Federative aspects of public health systems

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I. Introduction

The objective of this article is to analyze the solutions that some of the largest federations in the world have found to the problems of competencies and responsibilities in the supply of public health services, seeking to reach good care levels without losing sight of the question of cost containment. Particularly in large countries, such as Germany, Australia, Canada, Spain, and the USA, as in Brazil, the supply of health services acquires a greater complexity. This stems from the fact that the political structure of these nations possesses an additional level of governmental autonomy, which other countries do not have.

The reasons for this have been published in widely known works (Elazar, 1987). They have historic roots and are generally associated to ethnic, cultural, linguistic or other differences, among regions of a single country. This establishes the need for harmonization of the activities related to public health, as well as other services that are supplied by the public sector. In federalist arrangements, in which the states have autonomy to collect taxes and expend, some problems in the supply of public services can occur with greater gravity and frequency. Perhaps the most serious is the inequality in the supply of public services from state to state. This occurs when there are no leveling mechanisms of the quality of public services among states. Another problem that can occur is the duplication of activities in a single arena when the federal government and state government, and even the local government, provide the same type of service. It is also common for the resources not to be spent on the actions for which they were destined.

Most of these problems are well documented in the traditional bibliography of fiscal federalism (Oates, 1972), which offers answers to a series of problems. Nonetheless, there remain some problems that this literature did not manage to embrace. As the cited literature is mainly concerned with the three basic criteria that orientates public finances, namely: stability, equity, and efficiency, it produces elements that are of little use in answering questions such as what parcel of resources should be directed toward health at each level of government in a given country. This is mainly because the answer emerges from a collective decision that the theory of fiscal federalism, underpinned by individual choice, is not prepared to furnish. For this reason, the recent developments of Institutional Theory will be used here to analyze the issues previously mentioned.

The form in which the responsibilities and competencies related to the supply of health services are established among the three spheres of government has important implications on the macro and microeconomic efficiency of the services

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and also on their equity. The creation of SUS – Single Health System –, in Brazil, sought to stabilize the supply of health services and adapt it to the constitutional requirement of universal access to services. More recently, the NOB-SUS/96 sought to arrange the relationships among the various levels of government through a decentralization of the supply of health services - the process of municipalization of health services. The purpose was to find a solution to problems of the type cited in the previous item. In general terms, it is possible to demonstrate that the instruments put into practice by SUS are totally justifiable from the viewpoint of the theory. However, no matter how much we can theoretically justify the measures implemented by this system, we observe, in practice, a great difficulty in introducing them.

The problem, apparently, is associated to difficulties on the part of the state and local levels of government to be willing to take on functions that were previously executed by the Federal Government. The reasons for this resistance are manifold. Among them we can cite: (1) party or regional political group divergences; (2) expectation of non-compliance of the agreements on the part of the Federal Government, such as not transferring or being late with resources; (3) concern over the impacts of the effects of externalities, especially in the case of the important medical care centers, in national terms, or regional, such as the municipality of São Paulo; (4) the fear that improvement of health services will cause an increase in the demand for services and as a result the resources received will be insufficient; (5) the level of political commitment of the state or municipal administration to the health of the population; and (6) the attempt not to be responsible for these services, as it is much more comfortable to blame the Federal Government, and/or the state, in the case of municipalities, for bad service.

Permeating all these issues is the problem of the nature of the decision-making process. As we know, in the case of SUS, a significant parcel of the decisions on resource allocation is made in the sphere of the health councils, whether federal, state, or local. This means that we are not facing a decision-making process of the principal-agent type. In this case, there is no agent figure with the power of decision. On the contrary, decisions are made in a process of negotiation where the results may not be the most efficient, given the problem of small groups in collective decisions. Moreover, due to the gravity of the problem of asymmetric information, it is reasonable to suppose that certain groups are in a position to extract greater benefits than others. We should further consider that, in collective decisions, implicit in this negotiation, the consideration of other criteria would be reflected, such as equity, in addition to those that are emphasized by economic theory, such as questions of efficiency.

These issues bring us to the discussion of what the rules should be that orient the relationships among the three levels of government in the pursuit of improvement of public health services. Additionally, and more importantly still, how is it possible to implement changes in the rules when there is such strong resistance to it? This discussion cannot be realized, exclusively, in the light of

traditional neoclassical theory. It requires the resource of Institutional Economics as well as the Theory of Public Choice.

We see, therefore, that in the specific case of improving public health services in countries that are federations, the complexity of the problems is greater and the study of the inter-governmental relationships is essential to finding the best solutions to the problems.

Faced with this fact, we will first present some information on the public health services in some of the larger federations among the industrialized countries. The federations chosen for this comparison are: Germany, Australia, Canada, Spain, and the United States of America. The objective of this section is to show that even among countries with a high income level there are significant differences in the efficacy of the health systems that can be directly associated to the specific institutional arrangement of those countries.

II. Characteristics of the health services in some select federations

There are a great number of federations in the world. A list of these would probably include 16 countries[1] that can be considered federations. There are a large number of countries that have been making efforts towards decentralizing a series of public services but these do not fall within the scope of this work because they lack the basic characteristic of federations, which is the existence of some degree of autonomy in decisions related to the right to legislate on taxes, the right to collect taxes, and the right to spend those taxes. Thus, taking into consideration the 16 countries listed, we see that not all of them should be considered in studies on efficacy in health services, especially if the objective is to compare them to Brazil. Some of them should not enter the set under analysis because they are too small, in which the nature of the problem of supplying public health services is completely different, even in terms of the logistics of the spatial location of the services. This is the case of Austria, Belgium, and Switzerland (See Table II.1). Others are not candidates for the selected set because, like Brazil, they have not managed to find satisfactory answers to the more urgent problems of health of the population. (See Table II.2) In this situation are South Africa, Argentina, India, Mexico, and Venezuela. Russia and China, despite possessing population health indicators above the average of developing countries, should not be part of the set of chosen countries because the post-1990 occurrences indicate that the health system of these countries may come to suffer with the transformations underway. That leaves 5 countries that because they are large and manage to offer an adequate level of health service to their populations deserve to be studied with attention. They are: Germany, Australia, Canada, Spain, and the United States of America.

From observing the tables above, the most evident conclusion that emerges is the already familiar difference of performance among the wealthier nations and those with low per capita income. However, we observe that there are accentuated

1 They are: South Africa, Germany, Argentina, Australia, Austria, Belgium, Brazil, Canada, China, Spain, United States of America, India, Mexico, Russia, Switzerland, and Venezuela.

differences of performance in terms of the health sector indicators among the nations of higher income. This indicates that the form in which the issues are handled can affect the performance. Moreover, when the performance of Spain is compared with the other federations of high income it can be concluded that it is not necessary to achieve per capita income levels as high as those of Australia or Canada to offer a health system comparable to that offered in those countries. Another salient point in those comparisons is that an extremely high income level, such as that of the United States of America, is no guarantee of a high quality supply of health care services, as that country presents the worst quality indicators of health services among the developed federations.

In the same, manner as the differences in the performance of health care services among high and medium per capita income countries are surprising, we can observe even more significant differences in performance among countries with low per capita income. Countries such as China and Russia present a surprising performance in relation to their income level. Brazil, on the other hand, has a very weak performance when compared to countries with a comparable per capita income, such as Argentina, Mexico, and Venezuela, and even to countries with much lower per capita income such as Russia and China. Among the large federations with income below US$PPP 10.000,00 per-capita, only South Africa and India presents performances worse than Brazil.

The OECD also presents some other health indicators for its member countries. This information provides a clearer perception that a high per capita income level is not a sufficient condition for a supply of high quality health services for the population. As can be observed in Table II.3, the results of the health indicators furnished by the OECD vary substantially among the member federations. The most salient result is the systematically less favorable performance of the United States of America in comparison with the other developed federations. The USA registers an infant mortality 23,9% higher than the average of the other countries. The number of children that leave hospitals in the USA underweight is 17,9% higher than the average of the other countries. In the USA the population has 120,1% more infectious diseases than the average of the other countries. And the number of general practitioners in the USA is 74,8% lower than the average of the other developed federations.

Another very significant piece of information is presented in Table II.4. Here we find the results related to the coverage and division of costs of public health services in the 5 federations with which we are working. Additionally, the third column presents what is being called actual coverage, which is the result of the multiplication of the first two columns. This is an attempt to evaluate the real coverage, knowing that many public health services even having universal coverage do not cover all costs, such as some elective surgeries, equipment such as glasses, and others. The conclusion to be extracted from this table is that once again the United States of America presents a very weak performance in relation to public health services. The actual coverage of this country is of only 27,5% of the

population with the public per capita expenditure being greater than that realized in countries such as Spain, Australia, and Canada, which exhibit much higher health indicators than those of the USA.

The reasons for these results in clinical terms are reasonably well known. In the USA, general practitioners do not have the power to control the entry of patients to the sector and thus most of the time the patients turn directly to specialists, which in general do not concern themselves with controlling expenditure on exams and other medical procedures. In addition, the risk of lawsuit is very high, which leads to the preventive increase of rates of health services. The fact that most services are offered by the private initiative, in a market where the information asymmetry and moral hazard are very high, introduces a series of incentives for prices to be higher and the volume of procedures much more elevated, in relation to other countries. All the factors that can be listed to explain the performance differences as to the quality and efficiency of the health sector among the select countries can be related to the type of organization of the sector in each of these countries. Therefore, we will next seek to characterize the systems of the countries in question.

III. Public health systems: institutional arrangements in federations

We observe among the federations a varied range of arrangements in the supply of health services, which should affect the results of said supply. A first approach calls for the use of the typology of health systems developed by the OECD. According to the OECD, there are 7 basic or ideal types of health systems. (a) voluntary direct payment, (b) voluntary insurance with reimbursement, (c) voluntary insurance contract, (d) voluntary integrated, (e) compulsory public with reimbursement, (f) public contract and (g) public integrated [2]. None of these types exists singularly in one country. Each country possesses a certain combination of two or more of these types. This typology can be seen as a set of continua where several dimensions present in the various versions of the health systems are combined. Among the dimensions combined for the constitution of the typology, it is possible to pinpoint: **form of financing, form of payment, type of contract, origin of financing, dimension of the contract, resource ownership, and purchase relationships.** Each of these dimensions has differentiated impacts on the incentives for quality improvement and the control of health system costs.

The form of financing captures whether financing comes from the public sector or the private sector. This dimension is important in relation to the coverage of the system, which is a very important variable in appraising the quality of said system. Public financing does not impose restrictions on the utilization of the services for the layer of the population to which it is destined, according to income level or any other variable.

The form of payment is a dimension that has differentiated impacts both on the quality of services as well as on the control of costs. Payment can be made

[2] The main characteristics of each of the types are described in Annex 1.

directly by the consumer, through reimbursement, by the buyer that is not a consumer, but an organization that purchases in the name of a consumer or, further, directly by the service provider. In terms of the service quality, because this is a market with heavy information asymmetry it is reasonable to expect that the isolated purchase by a user of the services with no medical knowledge must be made in conditions less favorable to the consumer. Following this line of reasoning, the greater the degree of knowledge the purchaser has on the conditions of supply, the greater the capacity of purchasing what is really necessary. The same logic can be applied to the issue of expenditures; as in this case the practice of reimbursement can be more harmful to expenditure control than direct payment itself. This is because reimbursement can encourage the practice of moral hazard on the part of the consumer.

As to the type of contract, it is possible to identify 4 modalities: direct between the consumer and immediate provider, voluntary insurance, compulsory and social insurance. One of the elements that differentiates these contract modalities is their breadth, which ranges from a contract between two individual parties to a social contract where society delegates to the state all decisions on the provision of health services. The intermediary types are distinct forms of insurance in which the basic difference is whether it is voluntary or compulsory. In terms of effects on the control of the health system costs, it is necessary to stress that we should expect a better performance in the case of the social contract in the last modality, here known as social, as this is the only case where the individual risks are diluted among all the consumers. Indeed, the 4 modalities defined here establish a continuum of risk dilution from the lowest level to the highest level. These results, naturally, could only possibly be seen in the case where the government had the capacity and the means to realize the necessary tasks.

The dimension of the contract refers to the particular form taken by the relation between the consumer and the services, regardless of the contract existent between the purchaser and provider. This element seeks to capture an aspect of the choice of the consumer, namely: whether the consumer can or cannot choose to consume. In general terms it would be desirable that the consumer be able to choose. However, this market, once again, exhibits remarkable particularities. In the case of health services, the consumer, in general, obtains no satisfaction from the consumption of medical services[3]. What give the consumer satisfaction are the results of the medical services. Add to this fact the previously mentioned heavy information asymmetry in this market, and we have that the faculty of consumer choice does not involve, necessarily, a greater degree of consumer satisfaction. On the other hand, the fact of the contract being social introduces the possibility of the provider having to report not to the consumer as an individual, but, as a

[3] Exception is made for cases of hypochondria.

collectivity, which can be an incentive toward a more responsible behavior on the part of providers, whether they are private or public.

The ownership of resources utilized in the production of health services is another dimension of the system that needs to be considered. In this case, the element to be emphasized is the role of the competition, in prices and quality of health services. The expectation, naturally, is that the greater the competition is, the lower the prices and the better the quality of the services will be. The hypothesis here is that the greater the number of alternatives available to the consumers the better the results will be. This being so, if the supply is composed only of the public sector, as in the case of the public integrated system, the results should be worse than in the case where the private sector owns the resources. In turn, the coexistence between public and private sector should be beneficial to competition since the public sector should establish limits on the private sector in relation to prices, especially in relation to the for-profit private establishments. This is certainly a very weak competitive move; however it is an initial approach.

The last dimension of the health systems considered in this work is the type of participants in the market. Three combinations are possible: provider/consumer, provider/purchaser/consumer, and provider-purchaser/consumer. In relation to this dimension, the expectation is that the combination provider/consumer will be less favorable to cost control. This is due to arguments that have already been used previously, namely: information asymmetry equips the provider with means to determine both the supply and the demand, which certainly results in elevated costs and reduces the capacity of the market to develop effective instruments to control the quality of services. The combination provider/purchaser/consumer in this sense is superior since by separating the figure of purchaser from that of provider and because the purchaser is an organization capable of defining demand, the asymmetry existing in the previous case is reduced. Finally, the combination provider-purchaser/consumer should tend to present better results because it favors the cooperation between providers and purchasers who being joined in a single organization will be oriented both toward correctly defining demand as well as controlling the costs of services.

In an attempt to construct a ranking for the typology of health systems according to their possibilities as to being more or less favorable to cost control and/or improvement of service quality, weights were attributed to each of the modalities assumed for each of the dimensions considered here. Chart III.2 below presents the values attributed to each variable. This chart also presents in the total row the aggregation of values obtained for each of the types of health system considered.

As we can see according to the expectations discussed in the previous paragraphs, the system that presents the worst conditions for effectiveness in terms of cost control and service quality improvement is the *voluntary with direct payment.* The sequence indicates that both *insurance with reimbursement* and *insurance contract* represent more effective forms of obtaining the desired results,

while using the system of *voluntary integrated insurance* it is still possible to obtain growing improvements in the performance of the systems until achieving *public integrated.*

This ranking of the types of health systems (RTSS) is obviously open to the usual criticisms of rankings of this type. Among them, possibly the most compromising is that these rankings do not necessarily reflect the existing difference between the categories since the variation within the dimensions considered for the construction of the ranking always equals 1. Despite the pertinence of the criticism, we will use the ranking in this work since it was the best form found to reflect the differences between the health systems so that it was possible to relate them to the performance indicators of the systems.

Along this path, the next step was to relate the RTSS to some indicators of the health systems for the select countries. First a variable was sought that allowed us to identify the participation of each type of system in the health systems of the countries under analysis. The variable chosen was the source of financing of the systems. Initially, the idea was to work with a combination of variables. This, however turned out to be unfeasible given the nonexistence of information on participation of public and private suppliers in the supply of services, or participation in the supply of contract services involving the categories of participants defined previously, or participation in the supply of services according to form of payment. Table III.1 presents the sources of financing according to the select countries. As we can see, even countries known to have public health systems register important parcels of financing coming from other sectors.

Utilizing the participation of each of these sources of financing and the RTSS, it was possible to establish the position in the ranking for each of the countries analyzed. This result is presented in Table III.2. As we can see, the results closely approach the expected, seeing that Australia and Spain, who have the most publicly integrated systems, exhibit the highest values and the USA, which exhibits the greatest participation of the private sector, has a value much lower than the other countries.

From this information we sought to identify the relationship between the RTSS and the health sector performance indicators. Despite the reduced number of observations, it was possible to observe some very interesting relations. When we relate RTSS to total per capita health expenditure we notice that the closer the country is to the public integrated model, the lower is per capita health expenditure (Graph III.1). Even if we consider only public per capita health expenditures (Graph III.2) the result is sustained. Spain has a slight deviant behavior in relation to the other four countries, which is probably due to its medium per capita income level. Spain ends up spending less even in proportion to the GDP (Graph III.3).

Other interesting results are obtained through the relation of some health system quality indicators and the RTSS. In reference to actual coverage, we see, despite there being no clear relationship between this variable and the RTSS, that there are two easily identifiable patterns (Graph III.4). On one hand is the USA

with a very low actual coverage and, on the other, countries with acceptable levels of actual coverage. Among these, the most remarkable are Germany and Spain with very high levels of actual coverage of the public system.

In terms of infant mortality we see that the USA once again presents very unfavorable results in relation to the other federations (Graph III.5). In this case, however, it was also not possible to observe a unique trend between RTSS and the variable in question. As we can observe in the graph, Germany exhibits a discordant result from the pattern presented by the other countries, because with a health system not very close to public integrated it has the lowest index of infant mortality of the set of countries in discussion.

In the case of the incidence of infectious diseases (Graph III.6), we observe that once again the USA exhibits the least favorable result among the countries analyzed. The same result is obtained if we relate maternal mortality to RTSS (Graph III.7). This could be another evidence that systems that are more public integrated could be more favorable to good health outcomes.

With a view to relating performance of the health system to its structure, an aggregate index was constructed of the quality indicators of health conditions in these countries. This index considers infant mortality, total coverage, infectious diseases and maternal mortality. A higher value means a better health outcome. Graph III.8 presents the result of this relation. As we can see, the country that obtained best position was Spain considering its expenditure level this is quite an amazing result. The USA, as expected from the results previously discussed, presented the least desirable result.

In the impossibility of performing a more comprehensive analysis, given the scantiness of the information, a cluster K-means analysis was done to check the existence of different groups among the countries analyzed. What we perceive from Table III.3 is that from among these 5 countries it is possible to separate two distinct groups in terms of quality of the health services. On one hand, we find the USA, isolated, and, on the other, the other four federations. This result demonstrates that despite having a per capita income higher than some of the other four countries analyzed, the USA does not manage to obtain an as favorable performance in the supply of health services as the rest. The most surprising case is that of Spain which, with a much lower per capita income than the others, exhibits results on the supply of health services of the same magnitude as the others. This leads us to question the reasons for this great difference in performance among these countries.

In pursuit of more evidence that will allow us to answer the question above, we will next seek to characterize in more detail the health systems of these countries. All these models must be observed in the light of the institutional environment in which they exist. For example, depending on the type of enforcement structure existing in the system, the same rules that produce good results in one country may not be enough to guarantee adequate health services in

another. The quality of the government is another variable that can occasion variations of performance in these systems among countries.

IV. Inter-governmental relations and health systems

A good part of the explanation of how the health system of a federation is organized depends on the federative organization itself. As has previously been pointed out, the fact of a country being organized as a federation imposes a much more complex logic of coordination of public policy actions than that which commands the actions of unitary systems. Nevertheless, as was discussed in the previous item, it is possible to observe strong differences in the performance of the supply of health services among federations. These differences are especially pronounced between the USA and the other federations analyzed but, in turn, the differences among the rest cannot be explained exclusively by the type of health system. Thus it is necessary to analyze more closely how the inter-governmental relations are organized among the federations chosen for this analysis.

Both in the federations and in the unitary systems the supply of collective goods makes up a situation where the negotiation among interest groups is eminently political. However, the channels and the forms of negotiation, the limits of action of each participant, the scope or reach of each decision, and the authority of each participant are intrinsically different. Which means to say that the logic of action coordination in federations is not homogeneous.

Most of the works that discuss federalism are concerned with establishing a relation between federalism and the efficacy of government. Two positions are most clearly distinguished. On one hand, there are those who feel federalism is a form of organization that makes it difficult to coordinate public policies.[4] The justification in this case is that as the decisions in federations involve a large number of participants, the need for harmonizing interests leads to a lack of control of the public accounts. On the other hand, there are those that feel that federalism is a more effective form of control since it favors transparency and the definition of the responsibilities of each level of government.[5] Among these we can cite in the area of political science the work of Weingast (1993), which discusses the capacity of a government to create conditions for it to be "strong enough to protect property rights" (p. 287) without its being "strong enough to confiscate the wealth of is citizens" (p. 287). The author stresses that federalism does not guarantee this result and that other forms of organization can also lead to it. He seeks to demonstrate an advantage of federalism, which he calls markets preserving, in the sense that this form of government organization ensures a feasible system of political decentralization and with this some favorable economic impacts will be observed. Among them he cites: the impossibility of privately creating monopolies valuable to the economy as a whole and inducing competition among the lower levels of

[4] In this line are included the classic works on fiscal federalism previously cited, as well as more recent works such as Prud'homme (1995) and Tanzi (1996).

[5] In this line are included works such as Huther and Shah (1998) and Shah (1998)

government. These characteristics determine among other things that only the constraints for which citizens are willing to pay will survive[6], while, on the other hand, the jurisdictions will compete for residents and economic activities.

Both the works that defend the structure of federalism and those that criticize it view federalism as if it were unique. A small parcel of works emphasizes the distinction between competitive federalism versus cooperative federalism.

It is not easy to define exactly what cooperative versus competitive federalism is. In general it is possible to say that in cooperative federalism the coordination of actions occurs by negotiated paths, whereas in competitive the coordination of actions is obtained through independent action of the spheres of government. From this point it is possible to establish some criteria that allow us to identify differentiated patterns of federalism.

Roughly we can say that the country closest to the so-called competitive federalism is the USA whereas the other countries have one form or another of cooperative federalism.

Among the countries with which we are working, we observe a range of institutional arrangements that are very different, and each particular combination existing in each country is unique. To discuss the effects of these varied forms of organization among the various countries on the performance of the health system we must do a brief characterization of each of the structures. To attempt to characterize these differentiated structures we will take as a point of reference the typology of rules suggested by Olstron (1986). According to the author there are 7 sets of rules that define the arena of collective action, namely the rules of: position, limits, scope, authority, aggregation, information, and results.

In terms of the rules of position, we should establish which positions can be assumed by the participants. When defining the positions we also define who the participants are. The rules of limit establish how the individuals assume the positions, how they maintain them, and how they leave them. They are the rules of entrance and exit from the scene. The rules of scope define the sets of results that can be affected and the external incentives and/or costs associated to them. The rules of authority establish the set of actions designated to each position. The rules of aggregation determine the action crossroads, which in turn establish the possible paths to be followed. The rules of information are the channels of communication available to the participants in each position and the form or language of communication. Finally the rules of results make clear the costs and benefits to be distributed among the participants.

Obviously it would be very difficult to establish precisely all these rules for all the countries with which we are working. What will be done in this article is an initial approach to the mechanics of the decisions on the allocation of health resources of the federations analyzed.

The first relation to be established is that of the position each of the participants occupies. Setting up and running a public health system involves a

[6] This is due to the mobility of the factors.

broad range of participants. Among these we should cite: consumers, doctors, the various levels of governments, firms that produce inputs for the health sector, and other health professionals, such as nurses. In every type of public health system all these participants are present in some form of market involvement. The peculiar characteristic of federations is that the governmental bureaucracy is subdivided in as many levels as there are of government autonomy. In most federations, and especially in the case of those we are dealing with, there are three levels of government that should be taken into consideration. In this case, the most important thing is to check how each of these levels relates to the other levels and to the other participants[7].

In the tables that follow we try to characterize the types of contracts usually effected in each of the systems analyzed. 45 types of contract would be possible among the 10 participants, in the form in which they were defined. However, due to the very nature of the systems, some contracts cannot be observed, such as for example that between private health insurance and health plans. As we can observe, the 5 countries analyzed exhibit very different patterns. The greatest difference, once again, is observed between the USA and the other federations. The main difference the USA presents in relation to the other countries is a lack of contracts between federal and state bureaucracy. On the other hand, the USA presents a much greater number of contracts than that of the other federations. In the USA, 19 contracts are usually established between the participants of the sector, whereas in the other countries the highest number of contracts found is 9 in Spain.

However, what most interests us, as has previously been pointed out, is to characterize the contracts formed within and between bureaucracies. Among the 45 possible types of contracts we should emphasize the 15 that refer specifically to the relations with bureaucracies. As we can observe in Chart IV.6, even taking into consideration only the transactions involving government spheres the pattern of relations differs considerably among the federations.

In Australia as well as in Canada and Spain all the contracts realized involve a government sphere in some form. However, in Germany and the USA the government sphere is present in respectively 50% and 63% of the types of contracts. This indicates that the effort of negotiating agreements in Germany and the USA should be greater than that in the other countries. Furthermore, it should be kept in mind that in both the USA and Germany contracts that do not involve government spheres are much more numerous than contracts that do. The contracts involving government spheres in general are realized at the state level with one contract for each state unit. The rest of the contracts, even those effected by the German unions, are made by unions with providers. For example, in the German

[7] The type of relationship we are dealing with has to do with the flows of resources between participants, that is, we are not considering, for example, the treatment relationship between the patient and doctor.

case, each Lander has a certain number of unions that negotiate with a single organization of doctors, that is, a monopoly of doctors' services is set up. In the American case, the number of contracts per state is even greater than in Germany, which diminishes the bargaining power of the purchasers. However, in the case of the countries whose contracts always involve some sphere of government, the purchaser as a rule has the power of monopsony, which opposes the power of provider monopoly, and thus the game is balanced.

Another problem that appears in the American case is that, when the states have an active role in the transaction of health services, union and states negotiate separately with health service providers, with no concern as to the coordination between the two spheres of government. This problem is not present in the German case because the Bunder transfers all the responsibility of purchase of health services to the Länder.

An important element to be stressed on this point is that related to a position commonly found in the literature on fiscal federalism. Many authors criticize the structure of Australian, Canadian, and German fiscal federalism because they demand exhaustive negotiations between the spheres of government in order to coordinate the necessary actions. This factor is blamed for high transaction costs in these countries. If this effect is valid for the case of the fiscal structures chosen in general terms, the same cannot be said when we take into consideration the specific case of the health system. As we have seen, the American and German institutional arrangements should involve much higher transaction costs and less favorable bargaining conditions for the system users.

Another element that differentiates competitive federalism from cooperative is the principle of fiscal equalization. With the exception of the USA, the other federations considered here adopt some type of equalization principle among states. In the case of Germany, this is defined constitutionally, with even the terms of equalization established in the Constitution. In this case, there occur horizontal transfers of resources among the Länders. In Spain we have the principle of leveling established by law, where the criteria of leveling are decided periodically, by the Council of Fiscal and Financial Policy, according to each public service, due to the changes in the capabilities of collection and needs of supply of public services.

A similar procedure is seen in Australia. Here the Commonwealth Grants Commission since 1980 has established "per capita relativities" to determine the allocation of the entire pool of general revenues to the states. The objective of equalization is to empower each state, using a comparable collection effort, to offer services to the residents at a standard not appreciably different from the others. In addition to general resources, the commission also establishes the budget of the "hospital funding grants". Both the "relativities" and the population to be considered are established in the meeting of the state prime ministers that occurs biennially.

Finally in Canada, the principle of leveling was introduced in the Constitution in 1982. In reference to health, the principle was regulated by the "Loi canadienne sur la santé" (LCS). In turn the transfers done by the Federal government to the states follow the determinations of the "Loi sur les accords fiscaux entre le gouvernement fédéral et les provinces et sur les contribuitions fédéreles en matière d'enseignement postsecondaire et de santé".

As it is possible to see, the regulation of the equalization principle receives different treatment in each of the countries analyzed. The institutionalization goes from total determination of the conditions through the Constitution, as in the case of Germany, to institutionalization by ordinary laws or even by councils with no decision-making power, as in Spain. These different forms of institutionalization of the equalization principle probably have different effects on the performance of the health systems in these countries. The German case generates the smallest margin of uncertainty since it maintains everything foreseen by the Constitution. Along this line, the Canadian system also generates little margin for uncertainty since the law itself establishes that the transfers to the provinces will be done according to a fixed amount per inhabitant. In this sense, it is safe to say that these two cases generate the lowest transaction costs associated to the negotiation of transfers. From another perspective, if the Australian and Spanish case, on one hand, presents a greater level of uncertainty, on the other they are more easily adaptable to external[8] and internal[9] changes to the health sector.

Given the type of information available to us at the moment, it is difficult to evaluate, in net terms, which of the two viewpoints of the equalization principle would bring the lowest transaction costs. Most important, however, at this level of analysis is to stress that the principle of equalization adopted by the 4 federations with cooperative federalism gives the material conditions necessary for the public health system to offer service with a degree of quality compatible with the income level of these countries. In this sense, the case of Spain is the most surprising because it presents a per capita income level much lower than the other federations studied here. An indirect indicator of the effect of adopting the principle of equalization among federations can be the measure of income concentration among countries. Taking the Gini Index provided by the World Bank, we see that the USA is placed as a country with very concentrated income as opposed to the other federations considered here.

A final characteristic that deserves consideration has to do with the possibility of conflicts among units of a federation due to residents of one unit being treated in another. Once again, with the exception of the USA, all the federations have agreements among states that allow the state that provided services to residents of another state to be reimbursed.

[8]For example, differences in the economic growth between states.
[9] For example, changes in the morbidity profile between states.

V. Incentives to the supply of quality health services with cost control in federations

In face of the information and arguments presented in the previous items, we feel it is possible to expound some considerations on the supply of health services in federations that may be useful to the Brazilian case. In this part we will only attempt to make a more organized summary of what was observed in the previous items.

First, it is necessary to stress the importance of the risk conditions in the case of the market of health services. We should remember here that the market of health services is a market where the problem of uncertainty crops up more brutally. It is very difficult to try to measure the probability of a certain person needing certain medical care in a certain period, whereas it is relatively easy to measure the percentage of a certain population that will acquire certain pathology, knowing the pattern of morbidity of said population. Following this line, therefore, it is relatively easier to produce an estimate of the health expenditure needs of a given country, in a certain period of time, than an estimate of the expenditure needs of one person, in a certain period of time. Generalizing: the larger the group of people is, the lower the error incurred in the estimate of expenditure needs. This is most likely the basic reason for which the public health systems that adopt universal coverage control expenditure better. Moreover, when public health in general is the responsibility of the state, the questions of preventive medicine tend to be followed more closely and procedures such as vaccines and sanitation receive attention coordinated with the population's need of health services.

Another aspect that was pinpointed earlier is that in the case of a market with a high level of information asymmetry, such as that of health, where doctors hold the monopoly of knowledge, being able to determine not only the supply but also the demand, the concentrated purchase of services, mainly when performed by doctors[10], favors the practice of transacting only what is definitely necessary. Practices such as requesting unnecessary exams become much less common.

These observations, however, are valid not only for federations but for every type of organization of health systems. This explains a good part of the difference of performance observed between the USA and the other federations. Nevertheless, it should be stressed that only in the federations that somehow incorporate in their principles of structuring and functioning the idea of solidarity does the structure of public health service subsist with the guarantee of universal coverage. There are still other dimensions of the public health sector that can be related to the form in which a federation is organized.

Within the federations existent among the industrialized countries, we observe considerable differences in the forms of organization of the public health services as well as in the performance both of the health indicators and the capacity to control costs. Two main patterns were identified. The federations with a

[10] As is the case of the public health services even when the doctors that are providers are not public servants.

cooperative federative structure present better population health indicators as a whole and lower expenditure levels, with the competitive federation presenting the worst results in terms of expenditures and health indicators. This brings us to the question on why a cooperative federative structure favors more desirable results.

In one form or another, the citizens of countries with cooperative federalism know that the public health systems guarantee their right to health care. This right, established either in the Constitution or by law, implies that the property rights over health services are more clearly defined and institutionalized, and guaranteed by national justice. At the level of the individual citizen, or even groups of individuals[11], this avoids a series of decisions and actions that, otherwise, would have to be made individually in the choice and utilization of a health plan which would demand time and expense. Needless to say the savings in transaction costs should be rather significant in this case.

Perhaps the most complex problem affecting the federations, in terms of health services, is the coordination of health care actions among the spheres of government. The great majority of federations suffer from the well-known vertical imbalance. For reasons of circumstance or history, in some federations the federal sphere collects more than it spends while in others the reverse occurs. In the federations with emphasis on cooperation, such as those with which we are dealing, the states collect less than their spending needs. With this, given the principle of equalization, there is a need of federal transfers to the states. The transfers[12] for the supply of public services in turn present the advantage of inducing negotiation between the parties, in addition to providing the federation with the possibility of coordinating national health policy. As we have seen, each of the federations with emphasis on cooperative federalism has a particular form of coordinating actions. In the case of lower transaction costs (Germany) we see a trade-off with the capability of adjusting policy in the face of new circumstances. However, in the case of those where the effort of negotiation is more intense (Australia) we have a greater agility to adapt to new demands, which should reduce production costs and even future transaction costs and most likely cause a more elevated transaction cost with negotiation. Apparently the advantages and disadvantages of each of the models compensate each other in terms of health indicator performance. However, in terms of cost controls, the lack of conditions for a more rapid adaptation apparently imposes higher costs for services.

As was pointed out at the beginning of this work, in the case of federations it is possible to observe a series of problems that, as a rule, are not registered in the case of unitary countries. Among these were mentioned: (1) party or regional

[11] As, for example, the employees of a given firm.

[12] It is well known the fact of transfers presenting several inconveniences which have already been discussed in the literature of public finances, however, in this case, we are more interested in their capacity to reduce the transaction costs of a supply of quality public services at lower costs, which depends on the capacity of action coordination among the various levels of government, in the case of federations.

political group divergences; (2) expectation of non-compliance of the agreements on the part of the Federal Government, such as not passing on or being late with resources; (3) concern over the impacts of the effects of externalities, especially in the case of the important medical care centers, in national terms, or regional, such as the municipality of São Paulo; (4) the fear that improvement of health services will cause an increase in the demand for services and as a result the resources received will be insufficient; (5) duplication of activities; (6) the attempt not to be responsible for these services, as it is much more comfortable to blame the Federal Government, and/or the state, in the case of municipalities, for bad service. In Brazil all of these problems are present in a more or less critical form in all the states of the federation. The originating conflicts of a federative structure are inherent to said structure, however they do not necessarily lead to impasses with the consequent absence of the supply of public services. The structure of the federative arrangement can contribute much to sharpening or easing the impasses that derive from the conflicts. In the industrialized countries structured in federative terms, the arrangements are such that they ease the conflicts. Even in the USA, where coordination occurs via competition one does not observe impasses as serious as those observed in Brazil.

The process of municipalization of the health services in Brazil was conceived, among other reasons, to harmonize the distribution of resources for health services and with this promote a more rational supply of services that would improve the health condition of Brazilians. After 4 years of implementing this new methodology we do not see the desired results. This indicates that the procedures for finding a solution to the supply of health services should be rethought, taking advantage of the qualities of the municipalization process, but also creating new incentives so that all spheres of government are committed to the task of improving health conditions. The indications obtained through the analysis undertaken here show that in Brazil we should pursue a form of cooperation among the spheres of government that promotes the maximization of the utilization of resources destined to health accompanied by a significant improvement in the quality of services.

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Annex

a. Direct voluntary payment:
Direct payment from the consumer to the provider
b. voluntary insurance with reimbursement:
Insurance contract or health plan between health insurance companies and consumers. Consumers are reimbursed after utilizing the services.
c. Voluntary insurance contract:
Contractual relationships between insurance companies and health service providers that offer services free of payment to consumers that pay premiums to the companies.
d. Voluntary integrated:
Insurance companies or health plans own health services that are offered to insured consumers.
e. Compulsory public with reimbursement:
Compulsory health insurance premiums collected, in general, by some level of government. The public sector reimburses the consumers that use the services of independent providers.
f. Public contract:
Compulsory health insurance premiums collected, in general, by some level of government. The public sector pays independent providers directly.
g. Public integrated:
Compulsory public funds, which in general come from general taxation, finance the supply of public health services.

Table II.1
Population and Pattern of Expenditures on Health Care

variables	Population	GNP p/c	GDP p/c	Total expenditure on health	Public expenditure on health	p/c expenditure on health	Public p/c expenditure on health	GP/GT
year	1998	1993	1993	1990	1990	1990	1990	1990
Unit	(mil inhab.)	(US$)	(PPP)	% of GNP	% of GNP	(US$)	(US$)	%
USA	273.754	26.037	24.680	12,7	5,6	3.306,70	1.458,07	0,441
Switzerland	7.325	42.416	22.720	7,5	5,1	3.181,20	2.163,22	0,680
Canada	30.194	18.943	20.950	9,1	6,8	1.723,81	1.288,12	0,747
Belgium	10.213	26.582	19.540	7,5	6,2	1.993,65	1.648,08	0,827
Austria	8.210	29.006	19.115	8,3	5,5	2.407,50	1.595,33	0,663
Germany	82.401	29.632	18.840	8,0	5,8	2.370,56	1.718,66	0,725
Australia	18.445	20.046	18.530	7,7	5,4	1.543,54	1.082,48	0,701
Spain	39.754	14.111	13.660	6,6	5,2	931,33	733,77	0,788
Venezuela	23.242	3.496	8.360	3,6	2,0	125,86	69,92	0,556
Argentina	36.123	8.055	8.350	4,2	2,5	338,31	201,38	0,595
Mexico	95.831	2.700	7.010	3,2	1,6	86,40	43,20	0,500
Brazil	165.158	4.510	5.500	4,2	2,8	189,42	126,28	0,667
Russia	147.231	2.451	4.760	3,0	2,0	73,53	49,02	0,667
South Africa	44.296	3.230	3.127	5,6	3,2	180,88	103,36	0,571
China	1.255.091	582	2.330	3,5	2,1	20,37	12,22	0,600
India	975.771	365	1.240	6,0	1,3	21,90	4,75	0,217

Source: WHO

Table II.2
Health Conditions Indicators

variables	Life expectancy at birth	Infant Mortality	Probability of death before the 5th year of life	Maternal mortality
year	1990-1995	1990-1995	1995-2000	1990
unit	(years)	(p/ 1.000 live births)	%	(p. 1000.000 live births)
USA	76,0	8,8	0,009	12
Switzerland	78,0	6,0	0,007	6
Canada	77,4	6,8	0,008	6
Belgium	76,4	6,2	0,007	10
Austria	76,2	7,2	0,007	10
Germany	76,0	6,3	0,007	22
Australia	77,7	6,6	0,008	9
Spain	77,6	7,3	0,008	7
Venezuela	71,8	23,2	0,024	120
Argentina	72,1	24,3	0,025	100
Mexico	70,8	36,0	0,039	110
Brazil	66,3	57,7	0,067	220
Russia	67,6	21,0	0,029	75
South Africa	62,9	52,8	0,068	230
China	68,5	44,5	0,042	95
India	60,4	81,7	0,095	570

Table II.3
Health Indicators for Federations of the OECD

Country	Infant mortality	Low weight	Per-capita consults	Infec. and paras. diseases	Bed occupation	Density of doctors	Density of general practitioners
Germany	5,8	5,8	5,7	9,5	82,4	3,2	34,4
Australia	6,1	6,3	6,6	5,3	73,8	2,4	46,6
Canada	6,8	5,5	6,9	10,8	78,5	2,2	55,9
Spain	6,8	5,4	na	9	74,7	4,1	na
USA	8,4	7,1	5,9	27,2	64,4	2,5	9,2

Source: OECD Health Data 98

Table II.4
Coverage of Public Health Services

Country	Coverage	Cost-sharing	Actual Coverage	Public p/c expenditure on health, PPP, 1990
Germany	92,2	91,0	83,9	1718,66
Australia	100,0	66,0	66,0	1082,48
Canada	100,0	76,0	76,0	1288,12
Spain	99,5	90,0	89,6	733,77
USA	45,0	61,0	27,5	1458,07

Source: OECD Health Data 98

Chart III.1
Dimensions of the Health Systems

varables	out of pocket	voluntary insurance reimbursement	voluntary contract	voluntary integrated	public reimbursement	public contract	public integrated
1 financing form	private	private	private	private	public	public	public
2 paymente form	consumer	reimbursement	purchaser	provider	reimbursement	purchaser	provider
3 contract type	direct	voluntary insurance	voluntary insurance	voluntary insurance	compulsory insurance	compulsory insurance	social
4 contract dimension	individual	individual	individual	individual	social	social	social
5 resource ownership	private	private	private	private	private / public	private / public	public
6 purchasing relations	provider / consumer	provider / purchaser / consumer	provider / purchaser / consumer	provider / purchaser / consumer	provider / purchaser / consumer	provider / purchaser / consumer	provider and purchaser / tax payer

Chart III.2
Ranking of the Types of Health Systems (RTSS)

variables	out of pocket	voluntary insurance reimbursement	voluntary contract	voluntary integrated	public reimbursement	public contract	public integrated
financing form	1	1	1	1	2	2	2
paymente form	1	2	3	4	2	3	4
contract type	1	2	2	2	3	3	4
contract dimension	1	1	1	1	2	2	2
resource ownership	2	2	2	2	3	3	1
purchasing relations	1	2	2	3	2	2	3
total	7	10	11	13	14	15	16

Table III.1
Sources of Financing according to Countries

Countries	out of pocket	private insurance non profit	private insurance profit	social security	taxes	others	total
Germany	11,33	6,69	0,00	66,04	11,52	4,42	100
Australia	0,00	14,50	0,00	0,00	85,50	0,00	100
Canada	14,92	6,17	2,40	0,91	75,60	0,00	100
Spain	0,00	14,92	0,00	0,00	85,08	0,00	100
USA	18,28	33,89	0,00	13,18	30,28	4,38	100

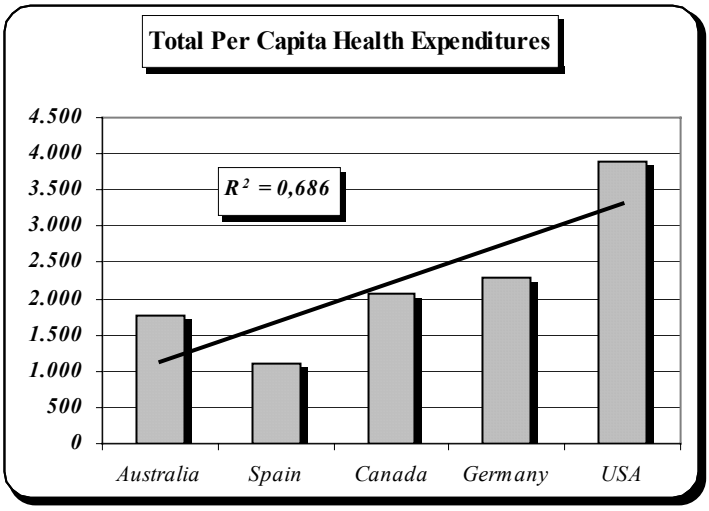
Source: OECD

Table III.2
Ranking of Types of Health Systems according to Countries

Countries	RTSS
Germany	12,75
Australia	15,13
Canada	13,30
Spain	15,11
USA	11,06

Source: OECD and author's calculations

Graph III.1



Source: OECD and author's calculations

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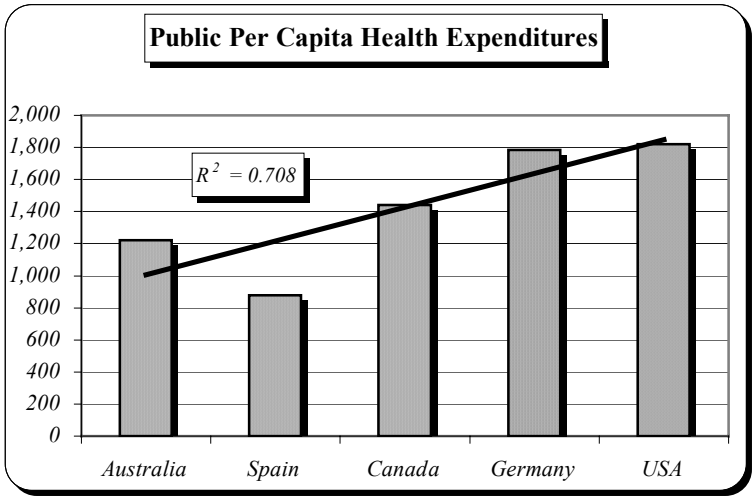
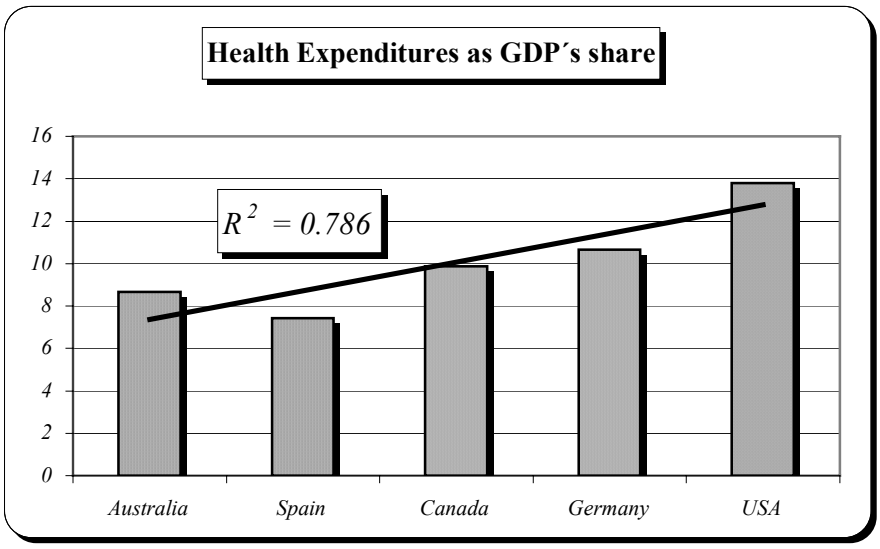


Source: OECD and author's calculations

Graph III.3



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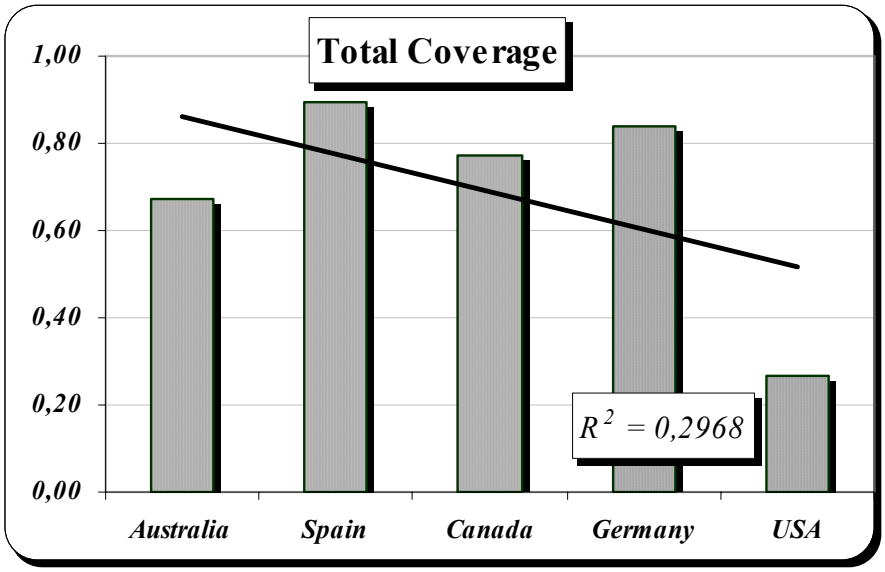

Source: OECD and author's calculations

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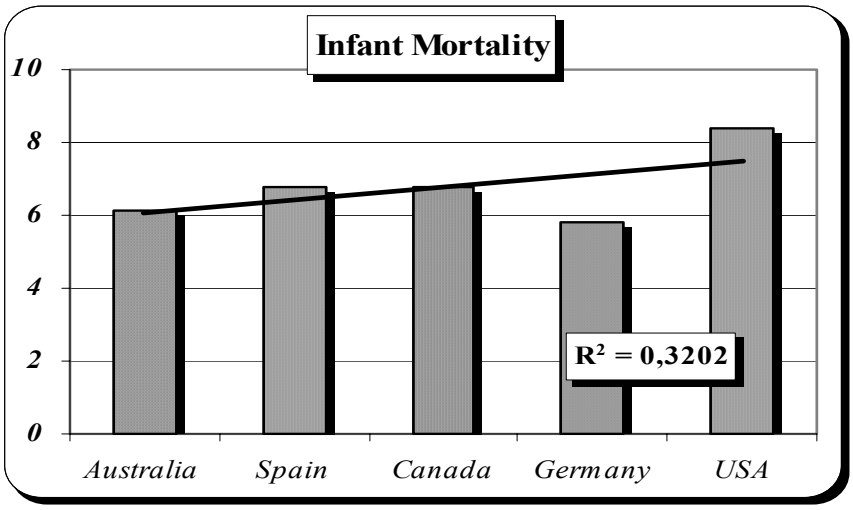

Source: OECD and author's calculations

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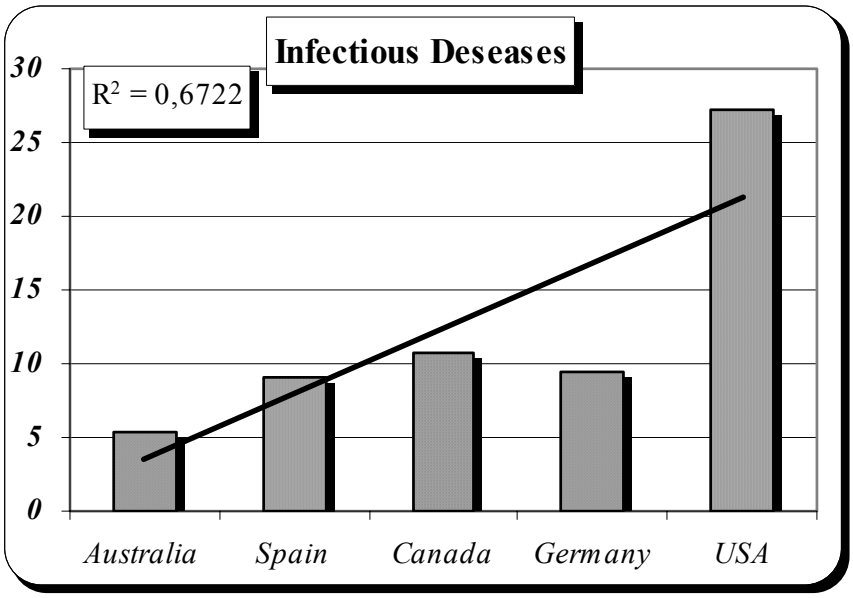
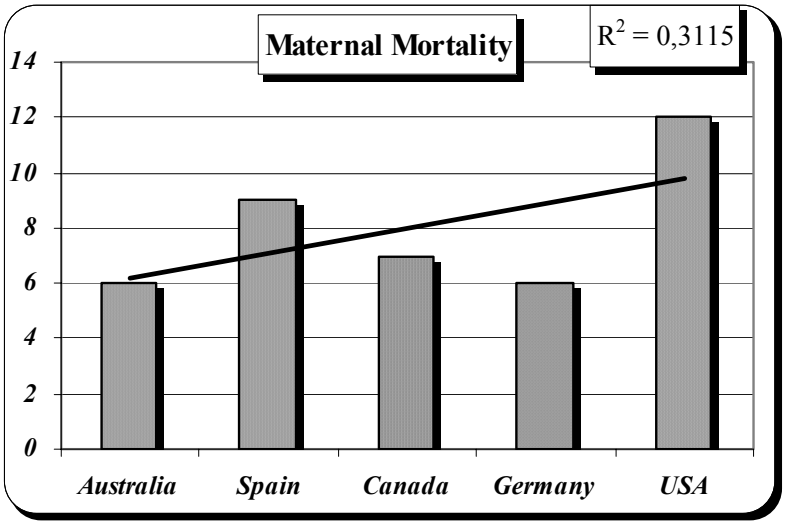


Source: OECD and author's calculations

Graph III.7



Source: OECD and author's calculations

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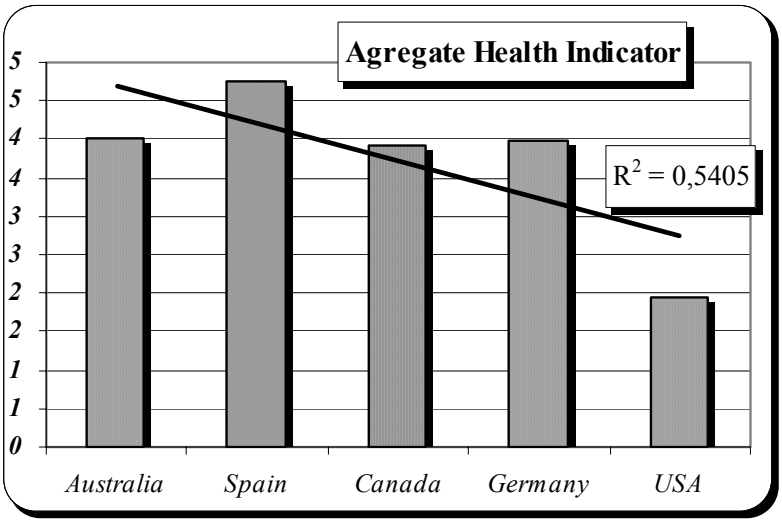

Source: OECD and author's calculations

Table III.3

Final Cluster Centers

	Cluster	
	1	2
total per capita health expenditure	3898,00	1808,25
public per capita health expenditure	1819,00	1330,25
health expenditure as share of gdp	13,79	9,15
total coverage	27,00	79,50
infant mortality	8,40	6,38
maternal mortality	12,00	7,00
infectious diseases	27,20	8,65

Chart IV.1
Contracts between participants of health sector

Germany

	1	2	3	4	5	6	7	8	9	10
1 consumers	-		x	x		x				
2 doctors		-		x		x				
3 federal bureaocracy	x		-	x		x				
4 state bureaocracy	x	x	x	-		x				
5 county bureaocracy					-					
6 unions	x	x	x	x		-	x	x	x	x
7 exams laboratories						x	-			
8 pharmaceutical laboratories						x		-		
9 health plans						x			-	
10 private health insurance						x				-

Chart IV.2
Contracts between participants of health sector

Australia

	1	2	3	4	5	6	7	8	9	10
1 consumers	-		x	x						
2 doctors		-		x						
3 federal bureaocracy	x		-	x				x		
4 state bureaocracy	x	x	x	-	x		x			
5 county bureaocracy				x	-					
6 unions						-				
7 exams laboratories				x			-			
8 pharmaceutical laboratories			x					-		
9 health plans									-	
10 private health insurance										-

Chart IV.3
Contracts between participants of health sector

Canada

	1	2	3	4	5	6	7	8	9	10
1 consumers	-		x	x						
2 doctors		-		x						
3 federal bureaocracy	x		-	x						
4 state bureaocracy	x	x	x	-			x	x		
5 county bureaocracy					-					
6 unions						-				
7 exams laboratories				x			-			
8 pharmaceutical laboratories				x				-		
9 health plans									-	
10 private health insurance										-

Chart IV.4
Contracts between participants of health sector

Spain

	1	2	3	4	5	6	7	8	9	10
1 consumers	-		x	x						
2 doctors		-	x	x						
3 federal bureaocracy	x	x	-	x			x	x		
4 state bureaocracy	x	x	x	-			x	x		
5 county bureaocracy					-					
6 unions						-				
7 exams laboratories			x	x			-			
8 pharmaceutical laboratories			x	x				-		
9 health plans									-	
10 private health insurance										-

Chart IV.5
Contracts between participants of health sector

USA

	1	2	3	4	5	6	7	8	9	10
1 consumers	-	x	x	x			x	x	x	x
2 doctors	x	-	x	x					x	x
3 federal bureaocracy	x	x	-				x	x	x	x
4 state bureaocracy	x	x		-			x	x	x	x
5 county bureaocracy					-					
6 unions						-				
7 exams laboratories	x		x	x			-			
8 pharmaceutical laboratories	x		x	x				-		
9 health plans	x	x	x	x					-	
10 private health insurance	x	x	x	x						-

Chart IV.6
Contracts involving the government spheres

	contracts type	Germany	Australia	Canada	Spain	USA
1	fb-c	x	x	x	x	x
2	sb-c	x	x	x	x	x
3	sb-cou	x	x	x	x	x
4	fb-sb	x	x	x	x	
5	sb-el		x	x	x	x
6	fb-pl		x		x	x
7	sb-el			x	x	x
8	fb-el				x	x
9	fb-cou				x	x
10	fb-u	x				
11	sb-u	x				
12	sb-hp					x
13	sb-phi					x
14	fb-hp					x
15	fb-phi					x
	contracts nº	6	6	6	9	12
	total contracts nº	12	6	6	9	19

Chart IV.7
Gini Index in some Federations

Country	year	Gini Index
Germany	89	28,1
Australia	89	33,7
Canada	94	31,5
Spain	90	32,5
USA	94	40,1

Source: World Bank