Business, Management and Economics Research
ISSN(e): 2412-1770, ISSN(p): 2413-855X
Vol. 3, No. 4, pp: 40-51, 2017
URL: http://arpgweb.com/?ic=journal&journal=8&info=aims

Italian Health Care System: Methodology Suggestion for the Financial Equilibrium and Essential Level of Care

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Abstract: Italian Regions are the accountable entities for healthcare policies: their activity is not limited to policymaking but includes also management and financing of the Healthcare Public Utilities and services. A first step will be the creation of a dataset of revenues and expenditures of the Healthcare sector. Second, the co-financing policy will be analyzed using comparative grids of in/out-flows of each Region. Third, it will be taken into account the regional fiscal coverage of the balance deficit. The sample is composed by the Italian Regions. Last the analysis between our theoretical approach based on law and the real economic balance. Furthermore it will be analyzed the National and Regional Healthcare System financing (in)-stability, highlighting current cash flows, sources and investments using the "separation" of the Healthcare accounting items in the Balance Sheet. Through chi-square test analysis and method of OLS the group of study look a possible relation be-tween balance and respect of lea without finding a relationship. Latter, it will be represented an analysis of the National Health Fund allocation to the Regions. It will be also conducted a critical analysis of the current allocation formula and it will be proposed a simplified criterion of allocation.

Keywords: Health deficits; Health spending; Essential level of care.

1. Introduction

Italian Regions are the accountable entities for healthcare policies. Besides policymaking activities, the Regions are directly involved in management and financing of the Healthcare Public services and utilities. Italian Regions are the accountable entities for healthcare policies: their activity is not limited to policymaking but includes, also, the management and financing of the Healthcare Public Utilities and services. Public accounting gains attention: it concerns the quantitative survey of public companies, considering financial, patrimonial and economic aspects in a rational administrative setting based on planning, execution and control. Even at regulatory level, the attention is put on the boundaries regarding the regional budget of the healthcare financial flows. Besides, it highlights incomes and expenditures needed to support basic levels of healthcare and services achievement.

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The Regions present a role both in health setting and regarding balanced budget maintaining between incomes and expenditures, differentiated in taxing specific voices of regional co-financing.

2. Health Authorities: Literature Review

2.1. The Rational Administration of the Health Management Based on the Balance

The reference conceptual model and the management model are based on a more general logic pattern of rational administration. Management, defined as organized administration (Ferrero, 1980), is founded on a logic pattern of rational administration, that originates from the same principle reflecting the companies' traditional distinction among companies, enterprises, delivery companies and company composed. We are referring to the "capital's acquisition-use" or the "wealth's life" process (Zappa, 1927) or to the accumulation process, that is measured in quantitative-monetary terms and is formally reflected in the balance and accounts' instrument.

The rational administration considers, in joint terms, a time space analysis of administrative facts aimed to provide quantitative-monetary information, collected in a logic and objective model that supports and guides the decision-making. (Puddu, 2010).

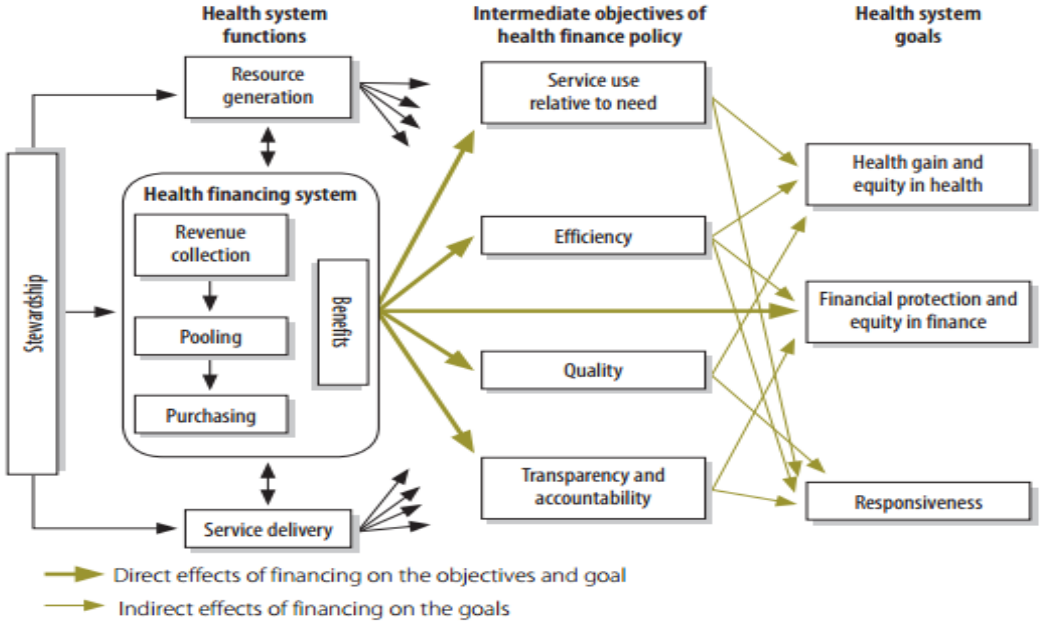
In particular, from a temporal point of view, the rational administration is divided in classic chronological phases, always interdependent among themselves, regarding the planning, the execution and the control. In each phase, in-formational flows are produced. They are useful for decision making and are defined objectives in the planning, results in the execution and variances in the control. Every action, to be rational, initially is ideated, then implemented and, finally, evaluated, comparing the achievements to the established purposes.

2.2. Health System Financing and Different Kind of System

Health financing policy is an integral part of efforts to move towards UHC (universal health coverage), but for health financing policy to be aligned with the pursuit of UHC, health system reforms need to be aimed explicitly at improving coverage and the intermediate objectives linked to it, namely, efficiency, equity in health resource distribution and transparency and accountability. The unit of analysis for goals and objectives must be the population and health system as a whole. What matters is not how a particular financing scheme affects its individual members, but rather, how it influences progress towards UHC at the population level. Concern only with specific schemes is incompatible with a universal coverage approach and may even undermine UHC, particularly in terms of equity. Conversely, if a scheme is fully oriented towards system level goals and objectives, it can further progress towards UHC. Policy and policy analysis need to shift from the scheme to the system level Figure 1.(World Health Organization, 2010). The literature on welfare systems, based on these five characteristics grouped the EU countries into four main welfare models, which coincide roughly with equal number of geographical areas. The first area includes the Scandinavian countries (Denmark, Finland and Sweden), in which a more close to that universal model "Pure", which relies on general taxes to finance and whose entry requirements are based on citizenship. Even the Anglo-Saxon countries (Great Britain and Ireland) have historically made use of universalistic systems. However, they have gradually differentiated with respect to the Scandinavian model by increasing the presence of insurance type programs especially in social security individualized and directly financed by contributions paid by workers. The third model in the European scene this is what characterizes the centre of countries (Germany, Austria, France, Belgium, Netherlands and Luxembourg). This set of countries "continental" is derived historically from an insurance type design (Bismarckian model), partially supplemented by welfare mechanisms. In it, it has provided performance related contributory burden individually supported, with a total flow of funds where contributions on taxes prevail. The fourth and last group of countries, this classification concerns the Mediterranean areas of Europe (Italy, Spain, Portugal, Greece). These countries have welfare models defined as "mixed", because they are a hybrid of the previous models. There are other political factors in social contexts of differentiated development have resulted in a high degree of individualism in social spending functions, with a major disparity in performance in relation to the category, the territory and the personal characteristics. The Italian System is based on an analysis of needs defined at national and regional level. It covers all the needs of health without a direct contribution by the users. The Anglo Saxon system is different; just some vulnerable users have right to the free assistance. Normally in the Anglo-Saxon countries when people needed to see a doctor or had to enter a hospital, they either paid for the cost of the services themselves or were treated through charity. For example in United Station have a complex patchworks where they spend directly a percentage of their gross national product on the healthcare. There are five major direct financing sources of healthcare: health insurance, Medicaid, Medicare, patients and healthcare providers. As the 21st century nears and the baby-boom population heads closer to retirement, the changes included in the Balanced Budget Act are strictly a down payment in terms of closing Medicare's funding gap (Medicare is the federal health insurance program for people who are 65 or older, certain younger people with disabilities, and people with End Stage Renal Disease). Economist Victor Fuchs estimates that "if the trends of the past decade or two continue until 2020, the elderly's health care consumption in that year will be approximately $25,000 per person (in 1995 dollars), compared with $9200 in 1995." The other lower program called Medicaid (Medicaid is a health insurance program for low income individuals and those with disabilities) underscores the ambivalence of a society that continually struggles with the question of which citizens deserve access to publicly financed medical care and under what conditions. On a more positive note, Medicaid now provides health insurance to a larger population of poor persons than ever before, reflecting the strength of a bullish economy and expanded criteria for eligibility. In Latino America except for Brazil, Cuba and Costa Rica, achievement of universal health coverage has been hampered by inequitable health

financing and employment based social insurance schemes and segment the population in to three categories: 1) the poor, unemployed, and the employed without social security 2) the salaried working population with social security and 3) the rich with private insurance. Hence, health system has been looking to extend social protection to the disenfranchised populations, namely poor people, non-salaried and self-employed workers, unemployed people and rural citizens. In Argentina, Brazil, Colombia, Costa Rica, Mexico, Peru, Uruguay and Venezuela have introduced reforms to strengthen health system financing by pooling founds from many sources. These countries have used government revenues to expand health insurance or financing coverage and health benefits for non-salaried workers and for people who are poor. In the late 1970s China launched its agricultural reforms which initiated a decade of continued economic growth and significant transformation of the Chinese society. The agricultural reforms altered the peasants' incentives, weakened community organization and lessened the central government's control over local communities. These changes largely caused the collapse of the widely acclaimed rural cooperative medical system in China. Consequently China experienced a decreased supply of rural health workers, increased burden of illnesses, disintegration of the three tier medical system, reduced primary health care, and an increased demand for hospital medical services. More than ten years have elapsed since China changed its agricultural economic system and China is still struggling to find an equitable, efficient and sustainable way of financing and organizing its rural health services.

Figure-1. Health system goals and health financing policy objectives (Kutzin, 2008)



3. The Methodological Approach for the Empirical Research and Analysis

3.1. Research Objectives

The study is based on the previous research "Risk Management and healthcare: "separation" of revenues and expenditure[1].We resumed the results of the previous work that includes:

1) Analyse the balance/imbalance to finance the National Healthcare System and the Regional System, underlining the health financing flows, the sources and the current employments, obtained from the boundaries of the healthcare into the regional balance;
2) Evaluate the different ways with whom occurs the sharing of the National Health Fund among the different ordinary Statute Regions, the special administrative Regions (excluding Sicily) and Sicily;
3) Analyse critically the sharing formula and propose simplified and clear criterions.
4) At least the group of study would find a difference between the real results of each Italian region and the methodologic suggested approach and the relationship with the realization of Essential Level of Assistance (LEA) in based of the financial equilibrium.

3.2. Methodology

The method that the previous study uses includes a quantitative analysis about the efficiency of the National Healthcare System and consists of the following elements that the group of study resume in the paragraph 4:

a) Collection of data regarding Italian Regions' balance from different sources and with different modalities as:
   - Final balance published on the Regions' websites;
   - Consultation of ministerial data;

[1] published in the book Risk management: perspectives and open issues. A multi-disciplinary approach, McGraw-Hill Education, pp.248 – 265, May 2016.

- Questionnaire administration to the Italian Regions;

b) Construction of a synthesis prospectus underlining incomes and expenditures of the regional healthcare;
c) Analysis of the health expenditures divided for functions;
d) Analysis of financing sources of regional healthcare;
e) Comparison between incomes and expenditures for each Region to determine surplus and deficit of regional healthcare;

In this study afford a quantitative and qualitative study, it provides:

a) Critic analysis of the model currently adopted to finance the National Healthcare Service.
b) Statistical analysis and correlation between surplus/deficit of healthcare Italian regions and the respect of Essential Assistance. The group of study uses chi-square test analysis and method of OLS "Ordinary least Squares"

4. Italian Model

4.1. Financing Model of the Health Expenditure in Italy

The financing mechanism is one of the most complex and, at the same time, characterizing elements of the health systems. It regulates the relation among the several levels of system government, as well as its equative rules, and influences the laws'. Therefore, the complexity of the topic allows talking generally about "financing system".

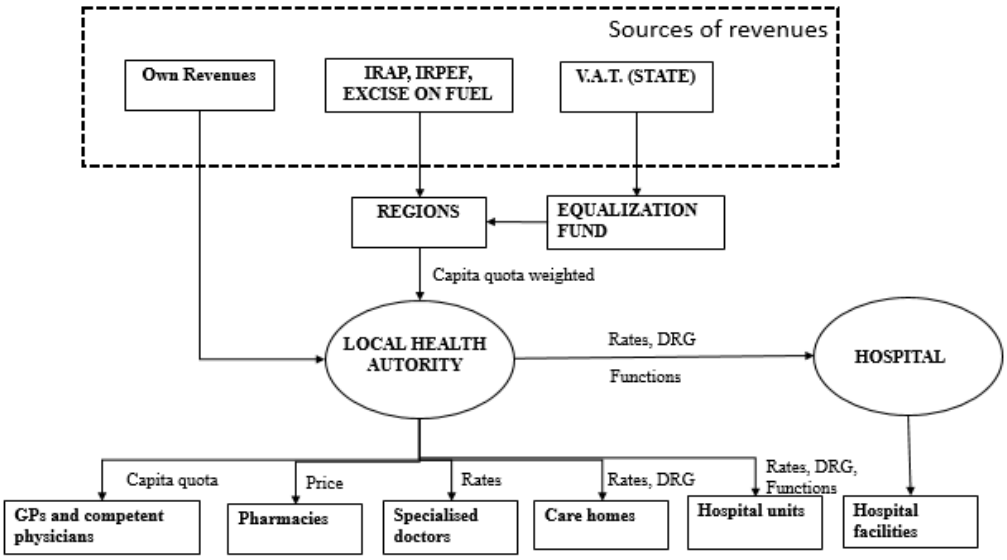
The term "financing system" (Bottari *et al.*, 2013) concerns, implicitly, the "public health systems", in which a part of the resources coming from the taxation is addressed to guarantee the free or "subsidized" delivery of health performances, in order to make the consumer opportunities essentially independent from the economic chances.

In the health systems in which the public intervention is prevalent or significant, administration systems of performance prices and rates' definition are also diffuse (for example, in Italy hospital admissions and specialist performances). These prices and tariffs are integral and fundamental parts of the financing system. Without market prices, this aspect becomes fundamental also in the economic trend's analysis of health services allocating facilities, insofar as it influences the incomes. A very important topic for systems in which the public intervention includes the direct allocation of services, about this the Italian case is paradigmatic; insofar the role of the public healthcare facility is central for the entire system.

The state law defined annually the health requirement, which is the overall level of the National Health Services resources, to whom financing the State contributes. This requirement in its "indistinct" component (there is then a "bound" tranche) is financed from the following sources:

1) Incomes of National Health Services' facilities (health care fee and incomes derived from the intramoenia activities of their workers), in a well-defined and crystallised amount secondary to an agreement between State and Regions;
2) General taxes' system of Regions: regional tax on productive activities – IRAP (in the revenue's component addressed to healthcare financing), and the regional personal income tax – IRPEF. Both the taxes are quantified on the basis of revenues defined employing national basic rates, so reckoning without the major revenues resulting from regional fiscal measures in case activated by every last Region;
3) Share of special administrative Regions and Trento and Bolzano autonomous provinces;
4) State' budget: it finances healthcare requirement not covered by other financial resources essentially through the share to value added tax (VAT) (allocated to common statute Regions), the excise duties on the fuels and the healthcare national Fund (a tranche is addressed to Sicily, whereas the remaining part overall finances also other health expenditures restricted to specific purposes).

Figure-1.2. The financial source of the healthcare facilities.



For every financial year, towards the level of the NHS funding for the reference year, the level of own revenues, the expected tax revenues, and for the Sicilian region, the level of the regional share to the funding, the funding on the state budget, on balance, is determined in the two components of the IVA share and of the national healthcare Fund. The composition of the NHS funding is underlined in the so called "distributions" (requirement's allocation to each Regions and financial sources' identification) proposed by the Minister of Health, on which it reaches an agreement in State-Regions Conference and that are then accepted by Interministerial Committee for the Economic Planning (CIPE).

The Regions allocate the financial resources to the facilities according to different parameters, in order to ensure the supply of the services corresponding to the basic Level of healthcare.

The resources' allocation to the facilities takes into account the passive mobility (the residents treated in structures of other health facilities or Regions) and the active mobility (if persons outside the facility are treated). Besides, the facilities are financed by the Regions, based on delivered services to inpatients (through the cost expected by c.d. Diagnosis Related Groups (DRG), Homogeneous Grouping of Diagnosis2) or outpatients (through the tariff of the specialist and diagnostic services).

4.2. The Boundaries of the Regional Budget: The Incomes and the Expenditures

Decision-making, that defines the funding of the National Health Service, is organized in a double level. On one hand, the State defines the fundamental principles, named basic Level of healthcare (BLH), and ensures the resources need-ed to their financing, consistent with public finance's constraints and according to efficiency and pertinence of the delivered services. On the other, the Regions organize their Regional Healthcare Services (SSR), ensure the delivery of the services included in LEA and plan and manage the healthcare services in the area.

The preeminent aspect of this management model is the system's capacity as a whole to aid and incentivize the "virtuous" Regions, aimed at improving efficiency and efficacy of the LEA's delivery. This process allows a structural improvement of the budget balance, particularly important for the Regions in deficit, and it permit also to maximize the health needs' satisfaction compatible with the healthcare resources.

The legislative framework, over the last few years, permits the implementation of the administration model, in the healthcare sector, able to pursue gradually and efficaciously the fore mentioned objectives.

Considering the fiscal federalism, the n. 118/2011 legislative decree, regarding the balances' harmonization, represents a further progress for the accountant proceeding in the health sector since 2012. With this legislative decree, some regulations are included to guarantee an easy individuation of the health financing area through three different measures. Firstly, there is the foundation of the Centralize Healthcare Management (GSA). Secondly, the openness is considered regarding the cash flow of the health financing, through the starting of specific treasury counts addressed to the health care. Thirdly, about the final balance, the Regions have to render and guarantee the incomes and expenditures' boundaries (for example, the correct individuation) related to the financing of the Health Regional Service.

The boundaries allow immediate comparability between health incomes and expenditures of the regional balance and the resources indicated in the records establishing the health regional requirement and identifying the correlate financial sources. In this way an easy check is determined regarding the further resources made available by the Regions for the current financial year of the Health Regional Service.

Specifically, the following income voices must be identified: the ordinary current health funding (included active planned mobility), the additional current health funding, (included the additional funding aimed to the supply of the higher levels of healthcare compared to LEA); the regional funding of the previous health deficit; the health investment's funding. The health facilities' incomes and the health mobility's (refunds to the Health Regional Service relating to health services for citizens of other Regions) are added.

About the expenditures, the following voices are individuated: the current health expenditure for the LEA's funding (included the passive planned mobility); the additional health expenditure for the levels of healthcare higher than LEA; the health expenditure for the funding of previous health deficit; the expenditure for the health investment.

In each regional balance a framework comparing the fore mentioned incomes/expenditures is reported (Table 1).

Table-1. The boundaries of the regional balance (D.Lgs. 118/2011)

Expenditures	Incomes
• Current health income for the LEA's funding	• The ordinary current health funding
• Additional health income for levels of healthcare higher than LEA	• The additional current health funding
• Health income for the funding of the previous health deficit	• The regional funding of the previous health deficit
• Income for health investment	• Funding for health investment
	• Own incomes

Source: our reworking on NSIS data.

This model does not meet the principles of the Accounts Department for Rational Administration, according to which that the funding of the health services should be based on the services really produced with an efficient mechanism in terms of resources for their production.

4.3. The Different Methodologies for the Sharing of the Health National Fund: Current Statute Regions, Special Administrative Regions and Sicily Region.

The current methodology for the sharing of the Health National Fund (HNF) uses as unique parameters, for the assignment of the tranches to the different autonomous Regions and Provinces, the resident population, the different age-structure and the mortality rate (Rice and Smith, 1999). The sharing of the funds to the Regions results in the mechanism of "weighted per capita tranche". This articulate collection of criterions is adopted to the population of the Regions and provides the funding, assigned by the State to each of them for the LEA's supply.

It is called "weighted" per capita tranche method because every citizen does not weigh "one" (as in the "dry per capita tranche" method), but he carries weigh differing from other one and depending to criterions used for the sharing. The resident population's size is the guide principle of the sharing (that is greater resources correspond to greater population), but this value, for the different basic levels of healthcare, is modulated, weighed, time after time, according to the agreements among the Regions (Zocchetti, 2012). The consequence is a "weighed" regional population (inferior, equal, superior to the real population based on how the adopted weighing criterions play) that defines the sharing tranche of each Region to FSN.

The mechanism of " weighted per capita tranche" , as adopted in Italy, consists of two moments: firstly every basic level of healthcare to finance is identified (and the fund relative tranches to whom assigned); secondly, for each LEA identified, the criterions to apply for the Regions' populations (the weights) are defined (Cislaghi and Zocchetti, 2012). The health facilities are financed by the Regions on the base of the per capita tranche corrected according to the resident population's characteristics, the criterions indicated in 662/93 law, that regulates the money transfer from the National Health Fund to the Regions. With the agreement reached on 8th August 2000, during the State Regions Conference, the rules of the internal Stability Pact were reviewed, regarding the Regions, the provinces and the municipalities (Giannoni, 2015).

The point number 16 of the agreement expect that "*[...] the Regions covenant to review the weighting parameters included in the Article 34 of the law 662/96*" based on the agreement about the basic levels of healthcare. In this context the funding based on per capita tranche has to guarantee a balance between available resources and the supply of appropriate health services through the LEA (Costa, 2010).

Currently, the sharing among the Regions occurs in different way for type of Regions (and Autonomous Provinces):

1) The ordinary statute Regions compete for the specific sharing on the basis of the following formula

$$\varphi^{it} = \frac{n^{it}}{\sum_i n^{it}} + \frac{n^{it}\beta \sum_j \tau_j{}^t \left(x_j{}^t - x_j{}^{it}\right)}{R^t} + \frac{n^{it}(s^{it} - s^t)}{R^t} + \frac{n^{it}\gamma^t(p^{it} - p^t)}{R^t}$$

In which the parameters are the following:

(a) Resident population: $\frac{n^{it}}{\sum_i n^{it}}$ (b) Smoothing fiscal capacity: $\frac{n^{it}\beta \sum_j \tau_j{}^t (x_j{}^t - x_j{}^{it})}{R^t}$

(c)Healthcare requirement: $\frac{n^{it}(s^{it} - s^t)}{R^t}$ (d) Geographical dimension: $\frac{n^{it}\gamma^t(p^{it} - p^t)}{R^t}$

2) The special administrative Regions (excluding Sicily) and the Autonomous Provinces of Trento and Bolzano provide the healthcare services, using their aimed tributes (share of IVA, IRAP e Additional Regional IRPEF).
3) Sicily benefits from the sharing for the 50.89% of its requirement (as into point 1), whereas for the remaining 49.11% used its aimed tributes (as in point 2).

The high and persistent imbalance in the Regional fiscal capacities (imbalance existing between the per capita expenditures and incomes' levels in the different areas) implied the need of massive huge coordination transfers. The necessary resources are financed by a coordination fund without purpose restriction, sustained by the general taxation system. This system should guarantee the uniform supply of the LEA. The healthcare requirement is the overall level of the National Healthcare Service resources to whom financing takes part the State.

4.3.1. Sample

The reference sample is represented by the Italian Regions (15 ordinary statute Region and 5 special administrative Regions) and by two Autonomous Provinces (Trento and Bolzano). The data in analysis refer to 2013 due to the unavailability of latest revised data regarding the regional healthcare funding.

5. The Results of the Empirical Analysis

The need of pursuing efficacy and efficiency should be included in a rational administration's context that starts from the needs to satisfy and from the available financial resources. The observation point, and so the level of resources use, influences the dynamics of resources consumption. The point of view is the grade the pattern of utilization of the resources that influence the dynamics of the consumption of resources (Volpatto, 1988).

In details, the financial sources of the regional health for 2013 have been analysed and elaborated.

One first reworked version concerns the health expenditures sustained by the Regions (Table 2), and reveals a significant coherence with the incoming financial amount (Table 3). Particularly, based on the incomes' analysis, a

discrepancy emerges between the special administrative Regions, provided with autonomies, and the ordinary statute Regions. The results show a variegated and diversified distribution of funding secondary to Regions and regional characteristics. The differences are considerable, even considering Regions apparently homogeneous: for example, comparing Sardinia and Sicily, the variance is significant regarding not only the need' distribution, but also the aspects of taxing and normative autonomy.

Finally, an incongruity regarding the effective regional needs results is demonstrated by the surplus and deficit's results (Table 4).

Table-2. The regional healthcare expenditure (2013 - €/millions – for value)

Regions	Purchases of goods (3)		Drug purchases		Purchase of health services (4)		Purchase of non-health services (5)		Leases and rentals		Health personnel (6)		Trained individuals (7)	
Lombardia	2.131	11,49%	1.293	6,97%	7.074	38,15%	1.235	6,66%	161	0,87%	4.577	24,68%	465	2,51%
Lazio	1.408	12,80%	901	8,19%	3.898	35,43%	783	7,12%	82	0,75%	2.585	23,49%	220	2,00%
Campania	1.219	12,59%	861	8,90%	3.142	32,46%	640	6,61%	55	0,57%	2.605	26,91%	201	2,08%
Veneto	1.217	13,53%	583	6,48%	2.783	30,95%	750	8,34%	125	1,39%	2.516	27,98%	226	2,51%
Emilia Romagna	1.207	13,66%	533	6,03%	2.543	28,78%	711	8,05%	71	0,80%	2.758	31,22%	235	2,66%
Sicilia	1.050	12,15%	812	9,40%	2.702	31,27%	398	4,61%	46	0,53%	2.598	30,06%	243	2,81%
Piemonte	1.275	15,30%	609	7,31%	2.348	28,18%	527	6,32%	108	1,30%	2.552	30,63%	281	3,37%
Toscana	1.195	16,84%	414	5,84%	1.632	23,00%	660	9,30%	69	0,97%	2.343	33,02%	177	2,49%
Puglia	1.155	16,40%	622	8,83%	2.273	32,28%	468	6,65%	39	0,55%	1.836	26,07%	147	2,09%
Calabria	462	13,72%	313	9,30%	912	27,09%	159	4,72%	29	0,86%	1.076	31,96%	106	3,15%
Sardegna	518	15,91%	300	9,22%	742	22,80%	256	7,86%	36	1,11%	1.107	34,01%	78	2,40%
Liguria	443	13,94%	221	6,96%	854	26,88%	274	8,62%	33	1,04%	1.013	31,89%	85	2,68%
Marche	475	17,20%	239	8,65%	638	23,10%	159	5,76%	27	0,98%	922	33,38%	69	2,50%
Friuli V.G.	399	15,87%	190	7,56%	492	19,57%	289	11,50%	27	1,07%	881	35,04%	67	2,67%
Abruzzo	376	15,93%	220	9,32%	569	24,11%	177	7,50%	27	1,14%	714	30,25%	51	2,16%
Umbria	275	16,53%	131	7,87%	317	19,05%	145	8,71%	17	1,02%	576	34,62%	34	2,04%
P.A. Bolzano	152	12,91%	45	3,82%	256	21,75%	60	5,10%	8	0,68%	540	45,88%	52	4,42%
P.A. Trento	139	11,93%	68	5,84%	363	31,16%	88	7,55%	7	0,60%	384	32,96%	37	3,18%
Basilicata	164	15,88%	80	7,74%	263	25,46%	64	6,20%	7	0,68%	353	34,17%	24	2,32%
Molise	89	13,46%	43	6,51%	231	34,95%	40	6,05%	2	0,30%	188	28,44%	10	1,51%
Valle d'Aosta	35	12,64%	18	6,50%	57	20,58%	22	7,94%	7	2,53%	102	36,82%	12	4,33%
Total	**15.384**	**13,79%**	**8.496**	**7,61%**	**34.089**	**30,55%**	**7.905**	**7,08%**	**983**	**0,88%**	**32.226**	**28,88%**	**2.820**	**2,53%**

Regions	General administrative expenses		Other (8)		Intraomenia		Taxes		Leases and rentals		Extraordinary costs (9)		Total	
Lombardia	452	2,40%	524	2,83%	196	1,06%	387	2,09%	7	0,04%	42	0,23%	18.544	100%
Lazio	178	1,62%	348	3,16%	98	0,89%	221	2,01%	105	0,95%	176	1,60%	11.003	100%
Campania	168	1,74%	403	4,16%	43	0,44%	234	2,42%	19	0,20%	89	0,92%	9.679	100%
Veneto	186	2,07%	174	1,93%	96	1,07%	209	2,32%	43	0,48%	85	0,95%	8.993	100%
Emilia Romagna	211	2,39%	172	1,95%	105	1,19%	224	2,54%	31	0,35%	34	0,38%	8.835	100%
Sicilia	198	2,29%	244	2,82%	39	0,45%	222	2,57%	48	0,56%	42	0,49%	8.642	100%
Piemonte	186	2,23%	79	0,95%	98	1,18%	220	2,64%	32	0,38%	18	0,22%	8.333	100%
Toscana	167	2,35%	101	1,42%	80	1,13%	189	2,66%	29	0,41%	39	0,55%	7.095	100%
Puglia	128	1,82%	103	1,46%	29	0,41%	153	2,17%	13	0,18%	76	1,08%	7.042	100%
Calabria	89	2,64%	67	1,99%	9	0,27%	87	2,58%	25	0,74%	33	0,98%	3.367	100%
Sardegna	70	2,15%	43	1,32%	13	0,40%	33	1,01%	4	0,12%	55	1,69%	3.255	100%
Liguria	54	1,70%	58	1,83%	35	1,10%	84	2,64%	3	0,09%	20	0,63%	3.177	100%
Marche	62	2,24%	55	1,99%	32	1,16%	77	2,79%	1	0,04%	6	0,22%	2.762	100%

Friuli V.G.	49	1,95%	15	0,60%	22	0,88%	68	2,70%	-	0,00%	15	0,60%	2.514	100%
Abruzzo	60	2,54%	67	2,84%	15	0,64%	59	2,50%	1	0,04%	24	1,02%	2.360	100%
Umbria	48	2,88%	61	3,67%	11	0,66%	45	2,70%	2	0,12%	2	0,12%	1.664	100%
P.A. Bolzano	21	178%	3	0,25%	1	0,08%	36	3,06%	-	0,00%	3	0,25%	1.177	100%
P.A. Trento	21	1,80%	15	1,29%	8	0,69%	31	2,66%	-	0,00%	4	0,34%	1.165	100%
Basilicata	23	2,23%	14	1,36%	4	0,39%	29	2,81%	-	0,00%	8	0,77%	1.033	100%
Molise	17	2,57%	13	1,97%	3	0,45%	15	2,27%	3	0,45%	7	106,00%	661	100%
Valle d'Aosta	9	3,25%	1	0,36%	3	1,08%	9	3,25%	-	0,00%	2	0,72%	277	100%
Total	**2.397**	**2,15%**	**2.560**	**2,29%**	**940**	**0,84%**	**2.632**	**2,36%**	**366**	**0,33%**	**780**	**0,70%**	**111.578**	**100%**

Source: our reworking on NSIS data.

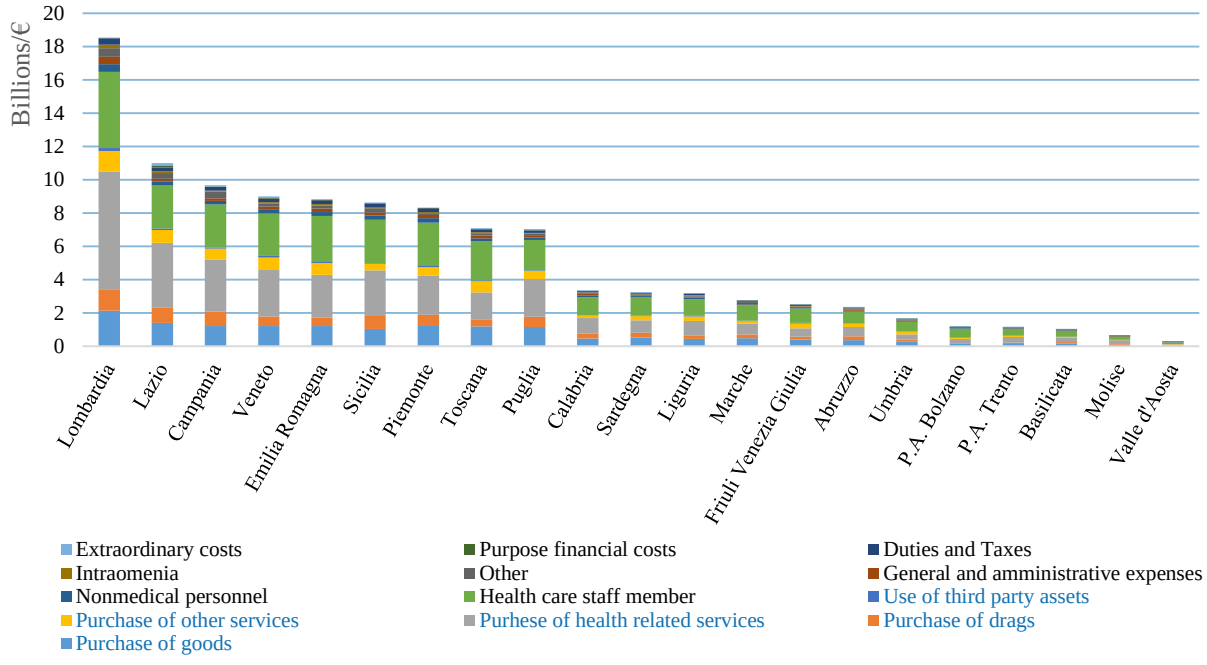
Table-3. The financing sources of the regional healthcare

Regions	Own Revenues (10)	IRAP	Additional regional tax	V.A.T. and excise taxes on fuel	FSN	Regions Co-participations with the special status	Total
Ordinary Statute Regions							
Lombardia	1.815.118	7.097.818	1.831.164	7.698.863	-	-	18.442.963
Lazio	727.815	3.646.398	927.132	4.937.980	-	-	10.239.325
Campania	324.541	1.334.328	545.586	7.644.617	-	-	9.849.072
Veneto	801.040	2.791.017	789.656	4.708.402	-	-	9.090.115
Emilia Romagna	1.137.635	2.577.932	782.484	4.214.014	-	-	8.712.064
Piemonte	636.735	2.161.013	745.098	4.750.074	-	-	8.292.920
Toscana	774.416	1.941.668	603.683	3.915.316	-	-	7.235.083
Puglia	284.910	926.126	415.381	5.488.581	-	-	7.114.999
Calabria	114.772	107.994	182.961	3.056.834	-	-	3.462.562
Liguria	288.785	749.072	282.368	1.821.351	-	-	3.141.576
Marche	233.621	660.035	225.745	1.801.115	-	-	2.920.516
Abruzzo	197.830	444.509	164.985	1.682.361	-	-	2.489.684
Umbria	206.631	330.610	132.687	1.090.117	-	-	1.760.045
Basilicata	108.061	64.343	61.473	868.596	-	-	1.102.473
Molise	100.267	42.005	35.918	467.125	-	-	645.315
Total (Ordinary Statute)	**7.752.177**	**24.874.867**	**7.726.321**	**54.145.347**	**-**	**-**	**94.498.713**
Special Status Regions							
Sardegna	66.652	644.193,36	198.422	-	-	2.005.045,84	2.914.313
Friuli Venezia Giulia	228.388	766.690,60	215.953	-	-	1.192.628,76	2.403.660
P.A,. Trento	87.745	348.549,16	90.757	-	-	464.714,95	991.766
P.A. Bolzano	101.483	394.819,55	94.709	-	-	365.166,31	956.178
Valle d'Aosta	24.215	86.582,09	23.308	-	-	112.270,41	246.376
Total (Special Status)	**508.483**	**2.240.834,77**	**623.149**	**-**	**-**	**4.139.826,27**	**7.512.293,03**
Sicily regions							
Sicilia	303.621	1.512.894,13	488.051	-	2.235.167,56	4.236.387,89	8.776.122
Total Italy	**8.564.281**	**28.628.596,2**	**8.837.521**	**54.145.347,24**	**2.235.167,56**	**8.376.214,16**	**110.787.127,15**

Source: our reworking on NSIS data.

Figure-2. The Healthcare regional expenditures (2013)

Figure-3. The healthcare regional incomes (2013).



Referring particularly to incomes of the tax component IVA and petrol excise, the 40% of the 2013 national overall revenues was addressed to finance the National Healthcare Service.

$$\frac{\text{VAT and petrol excise addressed to finance the NHS}}{\textit{VAT and petrol excise overall revenue}} = \frac{54.145.347.237}{138.785.060.116} = 40\%$$

Table-4. The Surplus/deficit of the regional healthcare (2013 - €/millions – for value).

Regions	Total Revenue (A)	Total Expenditure (B)	Economic Surplus (Balance Deficit) [A-B]
Campania	9.849.072	9.679.985	169.087
Marche	2.920.516	2.761.822	158.694
Toscana	7.235.083	7.094.687	140.396
Sicilia	8.776.122	8.640.044	136.078
Abruzzo	2.489.684	2.360.251	129.433
Veneto	9.090.115	8.992.917	97.198
Umbria	1.760.045	1.665.016	95.029
Calabria	3.462.562	3.367.832	94.730
Puglia	7.114.999	7.041.489	73.510
Basilicata	1.102.473	1.034.824	67.649
Molise	645.315	662.741	(17.426)
Valle d'Aosta	246.376	276.793	(30.417)
Liguria	3.141.576	3.175.590	(34.014)
Piemonte	8.292.920	8.333.957	(41.037)
Lombardia	18.442.963	18.542.584	(99.621)
Friuli Venezia Giulia	2.403.660	2.514.709	(111.049)
Emilia Romagna	8.712.064	8.835.595	(123.531)
P.A. Trento	991.766	1.165.079	(173.313)
P.A. Bolzano	956.178	1.176.224	(220.046)
Sardegna	2.914.313	3.256.405	(342.092)
Lazio	10.239.325	11.002.285	(762.960)
Total	110.787.127	111.580.829	(793.702)
Everage Value	**5.275.577**	**5.313.373**	**(37.795)**

Source: our reworking on NSIS data.

Table-5. The Surplus/deficit of the regional healthcare and Lea (2013 - €/millions – for value).

N	Regions	Number lea satisfied (Essential Level of Care)	Economic Surplus (Balance Deficit) 2013 Analysis Tab 4	Economic Surplus (Balance Deficit) Data Agenas 2013
1	Abruzzo*	152	129.433	36.175
2	Basilicata*	146	67.649	(3.401)
3	Calabria*	136	94.730	(30.616)
4	Campania*	136	169.087	19.262
5	**Emilia Romagna**	204	(123.531)	2.348
6	Lazio*	152	(762.960	(609.888)
7	**Liguria**	187	(34.014)	(91.345)
8	**Lombardia**	187	(99.621)	10.189
9	**Marche**	191	158.694	37.532
10	Molise*	140	(17.424)	(51.382)
11	**Piemonte**	201	(41.037)	(40.742)
12	Puglia*	134	73.510	(39.561)
13	**Sicilia**	165	136.078	6.017
14	**Toscana**	214	140.396	2.847
15	**Umbria**	179	95.029	24.619
16	**Veneto**	190	97.198	25.511

Legend: * (respect a range between 130 and 160 LEA) – bold font (respect more of 160 LEA)
Source: our reworking on AGENAS data

6. Conclusions

Data demonstrate a significant difference between Regions Economic financial results in our analysis and in the reporting of the Minister of health through Agenas (table 5). It demonstrates how the theoretical application of the Health system in Italy gives a different result to the real situation. The boundary of the revenues and expenditures is based on a specific way to allocation of resources, but each region could manage the resources to cover over expenditures and debt; it generates a variation and a risk management in the control of National Supervision.

In our Analysis, the data demonstrate significant differences between Regions in 2013: there are Regions with great surplus (ex. Campania), Regions with great deficit (ex. Lazio) and Regions in substantial balance (ex. Molise).

Overall, the regional surplus amounts to €/thousands 1.161.803 and are made almost completely by ordinary statute south-central Regions, apart from Veneto Region.

The regional deficit amounts to €/thousands 1.955.505 and are made, apart from Lazio Region, by the special administrative Regions (Sardinia, Friuli Venezia Giulia) and by the Autonomous Provinces of Trento and Bolzano.

The medium value of the surplus is €/thousands -37.795. Over the medium value there are Abruzzo, Basilicata, Calabria, Campania, Liguria, Marche, Molise, Puglia, Sicilia, Toscana, Umbria, Valle d'Aosta, and Veneto Regions. Below the medium value there are Emilia Romagna, Friuli Venezia Giulia, Lazio, Lombardy, Piedmont, Sardinia Regions and the Autonomous Provinces of Trento and Bolzano.

The real situation demonstrates a different balance. The data show significant differences between Regions in 2013: there are Regions with great surplus (ex. Marche), Regions with great deficit (ex. Lazio) and Regions in substantial balance (ex. Emilia Romagna).

Considering the comparison between data available (table 5) according the our first analysis the health regional balance have a positive amount (€/thousands 83.217) than the real situation with a negative amount (€/thousands – 702.435)

In the both situation, we analysed, through chi-square test analysis and method of OLS "Ordinary least Squares", a possible relation between balance and respect of lea in each region. We do not find a relation; it highlights how different health contexts have a possibility to respect the different Essential Level of Care. It could depend to a management and organization system. Regions highlight in bold font respect at least more than 160 Lea and they are defaulting, in *symbol the Regions that respect a range between 130 and 160 LEA with some notes. Regions are defaulting than 7 are defaulting with some failings, on realignment plan objectives, vaccinations for MPR and lea of assistance housing for the elderly. We could not analysis all the regions (some special status regions like Valle d'Aosta) because they are not obliged to analysis the boundary between expenditure and revenues and the respect of lea.

The detailed steps of this study refer to the boundaries' analysis also for 2014 and 2015, through data availability, and to an efficacy and efficiency's analysis for the different regional Healthcare Services, with relation to the state of health and the healthcare need in every Region.

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