fundación Salud y Futuro 1999; Escobar and Panopoulos 2000) confirm that customers give high priority to concerns about unpre-

dictable co-payments for medical care, especially in the case of hospitalisation and complex procedures.

The additional financial burden for clients of the health care system is usually underestimated, though it has great impact on the financial and social sustainability of health insurance and social protection in emerging markets. In order to collect data for a realistic evaluation of the impact of co-payments on family households, we carried out a form of screening focusing on a selected group of representative pathologies and their typical treatment. Therefore, we defined a socio-economic sample of different family sets in order to compare the out-of-pocket payments of the insured of the public and the private subsector.

Historical background

Chile was the first nation in the Western Hemisphere to provide comprehensive medical coverage for non-military workers (in effect since 1918) and promulgated social security legislation for blue-collar workers (in 1924 and 1925). In 1942 the National Medical Service for Employees (SERMENA) was established, and in 1952 the National Health Service (SNS) started to offer comprehensive health coverage for workers. Until the early 1980s, the Chilean health care system was mainly ruled by the public sector.[1] The state managed health care financing and provision, services were provided largely free of charge and the public sector performed about 90% of the hospital emissions and more than 85% of the outpatient treatments (Bitrán & Almarza 1997; Wainer 1997)

Under the conditions of an authoritarian regime and following a strict market-oriented strategy, in 1981 SNS and SERMENA were reorganised into the National Health Fund (FONASA) and the National System of Health Care Services (SNSS). As part of the decentralisation of the public sector, primary care was downgraded to the municipal level. Social Security remained mandatory but private health insurance companies, called Welfare Health Institutions (ISAPREs), were admitted as providers into the market.

During the Pinochet dictatorship, general austerity and a continual decrease in public funding for health care characterised social policy. In keeping with the ideology of economic liberalism, the Chilean reform largely waived regulatory control of private insurers. So the ISAPREs could develop successfully and become the most profitable economic sector in Chile. Although they were plagued from the beginning by public and institutional opposition in a society that was used to socialised medicine, the partial privatisation of health insurance led to a continuous expansion of the private sub-system.[2] In the late 1990s, however, the economic recession and the inability of the ISAPREs to increase their market share by offering new and innovative products stopped the success story of private health insurance in Chile.

At the same time, the public health care system had achieved an obvious improvement, and investigators conclude that the introduction of market mechanisms is showing its most important efficiency gains in the public sector (e.g. Liebig 2001). The 1981 health reform had led to an extensive restructuring of the public insurance, including the separation of functions and a better orientation towards customer demands. There is no doubt that private insurance companies helped to introduce a stronger cost-consciousness in the whole health care sector. At the same time, they contributed to rising demand for diagnostic and therapeutic procedures and thus to increase overall expenditure in medical care (Valenzuela 1998).

Opportunities and limitations of the private health sector

In theory, all citizens have the freedom to choose between FONASA and an ISAPRE. The latter, however, can select their enrolees according to economic capacity. The entrepreneurial logic forces for-profit insurance companies to make sure that the expected expenditure for services do not exceed the income from premiums (van de Ven 2001). In a social security system with externally fixed premium rates (7% of the taxable salary), the need to generate profits limits a priori the target segment of private enterprises to the population with a higher relative income (Valenzuela 1998).

Growth strategies for privatisation face obvious restrictions in an emerging nation even though the poverty rate was reduced from 40% to 25% in 2 decades. Due to their limited purchasing power, two of three Chileans still belong to the public system. A total of 90% of FONASA-contributors earn less than U.S. $400 and 66% even less than U.S. $200 a month. The proportion of beneficiaries in the public sector shows a high increase in periods of economic recession. In case of unemployment, ISAPRE coverage ends when contributions are discontinued. As public health insurance is comprehensive, FONASA acts as the last resort for citizens. In Chile customers are allowed to change the company after a minimum period of 12 months. On the other hand, insurance companies have the right to adjust their health plans to the general economic condition and to the individual situation of the contributor and his dependants. Due to the horizontal permeability of the dual system, these short-term insurance conditions of private health plans seriously question the sustainability of social protection in Chile and lead to a clear "Cream Skimming" as illustrated in Fig. 1.

Competitive health insurance markets are based on the equivalence principle. Premiums are risk adjusted and differ according to the individual risk profile of the enrolees. That leads the private insurance companies to calculate the contributions for each health plan as the product of the basic tariff and the risk factors of the

[1] Compare Reichard 1996 and Acuña 2000

[2] In 1997, in the period of maximum expansion, the private health insurance companies were covering 3,882,572 beneficiaries, or 27% of the Chilean citizens.

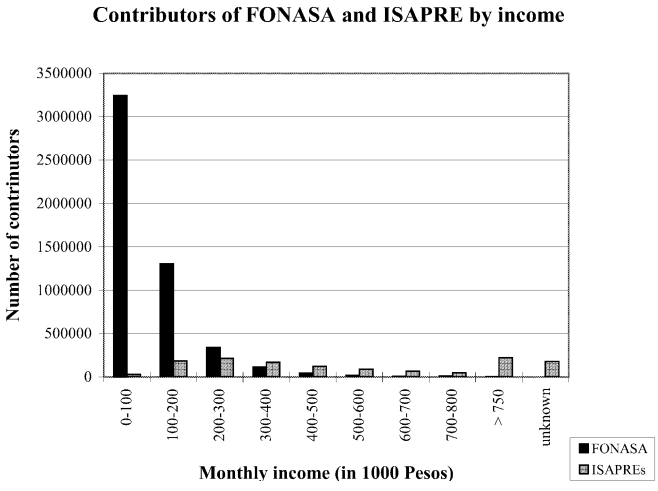

Fig. 1 Contributors of FONASA and ISAPRE by income. Data from the Study Department of FONASA from January 25, 2000; Superintendencia de Instituciones de Salud Previsional. Statistical Bulletin January-December 1999 and January-December 2000. Santiago 2000/2001. Note that because of the exclusive availability of aggregated data, the column "*>750*" summarises the FONASA-insured with the mentioned income and the ISAPRE-insured with a monthly income of more than 800,000 pesos. Thus, the discrepancy in the distribution of high-income people is underestimated in this figure

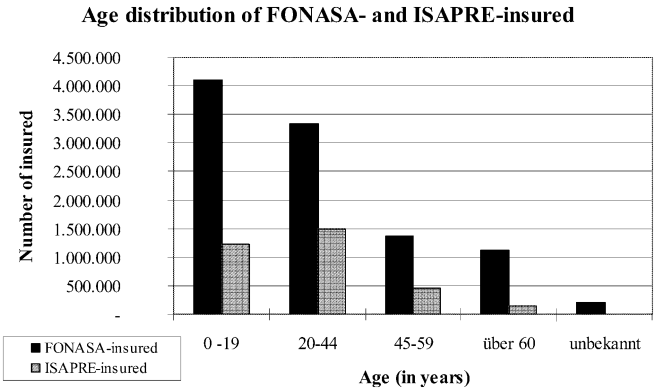

Fig. 2 Age distribution of FONASA- and ISAPRE-insured. (Source: Information of the FONASA study department on the basis of the data from January 15, 2000; elaboration of the figure by the authors)

beneficiaries. By law, risk discrimination is only allowed by age and gender. Contributions rise according to the beneficiary's age and are extremely high for women of child-bearing age. This drives about 30% of the ISAPRE clients to pay between 8.5% and 10% of their taxable income for health insurance – a sum that exceeds the mandatory 7%. In 1999, the average contribution rate in the private sector was 8.5% of taxable income (see Acuña 2000, complemented by oral information obtained by the Study Department of the Superintendencia de ISAPREs in December 1999) and the corresponding additional payment represented more than 20% of the total income of the private health insurance system (Superintendencia de ISAPREs 2001). The progression of the contributions is an effective tool for the ISAPREs to get rid of older clients who represent higher risks and costs. A mere 2.3% of Chileans over 65 years remain in private insurance schemes, while the great majority find themselves obliged to change to FONASA, at the latest when they retire (Superintendencia de ISAPREs 2001) (Fig. 2).

In Chile, the health insurance market was introduced without having defined a guaranteed package of health care services for all citizens, independent of the subsystem they belong to. By law, all health plans have to include all services granted by the public sector, but no determination of the extent of the financial coverage was made. In theory, an ISAPRE fulfilled the legal obligations when it paid one peso for any service used by its beneficiaries, and, in practice, they defined an obligatory coverage of 25% of the costs. In November 2000, almost 20 years after the health sector reform, the Supreme Court in Santiago defined a minimum coverage as 50% of the lowest tariff of FONASA's free-choice mode.[3]

The health sector reform reinforced the existing transparency deficits that characterise health markets. The classic knowledge decline between health professionals and patients has remained untouched, while additional information asymmetries between insurance companies and health care providers became relevant. The private companies are offering thousands of different health plans whose conditions are largely unknown. In addition to the unpredictable health risk of individuals, in a widely unregulated system ISAPRE beneficiaries are exposed to insufficient information about potential health care expenses and thus suffer from a drastic asymmetry of information.

One result is a general perception of social insecurity amongst Chilean citizens. The 1998 UNDP-report "Human Development in Chile" refers to the people's perception that the overall health system is generally failing and does not guarantee sufficient protection in the sense of social security (García et al. 2000). Recent surveys revealed that Chileans are particularly worried about the financial coverage of severe, complex pathologies and hospital care (e.g. Fundación Salud y Futuro 1999). The second most common complaint involved the accessibility of medical care when it is required. In order to manage the quantitative and supply shortfalls, the public sector rations access to health care by using waiting lists, whereas the private sub-system applies financial exclusions and coverage restrictions to guarantee profitability.

[3] FONASA's free-choice mode offers the use of contracted private providers to the contributing beneficiaries who want to avoid long queues; in this case they take on generally high out-of-pocket-payments for medical care. This mode was implemented in order to reduce the queues mainly for ambulant treatments.

Table 1 Which aspects of financial coverage or funding for health care is your priority when you need out- or in-patient treatment? (from Fundación Salud y Futuro 1999)

	First priority	Total mentions
Low co-payment (in general)	26%	38%
Lower co-payment in hospital	14%	23%
Better coverage of services (general)	12%	15%
Access to drugs	5%	16%
Severe diseases	5%	9%
Faster service	3%	5%

Motivation

Theoretical approaches and empirical investigations tend to underestimate the direct financial burden for users of health care systems in emerging markets like Chile. In a recent population-based survey, two of every five Chileans mentioned the decrease in co-payments as an important economic aspect of future reforms of the health system. One of every four interviewed persons said that the user fees for inpatient treatments are a major problem and that the use of out-of-pocket payments represent the greatest financial threat of health problems (Table 1).

In 1993, a study of the Superintendencia de ISAPREs showed a wide variation in co-payments for emergency coronary bypass surgery (0–13% in hospitalisation costs, 10–54% in physician bills and 0–100% in surgical material and drugs) (Larrañaga 1997). The costs of myocardial infarction treatment in the best health plan's hospital were almost five times higher than the fees of the least expensive provider. In the case of a haemodialysis, high fees doubled those of lower level providers (Wainer 1997).

Another study confirmed a logarithmic relationship between the total health expenditure of ISAPRE clients and their total yearly cost-sharing burden. For those whose health expenses did not exceed half a million pesos per year (about U.S. $2000), out-of-pocket-payments represented 31.3% of total spending. Beneficiaries who paid more than five million pesos for medical care had to finance 44.9% of total costs by themselves (Kifmann 1998). This finding can mainly be attributed to very low ceilings in private health plans. Co-payment affects mainly high-risk individuals with an increased demand on health services – essentially those with complex and chronic diseases. In the private sector, direct billing reduces the quality of the financial coverage of health care expenses and has negative effects on access to health care.

The ISAPRE Association compared private co-payments for frequent surgeries to those of FONASA when the same private hospitals were used in the free-choice mode. While out-of-pocket payment in the private subsector varied between 0% and 72%, in the public system the fictitious expenses would have oscillated between 89.5% and 97.3% of the total costs (CIADE (1997).. The free provider choice, however, is infrequent for FONASA beneficiaries in case of complex pathologies. In 1998, only 10.5% of the hospitalisations of FONASA customers (1.9% of the inpatient costs) and 10.4% of the surgical interventions (18.6% of the costs) were funded as free choice services; while the overwhelming majority of expenses were caused by services granted in the institutional set-up (FONASA 1999a).[4]

Additionally, the mentioned survey of the Foundation Health and Future (Fundación Salud y Futuro 1999) pointed out the impact of direct health care expenses on the general perception of the social security system in Chile. Though co-payment exists in the public and private sub-sector, people perceive it as more threatening in the latter. Nevertheless, until now no systematic comparative study of out-of-pocket payments in the Chilean health care system has been conducted in order to evaluate the real financial burden of disease in both sub-sectors (Titelman 2000). This omission stems from the diversity and heterogeneity of the health plans in the Chilean market[5] and to the rather technocratic focus of the Health Sector Reform debate in Chile.

As a systematic comparison out-of-pocket payments in the public and private health insurance system is lacking, we investigated the individual coverage and percentage excess of selected health problems. Though practical reasons obliged us to limit the approach of our study to a representative social segment and array of diseases, this analysis reveals not only the potential differences in the financial health burden placed on FONASA and ISAPRE clients, but also various phenomena specific to both subsystems.

Co-payments

As co-payments are supposed to perform regulatory functions, the ISAPREs apply out-of-pocket payments in order to control "Moral Hazard". Diminishing insurer's expenses for health care, they have become one of the most noticeable aspects of the Chilean system. Because of the unpredictability of direct expenses, co-payment is a major subjective and objective problem of social security in Chile. Many private health plans offer fairly low coverage ceilings, forcing the insured to pay a large part of the health care expenses themselves. As the provider market remains unregulated, the direct financial burden is generally high compared to other transformations and even to industrialised countries (Baeza and Muñoz 1999).

Since 1986, the pressure to increase income of the SNSS has led to the application of direct charges for users of public providers. FONASA affiliates whose income surpasses the legal minimum have to co-finance a certain percentage of any health care service, although an extensive system of waivers and exemptions was imple-

[4] Institutional Mode means preventive and curative services by community primary health care providers plus secondary and tertiary care therapies in public hospitals under the usual standards, with queuing and without any further elective service.

[5] At the end of the 1990s, the total number of health plans on the market was estimated at 8,000.

Table 2 Number of FONASA beneficiaries according to gender, income and co-payment percentage for health care services in December 1999

Beneficiaries	Group A	Group B	Group C	Group D	Total
Monthly income (in pesos)	Indigents	<80.500	80.501–110.120	>110.120	
Female	1,586,494	1,659,845	492,196	1,112,923	4,851,459
Male	1,441,753	1,230,236	470,205	1,143,945	4,286,140
Total	3,028,247	2.890,082	962,402	2,256,868	9,137,599
Co-payment rate	0%	0%	10%	20%	

Source: FONASA (1999, 2001); complemented by data from the FONASA Study Department based on the Resolución Exenta No. 1,327 of the Health and Finance Ministry from 10 July 1998

mented. Nevertheless, cost sharing caused a drastic increase in individual expenses on health care for the FONASA beneficiaries and had a negative impact on the poorer members. However, out-of-pocket payments helped to promote the demand on private health plans because they reduced the relative risk of high and unpredictable ISAPRE co-payments (García et al. 2000) (Table 2).

Methodology

Geographic area

The present study was carried out between November 1999 and February 2000 in the Greater Santiago area that comprises the Chilean capital plus the surrounding suburbs, including over 6 million inhabitants or 40% of the national population (INE 2000). Due to the low population concentration in rural areas,[6] the private health care system is concentrated in the bigger cities. The private health insurance market is focussing clearly upon the urban population, while it is of little use in rural areas with limited profit expectations for any insurance system. At the end of 1999, more than 58% of the ISAPRE beneficiaries were living in the Greater Santiago region, the area with the highest density of health insurance companies of the country. Also considering the centralisation of political and economic power in Chile, it seems justified to limit the investigation to this area.

Sample

Because of the equivalence principle ruling the competing ISAPRE market, the Chilean health plan conditions required the exact definition of all relevant social indicators in order to determine the study sample. So we had to define income groups, family sets, age and gender of all the included beneficiaries in order to identify suitable contracts for the specific sub-groups of the sample. Reference salaries were set at levels of potential competition between private and public health insurers, taking into account the general income distribution (MIDEPLAN 1997) and the representation of the different socio-economic groups in the ISAPRE system (SISP 2000). Based on these considerations, we defined a monthly income of 200, 350, 500 and 800 thousand pesos (U.S. $385, 675, 965 and 1540) in order to calculate the mandatory 7% contribution for health insurance and to identify the suitable health plans available in the ISAPRE market. The selected salaries implied the methodological advantage of belonging all to group D of FONASA-beneficiaries. Based on their monthly income, public insurance divides its members into four socio-economic sub-groups, from A (indigents) to D (more than 1.4 times the minimum wage). Group A is excluded from free provider choice, group B is free from any co-payment and groups C and D have to pay 10% or 20%, respectively. As the whole study cohort belongs to FONASA's group D, the co-payment in the public sector is 20% of the all-over treatment costs.

While contribution to the solidarity-driven public insurance is exclusively a function of taxable income without any relation to the number of dependants, the cost of a private health plan also depends on the individual risk of the contributor as well as on the number and risk factors of his dependants. In order to select the suitable health plans, it was necessary to define the age of all included beneficiaries. In order to keep the number of variables within reasonable limits, we designed the study sample with three typical family groups at different ages. In the beginning, the idea was to use an identical family constellation set at various life points. But market analysis revealed that private health plans are not available for the lower income groups for the mandatory 7% contribution. So the youngest family (Family type 1) could afford a private health plan with only one child, and for the oldest family (Family type 3) we had to reduce age and number of dependants. In the end, the following family groups were defined as the basic social sample:

- Family type 1: Male contributor 25, wife 24, son 3 years
- Family type 2: Male contributor 40, wife 39, son 15, daughter 14 years
- Family type 3: Male contributor 55, wife 54 years

Selection of disease criteria

Transparency deficits and the restrictive information policy of private insurance companies represented a major challenge, as ISAPREs offer a large array of variable

[6] The urban population rose to 85.9% of the total population; www.paho.org, 20.2.2002.

conditions. Both sub-sectors cover nearly 2,200 health services listed in FONASA's Fee Scale (FONASA 1999b). In order to ensure feasibility of the present study and the cooperation of ISAPREs, we had to limit the number of variables and required data. Finally we selected a representative group of common and community-oriented diseases and disorders following four main criteria:

- Epidemiological relevance
- General and individual economic impact
- Diversity of treatment complexity
- Operationability and standardisability of the corresponding treatment

The epidemiological situation in Chile has changed considerably during the past 40 years. The typical profile of a developing country with a high prevalence of infectious diseases has disappeared, life expectancy has increased and the disease patterns of an ageing society have replaced the former conditions. Cardiovascular diseases and cancer have become the most frequent causes of mortality, followed by trauma and intoxications (INE 2000). All these pathologies together are responsible for more than two-thirds of the deaths in today's Chilean society (Solimano and Vergara 1999).

In order to define the disease sample we analysed the expenses for health insurance services. In 1996, the three largest ISAPREs spent nearly U.S. $10 million (9.77% of total operational expenses) for hospital days. This was the second most important factor after medical consulting hours (almost U.S. $33 million). Uncomplicated childbirths represented almost U.S. $2 million (1.9%), days in intensive care units more than U.S. $1.3 million (1.3%), laparoscopic cholecystectomy as well as obstetric hospital days more than U.S. $1.1 million (1.1%), psychotherapy U.S. $920,000 (0.9%), anaesthesia almost U.S. $850,000 (0.83%), appendectomy U.S. $710,000 (0.7%), care of newborns U.S. $580,000 (0.6%) and physiotherapy U.S. $480,000 (0.48%).[7]

As Chile has the world's highest prevalence of gallstones, cholecystectomy had to be included. We evaluated overall costs and co-payment for traditional and laparoscopic gall bladder surgery. Given the frequency of appendectomy, we selected this treatment to present less complex surgeries. In spite of the decrease in the fertility rate from 5.3 in the 1960s to just 2.4 at the end of the 1990s, uncomplicated childbirth remains one of the most important services for younger beneficiaries. And in view of the increasing incidence of cardiovascular pathologies, we decided to investigate the financial impact of the expensive surgical treatment of coronary heart disease.

The group of neo-plastic pathologies, the second most important killer in Chile, is represented by oesophagus carcinoma, which offers the methodological advantage of a low number of sub-types and little variability in treatment schemes. As diagnosis often occurs late for surgical intervention and chemotherapy is of little effect, we selected a well-established radiotherapy scheme for this disease. Transparency problems and the information policy of most ISAPREs would have interfered with our ability to calculate the cost and the co-payment for complex chemotherapy in other carcinomas. In order to cover the other important groups of pathologies, we included osteosynthesis of a femur fracture plus the metal removal as an example of an orthopaedic disorder of medium complexity.

The pathological spectrum of this study was completed by an acute psychiatric disorder representing the group of chronic diseases that have become increasingly more important in the past decades. We selected an acute depressive syndrome treated by a mixture of in- and outpatient services.

Three of the selected procedures—cholecystectomy, appendectomy and birth—are included in FONASA's new program to apply diagnosis-related groups (Pago Asociado a Diagnóstico) and oesophagus cancer has similar characteristics to another PAD diagnosis, stomach cancer. That underlines the economic relevance of the investigated treatments in the public as well as in the private health care sector. Finally, the described public health, economic and feasibility aspects led us to select the following pathological spectrum for the present study (Table 3).

For each disease and the childbirth we defined a common therapeutic procedure in order to assemble a synopsis of typical services. For methodological and operational reasons we could not include the costs of drugs in any of the treatments. This might have a certain economic relevance in some cases but never exceeds a small proportion of the entire therapeutic cost.

Selection of ISAPREs and health plans

As mentioned above, we relied on the cooperation of the insurance companies to carry out this comparative study. Finally, four ISAPREs agreed to participate and provided the required data. The volume of these insurance agencies varied between approximately 90,000 and more than 300,000 contributors and between 180,000 and nearly 800,000 beneficiaries. All together, the included ISAPREs represented 65% of the private health insurance system. Figure 3 illustrates the relevance of the study ISAPREs:

In order to preserve the comparability between the public and private sub-sectors, the contribution of each sub-group had to be equivalent to the mandatory 7% of taxable income. Therefore the total premium of the four income groups—14,000, 22,500, 35,000 und 56,000 pesos—had to be divided by the sum of the health-plan-specific risk factors for every family member. One of the ISAPREs elaborated all relevant data according to the study design, two of them made all necessary information

[7] Data from the Study Department of the ISAPRE Control Institution about the 1996 total and relative expenses for the most frequent services by the largest private insurance companies on the Chilean market (Banmédica, Consalud, Cruz Blanca).

Table 3 Specification of health care services included in the studied treatment schemes according to the fee scale used by FONASA (FONASA 1999b)

Disease/disorder	FONASA Register number	Treatment/services	Number
Cholelithiasis	1802028	Cholecystectomy with cholangiography	1
	0202105	Hospital days in surgery	5
Cholelithiasis	1802081	Cholecystectomy by laparoscopy/MIS	1
	0202105	Hospital days in surgery	2
Acute appendicitis	1802053	Simple appendectomy	1
	0202105	Hospital days in surgery	3
Uncomplicated pregnancy	2004003	Birth cephalic presentation, episiotomy and joint	1
	2004004	Midwife attention	1
	0101007	Immediate attention of the newborn	1
	0202113	Hospital days in obstetrics	3
Coronary heart disease	1703061	Two coronary artery bypass grafts plus A. mammaria-anastomosis	1
	0202201	Hospital days in coronary unit (CU)	4
	0202101	Hospital days in medicine	10
	0601028	Sessions of integral physiological treatment (CU)	4
	0601031	Sessions of cardiorespiratory training	10
	0701003	Transfusion in operating theatre	2
Oesophagus cancer	0504002	Radiotherapy with lineal electron accelerator of oesophagus cancer	1
	1801001	Oesophago-gastro-duodenoscopy	1
	1707021	Bronchoscopy by fibrescope	1
	0401070	Rx thorax ap and lateral (2 exp.)	1
	0202101	Hospital days in medicine	15
Femur fracture	2104144	Diaphysiarian or metaphysiarian osteosynthesis	1
	0202101	Hospital days in surgery	10
	0601018	Sessions of ergometric training	15
	0601024	Sessions of motoric reeducation	20
	2106003	Removal of osteosynthesis material	1
	0202101	Hospital days in surgery	2
Acute depression	0101001	Medical emergency treatment	16
	0202007	Days in psychiatric clinic	3
	0101003	Specialized medical treatments	16

available to define suitable health plans. And the fourth ISAPRE reduced its collaboration to the definition of three contracts that were applicable only with the current discount and had to be adapted to the design.[8]

Definition of comparison indicators

Once the health plans were selected, we proceeded to calculate the co-payments that users of the health care system have to pay depending on their individual health insurance conditions. Thus, for each contract we had to determine the coverage and the possible ceilings of the included health services. This part of the evaluation was performed by the FONASA study department for the public sector and by one ISAPRE. In the other cases, the authors carried out this analysis according to the available contract information. Cost calculation was based on the fees of the countries largest provider, the Hospital Clinics of the University of Chile in Santiago. Depending on the clinic's fees, we added up the isolated costs and co-payments in the private sector for any of the services in order to determine total costs and out-of-pocket payments for the treatments.

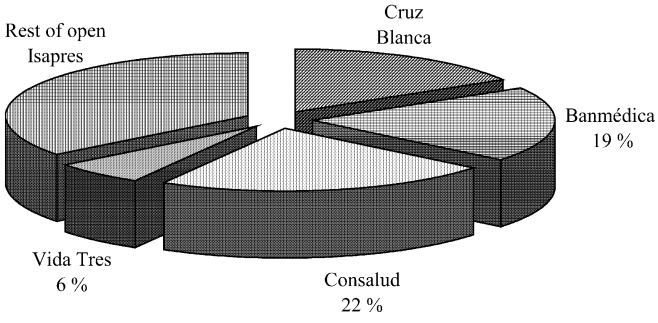

Fig. 3 Private insurance companies: share of the market

After analysing the volume, range and diversity of the whole sample and for each subgroup, we calculated the average co-payment for each socio-economic and family group and compared it to the direct individual health expenses in FONASA's institutional mode. As the Chilean health system is widely atomised, we defined a specific indicator called Comparative Absolute Co-Pay-

[8] This part of the study design would be much easier to perform now because the ISAPRE-Superintendence has launched an additional service on its home page. By indicating income and number, age plus gender of all household members, users get a list of all suitable health plans (www.sisp.cl).

Table 4 Absolute value, percentage, standard deviation and range of out-of-pocket payment, all private health plans included in the present study after therapeutic procedure. At the time of the data collection the exchange rate was 520 pesos to U.S. $1

Service	Average value/proportion	Standard deviation	Range
Laparoscopic cholecystectomy	36,595 pesos 6.57%	32,389.01 pesos 5.59%	0–201,775 pesos 0–33.57%
Conventional cholecystectomy	49,339 pesos 7.12%	50,080,72 pesos 6.06%	0–404,177 pesos 0–35.87%
Appendectomy	33,078 pesos 6.65%	36,992.43 pesos 5.50%	0–311,983 pesos 0–36.95%
Normal birth[a]	31,953 pesos 7.30%	27,350.99 pesos 6.34%	0–161,627 pesos 0–41.41%
Triple coronary bypass	148,794 pesos 6.37%	115,438.47 pesos 4.80%	0–695,850 pesos 0–30%
Radiotherapy of oesophagus cancer	180,603 pesos 12.38%	148,491.96 pesos 6.94%	0–1,511,290 pesos 0–51.67%
Osteosynthesis of femur fracture	81,803 pesos 7.50%	111,613.56 pesos 5.22%	0–1.033,192 pesos 0–33.98%
Consultation for acute depression	172,916 pesos 68.31%	8,117.18 pesos 4.08%	79,000–234,140 pesos 32.66–91.36%

[a] For biological reasons and according to the aim of this investigation, it made no sense to analyse the financial burden of a birth for type 3 families. The respective costs are not considered in this study

ment-Index (CACPI). The indicator that allows for a systematic interpretation of the data is the quotient between the average co-payment for treatment in all suitable private health plans and the 20% co-payment in FONASA's institutional mode. If the CACPI is higher than 1, ISAPRE clients have to carry higher average costs than the users of the public system. If it is less than 1, the private health insurance market offers a better financial coverage for the beneficiaries of the respective socio-economic and family subgroup.

Results

The present study confirms the great variability and unpredictability of the financial impact medical care can have for the people. While in the FONASA group D the percentage excess depends exclusively on the number and complexity of the consumed health services, in the ISAPRE system the economic burden depends directly on socio-economic conditions. On the other hand, in case a FONASA beneficiary prefers to be attended by private providers, he must be able to afford much higher direct costs for all inpatient treatments. However, the free-election mode offers better financial coverage of a mainly ambulant psychiatric disorder.

The following list summarizes the overall findings concerning the absolute and relative co-payments in the ISAPRE-sector. The standard deviation gives an idea of the disparity of individual out-of-pocket payments in the private insurance market (Table 4).

Compared to the institutional mode of the public sector, the range of the out-of-pocket payments is clearly wider in the private insurance system. An overall analysis of the sample groups, health plans and diseases of this study reveals an extreme variety of proportional co-payments between 0% and 91% of total therapy costs. The private insurance market offers a number of health plans that provide excellent coverage of most medical services through preferential providers. As far as they refer to these providers, beneficiaries of HMO-like and the more expensive contracts are usually free from relevant co-payments. The clients of the private health market who have access to these plans are exposed to considerably lower financial risk than the FONASA members of group D and even group C (co-payment only 10%).

Less expensive plans, however, expose their beneficiaries to obvious economic insecurity and to a considerable financial burden with any of the selected treatments. In particular, the families with a monthly income of 200,000 pesos face the highest overall co-payments of 43.03 and 34.95% of total treatment costs.[9] The conditions for the income group of 350,000 pesos are similar, and most of the available contracts include a large out-of-pocket payment (between 13.08% and 34.93%).[10] Thus, the study reveals a strong *ex-post* socio-economic selection within the private system. In general, the financial risk coverage granted by the ISAPREs is directly related to the price category of health plans. The more expensive a contract is, the better the insurance coverage. As the premium structure is imposed as a certain percentage of income, the financial coverage of health risks is thus a function of the socio-economic status.

As the co-payment proportion in the public sector is the same for all income subgroups included in the study, the denominator of the CACPI index is a constant. Thus, this indicator is a direct measure of the extra cost ISAPRE beneficiaries face when treating the investigated pathologies. The treatment costs for disorders of medium complexity—cholecystectomy, appendectomy and normal birth—shows the most direct relationship between

[9] The lower percentage is only accessible for this socio-economic group when they must spend a considerable additional amount on their health insurance, reaching a premium of 10% of income.

[10] The average of co-payments for all selected pathologies according to the different health plans is 13.08, 16.39, 25.88 and 34.93%.

Table 5 Comparative Absolute Co-Payment-Index (CACPI) ISAPREs vs FONASA differentiated by income and family group

Taxable income	200,000 pesos			350,000 pesos		
	U.S. $400			U.S. $700		
Treatment	Family type 1	Family type 2	Family type 3	Family type 1	Family type 2	Family type 3
Laparoscopic cholecystectomy	3.4746	No plan	4.0514	1.3533	2.0086	0.9660
Open cholecystectomy	3.7715	No plan	3.8175	1.6284	2.0988	1.2419
Appendectomy	3.7872	No plan	4.2546	1.6275	2.1560	1.1066
Normal birth	4.8584	No plan	5.4968	2.0516	2.7373	1.4067
Triple coronary bypass	1.1826	No plan	1.0737	0.5810	0.6610	0.4514
Radiotherapy oesophagus cancer	3.5661	No plan	4.5884	2.3162	2.5831	2.4295
Osteosynthesis femur fracture	3.1313	No plan	3.2324	1.4895	1.8496	1.1310
Therapy acute depression	9.1613	No plan	10.6334	8.2720	8.3687	8.7709
Taxable income	500,000 pesos			800,000 pesos		
	U.S. $1,000			U.S. $1,600		
Treatment	Family type 1	Family type 2	Family type 3	Family type 1	Family type 2	Family type 3
Laparoscopic cholecystectomy	0.8380	0.4830	0.4830	0.0902	0.1159	0.1353
Conventional cholecystectomy	1.5649	0.6209	0.6209	0.0874	0.1124	0.1311
Appendectomy	1.7423	0.5533	0.5533	0.1341	0.1724	0.2011
Normal birth	1.3273	0.7034	0.7034	0.1512	0.1943	0.2267
Triple coronary bypass	0.3577	0.2361	0.2257	0.0186	0.0201	0.0276
Radiotherapy oesophagus cancer	2.1566	2.2360	0.8105	0.5343	0.0631	0.8015
Osteosynthesis of femur fracture	2.1748	0.6476	0.5926	0.1637	0.1345	0.2581
Therapy acute depression	8.4723	8.6333	8.2949	7.0397	7.6466	7.6366

out-of-pocket payment and socio-economic status, with no evidence of important confounding factors. It is interesting, however, to observe that the interrelation between income and financial coverage shows a different impact in heart surgery, oncology and orthopaedics. On one hand, the private sector applies relatively low co-payments for cardiac bypass surgery, and on the other hand, the financial coverage of neo-plastic and orthopaedic disorders is smaller and also shows a clearer socio-economic selection than the first. Table 5 summarises the CACPI for the socio-economic and family sub-groups of this study.

These statistical results can directly estimate the economic convenience of belonging to a private health insurance system. While the lowest income group has to carry a substantially higher out-of-pocket payment for all treatments with any ISAPRE policy, the difference is less pronounced for the second lowest socio-economic group, which has an even better financial coverage in one complex therapy (coronary bypass). For the second highest income group, the coverage quality depends on the characteristics of the family while the beneficiaries of the highest socio-economic group enjoy better coverage in the private insurance market than in FONASA for all hospital treatments.

While for the classic epidemiological number one killer-disease one tends to be relatively well covered by the ISAPREs, the second and third most important causes of death in Chile still await an adequate answer from the private insurance system. This deficiency is even more evident in chronic diseases with a need for prolonged therapy and repeated utilisation of identical services. The coverage of the semi-ambulant treatment of the psychiatric disorder is far worse in the private than in the public sector, in the studied pathology ISAPRE coverage never exceeds one-third of the cost and drops to less than 10%: patients have to carry between 66% and to 91% of the financial burden of their diseases. One of the major results of this study is to highlight the insufficient coverage of chronic and especially psychiatric pathologies.

Discussion

From the beginning, the Chilean health sector reformers established priority on economic aspects instead of public health needs. To date, citizens tend to perceive their health system as socially unjust. Major complaints refer to the arbitrary limitations of coverage offered by the private health insurance companies. Several authors have proven the negative social impact of such policy and the underlying contradiction to declared aims of the social security reform in Chile (e.g. Bitrán and Almarza 1997; Larrañaga 1997; Acuña 2000; Titelman 2000). Unlike former studies, the current investigation about the dual Chilean system focuses on the customer's perspective and their financial burden of disease. This investigation does not pretend to be a complete and exhaustive exploration of the situation; it is rather a kind of screening that points out some concrete effects of the Chilean health sector reform on the users.

Considering the atomised structure of Chile's health insurance system and the lack of transparency, it is a remarkable achievement to have included more than 65% of the total private insurance market in this study. Because of the information policy of the private enterprises, we can not be sure to have considered all special fares and preferential fees that ISAPREs might have agreed with

health care providers. This methodological limitation, however, reflects the real condition most customers experience in the face of the lack of transparency deficits in the private health insurance provider market.

Only one ISAPRE worked out the independent variables—health plans—as well as the dependent variables—coverage and co-payment—of this study according to their specific conditions. In all other cases, we based the comparison on the fees of the most important university hospital in Santiago, which attends to clients from ISAPRE, as well as from FONASA. In all cases, the collected empirical data confirmed the enormous variation in out-of-pocket payments in the private health system. This phenomenon is one of the major reasons for the perception of arbitrariness that seems to be entrenched in the whole population and represents a real problem in the lower middle and low social classes.

Co-payments reduce the financial coverage of health risks in both health sub-sectors and thus Chileans' confidence in social protection, but they are more unpredictable for ISAPRE clients than for FONASA clients. According to the World Health Organization, fairness of financial risk protection requires the highest possible independence between contributions and health care utilisation (WHO 2000, p. 97). Though the public sector offers waivers and exemptions for poor people and epidemiological challenges, the extent of user charges severely affects the overall equity of the Chilean health care system and avoids fair financing. Mainly in the private sector, high user charges affect mostly what insurance economists refer to as bad-risk individuals: carriers of chronic, complex and expensive diseases. The data from this study give empirical evidence to the financial and psychological impact of user charges for those beneficiaries who need a complex medical treatment. They underpin by concrete amounts the evidence of recent surveys (see Table 1), showing that the private health insurance market virtually throws out people with chronic and psychiatric disorders who find significantly lower co-payments in the public sector.

Also in the case of Chile, the findings of this study prove the remarkable evidence that user charges expose households to large and unexpected expenses and represent a regressive mechanism of health care financing (PAHO, UNDP and Caricom 1999; WHO 2000; Whitehead et al. 2001). Comparing out-of-pocket payments for medical care, our results reveal that the ISAPRE system discriminates against the lower socio-economic groups by exposing them to a high financial burden of health care. The absolute amount of user charges is especially high for the upper-low and the lower-middle class of Chilean society. The poorest ISAPRE clients who have managed to overcome the barriers of the private insurance market face the highest absolute and thus relative out-of-pocket payments, which makes co-payments in Chile's private health insurance sector not only regressive, but even hyper-regressive.

The horizontal permeability of the Chilean health system allows for ongoing shifts between both sub-sectors, the ISAPREs can push those affiliates aside who turn out to be unprofitable. As financial risk coverage represents a quality element of insurance, the arrangement of the coverage conditions on the part of ISAPRE becomes in practice a quality skimping mechanism. Though out-of-pocket payments exist in both the public and the private sector, user charges have become an additional selection mechanism of the latter. In fact, user charges act as an additional access barrier against the lower- and middle-income groups while favouring the well off. The socio-economic and risk selection applied by the private insurance market by means of the access conditions is complemented by a selective disenrolment via high co-payments, increasing the existing inequalities of the society and health care system.

The present study was conducted prior to the recent implementation of additional coverage of high-cost treatments in FONASA and ISAPREs. The "insurance for catastrophic diseases" in both sub-sectors in Chile is an important step to improve the social protection in health. Certainly the results of this comparative study could be different by now because some complex and expensive interventions like those for coronary heart disease, cancer and others are—at least theoretically—covered by the additional FONASA and ISAPRE programs. Nevertheless, discriminating user fees have characterised the Chilean market-oriented health care model for the last 2 decades. Until now, total coverage is extended only to a couple of diseases while many are still ignored. The main results of this investigation are unlikely to change substantially even once the "insurance for catastrophic diseases" is applied throughout the country, though the relationship and thereby the comparative index between ISAPREs and FONASA should turn out to be less pronounced for the underprivileged social groups.

The Chilean judiciary took an important decision concerning the financing of health care expenses by introducing a minimum financial coverage of services granted by private health care providers. The Supreme Court decided that ISAPREs have to cover at least the equivalent of what beneficiaries of the public sector would have to pay out of their pockets. This decision puts an end to the generalised ISAPRE practice of imposing ceilings in order to prevent major costs for certain pathologies and to reduce their own economic risk. In the future, the ISAPREs will be forced—at least theoretically—to renounce most of the ceilings they have been using until now. Once every private insurance company has introduced the corresponding changes into their plans, the empirical data should change, specially in chronic diseases where the high co-payment rate is a consequence of the recently defeated low ceiling coverage.

While opinion seems unanimous that the cost-sharing has peaked in Chile's private subsystem (e.g. Chile 21 1998; Baeza and Muñoz 1999), user charges have also proved once again to be an ineffective tool to cut down overall cost development. Obviously, none of the applied market-oriented measures has contributed to impeding the continuous increase in health care expenditure. At the same time, the private insurance sector is poorly prepared

to face the challenges of the epidemiological transition that is taking place in a relatively high-developed country like Chile. Coverage of non-traditional chronic illness and of psychiatric and chronic disorders is insufficient compared to the public system. Even the best plans fall short of fulfilling the needs of effective and sustainable social protection against many current health disorders. New epidemiological challenges require at least a profound adaptation of today's co-payment structure in Chile. In order to overcome the inherited social injustice of health care financing and to establish a high level of fairness, it seems recommendable to cut down and possibly abolish all types of out-of-pocket payments in Chile. The implementation of a guaranteed package of free health care services for all citizens in every health insurance plan would resolve the negative effects of user charges.[11] The definition of the mandatory coverage any insurance company has to provide will reduce individual risks and improve confidence in social protection.

Obviously, the reduction in co-payments alone will not be very effective to reduce unfairness and social discrimination unless it is combined with further changes. Our conclusion does not mean to postpone other basic reforms that could be even a priority for the viability and sustainability of the Chilean health care system. Though these issues were not a direct concern of this study, it seems of utmost importance to overcome the strong risk selection as well as the cream skimming by various steps. To this end, the introduction of an overall risk adjustment between FONASA and the ISAPREs could improve considerably the fairness of financing as well as the perception of the Chilean system. As Chileans are obliged to pay 7% of their taxable income for health insurance, income-related contributions can be considered generally as a part of the social security system. Introduction of mechanisms of income- and risk-solidarity in the reallocation of the mandatory income-related contributions is long overdue. This might be organised by a Solidarity Fund between FONASA and ISAPREs or by the introduction of risk-adjusted premium subsidies that effectively reduce the ISAPREs' incentive for risk selection.

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[11] In theory, the recently started Plan AUGE is following this concept by implementing the conditions to overcome user charges in both sub-systems for a selected number of diseases. Currently, it is limited to very few pathologies and thus is still far from fulfilling this idea; on the other hand, many experts fear for the negative effect this measure might have on the other treatments.

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