22 Federalism versus social citizenship: investigating the preference for equity in health care

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1. Introduction

Switzerland does not have a National Health Service like Italy and Great Britain, nor is its system based on a public insurance scheme such as in France and Canada. The Swiss health-care system is based upon a mixed insurance model. On the one hand, competing private non-profit companies are responsible for health insurance, and on the other hand, the system incorporates some elements that are normally adopted within the context of a social insurance, such as mandatory insurance for all residents, regulated and risk-independent premiums, public subsidies to the less wealthy for the payment of the insurance premiums. In an unusual health-care context such as the Swiss one, the decision-making autonomy of the single cantons, reinforced by fiscal federalism, has led to a highly heterogeneous system. This heterogeneity applies both to the production capacity and to the specific weight which each canton attributes to the various forms of health-care provision (for example to public versus private hospitals or nursing homes). Instead of being a single health-care system, Switzerland can therefore be considered an ensemble of 26 subsystems, connected to each other by the Federal Law on Health Insurance (FLHI).

In contrast to the majority of European countries, where the financial contribution of the state to health-care expenditure is significant, the Swiss system provides for a rather limited public participation. Moreover, the mandatory health insurance premiums are independent of income, and citizens finance 42 per cent of total health expenditure directly or by means of private insurances. This situation leads to a highly regressive financing of health care expenses. Moreover, the financial contribution of the State to the health-care sector in form of subsidies to public hospitals and to low-income households varies a great deal between the 26 cantons. The differences between the cantonal subsidy systems create, therefore, territorial inequity in the financing of the health-care sector in Switzerland. In general, the Swiss are fairly happy with the quality of health care in their country. However, satisfaction on the health-care delivery front is offset by

the growing concern regarding the constant increase of health expenditure and in particular the share of costs financed by the regressive premiums of the mandatory health insurance.

In recent years many proposals have been formulated in the political arena, all aimed at reforming the financing of the mandatory health insurance. Among others, a popular vote, which was rejected by more than 70 per cent of voters in May 2003, invited the population to support the introduction of income- and wealth-derived health insurance premiums.

Switzerland therefore, represents a very interesting context to address questions that are linked with recent literature on the paradoxes of economics and happiness. From this stream of research we can learn, among many other things, the following three lessons:

- first, Frey and Stutzer (2002) found that direct democratic participation possibilities and federalism exhibit a statistically significant impact on reported happiness. Their empirical estimate shows that more 'local autonomy' is associated with a higher level of people's subjective well-being, due to better fulfillment of the voters' preferences in small jurisdictions;
- second, as illustrated by Banting and Corbett (2002) and Swank (2001), decentralization of decision-making power has generally a negative impact on the social welfare (redistributive) effort of the State;
- third, as shown by Alesina et al. (2004) people tend to declare themselves less happy when inequality (measured for example, by the Gini coefficient) is high, although aversion to inequality seems to be concentrated among different ideological and income groups across the USA and Europe, according to the different perceptions of the degree of social mobility in the two areas.[1]

Combining the three lessons, a paradoxical situation emerges. On the one hand, more federalism and more direct democracy seem to be responsible for higher reported happiness of the population. On the other hand, decentralized decision-making and fiscal autonomy of local governments might lead to a lower level of vertical equity and raise issues of territorial equity. In countries like Switzerland, where the strength of federalism and direct democracy is very high, while social mobility is rather limited, inequalities among regions and individuals are expected to increase in time, with the final result of partially crowding out well-being provided by a decentralized political system.

The goals of the study presented here are: (i) to briefly describe the Swiss health-care system, paying particular attention to the issue of equity in the financing of health care; (ii) to show the consequences of federalism and

wide-ranging cantonal autonomy in a particular health insurance context such as the Swiss one, in terms of interregional inequalities in per capita health care expenditure and in production capacity; (iii) to investigate the willingness of Swiss citizens to foster more equity in the financing of health care; and (iv) to empirically test the theory of Margolis (1982), whose fair-share model suggests that spending in group interest should behave as a superior good (that is, willingness to pay for collective interests – as in the case of a mandatory health insurance system – should rise as the income of individuals increases).

This chapter is structured as follows: in Section 2 we introduce some considerations on the nature of the patient's utility functions and we briefly describe the fair-share model developed by Margolis in 1982; in Section 3 we present the main features of the Swiss health-care system and show the consequences of federalism on the organization of the health-care sector; Section 4 is devoted to a short presentation of the reform proposals, which aim at achieving more equity in the financing of health care, presently under discussion; in Section 5 the specification of the model is discussed, while the dataset and the empirical estimation results are presented in Section 6; conclusions are drawn in Section 7.

2. Some considerations on the utility of spending for merit goods like health care

Some experimental and empirical evidence has been collected on the fact that people are more cooperative than assumed by standard rational choice theory and that fairness motives or affects the behaviour of many real people. In some circumstances individuals spontaneously contribute to the financing of public goods, although free-riding is a viable option, the return appears inconsequential and the effect of one's personal contribution to society's well-being is minimal (see, for example, Fehr and Gächter, 2000b, Andreoni and Scholz, 1998, and Andreoni, 1995). In a vast cross-cultural behavioural experiments project, Heinrich et al. (2004) recently approached, from an interdisciplinary perspective, the question whether the violation of the selfishness axiom seen in experiments can be interpreted as evidence of universal social preferences or rather if social preferences are shaped by economic, cultural, and social environments (the main result of the ambitious project being that the selfishness axiom is violated in every society studied, but in rather different ways). As shown for example, by Fehr, Fischbacher and Gächter (2002), if in the real world there are people who exhibit strong reciprocity, their existence might contribute to stabilizing human cooperation and to enforcing norms that prescribe participation in collective actions.

Looking only at the economics literature, in recent years we see that some scholars developed a bulk of new theories with the aim of explaining

empirical and experimental observations better than standard self-interest models do. At the core of these new models we find hypotheses about preferences such as 'a sense of fairness' (Rabin, 1993), 'doing his/her fair share' (Margolis, 1982), 'morality of cooperation' (Sugden, 1984), 'strong reciprocity' (Fehr and Gächter, 2000a), 'self-centered inequity aversion' (Fehr and Schmidt, 1999), 'a concern for relative payoffs' (Rabin 2002), and 'a taste for punishment' (Bolton and Ockenfels, 2000).

We rely in this paper on the theoretical model developed by Margolis in the 1980s, which suggests treating differently individual preferences regarding private goods on the one hand, and group-interest spending on the other hand. Margolis assumes that the utility function of individuals includes two components that comply with two different logics.[2] Individuals value the consumption of private goods and services in a selfish way, but at the same time they value collective spending on merit or public goods from a group point of view. As members of a given community, they derive well-being from the amount of resources which are devoted to group-interest issues, but subject to the condition that they are personally 'doing their fair share' and contributing in such a manner that everyone enjoys equal access to group-interest services.

The logic of the utility maximization model is the following: each member of the community has an initial endowment of financial resources that should be divided into two spending alternatives: the maximization of the utility from the point of view of pure self-interest, and the maximization of the utility from the point of view of pure group-interest. The allocation decision depends on two factors: the ratio between the marginal utility of spending in group interest and the marginal utility of spending in self-interest and a weighting function, which varies positively with the participation ratio of the individual (in other words, the likelihood of spending an additional euro for self-interest rather than for group interest increases as the participation ratio grows).[3]

The fair-share model developed by Margolis has a simple theoretical implication: spending in group interest should behave as a superior good. As the endowment of a given individual increases spending for group interest should increase more than proportionally.

Margolis's model can be useful for the analysis of health-care services, which are generally considered to be merit goods.[4] In particular, the objective of granting all citizens equal access to basic health-care services by collectively financing the health-care system can be interpreted as one of the most relevant examples of group-interest spending. The demand for health care broadly reflects the utility that individuals draw from their health, whereby health represents a prerequisite for most human activities. For this reason many societies consider health-care services as merit goods.

Generally, the state promotes two dimensions of equity through the health-care system: horizontal equity (citizens with the same medical needs should receive the same treatment, even if they belong to different age and sex classes or ethnical groups) and vertical equity (the demand for basic health-care should not depend on the patients' ability to pay). In most OECD countries the emphasis given to equity has two major consequences: a significant public participation in the financing of health-care and the development of a package of medical services which should be granted to the entire population. In order to guarantee that social citizenship is offered to everybody, citizens participate (through taxes or through social health insurance contributions) to the financing of health-care services. In the case of federal states like Switzerland, the two dimensions of equity should be attained in the same way in all the country's regions.

Banting and Corbett (2002) illustrated that federal states offer a parti–cularly intriguing context. In federal states, the central government faces a trade-off between two social values: (i) a commitment to social citzenship, to be achieved through a common set of public health-care services for citizens across the entire country, and (ii) respect for regional communities and cultures, to be achieved through decentralized decision making and significant room for manoeuvre at the regional level in the health-care sector. Using the case study approach, the authors have proved that the regional variations in health-care supply (for example, the number of hospital beds or doctors per 1,000 inhabitants) and in per capita health-care spending are not very large in the five federative countries analysed (Belgium, Germany, Australia, the United States and Canada). The result is fairly surprising because it holds even in federal states where the decision-making power in the health-care sector has been delegated to regional authorities to a great extent or where the resort to interregional redistribution by means of financial transfers is very low. It seems that policy makers in the five countries are committed to granting comparable access to health services and to limiting interregional inequalities in health-care spending despite the importance of diversity embedded in the logic of federalism. However, as we shall illustrate in the next section, in Switzerland the situation is different. In fact, there is a marked heterogeneity between cantons in terms of vertical equity. Moreover, two features of the Swiss health-care system distinguish it from those of other European countries: (i) highly regressive health-care financing (due to the very limited public financial participation and income-independent insurance premiums) and (ii) the existence of significant differences among cantons in per capita health-care spending and in production capacity.

One of the objectives of this chapter is to assess whether Swiss citizens would favour a more equitable financing system and in particular whether they are willing to introduce income-dependent health insurance premiums.

According to Margolis's fair-share model we should expect growing willingness to pay for socialized health-care expenditure as income increases, since health-care services are usually considered merit goods. In our case we were not able to test directly the relationship between income and the desire to contribute to social health-care spending. However, the willingness of the higher-income classes to adopt income-dependent insurance premiums can be interpreted as a proxy for their higher willingness to contribute to the financing of health-care services.

3. The Swiss health-care system

The main features of the health-care system are the following:

- the system is based on a private insurance model, with about 100 competing insurance companies on the one hand and some social characteristics on the other;
- since 1996 health insurance has been mandatory for all residents;
- the rights of the insured are laid down in individual insurance contracts; since 1996 the basic contract has been the same for all residents by law;
- both public and private hospitals as well as nursing homes offer inpatient health care, which (in most cases) is still reimbursed on a per diem base;
- ambulatory health-care services provided by freelance general practitioners and specialists are reimbursed according to a fee-for-service scheme;
- the insured can freely choose the service provider (general practitioner, specialist);
- the service fees are regulated and defined according to agreements concluded between the service provider's association, the health insurance companies and the state; and
- the financial contribution of the state (Swiss Confederation, cantons and local authorities) to the health-care system is very limited (subsidies to public-interest hospital structures, subsidies to the low-income classes for the payment of the mandatory health insurance premiums).

The financing model and the allocation of competences between the Confederation and the cantons

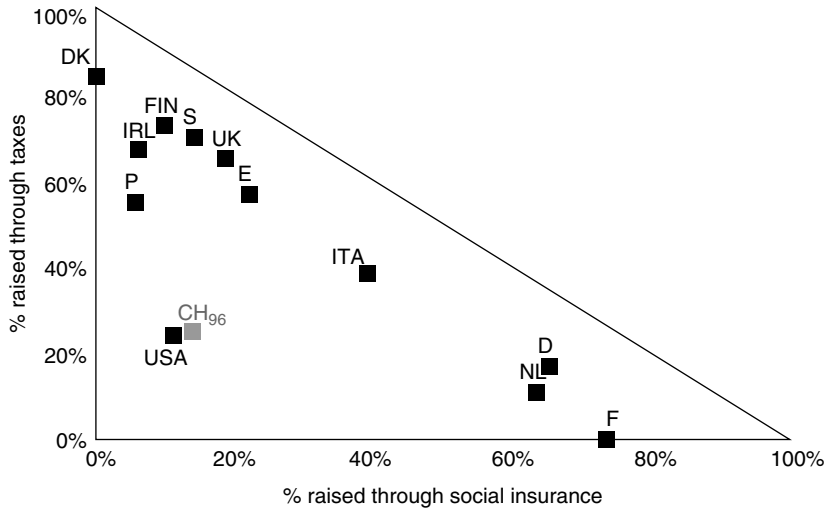
In 2000 a meagre 25 per cent of the total health-care expenditure was covered by general taxation.[5] Moreover, public contribution was predominantly provided by cantons and municipalities, whereas the Confederation contributed only 20 per cent to the public health-care budget. The rest

was financed by the mandatory (income and risk-independent) health insurance premiums (26 per cent), by contributions to other forms of social insurance (6.5 per cent) such as income-proportional deductions from salary for accidents. Citizens finance 42 per cent of the health-care costs directly (cost-participation and deductible amount from the invoices covered by the mandatory insurance, additional private insurance premiums and insurance-exempted services).

Switzerland's peculiarity is highlighted in the triangle of health-care financing depicted in Figure 22.1. The closer a country is to the triangle's hypotenuse, the higher the health-care expenditure share financed according to the citizens' paying ability (progressive general taxation or proportional payroll taxes). The closer it is to the right angle, the greater the use of private financing schemes.

Switzerland's position is in clear contrast with all the other European countries (which are all within a range of public financing between 65 per cent to 80 per cent of health-care expenditure) and shows some similarities with the situation in the United States. This particular structure of the health-care financing scheme has two main consequences:

1. The Swiss health-care system does not give much importance to the principle of equity of financing. In fact, the larger the share of progressive or at least income-proportional financing of health-care



Source: Wagstaff et al. (1999).

Figure 22.1 Health-care financing triangle

costs, the greater the equity of health-care system financing. The fact that the mandatory health insurance premiums are independent of income and that citizens have to finance directly (or through private insurances) 42 per cent of total expenditure, leads to a highly regressive financing model.[6] This has negative repercussions especially on the medium-income class, which does not benefit from subsidies for the payment of insurance premiums.

2. The presence of a large number of third-party payers makes it extremely complex to follow the financial flows, which in turn makes it more difficult to manage the health-care expenditure in general, and leads to a 'cost-shifting' problem in particular. Since nobody is responsible for the global health-care budget, it is sometimes easier for a single financing body to obtain a reduction in its own financial share than to engage in a more rational use of total health-care spending. This encourages shifting costs at the expense of another payer, rather than searching for solutions which would allow an effective rationalization of expenditure.

Although the state's presence in the health-care system cannot be considered to be very strong in financial terms, it is definitely stronger in terms of regulatory activity. As far as allocation of competences is concerned, the cantons are legally entitled to legislate on all health-care matters except for a few issues that explicitly fall within the competence of the Confederation. Almost all cantons have drawn up cantonal health-care laws and some provisions that regulate the application of the Federal health-care legislation. According to the Constitution, each canton enjoys decision-making autonomy in the planning of health-care institutions (in particular hospitals and nursing homes), in deciding which competences are to be delegated to the local authorities and with regard to vocational training. Since 1996, when the FLHI was introduced, the Confederation has played a more active role in the health-care sector. However, the additional decision-making powers of the central body were not supported by a formal devolution of competences from the cantons to the Confederation (which would have required a change in the Constitution) or by a redistribution of public health-care expenditure towards a greater engagement of the Confederation (see Crivelli and Filippini 2003).

The organizational autonomy granted to the cantons in the last 90 years has created a very heterogeneous picture both in the provision of health-care services and in the level of public health financing (direct contributions to public hospitals and health insurance premiums subsidies), giving rise to relevant issues of social and territorial inequity.

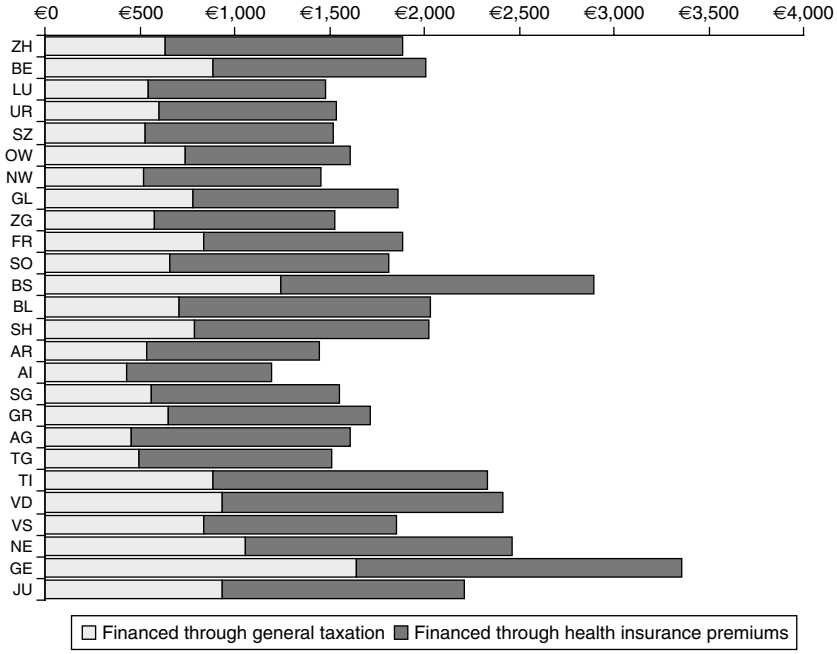
Such a marked decentralization of financing and of the provision of health care does not have any term of comparison in other countries with

a federal setting such as Canada or Germany. In these countries, the central governments play a more active role in the financing of the health-care sector. Moreover, since the regional entities these are much larger than the Swiss cantons, the regional differences are not as marked and the problems connected to the presence of mini-systems are not as significant.

Consequences of federalism on the organization of the health-care system in Switzerland

Decentralization of competences and of expenditure and the strong autonomy of the 26 cantonal health-care subsystems has led to a series of significant inter-cantonal differences with regard to public financing and the regulatory settings as well as to production capacity.

The first sign of wide-ranging disparities among the cantons can be found in the per capita public health expenditure (Figure 22.2), which can be calculated by adding two fundamental elements: (a) the cantonal and



Source: Swiss Federal Statistical Office (2002), *Coûts du système de santé*, Neuchâtel; Swiss Federal Office for Social Security (2002), *Statistiques de l'assurance-maladie 2000*, Berne.

Figure 22.2 Per capita public health expenditure and expenses covered by the mandatory insurance in Swiss cantons, 2000

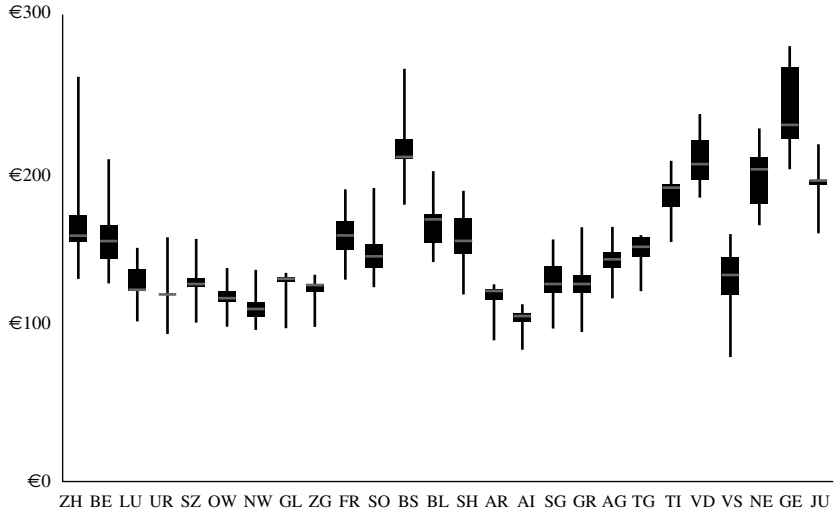
local direct financing for the provision of health-care services to the population (in particular the subsidies to public and private, public-interest hospitals, the participation in hospitalizations outside the home canton, the subsidies to nursing homes and to home-care services) and (b) the contributions to the less wealthy in the form of subsidies for the payment of the health insurance premiums (it is important to stress that each canton is entitled to develop its own model for the granting of subsidies and, within a framework set by the Confederation, they can also decide how many public funds should flow in this direction).

In 2000, per capita public health expenditure[7] ranged from €431 per capita in Appenzell Inner-Rhodes[8] to €1,641 in Geneva. It is important to remember that this indicator (financial contributions from the Confederation, the canton and the local authorities) represents only one part of the total expenditure for basic health-care services. The expenses covered by the mandatory insurance, which is financed by means of income-independent insurance premiums, have to be added.

The notable differences registered in the public health expenditure are to be found once again in the expenses covered by the mandatory health insurance, as shown in Figure 22.2. By adding the two expenditure items the socialized health expenditure is obtained, which ranged from a peak of €3,356 per capita in Geneva to a low of €1,192 in Appenzell Inner-Rhodes in the year 2000.[9] By combining these first two indicators we obtain interesting data concerning the socialized health expenditure financed by general taxation rather than by income-independent premiums. The highest percentage can be measured in Geneva (with 46 per cent), the lowest in Thurgovia, where only 26 per cent of the socialized health expenses were financed by tax revenues.

Therefore, a second source of variation across cantons regards equity of financing. Because health insurance premiums are based on community rating at cantonal level, the differences in expenses covered by the mandatory health insurance shown in Figure 22.2 signify a proportional variation in average premiums across the 26 cantons (Figure 22.3) and at the same time disparities within the single cantons (the basic health insurance is offered by several insurance companies, which calculate their premiums on a cantonal basis). The box-plot shows the median, maximum and minimum premium values for each canton and the concentration of the distribution of the premiums paid by 50 per cent of the cantonal population (the box-plot rectangle shows the dispersion between the first and the third quartile). The highest premium of all (more than €270 per month) was paid in Canton Geneva, the lowest (less than €90) was paid in Valais.

The real burden borne by citizens with a low income corresponds to the difference between the premiums and the State subsidies. Financing of



Source: Swiss Federal Office for Social Security (2002), *Statistiques de l'assurance-maladie 2000*, Berne.

Figure 22.3 Inter-cantonal and infra-cantonal differences in adult premiums, 2002

these subsidies is ensured to the extent of two-thirds by the Confederation and one-third by cantons. The distribution of the Confederation's funds and the financial participation of the cantons are established on the basis of an equalizing allocation system, depending on the financial strength of each canton. However, out of respect for the federalism that distinguishes the institutional order in Switzerland, the task of implementing the distribution system of subsidies lies with the cantons. The 26 cantonal systems greatly differ one from the other, in terms of technical profile as well as effectiveness. Looking at a representative household of 4 people (2 adults and 2 children) with a gross income of €45,000 and choosing the health insurer offering coverage at the average cantonal premium, the share between net premiums and disposable income ranged from 1.5 per cent of Valais to 14 per cent of Geneva in 2002.

There are also very marked differences between cantons with regard to production capacity in the health-care sector. The first aspect we would like to consider is the density of acute beds (Table 22.1). The national average is 4.5 acute beds per 1,000 inhabitants, but there are three cantons that exceed this average by over 35 per cent (Ticino: 6.4 beds; Appenzell Inner-Rhodes: 7.3 beds and Basle-Town: 8.1 beds), and four cantons that have a

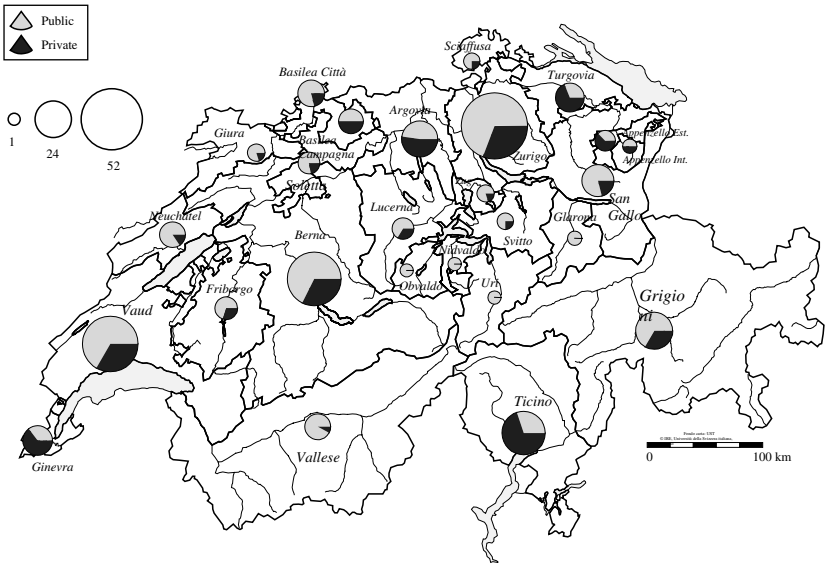
Table 22.1 Density of acute beds per 1,000 inhabitants and density of medical practices per 10,000 inhabitants, 2000

Canton	Density of acute beds per 1,000 inhabitants	Density of medical practices per 10,000 inhabitants	Canton	Density of acute beds per 1,000 inhabitants	Density of medical practices per 10,000 inhabitants
Argovia (AG)	4.2	13.9	Nidwalden (NW)	2.5	10.6
Appenzell Inner-Rhodes (AI)	7.3	11.0	Obwalden (OW)	3.5	9.9
Appenzell Outer-Rhodes (AR)	3.2	15.2	St Gall (SG)	3.8	15.3
Berne (BE)	4.7	19.8	Schaffhausen (SH)	3.6	18.7
Basle-Country (BL)	3.6	18.6	Solothurn (SO)	4.1	15.3
Basle-Town (BS)	8.1	35.7	Schwyz (SZ)	2.9	11.5
Fribourg (FR)	4.0	14.2	Thurgovia (TG)	2.9	12.6
Geneva (GE)	4.5	32.2	Ticino (TI)	6.4	18.8
Glarus (GL)	3.6	12.5	Uri (UR)	4.9	13.0
Grisons (GR)	4.6	16.6	Vaud (VD)	5.3	23.8
Jura (JU)	4.7	14.9	Valais (VS)	4.1	16.8
Lucerne (LU)	3.8	14.1	Zug (VS)	2.9	16.5
Neuchâtel (NE)	4.3	20.1	Zurich (ZH)	4.6	21.9
Swiss average	4.5	19.3			

Sources: Swiss Federal Statistical Office, Informations sur le projet 'Statistiques des établissements de santé (soins intra-muros)', StatSanté 1/2002, 29 and *Bollettino dei medici svizzeri*, 2001, **82** (21).

density lower than the national average by over 35 per cent (Zug, Schwyz and Thurgovia: 2.9 beds; Nidwalden: 2.5 beds).

There is a real gap with respect to the density of medical practices. The data range from more than 30 medical practices per 10,000 inhabitants in Basle-Town and Geneva to 10–11 practices per 10,000 inhabitants in Obwalden, Nidwalden, Appenzell Inner-Rhodes and Schwyz, whereas the national average is 19.3. In Switzerland all doctors who have obtained a Swiss university degree in medicine and have at least two years' hospital experience are automatically entitled to practise independently and to invoice their services at the expense of the mandatory health insurance according to a fee-for-service scheme (the fees are fixed on a cantonal basis in a specific price list for medical services).[10] This easily leads to a phenomenon of supply-induced demand.



Source: Swiss Federal Statistical Office, Informations sur le projet 'Statistiques des établissements de santé (soins intra-muros)', StatSanté 1/2002, 17.

Figure 22.4 Comparison between public or subsidized, private acute hospitals and private clinics in the different Swiss cantons, 2000

Another difference that emerges among the Swiss cantons is the frequency of the institutional forms in the hospital sector. In Figure 22.4 a pie chart has been drawn within each canton. The pie surface corresponds to the total number of hospitals operating in a specific canton, whereas the 2 pie slices represent the relative weight of public and private subsidized hospitals in comparison with non-subsidized private institutions. The public–private mix has a strong impact on the financing model of mandatory health care. The higher the percentage of private beds in a canton, the higher the share covered by means of the health insurance premiums (which are income independent).

Consequently the cantons contribute less to the total expenditure, as they have to subsidize beds only in public and public-interest hospitals. Therefore the cantons can reduce the revenues of general taxation (and taxes are collected progressively according to the tax-payers' income). More private beds thus imply, *ceteris paribus*, a greater iniquity of financing. In this sense the hospital situation in Ticino, Thurgovia, Geneva and Appenzell Outer-Rhodes is unusual, as it is characterized by a clear prevalence of private non-subsidized hospitals.

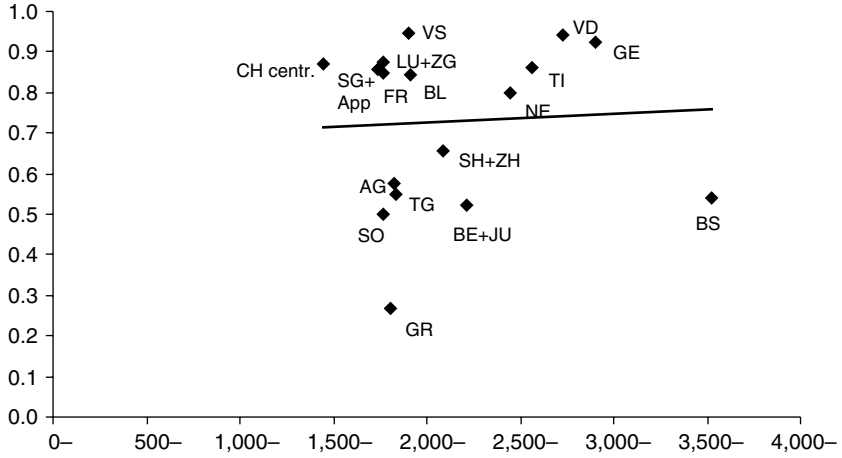


Figure 22.5 Correlation between average satisfaction and per capita expenditure of the mandatory health insurance in Swiss cantons, 2002

All the indicators presented in this chapter concern the expenditure, organizational levels and schemes of the health-care sector in the various cantons. This analysis clearly fails to consider the effectiveness factor (outcome indicators), which would make it possible to determine whether such different expenditure and activity levels lead to a proportional difference with regard to the population's health conditions and degree of satisfaction. In the light of the difficult task of measuring the effectiveness of a health-care system, on the basis of few simple indicators such as mortality amenable to medical intervention, the population's degree of satisfaction concerning the cantonal health-care system (see Figure 22.5) and the subjective rationing perception (like the indicator of waiting lists, virtually non-existent in all cantons),[11] it is possible to conclude that there are no significant effectiveness gaps in Switzerland at present.[12]

This conclusion emphasizes the wide-ranging differences with respect to each cantons' performance in terms of the cost-effectiveness ratio. In fact, the per capita health-care expenses are much higher in some cantons than in others, even though the effectiveness level is very much the same. The differences in these expenses could be partially caused by an excessive production capacity (high density of medical practices and hospital beds) and therefore they could be the consequence of a situation of supply-induced demand.

In conclusion, the Swiss health-care system seems to guarantee a satisfying level of equity of access to the health-care services, while lacking

Table 22.2 Summary of the disparities existing at the cantonal level

	Situation	Possible reasons
Horizontal equity	No significant differences (the *outcome* is fairly homogeneous)	The central government defines the package of health-care services that ought to be granted to the whole population
Mandatory health insurance premiums	Differences among cantons and, within the same cantons, between the insurance companies	Federalism, lack of competition in the health insurance system, limited planning on the supply side, inappropriate incentives
Public subsidies for the payment of health insurance premiums	Marked differences among cantons	Federalism
Per capita 'socialized' health-care expenditure	Marked differences among cantons	Federalism, limited planning on the supply side, inappropriate incentives
Production capacity and regulatory settings	Marked differences among cantons	Federalism, limited planning on the supply side, inappropriate incentives

equity both at the individual and the territorial level with regard to the system's financing. In Table 22.2 a summary of the differences between the Swiss cantons is presented and an attempt is made to explain the reasons.

4. Proposals for a reform

People in Switzerland are, in general, fairly satisfied with the way the health system in their country is run.[13] In a survey carried out in September 2002 among a sample of 1,128 respondents, 21 per cent said they were 'very satisfied' and 45.1 per cent 'fairly satisfied' with the way health care is run. On a European scale these percentages – see Table 22.3 – can be compared with the figures gathered in 1996 by the Eurobarometer survey of citizens' views on health-care systems (see Mossialos 1997). Only in Denmark was the rate of 'very satisfied' respondents higher than in Switzerland. By adding the percentages of the 'very satisfied' and 'fairly satisfied', Switzerland (with 66.93 per cent) would drop from the second to the seventh place in a hypothetical European ranking; it would be passed not only by Denmark (90.0 per cent) but also by Finland (86.4 per cent), Holland (72.8 per cent), Luxemburg (71.1 per cent), Belgium (71.1 per cent) and Sweden (67.3 per cent). The main

Table 22.3 Satisfaction regarding the health-care system in Switzerland, 2002

	Answer percentage	Cumulative percentage
Very satisfied	21.81	21.81
Fairly satisfied	45.12	66.93
Neither satisfied nor dissatisfied	15.43	82.36
Fairly dissatisfied	10.90	93.26
Very dissatisfied	3.99	97.25
Do not know	2.75	100.00

limitation of these comparisons lies in the fact that people voice their opinions on the basis of their personal experiences (which are in general limited to their own health-care system) and of the expectations they place in the system, whereby expectations are endogenous, that is, they tend to increase as the perceived quality of the health system itself improves.[14]

This satisfaction on the health-care delivery front is offset by the Swiss population's growing concern regarding the constant increase of health expenditure and in particular the share of costs financed by the premiums of the mandatory health insurance. Indeed, between 1996 – the year in which universal health insurance became compulsory under federal law – and 2002, premiums rose in Switzerland on average by 62 per cent. The population's growing concern with respect to these massive increases is reflected in the difficulty that many families experience nowadays when it comes to paying health insurance premiums. As an example, Table 22.4 displays the situation of two representative households (a couple without children and a couple with two children), both earning the Swiss median income of about €5,000 and living in the Canton Ticino. For the year 2002 we have calculated the amount that each household would pay in income taxes (including federal, cantonal and local taxes) and the amount it would pay in terms of the mandatory health insurance premiums for all family members.

In the case of the couple without children, the health insurance premiums sum up to 78 per cent of the amount spent on taxes, whereas in the case of the couple with two children premiums equal 1.8 times the amount spent on income taxes. This situation could undermine the social fabric and has ultimately prompted the political forces to work out proposals to amend current laws, with a view to introducing greater control and planning on the supply side (thus directly influencing the cost pattern), to enforcing more competition among insurance plans and to providing for a more equitable financing mechanism.

Table 22.4 Proportion between spending on income taxes and health insurance premiums in the case of a representative household, 2002 (€)

	Couple without children	Couple with two children
Family's gross income	65,000	65,000
Family's taxable income	45,333	34,667
Federal income taxes	681	308
Cantonal income taxes	2,743	1,538
Local income taxes	2,331	1,307
Total taxes	5,755	3,154
Yearly health insurance premiums	4,480	5,680

Swiss citizens voted on 18 May 2003 on a citizens' initiative launched by the left wing and supported by labour unions and consumer organizations, whose most important aim was to challenge the way health insurance premiums are currently financed. Instead of income-independent flat premiums, the following financing rule for the compulsory health insurance expenditure was suggested: 60 per cent of total health insurance cost based on personal income, 15 per cent based on the personal wealth stock and 25 per cent by means of a general value added tax (VAT) increase. Such a system would be, according to the proponents, more in line with the models adopted by the other European countries and would contribute to maintaining the already existing equal access to health care guaranteeing at the same time a fair financing method. The proposal was rejected by a strong majority of the population (72.9 per cent), in all 26 cantons (however, the participation at the ballot remained below 50 per cent).

Two surveys conducted during the second half of the year 2002, among them the one that provided the data for the analysis presented in Sections 5 and 6, have shown that a substantial majority (63 per cent) are willing to pay health insurance premiums that depend proportionally on their income, though they are rather sceptical when it comes to supporting a VAT increase to finance the health sector. It should be noted that the proposal of income-dependent premiums illustrated in the questionnaire of the surveys, was quite different from the proposal of the initiative rejected in May 2003. For instance, the initiative proposed to calculate the premiums on the basis of a person's personal wealth stock. Moreover, the initiative proposed a general VAT increase to finance the health sector. These differences have to be kept in mind when interpreting the following empirical analysis.

Table 22.5 Percentage of people favouring income-dependent health insurance premiums by income class, 2002

Income per month (€)	In favour	Against	Do not know
Less than 2,000	79.3	13.8	6.9
2,000–3,000	72.9	19.9	7.2
3,000–4,000	67.5	20.7	11.8
4,000–6,000	57.6	33.2	9.2
6,000–9,000	42.5	54.5	3.0
More than 9,000	23.1	69.2	7.7

Table 22.5 illustrates the percentage of people in favour of income-dependent insurance premiums according to six income classes. However, these results could also be influenced by factors other than income, for example, family size or age. In the regression analysis, which we shall present in Sections 5 and 6, these factors will be taken into account.

The government and a majority of parliament are opposed to making health insurance premiums directly dependent on income and wealth and to shifting a part of the burden to indirect taxation. Both the parliament and the federal government advocate maintaining the current health insurance system where premiums are not related to criteria such as the risk of the insured and the individual's financial resources. They suggest solving the social issue by simply resorting more frequently to the subsidies the Confederation and the cantons are already paying to the less wealthy in order to help them finance their health insurance premiums. Current legislation, which grants cantons large autonomy in the organization of subsidy distribution, should be amended in favour of a more homogeneous regulation. The new law will require that health insurance premiums paid by very poor families (by very poor single persons) do not exceed a maximum threshold of 2 per cent (4 per cent) of their income. If income becomes sufficiently high, premiums can account for a greater percentage of income (4 per cent, 6 per cent or 8 per cent), but at the most reach 10 per cent of the income in the case of families and 12 per cent in the case of singles. Accordingly, if premiums paid by a family (a single) exceed the limit defined by the law, the family becomes automatically eligible for subsidies, while cantonal governments are obliged to provide the corresponding financial means. The only freedom left to cantons concerns the definition of the five income classes associated with the maximum ratios.

The analysis we have presented here is based on data gathered in September 2002 and thus takes into account the inital willingness of the citizens to accept income-related premiums, that is, their stance prior to the

start of the political and media campaign leading up to the voting on this issue.

5. Model specification

The binomial logit model was used in this study.[15] The resort to this model is especially appropriate when working with dependent binary qualitative variables, built up from qualitative data obtained through surveys containing a wide range of questions concerning individual attitude, characteristics and behaviour. In our case we are interested in identifying the most important factors that can explain the choice to support (dependent variable = 1) or not to support (dependent variable = 0) the introduction of income-dependent health insurance premiums in Switzerland.

Several factors could potentially influence a person's decision with respect to this proposal. Household income is an obvious candidate. We hypothesize, following Margolis's thesis, that in the case of people with a higher income, the probability of an affirmative answer to the proposal of income-dependent health insurance premiums will increase or remain the same. This means that the high-income classes are more likely to support the proposal than the low-income classes because of their willingness to do their fair share. A competing theoretical explanation for high-income classes giving stronger support to redistribution than poor people could be a high degree of perceived social mobility, as explained for example, by Piketty (1995).

In this analysis, we have also considered the following socioeconomic factors that could influence an individual's behaviour: age, gender, household size, employment and level of education. The probability that an individual falls within the group of people in favour of the proposal concerning the introduction of income-dependent health insurance premiums is defined by the following model:[16]

$$L_i = \beta_0 + \beta_1 DY_1 + \beta_2 DY_2 + \beta_3 DY_3 + \beta_4 DY_4 + \beta_5 DY_5 + \beta_6 DY_6 + \beta_7 DHS_1 + \beta_8 DHS_2 + \beta_9 DHS_3 + \beta_{10} DGENDER + \beta_{11} DACA + \beta_{12} DPRE + \beta_{13} AGE + u_i, \quad (22.1)$$

where:

- L_i = unobserved dependent variable which takes on the value 1 if the household chooses to support the income dependent health insurance premium and zero if it does not;
- DY_a = dummy variable indicating whether the person belongs to the income class a, with $a = 1, \ldots, 6$; therefore, in our analysis, the income level of a person is measured using a series of dummy variables for different income classes;

DHS_1 = dummy variable indicating whether the person is living in a one-person household;
DHS_2 = dummy variable indicating whether the person is living in a two-person household;
DHS_3 = dummy variable indicating whether the person is living in a three-person or more household;
$DGENDER$ = dummy variable indicating the gender;
$DACA$ = dummy variable indicating whether the person has an academic degree;
$DPRE$ = dummy variable indicating whether the person is living in a canton where the level of the health insurance premiums is higher than the Swiss average;
AGE = age of the person; and
u_i = stochastic error term.

6. Data and estimation results

The household micro data used in this study has been compiled through a special survey carried out in Switzerland in 2002 by a private market research company. The questionnaire used for this survey was developed by the Department of Health and Social Affairs of the Canton Ticino in cooperation with the Istituto Mecop of the University of Lugano. The data were collected by phone interviews using a pre-coded questionnaire. The total sample consisted of 1,128 households living in Switzerland. After correcting for missing values, the sample was reduced to a total of 819 individuals. This dataset contains socioeconomic information on the individuals, as well as preferences from a list of proposals for a reform of the Swiss health system. The questionnaire included a specific question on the proposal concerning the introduction of income-dependent health insurance premiums.

Tables 22.6 and 22.7 give some statistical details on the variables employed in the estimation of the model (22.1).

In Table 22.8 we report the estimation results for the logit model specification (22.1). The statistical results are significant regarding most of the important coefficients.[17] Moreover, the value of the count R^2, a fit measure for the estimated model, is within the acceptable range. Therefore, our model performs quite well in predicting the individual's choice.

The main aim of this empirical study is to identify the effect of income and income classes on the choice to support or not to support the proposal of income-dependent health insurance premiums.[18] Most coefficients of the dummy variables for the different income classes (DY_2, DY_3, DY_4, DY_5, DY_6) are significantly different from zero and have a negative sign. These coefficients have to be interpreted with respect to the first income class (DY_1), taken as a reference, which does not appear in the table. The absolute

Table 22.6 Descriptions of the dummy variables

Variable	Condition for which the variable value = 1	Frequency (%)
DY_1	Individual in income class 1 (< 3,000 CHF)	9.2
DY_2	Individual in income class 2 (3,000–4,500 CHF)	18
DY_3	Individual in income class 3 (4,500–6,000 CHF)	28.3
DY_4	Individual in income class 4 (6,000–9,000 CHF)	28.1
DY_5	Individual in income class 5 (9,000–15,000 CHF)	15.1
DY_6	Individual in income class 6 (> 15,000 CHF)	1.3
DHS_1	One-person household	23.6
DHS_2	Two-person household	35.5
DHS_3	Three- and more person household	40.9
DGENDER	Male	44.9
DACA	Individual with an academic degree	20.3
DPRE	Individual living in a canton with high premiums	52

Table 22.7 Descriptive statistics on AGE

Variable	Min	Median	Mean	Max
AGE	18	44	46	74

Table 22.8 Estimated coefficients for the logit model

Variable	Coefficients	*t*-ratio
Constant	1.438***	2.860
DY_2	−0.599	−1.471
DY_3	−0.774**	−1.991
DY_4	−1.521***	−3.908
DY_5	−2.316***	−5.576
DY_6	−2.983***	−3.796
DHS_2	0.785***	3.401
DHS_3	0.464**	2.080
AGE	0.002	0.335
GENDER	−0.359**	−2.161
DACA	−0.279	−1.391
DPRE	0.429**	2.627

Notes:
a. *t*-test of whether the coefficient is zero *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.
b. count $R^2 = 0.704$.

value of the coefficients of these variables increases with an increase of the income class. These negative coefficients suggest that, *ceteris paribus*, an increase in income is associated with a lower probability of an affirmative answer to the proposal of income-dependent health insurance premiums. Therefore, these results show that the willingness to have a higher degree of equity in financing the health-care system decreases as income increases. This result is confirmed by the analysis of the marginal effects for the income class dummy variables, which give the change in the probability of a yes (dependent variable=1) that results from changing a single dummy variable from zero to one, holding all other variables at some fixed values, for example, at their mean values.[19]

In order to estimate the magnitude of the effect of the income class on the decision to support or not to support the proposal of income-dependent premiums, we have set the explanatory variables to values that should represent a 'typical individual' of the sample, for example, a 50-year-old man with family, without an academic degree and living in a canton with high health insurance premiums. If an individual with these characteristics belongs to the third income class (DY_3), there is a probability of supporting the proposal of 0.87. If this individual belongs to the fourth income class (DY_4), the probability decreases to 0.75.

The coefficients of the two-person and three-person household dummy variables are positive and significant. This result implies that, *ceteris paribus*, small households are less likely to accept health insurance premiums dependent on income than three or more person households. Moreover, men appear, *ceteris paribus*, to be significantly less interested in increasing the degree of equity in financing the health services. Finally, people living in cantons characterized by high health insurance premiums are more likely to accept the proposal of income-dependent premiums.

7. Conclusions

The main goal of this chapter was to verify empirically the underlying hypothesis of Margolis (1982), namely that spending in group interest is a superior good. We tested the fair-share model in the context of health-care services, which in the most OECD countries are considered merit goods. After presenting the main features of the Swiss health-care system, we emphasized the strongly regressive financing of health care in Switzerland, which is due to the limited public participation in health-care spending and to income-independent premiums for the mandatory health insurance. The willingness of the population to favour more vertical equity has been assessed with regard to the principle of introducing income-dependent premiums in the mandatory health insurance. We applied the binomial logit model using micro data collected through a

special survey carried out in 2002. It should be noted that people participating in the survey gave their opinion not on the basis of a precise proposal (that is, being aware of marginal benefits and costs) but only on the general principle of promoting vertical equity through income-dependent health insurance premiums. For this reason, the results could vary by submitting a more precise proposal of income-dependent premiums. In this case the results of the econometric analysis reject the Margolis hypothesis of group-interest spending behaving as a superior good. Indeed, as household income increases, the likelihood of accepting a more equitable financing of health insurance decreases. Since perceived social mobility in Switzerland in quite limited, this result can be interpreted as suggestive evidence that fairness, inequality aversion or reciprocity play a role in the preferences of at least a part of the high-income population in Switzerland. However, it is intriguing to note that many individuals who earn more than the median income (that is, people who will suffer a financial loss through a reform of the system) favour the more equitable financing system. Finally, the econometric analysis shows that women are significantly more interested than men in increasing the degree of vertical equity, while small households (which are affected more by taxation and less by individual premiums) and people living in cantons characterized by low health insurance premiums are less likely to accept income-dependent health insurance financing.

Notes

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1. In Europe, the poor and the left wing respondents show a strong aversion to inequality, while in the USA the only group displaying aversion to inequality is the rich. This puzzle is explained by the authors as follows: the American rich dislike inequality since they perceive their chance of moving down the income ladder as higher, whereas the European poor feel their chances of moving up the income ladder are lower than in the USA and, therefore, their dislike of inequality is stronger. What matters for this potential explanation to hold are, of course, perceived and not real social mobility differences.
2. It is worth mentioning that other relevant studies rely, analogously, on two different components of individuals' objective function, such as Harsanyi's (1955) well-known distinction between personal and ethical preferences and, within the literature on private provision of public goods, the distinction between agents driven by 'pure altruism' and agents driven by 'impure altruism'/ 'warm glow' motives.
3. 'The larger the share of my resources I have spent unselfishly, the more weight I give to my selfish interests in allocating marginal resources. On the other hand, the larger benefit I can confer on the group compared with the benefit from spending marginal resources on myself, the more I will tend to act unselfishly' (Margolis 1982: 36).
4. It is important to recognize the particular nature of the commodity 'health care' (see Arrow 1963). Health-care *per se* has little utility. If any satisfaction is associated

with medical services, this occurs with higher likelihood in the case of people who are ill, the productivity of health care being state dependent (see Zweifel and Breyer 1997).

5. This quota is divided into shares of 15.4 per cent for public financing of hospitals and nursing homes, 8.7 per cent for subsidies to the less wealthy citizens in form of a public contribution to the payment of the mandatory health insurance premiums and of the nursing homes' daily rates, and 1.5 per cent for public subsidies to other social insurances that participate in the health-care expenditure.
6. Wagstaff et al. (1999) have published a comparative study on the equity of financing in OECD countries, where Switzerland ranked last.
7. Including direct public health expenditure and subsidies to the low-income classes for the payment of the mandatory health insurance premiums.
8. A list of the cantons and their abbreviations can be found in Table 22.1.
9. For an empirical analysis of the determinants of the socialized health-care expenditure at cantonal level, see Crivelli et al. (2006).
10. The health insurance companies are obliged to cooperate with all the medical practitioners entitled to practise independently within the framework of the coverage provided for by the FLHI. Service providers can be excluded from the reimbursement of the mandatory health insurance only in the case of citizens who have voluntarily joined a managed care insurance scheme.
11. For a more complete illustration of some of these indicators for six groups of cantons, see Crivelli and Domenighetti (2003).
12. The figure highlights the results of a survey carried out in September 2002 on 1,128 households based in Switzerland. Among others the following question was asked: 'In general, would you say that you are very satisfied, fairly satisfied, neither satisfied nor dissatisfied, fairly dissatisfied or very dissatisfied with the way health care is run in your canton?'. The satisfaction index was constructed by weighting the five possible answers with 2, 1, 0, –1 and –2 points, respectively. Some small cantons had to be aggregated in order to achieve a sufficient number of observations.
13. Switzerland can be regarded as the world's greatest 'health shopping centre' because there are almost no barriers to the access to medical and/or health services.
14. The theory of *hedonic treadmill*, developed by Brickman and Campbell (1971), and that of *satisfaction treadmill*, illustrated in Kahneman et al. (1999), could explain the evolving aspirations in the field of health-care service delivery and provide us with a theoretical framework for interpreting countries' results from surveys on the satisfaction with the own health care system.
15. To recall that the sign of an estimated coefficient of the model (22.1) gives the direction of the effect of a change in the explanatory variable on the probability to accept the proposal of income dependent health insurance premiums.
16. For the econometric estimation we used LIMDEP, version 8.
17. The variables DY_1 and DHS_1 do not appear in the table because they are taken as the reference levels, in order to avoid the dummy variable trap.
18. The values of the marginal effects are: -0.132 for DY_2; -0.169 for DY_3; -0.34 for DY_4; -0.521 for DY_5; -0.602 for DY_6.

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