The Impact of Federalism on the Healthcare System in Terms of Efficiency, Equity, and Cost Containment: The Case of Switzerland

Luca Crivelli and Paola Salari

Abstract According to the economic theory of federalism (Oates 1999), a decentralized decision to collectively fund and supply the quantity and quality of public services will increase economic welfare as long as three conditions are fulfilled: preferences and production costs of the different local constituencies are heterogeneous; local governments are better informed than the central agency because of their proximity to the citizens; and the competition between local governments exerts a significant impact on the performance of the local administration and on the ability of public agencies to implement policy innovation. Federalism also presents some negative aspects, including the opportunity costs of decentralization, which materialize in terms of unexploited economies of scale; the emergence of spillover effects among jurisdictions; and the risk of cost-shifting exercises from one layer of the government to the other. Finally, competition between fiscal regimes can affect the level of equity. The literature considers fiscal federalism as a mechanism for controlling the size of the public sector and for constraining the development of redistributive measures. The present paper reviews the impact that federalism has on the efficiency, equity, and cost containment of the healthcare system in Switzerland, a country with a strongly decentralized political system that is based on federalism and the institutions of direct democracy, a liberal economic culture, and a well-developed tradition of mutualism and social security (generous social expenditure and welfare system). By analyzing the empirical evidence available for Switzerland, we expect to draw some general policy lessons that might also be useful for other countries.

L. Crivelli (✉) · P. Salari
Department of Economics, Università della Svizzera Italiana (USI), Via Buffi 13 6900 Lugano, Switzerland
e-mail: luca.crivelli@usi.ch

P. Salari
e-mail: paola.salari@usi.ch

R. Levaggi and M. Montefiori (eds.), *Health Care Provision and Patient Mobility*, Developments in Health Economics and Public Policy 12,
DOI: 10.1007/978-88-470-5480-6_7, © Springer-Verlag Italia 2014

Keywords Federalism · Preference matching · Cost efficiency · Equity

JEL Classification D24 · D61 · D63 · H77

1 Introduction

The Swiss healthcare system is based on two distinct pillars. The first is a health insurance model that has atypical characteristics and lies somewhere between private and social insurance. This model was influenced by the country's culture and history and was recently reformed following the ideas of Alan Enthoven. The second element is a high degree of decentralization (since 1848 the federal Constitution has entrusted the country's 26 cantons with a large amount of autonomy in the organization of their regional health care sector).[1]

The interaction of these two factors gives rise to the observable health system outcomes in terms of equity and efficiency. However, it is difficult to determine the extent to which the general equity and efficiency of the Swiss health system depend on the particular health insurance model or reflect the high level of decentralization. For this reason, based on the available evidence in the literature, we will consider the heterogeneity (in terms of efficiency and equity) across the Swiss cantons as a proxy for the specific effect of decentralization.

The aim of this chapter is to provide an overview and discussion of the equity and efficiency outcomes that Switzerland's various cantonal systems have reached, relying on the extant literature. Section 2 introduces the general economic theory behind decentralization (that is, fiscal federalism), highlighting the possible advantages and drawbacks of such a system. The other sections focus specifically on Switzerland. Section 3 describes the main features of the Swiss healthcare system, its overall organization, and its historical background. Sections 4 and 5 discuss the implications of decentralization with regard to efficiency and equity outcomes, respectively, with emphasis on the differences among cantons. Section 6 concludes.

2 General Theory of Fiscal Federalism: A Short Literature Review

During the last century, many OECD countries have had a general tendency towards decentralization of governments. The concept of decentralization can have a number of different meanings. In this chapter, it refers to a setting in which the

[1] The precept of Swiss decentralization is that public policies and their implementation should be assigned to the lowest level of government that is capable of achieving the objectives.

central government has devolved some forms of autonomy (fiscal or organizational competences) to subnational governments (such as regions, or municipalities). The latter have the power to organize the provision of the public (and merit) goods that are mainly consumed in their territory. The idea behind decentralization is that it makes local governments better informed about the preferences of their citizens; so they can adapt public services to them.

2.1 The Theoretical Economic Background: Advantages of Decentralization

The principle of decentralization of competences and political power was inspired by the theory of fiscal federalism. In particular, the rationale stems from the "decentralization theorem" elaborated by Oates (1972). This theory starts with the hypothesis that each level of government has the goal of maximizing the social welfare of its area of competence. Therefore, decentralization is considered as a proper means for reaching such a goal. Subnational levels of government should provide "local" public goods; that is, goods that are primarily consumed in that territory. The decentralization theorem states that under certain conditions (rather homogeneous local preferences and rather heterogeneous preferences among subnational authorities), a vector of local public goods tailored to local preferences is expected to be Pareto superior to a situation with a uniform level of public output managed at the central level. There are at least two reasons to expect such a result. Firstly, decentralizing certain public services (such as healthcare) at a regional level makes it possible to rely on a regional preference matching (Oates 1972). Oates argued that the efficient level of a certain output may differ among jurisdictions because of different preferences. A subnational level of government is closer to the preferences of its citizens and can tailor the outputs of these goods and services to the preferences of the local constituency. This theorem holds true if we assume the presence of asymmetric information; that is, the local government knows the preferences of its citizens, whereas the central government does not. The second argument in favor of decentralization states that central governments have certain political constraints that prevent them from allocating different outputs to different areas. If different jurisdictions require a different Pareto-efficient level of such an outcome, then a central government cannot guarantee that this optimal level is reached (Oates 2005).

Federal organization of the state may stimulate horizontal competition among jurisdictions. Regions can compete to cater for the preferences of their own citizens in a "yardstick environment". Each region will offer a given quality and quantity of local public services according to citizens' preferences (and according to region's budgetary limit).

If we assume mobility of people, citizens in a federalist system can move to another jurisdiction that has more favorable conditions in terms of services,

taxation, and so on. In his famous 1956 paper, Tiebout expressed the idea that people can "vote with their feet" (Tiebout 1956), meaning that people may move from one jurisdiction to another if they find the relationship between the supply of goods and services and the tax burden of the other jurisdiction more convenient.

A third argument in favor of decentralization is that a federal system promotes innovation in both the supply of public goods and in taxation policy. On one hand, it is easier to innovate in a small jurisdiction with a limited number of people than at a central level. The positive or negative effects of a new policy may be better controlled in a small territory and it is also easier to revert to the initial situation in case of failure. On the other hand, the federal setting may be conceived as a laboratory in which several solutions to the same problem can be tested against one another simultaneously. This can become a virtuous environment if local governments are willing to compare the various solutions and apply the policy with the best performance in their own jurisdiction.

All of the motivations described above can be summarized in the following simple concept: decentralization helps to achieve better results in terms of allocative efficiency, due both to regional preference matching that better expresses citizens' tastes and horizontal competition among regions.

In the last decade, a so-called "second-generation theory" of fiscal federalism has been developed. This strand of literature has a wider perspective on federalism and combines economic and political views of the problem. This theory is focused on the behavior of political agents in a context of imperfect information. The second-generation theory shifts the focus towards the behavior of the agents, noting the importance of the information that all the agents involved in the process possess. In this vision, federalism is seen as the result of political bargaining between politicians and voters (see Oates 2005).

This more recent strand of research has highlighted another positive aspect of a federal organization. At a local level, politicians may have higher "electoral accountability" towards their electors, which should lead to the incumbent having a higher sense of responsibility and commitment.

In the last century, several countries have encouraged decentralization in the organization of the healthcare sector. Even though fiscal federalism was not designed for the provision of private merit goods such as healthcare, there are a number of reasons why healthcare is a good field where decentralization should be implemented. In this sector, the preferences of the consumers (the patients) can be similar within the same region and different between regions (depending, for example, on the share of elderly people present in a specific area). At the same time, the healthcare supply can have many differences between regions (such as the density of physicians in the population, the topographic conformation of a territory, etc.) that require a different organization of the system. Therefore, a decentralized organization may be more responsive to people's needs and more efficient at adapting the specific supply-side structure. Nevertheless, a decentralized system does not always outperform a centralized one. Federalism also presents certain drawbacks that might yield both equity and efficiency concerns.

2.2 Challenges of a Decentralized System with Respect to Equity

One serious drawback of federalism is the possible increased heterogeneity in the services delivered across regions, which can go so far as to put the principle of social citizenship at risk (Banting and Corbett 2002). By definition, federalism cannot guarantee the principle of horizontal equity across a whole country since sub-central governments may choose different tax rates and the organization of public service provision might differ (in terms of quantity, quality and prices) according to the preferences of the different populations. Consequently, strong disparities in the treatment of citizens who live in different areas of a country are immanent in federal states. These disparities may have important socioeconomic effects in contexts such as healthcare, where differences in service organization may produce undesirable differentials in terms of quality of care and access to important health services. This effect may be even more pronounced if regions have very different economic situations. The risk is that the provision of public services will be driven by different levels of available resources rather than by the different preferences of the citizens.

To counter these equity problems, federal governments generally use two different strategies, which are often jointly applied. The first strategy is to define in a federal policy framework the minimum standard level of services that should be guaranteed in all jurisdictions. The second strategy is to rely on equalization mechanisms based on vertical (and in some cases also horizontal) financial transfers.

Through the equalization mechanism, the central state redistributes resources to reduce economic inequalities between regions and to correct for possible fiscal imbalances until a minimum service level (fixed in advance) is reached. The so-called intergovernmental grants may be conditional (such as matching grants) or unconditional (for example, lump-sum grants) and may have at least the three following functions (Oates 1999): they internalize the possible spillover effects of one jurisdiction to the others; they guarantee fiscal equalization across jurisdictions; they promote a more equitable tax system. In practice, intergovernmental grants can be seen as a means to redistribute wealth from the richer regions to the poorer ones so that each region may offer a similar level of services. In some regions, the provision of public goods may actually be smaller, not due to differences in preferences, but to differences in resources; this raises equity concerns.

Transfers are generally assigned according to a specific formula based on available resources (fiscal capacity) and (fiscal) needs of subnational governments. In some cases, there is a specific formula for a sector like health, while in other cases health is included together with other public functions in a general transfer.

Transfers are the most important instrument that governments have to redistribute resources and to reduce inequity issues. They are justified on the grounds of equity principles, in that they allow fiscally weaker jurisdictions to compete with stronger ones (Oates 1999). Transfers are also an insurance against specific shocks,

such as epidemics (Costa-Font 2012). Nevertheless, there are also some negative aspects of transfers, such as the possibility of moral hazard problems. This phenomenon is implicit in the so-called "flypaper effect", whereby unconditional grants have a greater effect in increasing regional spending than a general rise in community income. This can be seen as a form of moral hazard.

Apart from vertical transfers, another solidarity instrument relies on certain risk adjustment principles among regions. In order to provide mutual insurance against risks related to health and healthcare, regions adjust for the differences in risk among specific patient groups through a compensation system. This may be seen as a form of horizontal transfer.

In the case of healthcare, however, a federal state can also offer another option to mitigate possible equity problems. This option involves giving citizens the option to be treated in another district where the quality of care is higher. This phenomenon is considered a less radical way of voting with one's feet. Although in this case the person does not move her residence to another region (as it would be the case in the original Tiebout's situation), she might decide to use the healthcare supplied in a region that provides a combination of quality and quantity of that service which better reflects her preferences. This may be possible only if the patient's mobility is permitted under conditions defined by the central government. Levaggi and Zanola (2004) and Crivelli (1998) have provided evidence of internal patient mobility in presence of differences in the quality of services across Italian regions and Swiss cantons, respectively.

2.3 Challenges of a Decentralized System in terms of Efficiency

A decentralization process also presents some other shortcomings related to efficiency.

Firstly, local governments may be inefficient due to the failure to internalize inter-jurisdictional externalities; spillover effects are difficult to include in the costs of the service. Such a problem occurs when some people in a jurisdiction free-ride by enjoying positive effects of a service provided by another jurisdiction without paying any correspondent tax for it. From the point of view of citizens of the jurisdiction that provides the service, this is an oversupply of goods. Spillover effects are responsible for a distorted allocation of public goods. A common solution in a case in which the provision of a local service produces spillover effects for citizens of another jurisdiction is that the central government may allocate a Pigouvian subsidy (in the form of matching grant) to compensate for these effects.

Another problem arises as a direct consequence of tax competition among subnational levels of government. Competition may lead to substantial allocative distortions. In order to attract wealthy taxpayers, regions may compete by holding

the taxation burden below the optimum level that would reflect voters' preferences. At the same time, regions may find it convenient to relinquish an egalitarian distribution of income; they might have an interest in designing a relatively low level of social assistance (such as subsidies and other social aids for the worse off) to avoid an inflow of needy people (Feld 2000). On these grounds, Musgrave (1971) and Brown and Oates (1987) theorized that the task of income redistribution should be entrusted to the central government. Shifting this responsibility to decentralized levels of government could lead to the design of public policies that encourage positive self-selection. This could be done by choosing a high level of public services preferred by the better-off (such as elegant streetlights and luxuriant public gardens) and a low level of those services that are more appreciated by the worse-off (canteens in public schools, for example). This phenomenon is also known as "race to the bottom" (Oates 1999), which indicates harmful competition that could lead to a low taxation level, low public expenditures, and to a suboptimal level of some public services.

Another drawback that Oates (1999) identified are unexploited scale economies, with resulting expenditure increases. The question of whether fiscal federalism increases or decreases total expenditures remains open to debate. Most of the success of decentralization depends on the starting point; that is, whether decentralization can embrace heterogeneity or not. Most important, however, are the incentives and the institutional design in which decentralization develops. Decentralization offers some efficiency advantages if it is able to exploit local heterogeneities and if these more than offset a possible loss in the exploitation of the existing economies of scale; otherwise it may lead to an increase in general costs.

Costa-Font (2012) argued that many of the possible negative side-effects of federalism refer to the sunk costs of a change from a centralized system to a decentralized one. For example, duplicity costs might arise at the beginning of this process due to a possible overlap of competences regarding specific functions or responsibilities. Such sunk costs are related to the need for coordination among different levels of government, which is especially costly at the beginning of the decentralization process. This would not apply in countries like Switzerland, where decentralization of competences has always existed in the organization of the healthcare system.

Another cost to consider is the one paid by the central government to eliminate the bailout expectations of the regions. Bordignon and Turati (2009) considered the role of bailing out expectations as an important determinant of public expenditure. Their study is based on a strand of literature that agrees on the importance for central government to commit not to bail out regional supplementary expenditure. They argued that if regions expect that citizens of the other regions will pay their bill, it is likely that moral hazard behavior will result, as local governments will have an incentive to waste money and inflate their expenditures. This important issue is known as "soft budget constraint", because the local governments' budget constraint may become "soft" and lead to an

increase in the level of expenditures. Changing these expectations may help contain public expenditure.

Finally, as many authors have highlighted (e.g., Costa-Font 2012), another obstacle to the success of a decentralized system is that the central government must devolve responsibilities not only on the side of expenditures, but also on the side of taxation. If the autonomy is allowed only on the expenditures side, there is a risk of expenditure expanding, which presents obvious problems in terms of efficiency.

3 The Swiss Health System

Switzerland is a small federal state (7.9 million inhabitants as of 2012) made up of 26 cantons. The present organization of the Swiss health sector reflects at least three fundamental elements (Achtermann and Berset 2006): (a) a strongly decentralized political system, based on federalism, subsidiarity, and the institutions of direct democracy; (b) a liberal economic culture that emphasizes freedom of choice and consumer-driven economic decisions; and (c) a unique historical path for social security, in which non-profit institutions in the nineteenth century led to the creation of a voluntary insurance sector and have been influencing the design of universal coverage in Switzerland until the present day.

The Swiss health insurance sector was heavily reformed in 1996 according to Enthoven's principles of regulated competition (Enthoven 1993). Since then, Switzerland has had a federally established universal health insurance system with atypical characteristics lying somewhere between private and social insurance (Leu et al. 2007; OECD/WHO 2006) and with competition playing out within a national regulatory framework, but mostly at the cantonal (decentralized) level. Federalism[2] and the institutions of direct democracy,[3] along with the pre-existence

[2] Article 3 of the current Swiss Constitution establishes the high degree of autonomy to the cantons, stating that 'The cantons are sovereign insofar as their sovereignty is not limited by the Federal Constitution; they shall exercise all rights which are not transferred to the Confederation.'.

[3] In the Swiss political system (both at the cantonal and federal levels) citizens have the opportunity to participate directly in every state decision by means of direct democracy. For example, federal laws and generally binding decisions of the Confederation are subject to an optional referendum; in this case, a popular ballot is held if 50,000 citizens request it. The referendum is similar to a veto and has the effect of delaying and safeguarding the political process by blocking amendments adopted by parliament or the government or delaying their effect. Accordingly, referenda are often described as a 'brake' applied by the people. A second way for citizens to induce a change is called 'popular initiative'. If at least 100,000 signatures are collected within 18 months to propose a constitutional amendment, then a popular ballot must be held. The outcome will be binding, as long as a majority of voters and cantons support the proposal.

of a large number of mutual support groups,[4] have strongly conditioned the fundamental choices of the Swiss welfare system (Gilliand 1986). In 1899, the Swiss federal assembly envisaged setting up a system of public funds inspired by the Bismarck model. This system would have been jointly financed by the insured and employers and organized on a territorial basis starting with a minimum number of 1,500 insured (Gilliand 1990). It was undoubtedly a more modern and rational system of health insurance than the highly fragmented one that had spontaneously emerged in the nineteenth century. However, in May 1900 the reform was rejected in a referendum. From the ashes of that ballot, the first federal Law on Sickness and Accident Insurance developed a decade later. The law was accepted by parliament in 1911 and approved by the people in the referendum held in 1912. The legislature realized that to overcome the obstacle of direct democracy and introduce a federal law on the subject of health insurance, it was necessary to leave the management of the sector in the hands of private institutions without restraining cantonal autonomy.

Unlike the Bismarck model, the law of 1911 saw the Swiss legislature relinquish the idea of making health insurance compulsory on a national scale; instead, it left it up to the cantons to decide whether to make it compulsory at the cantonal level.[5] Insurance premiums were established by each sickness fund and were not related to income but were adjusted for age and gender. To reduce the financial fragility of the sickness funds and to stimulate voluntary affiliation, the Confederation decided to participate in the financing of premiums with public money by transferring a lump-sum per capita subsidy to the sickness funds. The earliest available statistics show that approximately half of the Swiss population was insured in 1945, while nearly universal coverage was achieved between 1985 and 1990.

The organization of healthcare delivery, particularly that of inpatient care, has historically come under the control of the cantons (Kocher and Oggier 2007). Moreover, the decisional autonomy of cantons has been combined with decentralized financial responsibility (Wyss and Lorenz 2000). The public expenditure of cantons and municipalities in Switzerland represents approximately 70 % of total public expenditure, while only 30 % is paid by the Confederation. In terms of direct public spending in the healthcare sector, the part funded by the federal government is only approximately 2 % (Gerritzen and Kirchgässner 2013). In order to guarantee an equitable amount of resources, Switzerland has implemented a fiscal equalization system based on vertical and horizontal grants, with the aim of decreasing differences between rich and poor jurisdictions.

---

[4] A census held in 1903 counted 2,006 mutual support groups, to which 14 % of the population was affiliated (approximately 500,000 people). Half of the groups had fewer than 100 members and grouped together the inhabitants of one municipality.

[5] Prior to 1994, six cantons made affiliation to a sickness fund compulsory for the whole population; 12 cantons made affiliation com-pulsory for certain social groups such as people with a low income and foreigners; and four cantons delegated the decision for a man-date to each municipality (Alber and Bernardi-Schenkluhn 1992: 210).

Despite fiscal equalization, strong decentralization of competences, ample autonomy of the cantonal governments in public expenditure decisions, and fiscal federalism has, over time, created significant differences among cantons with respect to per capita healthcare spending, regulatory setting, the role of the private versus public sector, and the level of production capacity (Crivelli et al. 2006; Vatter and Rüefli 2003). In addition, federalism has encouraged the proliferation of organizational models that vary significantly across cantons. Finally, direct democracy and federalism were at the origins of the very slow pace of radical reforms at the national level. Referenda and popular initiatives have allowed Swiss citizens to intervene directly in the decision-making process, approving or rejecting each reform via a popular ballot. Because unbalanced and radical revisions have a high likelihood of rejection in popular ballots, bills are generally amended early in a pre-parliamentary phase that involves negotiation ex ante with opponents of reforms originating in government or parliament and incorporating the demands of the most powerful lobbies (Cheng 2010). Between 1974 and 2012, the Swiss population was called to the ballot box 11 times to deliberate on reforms in the health insurance sector.[6] With the exception of the referendum on the Federal Health Insurance Act (KVG), which was approved in 1994[7] and came into force in January 1996, the remaining 10 popular ballots failed. It took 85 years to profit from a "windows of opportunity" and to pass a radical system reform (Crivelli 2014).

Today, the Swiss healthcare sector is still composed of 26 cantonal systems, connected to each other by the KVG. However, while each canton is still formally responsible for ensuring access to good quality health services, the KVG has shifted the balance of power from the cantons to the Confederation. Health insurance is now compulsory at the federal level and the Confederation defines the benefit package that is guaranteed to each resident[8] and financed by two main instruments: compulsory insurance supplied by private sickness funds within the framework of the KVG and the public spending of the cantonal and municipal authorities. The latter is financed by general local government taxation and used to subsidize providers who offer services included in the compulsory benefit package (such as hospitals, nursing homes, and public and non-profit home care institutions). Furthermore, both federal and cantonal contributions are used to subsidize health insurance premiums for households with modest incomes.

The KVG imposed a reduction in cantonal autonomy on decisions regarding public expenditure, which led to several important changes in the distribution of

[6] Three reforms of the federal law proposed by parliament and put to referendum, six popular initiatives, and two counter-projects.

[7] A narrow majority of 51.8 % voted in favor of the new law.

[8] Social insurance is not automatic, but it is compulsory. The cantons are responsible for the surveillance of this mandatory insurance and checking the membership status of each citizen. It is impossible to leave one sickness fund without having a contract with another insurer and fines are imposed on those who are caught without coverage (Brunner et al. 2007: 151–2; Cheng 2010: 1443).

tasks between the Confederation and cantons.[9] In the future, the Confederation is expected to play an even more important role in defining Swiss health policy,[10] with a view to thwarting regional differences in supply, harnessing economies of scale, and curbing the growth of health expenditure at national level. However, the transfer of new tasks to the Confederation cannot take place effectively without an amendment to the Federal Constitution (Schaffhauser et al. 2006) and must be accompanied by a corresponding adjustment of the public expenditure share borne by the federal government (Crivelli and Filippini 2003). This missing constitutional reform is a violation of the principle of 'who decides, pays', since the bulk of public spending on health is still financed by the cantons, even though the Confederation plays an increasingly important role in health policy decisions. Accordingly, it is not surprising that, in the last decade, cantons have been unwilling to accept radical reforms of the system aimed at transferring additional responsibilities and decision-making power to the central government and to health insurers without an equivalent transfer of financial responsibilities. Cantons are currently the main opponents of the federal government's roadmap of reform, which has made the search for consensus on fundamental changes slow and complex (Crivelli and Bolgiani 2009).

The following sections will discuss in greater detail the aspects of equity and efficiency that characterized the Swiss health system. These are two sides of the same coin that need to be viewed together.

4 Fiscal Federalism and Efficiency in the Swiss Healthcare System

As explained in Sect. 2, the decentralization of the organization and production of healthcare has the advantage of tailoring the supply to the preferences and specific needs of the population. In Switzerland, the heterogeneity of preferences across the constituencies of the three main linguistic areas[11] and/or of the rural versus urban cantons is highly significant and documented. The heterogeneity emerges in examples such as the level of acceptance for managed care contracts (see Zweifel et al. 2006 who used discrete choice experiments to account for differences in willingness-to-pay between the German and French speaking cantons), in the attitudes towards risk (such as the choice of higher deductibles) and in voters' preferences expressed in popular ballots (Crivelli 2014). This heterogeneity

[9] Switzerland is moving in the direction hoped for by the theory of fiscal federalism, according to which the central government should have responsibility for income redistribution (and therefore also for financing the basic stock of merit goods), whereas cantons should be responsible for the organization and production of health services (Oates 1999).

[10] In 2013, for the first time, the federal government issued a national health care strategy (see Federal Office of Public Health 2013).

[11] Switzerland has a German-speaking, a French-speaking and an Italian-speaking part.

suggests that, in Switzerland, federalism could lead to a better preference matching and to the achievement of higher allocative efficiency compared to a centralized ("one size fits all") solution. However, the success of decentralization also depends on the dimension of the local jurisdictions and on the coordination between levels of government.

With 26 jurisdictions (cantons) in Switzerland for a population of just 8 million, at least two other efficiency-related aspects must be considered. Firstly, an important goal of every productive system (including decentralized ones) is to reach technical efficiency (that is, to produce the maximum quantity of outcome with the minimum level of inputs, by exploiting the available economies of scale). Secondly, in a decentralized setting with a multi-level government organization, there is a higher risk of cost shifting (Banting and Corbett 2002). This cost shifting could occur if several public payers (in addition to private and social insurers) are jointly responsible for healthcare funding and lack the incentives to contain total health expenditure. In fact, total cost containment might be more difficult to achieve (or may imply higher political costs) than containment of the individual financial burden since, in the presence of multiple payers, a viable option could be to shift part of the expenditure to another payer. This section discusses both aspects in detail.

As Costa-Font (2012) highlighted, there is no clear evidence about the impact of decentralization on the level of expenditure. It is still unclear whether decentralization reduces the level of expenditure due to an increase in the efficiency of the entire system or yields a higher level of activities that requires higher expenditure in the end. The answer to this question depends on many factors, such as the design of fiscal policy and fiscal imbalances, policy innovations, the promotion of competition, etc. In short, it depends on the incentives embedded in the used sources of financing.

It is not always simple for a decentralized system to guarantee technical efficiency. A potential problem that may occur in the presence of fiscal federalism is the suboptimal dimension of care institutions (such as hospitals and nursing homes) that might not entirely exploit the existing economies of scale. In a decentralized system, regional governments may be responsible for hospital planning and municipalities of nursing homes administration, although it would be more economically and socially efficient to assign the control of these areas to larger jurisdictions. Jurisdictions are sometimes too small to exploit economies of scale (Eichenberger and Frey 2006). This is common in Switzerland, where hospitals are managed at the cantonal level and nursing homes at the municipal level. Several studies have found that the vast majority of Swiss nursing homes and hospitals do not reach the optimal dimensions (see, e.g., Crivelli et al. 2001, 2002; Farsi and Filippini 2006). Therefore, it would be possible to have an efficiency gain if these structures were designed and managed by larger jurisdictions. In theory, small cantons (or municipalities) could build consortia to jointly run hospitals (or nursing homes). Unfortunately, this solution is more appealing in theory than in practice, since it leads to artificial political entities without the

necessary electoral accountability to function properly and facing a lack of fiscal equivalence.

Widmer and Zweifel (2012) showed how, in the case of Switzerland, the wrong incentives that are immanent in every fiscal equalization program led to low performance in terms of efficiency. They argued that cantons with higher financial potential (that is, the net-payers of the equalization system) may have incentives to underperform. Moreover, earmarked subsidies may encourage inefficiency. To test this hypothesis, Widmer and Zweifel (2012) performed a data envelopment analysis at the cantonal level, which enabled them to assign an efficiency score to each canton for six categories of services considered, including healthcare. They then checked for any correlation between the scores obtained and a vector of variables representing the Swiss fiscal equalization program.

Their results confirmed the hypothesis of a negative correlation between the amount of financial equalization and cantonal efficiency, meaning that the equity-efficiency trade-off advocated by Stiglitz (1988) does exist in Switzerland. This is more evident in payer cantons than in the receiver ones. Widmer and Zweifel argued that cantons that do not expect to receive anything from the equalization will prefer to waste their resources instead of giving them to the worse-off cantons. They also found a negative correlation between earmarked federal subsidies and cantonal efficiency: cantons receiving a federal subsidy are more likely to be inefficient. Finally, they found that the best efficiency scores are reached by small rural cantons rather than by urban ones. Nevertheless, the inefficiency scores that the authors used in their correlation analysis are an average of the indices found in all the categories, not just health.

Another aspect strictly related to the decentralized structure of the health system is the evolution of the health expenditure, which could be due to the adoption of cost shifting strategies. In 2010, the total health expenditure in Switzerland was approximately 10.9 % of GDP, which is one of the highest rates in the world.

Moreover, per capita health expenditure in Switzerland shows conspicuous variation across cantons. The first column of Table 1 highlights the level of per capita socialized health expenditure (SHE), which ranges from 3579 CHF in Thurgau to almost twice that (6908 CHF) in Geneva.[12] It is difficult to determine how much of this heterogeneity reflects cantonal preferences and how much is due to better cost containment or to a more rational organization of the health service supply in the cantons with lower spending. Crivelli et al. (2006) empirically assessed the determinants of the cantonal health expenditure using panel data analysis. They found that these differences depend on economic, demographic, and also structural factors.

Crivelli et al.'s analysis also shows that an increase in the physician density determines, *coeteris paribus* an increase in the socialized health expenditure. This

[12] Socialized health expenditure (SHE) reflects collective spending for the universally accessible basket of healthcare benefits. This includes public financing, mandatory health insurance and social insurance and accounts for approximately 60–65 % of the total financing in Switzerland. Out-of pocket expenditures, co-payments and voluntary health insurance are not included.

Table 1 Socialized health expenditure (absolute value and share of each financing source), amenable mortality, and Kakwani index (averages 2004–2008)

Cantons	SHE (CHF per capita 2004–2008)	Amenable mortality (age-standardized rates per 100,000 population)	Sources of financing (2004–2008)				Kakwani Index (1998–2005)
			Federal taxes (%)	Cantonal and municipal taxes (%)	Non health social insurances (%)	Social health insurance (net premiums) (%)	
Zurich (ZH)	4396	57.2	5.90	33.00	14.30	46.80	−0.108
Bern (BE)	4829	54.3	8.50	32.60	13.00	45.90	−0.095
Luzern (LU)	3816	55.6	9.30	29.70	16.50	44.40	−0.094
Schwyz (SZ)	3762	60.1	6.80	29.30	16.70	47.10	−0.134
Obwalden (OW)	3666	56.6	12.60	29.90	17.20	40.30	−0.057
Nidwalden (NW)	3664	46.4	6.00	33.30	17.20	43.50	−0.073
Glarus (GL)	3860	64	8.00	29.40	16.30	46.30	−0.091
Zug (ZG)	4103	51.7	4.80	38.10	15.40	41.70	−0.087
Fribourg (FR)	4333	56.2	9.60	32.60	14.50	43.30	−0.087
Solothurn (SO)	4324	62.9	6.90	30.50	14.60	48.00	−0.087
Basel-Stadt (BS)	6370	60.4	4.70	43.90	9.90	41.50	−0.058
Basel-Landschaft (BL)	4414	51.3	6.10	29.40	14.30	50.20	−0.077
Schaffhausen (SH)	4409	67.6	7.70	34.30	14.30	43.70	−0.154
St. Gallen (SG)	3772	58.1	7.10	29.10	16.70	47.10	−0.107
Graubünden (GR)	4124	54.7	7.40	32.50	15.30	44.80	−0.129
Aargau (AG)	3772	55.8	6.10	24.80	16.70	52.30	−0.107
Thurgau (TG)	3579	56.9	9.70	24.60	17.60	48.10	−0.113

(continued)

Table 1 (continued)

Cantons	SHE (CHF per capita 2004–2008)	Amenable mortality (age-standardized rates per 100,000 population)	Sources of financing (2004–2008)				Kakwani Index (1998–2005)
			Federal taxes (%)	Cantonal and municipal taxes (%)	Non health social insurances (%)	Social health insurance (net premiums) (%)	
Ticino (TI)	5035	50.5	7.50	34.60	12.50	45.40	−0.059
Vaud (VD)	5176	49.7	6.90	34.80	12.20	46.10	−0.100
Wallis (VS)	4213	51.7	10.60	32.50	15.00	42.00	−0.111
Neuchâtel (NE)	5196	53.3	8.00	36.00	12.10	43.90	−0.09
Geneva (GE)	6908	44.9	4.60	46.60	9.10	39.70	−0.064
Jura (JU)	4613	51.9	9.80	32.10	13.70	44.50	−0.057
Switzerland	4556	54.7	7.20	33.40	13.80	45.60	−0.100

Canton Uri, canton Appenzell Inner-Rhodes, and canton Appenzell Outher-Rhodes have not been considered because of a lack of data

may reveal the existence of a supply-induced demand effect: the presence of more doctors in the territory induces a higher use of healthcare, since providers in Switzerland are still paid according to a fee-for-service reimbursement scheme. Therefore, cantons seem to differ not only in terms of demographic conditions and citizens preferences, but also in their regulatory efforts and ability to keep the medical supply under control.

A more recent study (Reich et al. 2012) includes some additional variables and uses a longer panel, but significantly confirms the previous results. The panel data analysis provides evidence of a strong correlation between expenditure and the per-capita rate of specialist physicians and dispensing doctors,[13] income, the share of managed care contracts and other socio-economic factors. The main message of Reich et al.'s study is that a more integrated model in the provision of ambulatory care may curb health expenditure. By increasing the availability of integrated care networks and the acceptance of managed care plans in the population, per capita health expenditure may be better contained.

5 Fiscal Federalism and Equity in the Swiss Healthcare System

This section discusses how the federal setting of the Swiss healthcare system impacts on equity.

Although Switzerland usually relies on economic liberalism for most of its policy decisions, in the healthcare field it has embraced an egalitarian point of view of social justice and included equity as one of the main aims of the healthcare system (similarly to the majority of the OECD countries).

The features that an equitable healthcare system should guarantee may be summarized in two main concepts: horizontal and vertical equity. The former means that people in a similar situation (with similar needs, similar economic situation) have to be treated similarly. The latter expresses the idea that different people need to be treated differently; it is generally used to explain the principle of equity in financing, referring to the fact that people in different economic situations must contribute differently to the health system financing.

The strand of literature concerning the equity concept in health economics is based mostly on empirical analysis (O'Donnell et al. 2008) and generally concentrates on three main measures of equity: equity in health itself, equity in access to (or use of) healthcare services (according to the idea of "equal treatments for equal needs"), and equity of the healthcare system financing, which guarantees that the financial burden of healthcare is distributed according to the ability of individuals to pay (that is, progressively), which places greater financial responsibility on the better-off than on the poor (van Doorslaer et al. 1992).

[13] Doctors with legal authorization to sell pharmaceutical products directly to their patients.

This section concentrates primarily on the equity of financing measure, due to the lack of research at cantonal level in the two other fields. Therefore, this is the only equity dimension that allows us to draw some conclusions about the impact of decentralization on equity. As far as the equity of health status and the equity of access are concerned, we briefly review the overall situation of Switzerland in the next paragraph.

5.1 Equity of Health Status and Equity of Access

The ultimate outcome of any healthcare systems is generally recognized as the achievement of the maximum level of health for the population (WHO 2000). Accordingly, the equity in access to health services is considered instrumental to the goal of equity in the level of health. In order to guarantee equitable health status to citizens, public policies should restrain social gradients on health: a good level of health should be guaranteed to each citizen, regardless of his or her socio-economic condition. The literature on Switzerland highlights a weak positive relationship between family income and health status (Leu and Schellhorn 2004a; Reinhardt et al. 2012), which reveals the existence of a social gradient on health status. Nevertheless, the severity of this problem is less pronounced than it is in the rest of Europe. In fact, the magnitude of the Swiss social gradient is the second smallest in Europe[14] (Leu and Schellhorn 2004a).

Research into the equity of access to (or use of) health services intends to measure horizontal equity; that is, the extent to which people with similar needs are treated equally. An issue of inequity may arise if people who rely on better socioeconomic conditions have easier access to healthcare services.

The literature covering this topic has reached varying results. Considering all physicians visits, there is evidence of a slightly pro-poor distribution (van Doorslaer et al. 2000). If GP and specialist visits are considered separately, a slightly pro-poor distribution in the number of GP visits has been found for Switzerland, while specialist visits were pro-rich distributed (Leu and Schellhorn 2004b). However, Allin et al. (2009) found no robust evidence of any pro-rich inequalities with respect to specialist visits for a sample of elderly people.

Given the lack of literature on cantonal differences in this field, we have shifted our focus to an index that could be considered as a measure of service quality; namely, the age-standardized rate of amenable mortality per 100,000 inhabitants (for the definition of this concept, see Nolte and McKee 2011). Although this index cannot replace the results of a comprehensive equity analysis, it does indirectly contain information about the access to (and the quality of) the health services: a faster and easier access to (higher quality) health services may reduce the

[14] The Netherlands is the only country with lower income-related inequality in health status.

amenable mortality rate. This information enables us to make comparisons across cantons.

The second column of Table 1 reports the index for the Swiss cantons. The variation is not huge, but it is significant, suggesting the existence of important cantonal variations in the quality of the healthcare services. The gap between the lowest value of canton Geneva (44 amenable deaths for every 100,000 people) and the highest value of canton Schaffhausen (68 amenable deaths for every 100,000 people) is comparable to that detected between different countries such as France and Germany (Nolte and McKee 2011).

5.2 *Equity of Financing*

The concept of equitable financing suggests that the economic burden of healthcare should be distributed between individuals according to their ability to pay, regardless of their health status or utilization of health services. This implies not only a form of solidarity between the sick and the healthy, which is implicit in any health insurance system, but also solidarity between rich and poor.

The financing sources of the Swiss healthcare system are a combination of private and public. The main "financing actors" are households, which buy social and private health insurance and pay out-of-pocket care, the state, and businesses that have to fund general social insurance.[15] Approximately two-thirds of the financing is collected directly from households (independent of their ability to pay) through monthly premiums, deductible, copayment, and out-of-pocket expenses. Thus, this part of the financing is likely to be regressive and to give rise to equity issues. Only one-third of financing is likely to be proportional or even progressive, being collected according to households' ability to pay through general taxation and general social insurance.

Some of the financing strategy rules are decided at the federal level. However, Swiss federalism allows cantons to make their own decisions regarding certain aspects of the financing process. The most important choice regards earmarked subsidies; that is, the policy tool used to smooth the regressivity of health insurance premiums and to redistribute income from the rich to the worse-off.

Economic theories disagree about which level of government should be in charge of redistribution. Oates (1972) felt that because redistribution is a national public good, the central state should handle it. However, other economists see redistribution as a local public good (Pauly 1973) and argue that the subnational governments should perform it. The Swiss model is a mixed one: subsidies are jointly funded by the Confederation and cantons (with an almost 50/50 share).

[15] We refer to a Bismarckian insurance model, funded by means of wage-based social contributions and designed to cover, through in-cash benefits, other health-related risks like longevity, disability, and accident.

However, cantons may determine the rule through which allocate subsidies; they fix the amount of subsidies and also the income threshold level under which people are allowed to obtain them. Moreover, the federal setting allows each canton to differ also in its level of (cantonal and municipal) taxation. According to all these cantons' choices, different equity (or inequity) levels are determined.

Columns 3–6 of Table 1 list the share of each financing source in the socialized health expenditure. The average values for Switzerland suggest that 45 % of socialized health expenditure is funded through health insurance premiums; that is, the most regressive financing source. The financing coming from taxation represents roughly 40 % of the socialized health expenditures (33.4 % cantonal and municipal taxation and 7.2 % federal taxation). The smallest part of financing (13.8 %) is collected proportionally to income through a general social insurance that pays for treatments in case of accident or disability.

The table shows that the composition of socialized health expenditure differs quite substantially among cantons. Consider the two extreme cases of Aargau and Geneva: the former finances more than half of its SHE through net premiums (52 %), compared to 40 % for the latter. On the contrary, the share of the cantonal and municipal taxes on total expenditure in Geneva (46.6 %) is almost twice as much as in Aargau (25 %).

Nevertheless, this data does not provide precise information about the extent of regressivity of the financing mix. In order to analyze this aspect, we need to rely on the Kakwani index, the most commonly used indicator for this kind of analysis. Wagstaff et al. (1999) estimated the equity of healthcare financing for Switzerland and other 12 OECD countries through the Kakwani index based on data from the early 1990s. This index, which is generally used in the public economics realm to check the progressivity of taxation, measures the progressivity (or regressivity) of a tax in terms of shifting from proportionality. A positive value of the Kakwani index indicates that the tax (in our case the financing-mix) is progressive (that is, the financial contribution of the rich is larger not only in absolute terms, but also as a percentage of the disposable income if compared with the poor), while a negative value suggests that the financing source in question is regressively financed. The computed Kakwani index for Switzerland (−0.1402) was negative, meaning that poor people financed the system relatively more than rich people.

Bilger (2008) used a different technique to check the level of regressivity of the Swiss health system, based on more recent data (from 1998, after the KVG reform). His results confirmed those from elsewhere; namely, that the Swiss health system is still very regressive (also after the major reform of 1996).

Crivelli and Salari (2012) analyzed the equity of the system exploiting the federal dimension of the Swiss system. The Kakwani index was computed using household data for the period from 1998 to 2005 to assess the level of regressivity in each canton for each financing source separately. These partial results were then weighted using the share of each financing source in the cantonal SHE to compute the overall index. The results suggest that the financing mix is highly regressive, especially in the cantons where the total level of health expenditure is smaller. The most regressive financing source turns out to be the net premiums.

The final column of Table 1 shows the value of the total Kakwani index in 23 out of 26 cantons. The heterogeneity in the results is evident: the difference between the lowest and the highest Kakwani index is (in absolute terms) comparable to that between USA and Sweden (as computed by Wagstaff et al. 1999), two countries with completely different healthcare systems. This large heterogeneity depends on the choices made by cantons in terms of subsidies (the amount and income level under which people are eligible to receive them), but also on the amount of public financing they decided to allocate, the progressivity of the cantonal tax system, and many other decisions (for more details, see Crivelli and Salari 2012).

As expected, cantons with a more generous policy in terms of subsidies, and with a widener public financing with respect to the Swiss average are those that perform better in terms of equity. For example, Jura and Geneva have a smaller Kakwani index than the other cantons and are among the most generous in terms of subsidies, considering both the share of population who receive them and the average amount of the subsidy (OECD/WHO 2011).

However the general finding suggested by this research is that even in the most generous cantons, the subsidy policy designed to smooth the regressivity of health insurance premiums is not large enough to turn the financing mix into a proportional payment; the overall SHE financing is regressive everywhere. To check for a possible trade-off between equity and efficiency, these results have been ranked and compared through a Spearman test and a Kendall test to rank their correlation to the efficiency scores found in Widmer and Zweifel (2012). Interestingly, the hypothesis of independence is not rejected, meaning that, in this particular setting, there is no evidence of any direct links between equity and efficiency.

Moreover, from a federal perspective, there is an additional notable aspect. On the grounds of empirical evidence, a 'race to the bottom' may yield worse results in terms of vertical equity than would be the case in a centralized state. This seems to contradict the theory that the Swiss health system setting—that is, a combination of community rating and premium subsidies—might be the most equitable solution (Kifmann and Roeder 2011).

Interestingly, Gilardi and Füglister (2008) found that cantons are generally more likely to imitate neighboring cantons in terms of subsidy policy: this may provide additional evidence of a possible 'race to the bottom'. Cantons are likely to maintain a lower level of subsidies to avoid an inflow of poor people from the neighboring cantons, lowering the overall equity of the system.

6 Conclusions

This chapter has presented an overview of the differences in equity and efficiency across the Swiss cantonal healthcare systems, linking these results to fiscal federalism and to the substantial decentralization of healthcare in Switzerland since the federal Constitution of 1848.

We started by describing the main features of decentralization according to the economic theory of fiscal federalism. Such an organizational model can have many economic advantages. Subnational governments are supposed to be closer to the preferences of the citizens, whereas a yardstick competition among local governments is likely to push the production and distribution of public services towards a higher level of efficiency. Nevertheless, the success of a federal setting, as far as efficiency is concerned, depends on its ability to tackle certain problems, such as the spillover effects, the risk of cost shifting and of unexploited economies of scale. On the other hand, the overall equity of the system needs to be maintained through effective policy instruments of redistribution.

It is not straightforward to assess the impact of decentralization on the efficiency and equity of the Swiss health system due to a lack of counterfactual evidence, since the health system has come with such an organization of government ever since its origins. Nevertheless, by relying on the literature, we were able to identify some of the main challenges that Switzerland will have to face in the future.

Firstly, the supply of health services is not always targeted at the most efficient dimension; this is true for hospitals and nursing homes, for example. Consortia of cantons or of municipalities may be advised to better exploit economies of scale. In 2009, a new attempt to concentrate the highly specialized medicine (that is, complex surgical procedures with rather low frequency, such as stroke units and pediatric oncology) started under the leadership of the Conference of Cantonal Health Ministers. A public call for a given set of procedures was launched; hospitals prepare and submit dossiers (in which they must disclose the number of interventions carried out in the previous year and the related rate of success), while the final decision is made based on both a technical assessment and a political appraisal. Secondly, the level of health expenditures varies enormously across cantons and a higher expenditure does not seem to systematically reflect a higher quality of service. Cantons with higher expenditure should choose policies that aim to reduce costs (for example, by improving the acceptance and availability of managed care plans) and should make greater efforts to keep the medical supply under control in order to better counter the phenomenon of supply-induced demand.

Finally, equity in financing is far from having been reached; the autonomy given to cantons to choose their subsidy policy led to a huge level of heterogeneity among them. This shows a concrete risk of "race to the bottom" that may undermine the overall equity of the system. There is still a need for research at the cantonal level for the other equity aspects, such as the equity of health and equity of the access to healthcare, although the average indicators computed for Switzerland as a whole do not assess these areas as some of main concern.

The real novelty in Switzerland seems to be the new activism of the Federal State in the health policy arena. The two OECD/WHO reports of 2006 and 2011 argued that the highly fragmented governance and the lack of leadership were the major challenges of the Swiss health system. Smith et al. (2012) articulated the concept of leadership in the three essential tasks of setting priorities, performance measurement, and designing accountability mechanisms. In 2013, the minister of home affairs launched, for the first time in Switzerland's history, a health policy

agenda (called "Health2020") that sets priorities for health-policy action in four areas and defines 36 measures to be implemented in the coming 8 years.[16] Among the addressed problems are, not surprisingly, the objectives of "reinforcing fair funding and access" and "increasing efficiency" (by 20 %), particularly in the cantons with the lowest financing equity or the highest healthcare spending; these are both issues that are at the heart of the present chapter. The reactions of stakeholders and cantonal authorities to this initiative were mixed and it is too early to assess the likelihood of it being accepted and successfully implemented.[17] However, it demonstrates (as was observed in the US with the Affordable Care Act) that even federal states with a longstanding tradition of decentralization need, at a certain point in their history, to overcome fragmentation, a certain lack of governance, and weak health policy leadership, and rely increasingly on central power interventions. Of course this central power is not meant as rigid, top-down, monocentric hierarchy, but as one key-actor of the polycentric approach to governance discussed by Elinor Ostrom (2005), which was implemented in Switzerland in the context of healthcare.

References

Achtermann, W., & Berset, C. (2006). *Gesundheitspolitiken in Der Schweiz-Potential Für Eine Nationale Gesundheitspolitik. Analysen Und Perspektiven* (Bd. 1). Bern: Bundesamt für Gesundheit.

Alber, J., & Bernardi-Schenkluhn, B. (1992). *Westeuropäische Gesundheitssysteme Im Vergleich: Bundesrepublik Deutschland*. Schweiz, Frankreich, Italien, Großbritannien: Campus.

Allin, S., Masseria, C., & Mossialos, E. (2009). Measuring socioeconomic differences in use of health care services by wealth versus by income. *American Journal of Public Health, 99*(10), 1849–1855.

Banting, K. G., & Corbett, S. M. (2002). *Health policy and federalism: A comparative perspective on multi-level governance*. Kingston: Queen's University, Institute of Intergovernmental Relations.

Bilger, M. (2008). Progressivity, horizontal inequality and reranking caused by Health System Financing: A decomposition analysis for Switzerland. *Journal of Health Economics, 27*(6), 1582–1593.

Bordignon, M., & Turati, G. (2009). Bailing out expectations and public health expenditure. *Journal of Health Economics, 28*(2), 305–321.

Brown, C. C., & Oates, W. E. (1987). Assistance to the poor in a federal system. *Journal of Public Economics, 32*(3), 307–330.

Brunner, H. H., Cueni, S., & Januth, R. (2007). Krankenversicherung. In G. Kocher & W. Oggier (Eds.), *Gesundheitswesen Schweiz 2007–2009. Eine Aktuelle Übersicht* (pp. 151–170). Bern: Verlag Hans Huber.

Cheng, T. M. (2010). Understanding the 'Swiss watch'function of Switzerland's Health System. *Health Affairs, 29*(8), 1442–1451.

[16] See http://www.bag.admin.ch/gesundheit2020/index.html?lang=en.

[17] In fact, this activism of the federal government still lacks a constitutional basis.

Costa-Font, J. (2012). Fiscal federalism and European health system decentralization: A perspective. LEQS paper No. 55/2012.

Crivelli, L. (1998). Cross-border care between Swiss cantons: A testing lab for the Single European Market. In R. Leidl (Ed.), *Healthcare andits Financing in the Single European Market*. Amsterdam: Kluwer.

Crivelli, L., & Filippini, M. (2003). Il Federalismo Nel Settore Sanitario. In A. Ghiringhelli (Ed.), *Il Ticino Nella Svizzera* (pp. 353–379). Locarno: Dadò.

Crivelli, L. (2014). Consumer-driven health insurance in Switzerland, where politics is governed by federalism and direct Democracy. In S. Thomson & E. Mossialos (Ed.). *In private health insurance and medical savings accounts: History, politics, performance*, Forthcoming ed., Cambridge: Cambridge University Press.

Crivelli, L., & Bolgiani, I. (2009). Consumer-Driven Versus Regulated Health Insurance in Switzerland. In K. Okma & L. Crivelli (Eds.), *Six countries, six reform models: The healthcare reform experience of Israel, the Netherlands, New Zealand, Singapore, Switzerland and Taiwan* (pp. 137–170). Singapore: World Scientific Publishers.

Crivelli, L., Filippini, M., & Lunati, D. (2001). Dimensione Ottima Degli Ospedali in Uno Stato Federale *Economia Pubblica*. *XXXI, (5)*, 97–119.

Crivelli, L., Filippini, M., & Lunati, D. (2002). Regulation, ownership and efficiency in the Swiss Nursing Home Industry. *International Journal of Health Care Finance and Economics, 2*(2), 79–97.

Crivelli, L., Filippini, M., & Mosca, I. (2006). Federalism and regional health care expenditures: An empirical analysis for the Swiss cantons. *Health Economics, 15*(5), 535–541.

Crivelli, L., & Salari, P. (2012). Fiscal federalism and income redistribution through healthcare financing: An empirical analysis for the Swiss cantons CEPRA working paper, USI Università della Svizzera italiana.

Eichenberger, R., & Frey, B. S. (2006). Functional, overlapping and competing jurisdictions (FOCJ): A complement and alternative to today's federalism. In E. Ahmed & G. Brosio (Eds.), *Handbook of Fiscal Federalism* (pp. 154–181) Cheltenham: Edward Elgar.

Enthoven, A. C. (1993). The history and principles of managed competition. *Health Affairs, 12*(suppl 1), 24–48.

Farsi, M. & Filippini, M. (2006). An analysis of efficiency and productivity in Swiss hospitals. *Schweizerische Zeitschrift für Volkswirtschaft und Statistik*, *142*(1), 1–37.

Federal Office of Public Health. (2013). *Health 2020*. Bern: Federal Office of Public Health.

Feld, L. P. (2000). Tax competition and income redistribution: An empirical analysis for Switzerland. *Public Choice, 105*(1–2), 125–164.

Gerritzen, B. C., & Kirchgässner, G. (2013). Federalism in health and social care in Switzerland. In J. Costa-Font & S. L. Greed (Eds.), *Federalism and decentralization in European Health and Social Care* (pp. 250–271). Basingstoke: Palgrave Macmillan.

Gilardi, F., & Füglister, K. (2008). Empirical modeling of policy diffusion in federal states: The Dyadic approach. *Swiss Political Science Review, 14*(3), 413–450.

Gilliand, P. (1990). *Assurance-Maladie – Quelle Révision?*. Lausanne: Éditions Réalités Sociales ed.

Gilliand, P. (1986). *Les Coûts Et l'assurance*. Lausanne: Éditions Réalités Sociales ed.

Kifmann, M., & Roeder, K. (2011). Premium subsidies and social health insurance: Substitutes or complements? *Journal of Health Economics, 30*(6), 1207–1218.

Kocher, G., & Oggier, W. (2007). *Gesundheitswesen Schweiz 2007–2009*. Bern: Verlag Hans Huber.

Leu, R. E., Rutten, F., Brouwer, W., Matter, P., & Rütschi, C. (2007). *A tale of two systems: The Swiss and the Dutch health care systems compared*. Baden–Baden: Nomos Verlagsgesellschaft.

Leu, R. E., & Schellhorn, M. (2004a). The evolution of income-related health inequalities in Switzerland over time. IZA DP No. 1346.

Leu, R. E., & Schellhorn, M. (2004b). The evolution of income-related inequalities in health care utilization in Switzerland over time. IZA Discussion paper series 1316.

Levaggi, R., & Zanola, R. (2004). Patients' migration across regions: The case of Italy. *Applied Economics, 36*(16), 1751–1757.

Musgrave, R. A. (1971). Economics of fiscal federalism. *Nebraska Journal of Economics and Business*, 3–13.

Nolte, E., & McKee, M. (2011). Variations in amenable mortality—trends in 16 high-income Nations. *Health Policy, 103*(1), 47–52.

O'Donnell, O., Van Doorslaer, E., Wagstaff, A., & Lindelow, M. (2008). *Analyzing health equity using household survey data*. Washington DC: The World Bank Publication.

Oates, W. E. (1972). *Fiscal federalism*. New York: Harcourt Brace Jovanovich ed.

Oates, W. E. (1999). An essay on Fiscal federalism. *Journal of Economic Literature, 37*(3), 1120–1149.

Oates, W. E. (2005). Toward a second-generation theory of Fiscal federalism. *International Tax and Public Finance, 12*(4), 349–373.

OECD/WHO. (2011). *OECD reviews of health systems: Switzerland 2011*. OECD publishing.

OECD/WHO. (2006). *OECD reviews of health systems: Switzerland 2006*. OECD publishing.

Ostrom, E. (2005). Unlocking public entrepreneurship and public economies UNU-WIDER Discussion paper No. 2005/01.

Pauly, M. V. (1973). Income redistribution as a local public good. *Journal of Public Economics, 2*(1), 35–58.

Reich, O., Weins, C., Schusterschitz, C., & Thöni, M. (2012). Exploring the disparities of regional health care expenditures in Switzerland: Some Empirical evidence. *The European Journal of Health Economics, 13*(2), 193–202.

Reinhardt, J. D., von Elm, E., Fekete, C., & Siegrist, J. (2012). Social inequalities of functioning and perceived health in Switzerland—A representative cross-sectional analysis. *PLoS ONE, 7*(6), e38782.

Schaffhauser, R., Locher, H., Poledna, T., & Finger, M. P. (2006). Das Gesundheitswesen: Motor Von Wohlbefinden Und Wohlstand: Radikale Denkanstösse Für Das Schweizerische Gesundheitswesen: Institut für Rechtswiss. und Rechtspraxis.

Smith, P. C., Anell, A., Busse, R., Crivelli, L., Healy, J., Lindahl, A. K., Westert, G., & Kene, T. (2012). Leadership and governance in seven developed health systems. *Health Policy*, *106*(1), 37–49.

Stiglitz, J. E. (1988). *Economics of the public sector*. New York: WW Norton.

Tiebout, C. M. (1956). A pure theory of local expenditures. *Journal of Political Economy, 64*(5), 416–424.

Van Doorslaer, E., Wagstaff, A., & Rutten, F. (1992). *Equity in the finance and delivery of health care: An international perspective*. Oxford: Oxford University Press.

Van Doorslaer, E., Wagstaff, A., Van der Burg, H., Christiansen, T., De Graeve, D., Duchesne, I., et al. (2000). Equity in the delivery of health care in Europe and the US. *Journal of Health Economics*, *19*(5), 553–583.

Vatter, A., & Rüefli, C. (2003). Do political factors matter for health care expenditure? A comparative study of Swiss cantons. *Journal of Public Policy, 23*(3), 301–323.

Wagstaff, A., Van Doorslaer, E., Van der Burg, H., Calonge, S., Christiansen, T., Citoni, G., et al. (1999). Equity in the finance of health care: Some further international comparisons. *Journal of Health Economics, 18*(3), 263–290.

Widmer, P., & Zweifel, P. (2012). Fiscal equalization, Tiebout competition, and incentives for efficiency in a federalist country. *Public Finance Review, 40*(1), 3–29.

World Health Organization. (2000). *The World Health Report 2000: Health Systems: Improving performance*. WHO.

Wyss, K., & Lorenz, N. (2000). Decentralization and central and regional coordination of health services: The case of Switzerland. *The International Journal of Health Planning and Management, 15*(2), 103–114.

Zweifel, P., Telser, H., & Vaterlaus, S. (2006). Consumer resistance against regulation: The case of health care. *Journal of Regulatory Economics, 29*(3), 319–332.