

Urbanos Garrido, Rosa María; Utrilla de La Hoz, Alfonso

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Evaluating Financial Effects Of Health Care Decentralization: Some Evidence For Spain.

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40th CONGRESS OF THE EUROPEAN REGIONAL SCIENCE ASSOCIATION
26th MEETING OF REGIONAL STUDIES OF THE SPANISH ASSOCIATION
OF REGIONAL SCIENCE

EVALUATING FINANCIAL EFFECTS OF HEALTH CARE
DECENTRALIZATION: SOME EVIDENCE FOR SPAIN

Rosa María Urbanos Garrido
Alfonso Utrilla de la Hoz
Universidad Complutense de Madrid⁽¹⁾

⁽¹⁾ Department of Public Finance. School of Economics. Campus de Somosaguas. 28223
Madrid. Spain.

Tel: (+34) 91 394 2405. Fax: (+34) 91 394 2431.

e-mail: urbanos@ccee.ucm.es

1. Introduction.

The process of regional decentralization in Spain involves the transfer of those expenditure policies that may be managed more efficiently by Autonomous Communities (hereafter AC's) in comparison with central government. Nowadays, the National Health Service in Spain comprises seven Regional Health Services, which manage public health care in those regions having responsibility for health services, and INSALUD, the agency which manages public health care in the rest of the country. This process of decentralization will be further developed in the near future. For this reason, it is interesting to analyse the impact that health care transfer will have on regional budgets. Furthermore, the relevance of this issue is a consequence of the huge volume of resources allocated to health care. In fact, public expenditure on health care in Spain represents the 6% of GDP, and the proportion of the budget corresponding to regional governments that was assigned to health care in 1998 was the 26%.

The aim of this paper is two-folded. Firstly, we simulate under several hypotheses the transfer of health care management to all the AC's and we analyse the effects of this process on regional budgets. Secondly, we estimate the budgetary effects of the integration of health care resources into the general financing scheme of the Spanish AC's. These effects are compared to those derived from the present financing system, where health care is financed by a specific fund. The analysis simulates the evolution of regional resources and health care expenditure for two different periods: 1997-2000 and 2002-2006. The first one comprises those years corresponding to the present period of regional financing for which relevant information is available. The second one corresponds to the next period of regional financing. In this latter case some alternative scenarios, that take into account several changes in the group of taxes transferred to the Spanish regions, are considered.

Following this introduction come five further sections. Section 2 revises the most recent Spanish health care financing schemes and describes those hypotheses considered to distribute health care expenditure to AC's. Section 3 analyses the present regional financing system. Sections 4 and 5 describe the assumptions made to calculate the evolution of regional resources and show the main results for the first and second period, respectively. Finally, section 6 summarises the main conclusions.

2. The Spanish health care expenditure: financing and allocation to regional governments.

Public health care financing has been subject to continuous reforms. From 1981 to 1993, the historical cost of health care delivery had been the base for the resource allocation to those Spanish regions having responsibility for health care services, although a transitory period was set up in order to adapt the allocation percentages to the covered population criterion. The system described, however, did not guarantee the principles of stability, equity and sufficiency, which had to govern the health care financing mechanism.

Consequently, the Spanish health care financing scheme was revised in 1994, and it was adopted a new system for the period 1994-1997, for which the relevant variable to allocate health care resources to the regions was the proportion of covered population living in each AC. Moreover, a small part of the resources was distributed according to the burden of no-resident patients who received medical treatment out of their region of residence. In addition, some other new elements were introduced in that system: the rate of growth of GDP was adopted as the reference for the growth of public expenditure on health and, additionally, the regional health care expenditure was further restricted.

Finally, in November 1997 the present health care financing scheme, which will prevail until the year 2001, was adopted. This new system keeps the basic features from the previous one: the percentage of covered population is the base of the resource allocation formula, and the GDP rate of growth is the reference for the evolution of health care expenditure. However, two significant new elements are introduced: an important increase in the amount of resources to be distributed, and a new specific fund aimed to compensate territorial disequilibria caused by differential costs from teaching-load and from medical treatment for no-residents. In addition, a part of this fund is aimed to compensate regions for losses of population from 1991 to 1996, in order to guarantee a certain level of resources for every AC.

Although the reforms described, health care financing is still one of the most debated issues in Spain, because the present system guarantees neither equity nor sufficiency in the allocation of health care resources. This debate has derived in two basic alternatives in order to reform the present scheme: the first alternative (*line of expenditure*) would consist of estimating the requisite expenditure to cover the cost of transferred services in order to distribute resources among regions according to those

estimations. The second alternative (*line of revenues*) would try to guarantee a certain volume of state financing, complemented by the fiscal effort of AC's.

Following the first alternative described, distribution of health care funds among regions should be related to the proportion of population adjusted for need, in order to remove regional disequilibria. This option is represented by the well-known RAWP formula (Resource Allocation Working Party), which has been used in the United Kingdom for the later 25 years in order to distribute health care funds equitably.¹ Moreover, the second alternative would allow the AC's to exert a real power in the design of expenditure policies. Additionally, a redistributive financing component could be introduced through a specific and conditioned fund (López, 1998). Following this second option, the integration of health care financing into the regional financing scheme is the most suitable alternative, given that health care is completely financed by general taxes and not by social contributions.

In this paper we analyse the financial consequences from the health care transfer process, and we estimate the financial effects caused by the integration of health care funds into the regional financing scheme. In order to do that, we will use three different variables to distribute health care expenditure among regions: real cost, covered population and population adjusted for need.² In order to compute the evolution of expenditure in those models without integration, the following assumptions have been considered. In the first period analysed, and considering the distribution of resources according to the real cost, public expenditure on health for those regions with health care management transferred corresponds to official figures (Regional Budgets or State Budget). As data from real cost for those regions managed by INSALUD are not available for the whole period, we have considered that health care expenditure for these AC's grows every year at a common rate. This rate corresponds to the annual rate of growth of those resources allocated to primary and specialised care. Finally, when covered population and population adjusted for need are considered, public expenditure on health grows at the same rate of GDP. This later assumption is also assumed for the second period of analysis (2002-2006) and it is applied to the three models considered (real cost, covered population and population adjusted for need).

3. The Spanish regional financing scheme: implementation and reform.

The Spanish regional financing scheme was deeply reformed in 1996. This reform has been applied to 12 out of the 17 AC's (País Vasco and Navarra have been excluded because of their special financing regime, and Andalucía, Extremadura and

Castilla-La Mancha because they have rejected the reform agreement). This reform is characterised by three basic features. Firstly, it modifies the previous system based on the participation in State revenues, by introducing the personal income tax (IRPF) as a partially transferred tax. Secondly, it strengthens the power given to AC's to change tax legislation. Thirdly, it modifies the reference indices that determine the evolution of regional resources by introducing some guarantees.

The new system guarantees the previous volume of resources allocated to the Spanish regions. However, it substitutes a part of the regional funds, which was obtained from the participation in State revenues (PIE), by a double participation (15%+15%) in the net liability of the IRPF, according to the level of functions transferred to the AC's.

One of the basic features of this reform corresponds to the form of determining the rate of growth of regional resources. Initially, tax revenues (transferred taxes and personal income tax) will grow according to the regional collection, and the rest of revenues will grow at the same rate of the State revenues (ITAE). However, some guarantees have been set up in order to keep a minimum volume of resources for the AC's which is related to the rate of growth of GDP.

The first guarantee increases regional resources by offering a complement to the revenues from IRPF. This complement covers the difference between the growth of tax revenues and the growth of GDP. Moreover, the second guarantee covers the difference between the rate of growth of the ITAE and the rate corresponding to GDP. Finally, the third guarantee tries to reduce inequalities in the amount of resources obtained by the Spanish regions.

According to available data, those regions with the highest number of functions transferred have obtained more benefits from the new financing scheme. However, this new system has improved income levels of the poorest regions. If the number of functions transferred increases in the near future, as is expected, the financial dependence from the State revenues will also rise. Therefore, the proposed model for the next period (2002-2006) should increase the tax autonomy of the AC's by transferring a higher proportion of taxes to the Spanish regions. This increase in the degree of tax co-responsibility should also guarantee a volume of resources enough to finance the functions transferred from State. In order to achieve this aim, a part or the whole collection from excise duties, VAT or IRPF could be transferred to the AC's.

Following this section we try to calculate the financial effects caused by the integration of health care financing into the regional financing scheme, once we have assumed that health care management has been transferred to all the AC's.³ For the first period the estimations are derived from the present regional financing scheme. For the second period some alternative scenarios, that take into account several changes in the group of taxes transferred to the Spanish regions, are considered.

4. Method and results for the period 1997-2000.

Table 1 shows the components of regional resources for 1996, used as base year for the first period. First of all, data show the distribution of health care funds according to the three variables considered. Secondly, the table shows the resources corresponding to the basic financing, as well as its components. TIR refers to that part of the Spanish personal income tax transferred to the AC's. PIR represents the regional participation in the total collection from IRPF and PIG refers to the rest of resources transferred by the State. The first two components evolve according to the rate of growth of the net liability from IRPF, whilst the PIG evolve according to the rate of growth of the ITAE.⁴ The relevant indices of evolution for the period 1997-2000 are summarised in table 2.

Moreover, tables 3-5 summarise the effects that integration of health care funds into the regional financing schedule would have on the amount of resources obtained by the AC's. The results show that the Spanish regions as a whole obtain a potential gain of resources when health care funds are integrated into the general financing system, irrespective of the hypothesis used to distribute health care resources. This fact can be explained by the high rate of growth of the ITAE for this period, which is the variable that determines the growth of the PIG. The cumulative rates of growth of the ITAE are higher than those corresponding to GDP and to the real health care cost, which guide the evolution of health care funds in the models that consider covered population/population adjusted for need and real cost, respectively.

The highest gains obtained by the integration of health care funds into the general financing scheme correspond to 1997 and 1999 for the hypothesis of real cost. This result can be explained because the rate of growth of health care cost is lower than the rate of GDP up to 1999.

For the real cost model (table 3), total gains generated by the integration of health care financing into the general financing schedule vary from the 3.05% of supplementary resources in 1999 to the 4.35% in 1997. All the Spanish regions, except the Canary Islands in 1999 and 2000, would obtain benefits from the new system,

although the results differ for different regions. Additionally, the highest gains correspond to the AC's that don't manage health care delivery.

When we consider the distribution of health care resources according to covered population (table 4), total gains obtained by the integration of health care funds into the general financing schedule vary from the 1.89% of supplementary funds in 1998 to the 3.78% in 2000. In this case, a part of the gains is due to the volume of guarantees that correspond to the integrated model, although the main proportion of gains is due to the evolution of the ITAE for this first period. All the Spanish regions would benefit from the integrated system and the dispersion among them would be significantly reduced in comparison with the real cost model.

Finally, when population adjusted for need is taken as reference to distribute health care funds (table 5), our results are very similar to those described above. In this case, total gains from the integrated system would vary from the 1.89% in 1998 to the 3.83% in 2000. However, the distribution of gains among regions is far different from that obtained with the two previous models.

5. Method and results for the period 2002-2006.

2000 is the base year used for this second period, for which we simulate some alternative scenarios of regional financing. The first scenario considered corresponds to the present system, which introduces the partial transfer of IRPF to the AC's. In the second scenario we assume that excise duties are transferred, and collection is allocated to the Spanish regions according to their population in 2000. The percentage of collection transferred depends on the health care financing scheme considered: 25% if health care is not integrated into the general financing system, and 100% in other case. The third scenario assumes that VAT is transferred to the AC's according to consumption data from the Household Budget Continuous Survey. In this case, the percentage of collection transferred is the 10% if health care is not integrated into the general financing scheme, and 50% if integration applies. Finally, the fourth scenario assumes an increase in the proportion of the IRPF transferred. For the non-integration alternative, an 8.5% additional transfer is considered for all the AC's, except for Madrid, where the 31.5% is assigned. For the integration alternative, a 38.5% additional transfer is assumed for all the regions. The evolution of the personal income tax collection is calculated according to the GDP rate of growth, given that we assume the preservation of the first guarantee.

Once the resources to be allocated to the AC's are determined for the year used as the base for the second period, we have to set up some rules in order to calculate the evolution of regional financing components. For transferred taxes we will calculate the future collection assigned to the Spanish regions according to the evolution of collection at a national level.

In order to simulate the development of the regional financing scheme for the next period, we consider a macroeconomic scenario based on a frame of stable growth, defined by a gradual decrease in the rate of growth up to 2005, which is followed by a light increase in 2006. Moreover, we assume a light increase in the ratio ITAE/GDP up to 2003 (33.45%), followed by a further decrease from 2004 and a further stability in 2006 (33.25%). Consequently, we consider that ITAE grow at a higher rate than GDP for the whole period. The evolution of ITAE is caused by the development of those taxes integrated in this concept. VAT and excise duties, except tax burden on beer and oil, grow at a higher rate than GDP, whilst IRPF grows at a lightly lower rate. Table 6 shows the relevant indices applied to the regional financing components for the period 2002-2006.

Once more, our results show that the integration of health care funds into the general financing scheme involves significant financial gains for the Spanish regions as a whole.⁵ Gains computed for the period 2002-2006 are, however, lower than those corresponding to the present period. The highest volume of gains corresponds to the scenario defined by VAT transfer (2.61%, equivalent to 1.3 billion pesetas for the whole period), followed by the present scheme (1.02%, equivalent to 497,928 million pesetas). In the third place, the scenario of excise duties' transfer generates gains equivalent to 337,570 million pesetas (0.69%) and, finally, the scenario of increase in the proportion of IRPF transferred involves gains equivalent to 270,305 million pesetas (0.56%). This ranking is basically explained by the evolution of financing sources in each case. So, as it is shown in table 6, the cumulative rates of growth that had been calculated for VAT are higher than those estimated for ITAE. At the same time, the ITAE rate of growth is higher than the index calculated for the excise duties, whilst IRPF collection shows the lowest rate.

Tables 7-18 show the effects of integration of health care funds into the general financing scheme, for all the scenarios considered and for the three alternative ways to allocate health care resources among regions. These effects are related to four aspects of regional financing. Firstly, the tables show the increase in the volume of resources

available to the Spanish regions for the whole period when we consider the integration of health care financing system into the general scheme. Secondly, the effects over tax co-responsibility are shown, starting from the changes in the ratio tax revenues/total revenues. The third column of tables point out the per capita gains generated by the integration of health care funds into the general financing system. Moreover, the fourth column represents (by indices) per capita resources for the whole period in the non-integrated health care financing scheme. When we compare figures in these two columns we can conclude if those regions with a high/low volume of resources in the present system are compensated with a decrease/increase in resources thanks to the integration of health care funds. Therefore, we can evaluate the effects over horizontal equity for each of the scenarios considered. Finally, the fifth column shows per capita income for the Spanish regions. When we compare figures in third and fifth column we can conclude if the integration of health care financing system into the general scheme contributes to reduce/increase regional disequilibria, as a proxy of the contribution to vertical equity.

The effects on financial sufficiency of the AC's caused by the integration of health care funds into the general financing scheme have been described above. As for the allocation of gains among regions, some features can be stressed. Although there are gains for the regions as a whole in the present scenario, the distribution of those gains among regions is quite unequal. When we consider the scenario of VAT transfer we obtain a similar result, although the relative position of Madrid changes dramatically, because it becomes the region with the greatest gains from the integration of health care funds into the general financing system.

According to the aim of increasing the tax co-responsibility of regions, the scenario of VAT transfer guarantees the highest ratio tax revenues/total revenues, followed by the scenario of transfer of excise duties and IRPF, respectively.

When we analyse the per capita gains caused by the integration of health care funds into the general financing schedule, the relative position of each region varies depending on the scenario considered. This fact is due to the different criteria of distribution for transferred taxes that have been adopted. For example, the scenario with the greatest benefits for Madrid corresponds to the VAT transfer scenario, because the proportion of consumption for Madrid is higher than the proportion of population, which has been used to distribute the excise duties.

With reference to the effects over horizontal equity, the results point out that the integration of health care funds into the regional financing schedule would reduce the dispersion among regions, except if an increase in the percentage of IRPF transferred is considered. Finally, with reference to the effects over vertical equity, the integration of health care financing system into the general financing schedule would allow a significant reduction of previous disequilibria in per capita income among regions. This effect is especially important if health care funds are distributed according to the population adjusted for need, and also if the scenario of an increase in the percentage of IRPF transferred is considered.

6. Concluding remarks.

Although the Spanish health care financing scheme has been reformed in several occasions for the latest years, it is still a controversial issue, given that the new system doesn't guarantee the principles of sufficiency and equity in the regional distribution of resources. When we take into account that social contributions have been eliminated from health care financing, the alternative of integrating health care funds into the regional financing system becomes a natural step in the near reform. In addition, it is necessary to incorporate, as much as possible, some measures that allow AC's to put into effect their fiscal effort. On the other hand, the perspective of future decentralization of health care management forces to analyse the budgetary effects that could be caused by changes in the financing scheme.

According to the results obtained, we can conclude that the integration of the health care financing system into the general AC's financing scheme would generate more resources for the Spanish regions. This result doesn't depend on the variable used to distribute health care funds, given that regional resources obtained from transfers (PIG) grow at a higher rate than health care funds and tax revenues, irrespective of the model considered.

The financial resources of AC's depend basically on two elements: their financing structure (IRPF, PIG and health care funds), and the rates of growth for each source of revenues. As long as a strong growth of revenues is expected for the present period of financing (higher than the growth of GDP), all the AC's will receive additional resources, because they obtain benefits from the evolution of ITAE. The relative gain will be higher in those regions where the proportion of State transfers represents a higher percentage over total resources.

According to our results, the integration of health care funds into the regional financing scheme is recommended, given that this alternative improves financial sufficiency and fiscal co-responsibility of Spanish regions. Additionally, as long as collection from excise duties grows at a higher rate than collection from the rest of taxes included in the ITAE, it would be convenient to transfer excise duties to the AC's.

We can conclude that integration of health care financing into the regional financing scheme is always positive, especially if revenues are obtained from VAT collection. This fact can be explained because the cumulative rate of growth for this source of income is very much higher than GDP rates of growth, which determine nowadays health care financing. Additionally, the transfer of VAT would improve the degree of fiscal co-responsibility of the regions. Anyway, it's important to remark that data used for the base year are determinant in the computation of financing for the whole period, given that we use cumulative indices for each year.

Moreover, the integration of health care funds into the general scheme contributes to reduce the levels of per capita financing for the Spanish regions, except when an increase in the percentage of transferred IRPF is assumed. However, this scenario strongly contributes to compensate regional disequilibria in terms of per capita income.

Excluding political restrictions, the reform of the financing scheme would have to consider their effects on sufficiency, fiscal co-responsibility and equity, as well as the changes that tax collection can suffer in the near future. Our results show that, if we consider a macroeconomic frame characterised by a stable growth, VAT collection will grow at a higher rate than collection from excise duties. However, we have to take into account that collection from excise duties won't fall as much as collection from VAT if we consider a less optimistic frame. Additionally, there are more opportunities to increase tax rates for excise duties, and this increase could be easily justified from a social point of view (fiscal burden falls on goods that generate external effects). Finally, from the perspective of public management, it would be possible to set a link between tax collection and health care delivery. Anyway, the analysis of this issue and their possible effects deserves further research.

Table 1. Components of regional financing (1996).

	Real cost		Health care funds		Pop. Adjusted for need		Basic financing	TIR	PIR	PIG
		%	Covered population	%		%				
INSALUD										
Aragón	111789	3,50%	102016	3,19%	102097	3,20%	42135	27488	9163	5484
Asturias	105466	3,30%	97841	3,06%	105489	3,30%	30927	22438	7479	1010
Baleares	55461	1,74%	63857	2,00%	64725	2,03%	20739	17111	0	3628
Cantabria	50460	1,58%	47287	1,48%	43580	1,36%	26665	10178	10178	6308
C.La Mancha	142401	4,46%	146046	4,57%	155991	4,88%	72697	22146	22146	28405
C.León	213729	6,69%	220607	6,91%	240073	7,52%	120071	44969	44969	30134
Extremadura	95053	2,98%	92720	2,90%	99192	3,11%	56153	11156	11156	33842
La Rioja	21361	0,67%	23305	0,73%	23742	0,74%	10834	5678	3785	1371
Madrid	439914	13,77%	420681	13,17%	383347	12,00%	142941	178759	0	-35818
Murcia	90476	2,83%	91488	2,86%	83986	2,63%	26756	14788	9858	2109
Transferred Management										
Andalucía	609991	19,10%	620203	19,42%	658708	20,62%	624993	89001	89001	446992
Canarias	130518	4,09%	139591	4,37%	134881	4,22%	153730	26410	26410	100910
Cataluña	543114	17,00%	540538	16,92%	494063	15,47%	449838	171375	171375	107088
Galicia	245718	7,69%	237242	7,43%	259279	8,12%	267950	41861	41861	184228
C.Valenciana	338919	10,61%	350947	10,99%	345218	10,81%	261758	71339	71339	119080
Total (a)	3194370	100,00%	3194370	100,00%	3194370	100,00%	2308187	754697	518720	1034771

Notes: million pesetas

(a) Excluding País Vasco and Navarra.

Table 2. Relevant indices for the first period (1996-2000).

	BASE YEAR				
	1996	1997	1998	1999	2000
PIB	1,0000	1,0546	1,1133	1,1801	1,2476
IRPF (CUOTA LÍQUIDA)	1,0000	1,0286	1,0979	1,2182	1,2234
ITAE	1,0000	1,1131	1,1529	1,2291	1,3412
SANIDAD C. EFECTIVO	1,0000	1,0298	1,0755	1,1642	1,2606

Table 3. Financial gains obtained from the integrated scheme % (First period, Real cost).

	1997	1998	1999	2000
INSALUD				
Aragón	6,21%	6,00%	6,36%	5,79%
Asturias	6,68%	6,47%	6,54%	6,00%
Baleares	5,62%	5,74%	6,59%	5,51%
Cantabria	6,17%	5,77%	6,10%	6,83%
Castilla-La Mancha	6,23%	5,83%	6,19%	7,01%
C.León	6,03%	5,64%	5,78%	6,36%
Extremadura	5,87%	5,51%	5,85%	6,59%
La Rioja	5,94%	5,64%	5,98%	5,66%
Madrid	5,29%	5,45%	6,34%	4,57%
Murcia	7,10%	6,71%	7,15%	7,45%
Transferred Management				
Andalucía	3,84%	3,22%	1,49%	1,57%
Canarias	2,62%	1,78%	-0,44%	-0,95%
Cataluña	3,12%	2,86%	1,02%	1,20%
Galicia	4,60%	3,85%	3,83%	5,39%
C.Valenciana	3,23%	2,64%	1,22%	1,80%
Total	4,35%	3,92%	3,05%	3,16%

Table 4. Financial gains obtained from the integrated scheme % (First period, Covered population).

	1997	1998	1999	2000
INSALUD				
Aragón	3,21%	2,06%	2,45%	3,29%
Asturias	3,52%	2,29%	2,38%	3,39%
Baleares	3,06%	2,07%	2,94%	3,71%
Cantabria	3,53%	2,27%	2,63%	4,69%
Castilla-La Mancha	3,68%	2,36%	2,76%	5,01%
C.León	3,57%	2,30%	2,48%	4,45%
Extremadura	3,41%	2,20%	2,56%	4,62%
La Rioja	3,47%	2,23%	2,61%	3,85%
Madrid	2,35%	1,40%	2,35%	2,29%
Murcia	4,06%	2,60%	3,09%	5,07%
Transferred Management				
Andalucía	2,71%	1,75%	2,03%	3,65%
Canarias	2,59%	1,67%	1,93%	3,48%
Cataluña	3,01%	1,93%	2,24%	4,10%
Galicia	2,55%	1,65%	1,92%	3,45%
C.Valenciana	3,14%	2,02%	2,35%	4,27%
Total	2,95%	1,89%	2,26%	3,79%

Table 5. Financial gains obtained from the integrated scheme % (First period, Pop. Adjusted for need))

	1997	1998	1999	2000
INSALUD				
Aragón	3,22%	2,06%	2,45%	3,30%
Asturias	3,63%	2,36%	2,48%	3,62%
Baleares	3,08%	2,08%	2,95%	3,75%
Cantabria	3,43%	2,20%	2,55%	4,54%
Castilla-La Mancha	3,76%	2,42%	2,82%	5,11%
C.León	3,68%	2,36%	2,57%	4,62%
Extremadura	3,50%	2,25%	2,63%	4,74%
La Rioja	3,50%	2,24%	2,63%	3,89%
Madrid	2,35%	1,25%	2,22%	2,29%
Murcia	3,96%	2,54%	3,02%	4,91%
Transferred Management				
Andalucía	2,79%	1,80%	2,09%	3,76%
Canarias	2,54%	1,64%	1,90%	3,42%
Cataluña	2,89%	1,85%	2,14%	3,93%
Galicia	2,68%	1,73%	2,01%	3,62%
C.Valenciana	3,12%	2,01%	2,33%	4,24%
Total	2,97%	1,89%	2,26%	3,83%

Table 6. Financial scenarios for the second period: relevant indices.

	BASE YEAR						
	M.M. PTS	INDICES					
	2000	2000	2002	2003	2004	2005	2006
IRPF	5007	1,0000	1,0973	1,1411	1,1811	1,2165	1,2652
Corporate Income Tax	2563	1,0000	1,2320	1,3059	1,3582	1,3989	1,4828
VAT	5656	1,0000	1,1877	1,2530	1,3157	1,3683	1,4436
Excise Duties	2630	1,0000	1,1192	1,1757	1,2288	1,2764	1,3412
Oil	1522	1,0000	1,0816	1,1249	1,1699	1,2137	1,2623
Alcohol	130	1,0000	1,1880	1,2830	1,3600	1,4280	1,5137
Beer	29	1,0000	1,0000	1,0000	1,0000	1,0000	1,0200
Intermediate products	4	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Tobacco	638	1,0000	1,1664	1,2364	1,2982	1,3501	1,4446
Registration tax	203	1,0000	1,2320	1,3306	1,4104	1,4668	1,5548
Electricity tax	104	1,0000	1,1109	1,1665	1,2190	1,2677	1,3311
Social contributions	9453	1,0000	1,1109	1,1665	1,2155	1,2616	1,3247
Unemployment contributions	1754	1,0000	1,1289	1,1876	1,2351	1,2820	1,3461
Other	515	1,0000	1,1025	1,1521	1,1982	1,2401	1,2897
ITAE	27578	1,0000	1,1372	1,1945	1,2452	1,2904	1,3553
PIB	84443	1,0000	1,1109	1,1665	1,2190	1,2677	1,3311
ITAE/PIB	32,66%	32,66%	33,43%	33,45%	33,36%	33,24%	33,25%

Table 7. Financial effects caused by the integrated scheme 2002-2006 (Real cost, present scenario).

	SUFFIC.	CO-RESP.	PTS pc (integ)	PTS pc (no int)	P.capita income
CATALUÑA	1,15%	-0,4%	108	97	121
GALICIA	0,95%	-0,1%	103	111	91
ASTURIAS	1,11%	-0,2%	115	106	97
CANTABRIA	0,96%	-0,2%	109	117	98
LA RIOJA	0,93%	-0,2%	94	104	115
MURCIA	1,00%	-0,2%	93	95	85
C.VALENCIANA	1,17%	-0,3%	103	90	103
ARAGON	1,06%	-0,3%	109	105	111
CANARIAS	0,96%	-0,2%	100	107	96
BALEARES	1,01%	-0,3%	85	86	154
MADRID	0,98%	6,9%	86	89	114
C Y LEON	0,91%	-0,2%	98	111	98
ANDALUCIA	1,01%	-0,1%	100	102	78
C-LA MANCHA	0,91%	-0,1%	94	106	83
EXTREMADURA	0,88%	-0,1%	100	116	79
TOTAL	1,02%	0,7%	100	100	100

Table 8. Financial effects caused by the integrated scheme 2002-2006 (Covered pop., present scenario).

	SUFFIC.	CO-RESP.	PTS pc (integ)	PTS pc (no int)	P.capita income
CATALUÑA	1,13%	-0,4%	105	95	121
GALICIA	0,95%	-0,1%	103	111	91
ASTURIAS	1,08%	-0,2%	110	104	97
CANTABRIA	0,94%	-0,2%	105	115	98
LA RIOJA	0,99%	-0,2%	106	110	115
MURCIA	1,02%	-0,2%	96	97	85
C.VALENCIANA	1,17%	-0,3%	104	91	103
ARAGON	1,03%	-0,3%	102	101	111
CANARIAS	0,96%	-0,2%	101	107	96
BALEARES	1,10%	-0,3%	100	93	154
MADRID	0,97%	7,0%	84	89	114
C Y LEON	0,94%	-0,2%	104	114	98
ANDALUCIA	1,01%	-0,1%	100	102	78
C-LA MANCHA	0,94%	-0,1%	99	108	83
EXTREMADURA	0,88%	-0,1%	100	116	79
TOTAL	1,02%	0,7%	100	100	100

Table 9. Financial effects caused by the integrated scheme 2002-2006 (Pop.adjusted for need, present scenario).

	SUFFIC.	CO-RESP.	PTS pc (integ)	PTS pc (no int)	P.capita income
CATALUÑA	1,08%	-0,4%	96	90	121
GALICIA	0,99%	-0,1%	112	116	91
ASTURIAS	1,12%	-0,2%	118	108	97
CANTABRIA	0,89%	-0,2%	97	111	98
LA RIOJA	0,99%	-0,2%	107	110	115
MURCIA	0,97%	-0,2%	88	93	85
C.VALENCIANA	1,17%	-0,3%	102	90	103
ARAGON	1,03%	-0,3%	103	102	111
CANARIAS	0,94%	-0,2%	97	105	96
BALEARES	1,10%	-0,3%	102	94	154
MADRID	0,92%	7,3%	76	84	114
C Y LEON	0,98%	-0,2%	114	118	98
ANDALUCIA	1,04%	-0,1%	106	105	78
C-LA MANCHA	0,97%	-0,1%	106	112	83
EXTREMADURA	0,92%	-0,1%	107	119	79
TOTAL	1,02%	0,7%	100	100	100

Table 10. Financial effects caused by the integrated scheme 2002-2006 (Real cost, excise duties).

	SUFFIC.	CO-RESP.	PTS pc (integ)	PTS pc (no int)	P.capita income
CATALUÑA	0,81%	25,7%	112	97	121
GALICIA	0,65%	22,1%	105	111	91
ASTURIAS	0,80%	23,6%	122	106	97
CANTABRIA	0,68%	21,3%	114	117	98
LA RIOJA	0,61%	22,3%	92	104	115
MURCIA	0,65%	25,4%	89	95	85
C.VALENCIANA	0,81%	27,0%	105	90	103
ARAGON	0,75%	24,1%	113	105	111
CANARIAS	0,65%	22,9%	100	107	96
BALEARES	0,63%	26,1%	77	86	154
MADRID	0,62%	35,0%	79	89	114
C Y LEON	0,61%	21,6%	98	111	98
ANDALUCIA	0,68%	24,1%	100	102	78
C-LA MANCHA	0,60%	22,7%	91	106	83
EXTREMADURA	0,60%	21,3%	100	116	79
TOTAL	0,69%	25,4%	100	100	100

Table 11. Financial effects caused by the integrated scheme 2002-2006 (Covered population, excise duties).

	SUFFIC.	CO-RESP.	PTS pc (integ)	PTS pc (no int)	P.capita income
CATALUÑA	0,78%	25,7%	107	95	121
GALICIA	0,65%	22,1%	104	111	91
ASTURIAS	0,76%	23,6%	114	104	97
CANTABRIA	0,65%	21,3%	108	115	98
LA RIOJA	0,69%	22,3%	109	110	115
MURCIA	0,68%	25,4%	94	97	85
C.VALENCIANA	0,81%	27,0%	106	91	103
ARAGON	0,71%	24,1%	103	101	111
CANARIAS	0,66%	22,9%	101	107	96
BALEARES	0,75%	26,1%	101	93	154
MADRID	0,60%	35,0%	77	89	114
C Y LEON	0,65%	21,6%	107	114	98
ANDALUCIA	0,68%	24,1%	100	102	78
C-LA MANCHA	0,63%	22,7%	99	108	83
EXTREMADURA	0,60%	21,3%	100	116	79
TOTAL	0,69%	25,4%	100	100	100

Table 12. Financial effects caused by the integrated scheme 2002-2006 (Pop. adjusted for need, excise duties).

	SUFFIC.	CO-RESP.	PTS pc (integ)	PTS pc (no int)	P.capita income
CATALUÑA	0,72%	27,0%	94	90	121
GALICIA	0,71%	21,2%	118	116	91
ASTURIAS	0,82%	22,7%	127	108	97
CANTABRIA	0,60%	22,2%	95	111	98
LA RIOJA	0,70%	22,2%	111	110	115
MURCIA	0,62%	26,5%	83	93	85
C.VALENCIANA	0,80%	27,2%	104	90	103
ARAGON	0,71%	24,1%	104	102	111
CANARIAS	0,63%	23,3%	96	105	96
BALEARES	0,76%	25,9%	103	94	154
MADRID	0,53%	36,8%	64	84	114
C Y LEON	0,70%	20,7%	120	118	98
ANDALUCIA	0,72%	23,4%	109	105	78
C-LA MANCHA	0,68%	22,0%	109	112	83
EXTREMADURA	0,64%	20,7%	110	119	79
TOTAL	0,69%	25,4%	100	100	100

Table 13. Financial effects caused by the integrated scheme 2002-2006 (Real cost, VAT scenario).

	SUFFIC.	CO-RESP.	PTS pc (integ)	PTS pc (no int)	P.capita income
CATALUÑA	3,02%	34,1%	112	97	121
GALICIA	2,23%	23,4%	95	111	91
ASTURIAS	2,69%	29,4%	109	106	97
CANTABRIA	2,29%	24,8%	102	117	98
LA RIOJA	2,50%	27,1%	100	104	115
MURCIA	2,39%	24,9%	87	95	85
C.VALENCIANA	2,85%	30,2%	98	90	103
ARAGON	2,69%	30,3%	108	105	111
CANARIAS	2,35%	25,3%	96	107	96
BALEARES	3,08%	34,2%	101	86	154
MADRID	3,28%	48,4%	112	90	114
C Y LEON	2,28%	24,5%	97	111	98
ANDALUCIA	2,33%	24,2%	91	102	78
C-LA MANCHA	2,18%	22,8%	88	106	83
EXTREMADURA	1,94%	19,5%	86	115	79
TOTAL	2,61%	29,7%	100	100	100

Table 14. Financial effects caused by the integrated scheme 2002-2006 (Covered population, VAT scenario).

	SUFFIC.	CO-RESP.	PTS pc (integ)	PTS pc (no int)	P.capita income
CATALUÑA	3,04%	34,1%	110	95	121
GALICIA	2,23%	23,4%	94	111	91
ASTURIAS	2,71%	29,4%	107	104	97
CANTABRIA	2,30%	24,8%	101	115	98
LA RIOJA	2,48%	27,1%	104	110	115
MURCIA	2,38%	24,9%	88	97	85
C.VALENCIANA	2,85%	30,2%	99	91	103
ARAGON	2,71%	30,3%	105	101	111
CANARIAS	2,35%	25,3%	96	107	96
BALEARES	3,00%	34,2%	107	94	154
MADRID	3,29%	48,4%	112	89	114
C Y LEON	2,28%	24,5%	99	114	98
ANDALUCIA	2,33%	24,2%	91	102	78
C-LA MANCHA	2,18%	22,8%	90	108	83
EXTREMADURA	1,94%	19,5%	86	115	79
TOTAL	2,61%	29,7%	100	100	100

Table 15. Financial effects caused by the integrated scheme 2002-2006 (Pop. adjusted for need, VAT scenario).

	SUFFIC.	CO-RESP.	PTS pc (integ)	PTS pc (no int)	P.capita income
CATALUÑA	3,08%	35,7%	107	91	121
GALICIA	2,22%	22,5%	98	115	91
ASTURIAS	2,68%	28,3%	111	108	97
CANTABRIA	2,31%	25,7%	98	111	98
LA RIOJA	2,48%	26,9%	105	110	115
MURCIA	2,40%	26,0%	85	93	85
C.VALENCIANA	2,86%	30,5%	98	90	103
ARAGON	2,71%	30,2%	105	102	111
CANARIAS	2,36%	25,7%	95	105	96
BALEARES	3,00%	33,9%	108	94	154
MADRID	3,36%	50,8%	108	85	114
C Y LEON	2,27%	23,5%	103	118	98
ANDALUCIA	2,32%	23,5%	93	105	78
C-LA MANCHA	2,18%	22,1%	93	112	83
EXTREMADURA	1,95%	19,0%	88	119	79
TOTAL	2,61%	29,7%	100	100	100

Table 16. Financial effects caused by the integrated scheme 2002-2006 (Real cost, IRPF scenario).

	SUFFIC.	CO-RESP.	PTS pc (integ)	PTS pc (no int)	P.capita income
CATALUÑA	0,49%	31,5%	86	97	121
GALICIA	0,65%	14,4%	129	111	91
ASTURIAS	0,67%	21,2%	128	106	97
CANTABRIA	0,59%	17,6%	124	117	98
LA RIOJA	0,46%	20,8%	87	104	115
MURCIA	0,69%	14,4%	117	95	85
C.VALENCIANA	0,73%	20,7%	118	90	103
ARAGON	0,57%	24,1%	108	105	111
CANARIAS	0,61%	16,3%	117	107	96
BALEARES	0,41%	26,2%	63	86	154
MADRID	0,00%	54,9%	0	89	114
C Y LEON	0,55%	16,3%	110	111	98
ANDALUCIA	0,74%	12,7%	135	102	78
C-LA MANCHA	0,65%	12,2%	123	106	83
EXTREMADURA	0,69%	9,0%	144	116	79
TOTAL	0,56%	23,0%	100	100	100

Table 17. Financial effects caused by the integrated scheme 2002-2006 (Covered population, IRPF scenario).

	SUFFIC.	CO-RESP.	PTS pc (integ)	PTS pc (no int)	P.capita income
CATALUÑA	0,46%	31,5%	79	95	121
GALICIA	0,64%	14,4%	128	111	91
ASTURIAS	0,63%	21,2%	118	103	97
CANTABRIA	0,57%	17,6%	117	115	98
LA RIOJA	0,55%	20,8%	108	110	115
MURCIA	0,71%	14,4%	124	97	85
C.VALENCIANA	0,74%	20,7%	120	91	103
ARAGON	0,52%	24,1%	95	101	111
CANARIAS	0,62%	16,3%	119	107	96
BALEARES	0,54%	26,2%	91	93	154
MADRID	-0,02%	54,9%	-3	89	114
C Y LEON	0,59%	16,3%	122	114	98
ANDALUCIA	0,74%	12,7%	135	102	78
C-LA MANCHA	0,68%	12,2%	133	108	83
EXTREMADURA	0,69%	9,0%	144	116	79
TOTAL	0,56%	23,0%	100	100	100

Table 18. Financial effects caused by the integrated scheme 2002-2006 (Pop.adjusted for need, IRPF scenario).

	SUFFIC.	CO-RESP.	PTS pc (integ)	PTS pc (no int)	P.capita income
CATALUÑA	0,38%	33,1%	63	90	121
GALICIA	0,70%	13,8%	146	116	91
ASTURIAS	0,69%	20,4%	134	108	97
CANTABRIA	0,51%	18,3%	101	111	98
LA RIOJA	0,56%	20,7%	111	110	115
MURCIA	0,65%	15,0%	110	93	85
C.VALENCIANA	0,72%	20,9%	117	90	103
ARAGON	0,52%	24,1%	96	101	111
CANARIAS	0,59%	16,6%	113	105	96
BALEARES	0,56%	26,0%	94	94	154
MADRID	-0,12%	57,7%	-19	84	114
C Y LEON	0,65%	15,6%	139	118	98
ANDALUCIA	0,78%	12,3%	146	105	78
C-LA MANCHA	0,72%	11,8%	145	112	83
EXTREMADURA	0,73%	8,8%	157	119	79
TOTAL	0,56%	23,0%	100	100	100

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¹ The RAWP formula includes demographic, socioeconomic and health data in the estimation of need. In addition, it includes some variables that reflect regional inequalities in delivery costs.

² The percentages of population adjusted for need were calculated in 1996 by Rico & Rubio, who apply the RAWP formula to the Spanish case.

³ Consequently, we'll have three different models for each scenario considered, given that we use three different variables to distribute health care funds among regions: real cost, covered population and population adjusted for need.

⁴ We have assumed that the percentage of the personal income tax transferred to the AC's increases from the 15% to the 16.5% in 1999 and 2000, as a consequence of the latest tax reform.

⁵ Tables including these results are omitted in the text. Data are available from request.