

## **Is decentralisation good for your health? Evidence from industrialised countries**

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### **Introduction**

The issue of the decentralisation of the health care system is at stake in many countries, and important reforms have been conducted in that respect during the last fifteen years. However, contrasting with this growing interest and debate, there is only very limited evidence on the impact of these decentralisation processes on the performances of health care systems. One reason is the methodological difficulty of such evaluations; it is difficult to assess the level of decentralisation in different systems. Another may be more political: devolution in the health care system is often part of a more general process of redistribution of power between different levels of government which is viewed as an aim in itself.

This paper aims to provide some new data and analysis on the impact of decentralisation on the performance of the health care system, by comparing 12 countries with different levels and patterns of decentralisation. It proposes a new index for quantifying the extent of decentralisation by taking into account not only the type, but also the “extent” of decentralisation and the structure of the health care system.

In the first section, we briefly review the theoretical frameworks of decentralisation and the organisational patterns, forms and scopes it assumes in health care systems in the 12 selected countries. We then propose, in the second section, a measure of the degree of decentralisation, with the construction of two different indexes according to the conceptual definition of decentralisation. We apply this methodology to twelve different countries in order to compute their decentralisation scores and will discuss the assumptions and results obtained. In the third section, we briefly review the empirical literature on the impact of decentralisation on health care system performance. This is followed in the fourth section, by an exploration of the relationship between our decentralisation scores and cross-country and regional variations in a range of indicators of health outcomes and health care resources. The paper concludes with a discussion of these preliminary results, and the further work.

## **1. Theoretical frameworks and organisational patterns of decentralisation in health care**

### ***1.1. Theoretical frameworks***

There is a large body of literature (non health specific) providing different conceptual frameworks and classifications to analyse the decentralisation processes. The public administration approach of Rondinelli (1983) differentiates devolution, de-concentration, delegation, and privatization as four *institutional forms* of decentralisation. The economic theory of *fiscal federalism* explores the assignment of functions to levels of government and the welfare gains from fiscal decentralization. It concludes that the most efficient setting is one in which each level of government provides and finances the public goods whose spatial patterns of benefits are encompassed by the geographical scope of their jurisdictions, and formulates prescriptions on the use of fiscal instruments (Oates, 1999). Decentralisation can be also analysed through the prism of the *agency theory*, with the central government as the principal and the sub-national government as the agent. The issue is then the alignment of interests in order to achieve the objectives pursued by the central government. Policy analysts take a different perspective : for instance the theory of social capital developed by Putnam (1993) seeks to explain the level of performance of decentralised management by the density and quality of social links and networks.

Applying these general conceptual frameworks to health policy, specific analyses have been developed for evaluating the health policy field. Saltman and Bankauskaite (2004) propose to enrich the public administration approach by developing a functional framework, based on three key functional dimensions: political, administrative, and fiscal. They review the arguments in favour of and against these three types of decentralisation.

Beyond this global typology, models of decentralisation in health care also vary in scope and level. Building on the principal-agent approach, Bossert (1998) uses the notion of “decision space” to take into account both the content and the degree of decentralisation. The content refers to a list of functions (financing, service organisation, human resources, and access and governance rules). The degree of decentralisation characterises the scope of choice given to the sub-national agent for each of the functions and sub-functions, and can be measured by quantitative indicators. For example, as far as financing is concerned, the % of central versus regional sources of funding can be used as an indicator of the level of decentralisation.

Vrangbaeck (2004) extends this approach by crossing three dimensions : the field of decentralisation, its level and its institutional form. The field refers to three different functions (organisation of health care, financing and delivery management). The level is first defined in the geographical sense (central / regional / local), but it goes up to the institution providing care or even the individual (citizen or consumer of care). Building on Rondinelli's approach, the institutional process distinguishes between political decentralisation, administrative de-concentration, management delegation to health care institutions or privatisation involving the individual

This typology allows to encompass a variety of decentralisation processes, including policy shifts from political decentralisation towards more economic decentralisation, which can be illustrated for example in the recent Danish reform.

To complete the framework, it would be interesting to include as an additional notion the degree of decentralisation, understood as the degree of freedom effectively given to sub-national levels. The strength/potency of a central framework for health policy (national rules, and norms) or existence of control mechanisms of activities performed by sub-national entities is important in that respect.

Furthermore, the way the national framework is set (unilaterally by the central government or negotiated with the sub-national entities) is also important (Banting, 2002). Denis and al. (1998) characterise this relationship between the national and regional level by differentiating three models of regionalization: the delegation model (local implementation of political objectives externally conceived by the centre), the interactive model where the region is the level of negotiation between stakeholders and interest groups, and the democratic model, favouring public participation in health policy definition.

## **1.2. Organisational patterns of the health sector decentralisation in the countries selected for the analysis**

Our analysis of the decentralisation is derived from the experience of 12 countries: Australia, Austria, Canada, Denmark, France, Germany, Italy, the Netherlands, Spain, Sweden, Switzerland and the UK. These countries have different financing and organisational arrangements in their health care systems and they have experienced quite different forms and levels of decentralisation of their health care systems. The choice of countries was partly

conditioned on the availability of data at the regional level, but also we selected a range of countries representing different forms and levels of health sector decentralisation.

Before presenting the decentralisation indexes developed in our analysis, this section provides some brief background information on the organisation of health sector and decentralisation process in these countries.

It is important to note that, in this paper we describe and measure the level of decentralisation during the nineties. It means that a lot of recent reforms changing the distribution of powers are not taken into account here, such as the completion of devolution to autonomous communities and move towards fiscal federalism in Spain in 2002 or the recentralisation of the Danish health care system in 2004. The changes of the late nineties were not considered either, since their implementation had limited impact on the full decade. This is the case for fiscal decentralisation in Italy from 1999 on, or decentralisation to Scotland, Wales, and Northern Ireland in the case of UK.

The Table 1 provides a number of indicators on health status (life expectancy and infant mortality) and health care resource use (doctors per capita and health expenditure) for 2000, as well as information on major characteristics of health care financing and organisation in these countries in the 1990s.

Using the previously described conceptual frameworks and typologies as a starting point, the patterns of decentralisation in these countries can be classified in three different groups:

1. The most frequent is devolution, i.e. decentralisation of authority to sub-national levels of government. In federal states such as Australia, Canada and Switzerland, health care is mostly a provincial / cantonal responsibility. Provinces/states are responsible for provision and funding of hospitals and public health services. In general, central government does not finance capital investment but usually intervene in price regulation and quality standards. The German and Austrian situations are more complex: the decision-making powers are shared between the Federal government, the regional governments (Lander) and self-regulated organizations of payers and providers (associations of sickness funds and physician) to which competencies have been delegated to manage the financing and delivery of health care. The Nordic countries also have a longstanding tradition of political decentralisation, mostly at county level the case of Denmark and Sweden which have been selected for the analysis. Counties have substantial functions in health care

provision that are performed with high degree of autonomy. Spain and Italy have given increasing powers to the regions during the 90s. The process has been progressive in the case of the Spanish Autonomous communities; it began with Catalonia in 1981 and was completed in 2002 for the 17 regions. Both countries went through several steps with an extension of regional responsibilities from management to financing at the end of the 90s. A process of devolution occurred also in the United Kingdom (to Scotland, Wales, and Northern Ireland) in late 1990s.

2. Administrative / managerial decentralisation has developed in countries with a strong tradition of centralised government, such as France (notably in the hospital sector), but also as a complementary step in countries which are politically decentralised. In Canada for example, nine provinces out of ten have implemented a regionalisation process, delegating planning and management responsibilities to the regional level. In Sweden, the counties have tended to increase managerial responsibility of the districts.
3. Another trend is the growing *delegation* of managerial competence to the providers and/or other groups of stakeholders in health system. In England, the purchaser provider split principle introduced in early 1990s has translated into decentralised institutions of autonomous hospitals (NHS trusts) and general practitioner fundholders. However in the English case this decentralisation of actual purchasing budgets accompanied with increasing national standards and lines of accountability to the centre in the 1990s (during the conservative period). Priority setting, planning and overall resource allocation remained quite central (Peckham et al. 2005). The recent reforms giving substantial responsibilities to the groups of local health providers (PCTs) might change the overall balance of powers.

This economic decentralisation based on market principles and incentives for providers may be conflicting with previous forms of decentralisation. In the Danish case, the policy of extended choice for patients in the 90s (allowing patients to choose a hospital outside their county, with the payment by DGR as an incentive on the supply side) challenged the county-based governance system (Vrangbaek and Bech, 2003). In Germany, the possibility of selective contracting between the sickness funds and the physicians, which is envisioned as a logical consequence of a competitive regulation, conflicts with the tradition of collective bargaining and delegation given to the regional associations.



**Table 1. Major characteristics of health care systems in 12 countries, 2000**

	Life expectancy		Infant mortality/ 1000 births	Health exp. % GDP	Doctor/ 1000 pop.	Methods of payment in 1990s		Doctors work as gatekeeper	Territorial unit used in decentralisation analysis
	Life expectancy					Ambulatory doctors	Hospitals		
	Female	Male							
Australia	82	76.6	5.2	9	2.5	FFS	FFS + GB (50%)	yes	6 states/2 territories
Austria	81.1	75.1	4.8	7.6	3.2	FFS + capitation mid 90s	FFS	yes	9 lander
Canada	81.9	76.7	5.3	8.9	2.1	FFS	GB	yes	10 provinces/3 territories
Denmark	79.3	74.5	5.3	8.4	2.8	FFS	GB	yes	14 counties
France	82.7	75.3	4.4	9.3	3.3	FFS	GB	no	22 regions
Germany	81	75	4.4	10.6	3.3	FFS	GB introduced early 90s	no	16 lander
Italy	82.5	76.6	4.5	8.1	4.2	capitation	FFS introduced early 90s	yes	20 regions
Netherlands	80.5	75.5	5.1	8.3	3.2	capitation	GB + FFS (40%)	yes	12 provinces
Spain	82.5	75.7	3.9	7.4	3.2	wage + capitation (40%)	GB	yes	17 autonomous communities
Sweden	82	77.4	3.4	8.4	3.1	wage + FFS	GB+ FFS (50%) mid 90s	no	21 counties
Switzerland	82.6	76.9	4.9	10.4	3.5	FFS	GB + FFS (50%)	no	26 cantons
United Kingdom	80.2	75.5	5.6	7.3	1.9	capitation	GB + FFS (25%)	yes	4 countries/9 regions

**Capitation:** Capitation is a method of payment often used in primary care. Doctors receive an annual fixed payment in advance for each patient in their list.

**FFS:** Fee for service. Doctors/hospitals are paid for individual services provided. In the 1990s, used mostly in systems with multiple insurers.

**GB:** Global budgeting. Hospitals receive an annual budget to cover all their service costs, except capital spending. Budgets can be allocated by the central or regional government/authorities or negotiated by insurance funds.

**Wage:** Doctors are remunerated on salary basis. Salaries are globally negotiated between physicians' associations and the central government.

**Gatekeeper:** In systems where primary care doctors work as gatekeeper, direct patient access to specialist care is rare and a referral is needed, except in emergencies.

Source: OECD Health data 2005, authors' assessment.

## **2. Measuring the extent of decentralisation: construction of a quantitative index**

In the literature, the most commonly used indicator to measure decentralisation is the proportion of public expenditures or revenues flowing through each level of government that is fiscal decentralisation. While this fiscal approach has advantages (control over resources does influence the political balance between levels of government), it is not sufficient to capture the way decision making powers are distributed, the degree of central constraint restricting regional or local choices, the respective roles in defining the core elements of health policy and health care system. As Banting (2002) points out if all the elements of the health-care system are set centrally, then whether actual expenditures are made locally is a secondary question.

We propose a multi-dimensional index for measuring the extent of decentralisation in health sector, following the frameworks proposed by Bossert (1998) and Vrangbaeck (2004). We adapt Bossert's map of decision space to quantify the degree of decentralisation with respect to several functions and activities using a simple criterion: "who makes the decision"? The parameters will be from central government to the individual, which can be seen as the "maximum decentralisation". The question (at which level the decisions are taken) is asked for different functions: planning and delivery management, resource allocation and funding.

### **2.1. Dimensions of decentralisation taken into account:**

The functions and activities for which the decision making process is assessed can be classified into:

*Planning and delivery management:* This includes decisions on the organisation of physical health care resources and the production of services. In most countries, the decision mechanisms concerning hospitals and ambulatory/primary care are different. Therefore, we asked the question separately for these two sectors. Four sub-items are defined for hospital sector: 1) the localisation/setting up, 2) number of beds, 3) the investment on heavy equipments, and 4) the level of staffing. We also looked at how decisions are taken for physicians in the ambulatory care (localisation of their practice). This is important in controlling access to primary care. For each item, the question is asked "who makes the decision?". An elementary score is given depending on at which level the decision is made (ie. central, regional, local, individual provider).



*Financial resource allocation:* This involves the decisions on prices, tariffs, wages, and budgets for hospitals and ambulatory doctors. We considered 3 sub-items: definition of the rules and the levels of payment of hospital services, payment of hospital physicians and staff, payment of physicians in ambulatory care.

*Funding:* The financing of health care can take place at central level or can be decentralised to regional or local political level, or even to the level of individuals. To assess the extent of health sector decentralisation in this respect we use a macro indicator: the part of health expenditure covered by the central/national sources of funding. This is a straight percentage calculated for public and for total health expenditures. We collected the data from the OECD country studies on the SHA-based national health accounts<sup>1</sup>.

The decision making process for different health functions are assessed using country specific HIT reports prepared by the European Observatory on Health care Systems, and complemented by inputs from country experts.

## **2.2. Calculation of decentralisation scores**

For each of these functions and sub-functions, a score reflecting the level of decentralisation is assigned to each country.

### ***Scoring***

The notion of “level” is not quite straightforward. As we have seen in the different conceptual frameworks, the underlying classification may be geographical (e.g.. central versus local governments) or institutional (e.g. devolution versus de-concentration) ; it may also reflect the range of choice of sub-national entities (e.g. on a scale from low to high in Bossert’s model).

The scoring we have designed aims to capture these different dimensions.

In terms of planning and resource allocation functions, we consider six possible situations as to who is responsible for the various functions and sub-functions listed above:

(5) central government,

(4) regional administrations of central government (regional deconcentration),

(3) regional government (the word “regional” meaning the first sub-national level of government, whatever the specific designation is in each country),

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<sup>1</sup> See, OECD Health Technical papers, numbers 1 to 13. Table A1 in each report.

(2) local government (= sub-regional level),

(1) group of providers,

(0) individual provider or consumer.

We assign to each of these situations a score from 5 to 0: 5 is the most centralised situation, with the central government taking the decisions, 0 is the most decentralised situation where the decision is left to the individual provider – hospital or physician. In between, the level of decentralisation is growing when we move from regional offices of central government to regional elected bodies and from regional to local level.

The level as defined by this scale thus refers both to the geographical and institutional dimensions of decentralisation. To account for the third one, i.e. the fact that the decisions are often shared between central and regional governments, and that the degree of autonomy of sub-national entities may vary according to the level of constraint defined by national frameworks, the score may be weighted. For example, if the payment of physicians is defined by negotiations with the central government, but the regions have some space for additional remunerations, we will consider that the decision making process is in the hands of the central government for 90% and regional governments for 10%.

### ***Aggregation of elementary scores***

A score is assigned to each sub-function according to the principles described above. A global weighted score is then calculated for the planning/management and financial allocation functions, so that the hospital sector and the ambulatory sector have the same weight. This score is then expressed as a percentage. {figure between 0 and 1.} The financing score is directly expressed as a figure between 0 and 1 (% of expenditures).

The overall decentralisation score is then calculated by taking the average of individual scores for each function and the percentage of central funding.

### ***Construction of the two indexes***

The scale from 0 to 5 thus encompasses both political /administrative decentralisation, and professional /economic decentralisation (i.e. autonomy given to providers and market oriented policies) . This is coherent with the typologies reviewed above, and seems relevant since these forms appear to some extent substitutive (cf. the recent Norwegian reform allowing less power to regional governments and more management delegation to hospitals). However, the

content of these patterns of decentralisation is very different and it appears interesting to distinguish between the two. We have thus computed two different indexes:

1) an index of “*institutional*” decentralisation, which is computed only with the four first positions (5 to 2) ; in that case, the sub-functions with self regulation by providers (level 0 or 1) are not considered. The structural indicator for the financing is the proportion of central funding in *total public health expenditure*.

2) an index of “*global*” decentralisation, encompassing the whole range of situations. In that case the indicator for the financing function is the proportion of central funding in *total health expenditure*. The underlying assumption is that private financing mirrors to a certain extent economic decentralisation (privatisation).

The relative position of countries may vary according to the index considered. If we compare a politically centralised country with a market oriented approach and great autonomy given to providers and a country with a highly regulated system managed by regional governments, the first one will be more centralised than the second one on the first index and less on the second index.

To illustrate an example of how the scores are calculated and the implication of the index used, we take France as an example. The annexed Table 1 presents individual functional scores for each country. In France the decisions concerning the location of public and private hospitals, their capacity and equipment are taken by regional hospital agencies, so that the score given is 4. However for the level of staffing of physicians the decision is shared with the Department of health (the score is thus 4,5). Concerning ambulatory care, there is no regulation of the supply: individual doctors decide where they will set up a practice, so the score is zero.

Tariffs in the ambulatory care sector as well as wages in hospitals are defined centrally (score 5). During the nineties the definition of budgets and/or prices for hospital services (depending on the public or private status of the hospital) involve a mix of central and regional decision (score 4,5).

The proportion of central funding in total public funding is 98% ; it is 73% of total health expenditures (including private financing).

For each function we compute two weighted indexes : the first one (institutional decentralisation) does not consider the sub-functions for which there is no regulation either by the central or local institutions. The second one (global decentralisation) takes into account

the full range of situations, including the case where the responsibility is delegated to the provider himself. For example, concerning the planning function, the weighted index of institutional decentralisation will only consider the hospital sector since there is no regulation of the ambulatory care sector, and its value is 0,83. The global decentralisation score is lower, since it takes into account the highly decentralised decisions in the ambulatory care sector (0,41). The same weights are given to the hospital sector and to the ambulatory care sector.

**Table 2. Measuring decentralisation: three approaches**

	Fiscal decentralisation	Health care decentralisation	
	<i>Sub-national exp. (% of total public expenditures)*</i>	<i>Institutional score</i>	<i>Global score</i>
Canada	58.7	0.42	0.27
Switzerland	46.9	0.44	0.33
Denmark	46.1	0.49	0.48
Sweden	35.4	0.50	0.49
Germany	37.5	0.60	0.59
Australia	44.4	0.63	0.47
Austria	31.1	0.77	0.73
Italy	24.4	0.85	0.66
Spain	32.4	0.87	0.78
Netherlands	21.7	0.90	0.63
France	17.5	0.93	0.71
United Kingdom	22.1	0.98	0.74
<i>Multiple R**</i>	..	0.90	0.86
<i>Adjusted R Square</i>	..	0.80	0.72

\* Fiscal data comes from World Bank, Government Finance Statistics, and refers to the average in 1990s

\*\* Coefficient of correlation between fiscal decentralisation and our index score.

Table 2 presents the decentralisation scores calculated in two different scales (one taking into the institutional decentralisation, the other the overall) for the 12 countries studied and compares these scores with one of the most widely used indicators of decentralisation: sub-national share of total public expenditure. A high decentralisation score (close to 1) means a more centralised health care system in a country. As to the fiscal decentralisation, a high percentage of sub-national share in total public expenditure represent a highly decentralised system in general. To our relief, we note a high correlation between our scores and the fiscal decentralisation. As expected the correlation is higher with the “institutional decentralisation” than with our global index.

Before going any further it is important to remind that we describe and measure the decentralisation during the nineties, as this is a period relative stability in most countries and important changes have taken place in late 90s and early 2000.

We note that highly decentralised systems remains stable (Canada, Switzerland, Denmark,...) from one measure to other, but it is important to note the differences for others, concerning the UK and France for example.

Canada, Switzerland and Denmark have the lowest scores with both indexes (0.27 to 0.50). In these countries, planning and organisation of health care provision is a responsibility of sub-national governments, as well as funding for a large part. The proportion of central funding in total public health expenditures is less than 15% (see Annexe Table 1). The situation is more mixed with regard to financial resource allocation: salaries and prices may be defined by national governments, by regional governments or through agreements between the association of regions and national associations/unions of providers, which can be regarded as an intermediate situation (as in Denmark or Sweden).

In Germany, decision-making powers are shared between the Länder, the federal government and regional associations of sickness funds and providers. The resulting score is a little higher than for the four first countries.

Australia is Federal system but central government provides 45% of total health expenditure, control safety and implement national health strategies. Its score is higher then Canada and closer to Sweden and Denmark.

### ***Discussion of the approach and limitations***

- ▶ We have only considered a limited range of functions and subfunctions. Although they appear to be the major functions, the analysis is not fully comprehensive.
- ▶ As it has been said these indexes refer to the situation in the 90s. But it is quite clear that in most of the countries, it has been a period of structural reforms of health care systems, including changes in the levels and forms of governance, so that the situation described is not stable. The choice has been to consider the organisation of responsibilities which was in place during the longest period of time (excluding for examples the reforms at the end of the nineties), or to compute a mean score. Further work could be performed to compute different indexes for different years, which could allow for an analysis of the evolution and not only cross comparisons.

- ▶ As Banting (2002) has pointed out, one important issue to assess the degree of decentralisation is not only the strength of the national frameworks, but the way they are set (unilaterally by the central government or negotiated with the sub-national entities). We have tried to take into account this dimension in the construction of the elementary scores.
  
- ▶ The countries for which our framework is the most difficult to apply and the most debatable are the bismarkian countries with a great autonomy given to the sickness funds or sickness funds associations.

### ***3. Rationale for Decentralisation of health care***

In recent years there has been considerable debate about the merits of government decentralisation. However, while there is a wealth of literature on the relationship between fiscal decentralisation and the economic growth, political participation, accountability and poverty reduction, the empirical evidence on the impact of decentralisation on health system performance is rare. Of the few studies that have looked at this issue, almost all examine the relationship between fiscal decentralisation of public sector as a whole, rather than just the health care sector, and various health indicators.

#### *a. Decentralisation and health outcomes*

Theoretically, the advantages of health sector decentralisation include the potential for more rational health care services better suited to local preferences. Better local information and knowledge about preferences, improved local co-ordination and competition are supposed to improve the quality of health services and the health outcomes. It is also suggested that decentralisation provides opportunities for greater integration of the activities of different public and private agencies (Mills et al. 1990).

On the other hand, decentralisation affects the administration and organisation of service delivery, including primary care services. It can make the coordination of national policies more complex and reduce the effectiveness of public health policies. Involvement of the private sector in service delivery may have an impact on access.

Of the few empirical studies that exist, some suggest that more decentralised health systems have better health outcomes as measured mainly by infant mortality and immunisation rates (Ebel and Yilmaz, 2001; Mahal et al. 2000; Yee 2001; Khalegian 2003; Jimenez et Smith, 2005). With the exception of Jimenez and Smith, all of these studies refer to low/middle income countries. Robalino et al. (2001), using a panel of high and low income countries suggest that the marginal benefit from decentralisation is greater at low-income levels.

#### *b. Decentralisation and efficiency*

Decentralisation is assumed to create potential for cost containment by moving to streamlined targeted programs (World Bank). Decentralisation can also improve the technical efficiency of organisations and/systems by reducing the cost of central bureaucracy, which represents an inappropriate and inefficient use of resources. This supposes that the use of local people, local resources and local services is cheaper. It is also suggested that decentralised (and smaller) organisations can be better performing in identifying and tackling inefficiency problems (Saltman, 2003). Equally, there may be greater awareness of costs at the local level (Bossert and Beauvais, 2002).

On the other hand, technical efficiencies derived from decentralisation may disappear if there is a duplication of services. Also, smaller decentralised organisations may not have the same power or willingness to implement efficiency controls that a centralised system can. And decentralised organisations may have limited managerial capacity to improve efficiency. Decentralisation may also encourage over-provision of some services in form of duplication (Levaggi and Smith, 2004).

The majority of the evidence citing that decentralisation is associated with greater organisational efficiency comes from the private sector (Peckham et al, 2005). The public-sector evidence concerning the performance of smaller (decentralised) organisations is rather mixed. Decentralisation may result in the loss of economies of scale and control over scarce financial resources by the central government. Information asymmetries between local and central government is often cited as a problem.

In general, efficiency gains are claimed as a result of the separation of purchasers and providers (Bossert, 1998) and greater experimentation and innovation (Jimenez and Smith, 2004). For example, in England, the internal market system (1991-97) has been associated with increased throughput (consultation rates) and reduced length of stays in hospitals. However, in the recent UK context, it is also suggested that fixed national tariffs may be more suitable for encouraging organisations to compete on efficiency rather than price (Dixon, 2004).

At the macro level, the results of the small amount of empirical work that has been carried out on the relation between decentralisation and health system efficiency are not very conclusive.



Andrews and Schroeder (2003) suggest that economies of scale limit the benefit of decentralisation, and centralised systems may be more efficient. On the other hand, Banting et Corbett, (2002) comparing the level of total health care spending in 5 federal countries (Australia, Belgium, Canada, Germany and United States) with the rest of the OECD countries find that federal countries have higher overall healthcare spending levels, but lower levels of public health expenditure. Using evidence from India, Varatharajan (2004) shows that local government allocated lower levels of funding for primary care than the central government and concluded that decentralisation had no impact on the health sector.

### *c. Decentralisation and equity*

Decentralisation leads to greater variety in the provision of public goods, which are better tailored to satisfy local needs (Tiebout, 1956). Higher accountability may be expected at the local level. An over-centralised top down structure is claimed to be responsible for corruption (e.g. Fisman in the US finds a strong negative relationship between fiscal decentralisation and corruption).

Imperfections exist in the local provision of services. There is more of a chance that local services will deviate from the “norm” or set standards. Local “bureaucrats” may not have adequate competence for providing local services efficiently (Tanzi, 1996).

Administrative responsibilities may be transferred to local levels without adequate financial resources and make equitable distribution or provision of services more difficult...

#### **4. Relationship between decentralisation and health system performance**

This section looks at the relationship between health care decentralisation in the 12 countries as measured by our two multidimensional indexes and health system performance. We should note that these are preliminary results of a first exploitation and we are currently working for better modelling these relationships in multivariate equations.

The term “health system performance” is best defined with respect to a set of agreed goals related to different health domains. The major goals for health systems include improving the health status of the population, access to health care, equity and quality of service provision, etc. However, neither the WHO nor the OECD have been fully successful in collecting and combining information related to all these areas. In this section we will therefore adopt a partial approach concentrating on those aspects of health outcomes and the provision of health care that are routinely measured across countries.

##### ***Data***

As indicators of health care provision and use, the following are used:

- Health expenditure as a percentage of GDP (and split between private and public spending); and
- Number of doctors and hospital beds per habitant
- Number of doctor consultations per habitant
- Hospital admissions per habitant.

As indicators of health outcomes, we use the following:

- Male and female life expectancy at birth; and
- Infant Mortality Rate (IMR)
- Perinatal mortality rate
- Percentage of children immunised for DTP
- Standardised mortality rates by major causes of disease and by sex.

All of the data at the national level are taken from OECD Health Database, which provides a large number of indicators based on comparable definitions. The regional data on mortality, GDP and some of the health resources (doctors and bed) for the European countries are extracted from Eurostat's regional database. All of the regional data for Australia and Canada and the health expenditure, perinatal mortality and health care utilisation for European countries come from national sources (see Annex source).

To keep the discussion simple, we present here only the results with our “global” index of decentralisation, as it seems to be more relevant.

### ***Decentralisation and health status***

The Figure 1 presents the correlations between our global decentralisation measure and the cross-country variation in a number of health outcome indicators commonly used, namely infant and perinatal mortality rates, and standardised mortality rates for diabetes. A regression line is fitted only when the relationship was statistically significant at least at the 10% level.

From a first inspection, we did not find any significant relationship between infant and perinatal mortality, unlike the available evidence from low- income countries. The only significant relationship (at 0.05% level) we note is with male mortality rates from diabetes and to a lesser extend (on the limit of 10%) with cancer mortality (not presented). However, neither of these relationships are significant for female mortality rates.

### ***Decentralisation and equity***

In order to examine the relationship between decentralisation and the regional inequalities, we looked at the regional variation in terms of:

- mortality (infant and perinatal mortality, and mortality by major causes of death, in particular ischemic heart diseases, cancer and mortality by diabetes).
- health resources (per capita doctors and beds, public health expenditure)
- health care utilisation (consultation and discharge rates)

Table 3 presents the coefficients of variation across regions (territorial units as presented in Table 1) for these indicators within each country.

Figure 2.a shows the regional variation in terms of infant and perinatal mortality and the doctor numbers per 1000 habitant across countries. The lines for each country present the highest and lowest rates across regions for the countries where regional data was available. The dot points correspond to the national rate as presented in the OECD Health data. The picture emerges is quite mixed. Australia is distinguished in terms of variations in infant and perinatal mortality, followed by Denmark, Italy and Spain. However, as to the distribution of doctors Australia seem to be relatively “equitable”, while countries such as Germany and Netherlands display high disparities. What is clear is that the regional variation within countries in all of these indicators is much greater than the variation across countries.

The comparison of the coefficient of variation in health outcomes against decentralisation scores does not indicate any significant relation (Figure 2.b), despite a positive correlation between centralisation and the level of health care resources (doctors and beds).

Looking at the distribution of public health expenditure as an indicator of resource allocation across regions, we find however a very strong relationship (significant at 1%) between decentralisation regional expenditure disparities (Figure 4). Examining a bit more closely the form of this relationship suggests however that it is not linear. While the highly decentralised health care systems appear to have difficulty in controlling variations in regional spending (Canada and Switzerland), over centralisation does not seem to assure a more equitable distribution of resources. In particular, we note that the UK and France are not any more successful in resource allocation than Australia for example.

**Table 3. Decentralisation and health indicators in selected countries - Regional disparity**

	Decentralisation		GDP	Public health exp.	Hos. Beds /1000 hab.	Doctors /1000 hab.	Doctor Consult.	Perinatal mortality	IMR
	1-Instit.	2-Func.							
	<i>Index</i>		<i>Coefficients of variation</i>						
<i>Australia</i>	0.63	0.47	19.2	6.3	14.9	13.2	20.4	24.5	42.8
<i>Austria</i>	0.77	0.73	22.9	..	21.6	24.1	..	15.1	23.3
<i>Canada</i>	0.42	0.27	..	30.5	..	11.2	5.7	12.8	18.1
<i>Denmark</i>	0.49	0.48	26.6	9.2	21.6	..	..	..	22.5
<i>France</i>	0.93	0.71	18.4	12.5	14.5	16.1	8.6	7.8	14.0
<i>Germany</i>	0.60	0.59	30.6	11.9	13.7	27.0	..	..	15.7
<i>Italy</i>	0.85	0.66	26.0	9.7	13.1	14.7	12.4	30.9	26.1
<i>Netherlands</i>	0.90	0.63	17.8	..	24.4	34.1	..	..	13.8
<i>Spain</i>	0.87	0.78	19.7	..	15.6	21.9	..	..	28.0
<i>Sweden</i>	0.50	0.49	18.6	..	15.5	12.8	..	..	29.0
<i>Switzerland</i>	0.44	0.33	27.0	24.4	33.5	35.6	..	..	16.9
<i>United Kingdom</i>	0.98	0.74	25.3	10.6	22.1	15.8	12.1	9.7	16.7

### ***Decentralisation and macro-efficiency***

Figure 3 plots the share of total and private health expenditure in GDP against our decentralisation score. We find that centralised countries are more successful in overall cost containment. The relationship between total health expenditure and decentralisation is very significant, although the correlation with private expenditure is only significant at the 10% level.

The results presented above should be taken as a first exploration of the link between decentralisation and the performance of health care system. A more complete analysis requires a multivariate analysis controlling for the other determinants of health outcomes and/or expenditure. This requires in turn time series data at the local or regional level to be able to control for other systemic factors. Further work is called for to better isolate the impact of decentralisation on the various aspects of health system. It is also important to integrate more countries in this analysis to test the robustness of these results.

## **5. Conclusion**

This paper presents an analysis of the decentralisation process in the 1990s in 12 countries with quite different profiles (Scandinavian countries, Southern European countries, countries with social health insurance such as Germany and Switzerland, the United Kingdom, Canada) and explores the relationship with their health system performance. We distinguish between different forms of decentralisation, using theoretical frameworks and classifications proposed

in the literature. We review the experience of this set of countries during the 1990s, to raise a number of questions about both the process and the results of decentralisation.

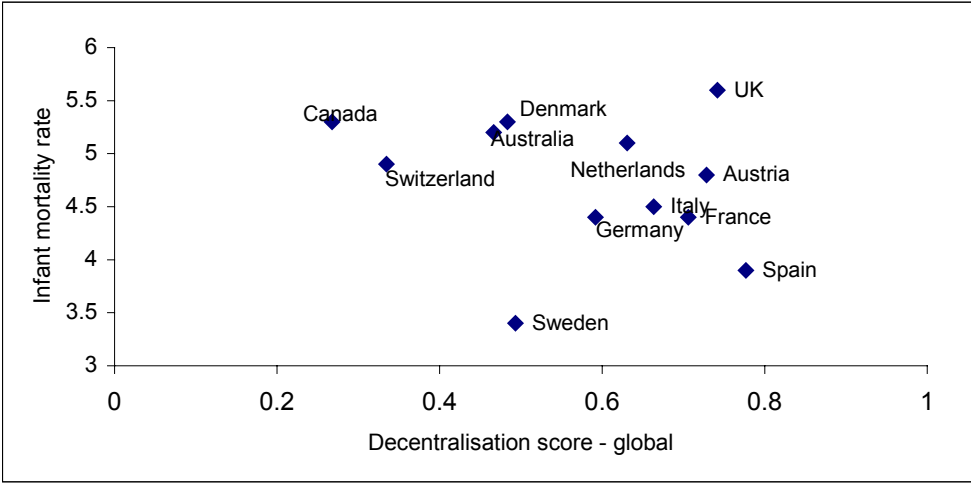
As far as the process is concerned, we observe that 1) the issue of the level of decentralisation gives place to a continuous process of change in many countries, and 2) while the orientation towards more decentralisation (with different models) seemed overwhelming in the nineties, the recent dynamics are more contrasted: some reform initiatives have led to a decentralisation, some to a re-centralisation, or in some cases to a situation that can be analyzed as a professional and technical decentralisation joined with a political re-centralization. 3) It seems that health sector has some “common” preoccupations (quality, access, value for money) for which each system (even the most decentralised) develops extra/exceptional (control) mechanisms to deal with these issues.

We also review the evidence on the results of decentralisation. Decentralisation is expected to improve efficiency in the allocation of resources, because of a better responsiveness to local needs, and in the production of services. However we observe that centralised countries better manage to contain their overall health care cost. We also find that up to a certain point centralised countries appear to distribute more equally their public expenditure.

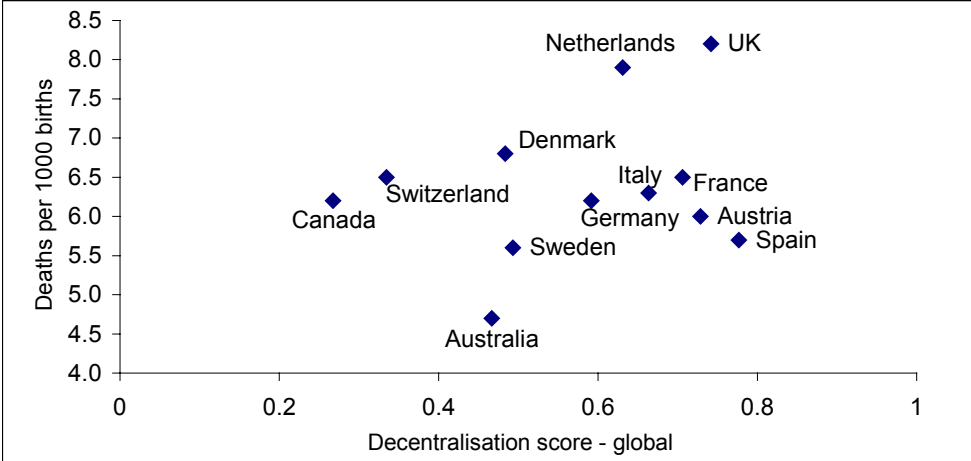
On the other hand, it is often claimed that the advantages of decentralisation are at the expense of equity. However, our preliminary analysis does not indicate any significant difference between centralised and decentralised countries in terms of geographical inequality of their health resources or outcomes. In terms of health resource planning, decentralised countries appear to be as successful as the centralised ones. Moreover, mortality differences within countries do not vary significantly between centralised and decentralised countries. These results, however, are tentative and warrant further investigation.

**Figure 1. Relationship between decentralisation and health outcomes, 2000**

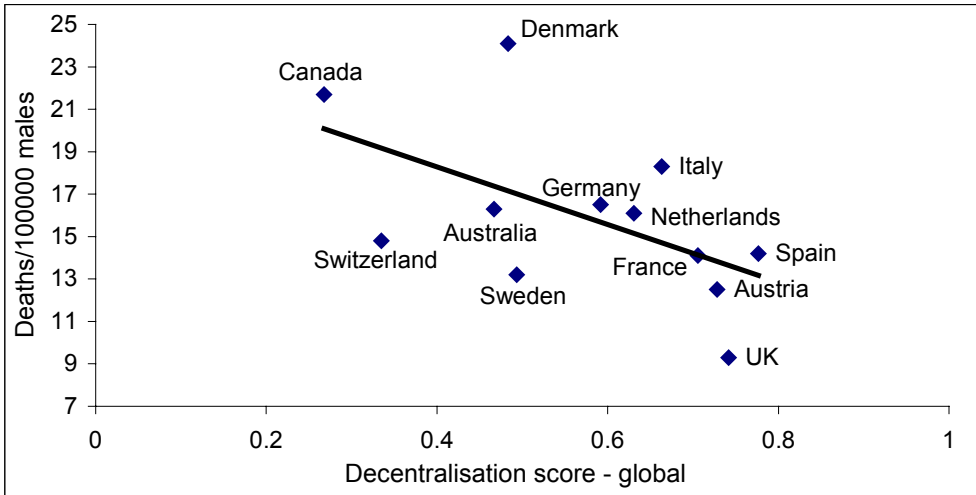
**Infant mortality - Deaths /1 000 live births**



**Perinatal mortality - Deaths /1 000 births**



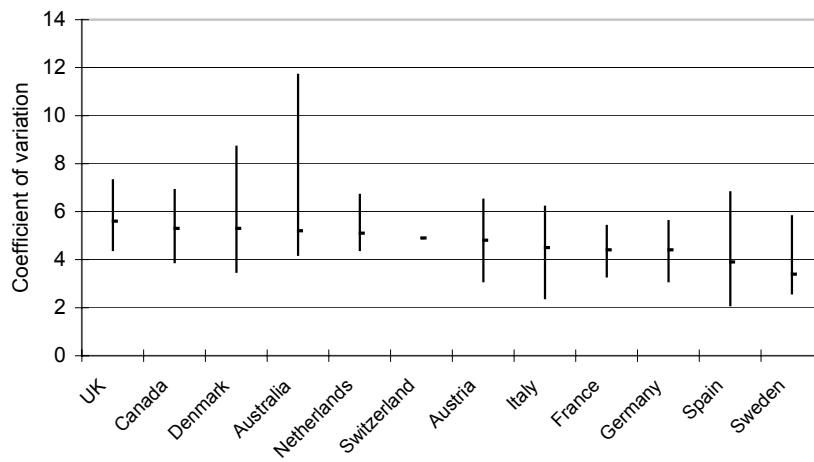
**Diabetes mellitus -Deaths/100000 males (sdr)**



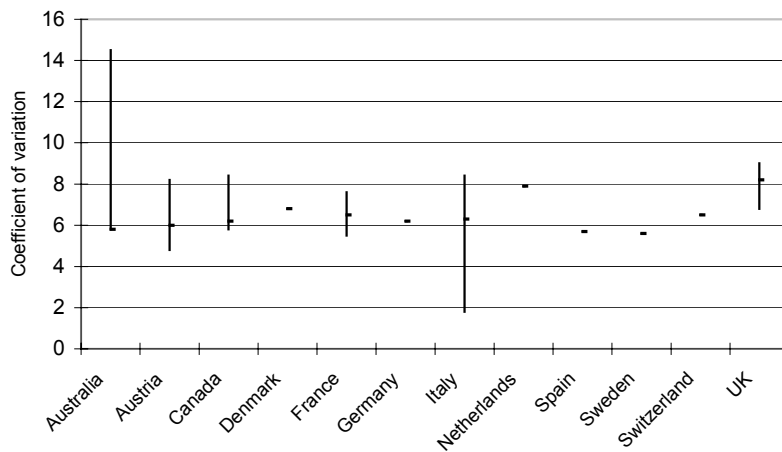
Source : OECD Health Data 2005.

**Figure 2.a. Regional disparities across countries, 2000**

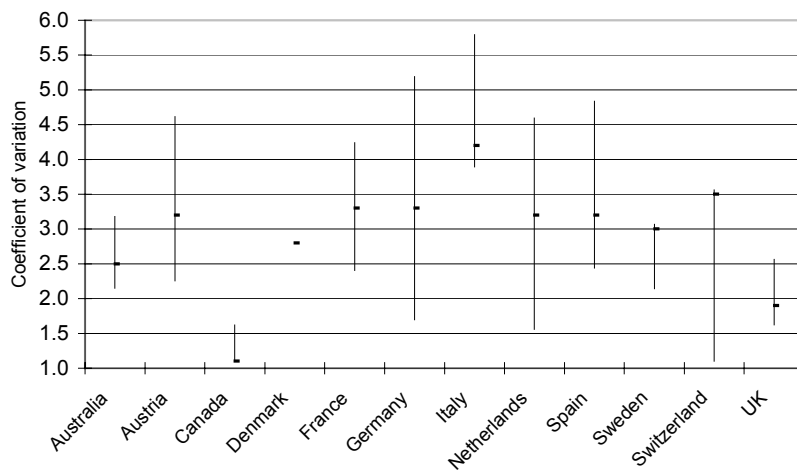
***Infant mortality: rates and regional disparities***



***Perinatal mortality: rates and regional disparities***



***Number of doctor per capita***

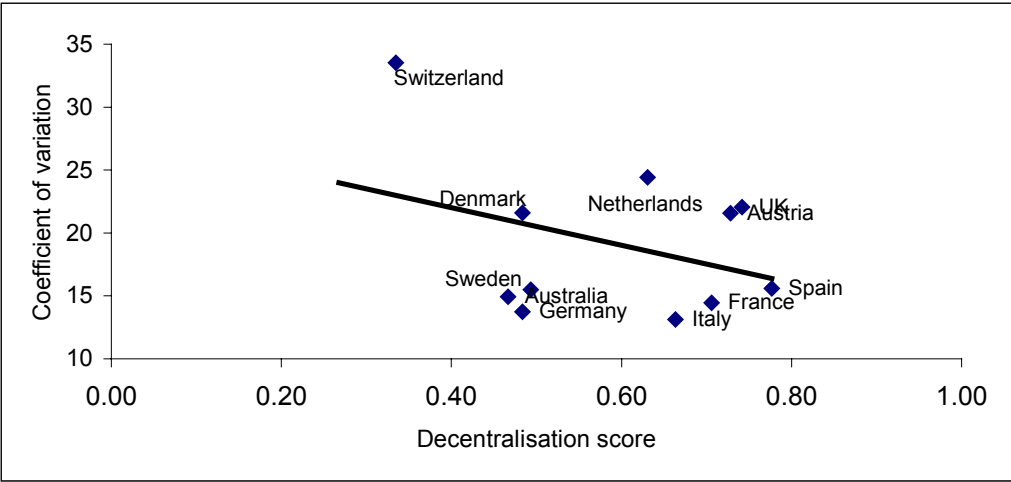


Note: Numbers for Canada refers to general practitioners.

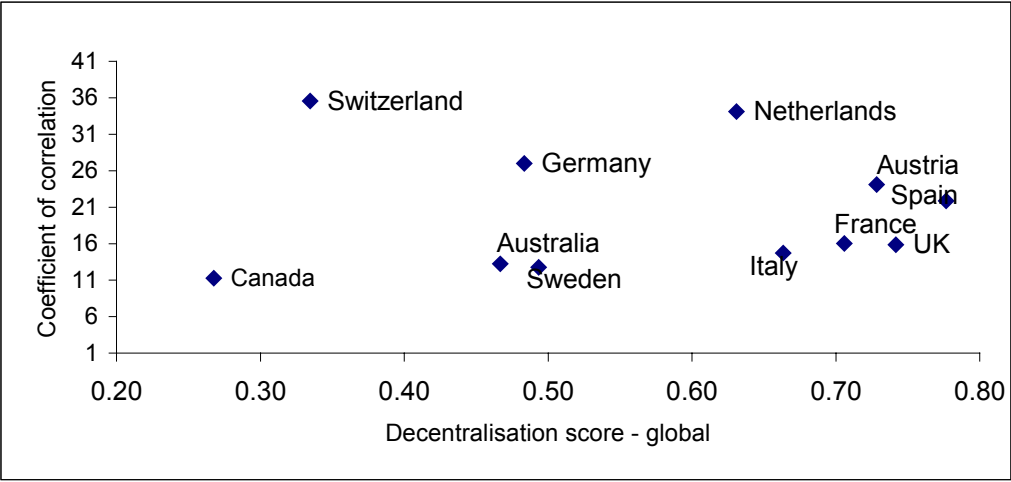


Figure 2.b

*Relationship between decentralisation and disparity in hospital use*

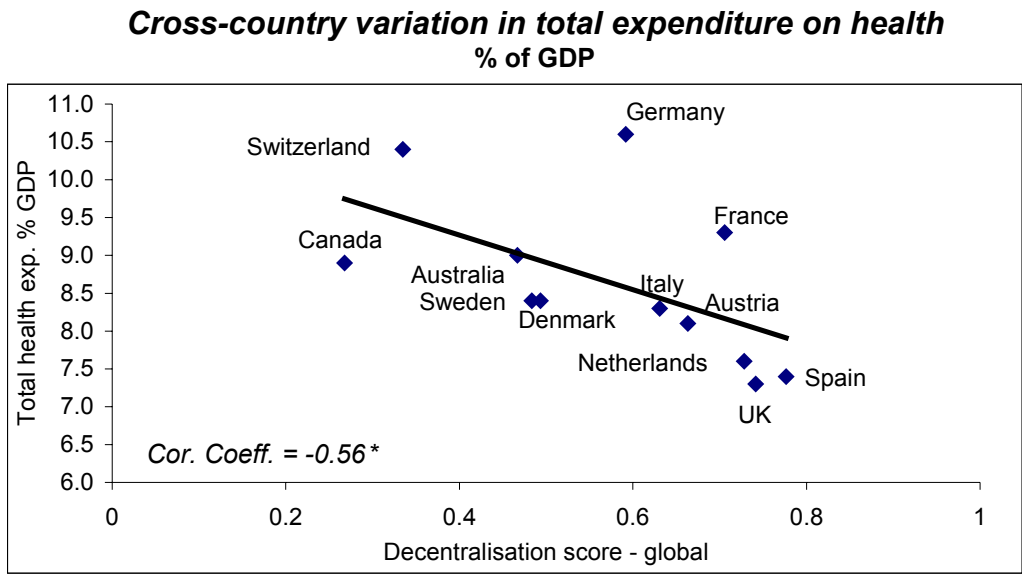


*Relationship between decentralisation and doctor inequality*

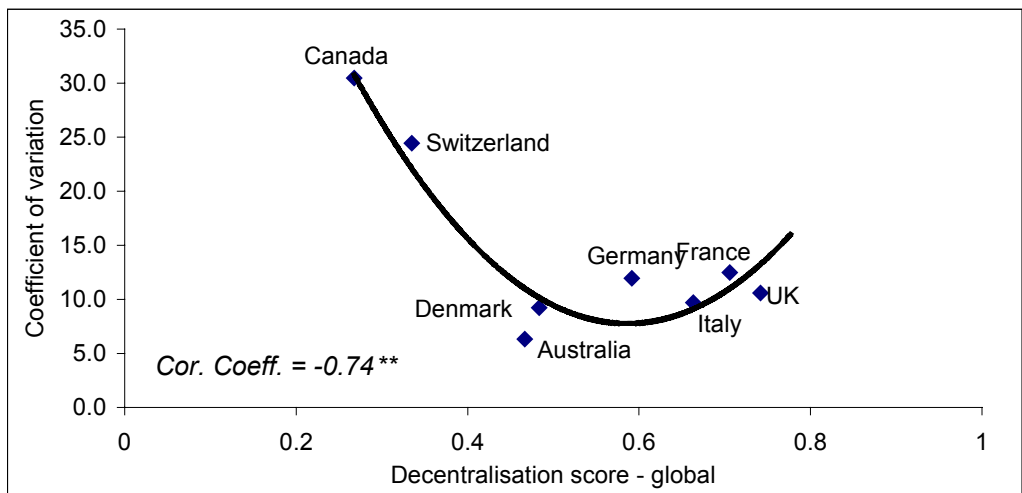


Source : Eurostat, national sources.

**Figure 3. Relationship between decentralisation and health expenditure**



**Figure 4. Regional variation in public health expenditure per capita**



Annex Table 1 – Construction of the two decentralisation indexes

	France	Denmark	Italy	Spain	Sweden	Switzerland	Australia	UK	Germany	Austria	Canada
<i>Planning / Management</i>											
<i>Hospital care (1)</i>											
Localisation/setting up	4	3	3	3,8	3	3	3	5	3	5	3
No of beds	4	3	3	3,8	3	3	0	0	3	5	0
Equipments	4	3	3	3,8	3	3	0,5	0	3	3,5	1
Personnel	4,5	3	3	3,8	3	3	0	0	3	3,5	0
<i>Ambulatory care</i>											
Setting up new GP/specialist	0	3	0	3,8	3	0	0,5	5	5	4	0,6
<i>PLANNING - WEIGHTED SCORE, global decentralisation</i>	<b>0,41</b>	<b>0,60</b>	<b>0,30</b>	<b>0,76</b>	<b>0,60</b>	<b>0,30</b>	<b>0,14</b>	<b>0,63</b>	<b>0,80</b>	<b>0,83</b>	<b>0,16</b>
<i>PLANNING - WEIGHTED SCORE, institutional decentralisation</i>	<b>0,83</b>	<b>0,60</b>	<b>0,60</b>	<b>0,76</b>	<b>0,60</b>	<b>0,60</b>	<b>0,60</b>	<b>1,00</b>	<b>0,80</b>	<b>0,83</b>	<b>0,60</b>
<i>Financial resource allocation</i>											
<i>Hospital</i>											
Wages	5	4	5	4,8	4	3	3	5	4	3	3
Service prices/budgets	4,5	3	4,8	3,8	3	3	3,25	1	5	4,6	3
<i>Ambulatory care</i>											
Wages /contracts/prices	5	4	5	5	4	4	5	5	4,25	4	3
<i>PLANNING - WEIGHTED SCORE, global decentralisation</i>	<b>0,98</b>	<b>0,75</b>	<b>0,99</b>	<b>0,93</b>	<b>0,75</b>	<b>0,70</b>	<b>0,81</b>	<b>0,80</b>	<b>0,88</b>	<b>0,78</b>	<b>0,60</b>
<i>PLANNING - WEIGHTED SCORE, institutional decentralisation</i>	<b>0,98</b>	<b>0,75</b>	<b>0,99</b>	<b>0,93</b>	<b>0,75</b>	<b>0,70</b>	<b>0,81</b>	<b>0,93</b>	<b>0,88</b>	<b>0,78</b>	<b>0,60</b>
<i>HC financing</i>											
% central funding / total health exp	73%	10%	70%	64%	13%	0,4%	45%	80%	10%	58%	4%
% central funding / total public exp	98%	13%	95%	91%	15%	1%	66%	100%	12%	70%	6%
GLOBAL WEIGHTED SCORE (global decentralisation)	<b>0,71</b>	<b>0,48</b>	<b>0,66</b>	<b>0,78</b>	<b>0,49</b>	<b>0,33</b>	<b>0,47</b>	<b>0,74</b>	<b>0,59</b>	<b>0,73</b>	<b>0,27</b>
GLOBAL WEIGHTED SCORE institutional decentralisation)	<b>0,93</b>	<b>0,49</b>	<b>0,85</b>	<b>0,87</b>	<b>0,50</b>	<b>0,44</b>	<b>0,63</b>	<b>0,98</b>	<b>0,60</b>	<b>0,77</b>	<b>0,42</b>

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