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Do Political Factors Matter for Health Care Expenditure? A Comparative Study of Swiss Cantons

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ABSTRACT

This study presents an empirical investigation of differences in health care expenditure between the 26 federal entities of Switzerland in the 1990s. So far, demand and supply-related factors have dominated the debate, while political determinants have largely been neglected. Here, they will be assessed together with the usual indicators on the basis of a cross-sectional analysis of both public and private health care spending. It will be shown that no approach represents the whole truth, but each one a grain of it. Demand for health care is clearly a function of socio-economic factors. On the supply side, it is mainly the number of practitioners and the overall level of provision that drive costs. Finally, from the political factors, general state interventionism is decisive – though only so far as public spending is concerned.

The present article explores one of the key policy problems facing contemporary government: the general trend towards more spending on health care.[1] In the last thirty years, there has been a continuous and sometimes even dramatic increase in health care expenditure in industrialized democracies, which was due to technological innovation, the aging of the population and a rise in available income among other things. Fiscal constraints and budget deficits have recently brought the issue of health care costs to the top of the political agenda and initiated a lively debate on the need of health care reform in many countries (Freeman 2000). Accordingly, comparisons of health care expenditure across different countries have become popular over the last decades in order to examine the major causes of increasing health care spending (Alber 1988; Gerdtham and Jönsson 1991; Gerdtham et al.

1992; Hertzman 1993; Leu 1986; Newhouse 1977, 1987; Parkin et al. 1989; Schmidt 1999).

This article continues along this line of research but differs from previous studies mainly in two ways. First, it examines health care expenditure from a *public policy viewpoint* – something that has rarely been done so far despite the large number of studies. Recent attempts to explain differences in health care spending between states focus mainly on the effects of demand and supply-related factors, while few efforts have been made with respect to genuinely political factors. In this paper, we provide an empirical examination of different public policy approaches in order to fill this research gap.

Second, while there exist many cross-national studies about the causes of health expenditure, little – if any – systematic work has been done at the subnational level. This paper takes advantage of Swiss federalism and presents the first systematic comparative examination of the impact of political arrangements on health care expenditure. The research approaches that dominate in the cross-national study of public policy will be put to the empirical test for the 26 Swiss cantons. Our research, thus, breaks new ground as it provides a comprehensive policy analysis in a subnational comparative perspective.

A comparative analysis of the two dozen cantonal political systems within Switzerland provides an opportunity to find the determinant factors of the expansion of health care spending, which becomes an ever more important problem to established democracies. The advantage of the research design chosen here is that by comparing the different health care systems at a subnational level (i.e. at the level of the Swiss cantons), a central problem of international comparative research can be avoided (Lijphart 2002). This is to say that in contrast to a comparison of nation states, which needs to take into account specific political forms, regulations, as well as particular cultural and institutional contexts in order to create better ceteris paribus conditions, a comparison of cantonal polities is potentially less complex. As the Swiss cantons are units within the same national political system, there are many characteristics they have in common and which may, therefore, be treated as constant. As a consequence, intra-nation comparisons could prove more fruitful than comparisons at the national level, and they also meet the requirements of 'most similar system research designs' (Przeworski and Teune 1970: 31). Moreover, the 26 cantons provide an excellent opportunity to test the impact of direct democracy on welfare spending – something, which can hardly be done in a national comparative perspective; given that direct democracy is a unique institutional feature of Switzerland, the range of variation at the national level is too limited.

Comparative research on health care systems is faced with the problem that it is very difficult to characterize the various national systems in a way that they become amenable to statistical analysis, as they often combine many differing forms of provision and financing (Gerdtham et al. 1992). In this policy area, data is often not comparable across countries and measurement errors may not be constant over time. It is especially the lack of an overview of the information available at the national level as well as the diversity of accounting and rating methods of health care systems that make country comparisons very difficult and sometimes unreliable (Gerdtham et al. 1992; Poullier 1989). The comparative study at the cantonal level has the advantage that the cantonal health care systems are all embedded in the same national health insurance system and that there are various national organizations that collect and provide comparable statistical data on the cantons.

This study examines the differences in public health care expenditure and private health care insurance costs between the Swiss cantons during the period from 1994 to 1999. On the basis of a statistical cross-sectional analysis of all the 26 cantons, it attempts to answer the following research questions: (1) What are the causes of significant cross-cantonal differences in public health care expenditure and health insurance costs? (2) What are the main cost-curbing/driving factors that explain cantonal differences in public health care expenditure and health insurance costs in the 1990s? (3) What are the conclusions that can be drawn for future research, and what are the recommendations that can be made with respect to national and subnational health policy in federal states?

The remainder of this article is structured as follows: the next section gives a brief overview of the Swiss health care system and describes the cantonal differences in public as well as private health care spending. In the third section, different theoretical approaches to the explanation of health care expenditure will be introduced and hypotheses for comparing the Swiss subsystems will be derived. The fourth section presents the data, methods and empirical findings. In the conclusion, the consequences of the differences in health care costs will be discussed and policy recommendations will be made.

The Swiss Health Care System and Cross-Cantonal Differences in Health Care Spending

The two main characteristics of the political system of Switzerland are liberalism and federalism (Linder 1994). These two basic principles also manifest themselves in the Swiss health care system, resulting in

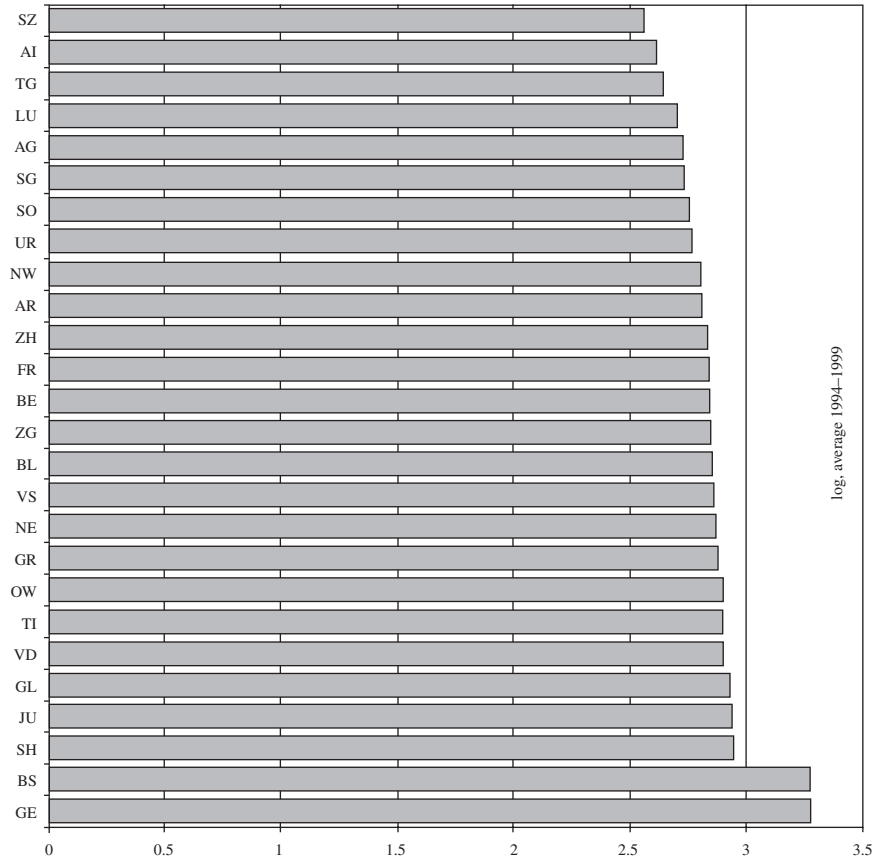
complicated structures and processes involving public as well as private health care provision and financing (European Observatory 2000). The provision of health care is divided between public and private actors. Outpatient care is primarily supplied by medical practitioners, outpatient care institutions and increasingly by hospitals. Inpatient care is provided by public and private hospitals as well as by municipal and private nursing homes.

While the federation is responsible for matters of a general nature, such as health insurance, prevention and health protection, research and tertiary education, it is the cantons that are the main public actors in health care policy. They licence and authorize medical personnel, they are more or less active in the field of disease prevention and health education, and – most importantly – they operate public hospitals and subsidize private institutions that deliver health care to the population. The municipalities' responsibilities in health care are defined at the cantonal level and the respective laws vary. Thus, cantonal autonomy is not only a central factor of Swiss federalism (Vatter 1999), but also clearly affects the organization of the Swiss health care system. This system is highly decentralized and essentially consists of 26 cantonal systems, that the federation can only influence to a limited extent, namely by means of the federal law on health insurance.

The largest part of the health care costs in Switzerland are borne by the private households, followed by compulsory health insurance. In 2000, the households financed 32.8 per cent of total health care spending, health insurance financed 32.5 per cent, the cantons 12.1 per cent, the municipalities 2.8 per cent and the federation 0.3 per cent. The rest was paid by private insurance, other branches of social insurance and other private sources (SFSO 2002).

The federal law on health insurance lays down how the financing is to be divided between public and private actors. Outpatient and private medical treatment as well as inpatient treatment in private hospitals are paid privately and subsequently reimbursed by the compulsory health insurance.[2] In public hospitals, cantons and health insurance share the costs according to cantonal tariff agreements. The federal law requires the cantons to bear at least 50 per cent of the expenses. Additionally, cantons subsidize private and public hospitals, nursing homes and home care providers, and they pay for certain public health measures (disease prevention and health care administration). Between 1994 and 1998, almost 70 per cent of public health expenditure of the cantons and municipalities went to hospitals, 10 per cent to mental hospitals, 9 per cent to nursing homes and 4 per cent to outpatient care.

FIGURE 1: *Cantonal Differences in Public Health Care Expenditure Per Capita*

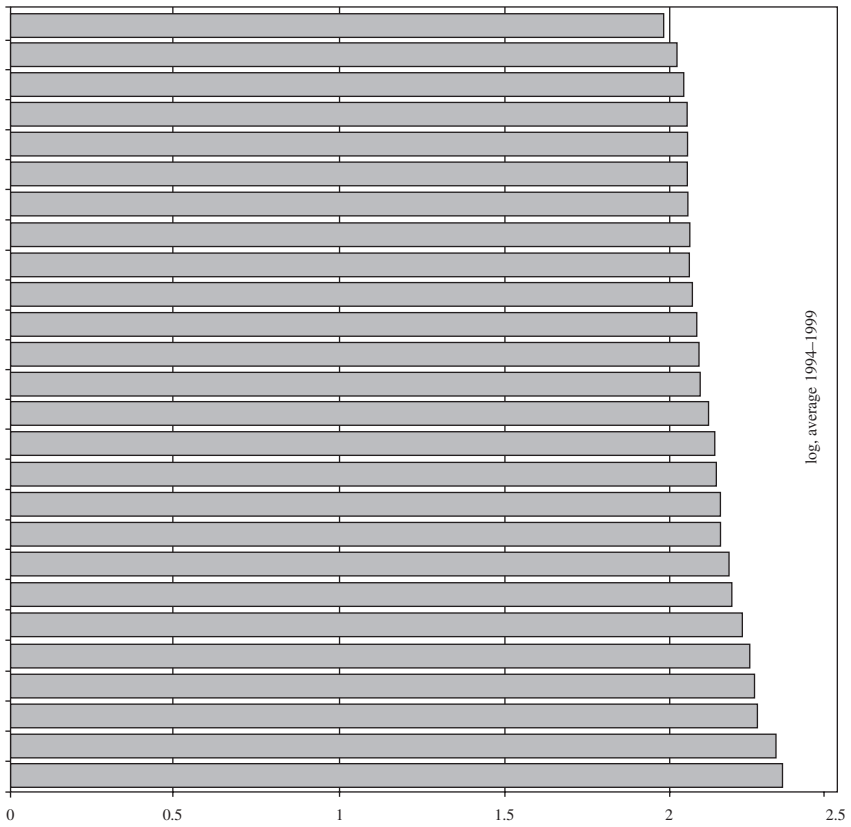


Source: Swiss Federal Statistical Office

Another important aspect of the cantons' autonomy in the area of health care is their power to set tariffs. Tariff agreements are usually negotiated on a private basis between the insurance companies and the providers of health care treatment. However, the cantons need to approve these agreements, and thus play an important role in determining the cost of health care provision. Their influence is strongest with respect to inpatient care, where the cantons play a triple role: they provide treatment, finance the hospitals and regulate the tariffs.

It is not surprising that in such a federal system, there are considerable differences in public health care expenditure and health insurance costs between the cantons. Figure 1 shows the cross-cantonal differences in public health care expenditure in the second half of the

FIGURE 2: *Cantonal Differences in Monthly Health Insurance Costs*



Source: Swiss Federal Office for Social Security

1990s.[3] In per capita terms, cantons like Basel City and Geneva spent up to four times more than Lucerne, Schwyz, Appenzell Inner Rhodes and Thurgau.

There are also significant cantonal differences in health insurance costs (see Figure 2), though they tend to be smaller than those in public health care expenditure. On average, insurance costs are highest in the cantons of Geneva, Basel City, Vaud, Jura and Ticino, while they are lowest in Appenzell Inner Rhodes, Lucerne and St Gallen. However, costs increased significantly in all the cantons during the second half of the 1990s. Similar to public health care expenditure, in cantons where costs were high already, the increase was lower, whereas in cantons where costs were comparatively low, there was an above-average rise in health insurance costs.

Theories and Hypotheses

There are several approaches in welfare policy research to explain the differences in social spending. Broadly speaking, however, two complementary approaches dominate the debate on health care expenditure: the demand-related and the supply-related approach. Both have been adopted in a large number of studies on the issue, whereas theory-guided comparisons from a public policy viewpoint that systematically consider political factors as fundamental causes of an increase in health care spending have remained exceptional.[4] Thus, besides considering the demand and supply-related factors, this study will emphasize political and institutional determinants of differences in health care expenditure.

The Demand-Related Approach

The comparative analysis of international health care expenditure has to some extent been based on standard demand theory, typically focusing on aggregate income. In his seminal article, Newhouse (1977) explains almost all of the variance in the level of health care expenditure between 13 countries with aggregate income: the more economically advanced, the more can a country afford to maintain a costly health care system. Most research using international cross-sections confirmed Newhouse's empirical results concerning the high explanatory power of this relationship (Gerdtham and Jönsson 1991; Gerdtham et al. 1992; Leu 1986; Schmidt 1999).

Besides aggregate income, the demand-related approach includes factors like urbanization (due to the fact that health-related risks are higher and time and travel costs to access health care services lower in urban areas), the proportion of the population aged over 65 (because the elderly tend to consume more health care services than younger people) and the unemployment rate (Gerdtham et al. 1992; Leu 1986; OECD 1993). Furthermore, other demand-related variables, as for example the rate of hospitalization, can be assumed to have a significant impact on health care spending. Finally, the observed increase in health care expenditure might partly be explained by the transition of health care from family networks to institutions. In the past, the care of elderly was the responsibility of the multi-generation family substituting public social security, while today it has been taken over by health care institutions. Hence, we can hypothesize that a low degree of social networks in a canton (Freitag 2000) is systematically related to a higher level of health care expenditure.

Moreover, the fact that public and private expenditure for health

care vary between the different language regions of Switzerland also needs to be taken into consideration. Various studies show that health care-related behaviour, such as the demand for tobacco, drugs and pharmaceuticals, eating habits or the extent of physical exercise vary between the different cultural regions (e.g. SFSO 2000). Furthermore, the regions differ with respect to the perception of social policy, too. Whereas the majority of the German-speaking population prefers a liberal, subsidiary state that incorporates self-responsibility, the French-speaking part of the country rather follows a state-centred model of welfare, placing more responsibility on the state as far as the provision of public services such as health care is concerned (Freitag 2000).

The Supply-Related Approach

In order to explain differences in health care spending, the supply side is of equal importance with the demand side. The size of a cantonal health care system, measured by the number of hospital beds, medical practitioners, pharmacies, and home care institutions per capita, and the degree of specialization of the system all largely determine public and private health expenditure.[5] Medical advances and the rising number of hospital facilities and practitioners have since long been considered important driving factors of health care expenditure (SFSO 1995; Oxley and Mac Farlan 1994).

The supply-related approach not simply considers the number of health care facilities available to the population, but also their degree of specialization. For example, there are considerable differences in the size of hospitals and the range of services they provide (SFSO 1995). A highly specialized modern university hospital causes higher expenses than a small regional hospital providing basic care. These factors are taken into account by appropriate indicators, such as the average size of the hospitals, the level of medical service provision and the share of specialized hospitals in a canton.

The supply side of a health care system can also be characterized by the different, but interdependent branches of health care (outpatient, inpatient, home care, nursing homes). Inefficient structures with an inappropriate division of labour are believed to be another source of high expenditure. For example, this is the case if elderly persons that need home care stay in acute hospitals because home care is not available or because there is no room in nursing homes (European Observatory 2000). This is why the ratio of number of beds in acute hospitals to beds in nursing homes and the level of home care service provision

will both be taken into account in order to examine the effect of the organization of the health care system on expenditure.

The provision of pharmaceuticals most strongly increases health insurance costs in Switzerland. While the share of pharmaceuticals in total insurance costs hardly varies between the cantons, the conditions under which pharmaceuticals are distributed do. In 13 cantons, practitioners are allowed to sell pharmaceuticals (so called dispensing doctors), while in the other 13 cantons, this is restricted or prohibited (European Observatory 2000). It actually makes a difference who it is that distributes pharmaceuticals (Gröflin and Züllig 1995): whereas pharmacies financially depend solely on their sale and are subject to market forces, dispensing by practitioners allows an integrated treatment at lower costs. Thus, the share of dispensing physicians is expected to have a negative effect on health insurance costs, while a high density of pharmacies is likely to be related to higher costs.

Public Policy Approaches

Public policy approaches offer a rich fund of knowledge as to the key determinants of international variation in policy outcomes. However, until now this perspective has been neglected in the research on health care spending. Since we know of these important influences on policies, it is worthwhile to consider them systematically in order to gauge the explanatory power of demand and supply-related variables. Apart from socio-economic and demographic variables (which are included as part of the demand-related approach), four approaches have dominated the cross-national study of welfare policy in economically advanced democracies (Schmidt 1993, 1996, 1999). These will be discussed below.

The Partisan Theory

According to the hypothesis of partisan influence on public policy, the party composition of government in constitutional democracies is a major determinant of variation in policy outcomes. The partisan theory states that in exchange for political support, parties serve as agents for the preferences and ideologies of their voters. This hypothesis has been developed and put to the empirical test in many investigations about economic and social policy (Cameron 1984; Castles 1982, 2000; Hibbs 1977; Hicks and Swank 1992; Schmidt 1996). According to the seminal 'parties do matter' view, the stronger the major party of the right, the significantly lower will be welfare expenditure. Conversely, it is maintained that the more strongly the left-wing parties participate in government, the higher will be welfare spending. However, cantonal

governments typically consist of oversized coalitions and decisions are mainly reached through negotiation processes and mutual agreement (Vatter 2000, 2002).[6] This is why party competition within cantonal governments is constrained. Nevertheless, the relative strength of the major parties in the cantonal executive and the strength of the social democrats in particular might be an important determinant of the level of health expenditure.

The Power Resources Theory

The theory of power resources relies on the assumption that social classes are the main agents of societal change and that their balance of power determines policy outcomes. It states that the size of the welfare state can be explained in terms of power resources of social classes, namely by the market power and the political power of labour compared to capital (Esping-Andersen 1990; Korpi 1983). More specifically, this approach regards the development of the welfare state mainly as a response to the strength of the trade unions.[7] Accordingly, the expansion of cantonal health care would also be linked to the strength of trade unions.

Political Institutions and Veto Player Theory

According to the neo-institutionalist approach, policy differences are largely due to differences in the design of political institutions and to differences in the strategies of the interdependent collective actors (Hall 1986; Immergut 1990, 1992; Weaver and Rockman 1993). From a policy viewpoint, institutions are of key importance in the evolution of welfare systems. Representatives of this approach emphasize that counter-majoritarian institutions, such as direct democracy, and federalism, steer the evolution of the welfare state in a more liberal direction. They act as powerful veto points that set limits to the central government's scope of action and to the expansion of social expenditure (Castles 2000; Crepaz 1998; Immergut 1990, 1992; Lijphart 1999; Obinger 1998; Tsebelis 1995, 2002; Wagschal 1997).[8]

It is possible to test the proposed cost-curbing effects of these institutional veto points on cantonal health care expenditure, since elements of direct democracy[9] and decentralisation vary greatly at the subnational level. Our thesis is that the stronger the elements of direct democracy and the more often it is used in a canton, the lower will be health care spending.[10]

On the other hand, some institutions foster welfare state expansion (Lijphart 1999). In this respect, the size of the government coalition is

of particular importance.[11] It is assumed that the broader the government coalition, the more likely the governing parties will negotiate expensive barter transactions. Consequently, the higher the degree of power-sharing in a cantonal government, the higher is health care spending likely to be.

However, in contradiction to this view, the size of the government coalition can also be seen as a stabilizer in the struggle for power between interest groups. In Switzerland, the model of consociational democracy is predominant (Vatter 2002). We can, therefore, hypothesize that broad consensus-oriented governments are more stable and as a consequence more likely to pursue steady long-term programs instead of interest-based short-term policies.

Policy Inheritance Theory

The legacy of the past plays an important role in public policy-making (Rose 1990; Rose and Davies 1994). Since welfare states are embedded in a certain political framework and a certain society, they are hardly amenable to short-term change. Therefore, past policies and structures have to be taken into account when considering policy outcomes. It is crucial to define variables that represent the fundamental decisions taken in the past that define the path of policy development and the level of state intervention. These variables describe the policy-making traditions of bureaucrats and whether the administration follows state-centred or rather market-oriented routines (Pierson 2000).[12] We include the public share of total expenditure as a measure of the degree to which the state is active in the overall production of welfare compared to the private sector.

Various authors (Alber 1988; Freeman 2000; Mayntz and Rosewitz 1988; Wilsford 1994) pointed out that each segment of the health care system evolved in a special configuration, which is shaped by historical development. Traditionally, health care, and inpatient care in particular, has been regarded as an important public responsibility. It can, therefore, be assumed that in cantons where state-centred problem-solving traditionally prevails, the public share of financing of inpatient care compared to the share of private health insurance will be considerable, resulting in higher health care expenditure.

In order to arrive at a full understanding of the determinants of health care expenditure, empirical analysis must include the key variables suggested in the public policy literature. Table 1 provides an overview of the hypotheses, the corresponding explanatory variables, their expected effects on health care expenditure, their measurement and the data sources.

TABLE 1: *Hypotheses, Variables, Measures, and Expected Effects*

Hypothesis	Variables and Measurement	Data Source	Expected Effect
Aggregate income	Net cantonal income per capita in factor prices (log)	SFSO	+
Urbanization	Share of inhabitants in urban areas	Bassand 1988	+
Share of elderly	Proportion of resident population aged over 65	SFSO	+
Unemployment	Proportion of unemployed in the working population	SFSO	+
Rate of hospitalisation	Number of hospitalisations per 1000 inhabitants	Hospital statistics SFSO	+
Social networks	Index of social networks	Freitag 2000	−
Language/cultural region	Proportion of German speakers in the population	SFSO census	−
Medical supply	Number of practitioners per 100 000 inhabitants	SFSO/FOSS	+
	Share of specialists among practitioners	SFSO/FOSS	+
	Level of medical service provision in hospitals	Biersack 2000	+
	Number of hospital beds per 100 000 inhabitants	SFSO	+
	Number of beds in mental hospitals per 100 000 inhabitants	Hospital statistics SFSO	+
	Number of beds in nursing homes per 1000 inhabitants	Hospital statistics SFSO	+
	Share of specialized hospitals	Hospital statistics SFSO	+
Average size of hospitals	Average number of beds per hospital	Hospital statistics SFSO, own computation	+
Ratio of beds in acute hospitals to beds in nursing homes	Number of beds in acute hospitals divided by number of beds in nursing homes	Hospital statistics SFSO, own computation	+
Home care provision	Hours of home care provided per inhabitant	FOSS 2000	−
Density of pharmacies	Number of pharmacies per 10 000 inhabitants	SFSO	+
Dispensing doctors	Share of pharmaceuticals dispensed by doctors	santésuisse, own computation	−
Strength of left-wing parties	Left-wing parties' share of government seats	APS	+
Strength of right-wing parties	Right-wing parties' share of government seats	APS	−
Strength of centre parties	Centre parties' share of government seats	APS	−
Strength of trade unions	Proportion of union-members in the working population	Gewerkschaftliche Rundschau, own computation	+
Instruments of direct democracy	Index of direct democracy	Stutzer 1999	−
Use of direct democracy	Total number of popular votes	APS	−

TABLE 1: *Continued.*

Hypothesis	Variables and Measurement	Data Source	Expected Effect
Local autonomy	Index of local autonomy by Ladner	Stutzer and Frey 2000	–
Size of government coalition	Added shares of votes of the governing parties	APS	±
Public share of expenditure	Ratio of public expenditure (except health care expenditure) to cantonal income	FFA, SFSO, own computation	+
Financing of inpatient care	Public share of financing of inpatient care (without investments)	SFSO	+

Note: APS: Année Politique Suisse; FFA: Federal Finance Administration; FOSS: Swiss Federal Office for Social Security; SFSO: Swiss Federal Statistical Office; santésuisse: Association of Swiss health insurance companies.

Data, Methods, and Empirical Results

This investigation is based on a statistical cross-section analysis of the 26 Swiss cantons. Aggregate data will be used to examine the reasons for differences in public health care expenditure and health insurance costs by means of correlation and regression analyses. The period under consideration is from 1994 to 1999.[13] Due to the complexity of the financing of the Swiss health care system (European Observatory 2000) and in line with cross-national health expenditure research, two dependent variables will be used to examine differences in health costs. Each of these variables covers about 50 per cent of total health care expenditure in Switzerland (see section 2). The first indicator is per capita net health expenditure of a canton and its municipalities. It reflects public spending on health care in a canton after adjusting for cross-boundary flows between cantons and for transfers from the federation (SFSO 1995). Private health insurance costs in a canton, measured as gross costs per insurance month, are used as the second indicator. The independent variables correspond to the indicators listed in Table 1. For all the variables, the average of the period from 1994 to 1999 was used in the calculations.

The statistical analysis followed a frequently used two-step approach: first, a large number of variables was taken to calculate bivariate correlations. Then, the variables with most explanatory power were used to estimate multivariate regression models.[14] Tables 2 and 4 show the bivariate correlations between the dependent and the predictor variables for the 26 cantons. Tables 3 and 5 report the influence of the individual predictor variables as revealed by multiple regression analysis (OLS method).

TABLE 2: *Bivariate Correlations with Public Health Care Expenditure (Average 1994–1999)*

Independent Variables	Public Health Care Expenditure (log) (Pearson's r)
Demand-related factors	
Per capita income (log)	.376+
Urbanization	.494*
Share of elderly	.524**
Unemployment	.524**
Rate of hospitalisation	.392*
Social networks	−.477*
Language/cultural region	−.445*
Supply-related factors	
Overall level of provision	.641**
Density of practitioners	.823**
Share of specialists	.683**
Level of inpatient care [a)]	.278
Density of beds in acute hospitals	.446*
Density of beds in nursing homes	−.093
Density of beds in mental hospitals	.285
Share of specialized hospitals	.120
Average size of hospitals	.358+
Ratio beds in acute hospitals to nursing homes	.302
Home care provision	.468*
Political factors	
Strength of left-wing parties	.356+
Strength of right-wing parties	.178
Strength of centre parties	−.303
Strength of trade unions	.420*
Formal insruments of direct democracy	−.451*
Use of direct democracy	−.076
Degree of local autonomy	−.152
Size of government coalition	−.401*
Public share of total expenditure	.551**
Public financing of inpatient care	.639**
N	26

Note: Significance: + $p < 0.1$; * $p < 0.05$; ** $p < 0.01$ (two-tailed)
[a)] Variable measured on an ordinal scale: use of Spearman's ρ instead of Pearson's r.

Public Health Care Expenditure

The first dependent variable is public health care expenditure. Table 2 shows bivariate correlations and the most strongly correlated variables have been used as predictors in OLS regressions. Table 3 contains the findings of two estimated models, which differ in that on the supply side, the first has been regressed on the overall level of provision and the second on the density of practitioners.

How can the cantonal differences in public health care expenditure be explained? On the demand side, the major driving force is a high

TABLE 3: *Regressions of Public Health Care Expenditure Per Capita (Average 1994–1999)*

Independent Variables	Public Health Care Expenditure (log)	
	Model 1	Model 2
Constant	−.670	.021
	(−.664)	(.019)
Public financing of inpatient care	.267*	.196*
	(2.474)	(1.839)
Overall level of provision	.350**	
	(3.440)	
Public share of total expenditure	.545**	.432**
	(4.816)	(3.434)
Per capita income (log)	.350**	.260*
	(2.937)	(1.990)
Density of practitioners		.451**
		(3.522)
R^2	.836	.839
Adjusted R^2	.805	.808
N	26	26

Note: The estimated OLS regression coefficients are listed first; the respective t-values are in parentheses. Examinations of tolerance levels indicate no serious multicollinearity between the independent variables.
* Significant at the .05 level (two-tailed). ** Significant at .01 level (two-tailed).

level of cantonal income. This finding confirms the results of international cross-section research. Two socio-structural variables, namely a large proportion of senior citizens and high unemployment are also important.[15] The three factors together largely explain the cost differences between Switzerland's different language areas. This is to say that in the French and Italian-speaking cantons, aggregate income, the share of the elderly, and the unemployment rate are above the average, while the socio-structural conditions in medium-sized German-speaking cantons turn out more favourable to modest expenditure levels.

As to the providers of medical services on the supply side, there are two central cost-driving factors: the number of practitioners (general practitioners and specialists) per inhabitant, and the overall level of medical service provision. In cantons with a high density of practitioners (and a high level of specialization) and a well-developed medical service provision, health care expenditure exceeds the average.

Regarding the political factors, there are mainly two indicators that have an influence on public health care expenditure. The first is the share of public financing of inpatient care. This variable accounts for a considerable amount of health care expenditure in the urban cantons of Basel City and Geneva.[16] Secondly, the overall level of government intervention also has an impact on public health expenditure. Cantons

TABLE 4: *Correlations with Health Insurance Costs (Average 1994–1999)*

Independent Variables	Health Insurance Costs (log)
Demand-related factors	(Pearsons r)
Per capita income (log)	.194
Urbanization	.702**
Share of elderly	.537**
Unemployment	.842**
Rate of hospitalisation	.604**
Social networks	−.699**
Language/cultural region	−.703**
Supply-related factors	
Overall level of provision	.650**
Density of practitioners	.848**
Share of specialists	.807**
Level of inpatient care[a]	.747**
Density of beds in acute hospitals	.287
Density of beds in nursing homes	−.358+
Density of beds in mental hospitals	.323
Share of specialized hospitals	.112
Average size of hospitals	.334+
Ratio beds in acute hospitals to nursing homes	.512**
Home care provision	.478*
Density of pharmacies	.806**
Dispensing doctors	−.771**
Political factors	
Strength of left-wing parties	.607**
Strength of right-wing parties	.208
Strength of centre parties	−.448*
Strength of trade unions	.597**
Formal instruments of direct democracy	−.619**
Use of direct democracy	−.135
Degree of local autonomy	.263
Size of government coalition	−.408*
Public share of total expenditure	.522**
Public financing of inpatient care	.341+
N	26

Note: Significance: + $p < 0.1$; * $p < 0.05$; ** $p < 0.01$ (two-tailed)
[a] Variable measured on an ordinal scale: use of Spearman's ρ instead of Pearson's r.

with a general tendency towards interventionist rather than market-oriented problem-solving in politics stick to this pattern in health care policy, too. As a result, public health care expenditure is rather high.

Health Insurance Costs

The same procedure as above has been applied to find the causes for cross-cantonal differences in health insurance costs (Tables 4, 5).

By and large, health insurance costs are influenced by the same factors as health care expenditure. A higher share of elderly in the popula-

TABLE 5: *Regressions of Health Insurance Costs (Average 1994–1999)*

Independent Variables	Health Insurance Costs (log)	
	Model 1	Model 2
Constant	1.741**	1.910**
	(27.741)	(73.005)
Share of elderly	.301**	
	(3.413)	
Urbanization	.233*	
	(2.177)	
Unemployment	.621**	.391**
	(5.886)	(3.656)
Social networks		−.203*
		(−2.171)
Density of practitioners		.493**
		(5.231)
R^2	.847	.889
Adjusted R^2	.826	.874
N	26	26

Note: The estimated OLS regression coefficients are listed first; the respective t-values are in parentheses. Examinations of tolerance levels indicate no serious multicollinearity between the independent variables.
* Significant at the .05 level (two-tailed). ** Significant at .01 level (two-tailed).

tion, strong urbanization leading to financial burdens that are typical for the centres, high unemployment, and weak social networks are the most significant factors on the demand side. The generally lower cost levels in German-speaking Switzerland are closely linked to lower unemployment rates and a higher degree of social integration.

On the supply side, the central factors that explain the differences in health insurance costs are the density of practitioners, the share of dispensing doctors, and the ratio of beds in acute hospitals to beds in nursing homes. Like public health care expenditure, health insurance costs also increase the more comprehensive the services offered in the outpatient sector. A high number of general practitioners and specialists in proportion to the population raises the level of medical services provision and increases health insurance costs.

Moreover, the structures of long-term care have a strong influence on health insurance costs. As the level of home care provided and the rooms offered in nursing and old people's homes are insufficient, elderly people are often treated in acute hospitals, which is more expensive. Thus, occupancy rates of hospital beds are increased, but this binds nursing infrastructure and thus leads to higher costs.

Finally, our study shows the importance of socio-cultural structures. The fact that social networks are less developed in French-speaking Switzerland (Freitag 2000) and that the perception of social policy differs along the linguistic borders reveals the existence of a cultural com-

ponent in the demands on the health care system. As a consequence, the costs of health insurance differ between cultural regions.

Conclusion

What are the recommendations to be made to national and subnational policy-makers in the area of Swiss health care, and what could be relevant not only to Switzerland but also to other federal states facing similar problems? We will first discuss two major policy implications and then ask about generalisations.

True Costs and Coordination of Specialized Treatment

The exceptionally high health costs in Basel City and Geneva cannot simply be explained by specific cost-driving circumstances and the density in outpatient and inpatient services offered. They are also a consequence of the strongly federalized and decentralized structure of the Swiss political system (Linder and Vatter 2001). The considerable cost differences between the city cantons and the other cantons also arise from spill-over effects. These result from the fact that advanced medical services offered in the central regions attract patients from neighbouring cantons. But it is the centres that bear most of the costs for the infrastructure. In principle, it makes sense that the peripheries need not maintain a highly developed health care system, because there are already considerable overcapacities in the provision of specialised medical treatment due to a lack of coordination between the cantons and their university hospitals. Therefore, if cantonal costs are to converge and savings are to be made in advanced medical services, each canton must bear and reimburse the full cost of the services provided by the neighbouring cantons and special medical treatment must be more widely coordinated and concentrated.

Cost-Curbing Measures Targeting Service Providers

One of the main reasons for cantonal cost differences in public health care expenditure and health insurance costs is the density of practitioners (particularly specialists). At the same time, this density is also one of the most significant cost-increasing factors, suggesting the presence of supply-induced demand. This phenomenon may be due to the political power and organizational autonomy of the medical profession, its economic influence and its social authority. Unfortunately, the Swiss health care system offers so far little incentive to practitioners to provide inexpensive medical services. Therefore, market-oriented meas-

ures should be viewed as particularly effective instruments for a long-term cost reduction. Examples of such measures are to release health insurance companies from the obligation to conclude contracts with all the service providers, and the decentralisation of bargaining between practitioners and health insurance companies.

Finally, what can we draw from our empirical results that can be generalized? We would like to make two contributions, an empirical and a theoretical one:

Corroboration of Cross-National Findings

The results of our comparative analyses of the Swiss cantons are largely consistent with those of cross-national studies. In particular, they support the conclusions by Schmidt (1999) who analysed national health expenditure from a public policy viewpoint and claimed the fundamental causes of public health care spending to reside in the combined effect of the following factors: the level of economic development and urbanity, the age structure of the population, the number of practitioners per inhabitant, as well as political factors, such as the state-centred or market-oriented tradition of the administration. Overall, this has been confirmed and we conclude that we have corroboration of the effects on health care spending identified in earlier cross-national studies.

Political Factors Matter – For Public Health Expenditure

Overall, our findings suggest that none of the various theoretical perspectives can clearly claim a dominant position in the determination of health care expenditure. Neither demand nor supply-related nor public policy approaches seem to be decisive and could be regarded as the sole source of explanation. Instead, factors associated with each of the three perspectives play an important role in the determination of public health care spending. From a public policy point of view, the findings underline the influence of profoundly established – either statist or liberal – problem-solving routines on public health care costs. Policy decisions taken in the past define to a considerable degree the path of future policy development and the level of state intervention in the health care sector. Therefore, indicators of policy inheritance seem to affect the level of health care expenditure more persistently than instrumental and institutional ones, like the electoral strength of the major parties or the instruments of direct democracy. Overall, political factors do matter for public health care spending, though they do not for private health insurance costs.

NOTES

1. This article has been produced as part of a research project sponsored by the Swiss National Science Foundation (project no. 50-58521.99) in the framework of the priority programme 'Demain la Suisse'. Furthermore, it has been based on a study commissioned by the Swiss Federal Office for Social Security as part of its evaluation of the Swiss federal law on health insurance (research report no. 14101). We would like to thank the anonymous reviewers for their valuable comments and critical remarks.
2. During the period from 1996 to 1999, health insurance paid for hospital treatments (37.5 per cent of the disbursements), medical practitioners (25.9 per cent), medication (19.5 per cent), home care and nursing homes (7.8 per cent) and other services (9.3 per cent).
3. Since their absolute values vary by up to factor four, public health care expenditure and health insurance costs have been transformed using the logarithm.
4. One of these exceptions is the cross-national analysis by Schmidt (1999).
5. The provision of medical care in a canton is expressed by indicators for each of the various branches of health care (general practitioners, specialists, level and specialisation of inpatient care, density of beds in acute and mental hospitals and in nursing homes) as well as by a variable of the overall level of provision, which is calculated as an aggregate index of these indicators.
6. In the late 1990s, coalitions of five parties were to be found in three cantons, coalitions of four parties in ten and coalitions of three parties in thirteen cantons.
7. Given labour-intensity of health care, the health sector is a key area of employment (Freeman 2000: vii).
8. In empirical investigations, indices of institutions have usually been negatively correlated with indicators of welfare expenditure (Huber et al. 1993; Schmidt 1996; Lijphart 1999).
9. There are cantons with strong elements of direct democracy, as for instance Glarus, where decisions are made by the assembly of its citizens. On the other hand, French-speaking cantons have more representative systems of democracy (Vatter 2002).
10. In the empirical analysis, we distinguish between the mere existence of instruments of direct democracy (rules in form) and their use (rules in use), because it was demonstrated that these two dimensions differ in their impacts (Sproule-Jones 1993; Vatter 2002).
11. We focus on the strength of the government coalition to adjust the contrast between minimal winning coalitions and oversized coalitions to the situation in Swiss cantons, where virtually all coalitions are oversized.
12. Leu (1986) for example reports the results of a cross-section analysis of 19 OECD countries that shows a significant relationship between the share of public and total health care expenditure. He concludes that health care spending increases with public financing, because a higher share of public funding means a reduction in the cost that the individual patient has to bear.
13. Due to a change in the accounting of health insurance costs in 1994, earlier data are not comparable.
14. This two-step approach to identify the important variables corresponds to the procedure applied in other cross-sectional studies (see e.g. Coppedge 1997). The variables included in the final model are found through a specification search. First, bivariate correlations are used to identify independent variables that will most likely turn out significant in multivariate models. Variables with insignificant coefficients are eliminated one by one, in ascending order of significance, until a working model is obtained, in which all independent variables are close to significance for $p < 0.05$.
15. The two variables only just missed the .01 significance level.
16. However, a test carried out as part of the regression diagnostics shows that the variable loses its significance as soon as the two cantons mentioned are excluded still, it is noteworthy that the public share of financing of inpatient care varies considerably from canton to canton.

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