

Report

CEIS - Sanità 2008

*Regional Health Care. Assessment
and Perspective seven years after the
costitutional reform and just on the eve
of fiscal federalism*

CEIS - Faculty of Economics,
University of Rome "Tor Vergata".

The 6th publication of CEIS, University of Tor Vergata- Rome, is the result of a public-private partnership.

This partnership flanks CEIS with organizations which believe in the necessity of supporting stakeholders of the healthcare system and offering policymakers access to knowledge.

The publication and circulation of the volume to healthcare operators and experts has been made possible thanks to the financial support and commitment of :

- A.N.I.A.
- Boehringer Ingelheim Italia
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The partners in this initiative share with CEIS Sanità the necessity to offer elements that are necessary when taking rational decisions both to the operators in the sector and to politicians; offering business administrations the necessary information to improve their programming and organizational levels; as well as offering citizens and their associations some elements for understanding the system's performance.

The Report (which has been conceived, planned and accomplished in the dual Italian/English version) collects the work carried out by CEIS Sanità researchers, and other experts in the sector.



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Report CEIS - Sanità 2008
presentation

Presentation

We are very glad to introduce the 6th Publication of the CEIS Report, University of Tor Vergata-Rome, entitled “Regional Health Care. Assessment and Perspective seven years after the constitutional reform and just on the eve of fiscal federalism”.

The Report has been born from the work or research that CEIS has been working out for years in the field of healthcare economy, in the economical evaluation of healthcare projects and in the private/public business administrations; this research also increases an intensive post-Laura activity and a scientific support to private/public institutions

This year too the report wishes to offer that scientific support which is necessary when taking rational decisions both to the operators in the sector and to politicians stressing the most relevant thematic for the realization of the fiscal federalism, maintaining an adequate level of solidarity within the public healthcare system.

This year too the Report has been conceived, planned and accomplished in the dual Italian/English version to spread the knowledge of the Italian healthcare system to the international scientific community

Luigi Paganetto
Presidente CEIS
Univ. di Roma Tor Vergata

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Report

CEIS - Sanità 2008

*Regional Health Care. Assessment
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Regional Health Care. Assessment and Perspective seven years after the constitutional reform and just on the eve of fiscal federalism.¹

The CEIS Health Report is now in its sixth edition. As the Report's editor, since the first edition, I am of course very pleased about the growing attention it is receiving; I wish to add that the nature of the Report has not changed, its purpose still being to disseminate the results of the research and survey activities carried out by CEIS in the field of health care, in a form that can be easily understood and used by both expert and layperson alike.

Some changes, however, have been introduced to the structure of the index, by taking a more organic approach, which will presumably be maintained in the forthcoming editions. Accordingly, the Report addresses first of all the funding of the Italian national health service (NHS); this is followed by an overview of the key health care sectors (Hospital, A&E, Residential, Pharmaceutical, Specialist, Social & Health, Home care), which combines economic and statistical data and regulatory issues; the next section presents an analysis of the financial (and, possibly, economic) effects of the care services, and the related expenditure, but also the equity impact of the system. Finally, the last chapter is dedicated to the principal health-related "industries" (Pharmaceutics, Medical Equipment, Insurance), as a reminder that the health sector, although unquestionably "costly", also contributes significantly to the overall economy of the country.

This new approach is a result of the awareness that federalism in health care is now a fact, although this raises two issues that are best addressed in this new framework.

First of all, we believe that without a mutually accepted system of fiscal federalism, the current institutional arrangements are inadequate, as they provide no ties between regional autonomy and the related financial responsibilities.

Secondly, it is necessary to ensure the social rights of citizenship, which translate here into the so-called "Essential" Levels of Care (ELC).

In other words, the stakeholders should work to achieve a balance between the admissible regional differences (as a result of the federal system) and the nationwide uniformity of fundamental rights (stemming from the concept of ELC), which appears to be the real challenge faced by the Italian NHS in the forthcoming years.

The two issues are obviously intertwined; for example, no acceptable funding and/or equalization criteria can be determined without acceptable assessments of the levels of efficiency of the regional systems; but the development of suitable criteria of comparison in this field requires the capacity to monitor the ELC, in particular, and the different needs of the regional populations in general.

In short, lower expenditure does not necessarily determine greater efficiency, insofar as the relevant figures might be subject to more or less distortion due to the different needs and/or to shortcomings in quality (e.g. the formal, but not effective, implementation of the ELC); in summary, spending less because the regional population has fewer needs, or because of a lower quality of services, does not signify greater efficiency.

Therefore, we will not deal in this Report with the determination of "standard costs", despite the fact that the issue is at the top of the political agenda, because we are convinced that,

¹ Spandonaro F., CEIS Sanità- Faculty of Economics, University of Rome "Tor Vergata".

given the present state of the art, the determination of such costs is still premature; although necessary, they must nevertheless be the result of a complex process of assessment, the fine points of which have yet to be fully investigated, based on a joint analysis of costs and needs; the expression “standard cost”, in fact, conjures up a picture of efficiency of the system as a whole, insofar as it is preferred to the “average cost” of care, which is undoubtedly higher than the best performance; however, it also suggests a certain caution in comparing the figures, having ruled out the concept of “minimum cost”, which might be the result of the failure to fully implement the essential levels of care.

Determining an efficient cost model for the care services provided, therefore, remains a difficult task, made even more difficult by a structural shortage of monitoring data: the present cost survey model is based on a classification by type of production factors while, moreover, in order to reliably tackle the issue of “standard costs”, the best option would be to focus on the types of care (which is why they have been put at the centre of the 6th Health Report).

The choice of the level of aggregation for benchmarking purposes is decidedly important, to determine the “standard costs”: the highest aggregate level (benchmarking on costs per resident) appears practically non-significant, because the efficiencies and inefficiencies in the single sectors of care financially offset each other, but certainly not with respect to effective (substantial) compliance with the ELC requirements: suffice it to mention the bogus “savings” on residential and home care in situations that, moreover, conceal considerable shortcomings in the services provided.

At the opposite end – that of the individual services or diagnostic-therapeutic pathways – the predominant factor is a subjective inconsistency of the need and effectiveness of the treatments, which appears to be a discriminating reason for discarding this approach (which, moreover, is disregarded internationally).

Ultimately, a “middle of the road”, substantially pragmatic, approach would appear to focus on macro-areas of care (cost per type of care), selecting them so that the “scale” is such as to allow the definition of reasonably objective output and, possibly, outcome assessment criteria, such as to discard the experiences with significant qualitative and quantitative shortcomings.

The experience made by the British NHS on capitation moves in this direction, based on the capacity of defining scales of equivalent needs per type of care.

The fact that the inconsistency of needs is a key element of judgement is proven by some easy numerical exercises: for example, if we calculate the cost per resident at regional level we see that the lowest costs, at present, are those incurred by Sardegna, Puglia and Lombardia, followed by Campania which, moreover, features a huge deficit; if we “adjust” the data according to the weights used for the distribution (to the extent that they can suitably represent the need differentials of the population) the best performances become those of Umbria, Basilicata and Marche, while the other regions tend to slide downwards (Lombardia, for instance, is surpassed by Toscana, and Campania drops considerably in the league table).

This seems sufficient to prove the sensitivity of the figure to the criterion of weighing the needs; and if we wish to further investigate the current accounting system’s capacity to discriminate in terms of efficiency, the case of Campania appears paradigmatic; but we cannot neglect the fact that the regions featuring the lowest costs all seem to be the smaller regions and that Sardegna, which is among the most virtuous, based on our survey, features decidedly scarce performance, with respect to the appropriateness of hospitalization.

The direct benchmarking of the total costs per resident, therefore, appears to be scarcely grounded: fundamentally, it is a matter of need standardization criteria, the related algorithm

(the current version of which was developed between 1996 and 1999) certainly requires further investigation and revision.

Therefore, we cannot neglect the issue of the suitable funding of the essential levels of care at regional level by means of “standard costs”, i.e. reasonably efficient costs for the services provided, although this should be preceded by a scientific and agreed assessment of the cost determinants, irrespective of whether they are related to appropriate needs, non-appropriate needs, induced demand, etc., with obvious different implications in respect of the eligibility of central government funding and, therefore, national solidarity.

The British experience provides some important information on the methods that can be used, beginning with the levels of disaggregation of the estimates (based on the type of care, as mentioned above), and ending with the choice of the base survey unit, which in the UK is the *Primary Care Trust*: obviously, with regard to the latter issue, it is necessary to make a reasoned decision on how to transpose the principle into the Italian system, but the Local Health Authority (ASL) seem to be the best choice, rather than the regional level, where different situations are averaged and, therefore, ultimately concealed.

However, no projection will ever be able to guarantee the minute, albeit not less important, guarantee of coverage.

We are personally convinced, in fact, that this can be based only a twofold and complementary approach.

First of all, the capacity of the system to effectively collect the reports and feedback from the public: no statistical method can ever identify the small-scale deviations from the “established rules of the game” within the system, despite the fact that these deviations undermine the concept of ELC. It seems to us that, consistently with an approach focusing on empowerment, a complaints reporting system should be provided for (at the central level, because we are dealing here with potential deviations from the nationwide system), based on the ‘incident reporting’ model, as developed in the field of risk management (i.e. it should be easy to access, anonymous, independent of any claims-related/legal implications, etc.). In short, a user-friendly (e.g. web-based) and informal events-reporting system for highlighting any shortcomings in the overall social rights system, at the discretion of the public.

Such a system might provide useful information, which a ‘table’ comprising representatives of the central and regional governments and of the citizen and patients organizations, might transform into an observatory capable of effectively monitoring the concrete application of the ELC.

An empowerment-based approach should also provide that the public, even before being granted access to a system allowing them to “voice” their concerns and experiences, are suitably informed about the quality of the services provided: if AGENAS, as often re-iterated at the central government level, is to take on the role of independent watchdog, it must necessarily open itself up to the civil society (citizen and patients groups and organizations, scientific institutions working in the health sector, etc.), in order to become a really credible independent party, within a primarily public health and welfare system.

At a more aggregate level, as regards the guarantee of ELC, all we can do is conduct a close (informal) monitoring of the regional health policies and the substantial incentives introduced in the health and welfare system as a whole.

In this regard the issue of the so-called ‘portability’ of rights is another matter for concern; in a situation of increasing autonomy of the regions, in fact, it might become difficult for members of the public to apply for services in a different region. At present, this is guaranteed by the substantial inefficiency of the financial regulation of the mobility process,

whereby the services are first provided, then generally settled *a posteriori* by the regions among themselves.

For this purpose, based on the SANIDATA project for building an *Observatory on regional and national regulation*, the 6th CEIS Health Report has registered the sedimentation of increasing regulatory differences in many fields of health care: the characterizing aspect seems to be the predominance of an approach based on financial, rather than economic and, at times, equity savings; moreover, the increasing regulatory autonomy, with respect to matters touching entitlement to the quantities of services (justified by assessments of appropriateness) allow the forecasting, in the medium term, of an increasing risk of regional disparity, in respect of the ELC, and therefore potential problems with respect to the portability of entitlement to health care cover.

Although reference should be made to the single chapters for more in depth and detailed information in this respect, it can be observed here that the pharmaceutical sector appears to be a paradigmatic care segment in terms of regulatory inconsistency.

Despite the unquestionable financial success (public expenditure has been significantly cut back in recent years, as a result of the measures relating to prices and quantities), and regardless of any industrial policy considerations, it must be noted how the prescription limits introduced to date, as well as the processes relating to the off-label use of drugs, and the regional changes to the fee-exemption and cost-sharing rules, are prefiguring significant deviations from the principle of nationwide uniformity of health care eligibility.

For example, with respect to the regulations governing the so-called ‘prescription limits’, some regions are already defining different reference prices, precisely quantified as costs per DDD (e.g. Sardegna, in the case of acid pump inhibitors); while others (within the same ambit, for example Lazio and Molise) are introducing different criteria (i.e. maximum prices per type of different dose packages); one can therefore easily assume that, today, the effective possibility of receiving various types of drugs, and the disincentives to using more costly molecules, differ from region to region.

Therefore, there are already disparities on both the demand and the supply side, with levels of competition that cannot be superimposed; furthermore, since the quantities concerned by the reasoning are currently limited (although, in the future, the conditions for other types of development may set on), with regard to the portability of entitlement, we must ask ourselves to which prescription limits should the prescriptions required from outside the region conform?

Likewise, other regulations seem to evolve in a potentially distorsive manner: this is the case of the drugs included in so-called ‘file F’; this flow, created for settlements among the regions and then extended to that between the regions, was supposed to represent a type of refund against invoices. However, certain regions have explicitly imposed a financial cap, while others do so implicitly, as a result of which drugs are effectively rationed (drugs that are, generally speaking, innovatory drugs, subject to accurate monitoring also by the AIFA), even more so than the drugs reimbursed within the DRG system.

Likewise, as regards off-label use, the regions have been devolved the task simply to define the authorization procedures, but lacking the definition of the minimum requirements (for example, timeframes for the performance of the process, or the obligation to adopt the principle of consent by silence), these procedures can create the conditions for implicit rations and, therefore, differing access to drugs in usually extremely serious and urgent cases.

If the differences relating to the cost-sharing schemes can be (partially) justified due to their “fiscal” role, in connection with the local financial situations, the increasing differentiation of the exemption caps appear much less obvious. Especially in a binary system (total or no exemption), it is difficult to justify why, according to the region, citizens are considered more or

less fragile within different income brackets (and, besides, some regions use the household income and others the so-called “equivalent household income”).

Forms of disparity can be found even with respect to apparently similar cost-sharing schemes: this is the case of consultant services where, with just a few exceptions (e.g. Lazio), the exemption is effectively common, but not so the price lists, as a result of which the same amount of money purchases different “baskets” of services.

On top of this, always formally justified by reasons of appropriateness, the transition from ordinary inpatient to day hospital care is now followed by a transition to outpatient care; for this purpose, in several regions we are viewing the definition of (variously named) packages of outpatient services, typically delivered by hospitals. There would be much to say about the assignment of the services to a (inpatient or outpatient) system, based on considerations that often have the objective of cutting back costs, as also about the maintaining (if not the increase) of outpatient services within hospitals, but it anyhow highlights that, based on the regionally adopted system, the charges for the public can change radically, ranging from nothing in the case of inpatient/day hospital services, to a cost-sharing charge (called a *ticket* in Italian) in the case of outpatient services. Suffice it to mention, for instance, many infusional treatments – including oncological treatments – which are already subject to different systems in the different regions.

The disparities that impact rights (or at least the related eligibility procedures) are certainly those that should be monitored most closely; here too there are significant differences, which must be highlighted, also with respect to regulations that, although they are related to organizational matters, which clearly fall within the remit of the regional governments, nevertheless may have considerable effects on the quality of the services and, therefore, once again, on effective entitlement to the rights mentioned above.

The paradigmatic case is represented here by accreditation and, within this, by the criteria relating to residential facilities (but the discussion can be extended to include other segments as well).

We have, in fact, observed that there is a strong regional inconsistency with respect to definitions; for example, very different meanings and roles are assigned to the so-called *Residenze Sanitarie Assistenziali* (RSA), Health Care Residences; some regions have redefined RSAs by breaking them down based on the type of user group (ordinary RSAs, RSAs for mental patients, Alzheimer homes), while others have introduced new (more or less temporary) types, according to the gradient of care provided: *Residenze Sanitarie Flessibili* (RSF) are flexible homes, *Residenze Sanitarie a Sede Ospedaliera* (RSAO) are homes based in hospitals, while *RSA medicalizzate* (RSA-M) are residential care facilities where patients can receive medical care.

This inconsistency in respect of definitions, however, is not accompanied by a clear set of specific requirements in the legislation (also for reasons of political “realism”, as a result of the difficulty by the various managements to adapt the requirements according to the procedures laid down in the regulations). Many requirements are subject to the possibility of derogation or determined only as general guidelines or, as in the case of Lombardia, worded simply as suggestions or intentions (in the sense that they apply only to the new facilities).

Therefore, although the regional requirements (with respect to the premises or staff, for example) appear to be formally superimposable (and even this is not always the case), in actual fact the system features a cohabitation of significant differences in quality for users, besides creating significant differences between existing and new facilities, with respect to requirements (which has obvious effects on costs and, therefore, on the barriers hindering entry into the sector).

It is obvious that, lacking minimum clearly defined and cogent nationwide criteria, accreditation (or, better, a casual use of this instrument), may become a means for the less virtuous regions of simulating non-existent “savings”, which are then paid for by the public in terms of impaired safety and/or quality of care.

The tangible effects of this regulatory disorder is the practical impossibility to compare the relevant data; excluding the hospital, pharmaceutical and, in part, specialist sectors, the available statistics appear totally incomparable, making it impossible to suitably assess the efficacy and efficiency of the residential and home care systems and, generally speaking, the social and health care sector as a whole. Incidentally, we may notice that the social and health care sectors are becoming increasingly less separable and should be finally brought back under the same welfare umbrella.

Concerning the incomparability of the data, we should also highlight some organizational innovations that contribute to raising obstacles in this respect. In particular, there is an innovatory instrument that is making an appearance in our system, in the field of home care, and which is not receiving the attention it should be receiving: so-called “care vouchers” (in Lombardia), a.k.a. “care allowances” (in Toscana and Emilia Romagna). The distribution of vouchers for purchasing care services undoubtedly has some advantages (such as a greater degree of self-determination of the beneficiaries and stimulating competition between service providers), but it also features certain risks (in particular, scarce flexibility with respect to individual needs, and the different capacity of communicating with the supply system, based on socio-economic conditions).

The phenomenon, therefore, should be better analysed empirically, assessing its actual efficacy and efficiency: we can highlight that the transformation of several services currently provided in kind into services delivered for cash might foster financial integration by the public, thus significantly boosting the development of a second health care pillar (supplementary care).

Lastly, certain inefficiencies in the area of hospital policy, which remains the area that absorbs the highest resources, deserve commenting on.

Besides a general reduction in the number of beds, several regions have also reduced the number of hospitals (especially public hospitals), while in others there has been an overall downsizing of the existing facilities.

The aggregate figure, therefore, conceals policies that cannot be superimposed and which are, to a certain extent, based on opposing models of hospital efficiency assessment.

Likewise, we can see that significant differences continue to exist between the North and the South of the country, which becomes particularly obvious when we analyse hospitalizations (decidedly lower in the South) and appropriateness (which is also lower in the South).

The staff of the public hospitals, from 2000 to date, has not dropped and, on the contrary, has slightly increased (net of the contracts entered into with self-employed professionals): in detail, the number of nursing staff has dropped, while doctors and clerical staff have increased.

The ensuing feeling is that the bed-cutting policies are often only a smokescreen, without any true efforts at rationalization in the sector.

Practically speaking, we are witnessing the partial failure of the ‘per-service’ payment system (which, moreover, has been only partially applied, since most public hospitals enjoy refunds against invoices). Proof of this failure is the strong regional inconsistency in the levels of hospital remuneration. The average regional tariff, calculated based on the current regional price lists, highlights differences of up to 60%, which can hardly be rationally justified.

The rationalization of the sector, especially in the regions with the largest deficits, which are also those with the highest number of private facilities, has been carried out according to the tariff regression mechanism. Here too the regional regulations feature some significant differences: in some cases there is a 100% regression (in short, once the amount of allocated services has been exceeded no further payments are forthcoming), which not only prevents the alteration of the allocated market shares, but also erects significant barriers to the entry of new facilities (of great importance is, currently, the case of facilities that have been accredited – and which, therefore, are authorized to act in the name and on behalf of the RHS – but which lack an agreement with the RHS for practically delivering their services within the system).

As mentioned above, the regional policies often seem to sacrifice efficiency and appropriateness to financial savings: this can obviously be understood in a public financial system subject to large-scale constraints, which, however, does not seem to take into due account other objective factors.

First of all, the fact that health expenditure in Italy (as a percentage of the GDP) continues to be lower compared to other European countries of similar economic weight (France, Germany, the Netherlands, Denmark, etc); secondly, if we classify the countries by health expenditure, but also by health expenditure growth in the medium term, Italy falls into the quadrant of the more virtuous countries.

Based on these observations, we can maintain that the “problem” lies entirely within the constraints of public expenditure, also considering that Italy, with regard to the public share of health expenditure, is above the OECD average (in 2006, 77.2% compared to an OECD average of 73.4%), a percentage that has remained substantially stable since 2005. According to a long-term outlook, the public share of health expenditure in Italy dropped by about 7 percentage points in the decade between 1990 and 2000, but then increased by 5 points between 2000 and 2006.

Moreover, it should not be forgotten, in particular at a time of serious economic difficulty, that the health sector is substantially anticyclic and that, including the ancillary industry, it is the third largest economic sector after the food and building industries.

Furthermore, given the frequency of the contacts of the public with the NHS (in the order of tens of millions per year) every improvement to the sector’s organizational efficiency can significantly affect the productivity of the system: without applying the theory of training human capital, it is sufficient to remind people of the number of working hours lost as a result of health problems affecting employees or their family members.

It seems to us, therefore, that there are good reasons for supporting the expediency of investments in the sector, strengthened by the need to support the rationalization of the health services currently undergoing serious financial problems: regions like Campania, Lazio and Sicilia can hardly catch up on their (negligent) delays without implementing suitable efforts aimed at the reconversion of the services they deliver, which are rather expensive.

What seems to hinder change or the process most is, actually, the system’s incapacity (or fear) to avoid wasting any additional resources: this brings us back to the issue of whether or not the system is capable of providing itself with concrete means for measuring efficiency, without which not only would it be impossible to define “standard costs”, but it would also be very difficult to achieve the effective requalification of health expenditure.

In terms of future development, the econometric model used for the Report confirms an upward trend of overall health expenditure (public plus private), faster than the GDP, although the crisis may have determined cutbacks in the sector analysed herein as well. The estimates for 2010, in fact, are that health expenditure will exceed the €149 bn mark, equal to 8.8% of the GDP (about 9.0% according to the OECD statistics of international comparison), with a further

0.1% growth on the GDP compared to 2008 (thus remaining below the principal European countries).

If we consider that, in the same period, the share of public financing by the central government is expected to remain substantially the same, and that, in a period of recession, or of substantial stability of the real GDP, there is the possibility that the private share of expenditure may increase, in all likelihood as a result of a growth of public-private partnerships, with an increase of the deficit: alternatively, of course, it is possible that the gap may at least be partially bridged by the rationalization of expenditure, for example, through the speedy “recovery” of the regions with serious financial problems, with respect to which, at present, we cannot foresee the details.

According to estimated public expenditure trends, this should stand at the end of the period (2010) at about 7.1% of the GDP, with private expenditure at a constant level of between 1.8% and 1.9%.

According to the forecasts set out in the budget documents, expenditure trends are expected to be less dynamic, at about 6.8-6.9% of the GDP in 2010.

Compared to these developments, central government funding is expected to stop at 6.2-6.3% of the GDP; in order not to create a deficit in 2008, therefore, it would be necessary that the regional revenues be sufficient to bridge the gap, which amounts to €10.4 bn, according to the government projections, or 10.7 according to us; in 2010 the gap is set to widen further: €11.4 bn according to the government and €16.0 bn according to us.

Table 1: Development of health expenditure

Year	2009	2010
Total health expenditure	143.6	149.3
TV%	4.0%	4.0%
%GDP	8.8%	8.8%
Public health expenditure trends	113.6	120.0
TV%	5.3%	5.7%
%GDP	6.9%	7.1%
Private-sector health expenditure	30.1	29.3
TV%	-0.6%	-2.7%
%GDP	1.8%	1.7%
Central government funding	102.9	104.0
TV%	3.0%	1.1%
%GDP	6.3%	6.2%
Deficit	-8.19	-13.44

Data processed by us

As anticipated, even considering any extra revenue received by the regions, in connection with their deficit recovery plans, lacking effective measures capable of cutting down expenditure, it is arguably the case that €3-4 bn will be missing in 2009 and €10 bn in 2010; further revenue generating measures are very unlikely, lacking an agreement, to date, with the regions about requirements. In any case, if cost-sharing fees are introduced to reduce the gap between expenditure and funding, or to limit the deficit (probably concentrated in the same regions, albeit not to the same extent as in the past, because the gap between the nationwide deficit and the sum of the deficits of the 5 “less virtuous” regions widened until 2004, and then narrowed in the following years and especially in 2007), private-sector health expenditure will rise above the levels at which it had stabilized in recent years; if, however, the regions decide

not to use cost-sharing schemes, private-sector expenditure might even remain substantially stable, in which case the gap would be bridged through deficit spending.

In the 1982-2007 period, the gap between level of expenditure and of funding narrowed further and, consequently, the deficit dropped, on average: this process might now stop, lacking any rapidly effective measures in respect of the system's overall efficiency, or a significant increase of public-private partnerships.

This latter point highlights the urgency of overhauling the partnerships/exemption system, while at the same time giving the public the opportunity and incentives for creating a second pillar of complementary health schemes. In the case of a growth of partnerships, and considering that private-sector expenditure, in Italy, remains almost exclusively 'out of pocket', supplementary health schemes might contribute to the sustainability of the system, thus safeguarding forms of mutuality. Under the recent Ministerial Decree of March 2008, supplementary health schemes might play an important role also with respect to supporting the less protected areas of the NHS, dental care and long-term care (LTC) first and foremost.

In this regard we cannot forget that, in 2006 in Italy almost 300,000 people fell below the poverty line for health reasons: and, therefore, with regard to Equity, there is a substantial stability of the phenomenon and, consequently, the incapacity of the present health policies to tackle the problem.

Over 850,000 households are subject to catastrophic expenses, although there is a drop in the number of instances that will be confirmed in the forthcoming years.

The equity measures at geographical level, although rather differentiated, have highlighted a certain drop in impoverishment in many of the southern regions; but the most important aspect – the use of regionalized indicators – seems to lead to a softer conclusion, in respect of the differentiation between the RHSs of the northern and southern regions: in other words, at least a part of the differentiation in the provision of services by the RHSs is arguably the result of differences in the regional socio-economic contexts.

The extreme fragility of households with one or more elderly members has been confirmed, although there is an increasing number of households which, although not subject to impoverishment because of health expenses, nevertheless find themselves "at risk of poverty" because of such expenses.

At a time of economic crisis, such as the present one, we must also attentively assess the evidence brought to us by the latest available data about the incompressibility of health expenditure due to impoverishment and, therefore, of its appropriateness, to a certain extent: in the future, the necessity of measures in support of impoverished households will almost certainly become increasingly necessary and quantitatively significant.

In conclusion, we hope that this 6th edition of the Report will contribute to highlighting and reporting the difficulties, which, however, must not discourage us from making an attempt to strike a proper balance between Difference and Uniformity; the latter is requested by, we believe, the common sentiments of social justice that permeate society, with respect to health more than to any other sector; the former by the oft-repeated signal coming from the international league tables, in which the Italian health system ranks constantly in the top positions for technical and professional capabilities, clinical outcome and, all things considered, thrifty expenditure, but low down for its rate of responsiveness and, generally speaking, patient satisfaction.

The background of the slide features a light purple gradient. Overlaid on this gradient are several dark purple silhouettes of people of various ages and sizes, holding hands in a circle. The silhouettes are semi-transparent and positioned in the upper half of the slide, behind the text.

Chapter 1

1 Financing healthcare: an overview

1 - Financing healthcare: an overview¹

Since its creation, the Italian National Health Service (SSN) has undergone important reforms which have completely modified healthcare financing mechanisms in the country.

Financing dynamics deeply influence SSN final gross profit: the way in which the SSN manages its funds can either result into a surplus or a deficit, the latter to be due to factors such as inefficient spending, insufficient financing or bad allocation of resources.

As regards the allocation of resources from the Italian Central Government to Regions, Law No 662/1996 highlights that a rigorous analysis of local population needs has to be carried out before allotment occurs, taking into account real care needs, demographic characteristics as well as inter-regional patient mobility trends. Once funds have reached regional authorities, management and further distribution to local public health agencies and hospital trusts appear to be more flexible as no specific criteria have been set by law.

Indeed, Central Government has to guarantee impartiality while allocating resources, whereas regional authorities aim at using funds in the best and most effective way possible.

A comparison between Italy and OECD countries in the field of healthcare financing, as well as a study – whose results are presented into following paragraphs – focused on resources allocation criteria from SSN to Regions and from Regions to local bodies, allow us to make the following considerations:

1. The public sector is the main source of health funding in all OECD countries (see table 1.1)

Table 1.1: Share of public funding of health expenditure. Percentages - Year 2006

% groups	OECD Countries
≤ 50	Mexico, United States
50-75	Korea, Switzerland, Greece, Australia, Poland, Canada, Portugal, Hungary, Belgium, Spain, Turkey, Slovakia
75-85	Finland, Austria, Germany, Italy , New Zealand, Ireland, France, Holland, Sweden, Iceland, Denmark, Japan, Norway
>85	United Kingdom, Check Republic, Luxembourg

Source: elaborations by CEIS Sanità on OECD Health Data 2008

2. In Italy, 77.2% of health spending was funded by public sources in 2006, a figure well above OECD average (73.4%) and confirming 2005 trend.
3. Between 1990 and 2000, the share of public spending in Italy has dropped by about 7% whereas between 2000 and 2005 it has grown by nearly 5%.
4. Over the last decade out-of-pocket expenditure incidence on households' consumption patterns has increased in all OECD countries, with a few exceptions – thwarting all

¹ Paragraphs 1 and 2 were edited by *Giordani C.*, CEIS Sanità- Faculty of Economics, University of Rome “Tor Vergata”. Paragraph 1.1 which outlines health financing in OECD countries as well as conclusions were edited by *Giordani C.* and *Morelli G.*, University of Teramo.

- efforts for complementary health and retirement policies (the so called “Second pillar” of healthcare). A paradox has emerged: countries with the highest per capita income have recorded the lowest out-of- pocket expenditure share and vice versa.
5. In Italy, private health insurances are not widespread. In 2005 and 2006 they accounted for 4.1% of total private spending and stood at only 0.9% of total health spending (even lower than 1%).
 6. Between 1982 and 2007, incidence of SSN funding on GDP has increased by 1.7%. Indeed, it has risen from 4.9% of GDP in 1982 to 6.6% in 2007. A steep increase between 1990 and 1991, just before 1992 crucial healthcare reforms, was followed by a downturn trend and then a new upsurge from 1998 to 2007.
 7. From 1982 to 2007 the gap between levels of healthcare spending and levels of healthcare funding has reduced, causing a deficit drop, too.
 8. In 2004 the gap between total national deficit and deficits recorded in the five “worst performing” Italian Regions broadened dramatically compared with 2003, but then it has gradually narrowed, with a remarkable reduction in 2007.
 9. Taking into account yearly variations of financing in real terms, from 2001 to 2007 figures have changed constantly as if resources allocation were fulfilling political instead of healthcare needs.
 10. With a few exceptions, funds are allocated to Regions according to regional over 65 population shares.
 11. As far as geographical breakdown of financings is concerned, Southern Italian Regions receive higher health funding - as percentage of GDP – in comparison with the North or the Centre. Such a gap derives from a re-allocation process and highlights the importance of a federalism aiming at real resources allotment equalization.
 12. As regards per capita gross profits on a regional basis, over the last five years Lazio has reported the highest budget deficits - well above national figures– followed by Molise whose highest deficits have been recorded over three non-consecutive years, i.e. 2003, 2006 and 2007. In 2004, Liguria ranked second among the “worst performing” Italian Regions (198.12 euros per capita) and the same happened to Campania in 2005 (256.59 euros per capita). Over the same time, Lombardia and Friuli Venezia Giulia have recorded a profit, thus ranking among the “best performing” Regions.
 13. Shifting to patient mobility over the last five years, on the one hand an increasing flow of incoming non-resident patients has brought to a surplus in most Northern and Central Regions of Italy, i.e. Lombardia, A.P. of Bolzano, Veneto, Friuli Venezia Giulia, Emilia Romagna, Toscana, Umbria, Lazio and Abruzzo. On the other hand, some Southern Regions (Campania, Puglia, Basilicata, Calabria), the islands (Sicilia and Sardegna) and a few Northern Regions, i.e. A.P. of Trento, Liguria (from 2003), Piemonte, Val D’Aosta, Marche (until 2002) and Molise (until 2002), have seen their mobility deficits grow.
 14. From 2001 to 2007 budget deficits deriving from patient mobility have dropped in Piemonte, Molise and Basilicata whereas they have soared in Valle d’Aosta, A.P. of Trento, Liguria, Marche, Campania, Puglia, Calabria, Sicilia and Sardegna.
 15. A huge scientific debate is currently trying to identify shared criteria for healthcare resources allocation but, unfortunately, no agreement has been reached so far. Two approaches are possible: opting for objective criteria such as population structure or consumption patterns, or focusing on subjective/contractual criteria including both political instruments, such as agreements at regional level, and financial tools, like funds allocation ceilings. As a matter of fact, controversies over the years have

prevented Italian Regions from agreeing on common objective criteria and a tendency towards the adoption of contractual allocation criteria has been noticed so far. Adopting contractual allocation criteria can be dangerous as funds are often distributed taking into account past expenditure levels and such a mechanism hinders any effort of preventing foreseeable deficits from occurring again. By the way, resources allocation as well as funds concentration process always occurs on the basis of previous budget deficits.

1.1 Financing healthcare in OECD countries

Healthcare costs can be met either by the public sector or by the private sector. Public funding includes public revenue, i.e. taxes, and public social health insurances whereas private funding derives from private health insurances as well as households out-of-pocket expenditures - comprising payments for goods or services as well as cost-sharing expenditure. Most OECD countries draw on both public and private sources to finance healthcare, thus adopting “combined” financing strategies which make it difficult to include each country’s healthcare system into just one category of healthcare funding.

Most European countries as well as some non-European countries – such as Canada and Japan – currently depend on public funding to cover their healthcare costs, mainly through public revenue as well as public social health insurances. (see table 1.2)

On the one hand, countries such as Italy, Denmark, Finland, Ireland, Portugal, Spain, Sweden, the United Kingdom, Australia, Canada, Iceland, New Zealand and Norway have adopted a so called “Beveridge’s system” according to which taxes are the major source of health funding. On the other hand, “Bismark’s system” considers public social health insurances as major source of healthcare funding and it has been implemented in Austria, Belgium, France, Germany, Hungary, Japan, Luxemburg, Poland and Holland (since 2006 Holland - as well as Switzerland – has shifted to a different system requiring all citizens to take out a compulsory private health insurance policy).

In the United States, primary healthcare coverage programmes have been designed to meet the needs of families with low incomes (Medicaid) as well as elderly (Medicare), but still most people have taken out private insurances as the national health system is market-based and public coverage of health expenditure reaches just 27% of US citizens. The rest of people have either to rely on private insurances or to give up insuring itself.

Shifting to population shares benefiting from healthcare coverage, “universal treatment” is guaranteed by most OECD countries where healthcare coverage is extended to all residents of a governmental region (typically, most costs are met by the public sector or through compulsory insurances). In Italy, it is a public body, i.e. the National Health Service, which provides universal health treatment, but in countries such as Switzerland or Holland (since 2006 after the “Hoogervorst reform”) citizens who wish to benefit from universal healthcare have to take out a compulsory private insurance by a private insurances provider.

Table 1.2: Characteristics of health systems in OECD Countries - Year 2006

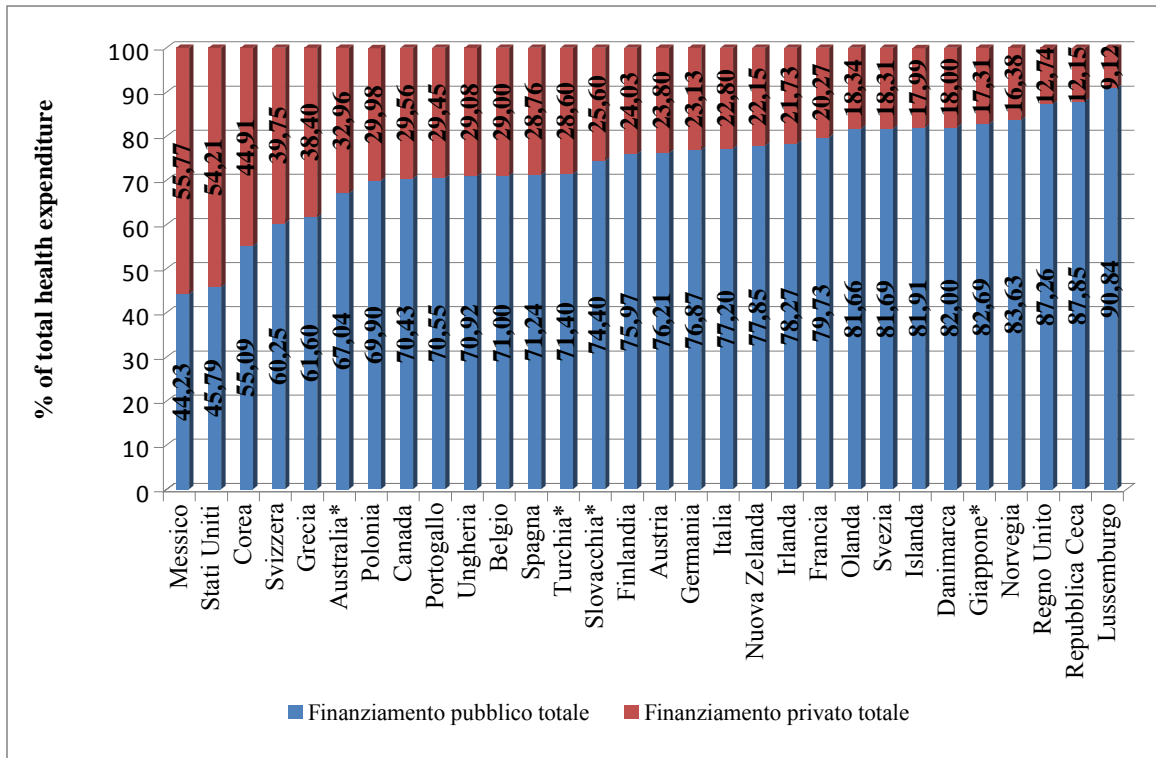
Countries	% of coverage	Insurance: voluntary=v Obligatory=o	Addressee of insurance: individuals=i groups=g	Life insurance including health coverage
Australia	100	V	i	yes (es. serious diseases and disability)
Austria	98	V	i	
Belgium	99	v+o (LTC)	i+g	
Canada	100	V	i (10%)+g (90%)	yes (serious diseases and disability)
Check Republic	100	V	i	no (sometimes yes for serious diseases and disability)
Denmark	100	V	i+g	no
Finland	100	V		
France	99.9	V	i+g	
Germany	89.6	v+o	i+g	yes (permanent disability)
Greece	100	V		yes
Hungary	100	V		yes
Iceland	100	V	i	yes
Ireland	100	V	i+g	yes (es. serious diseases, hospital expenditure)
Italy	100	V	i+g	yes
Japan	100	V	i+g	yes (es. tumours and others specific diseases)
Korea	100			
Luxembourg	99.7			
Mexico	50.4	V		no
Holland	71.2	V	i+g	no
New Zealand	100	V	i+g	
Norway	100		i	
Poland	97.3			
Portugal	100			
Slovakia	97.6			
Spain	99.5	V	I	
Sweden	100			
Switzerland	100	V		
Turkey	67.2	V		yes (serious diseases)
United Kingdom	100	V	i+g	yes (serious diseases)
United States	27.3	V		no

Source: OECD Health Data 2008, Muraro G. and Rebba V. (2008)

Despite universal healthcare coverage, today's private spending is playing a more and more important role and its increase can be due to the following factors: cost-sharing, inefficient public services - such as long waiting lists - and an incredibly wide range of complementary private insurances. To make an example, in Italy in 2006 private spending accounted for nearly 30% of total health expenditure though SSN universal healthcare coverage.

Picture 1.1 shows total health expenditure per funding source (private and public) in OECD countries in 2006.

Figure 1.1: Health expenditure in OECD countries by source of funding (public and private). Percentages - Year 2006



Source: elaborations by CEIS Sanità on OECD Health Data 2008

Clearly, public funding represents the dominant formula among OECD countries: 16 out of 30 countries surveyed have recorded a share of public spending over 75%, with peaks in Denmark, France, Japan, Iceland, Luxemburg, Norway, Holland, the United Kingdom, Check Republic and Sweden where it reached over 80%. It is probably worth underlying that all these countries grant universal healthcare.

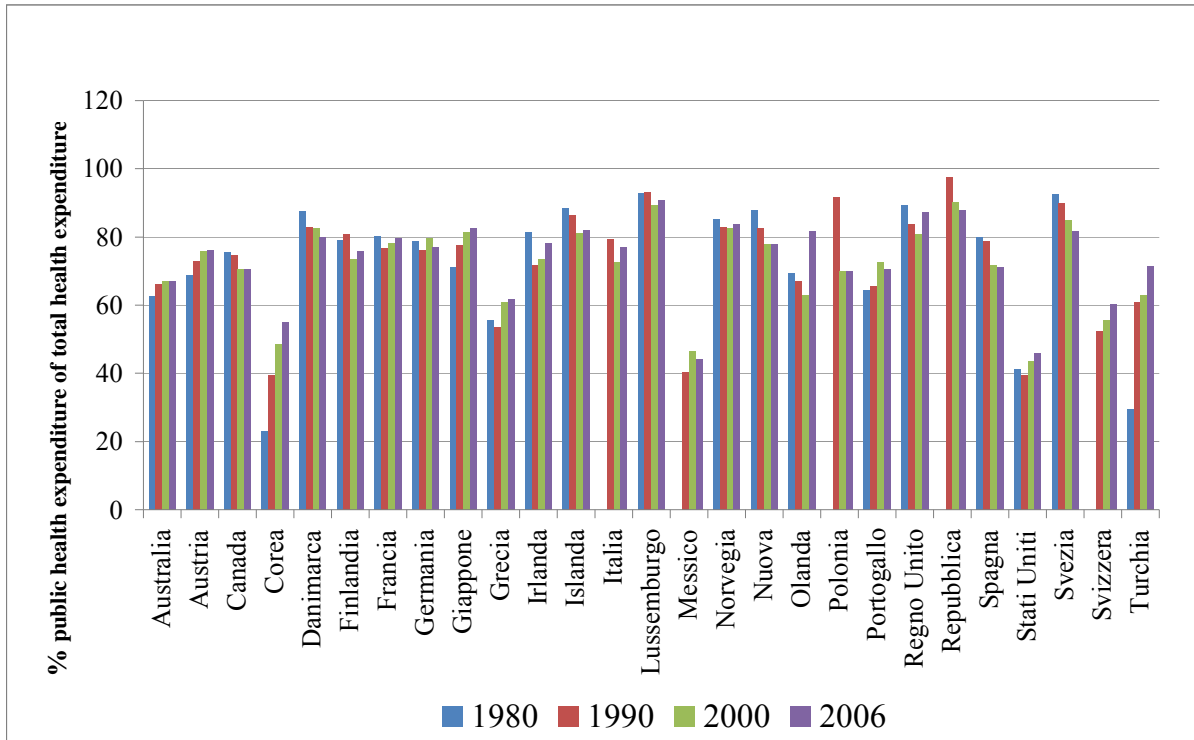
The lowest shares have been recorded in Mexico (44%), the United States (46%) and Chorea (55%) but everywhere else average is 60%.

With respect to Italy, in 2006 the country stood well above OECD average (73.4%) and recorded a share of public spending equalling 77.2% - similar to 2005 figure (76.6%).

As regards health funding sources over the last twenty years in OECD countries, the situation hasn't modified consistently.

Figure 1.2 contains comparable data concerning countries where shares of public spending have changed over nearly three decades (from the 1980 to 2006).

Figure 1.2: Share of public funding of health expenditure in OECD countries. Percentages - Years 1980-2006



Source: elaborations by CEIS Sanità on OECD Health Data 2008

Figures refer to 27 countries² and demonstrate that, decade after decade, those countries relying mostly on public spending - Canada, Denmark, New Zealand, Poland, Check Republic, Spain e Sweden – have seen its decrease whereas countries with smaller public spending shares - Australia, Austria, Chorea, Japan, Switzerland e Turkey – have witnessed a remarkable growth over the same time.

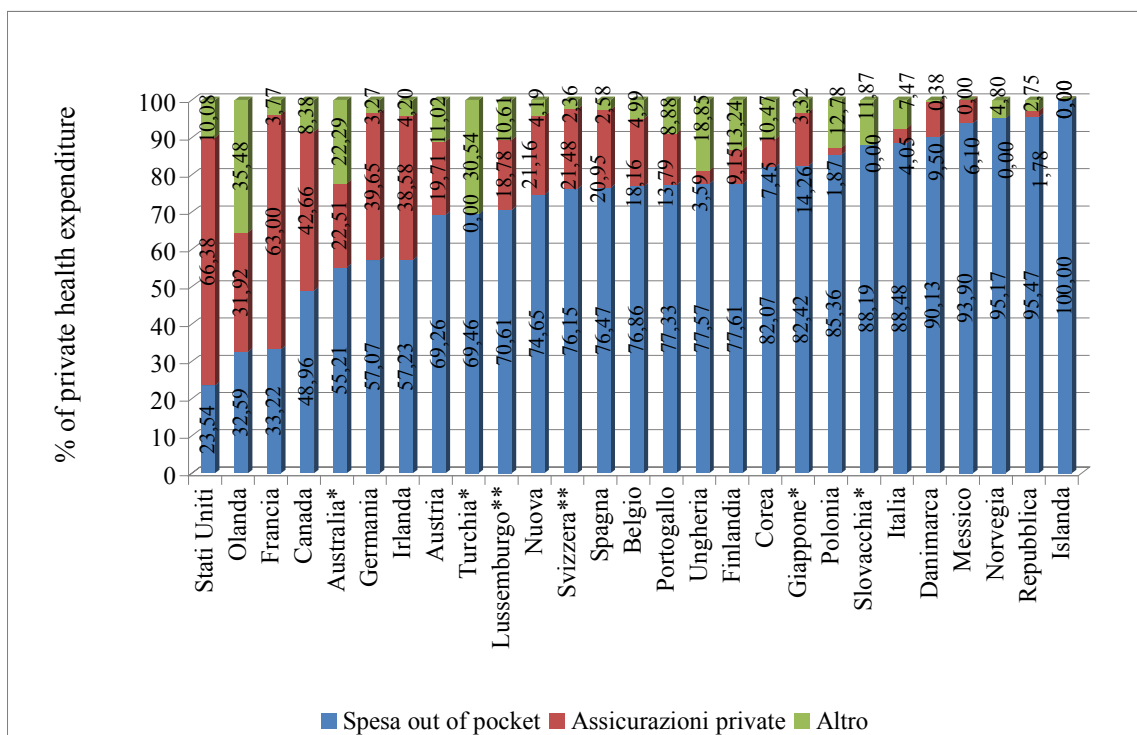
Some countries showed rather “irregular” trends: for example, France, Greece, Ireland and the United States recorded a big drop of public spending shares from 1980 to 1990, followed by upsurges over the next decades.

In Italy the share of public spending has dropped by 7% between 1990 and 2000, but from 2000 to 2006 it has seen a rise by nearly 5%. (Compare Muraro and Rebba³).

² As regards some countries, data refer to 2005 as 2006 figures were not available.

³ Muraro G. e Rebba V., Public and Private Financing of Health Care: An Overview, (2008)

Figure 1.3: Composition of private funding of health expenditure in OECD countries. Percentages - Year 2006



Source: elaborations by CEIS Sanità on OECD Health Data 2008

Shifting to private spending as a source of health funding, it encompasses out-of-pocket expenditure, i.e. health costs met directly by families and including cost-sharing and co-payments, private insurances and products offered by non-profit organisations or further associations different from private insurance companies.

In OECD countries⁴ households spending accounts for an average 17.1% of total health expenditure – 18.4% was the percentage in 2005.

Indeed, picture 1.3 portrays out-of-pocket expenditure as accounting for 50% of total private spending in most OECD countries – except in the United States, Holland, France and Canada.

Nevertheless figures vary remarkably from country to country and are included in the range between 55.2% - recorded in Australia - and 100% in Iceland. Two-thirds of countries surveyed show an average share of 70%.

In Italy out-of-pocket expenditure still plays a central role, as in 2006 it accounted for 88.5% of private health expenditure – slightly more than in 2005 when it stood at 87.0%. These figures demonstrate once again that in our country not enough room has been devoted to the “Second pillar of healthcare”, i.e. healthcare funds, mutual funds or complementary insurances.

In fact, the whole OECD area – except for the United States and France, to make a few examples – has seen a growing incidence of out-of-pocket expenditure on total households spending, with worrying consequences as regards the criteria of solidarity and equality. Indeed,

⁴ No comparable data on private spending composition were available for Greece, United Kingdom and Sweden.

though this trend is slowly reversing, the higher out-of-pocket spending and private insurances expenditures are, the less solidarity exists in the country.

As a result, today we are confronted with a paradox: countries with the highest per capita income have the lowest out-of-pocket expenditure share and vice versa.

With respect to private insurances, they accounted for an average of 4.7% of total health spending (compared with 5% in 2005) and made up an average 18.4% of total private expenditure in 2006 in OECD countries.

Going more into details, picture 1.3 shows that, on the one hand, private insurances as a share of private expenditure are highest in the United States (66.4%), in France (63.0%), in Canada (42.7%), in Germany (39.7%), in Ireland (38.6%) and in Holland (31.9%). On the other hand, they lack completely in Norway, Iceland and Slovakia.

In Italy private insurances appear to be quite unpopular, too. In 2006, they recorded a share of 4.1% of total private spending (close to 2005 figure) whereas private insurances accounted for 0.92% (not even 1%) of total health expenditure over the same 12 months.

Considering the burden of data, some remarks could be interesting at this stage: OECD expects the share of public spending— including resources allocated to help non self-sufficient old people - to double in a few decades, not only in Italy but also in many other countries, if health policies remain unvaried.

Prospects of an increasing public health spending worry policy makers whose financial resources get poorer and poorer every day.

The Italian Minister of Labour, Health and Social Policy, Maurizio Sacconi, has recently issued the *Libro Verde* (Green Paper), a document focusing on the need for radical changes in the Italian welfare state, with a particular look at the healthcare system.

As stated in the *Libro Verde*, “Italian families continue to rely on private spending to meet the most of their healthcare costs. That said, different forms of mutuality among individuals, the principle of bilateralism, the promotion of private insurances as well as cost-sharing initiatives - in the field of both social security and healthcare - can effectively contribute to a fairer and more efficient risk management.

It is therefore necessary to put the abovementioned strategies soon into practice and make them an essential component of any welfare policy adopted in our country.

Thereafter, we must foster complementary pension schemes as well as complementary health funds so that private spending will really become an effective supplementary health funding source able to support public funding, notably public revenue, without jeopardising the principle of solidarity among generations.

As a result, costs and risks will be shared by the private and public sectors and problems deriving from eligibility criteria will diminish.

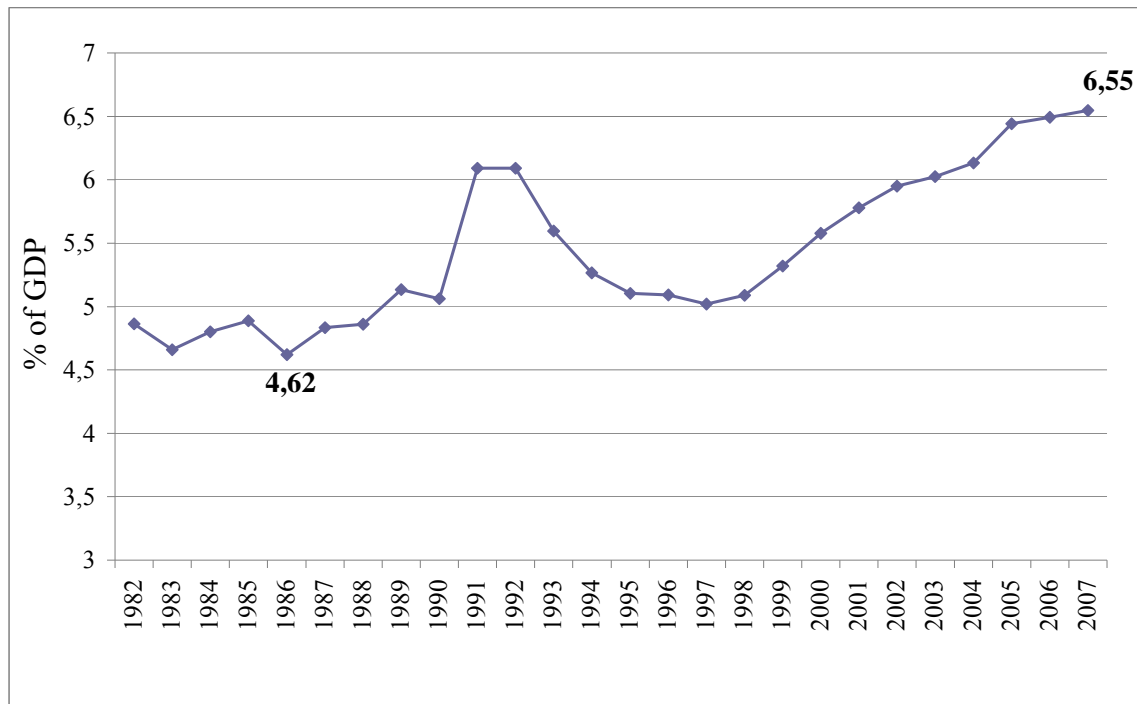
In this framework, the Government has to draw up appropriate regulations, it has to provide citizens with fiscal benefits and, above all, it has to make them aware that any public intervention has its own limits and needs external support.”

1.2 SSN funding and gross profit in Italy

This paragraph analyses the trend of SSN funding in Italy from 1982 to 2007, as comparable data available to the Ministry of Labour, Health and Social Policy - Health Department⁵ – refer exclusively to that time-lapse.

⁵ Named “Ministry of Health” from now on, for the sake of brevity.

Figure 1.4: SSN funding as share of GDP. Percentages - Years 1982-2007



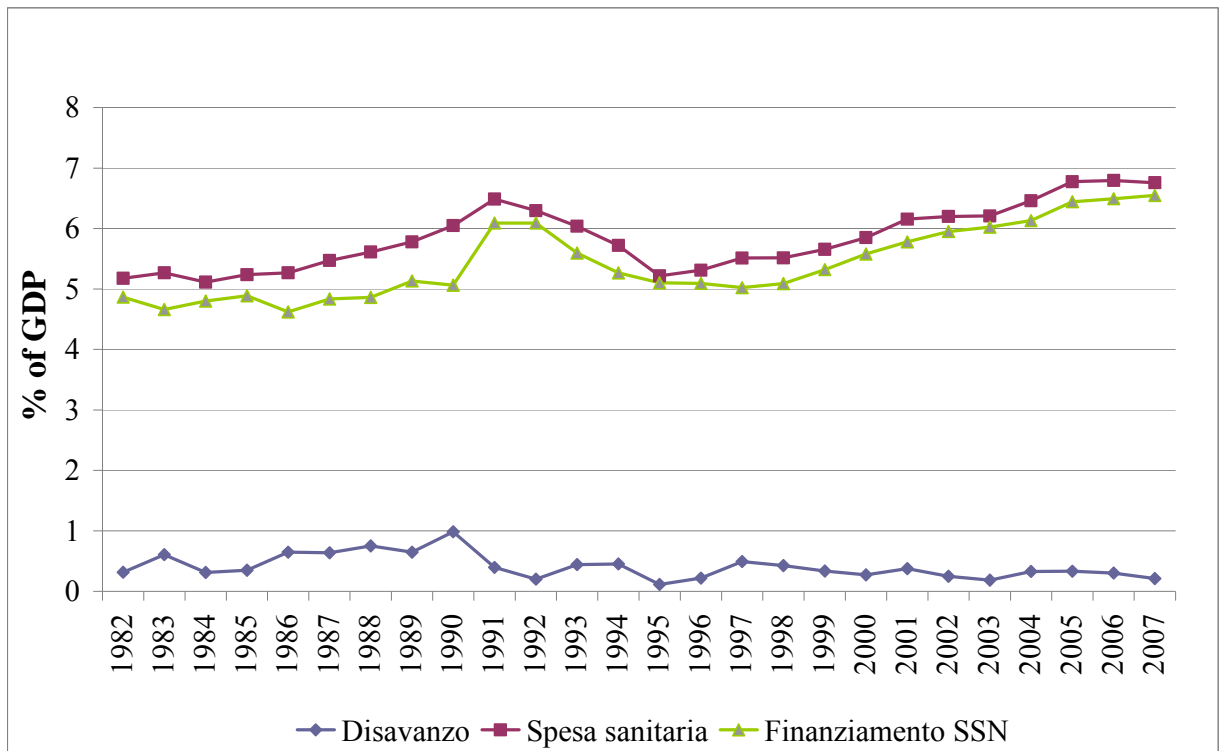
Source: elaborations by CEIS Sanità on Ministry of Health and ISTAT Data

Over that interval, SSN current funding⁶ as a proportion of GDP has grown on an irregular basis (see figure 1.4): an increase of 1.7% has been recorded, causing funding to rise from 4.9% (1982) to 6.6% of GDP (2007).

It was exactly in 2007 that the highest funding proportion of GDP has been recorded (according to the Italian budget law 2008 as well as other estimates, the percentage is expected to grow), whereas the lowest funding percentage ratio of GDP occurred in 1986 (4.6%). Average share from 1982 to 2007 is 5.4%.

⁶ In order to carry out the following analysis, current funding includes revenues deriving from intramoenia medical services (i.e. medical examinations carried out by specialists overtime and in hospital. Targets are both in- and outpatients who are required to pay the doctor a fee) but it does not include extraordinary revenues as well as revenues linked to inter-regional patient mobility. Patient mobility balances were taken into account when analysing regional gross profits.

Figure 1.5: Expenditure, funding and deficit. Shares of GDP - Years 1982-2007



Source: elaborations by CEIS Sanità on Ministry of Health and ISTAT Data

Picture 1.5 shows that the increase in funding had a rather irregular trend, characterised by a steep rise between 1990 and 1991, immediately before crucial healthcare reforms⁷, followed by a downturn in 1992 and then a new upsurge from 1998 to 2007 when a “peak level” (6.6%) has been recorded.

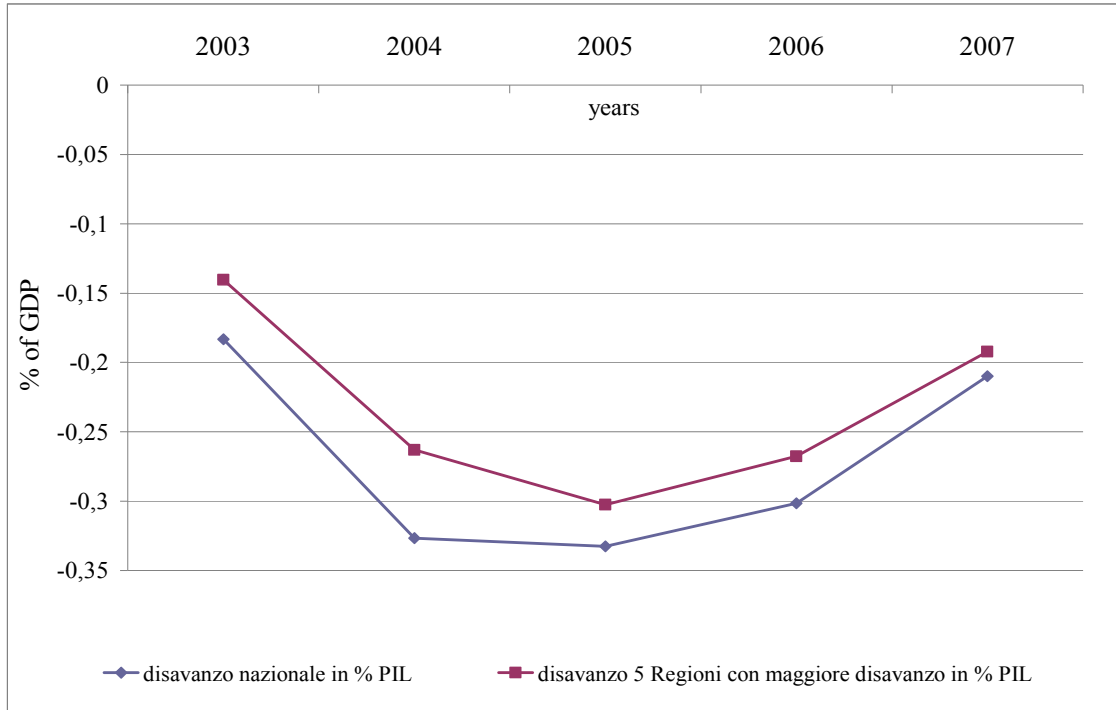
Over the same lapse of time (1982-2007) health spending has constantly been higher than SSN funding and budget deficits have ensued since the creation of the SSN (see figure 1.5). Nevertheless, the gap between health expenditure and health funding seems to have gradually narrowed, leading to lower budget deficits, too (see figure 1.5).

Referring to the last five years⁸, the ratio of deficit to GDP had a slight rise in 2004 (+0.3%) compared with 2005, it has remained rather flat over the two following years and it dropped by 0.1% in 2007 compared with 2006.

⁷ Cf. Report CEIS - Sanità 2007, Chapter 1.4, p. 76.

⁸ Last update by the Ministry of Health: July 2008.

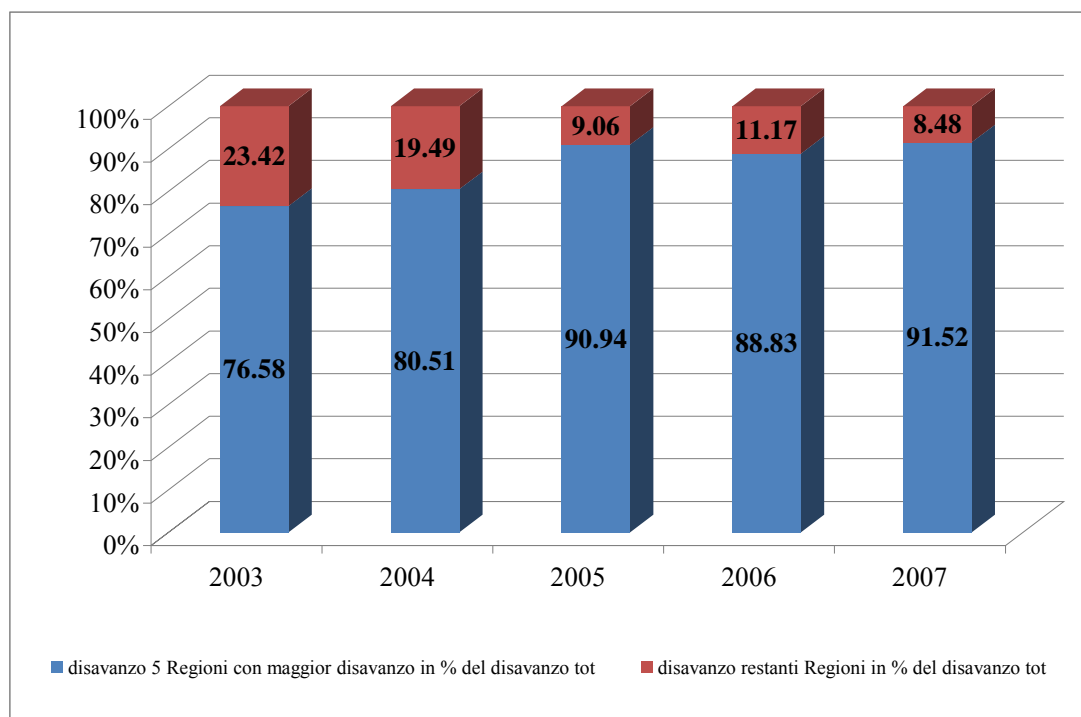
Figure 1.6: Comparison between national deficit and total deficit of the five “worst performances” Regions Shares of GDP - Years 2003-2007



Source: elaborations by CEIS Sanità on Ministry of Health Data

Now, let us take into consideration the five “worst performing” Italian Regions, i.e. those with the highest deficits over a given lapse of time. If we add up deficits recorded there from 2003 to 2007 and then we compare the total figure with national health deficit – all figures have to be seen as a proportion of GDP – we will notice that the gap between these two figures has widened in 2004 – compared with 2003 – whereas it has reduced from 2005 to 2007 when deficits accumulated in the five “worst performing” Italian Regions (Lazio, Sicilia, Campania, Abruzzo and Liguria) accounted for 91.5% of national health deficit (see figure 1.7).

Figure 1.7: Share of deficit of the five “worst performances” Regions Shares of national deficit - Years 2003-2007



Source: elaborations by CEIS Sanità on Ministry of Health Data

Apparently, changes in deficit figures do not depend on changes in expenditure items (see table 1.3⁹).

Table 1.3: Annual variations of funding, deficit and most important health expenditure elements. Percentages - Years 2003-2007

	2003	2004	2005	2006	2007
Personnel	+1.18	+5.58	+7.64	+5.22	+1.14
Goods and services ¹⁰	+10.55	+13.13	+17.88	+1.22	+9.84
Funding	+4.39	+6.01	+7.51	+4.50	+4.51
Deficit/Surplus	-23.89	+85.61	+4.20	-6.07	-27.78

Source: elaborations by CEIS Sanità on Ministry of Health Data

For example, in 2004 higher financial resources were allocated to meet increasing personnel costs as well as a rise in costs linked to production of goods and services, and, nevertheless, deficit soared. On the contrary, in 2006 financial resources weren't sufficient to cover rising personnel and production costs and, nevertheless, deficit decreased compared to 2005.

⁹ Cf. Report CEIS - Sanità 2007, Chapter 1.4, p. 79-80.

¹⁰ This part of health expenditure includes expenditure for goods, typical provisions, intramoenia, passives interests, financial costs, other services and tax

Table 1.4 analyses percentage shifts of both nominal and real funding levels in “real” terms, from 2000 (the base year) up to now.

Table 1.4: Annual increases of financing in real and nominal terms. Percentages - Years 2001-2007

	2001	2002	2003	2004	2005	2006	2007
Funding in nominal terms	+8.61	+6.79	+4.39	+6.01	+7.51	+4.50	+4.51
Funding in real terms	+5.61	+3.40	+1.47	+3.36	+5.38	+2.76	+2.29

Source: elaborations by CEIS Sanità on Ministry of Health and ISTAT Data

Data show that a peak in financing in real terms occurred in 2001 and in 2005 whereas 2003 and 2006 reported the lowest funding levels ever recorded in real terms.

Such an irregular trend was mainly due to the economic situation at that time and it didn't manage to meet real needs of the population.

1.3 Regional Health Services funding and gross profits

Funding of public health spending occurs in Italy under various agreements: those at national level - between the Ministry of Economy, the Ministry of Health and Regional Authorities - as well as those at regional level - involving representatives for all different Regions, the latter to be approved by the Conferenza Stato-Regioni.¹¹ These agreements must provide Regions with the necessary financial resources to guarantee adherence to the so called LEA (*Livelli Essenziali di Assistenza* or Essential Levels of Care), i.e. minimum healthcare services all Italian citizens are entitled to, as well as to meet the need of the whole population, as stated in D.P.C.M. (Decree of President of the Cabinet) on the 29th November 2001.

As a result, since 1999 - once the budget Law no. 662/1996 came into force - resources have been allocated following the weighted capitation formula according to which size and characteristics of population are the primary determinant to allot resources. Therefore, today's allocation process follows criteria such as age, sex and, if relevant, epidemiological or similar indicators, causing structural indicators to recently become less important.

As a matter of fact, the weighted capitation formula continues to be adopted nationwide though it has been “adapted” to local conditions in order to avoid controversies among Regions.

¹¹ *Conferenza Stato-Regioni* (Conference of the State and Regions) is a temporary public committee established in 1983 and composed by national Ministries as well as Regional and Provincial representatives. It takes decisions aiming at promoting cooperation between Central Government and local authorities [TN].

Table 1.5: Regional per capita funding. Euros - Years 1995-2007

Regions	1995	2000	2005	2006	2007
Italy	828.547	1,167.101	1,568.046	1,630.515	1,693.126
Piemonte	840.38	1,219.12	1,691.52	1,747.70	1,791.42
Valle d'Aosta	888.18	1,438.97	1,884.39	2,036.99	2,033.62
Lombardia	854.33	1,184.99	1,551.15	1,600.28	1,671.38
Trentino A.A.	957.04	1,465.09	1,932.39	1,982.70	2,055.95
Veneto	870.37	1,200.55	1,580.64	1,675.26	1,711.96
Friuli V.G.	882.62	1,238.98	1,678.82	1,664.79	1,819.21
Liguria	900.43	1,347.32	1,712.17	1,809.13	1,873.84
Emilia Romagna	907.76	1,289.05	1,655.11	1,694.62	1,765.45
Toscana	854.21	1,233.76	1,643.10	1,681.78	1,764.81
Umbria	897.47	1,270.24	1,611.93	1,637.47	1,721.53
Marche	851.35	1,346.89	1,581.08	1,627.47	1,709.38
Lazio	814.04	1,172.00	1,598.32	1,655.48	1,650.37
Abruzzo	816.32	1,161.95	1,545.60	1,593.76	1,651.50
Molise	788.67	1,150.09	1,587.56	1,604.24	1,677.55
Campania	763.86	1,034.33	1,415.39	1,518.37	1,585.95
Puglia	786.97	1,063.57	1,465.07	1,550.20	1,633.26
Basilicata	754.31	1,026.99	1,519.05	1,575.83	1,681.62
Calabria	752.80	1,036.63	1,491.44	1,582.67	1,681.44
Sicilia	759.11	1,048.49	1,493.61	1,538.06	1,589.33
Sardegna	788.46	1,065.69	1,471.86	1,555.96	1,654.82

Source: elaborations by CEIS Sanità on Ministry of Health and ISTAT Data

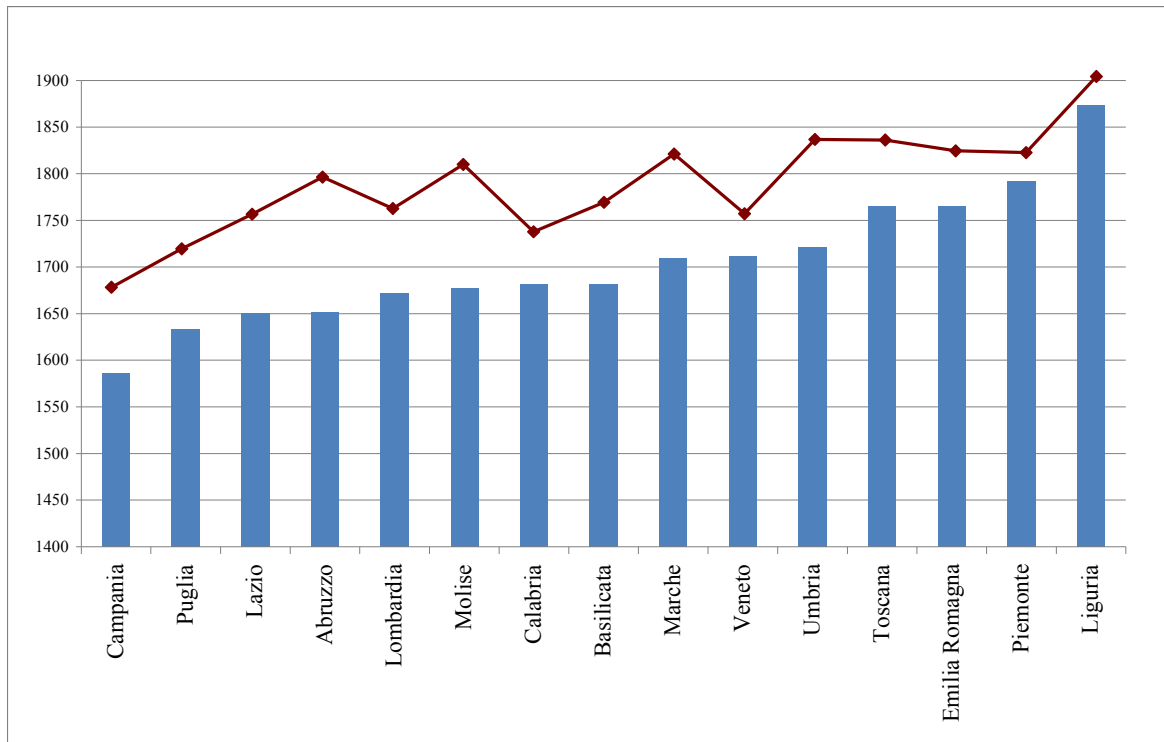
Table 1.5 illustrates the amount of regional per capita funding to Regions and to Autonomous Provinces from 1995 to 2007¹².

From 2005 to 2007, Campania has received the lowest amount of per capita funding, followed by Sicily (year 2006 and 2007) and Puglia (year 2005) whereas in 1995 and in 2000, the lowest amount of per capita resources has been allocated respectively to Calabria and Basilicata.

Let us discover which have been the best-financed Regions in the country on a per capita basis: Trentino Alto Adige has constantly received the highest funding except in 2006 when the best-financed region was Val D'Aosta. Emilia Romagna ranked second in 1995 whereas Val D'Aosta was the second best-financed region over the remaining years.

¹² Data were collected by the Ministry of Health. Current funding figures derive from intramoenia medical services revenues (i.e. medical examinations carried out by specialists overtime and in hospital. Targets are both in- and outpatients who are required to pay the doctor a fee [TN]) and do not take into account revenues of any extraordinary management activity. The most recent comparable data refer to 2007.

**Figure 1.8: Regional per capita funding* and over 65 population.
Euros and percentages - Year 2007**



* Ordinary Regions

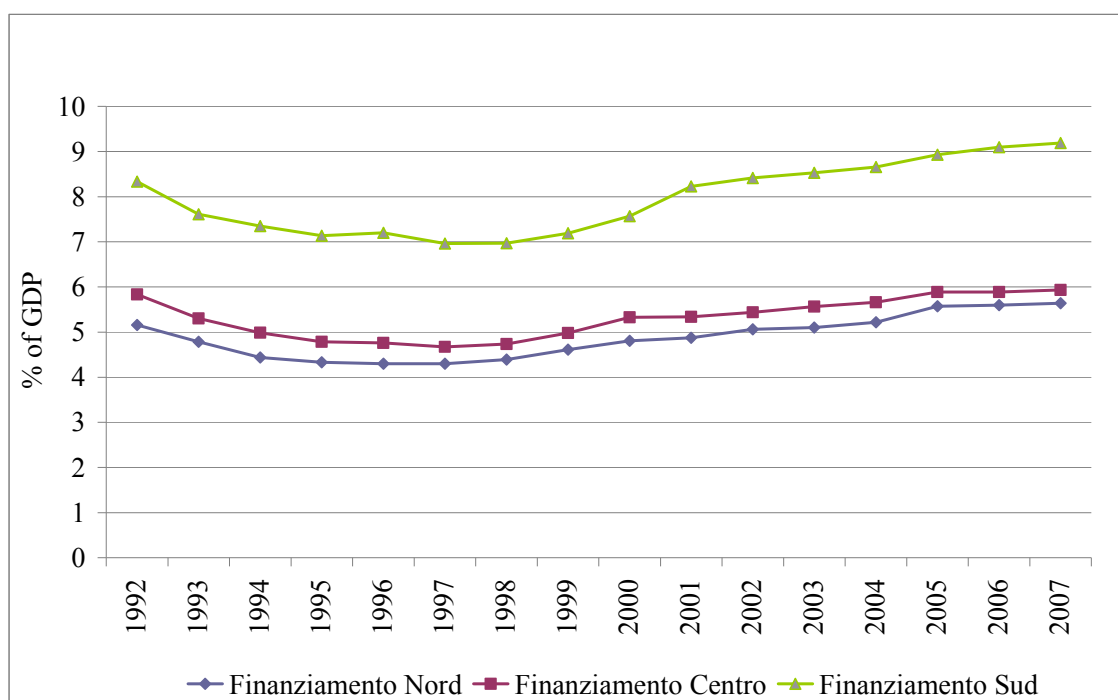
Source: elaborations by CEIS Sanità on Ministry of Health and ISTAT Data

Figure 1.8 refers to 2007 and highlights the link between the share of resources allocated to Italian Regions (Autonomous Provinces excluded) and the quota of old people (over 65) on total population.

On the 1st January 2007, Campania recorded the lowest share of old people (15.52% over 65 and 7.12% over 75), and it received the lowest amount of per capita health funding (1,585.95 euros). Over the same year, Liguria recorded the highest share of old people aged both over 65 (26.70%) and over 75 (13.39%), and it received the highest amount of per capita health funding (1,873.84 euros).

In other words, ageing of population appears to play a central role whenever resources are allocated. But some exceptions exist: Lombardia, Calabria and Veneto have a low share of old people but they have received high per capita funding (see figure 1.8).

Figure 1.9: Funding by geographic areas. Percentages of GDP - Years 1992-2007



Source: elaborations by CEIS Sanità on Ministry of Health and ISTAT Data

Figure 1.9 shows the trend of funding as a percentage of GDP in the North, South and Centre of Italy.

Allocation of resources is homogeneous all over the country and, since 1998, the amount of funding has been growing even if over the years the growth rate has diminished.

Nevertheless, Southern Italian Regions receive higher health funding - as percentage of GDP – in comparison with the North or the Centre. Such a gap derives from a re-allocation process and highlights the importance of a federalism aiming at real resources allotment equalization.

The Italian Ministry of Health publishes annually its Health Report, a section of the State of the Economy Report, where a detailed analysis of SSN current costs and profits is carried out, aiming at identifying gross profit at regional level.

Data contained in this report substantially differ from those in CIPE¹³ resolutions, not only because of different criteria adopted to calculate allocation shares, but also because of differences emerging whenever comparing a final balance (i.e. Health Report) with resources allocation estimates.

According to data issued by the Italian Ministry of Health in its Health Report, the following analysis focuses on regional gross profits (i.e. the ratio of profits to the value of expenditures after inter-regional patient mobility balance) over the last five years¹⁴.

¹³ CIPE (*Comitato Interministeriale per la Programmazione Economica* or Interministerial Economic Planning Committee) is an Italian public body established in 1967 with the task of drawing up national guidelines to implement the national economic programme as well as to lead national economic policy [TN].

¹⁴ Data source is the Ministry of Health. Gross profits deriving from current management includes intramoenia costs and revenues (i.e. medical examinations carried out by specialists overtime and in hospital. Targets are both in- and outpatients who are required to pay the doctor a fee [TN]) but they exclude extraordinary

Table 1.6: Regional gross profits. Absolute and per capita values – Years 2003-2007

Regions	2003		2004		2005		2006		2007	
	Val.ass. (mln. €)	Pro-capite (€)	Val.ass. (mln. €)	Pro-capite (€)	Val.ass. (mln. €)	Pro-capite (€)	Val.ass. (mln. €)	Pro-capite (€)	Val.ass. (mln. €)	Pro-capite (€)
Italy	-2,447.61	-42.70	-4,543.02	-78.48	-4,733.96	-80.97	-4,446.60	-75.69	-3,211.27	-54.31
Piemonte	-143.99	-34.03	-567.50	-132.90	10.20	2.36	-23.54	-5.42	-116.01	-26.65
Valle d'Aosta	-9.70	-80.24	-13.06	-107.04	-12.92	-105.11	-12.64	-101.93	-13.38	-107.22
Lombardia	12.80	1.41	229.08	24.77	206.90	22.03	93.97	9.92	58.84	6.16
Trentino A. A.	-27.26	-28.68	1.57	1.64	16.06	16.48	-10.04	-10.19	15.92	16.00
Veneto	-182.41	-39.85	46.00	9.91	8.50	1.81	64.39	13.59	-46.63	-9.77
Friuli V. G.	15.29	12.83	4.14	3.45	27.32	22.68	50.28	41.61	24.18	19.94
Liguria	-59.59	-37.90	-312.53	-198.12	-230.44	-144.72	-97.41	-60.50	-129.48	-80.53
Emilia Romagna	-105.39	-26.15	-351.67	-86.19	-8.14	-1.96	-48.11	-11.49	-9.74	-2.31
Toscana	-25.29	-7.19	-157.10	-44.05	-66.23	-18.41	-134.69	-37.21	52.03	14.30
Umbria	-51.85	-62.15	-33.66	-39.69	-11.87	-13.82	-43.44	-50.06	12.77	14.62
Marche	-53.52	-36.05	-150.74	-100.17	-29.00	-19.10	-34.97	-22.87	11.18	7.28
Lazio	-690.21	-134.13	-1,060.68	-203.78	-1,691.40	-320.95	-2,001.53	-377.31	-1,600.35	-291.33
Abruzzo	-133.05	-104.50	-107.20	-83.36	-183.08	-140.91	-170.19	-130.38	-141.95	-108.38
Molise	-38.76	-120.73	-38.48	-119.60	-71.74	-222.83	-59.15	-184.34	-53.26	-166.41
Campania	-554.53	-96.86	-1,007.34	-174.87	-1,485.37	-256.59	-680.78	-117.56	-528.65	-91.30
Puglia	101.00	25.10	3.34	0.83	-354.10	-87.04	-254.82	-62.59	-127.21	-31.26
Basilicata	-11.36	-19.03	-25.10	-42.05	-26.08	-43.72	-19.47	-32.77	-8.51	-14.40
Calabria	-50.19	-25.00	-122.43	-60.87	-84.25	-41.93	-104.25	-52.01	-76.22	-38.15
Sicilia	-303.20	-60.98	-670.51	-134.01	-543.53	-108.42	-842.60	-167.94	-538.53	-107.35
Sardegna	-136.40	-83.29	-209.15	-127.29	-204.80	-124.12	-117.61	-71.03	3.75	2.26

Source: elaborations by CEIS Sanità on Ministry of Health and ISTAT Data

Looking carefully at table 1.6, per capita losses do not always coincide with losses expressed in absolute value.

Referring to per capita data over the last five years, Lazio has made the lowest gross profit and its losses have been even higher than those recorded nationwide.

Going more into details, in 2003 Lazio reported a loss equalling 134.13 euros per capita compared with 42.70 euros at national level, and in 2004 it lost 203.78 euros per person compared with 112.59 euros nationwide. In 2005 losses amounted to 320.95 euros at regional level and national average was 80.97 euros, whereas in 2006 Lazio lost 377.31 euros per person compared with 75.69 euros at national level. Last but not least, the year 2007. At that time Lazio recorded a per capita loss amounting to 291.33 euros and a loss equalling 54.31 euros per person emerged nationwide.

Ranking second among “worst performing” Regions is Molise where in 2003, 2006 and 2007 losses were higher than those recorded at nationwide. The same happened in Liguria in 2004 (198.12 euros per capita), and in Campania in 2005 (256.59 euros per capita).

On the contrary, Lombardia and Friuli Venezia Giulia have been among the “best performing” Regions as they have made a gross profit over the five years taken into account.

It is worth saying that in 2004 losses coincided with increasing personnel costs on the one hand, and a slight rise in funds allocated on the other hand. In 2005 allocated funds soared

management incomes as well as data referring to international patient mobility. Inter-regional patient mobility balance is part of the analysis, too.

but costs for production of goods and service increased remarkably, too. Finally, in 2006 a slight drop in allocated resources was accompanied by a fall in production costs.

Table 1.7: Balance of inter-regional patient mobility. Millions of Euros - Years 2001-2007

Regions	2001	2002	2003	2004	2005	2006	2007*
Piemonte	-20.269	-20.815	-19.525	-19.003	-10.732	-11.938	-11.938
Valle d'Aosta	-11.682	-12.855	-14.150	-16.282	-17.597	-17.270	-17.270
Lombardia	356.056	397.015	406.728	438.503	422.094	430.993	430.993
P. A. Bolzano	3.257	5.577	6.495	6.600	6.129	5.862	5.862
P. A. Trento	-6.512	-12.486	-13.106	-15.381	-15.825	-17.182	-17.182
Veneto	112.134	100.315	112.304	116.280	118.374	111.263	111.263
Friuli V.G.	20.743	22.305	17.079	15.520	15.261	12.057	12.057
Liguria	9.673	2.808	-8.509	-19.052	-18.642	-16.662	-16.662
Emilia Romagna	213.178	232.011	249.486	270.712	289.197	308.164	308.164
Toscana	84.213	73.124	85.247	103.664	103.932	106.566	106.566
Umbria	18.231	34.424	35.646	27.252	18.612	15.918	15.918
Marche	-25.416	-26.676	-35.863	-44.959	-43.837	-43.914	-43.914
Lazio	64.870	64.132	51.062	42.503	63.863	70.157	70.157
Abruzzo	17.833	11.174	16.227	17.377	13.306	8.362	8.362
Molise	-13.079	-1.786	3.462	0.261	6.354	19.163	19.163
Campania	-256.083	-269.162	-263.725	-260.570	-269.287	-283.153	-283.153
Puglia	-90.504	-106.999	-126.872	-153.548	-173.009	-183.881	-183.881
Basilicata	-57.937	-53.613	-55.822	-53.928	-47.960	-40.751	-40.751
Calabria	-170.413	-187.921	-192.544	-210.573	-211.732	-213.984	-213.984
Sicilia	-197.276	-199.305	-203.928	-195.353	-196.493	-200.507	-200.507
Sardegna	-51.016	-51.266	-49.690	-50.023	-52.010	-59.261	-59.261

*For 2007 we used 2006 data as estimate because definitive data are not available

Source: Ministry of Health

Whenever estimating regional deficits, inter-regional patient mobility is often taken into account (see table 1.7).

Over the last five years, surplus deriving from patient mobility (the share of non-resident patients is higher than resident who move to another region to receive medical treatments) have been mainly recorded in the North and Centre of Italy, involving Regions such as Lombardia, A.P. of Bolzano, Veneto, Friuli Venezia Giulia, Emilia Romagna, Toscana, Umbria, Lazio and Abruzzo.

On the contrary, deficits due to patient mobility can be found mainly in Southern Regions and islands (Molise until 2002, Campania, Puglia, Basilicata, Calabria, Sicilia and Sardegna) with a few “geographical exceptions”: Piemonte, Valle d’Aosta, A.P. of Trento, Liguria (from 2003) and Marche.

From 2001 to 2007 balance deficits due to patient mobility diminished in Piemonte, Molise and Basilicata, but they grew in Valle d’Aosta, A.P. of Trento, Liguria, Marche, Campania, Puglia, Calabria, Sicilia and Sardegna.

1.4 The allocation of healthcare resources

The allocation of resources between Regions, that is necessary to support the activity of Regional Healthcare Services (SSR), is not the only aspect of funding system; at least, two other

aspects have to be depth: the allocation of resources at a regional level between healthcare companies and the one between healthcare functions.

Consequently, observing the actions of Regions, it's possible to see the organization models implicitly used and also the healthcare ones.

The definition of the more appropriate criteria for allotment of resources in the healthcare systems is in the middle of a scientific discussion, which has not reached shared results yet.

For allotting SSN resources, it's possible to use objective criteria (for example, the characteristics of population, the structure of consumption, etc.), or subjective criteria. Strictly politic criteria (ex. politic agreement between Regions) and financial criteria (ex. the maximum levels of increase, etc.) belong to the category of subjective criteria.

During the last years there was a real difficulty to find an unanimous and shared agreement between Regions, according to the use of objective criteria; for that, trend is to use subjective criteria for allotting healthcare resources. The risk of this trend is, for example, that the historic expenditure can condition the allotment, without the attempt to apply "corrections" to this criterion (for example, trying to recover the expected deficit ex ante).

Regardless of the allocation criteria, it must consider three important factors, and this is a shared opinion¹⁵:

- a) the quantity of served population;
- b) the differential between health needs and social-health needs (characteristics of population);
- c) the estimate of the economic resources which are necessary to satisfied needs.

A system that doesn't consider only one of these factors can have serious distortions, which can damage equity and allocation efficiency.

Considering the first factor, the more is the number of residents, the more is the need to satisfy. Considering the differential between health needs, its determination it's a very complex operation, and the only evidence, that it's shared in the scientific world, it's that if the age grows, than the use of services grows, too. As regards the economic resources for financing the health system and for satisfying the needs of population, the allocation of FSN between Regions is an exogenous variable of the regional system, because it represents the result of complex economic and social trades. Therefore, at the regional level the most important problem is to allocate resources considering the differential of health needs between local healthcare agencies.

Every Region has adopted a system of allocation of resources between Healthcare Agencies that is predominantly based on the weighed per capita share, binding the amounts according to LEA: collective healthcare in the environment of life and work, hospital healthcare, territorial healthcare (which is divided in: pharmaceutical care, basic medicine, pediatric medicine, specialist care, other territorial care).

Every Region has adopted the allocation criteria which are used at the national level (see table 1.8), sometimes using appropriate corrections, like assigning to LEA some shares of financial resources, illustrated for the years 2007 and 2008 in table 1.9, which are different than the objectives defined in DPCM November 29th, 2001.

¹⁵ Costa e Faggiano (1994); Mapelli (2000)

**Table 1.8: Financing bonds of destination: national criteria.
Percentages - Years 2003-2007**

Health care level	2003	2004	2005	2006	2007
Collective (prevention)	5.0	5.0	5.0	5.0	5.0
Territorial	49.5	49.5	49.5	51.0	51.0
<i>General and pediatric medicine</i>	5.8	5.8	5.8	6.9	6.9
<i>Pharmaceutical</i>	13.0	13.0	13.0	13.0	13.0
<i>Specialistic</i>	10.7	10.7	10.7	13.0	13.0
<i>Other territorial care</i>	20.0	20.0	20.0	18.1	18.1
Hospital care	45.5	45.5	45.5	44.0	44.0

Source: AGENAS, Ministry of Health

Table 1.9: Shares allocated by Regions. Percentages - Years 2007-2008

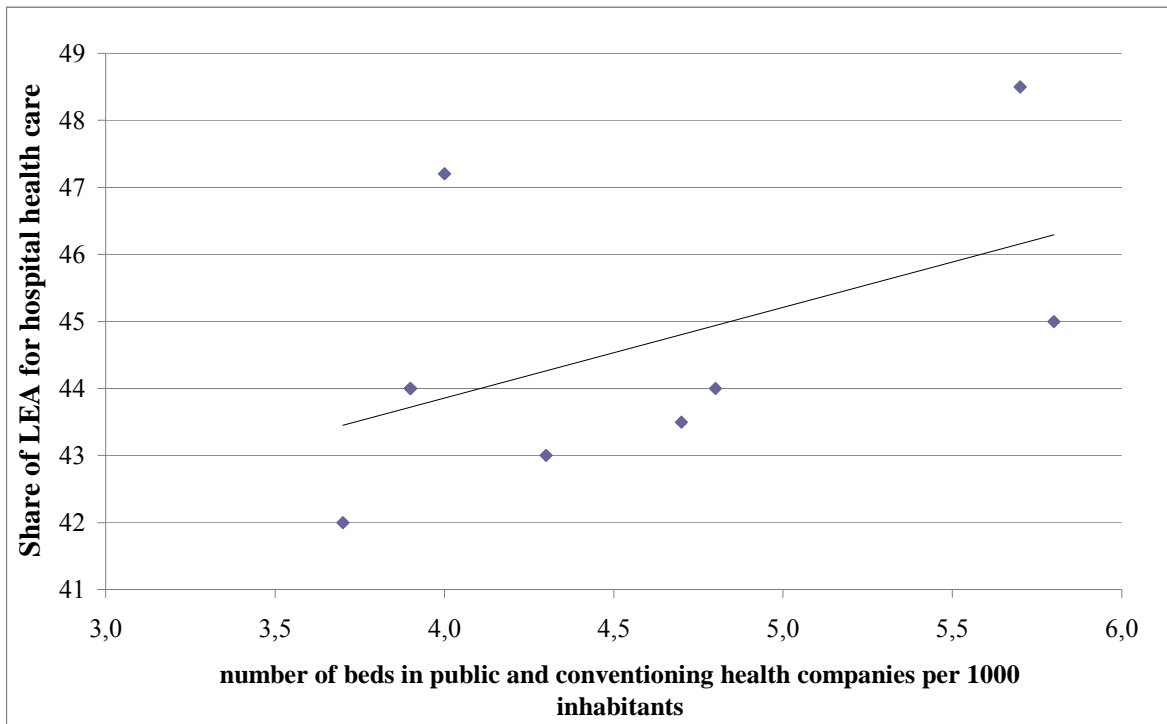
Regions	Collective health care in the environment of life and work		Hospital care		Territorial health care		Other health care	
	2007	2008	2007	2008	2007	2008	2007	2008
Valle d'Aosta	5.5%		45.0%		46.0%		3.5%	
Lombardia	5.5%		43.5%		51.0%			
Emilia Romagna	4.5%	4.6%	44.0%	45.0%	51.5%	50.4%		
Toscana	5.0%		43.0%		52.0%			
Lazio	4.9%	5.0%	48.5%	44.0%	46.6%	51.0%		
Campania	5.0%	5.0%	42.0%	42.0%	39.1%	39.6%	13.9%	13.4%
Puglia	4.4%	4.4%	48.4%	47.2%	47.2%	48.4%		
Basilicata	5.0%	5.0%	44.0%	44.0%	51.0%	51.0%		
Calabria	5.0%		44.0%		51.0%			
Sicilia	5.0%		46.0%		49.0%			
Sardegna	5.0%		45.0%		50.0%			

Source: elaborations by CEIS Sanità on D.G.R.

The difference between the shares assigned by the Regions to LEA can be justified, in a federalist way to see, with the objective to obtain more internal allocate efficiency, which is also depended of an allocation of resources based on the particular needs of every Region, in the basis of own social-demographic characteristics. The prevailing criterion is the demographic one, which has been adopted by all Regions, with other criteria which can result different.

The risk is that criteria could be modified to determinate shares which can determine, ex post, a distribution of resources in the basis of the historic health expenditure. As regards, for example, the hospital care, the analysis of the choices at the regional level suggests that a bigger financing of this kind of care is associated, almost always, a bigger number of beds, as you can see in the picture 1.10.

Figure 1.10: Relation between number of beds per 1.000 inhabitants (public and convention health companies) and LEA shares for hospital care. Percentages and absolute values - Year 2006



Source: elaborations by CEIS Sanità on Ministry of Health and ISTAT Data

Looking at the data illustrated in the table 1.8, it's possible to see a variability in the regional choices: for example, considering the hospital care, in 2007 Lazio uses 48.5% of FSR to finance this kind of healthcare, while Campania only 42.0% and the share at the national level is 44.0%. This share has been used in 2007 also by Emilia Romagna, Basilicata e Calabria, and by Lazio in 2008.

The variability is clearer looking at the shares for territorial healthcare: in 2007, the share for Campania was 39.1%, and it was 52.0% for Toscana. The share at the national level was 51.0% in 2007, and the same share was recorded in Lombardia, Basilicata and Calabria. In 2008, also Lazio decided to allocate 51.0% of FSR to territorial healthcare.

As regards the shares for collective health care in environment of life and work, the majority of the Regions has allocated 5.0 %; as set out at national level; Puglia has "stopped" at 4.4 %, while Lombardia and Valle d' Aosta have reached 5.5 %.

Percentages exposed above depend on shares held ex ante centrally by the Region, who then further distributes a part of them to health companies.

Therefore, the share of fund allocated to territorial health companies and hospitals, provides a framework about the level of regional financial centralization and systems used to ensure that the Government and the financial sustainability of the system.

To compare Regions (see table 1.10) for the year 2007, it's possible to mention Molise (which, however, has only an health company, and it is totally controlled by the Region) and Toscana, that allocate 100.0 % of FSR to the local health companies as examples of clear decentralization of responsibilities. On the contrary, in Campania there is a strong financial

centralism: the Region assigns to the local health companies "only" 87.6 % of the fund, while the remaining 12.4 % is centrally administered to face unforeseen needs and for purposes of balance and equalization.

The regional choices are linked to this social-economic and financial situation, that characterizes the regional health service and our analysis shows a positive correlation between levels of deficit of considered Regions and the level of centralization of health resources.

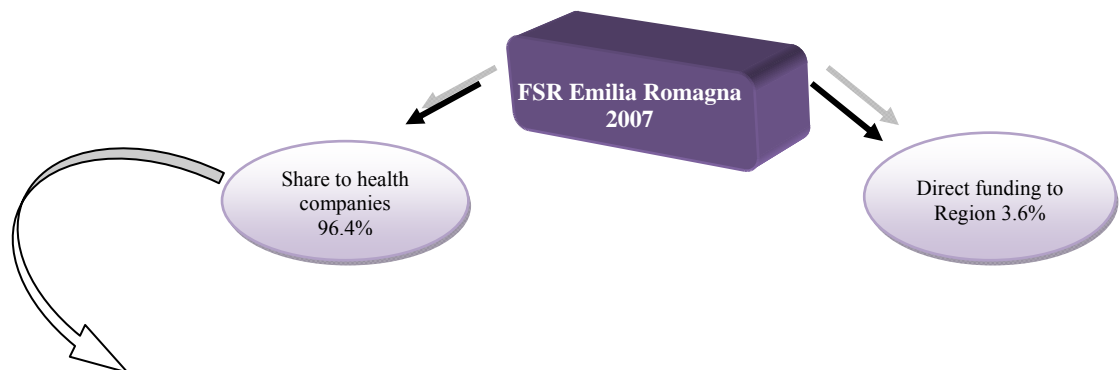
Table 1.10: Centralization of health financial resources. Percentages - Years 2007-2008

Regions	Share of FSR allocated to health companies	
	2007	2008
Valle d'Aosta	96.1%	nd
Lombardia	97.0%	nd
Liguria	98.0%	nd
Emilia Romagna	96.4%	nd
Toscana	100.0%	nd
Lazio	nd	92.2
Molise	100.0%	Nd
Campania	87.6%	88.0%
Puglia	92.4%	Nd
Basilicata	92.0%	92.0%
Calabria	92.3%	Nd

Source: elaborations by CEIS Sanità on regional DRG

Figures 1.11-1.15 sum in a graphic form the allocation criteria of LEA in some Regions, in the years 2007-2008.

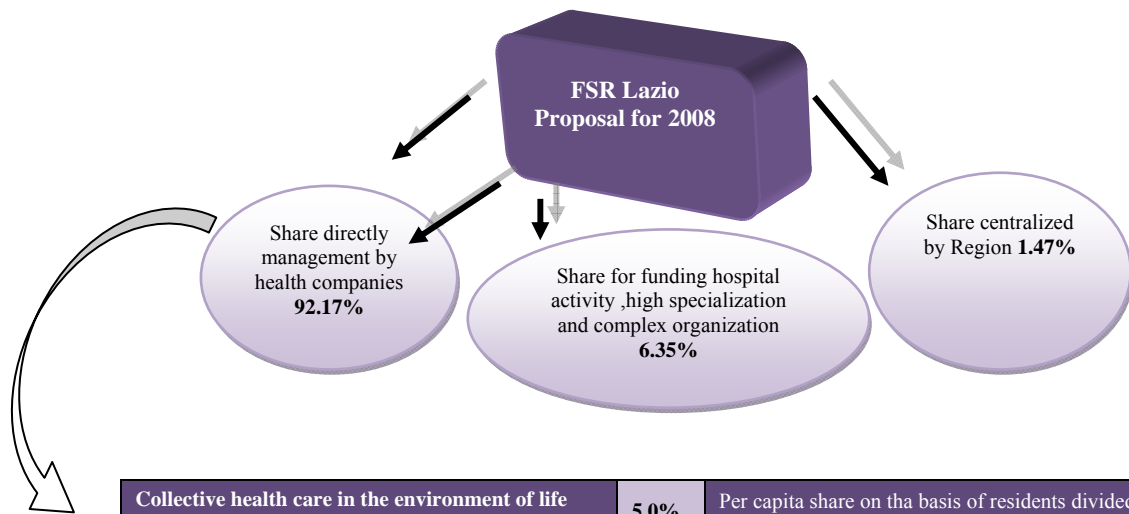
Figure 1.11: Allocation of FSR 2007, Emilia Romagna



Collective health care in the environment of life and work		4.5%	Simple per capita share (residents)
Hospital care		44.0%	Weighting share of beds
Territorial care	Pharmaceutical care	14.5%	51.5%
	General and pediatric medicine	6.63%	
	Specialistic care	14.5%	
	Other territorial care	15.87%	
			Weighting per capita share (pharmaceutical consumptions by sex and aging)
			Estimate costs of shares in convention
			Weighting per capita share by aging and sex
			Weighting per capita share by aging and kind of care

Source: elaborations by CEIS Sanità on regional DRG

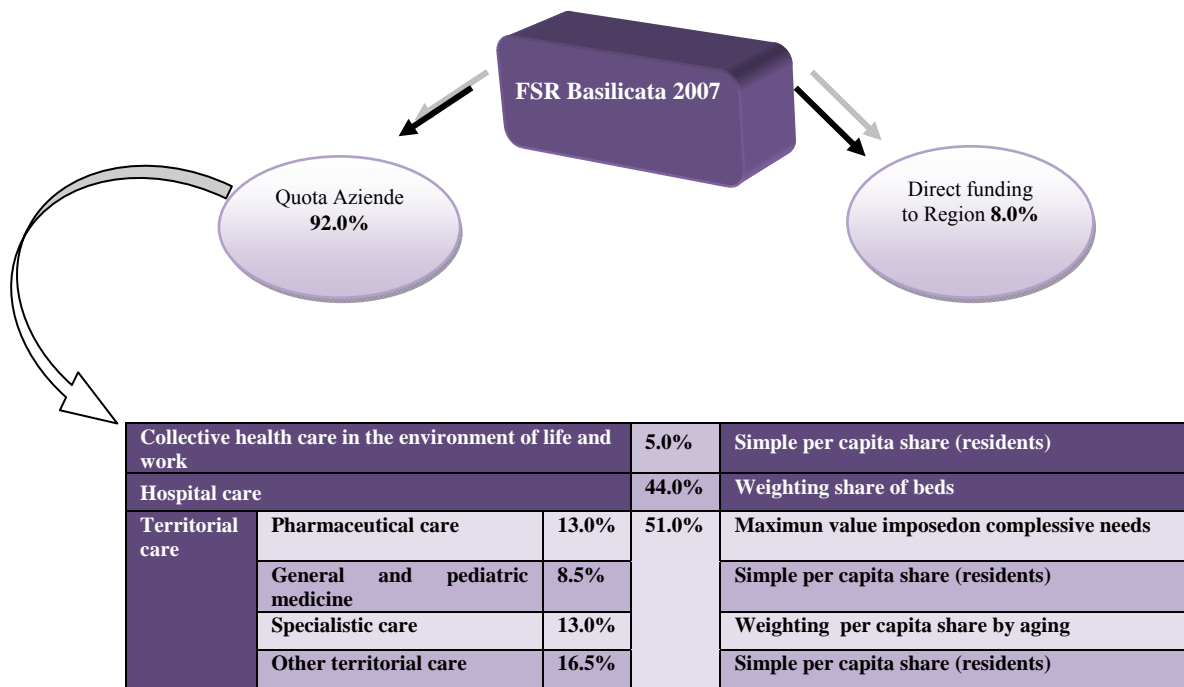
Figure 1.12: Allocation of FSR 2008, Lazio



Collective health care in the environment of life and work			5.0%	Per capita share on the basis of residents divided by aging groups with different weights by aging groups and levels of care
Hospital care			44.0%	
Territorial care	Pharmaceutical care	15.80%	51.0%	
	General and pediatric medicine	6.25%		
	Specialistic care	9.0%		
	Other territorial care	19.95%		

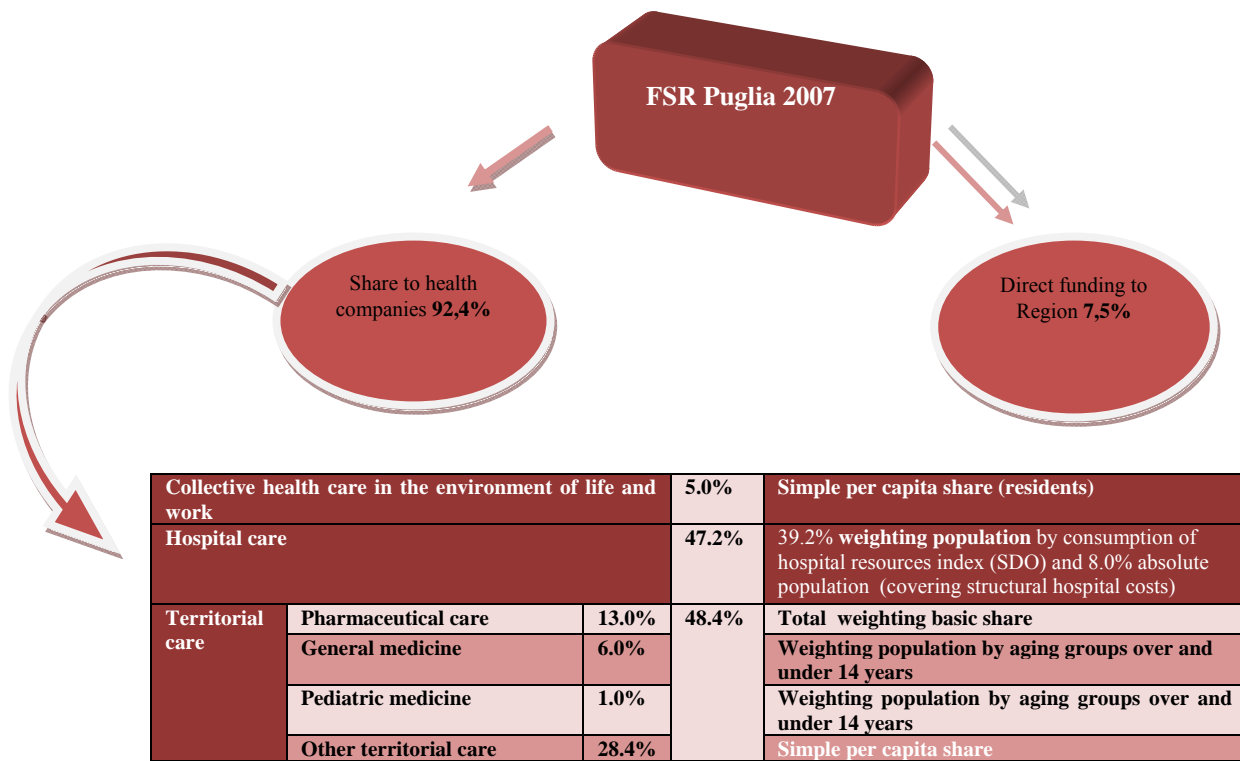
Source: elaborations by CEIS Sanità on regional DRG

Figure 1.13: Allocation of FSR 2007, Basilicata



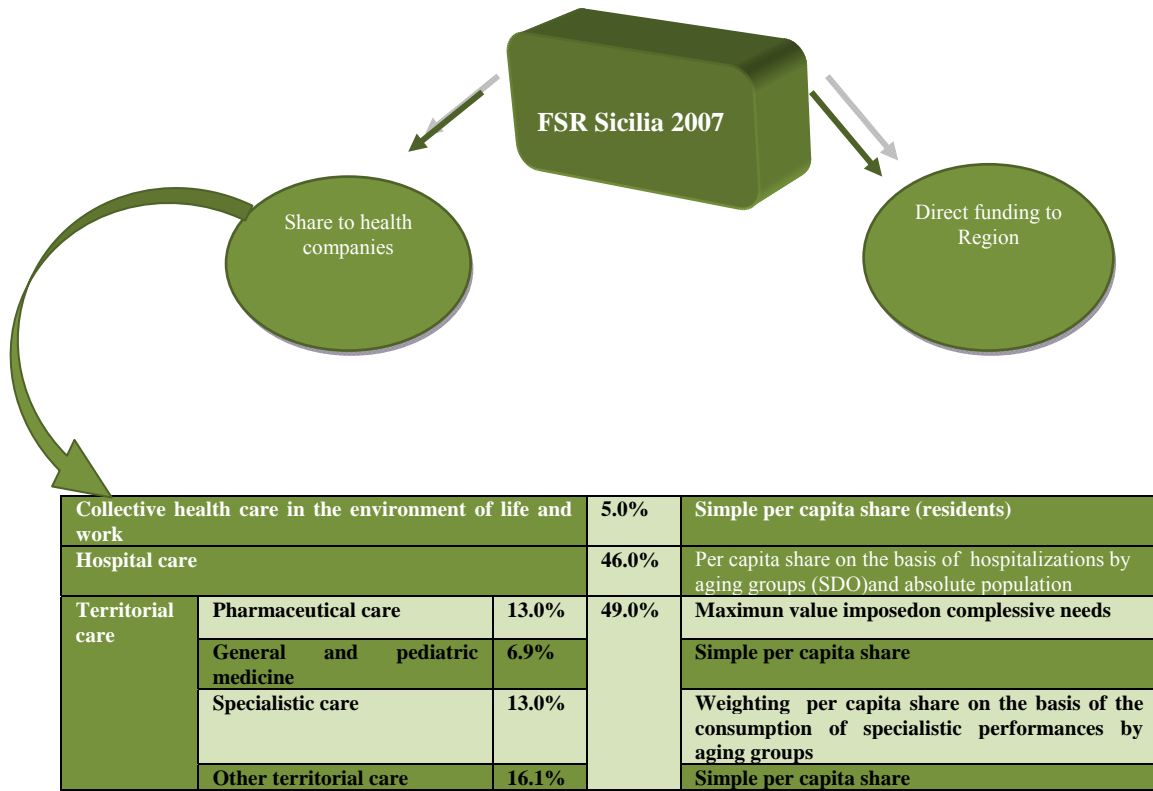
Source: elaborations by CEIS Sanità on regional DRG

Figure 1.14: Allocation of FSR 2007, Puglia



Source: elaborations by CEIS Sanità on regional DRG

Figure 1.15: Allocation of FSR 2007, Sicilia



Source: elaborations by CEIS Sanità on regional DRG

Another aspect of interest is adjusting the flow of transactions between territorial companies territorial and hospitals. Analyzing regional Councils' deliberations, in fact, it's possible to obtain the different modes that the individual Regions have adopted.

On end we show the situation of some Regions¹⁶, highlighting the important differences existing in the negotiating mechanisms adopted.

For example, in Emilia Romagna regional financial resources are assigned directly to territorial health companies, with a constraint of destination for subsequent allocation needs.

Hospital health care is funded by a debit to territorial health companies on the basis of the residence of patient, taking account of performance carried out on the basis of the regional tariffs. Region directly finances hospitals only for shares in respect of tariff integration for higher costs incurred.

Pictures 1.11-1.15 show in a graphic form the allocation criteria of LEA in some Regions, for the years 2007-2008.

Toscana seems to be the one with the greater autonomy model: the total of the FSR is intended to finance directly the local health companies, only with one constraint of expenditure: to respect the levels of essential health care (LEA) shown in the Regional Health Plan. Therefore, the same local companies reward hospitals, on the basis of the regional tariff depending on the benefits provided.

¹⁶ Years 2003 and 2004.

Liguria allocates economic health resources directly to the hospitals and local healthcare agencies, so that they cannot do a bilateral trading between themselves. Besides, a share of FSR is centralized at the regional level, for specific purposes, like strategic objectives or more costs.

Lazio directly finances the local healthcare agencies, but there is a share of economic resources which is throughout allocated to the financing of prevention activity. To finance hospitals there are a system of “killing of rates” and a regional fund for hospital care which has to be allocated between local healthcare agencies on the basis of residents, weighed on the basis of consumptions for age groups. The system of Lazio doesn't want to promote competition between providers, but it's based on principles of programming with centralized controls. In 2008, the share in direct management to the local health agencies was 92.17% (financing LEA: 5% for prevention, 51% for territorial care, 44% for hospital care); the share in regional centralized management was 1.47%; the share for financing hospital activity, high specializing and complex organization was 6.35%.

Basilicata, which finances hospitals directly, has gradually decreased his share of FSR which is intended to them, and increased the share of centralized resources. Region uses financial constraints, like the maximum limits of expenditures: General Directors of the companies which exceed these limits, have the obligation to adopt specific measures indicating concrete actions for the “return plan” (from deficits).

Finally, between the Regions which are been analyzed, Puglia is the one which have the most high level of regional centralization, using a lot of financial resources for regional objectives, like the specific destination to a guarantee fund which is then allocated between healthcare agencies. For the health performances of hospitals, the Region imposes a bond for the destination of resources of health companies, and it creates a regression system of rates and limits of remuneration, which can be also applied to public IRCCS and to university hospitals.

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The background of the top half of the page features a light purple gradient with several dark purple silhouettes of people in various poses, suggesting a busy hospital environment. The silhouettes are semi-transparent and overlap each other.

Chapter 2

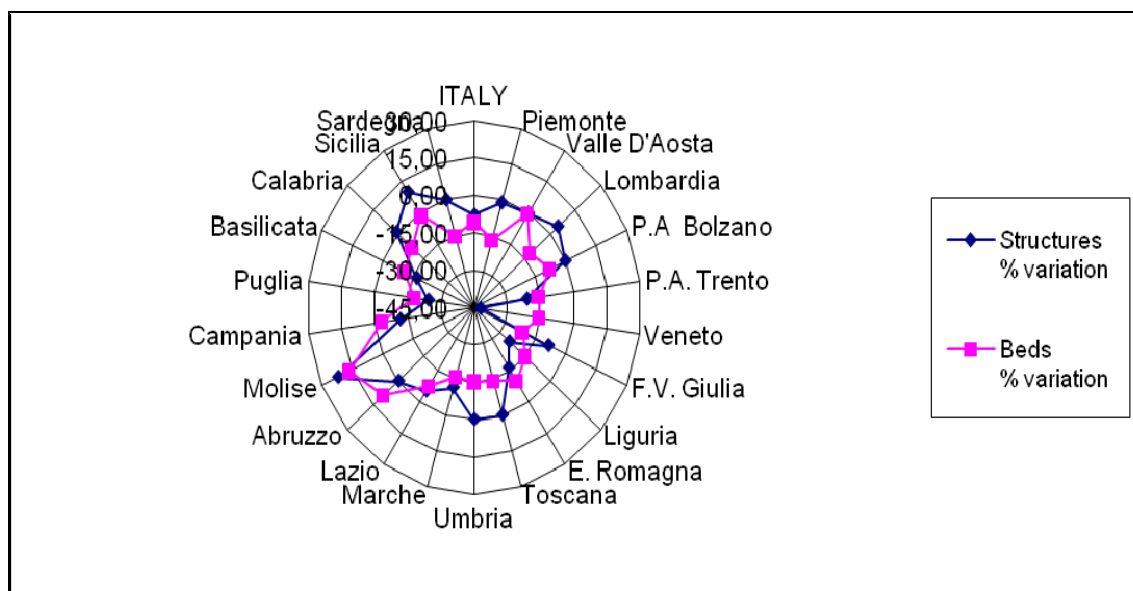
The hospital care system

2 - The hospital care system¹

This survey of the hospital care system, detailed here in below, highlights the following key elements.

There are Regions where the reduction of the number of beds is one of the results of the downsizing of the (primarily public) hospital network; on the contrary, other Regions have downsized the single facilities (by reducing the number of beds) without reducing their overall number (figure 2.1).

Figure 2.1: Structures and beds, % variation – Years 2006-2000



Source: our processing of Ministry of Health data

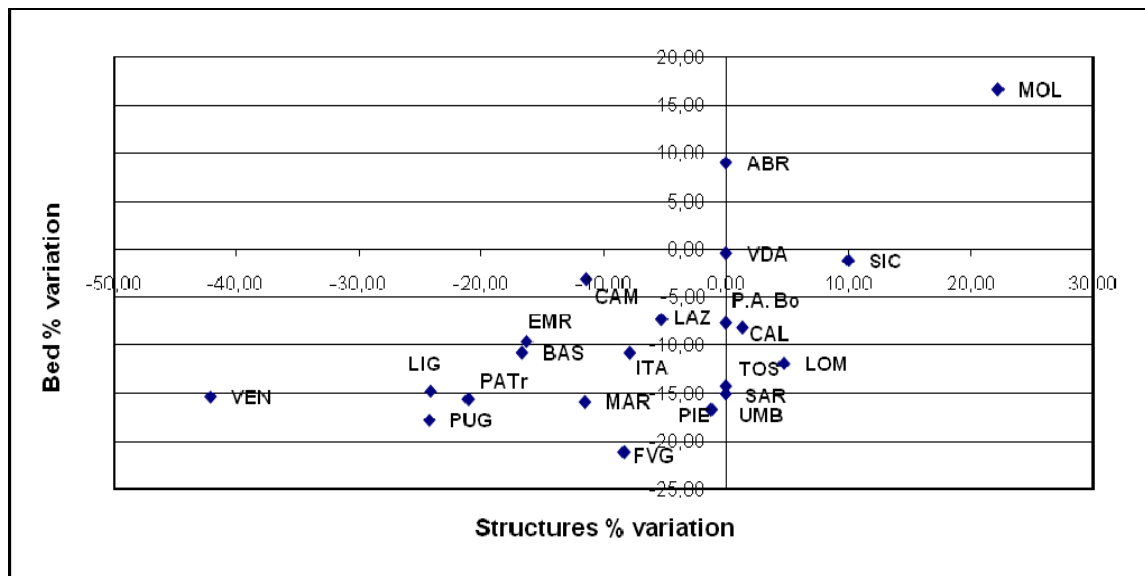
The total number of hospitals fell by 7.9%, between 2000 and 2006, as a result of conversions and mergers. This downward trend, which had started in the previous 5-year period, with an annual average variation of -1.5%, was confirmed between 2005 and 2006, albeit with a lower percentage variation of -0.4%. Likewise, there was a 10.8% drop in beds in the same period (2000-2006), with a percentage variation in 2006 of -0.5% compared to the previous year, and an average annual variation of -2.1% in the 2000-2005 period. This reduction primarily concerned public hospitals, but at regional level the data highlight a certain lack of uniformity between the different situations.

Representing the Regions in an X-Y coordinate system, based on the respective percentage variations of the number of total hospitals and beds, in the 2006/2000 period, about two thirds of the Regions fall inside the quadrant where the percentage variation of both the number of hospitals and of beds features a minus sign (which translates as a contextual

¹ Francia L. (chaps. 2.1, 2.2, 2.3), Polistena B. (chaps. 2.7, 2.8, 2.9) and Sciattella P. (chaps. 2.4, 2.5, 2.6), CEIS Sanità- Faculty of Economics, University of Rome "Tor Vergata".

reduction of the number of both hospitals and beds). Extreme cases of this trend are Veneto (with -42.1% of hospitals and -15.4% of beds) and Friuli Venezia Giulia (-8.3% hospitals and -21.1% beds). No less than four Regions and Autonomous Provinces, as mentioned previously, maintain the same number of hospitals, but reduce the number of beds. Interestingly, the only exception is Molise, where the opposite trend is observed, with a significant percentage increase of both hospitals and beds by +22.2% and +16.6%, respectively (figure 2.2).

Figure 2.2: Regions in an X-Y coordinate system, based on the respective percentage variations of the number of total hospitals and beds % Variation – Years 2006-2000



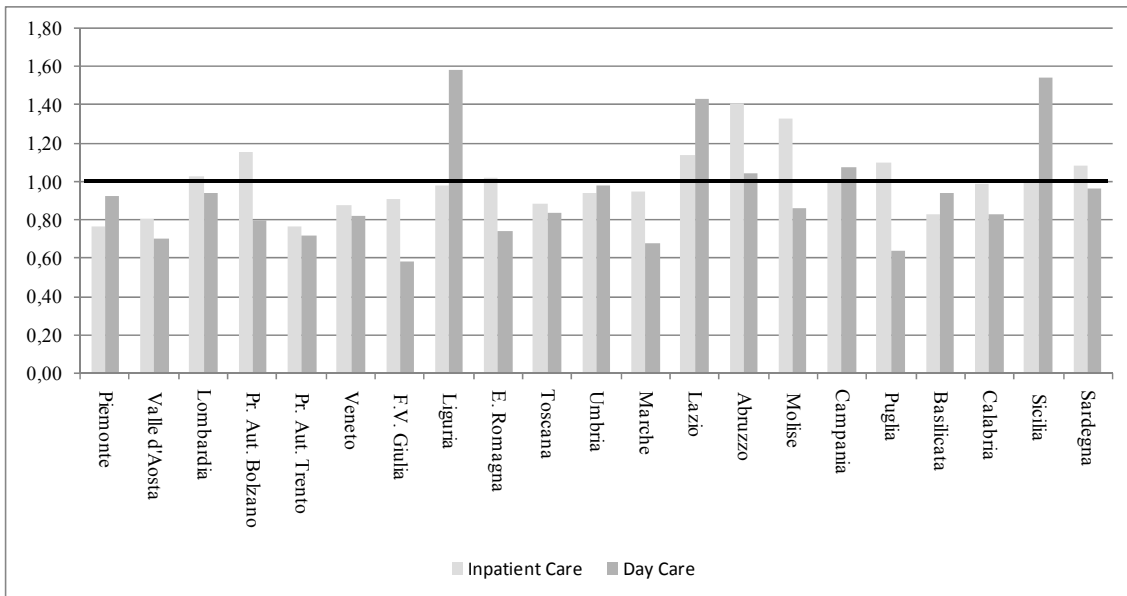
Source: our processing of Ministry of Health data

The hospitalization rate (acute cases in inpatient care) is 140.0 hospitalizations per 1,000 resident inhabitants: among the Central-Northern Regions only the self-governing Province of Bolzano (+15.4%) and Lazio (+14.1%) have a rate above average. The Southern Regions, on the contrary, show levels of hospitalization above average, in spite of a lower average age: Basilicata (-16.5%) is the only region with a hospitalization rate significantly lower than the national level (figure 2.3).

The difference between Northern and Southern Italy is even more evident analysing the complexity of hospitalizations. The global indicator considers three components that characterize the severity of the cases treated: average hospital stay, average weight, and value of production for each hospitalization, and it is obtained as the sum of the rankings of each Region.

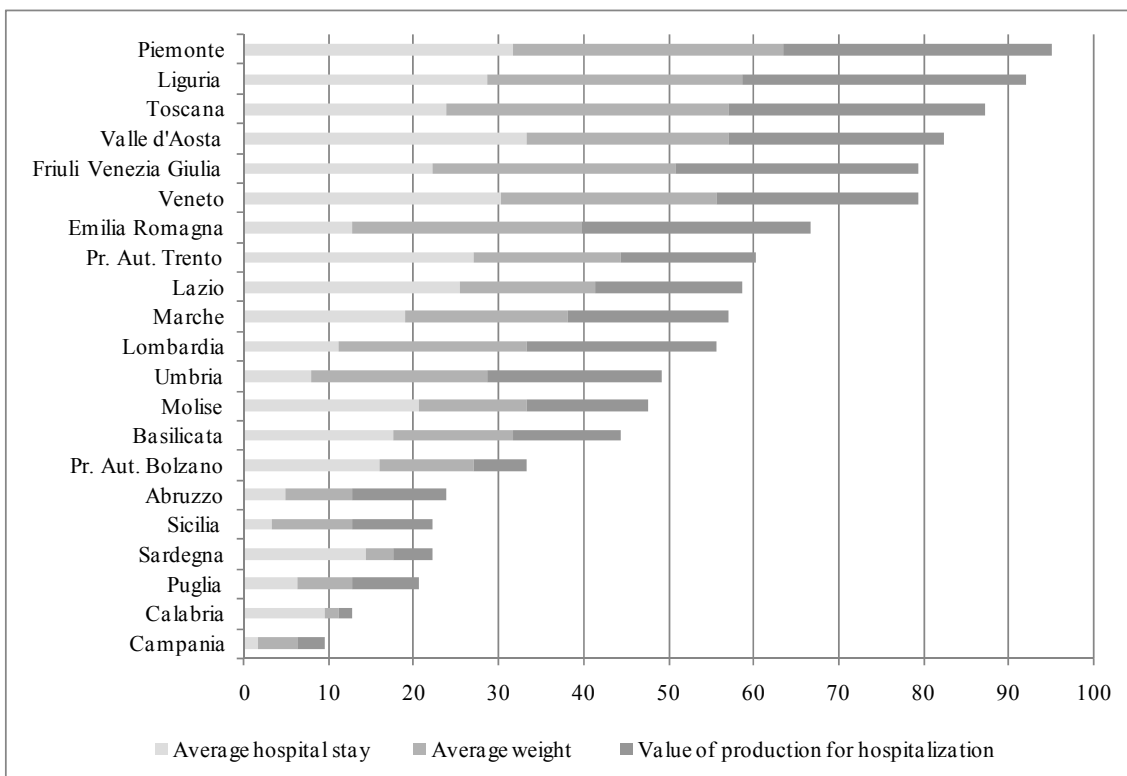
The Regions with a more complicated casuistic are Northern Regions, specifically Piemonte and Liguria, and Toscana. Other Central Regions are in the intermediate zone, while all Southern Regions show clearly lower values; Calabria and Campania register the lowest complexity of hospitalizations (figure 2.4).

Figure 2.3: Hospitalization rate (inpatient care and day care). Italia=1 - Year 2005



Source: CEIS Sanità processing of SDO data, Ministry of Health

Figure 2.4: Complexity indicator Acute cases in inpatient care - Year 2005



Source: CEIS Sanità processing of SDO data, Ministry of Health

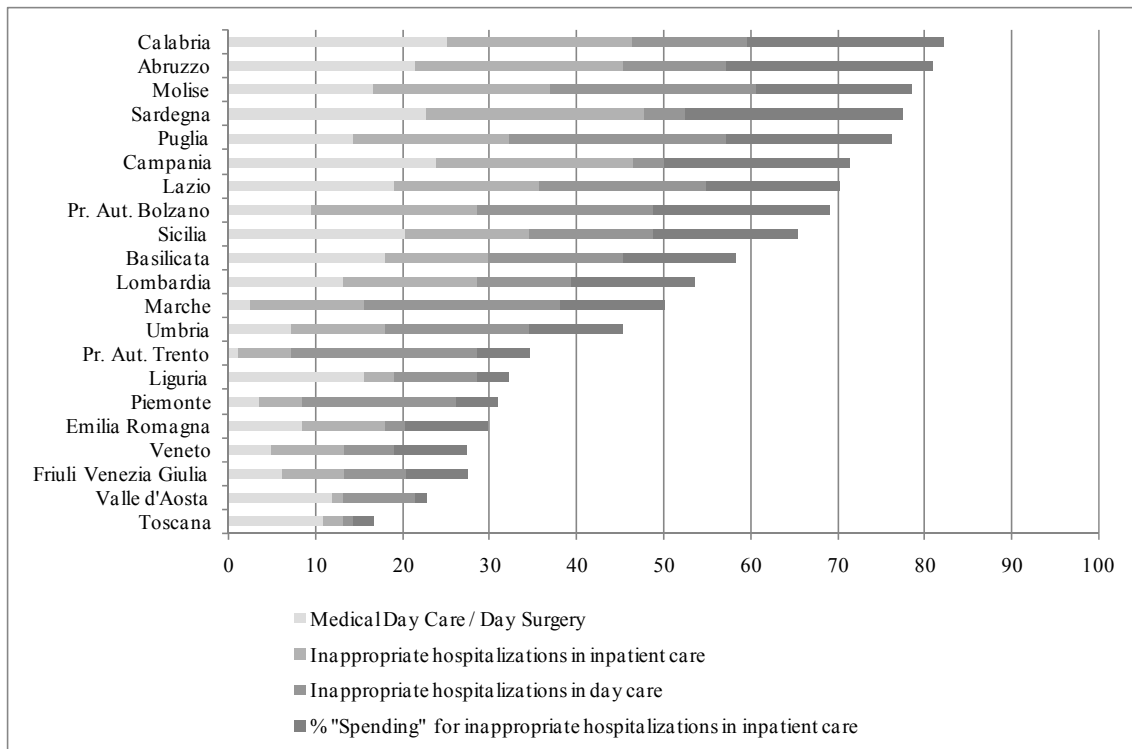
The (in)appropriateness of hospitalizations in acute cases is summarized analysing altogether four components:

- Proportion between medical day care and day surgery
- Percentage of inpatient care hospitalizations at risk of (in)appropriateness
- Percentage of day care hospitalizations at risk of (in)appropriateness
- Value of production for potentially inappropriate hospitalizations in inpatient care

The global indicator is obtained as the sum of the rankings of each Region.

Even in this case, there is a clear difference between Southern and Northern Regions, as the first ones show a greater synthetic indicator of (in)appropriateness: specifically Calabria, Molise, Sardegna and Abruzzo show the worst results. Northern Regions, on the contrary, record less hospitalizations at risk of (in)appropriateness: the best results are shown by Toscana, Valle d'Aosta, Friuli Venezia Giulia and Veneto (figure 2.5).

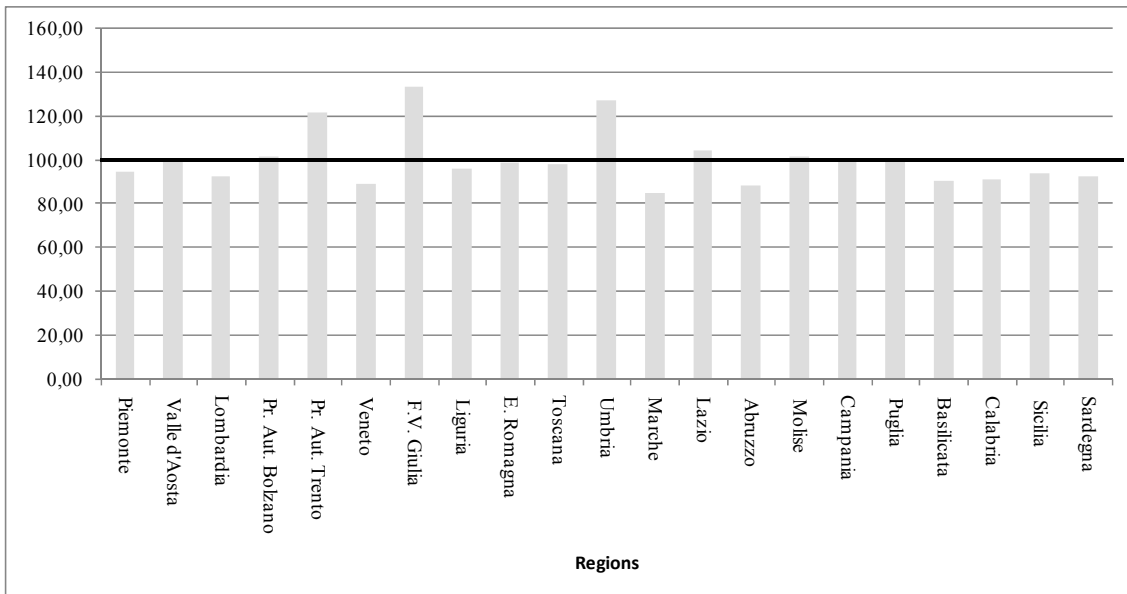
Figure 2.5: (In)appropriateness indicator. Acute cases - Year 2005



Source: CEIS Sanità processing of SDO data, Ministry of Health

The considerable regional variability is also clear in the levels of hospital remuneration, even if in this case it does not depend on the belonging zone. The average regional fare, calculated on regional rates in force, shows considerable differences: the maximum fare is 58.1% higher than the minimum one. Regions with higher fares are Friuli Venezia Giulia (+33.7% of the national average), Umbria (+27.2%) and the self-governing Province of Trento (+21.9%); while Regions with lower fares are Veneto (-11.3%), Abruzzo (-11.8%) and Marche (-15.4%) (figure 2.6).

Figure 2.6: Average regional fare Italia=100



Source: CEIS Sanità processing of SDO data, Ministry of Health, D.G.R. and L.R.

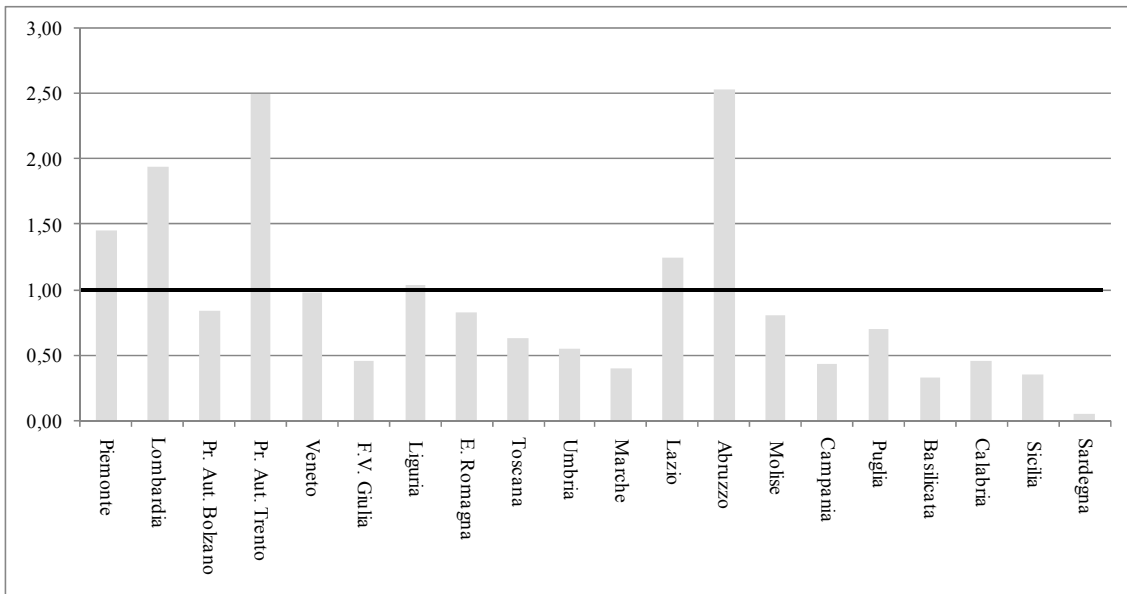
As regards rehabilitation and long-term, the regional variability in hospitalization is higher than the acute cases.

As for rehabilitation, the difference between South and Centre-North is still evident; Southern regions show considerably lower rates than the national average, specifically the value for Sardegna is 5.9% of the national value, while Basilicata and Sicilia show lower values in comparison with the average, respectively of 66.7% and 64.6%. The highest rates have been recorded in Lombardia, where the rate is almost twice the national average, in the self-governing Province of Trento (+150.3%) and in Abruzzo (+153.1%) (figure 2.7).

The average hospital stay for ordinary hospitalization is 26.3 days; the duration of hospitalization seems to be in inverse proportion to the level of hospitalization: in fact, Regions with higher hospitalization rate usually show a shorter duration of hospitalization, while Southern Regions, which have a small number of hospitalizations, record a longer stay in hospital in comparison with the national level.

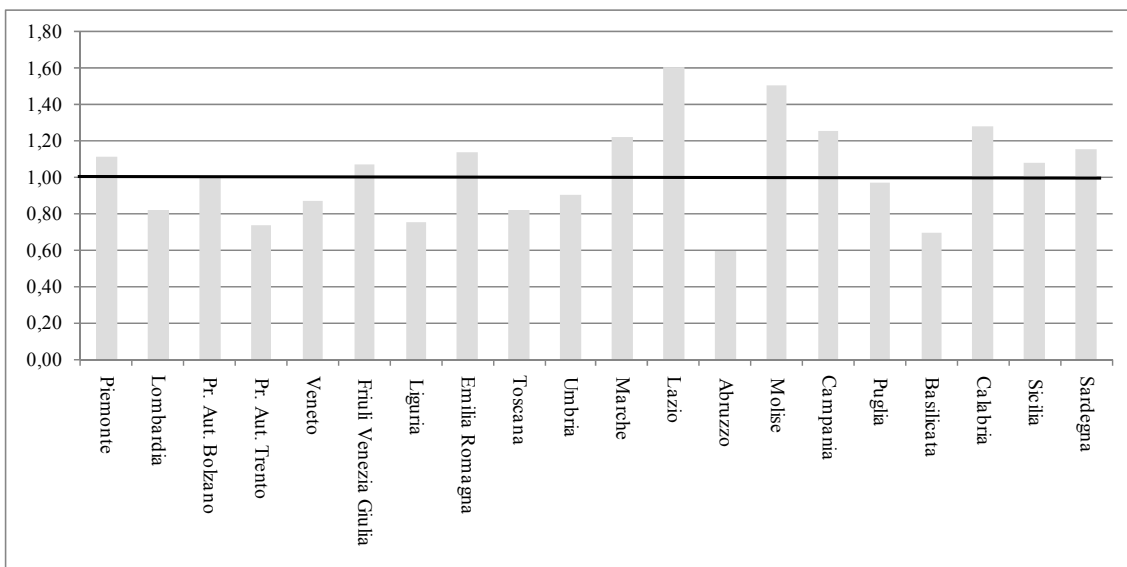
Regions with the highest average hospital stay are Lazio (+61.1%), Molise (+50.5%) and Calabria (+28.4%); while Regions with the lowest hospital stay are the self-governing Province of Trento (-26.1%), Basilicata (-30.5%) and Abruzzo (-40.8%) (figure 2.8).

Figure 2.7: Hospitalization rate Rehabilitation cases in inpatient care Italia=1 - Year 2005



Source: CEIS Sanità processing of SDO data, Ministry of Health

Figure 2.8: Average hospital stay Rehabilitation cases in inpatient care Italia=1 Year 2005



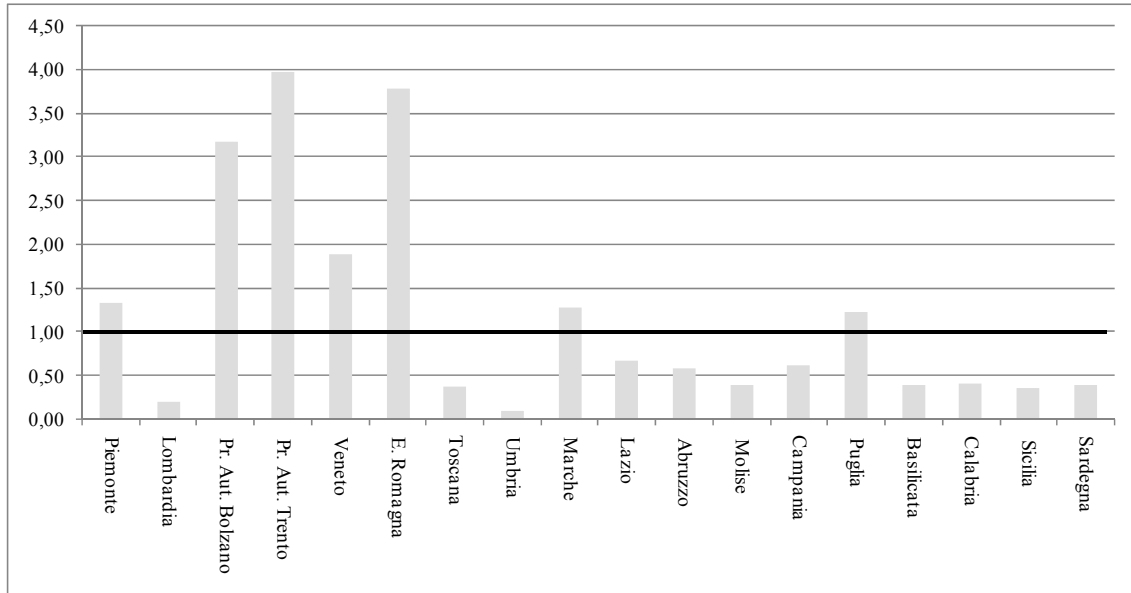
Source: CEIS Sanità processing of SDO data, Ministry of Health

As regards long-term, the highest values has been recorded in the provinces of Trentino Alto Adige, Veneto and Emilia Romagna: here the values are definitely higher than the national level (figure 2.9)

The value of total production is € 33.4 bn (the value was obtained considering the national fares of 1997): the acute cases obviously take up the most significant share (92.6%),

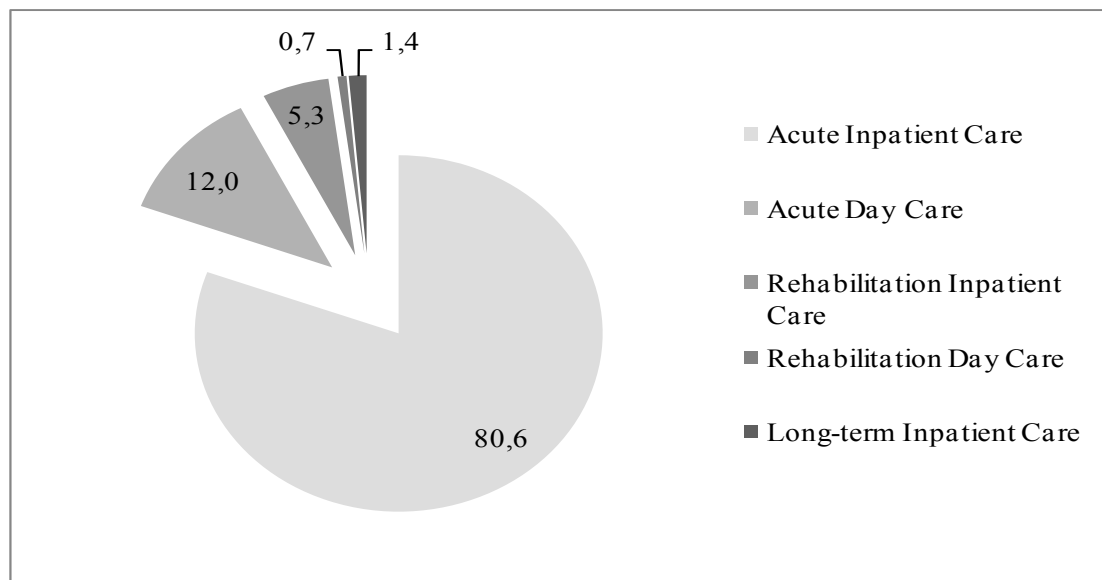
rehabilitation absorbs 6% and long-term the remaining 1.4%. *Day care* takes up 13.0% of the total value of production in acute cases, and the 11.1% in rehabilitation (figure 2.10).

Figure 2.9: Hospitalization rate Long-term cases in inpatient care Italia=1 - Year 2005



Source: CEIS Sanità processing of SDO data, Ministry of Health

Figure 2.10: Distribution of the value of total production



Source: CEIS Sanità processing of SDO data, Ministry of Health

2.1 Hospitals and beds

In 2006 (the year for which the latest data is available) there were 1,217 hospital care providers, about 54.0% of which were public and the remainder accredited private facilities (table 2.1).

Piemonte, Lombardia, Emilia Romagna, Lazio, Campania, Calabria and Sicilia were the Regions with the highest number of private accredited hospitals.

Between 2000 and 2006, the number of hospitals fell by 7.9%, as a result of conversions and mergers (table 2.2). The downward trend, which had already been observed in the previous 5-year period, with an annual average variation of -1.5%, was confirmed between 2005 and 2006, albeit with a lower percentage variation of -0.4%² (table 2.3).

Table 2.1: Number of public and accredited private structures - Year 2006

Regions	Total structures	Public structures								Accred. Struct.
		Total	Aa.Oo.	Osped. Gestione Diretta	Pol. Univ.	IRCCS	Osp. Classif. Assimil.	Istit. presidi di ASL	Enti di Ricerca	Case di Cura
Italy	1.217	654	97	438	10	55	32	20	2	563
Piemonte	82	39	8	24		2		5		43
Valle D'Aosta	1	1		1						
Lombardia	133	60	29	2		21	7	1		73
P. A. Bolzano	12	7		7						5
P. A. Trento	15	10		8			2			5
Veneto	55	40	2	21		3	7	7		15
Friuli V. G.	22	17	3	12		2				5
Liguria	22	18	3	10		3	2			4
E. Romagna	72	26	5	20		1				46
Toscana	70	42	4	32		2		3	1	28
Umbria	16	11	2	9						5
Marche	46	33	2	29		2				13
Lazio	162	77	5	51	3	8	8	2		85
Abruzzo	35	22		22						13
Molise	11	8		6		1			1	3
Campania	124	55	8	39	2	2	3	1		69
Puglia	75	38	2	29		5	2			37
Basilicata	10	9	2	7						1
Calabria	76	37	4	32		1				39
Sicilia	132	71	17	48	3	1	1	1		61
Sardegna	46	33	1	29	2	1				13

Source: Ministry of Health data

However, it should be specified that this downward trend only concerned the public hospital system (the number of which fell by 16.7% between 2000 and 2006, with an annual average variation of -3.1% in the 2000-2005 period, and a variation of -2.2% between 2005 and 2006), as opposed to an increase of private accredited facilities (+5.0% in the 2000-2006 period,

² See: Ministry of Health, *Attività gestionali ed economiche delle ASL e delle Aziende Ospedaliere* – Annuario Statistico del Servizio Sanitario Nazionale – Years 2000, 2001, 2002, 2003, 2004, 2005 e 2006.

with an annual average variation of 0.6% in 2000-2005 and a 1.8% variation between 2005 and 2006).

Considering the variability of the data by region there emerges a considerable lack of uniformity, with respect to behaviour. In the 2000-2005 period the Region with the highest concentration of hospitals was Veneto (average annual variation of -10.3%, or, broken down into public and private hospitals, of -12.5% and -2.5%, respectively), while the region with the highest increase, in percentage terms, was Molise with an average annual variation of 4.1% (broken down into public and private hospitals, of 2.7% and 8.4%, respectively).

Table 2.2: Public and accredited private structures, % Variation – Years 2006-2000

Regions	Total	Public structures	Accredited structures
Italy	-7.87	-16.69	5.04
Piemonte	-1.20	-11.36	10.26
Valle D'Aosta	0.00	0.00	0.00
Lombardia	4.72	-16.67	32.73
P. A. Bolzano	0.00	-12.50	25.00
P. A. Trento	-21.05	-28.57	0.00
Veneto	-42.11	-48.72	-11.76
Friuli V. G.	-8.33	-10.53	0.00
Liguria	-24.14	-33.33	100.00
Emilia Romagna	-16.28	-40.91	9.52
Toscana	0.00	0.00	0.00
Umbria	0.00	0.00	0.00
Marche	-11.54	-13.16	-7.14
Lazio	-5.26	4.05	-12.37
Abruzzo	0.00	0.00	0.00
Molise	22.22	14.29	50.00
Campania	-11.43	-16.67	-6.76
Puglia	-24.24	-43.28	15.63
Basilicata	-16.67	-18.18	0.00
Calabria	1.33	0.00	2.63
Sicilia	10.00	1.43	22.00
Sardegna	0.00	0.00	0.00

Source: our processing of Ministry of Health data

In the last year of the period (2006), the percentage variation of the total number of hospitals ranges between -11.8% in the Autonomous Province of Trento (with no variation in the number of private hospitals and a 16.7% variation of the number of public hospitals) and +10.3% in Puglia (with an increase in the number of public and private hospitals, by 5.6% and 15.6% respectively).

**Table 2.3: Public and accredited private structures, % annual average variation
Years 2005-2000 and 2006-2005**

Regions	2005/2000			2006/2005		
	Total	Public structures	Accredited private structures	Total	Public structures	Accredited private structures
Italy	-1.55	-3.15	0.63	-0.41	-2.24	1.81
Piemonte	-0.24	-2.38	1.97	0.00	0.00	0.00
Valle D'Aosta	0.00	0.00	0.00	0.00	0.00	0.00
Lombardia	0.16	-4.23	4.94	3.91	3.45	4.29
P. A. Bolzano	0.00	-2.64	4.56	0.00	0.00	0.00
P. A. Trento	-2.20	-3.04	0.00	-11.76	-16.67	0.00
Veneto	-10.35	-12.50	-2.47	0.00	0.00	0.00
Friuli V. G.	-0.85	-1.08	0.00	-4.35	-5.56	0.00
Liguria	-6.25	-7.79	8.45	4.76	0.00	33.33
Emilia Romagna	-2.70	-8.00	1.84	-4.00	-10.34	0.00
Toscana	0.00	0.47	-0.72	0.00	-2.33	3.70
Umbria	0.00	0.00	0.00	0.00	0.00	0.00
Marche	-2.42	-2.78	-1.47	0.00	0.00	0.00
Lazio	-1.08	1.06	-2.84	0.00	-1.28	1.19
Abruzzo	0.00	0.00	0.00	0.00	0.00	0.00
Molise	4.10	2.71	8.45	0.00	0.00	0.00
Campania	-0.29	0.30	-0.82	-10.14	-17.91	-2.82
Puglia	-7.24	-11.68	0.00	10.29	5.56	15.63
Basilicata	-3.58	-3.93	0.00	0.00	0.00	0.00
Calabria	0.00	0.00	0.00	1.33	0.00	2.63
Sicilia	1.77	0.00	4.06	0.76	1.43	0.00
Sardegna	0.00	0.00	0.00	0.00	0.00	0.00

Source: our processing of Ministry of Health data

The number of ordinary hospital beds in 2006 (the year for which the latest data is available) was slightly below 231,000, of which almost 21.0% in private accredited hospitals (unchanged compared to 2005), and with almost 31,000 day-hospital beds, 11.0% of which in private accredited hospitals (table 2.4).

**Table 2.4: Beds in public and private accredited structures by type of admission
Year 2006**

Regions	Ordinary Hospital beds			Day Hospital beds			Fee payment beds (n.)	Totale Beds		
	Total (n.)	Public (%)	Private Accred. (%)	Total (n.)	Public (%)	Private Accred. (%)		(n.)	Public (%)	Private Accred. (%)
Italy	230,814	78.8	21.2	30,751	89.3	10.7	2,343	263,908	80.2	19.8
Piemonte	16,793	78.2	21.8	2,254	93.1	6.9		19,047	79.9	20.1
Valle D'Aosta	433	100.0	0.0	55	100.0	0.0	2	490	100.0	0.0
Lombardia	39,056	77.9	22.1	4,382	86.5	13.5	650	44,088	79.1	20.9
P. A. Bolzano	2,051	84.5	15.5	183	100.0	0.0	28	2,262	86.0	14.0
P. A. Trento	2,252	79.1	20.9	264	97.7	2.3		2,516	81.0	19.0
Veneto	17,690	93.4	6.6	2,278	95.7	4.3	412	20,380	93.8	6.2
Friuli V. G.	4,510	87.6	12.4	580	92.8	7.2	206	5,296	88.6	11.4
Liguria	6,317	97.2	2.8	1,075	99.3	0.7	58	7,450	97.5	2.5
E. Romagna	17,954	79.8	20.2	2,047	91.0	9.0	160	20,161	81.1	18.9
Toscana	13,134	86.0	14.0	1,985	86.2	13.8	264	15,383	86.3	13.7
Umbria	2,804	91.9	8.1	567	94.2	5.8	8	3,379	92.3	7.7
Marche	5,795	83.6	16.4	665	91.6	8.4	20	6,480	84.4	15.6
Lazio	26,229	67.8	32.2	3,905	82.0	18.0	79	30,213	69.7	30.3
Abruzzo	5,968	77.8	22.2	613	95.9	4.1	106	6,687	79.8	20.2
Molise	1,675	86.5	13.5	188	95.2	4.8		1,863	87.4	12.6
Campania	18,808	68.6	31.4	2,529	84.2	15.8	56	21,393	70.5	29.5
Puglia	14,986	83.1	16.9	1,349	94.5	5.5	120	16,455	84.2	15.8
Basilicata	1,983	97.0	3.0	346	100.0	0.0	17	2,346	97.4	2.6
Calabria	8,080	59.2	40.8	1,016	94.9	5.1	11	9,107	63.2	36.8
Sicilia	17,024	76.6	23.4	3,823	86.3	13.7	103	20,950	78.5	21.5
Sardegna	7,272	79.1	20.9	647	91.8	8.2	43	7,962	80.2	19.8

Source: our processing of Ministry of Health data

Day-hospital beds accounted for 12.0% of total hospital beds, as in 2005.

These figures, when broken down by region, reveal a significant lack of geographical uniformity, with Regions where the beds are practically all in public hospitals, such as Valle d'Aosta (100.0%), Liguria (97.5%) and Basilicata (97.4%), and Regions with a significant number of beds in private accredited facilities, such as Calabria (63.2%), Latium (69.7%) and Campania (70.5%). Moreover, breaking down the bed numbers by type of admission, it emerges that, in Calabria, beds for ordinary admissions in public hospitals account for 59.2%, compared to about 95.0% of beds for day case admissions; Latium features public beds for ordinary and day case admissions of 67.8% and 82.0% of the total, respectively, by type of admission.

Considering the total number of beds nationwide, it emerges that 80.0% of the beds are in public hospitals. If we compare this figure with the total number of hospitals (table 2.1), only 54.0% of which are public, it emerges that private accredited hospitals are, on average, much smaller.

In the period between 2000 and 2006, the number of beds fell, on average, by 10.8%, with a percentage variation in 2006, compared to the previous year, of -0.5% and an average annual variation of -2.1% in the 2000-2005 period. This means that the downward trend of total bed numbers slowed down between 2005 and 2006. In detail, public hospital beds fell by 1.2%, while private hospital beds increased by about 2.0%.

The reduction, however, did not occur uniformly nationwide. In 2000-2006, the Region where bed numbers fell most sharply was Friuli Venezia Giulia, with -21.1% (variation recorded in 2006, compared to the previous year, of -4.9% and average annual variation of -3.7% in 2000-2005), followed by Puglia with -17.8% (with a percentage variation between 2005 and 2006 of +3.4%, compared to the negative average annual variation of -4.5% in 2000-2005). On the contrary, Abruzzo and Molise are the only Regions that feature an increase of 9.0% (average annual variation in 2000-2005 of 1.9% and a variation between 2005 and 2006 of -0.86%) and 16.6% (average annual variation in 2000-2005 of 2.5% and a variation in 2006, compared to 2005, of 2.9%), respectively (tables 2.5 and 2.6).

**Table 2.5: Beds in public and private accredited structures.
% Variation – Years 2006-2000**

Regions	Total beds	Public beds	Private Accred. beds
Italy	-10.78	-13.56	2.60
Piemonte	-16.67	-20.64	4.14
Valle D'Aosta	-0.41	-0.41	0.00
Lombardia	-11.88	-15.14	3.11
P. A. Bolzano	-7.67	-14.17	72.28
P. A. Trento	-15.63	-22.00	29.62
Veneto	-15.37	-16.19	-0.78
Friuli V. G.	-21.13	-23.44	3.08
Liguria	-14.78	-15.65	43.75
Emilia Romagna	-9.60	-5.93	-22.61
Toscana	-14.21	-14.76	-10.64
Umbria	-15.04	-16.07	-0.38
Marche	-15.91	-17.61	-5.35
Lazio	-7.32	-6.72	-8.66
Abruzzo	8.98	-4.85	155.87
Molise	16.58	8.17	152.69
Campania	-3.11	-5.54	3.26
Puglia	-17.79	-23.17	31.00
Basilicata	-10.76	-11.02	0.00
Calabria	-8.15	-13.03	1.67
Sicilia	-1.18	-7.00	28.10
Sardegna	-15.03	-18.60	3.42

Source: our processing of Ministry of Health data

This downsizing process primarily concerned public hospitals, as a result of which bed numbers fell by 13.6% (average annual variation in 2000 2005 of -2.6% and a variation between 2005 and 2006 of -1.2%), compared to a 2.6% increase (average annual variation in 2000 2005 of 0.1% and a variation between 2005 and 2006 of 2.1%) of beds in private accredited hospitals.

Table 2.6: Beds in public and private accredited structures, % annual average variation. Years 2005-2000 and 2006-2005

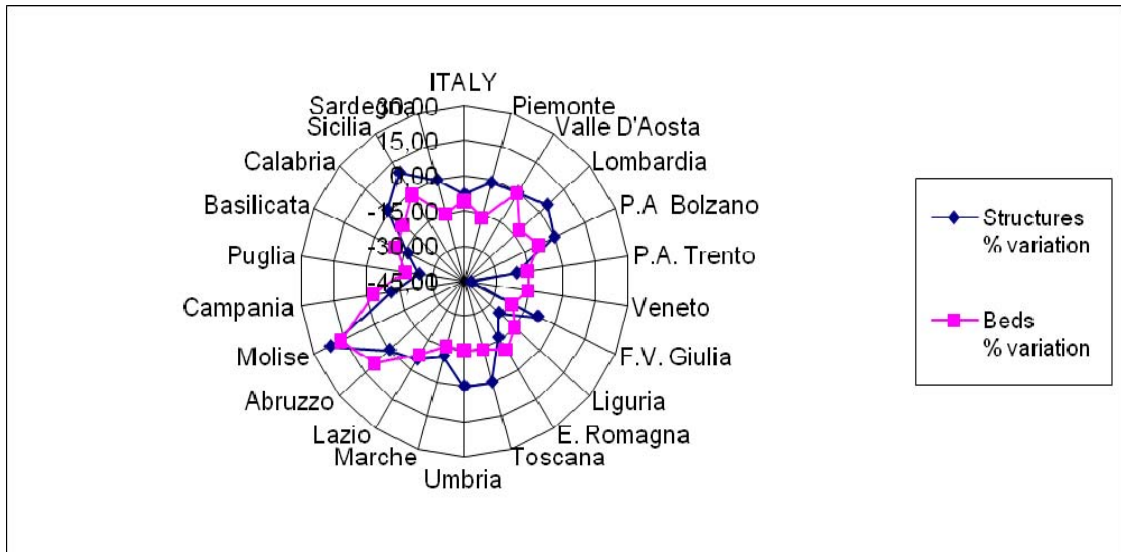
Regions	2005/2000			2006/2005		
	Total beds	Public beds	Private Accred. beds	Total beds	Public beds	Private Accred. beds
Italy	-2.15	-2.64	0.11	-0.55	-1.17	2.06
Piemonte	-3.55	-4.38	0.39	-0.15	-0.70	2.14
Valle D'Aosta	-1.04	-1.04	0.00	4.93	4.93	0.00
Lombardia	-2.34	-3.01	0.51	-0.79	-1.14	0.53
P. A. Bolzano	-1.35	-2.61	10.56	-1.18	-2.02	4.28
P. A. Trento	-2.86	-4.27	5.33	-2.44	-3.00	0.00
Veneto	-3.32	-3.47	-0.78	0.21	0.02	3.18
Friuli V. G.	-3.68	-4.14	0.74	-4.89	-5.40	-0.66
Liguria	-2.73	-2.82	2.38	-2.12	-2.69	27.78
E. Romagna	-1.64	-0.66	-5.47	-1.80	-2.75	2.51
Toscana	-2.65	-2.72	-2.21	-1.86	-2.15	-0.05
Umbria	-2.57	-2.76	-0.08	-3.21	-3.47	0.00
Marche	-2.90	-3.38	-0.11	-2.57	-2.15	-4.81
Lazio	-1.59	-1.22	-2.45	0.43	-0.81	3.40
Abruzzo	1.91	-0.80	20.80	-0.86	-0.95	-0.52
Molise	2.53	1.46	15.72	2.87	0.62	21.76
Campania	-0.90	-1.57	0.78	1.38	2.26	-0.66
Puglia	-4.48	-5.33	2.09	3.39	1.03	18.10
Basilicata	-0.76	-0.77	0.00	-7.31	-7.49	0.00
Calabria	-1.55	-2.63	0.48	-0.68	-0.64	-0.74
Sicilia	0.05	-1.03	4.91	-1.44	-2.04	0.81
Sardegna	-3.04	-3.57	-0.52	-0.82	-2.40	6.14

Source: our processing of Ministry of Health data

In this case too there are regional differences, with some Regions where the drop in bed numbers can be viewed as the natural consequence of the reduction of the number of (primarily public) hospitals, such as Veneto, Liguria, Puglia, Basilicata and Emilia Romagna, and other Regions (Toscana, Umbria, Autonomous Province of Bolzano and Sardegna) where the drop in bed numbers is the result of the downsizing of each hospital, the overall number of which remained unchanged (figure 2.10).

Breaking up the figures by ordinary and day case admissions, it emerges that, compared to an average 14.0% drop of ordinary bed numbers (average annual variation in 2000-2005 of -2.8% and a variation between 2005 and 2006 of -0.9%), in the period between 2000 and 2006 there was an average increase in day-hospital bed numbers of 27.8% (average annual variation in 2000-2005 of +4.4% and a variation between 2005 and 2006 of +3.0%) (tables 2.7, 2.8 and 2.9).

Figure 2.10: Structures and beds, % variation – Years 2006-2000



Source: our processing of Ministry of Health data

As in the case of the geographical distribution of hospitals, here too there is a significant lack of uniformity, nationwide: while the number of day-hospital beds in Molise and Basilicata respectively increased almost nine fold and doubled, compared to 2000, in other Regions bed numbers fell, for example, in Sardegna (-19.9%, with an average annual variation in 2000-2005 of -3.8% and a variation between 2005 and 2006 of -2.6%) and Emilia Romagna (-14.0%, with an average annual variation in 2000-2005 of -3.2% and a variation between 2005 and 2006 of +1.4%).

**Table 2.7: Beds in public and private accredited structures by type of admission
% Variation – Years 2006-2000**

Regions	Ordinary Hospital beds			Day Hospital beds			Fee payment beds (n.)
	Total	Public	Private Accred.	Total	Public	Private Accred.	
Italy	-14.00	-16.83	-1.48	27.78	20.25	167.83	-30.45
Piemonte	-18.73	-22.75	-0.11	13.38	5.53	15,600.00	-100.00
Valle d'Aosta	-4.20	-4.20	-	37.50	37.50	0.00	200.00
Lombardia	-14.71	-18.14	0.07	18.11	11.80	85.00	22.87
P. A. Bolzano	-9.01	-16.23	72.28	71.03	71.03	0.00	-68.54
P. A. Trento	-15.62	-22.60	27.99	-15.65	-17.57	600.00	0.00
Veneto	-16.73	-17.45	-4.96	4.93	2.64	106.25	-38.23
Friuli V. G.	-24.28	-26.82	0.36	6.62	3.86	61.54	-4.19
Liguria	-20.45	-21.40	37.50	35.05	34.05	800.00	1,060.00
Emilia Romagna	-9.33	-4.32	-24.89	-13.96	-18.40	91.67	30.08
Toscana	-17.96	-17.93	-18.15	27.98	19.39	133.33	-28.84
Umbria	-18.16	-19.04	-6.56	4.42	1.71	83.33	0.00
Marche	-17.65	-18.91	-10.60	23.84	13.41	560.00	-84.85
Lazio	-11.60	-11.07	-12.70	48.20	39.72	104.65	-73.04
Abruzzo	7.76	-7.57	156.98	22.85	20.74	108.33	7.07
Molise	8.13	-0.48	143.01	889.47	842.11	900.00	-100.00
Campania	-8.85	-12.00	-1.12	85.14	72.81	198.51	-28.21
Puglia	-18.38	-24.18	30.97	3.85	2.57	32.14	-66.29
Basilicata	-18.96	-19.44	-100.00	107.19	107.19	0.00	13.33
Calabria	-12.63	-19.92	0.67	55.35	51.81	173.68	-15.38
Sicilia	-11.33	-16.84	13.23	97.16	70.19	52,300.00	68.85
Sardegna	-14.26	-17.81	2.49	-19.93	-22.86	39.47	-46.91

Source: our processing of Ministry of Health data

These differences can be justified by the different “degree of maturity of the local systems”: the Regions that still feature a small number of day-hospital beds (compared to the average number) have expressed the need to increase them, while the Regions with high day-hospital bed numbers tend to scale down.

On the contrary, in 2000-2006, the number of hospital beds for ordinary admissions fell in the other regions by between -24.4% in Friuli Venezia Giulia and -4.2% in Valle d’Aosta, with the exception of Molise and Abruzzo alone, where bed numbers increased by 8.1% and 7.8%, respectively.

**Table 2.8: Beds in public and private accredited structures by type of admission
% annual average variation – Years 2005-2000**

Regions	Ordinary Hospital beds			Day Hospital beds			Fee payment beds (n.)
	Total	Public	Private Accred.	Total	Public	Private Accred.	
Italy	-2.79	-3.32	-0.61	4.41	3.30	19.48	-5.24
Piemonte	-4.00	-4.84	-0.46	2.31	0.83	174.90	-14.87
Valle d'Aosta	-1.98	-1.98	0.00	6.96	6.96	24.57	0.00
Lombardia	-2.89	-3.62	0.00	3.14	2.22	11.32	1.54
P. A. Bolzano	-1.68	-3.12	10.56	11.21	11.21	0.00	-16.56
P. A. Trento	-3.01	-4.58	5.06	-1.65	-2.06	47.58	0.00
Veneto	-3.78	-3.92	-1.74	0.42	-0.08	16.27	-1.93
Friuli V. G.	-4.42	-4.95	0.21	2.25	1.79	10.07	-0.66
Liguria	-4.26	-4.36	1.22	7.54	7.39	55.18	73.67
Emilia Romagna	-1.53	-0.29	-5.82	-3.24	-3.84	7.99	7.43
Toscana	-3.43	-3.45	-3.32	5.03	4.26	12.94	-7.74
Umbria	-3.07	-3.20	-1.35	0.29	-0.27	12.89	0.00
Marche	-3.32	-3.75	-1.01	4.96	3.47	116.89	-30.12
Lazio	-2.38	-2.02	-3.17	7.01	6.13	12.21	-21.03
Abruzzo	2.03	-0.95	20.92	3.34	2.98	14.87	-18.78
Molise	1.12	-0.15	15.72	54.82	54.82	0.00	-33.17
Campania	-2.07	-2.85	-0.24	12.31	10.11	27.24	-1.59
Puglia	-4.50	-5.38	1.93	-1.46	-1.92	7.12	-19.02
Basilicata	-1.97	-2.02	0.00	12.35	12.35	0.00	2.53
Calabria	-2.46	-4.17	0.39	8.38	8.25	12.34	13.97
Sicilia	-1.69	-2.80	2.75	12.67	9.70	238.13	10.61
Sardegna	-3.19	-3.73	-0.78	-3.85	-4.61	8.06	13.27

Source: our processing of Ministry of Health data

**Table 2.9: Beds in public and private accredited structures by type of admission
% Variation – Years 2006-2005**

Regions	Ordinary Hospital beds			Day Hospital beds			Fee payment beds (n.)
	Total	Public	Private Accred.	Total	Public	Private Accred.	
Italy	-0.91	-1.55	1.57	3.00	2.23	10.00	-8.97
Piemonte	-0.32	-1.01	2.23	1.17	1.25	0.00	0.00
Valle d'Aosta	5.87	5.87	0.00	-1.79	-1.79	0.00	0.00
Lombardia	-1.22	-1.57	0.05	1.18	0.16	8.23	13.84
P. A. Bolzano	-0.97	-1.87	4.28	0.55	0.55	0.00	-22.22
P. A. Trento	-1.70	-2.14	0.00	-8.33	-8.51	0.00	0.00
Veneto	0.99	0.81	3.73	2.75	3.03	-2.94	-31.90
Friuli V. G.	-5.09	-5.68	-0.71	-4.61	-4.95	0.00	-0.96
Liguria	-1.10	-1.76	29.41	-6.11	-6.16	0.00	-26.58
Emilia Romagna	-2.08	-2.93	1.40	1.44	-0.75	30.50	-9.09
Toscana	-2.31	-2.18	-3.11	0.15	-3.11	26.98	6.45
Umbria	-4.37	-4.73	0.00	2.90	3.09	0.00	0.00
Marche	-2.52	-1.82	-5.92	-2.78	-4.40	19.15	-9.09
Lazio	-0.26	-1.53	2.54	5.63	3.76	15.03	-12.22
Abruzzo	-2.52	-3.05	-0.60	4.25	4.26	4.17	202.86
Molise	2.26	0.28	17.10	11.24	5.92	900.00	-100.00
Campania	1.18	1.69	0.08	3.61	6.77	-10.51	-22.22
Puglia	2.76	-0.02	19.01	11.76	13.03	-6.33	-3.23
Basilicata	-10.47	-10.77	0.00	15.72	15.72	0.00	0.00
Calabria	-1.05	-0.89	-1.29	3.89	2.12	52.94	-56.00
Sicilia	-3.46	-4.14	-1.14	8.58	7.14	18.59	1.98
Sardegna	0.82	-0.60	6.59	-2.56	-2.30	-5.36	-71.52

Source: our processing of Ministry of Health data

In 2006, the number of hospital beds per head of population was 4.5 beds per 1,000 population (compared to 4.6 in 2005), 3.9 of which are reserved for acute in-patients and the remaining 0.6 for non-acute patients; although these figures may change considerably on a regional basis, the nationwide average is consistent with the current regulations³ (table 2.10).

³ In article 4(1)(a) of the Agreement entered into by the central and the regional governments, implementing article 1(173) of Law 311/2004, file no. 2271 of 23.03.2005, the regional authorities undertake to ensure that the number of beds in accredited private hospitals, and paid for by the regional health service, does not exceed 4.5 per 1,000 population, including rehabilitation and long-term post-acute care beds, with a possible upward variation of no more than 5% (up to 5.0 per 1,000 population), based on the population of each region.

Table 2.10: Beds for acute and non-acute in-patients per 1,000 inhabitants - Year 2006

Regions	Beds for acute in-patients			Beds for non-acute in-patients		
	Public	Private Accred.	Total	Public	Private Accred.	Total
Italy	3.3	0.6	3.9	0.3	0.3	0.6
Piemonte	3.0	0.4	3.5	0.5	0.4	0.9
Valle d'Aosta	4.0		4.0			
Lombardia	3.2	0.6	3.9	0.4	0.3	0.8
P. A. Bolzano	3.9	0.2	4.0	0.1	0.5	0.7
P. A. Trento	3.5	0.2	3.7	0.6	0.7	1.3
Veneto	3.5	0.2	3.7	0.5	0.1	0.6
Friuli V. G.	3.7	0.4	4.2	0.2	0.1	0.2
Liguria	4.2	0.0	4.2	0.3	0.1	0.4
Emilia Romagna	3.4	0.5	3.9	0.5	0.4	0.9
Toscana	3.5	0.4	3.9	0.2	0.2	0.3
Umbria	3.4	0.3	3.7	0.2	0.0	0.2
Marche	3.3	0.4	3.7	0.3	0.3	0.6
Lazio	3.7	0.9	4.5	0.3	0.9	1.2
Abruzzo	3.9	0.7	4.6	0.2	0.4	0.6
Molise	4.5	0.4	4.9	0.5	0.4	0.9
Campania	2.5	0.8	3.4	0.1	0.3	0.3
Puglia	3.1	0.5	3.6	0.3	0.1	0.4
Basilicata	3.6	0.1	3.7	0.2		0.2
Calabria	2.8	1.2	4.0	0.1	0.4	0.5
Sicilia	3.1	0.8	3.9	0.2	0.1	0.3
Sardegna	3.8	0.9	4.7	0.0	0.1	0.1

Source: Ministry of Health data

However, breaking down the beds according to “acute” and “long-term and rehabilitation” patients, consistently with the applicable regulations, the recommendation to allocate 1 bed per 1,000 people to the latter group is not complied with. In 2006, in fact, only Lazio and the Autonomous Province of Trento featured a number of non-acute beds consistent with the regulations, i.e. 1.2 and 1.3 beds per 1,000 population, respectively. Of the 4.5 beds, 3.6 belong to public hospitals and the remaining 0.9 to private accredited hospitals. The Regions with the highest density of beds per 1,000 population are Molise (5.8), Lazio (5.5) and Abruzzo (5.2). At the opposite end of the scale are Campania, the Region with the fewest beds (3.7 per 1,000 population), followed by Umbria with 3.9 beds. Of the remaining Regions, about half feature between 4.5 and 5.0 beds per 1,000 population and the rest between 4.0 and 4.5.

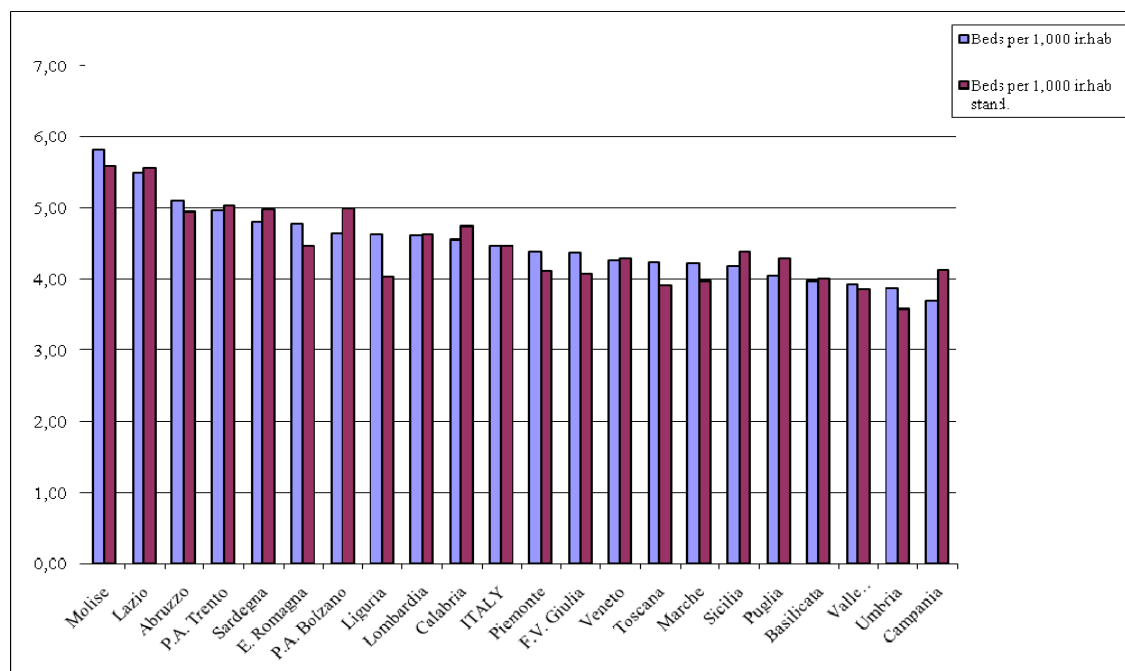
In order to enhance the comparability of the different Regions, and, therefore, the above mentioned indicators, we must take into account the peculiarity of each population structure.

If, compared to the demographical characteristics of the population⁴, we standardize the 4.6 beds per 1,000 population in Liguria, a Region that features the most elderly catchment area nationwide, these are essentially equivalent to the 3.7 recorded in Campania, i.e. the Region with the youngest average population. By standardizing the population, in fact, both Regions feature a bed density per 1,000 population of just above 4.0 (figure 2.11).

⁴ For population standardization purposes, based on age, we have used the weights established by the Ministry of Health for the hospital sector, as set out in the methodological notes to the Healthcare Monitoring Report (Rapporto di Monitoraggio di assistenza Sanitaria - Years 2002-2003) published in March 2006. Of course, the estimate is of a general nature to take account of the population need differentials.

Besides Campania, the Regions increasing the density of beds, taking into account the demographical structure of the population, are: Puglia (4.3 beds per 1,000 population, instead of 4.0 with a non-standardized population), Sicily (4.4 instead of 4.2), Calabria (4.7 instead of 4.6), the Autonomous Province of Bolzano (5.0 instead of 4.6) and Sardegna (5.0 instead of 4.8). On the contrary, in Abruzzo, by standardizing the population, the number of beds drops to 5.0 compared to the initial 5.1. This operation confirms the significant Regional differences, although the number of regions featuring a bed density of between 4.0 and 5.0 per 1,000 population increases.

Figure 2.11: Beds per 1,000 inhabitants effective and standardized on the basis of the age. Year 2006



Source: our processing of ISTAT and Ministry of Health data

2.2 Medical imaging and diagnostic equipment (MIDE)

The number of medical imaging and diagnostic equipment, in public and private accredited hospitals, is a factor that can help define hospital quality. Considering several among the most important systems: CAT (Computerized Axial Tomography) scanners, kidney dialysis machines (EMD), MRI (Magnetic Resonance Imaging) scanners, linear accelerators (ALI), computerized gamma cameras (GCC), in 2006, the majority of these were concentrated in public hospitals. Nationwide, 90.0% of kidney dialysis machines and linear accelerators, in fact, are owned by public hospitals. The percentage for computerized gamma cameras drops slightly to 87.4%. Lastly, the majority of CAT and MRI scanners are also public, even though the percentage of scanners owned by private hospitals is relatively high, 76.8% and 68.6%, respectively (table 2.11).

These figures can change considerably when broken down by Region. In the northern Regions, in fact, MIDE is almost exclusively in public hands, while in the central and southern

Regions the percentage owned by private accredited hospitals rises considerably. In Regions such as Sicily, Calabria and Campania over 30.0% of CAT scanners can be found in private accredited hospitals. Likewise, in Calabria and Campania over 50.0% of MRI scanners are privately owned; in Emilia Romagna private accredited hospitals account for 41.0% of MRI scanners.

The Regions featuring the highest percentage of MIDE in private hands are generally those with a large number of private accredited hospitals and beds, compared to the average.

Table 2.11: Medical imaging and diagnostic equipment in public and private accredited structures - Year 2006

Regions	ALI		EMD		GCC		CAT		MRI	
	Total (n)	Public (%)	Total (n)	Public (%)	Total (n)	Public (%)	Total (n)	Public (%)	Total (n)	Public (%)
Italy	279	90.32	12.784	90.70	508	87.40	1.310	76.79	682	68.62
Piemonte	23	91.30	1.099	99.82	30	93.33	94	82.98	55	65.45
Valle d'Aosta	0		31	100.00	2	100.00	3	100.00	2	100.00
Lombardia	57	89.47	2.026	89.83	74	97.30	210	77.14	106	60.38
P. A. Bolzano	2	0.00	96	100.00	4	100.00	9	77.78	7	71.43
P. A. Trento	4	100.00	203	100.00	1	100.00	9	88.89	4	75.00
Veneto	34	97.06	847	99.88	51	96.08	93	86.02	65	76.92
Friuli V. G.	12	100.00	313	93.93	9	100.00	24	87.50	14	71.43
Liguria	9	100.00	456	99.56	10	100.00	31	100.00	23	100.00
Emilia Romagna	18	88.89	819	96.21	28	96.43	94	79.79	51	58.82
Toscana	18	94.44	868	98.16	59	94.92	58	93.10	38	92.11
Umbria	7	100.00	339	100.00	6	66.67	22	90.91	8	100.00
Marche	8	87.50	447	100.00	18	94.44	37	75.68	25	80.00
Lazio	28	92.86	1.475	66.58	55	76.36	145	74.48	88	63.64
Abruzzo	3	100.00	358	94.69	13	100.00	32	71.88	18	55.56
Molise	2	100.00	101	100.00	8	87.50	14	78.57	7	85.71
Campania	9	100.00	506	76.48	45	48.89	127	62.99	41	48.78
Puglia	14	92.86	1.205	85.23	29	93.10	80	75.00	41	75.61
Basilicata	3	66.67	187	100.00	2	100.00	11	90.91	5	100.00
Calabria	6	83.33	452	99.34	11	72.73	60	61.67	20	45.00
Sicilia	20	65.00	549	97.27	35	80.00	124	68.55	45	66.67
Sardegna	2	100.00	407	79.12	18	88.89	33	75.76	19	78.95

Source: Ministry of Health data

Over the years, the amount of MIDE has increased considerably throughout the country, albeit not in a uniform manner geographically (table 2.12).

The one exception to this trend concerns computerized gamma cameras, the number of which dropped by 8.8%, nationwide, between 2000 and 2006. A figure that, moreover, varies considerably from region to region, with an 82.1% increase in Veneto and a 47.4% reduction in Liguria.

Table 2.12: Medical imaging and diagnostic equipment in public and private accredited structures. % Variation – Years 2006-2000

Regions	ALI	EMD	GCC	CAT	MRI
Italy	45.31	19.15	-8.80	33.95	108.56
Piemonte	35.29	23.90	-9.09	16.05	83.33
Valle d'Aosta	0.00	24.00	0.00	200.00	200.00
Lombardia	14.00	18.97	-17.78	24.26	89.29
P. A. Bolzano	200.00	11.63	-20.00	12.50	133.33
P. A. Trento	33.33	16.00	0.00	80.00	100.00
Veneto	70.00	16.99	82.14	30.99	132.14
Friuli V. G.	50.00	6.46	-10.00	0.00	133.33
Liguria	50.00	36.12	-47.37	34.78	187.50
Emilia Romagna	125.00	11.28	-12.50	36.23	70.00
Toscana	12.50	1.17	47.50	16.00	100.00
Umbria	133.33	54.09	-25.00	83.33	100.00
Marche	300.00	7.97	12.50	15.63	177.78
Lazio	47.37	24.37	-15.38	46.46	137.84
Abruzzo	0.00	31.14	30.00	28.00	38.46
Molise	200.00	7.45	33.33	100.00	133.33
Campania	-18.18	28.10	-40.00	47.67	105.00
Puglia	180.00	13.25	-3.33	25.00	95.24
Basilicata	300.00	55.83	-33.33	37.50	400.00
Calabria	-14.29	15.90	-31.25	30.43	100.00
Sicilia	66.67	39.34	-23.91	85.07	200.00
Sardegna	0.00	14.33	-18.18	6.45	58.33

Source: our processing of Ministry of Health data

On the contrary, the number of MRI scanners more than doubled, nationwide, in the period in question. In this case, all the regions increased their stock, albeit in different percentages, ranging from 38.5% in Abruzzo to a staggering 400.0% in Molise. About 3/4 of the Regions feature an increase of MRI scanners in excess of or equal to 100.0%.

The nationwide statistic is 22.1 CAT scanners (5.0 of which in private hospitals) per 1,000,000 population (table 2.13).

Based on the total number of CAT scanners in public hospitals, the regional average ranges from a maximum of 34.4 and 24.0 scanners per 1,000,000 in Molise and Valle d'Aosta, respectively, to approx. 14.0 in Campania. Molise, with 315.5 kidney dialysis machines, 21.9 computerized gamma cameras, 34.4 CAT scanners and 18.7 MRI scanners per 1,000,000 population, is the Region with the highest average stock of equipment per population.

Table 2.13: Medical imaging and diagnostic equipment per 1,000,000 inhabitants in public and private accredited structures - Year 2006

Regions	ALI		EMD		GCC		CAT		MRI	
	Public	Private	Pubbl.	Private	Pubbl.	Private	Pubbl.	Private	Pubbl.	Private
Italy	4.26	0.46	196.09	20.11	7.51	1.08	17.01	5.14	7.91	3.62
Piemonte	4.82	0.46	252.02	0.46	6.43	0.46	17.92	3.68	8.27	4.36
Valle d'Aosta	0.00	0.00	248.37	0.00	16.02	0.00	24.04	0.00	16.02	0.00
Lombardia	5.34	0.63	190.67	21.58	7.54	0.21	16.97	5.03	6.70	4.40
P. A. Bolzano	0.00	4.10	196.85	0.00	8.20	0.00	14.35	4.10	10.25	4.10
P. A. Trento	7.89	0.00	400.37	0.00	1.97	0.00	15.78	1.97	5.92	1.97
Veneto	6.91	0.21	177.23	0.21	10.26	0.42	16.76	2.72	10.47	3.14
Friuli V. G.	9.90	0.00	242.45	15.67	7.42	0.00	17.32	2.47	8.25	3.30
Liguria	5.60	0.00	282.36	1.24	6.22	0.00	19.28	0.00	14.30	0.00
Emilia Romagna	3.79	0.47	186.59	7.34	6.39	0.24	17.76	4.50	7.10	4.97
Toscana	4.67	0.27	234.18	4.40	15.39	0.82	14.84	1.10	9.62	0.82
Umbria	8.02	0.00	388.33	0.00	4.58	2.29	22.91	2.29	9.16	0.00
Marche	4.56	0.65	291.00	0.00	11.07	0.65	18.23	5.86	13.02	3.26
Lazio	4.73	0.36	178.76	89.75	7.65	2.37	19.66	6.74	10.19	5.83
Abruzzo	2.29	0.00	258.82	14.51	9.93	0.00	17.56	6.87	7.63	6.11
Molise	6.25	0.00	315.55	0.00	21.87	3.12	34.37	9.37	18.75	3.12
Campania	1.55	0.00	66.84	20.55	3.80	3.97	13.82	8.12	3.45	3.63
Puglia	3.19	0.25	252.34	43.74	6.63	0.49	14.74	4.91	7.62	2.46
Basilicata	3.38	1.69	316.23	0.00	3.38	0.00	16.91	1.69	8.46	0.00
Calabria	2.50	0.50	224.72	1.50	4.00	1.50	18.52	11.51	4.50	5.51
Sicilia	2.59	1.40	106.44	2.99	5.58	1.40	16.94	7.77	5.98	2.99
Sardegna	1.21	0.00	194.04	51.22	9.64	1.21	15.07	4.82	9.04	2.41

Source: our processing of ISTAT and Ministry of Health data

2.3 Human resources

Human resources is the top cost item, with regard to the supply of health care services.

The number of national health service employees (comprising the staff of the Local Health Authorities and hospitals) has remained basically stable over the last few years, at 652,587, which, in 2006 (and in 2005) translates into 11 employees per one thousand population, of which 16.2% consists of medical and dental staff and over 40.7% other health professionals, mostly nurses (tables 2.14 e 2.15).

Between 2005 and 2006, the number of employees increased by 0.7% (compared to an average annual variation in 2000-2005 of 0.4%), with differences according to the professional groups.

While nursing staff increased by 5.1% (the average annual variation in the previous 5-year period was 0.1%), medical staff increased by only 0.2% (average annual variation in 2000-2005 of 1.9%).

MIDE technicians are the only professional group whose numbers are dropping (-2.7%), in line with the previous period (between 2000 and 2005 there was an average annual variation of -2.3%).

Table 2.14: Number of employees in NHS - Year 2006

Regions	Total	Health Care			Profession.	Technic.	Administr.
		Total	Medical and Dental Staff	Other health professionals, mostly nurses			
Italy	652,587	452,254	105,860	265,444	1,598	121,730	76,613
Piemonte	56,291	36,684	8,606	21,150	110	11,415	8,081
Valle d'Aosta	2,004	1,277	297	677	5	428	294
Lombardia	91,495	60,567	12,686	35,575	221	19,386	11,317
P. A. Bolzano	8,051	4,910	870	2,807	26	1,949	1,114
P. A. Trento	7,063	4,459	881	2,717	12	1,755	836
Veneto	57,777	39,669	7,577	25,349	119	11,758	6,231
Friuli V. G.	17,330	11,738	2,279	7,189	40	3,815	1,737
Liguria	21,703	15,365	3,337	9,303	46	3,835	2,456
Emilia Romagna	55,588	39,861	8,062	23,940	178	9,663	5,886
Toscana	49,344	35,103	7,383	21,244	157	8,927	5,110
Umbria	10,759	7,979	1,833	4,701	30	1,768	977
Marche	18,006	13,074	2,831	7,877	26	3,088	1,810
Lazio	48,368	35,818	9,445	20,353	131	6,329	6,084
Abruzzo	15,725	11,088	2,827	6,699	28	2,823	1,783
Molise	4,025	2,905	724	1,621	5	753	362
Campania	55,560	38,908	10,838	22,600	156	9,794	6,640
Puglia	35,440	24,806	6,363	13,993	87	6,354	4,119
Basilicata	6,579	4,733	1,118	2,816	15	1,198	633
Calabria	22,996	15,375	4,319	8,567	59	4,008	3,529
Sicilia	47,831	33,084	9,837	18,151	106	8,894	5,646
Sardegna	20,652	14,851	3,747	8,115	41	3,790	1,968

Source: Ministry of Health data

Table 2.15: Composition of employees in NHS in percentage terms - Year 2006

Regions	Total (n.)	Health Care			Profession. (%)	Technic. (%)	Administr. (%)
		Total (%)	Medical and Dental Staff (%)	Other health professionals, mostly nurses (%)			
Italy	652,587	69.30	16.22	40.68	0.24	18.65	11.74
Piemonte	56,291	65.17	15.29	37.57	0.20	20.28	14.36
Valle d'Aosta	2,004	63.72	14.82	33.78	0.25	21.36	14.67
Lombardia	91,495	66.20	13.87	38.88	0.24	21.19	12.37
P. A. Bolzano	8,051	60.99	10.81	34.87	0.32	24.21	13.84
P. A. Trento	7,063	63.13	12.47	38.47	0.17	24.85	11.84
Veneto	57,777	68.66	13.11	43.87	0.21	20.35	10.78
Friuli V. G.	17,330	67.73	13.15	41.48	0.23	22.01	10.02
Liguria	21,703	70.80	15.38	42.87	0.21	17.67	11.32
Emilia Romagna	55,588	71.71	14.50	43.07	0.32	17.38	10.59
Toscana	49,344	71.14	14.96	43.05	0.32	18.09	10.36
Umbria	10,759	74.16	17.04	43.69	0.28	16.43	9.08
Marche	18,006	72.61	15.72	43.75	0.14	17.15	10.05
Lazio	48,368	74.05	19.53	42.08	0.27	13.09	12.58
Abruzzo	15,725	70.51	17.98	42.60	0.18	17.95	11.34
Molise	4,025	72.17	17.99	40.27	0.12	18.71	8.99
Campania	55,560	70.03	19.51	40.68	0.28	17.63	11.95
Puglia	35,440	69.99	17.95	39.48	0.25	17.93	11.62
Basilicata	6,579	71.94	16.99	42.80	0.23	18.21	9.62
Calabria	22,996	66.86	18.78	37.25	0.26	17.43	15.35
Sicilia	47,831	69.17	20.57	37.95	0.22	18.59	11.80
Sardegna	20,652	71.91	18.14	39.29	0.20	18.35	9.53

Source: our processing of Ministry of Health data

There continues to be certain lack of geographical uniformity, with staff increases of 7.5% and 6.1%, in Friuli Venezia Giulia and Valle d'Aosta, respectively, and reductions in Sardinia and Latium of -1.2% and -3.6%, respectively (tables 2.16 and 2.17).

Medical staff numbers range from +4.3% in Molise to -2.5% in Lombardia, while nursing staff numbers increased by +11.4% in Friuli Venezia Giulia, but dropped by -2.4% in the Autonomous Province of Bolzano.

Table 2.16: Employees in NHS, % Variation – Years 2006-2005

Regions	Total	Health Care			Profession.	Technic.	Administr.
		Total	Medical and Dental Staff	Other health professionals, mostly nurses			
Italy	0.75	1.83	0.20	5.12	0.06	-2.69	0.08
Piemonte	0.79	1.94	0.48	7.15	1.85	-2.42	0.31
Valle d'Aosta	6.09	3.40	6.83	5.95	25.00	19.89	0.34
Lombardia	-0.82	-0.06	-2.54	3.94	-0.45	-2.77	-1.41
P. A. Bolzano	1.71	1.78	2.59	-2.37	8.33	-0.76	2.20
P. A. Trento	0.74	0.61	0.11	5.60	0.00	2.09	-1.30
Veneto	0.95	0.96	-0.95	5.08	-1.65	1.08	0.73
Friuli V. G.	7.47	8.24	1.56	11.39	2.56	5.47	6.89
Liguria	0.38	0.70	-0.63	3.18	-2.13	0.39	-1.60
Emilia Romagna	2.73	3.23	1.56	7.75	1.71	2.44	-0.02
Toscana	3.59	5.28	-0.46	5.02	-0.63	-1.03	0.87
Umbria	-0.16	0.08	-0.43	3.30	0.00	1.84	-5.24
Marche	1.72	2.44	1.43	5.75	-7.14	-0.35	0.33
Lazio	-3.60	-1.28	-1.30	0.92	-5.07	-15.61	-2.64
Abruzzo	2.60	3.67	-0.56	7.86	-9.68	-0.84	1.89
Molise	2.55	3.34	4.32	7.49	0.00	0.80	0.00
Campania	1.31	2.77	3.31	6.52	-3.11	-2.97	-0.33
Puglia	1.11	3.18	2.75	5.41	14.47	-8.68	4.07
Basilicata	0.97	1.85	1.45	3.87	7.14	-3.62	3.94
Calabria	0.66	1.83	0.23	5.05	9.26	-3.95	1.23
Sicilia	-0.39	1.40	-0.31	5.72	-0.93	-6.86	0.86
Sardegna	-1.21	-0.24	-0.24	1.42	-4.65	-4.00	-2.62

Source: our processing of Ministry of Health data

The variability of the number of national health service employees is still very high, even if we consider staff number per population, which range from a peak in the Autonomous Province of Bolzano of 16.5 employees per 1,000 population to the minimum of Puglia of 8.7 employees per 1,000 population (immediately followed by Lazio with 8.8 employees) (table 2.18).

Table 2.17: Employees in NHS, % annual average variation - Years 2005-2000

Regions	Total	Health Care			Profession.	Technic.	Administr.
		Total	Medical and Dental Staff	Other health professionals, mostly nurses			
Italy	0.39	0.96	1.87	0.09	1.94	-2.32	2.05
Piemonte	0.82	0.48	1.56	-1.15	1.35	0.95	2.19
Valle d'Aosta	0.86	2.36	3.95	0.28	5.92	-4.48	2.50
Lombardia	-1.08	-0.91	0.12	-2.16	-1.13	-2.82	1.45
P. A. Bolzano	2.35	2.38	4.15	0.76	0.85	1.94	2.74
P. A. Trento	0.94	0.70	1.87	-0.94	19.14	0.97	2.00
Veneto	1.08	0.56	0.75	-0.60	-0.33	2.43	2.01
Friuli V. G.	-0.40	-1.01	1.73	-2.74	2.19	-0.50	4.56
Liguria	0.95	1.95	2.78	1.24	6.07	-4.36	4.94
Emilia Romagna	1.10	1.54	1.51	0.96	2.99	-0.75	1.38
Toscana	0.06	0.21	2.12	0.01	3.20	-1.57	2.00
Umbria	1.59	2.23	0.72	2.93	0.68	0.31	-0.89
Marche	0.90	1.81	1.59	1.84	0.00	-2.82	1.85
Lazio	1.26	2.95	4.22	2.16	1.36	-6.19	3.47
Abruzzo	0.29	1.10	2.73	0.43	3.58	-3.97	3.65
Molise	0.87	1.79	1.38	1.85	10.76	-2.60	1.93
Campania	1.14	2.19	2.76	1.33	6.78	-3.70	3.90
Puglia	-1.40	-0.31	1.33	-1.12	-2.44	-4.92	-0.65
Basilicata	2.19	3.85	3.34	3.74	6.96	-2.67	1.76
Calabria	0.43	2.17	3.07	2.01	3.26	-5.47	1.88
Sicilia	0.34	1.42	2.16	0.40	4.71	-3.07	0.68
Sardegna	0.18	1.58	0.89	1.78	-1.76	-4.88	2.03

Source: our processing of Ministry of Health data

Table 2.18: Employees in NHS per 1,000 inhabitants effective and standardized on the basis of the age Year 2006

Regions	Employees in NHS		Medical and Dental Staff		Other health professionals, mostly nurses	
	per 1,000 inhab. eff	per 1,000 inhab stand.	per 1,000 inhab. eff	per 1,000 inhab stand.	per 1,000 inhab. eff	per 1,000 inhab stand.
Italy	11.04	11.04	1.79	1.79	4.49	4.49
Piemonte	12.93	12.17	1.98	1.86	4.86	4.57
Valle d'Aosta	16.06	15.75	2.38	2.33	5.42	5.32
Lombardia	9.59	9.62	1.33	1.33	3.73	3.74
P. A. Bolzano	16.51	17.78	1.78	1.92	5.76	6.20
P. A. Trento	13.93	14.15	1.74	1.76	5.36	5.44
Veneto	12.10	12.17	1.59	1.60	5.31	5.34
Friuli V. G.	14.29	13.33	1.88	1.75	5.93	5.53
Liguria	13.50	11.74	2.08	1.81	5.79	5.03
Emilia Romagna	13.16	12.31	1.91	1.79	5.67	5.30
Toscana	13.56	12.55	2.03	1.88	5.84	5.40
Umbria	12.32	11.42	2.10	1.94	5.39	4.99
Marche	11.72	11.06	1.84	1.74	5.13	4.84
Lazio	8.80	8.90	1.72	1.74	3.71	3.74
Abruzzo	12.01	11.64	2.16	2.09	5.11	4.96
Molise	12.58	12.07	2.26	2.17	5.06	4.86
Campania	9.60	10.75	1.87	2.10	3.90	4.37
Puglia	8.71	9.25	1.56	1.66	3.44	3.65
Basilicata	11.13	11.20	1.89	1.90	4.76	4.80
Calabria	11.51	11.99	2.16	2.25	4.29	4.47
Sicilia	9.53	10.01	1.96	2.06	3.62	3.80
Sardegna	12.45	12.91	2.26	2.34	4.89	5.07

Source: our processing of ISTAT and Ministry of Health data

The nationwide average of medical staff per resident population is about 1.8 per 1,000 population, with a minimum of 1.6 in Puglia and a maximum of 2.4 per 1,000 population in Valle d'Aosta.

2.3.1 Public hospital staff

According to the definition by the Ministry of Health⁵, public hospital staff includes the employees (under open-ended employment contracts) of hospitals and other care facilities under the direct control of the Local Health Authorities, and special hospitals such as teaching hospitals, research hospitals, classified hospitals, private hospitals with public care status and research institutions. In 2006 (for which the latest data are available), the public hospital system had 546,503 employees (-1.3% compared to 2005, with average annual variation between 2000 and 2005 of +0.2%), of which 102,390 were physicians and dentists (-1.6% compared to 2005 and +1.5% as the average annual variation in 2000-2005) and 238,487 nurses (+3.6% if compared to the figure surveyed in 2005, while in 2000-2005 the average annual variation was -0.5%) (tables 2.19, 2.20 and 2.21).

⁵ See by the Ministry of Health, "Il Personale delle ASL e degli Istituti di cura pubblici" Year 2006.

In this case too there are considerable regional difference. Piemonte is the Region that, between 2005 and 2006, featured the highest staff increase, at +6.3%, while the Autonomous Province of Bolzano recorded the highest staff reduction -19.4%.

The breakdown by medical/dental and nursing staff too varies significantly, region by region. While the medical/dental staff varied between +6.4% in Basilicata and -11.4% in the Autonomous Province of Bolzano, other staff, including nurses, dropped considerably, by -14.7%, in the Autonomous Province of Bolzano, but increased by 20.2% in Piemonte.

Table 2.19: Number of employees in Public Structures - Year 2006

Regions	Total	Health Care			Profession.	Technic.	Administr.
		Total	Medical and Dental Staff	Other health professionals, mostly nurses			
Italy	546,503	397,708	102,390	238,487	979	99,722	43,530
Piemonte	44,503	31,180	7,911	18,188	79	8,816	4,142
Valle d'Aosta	1,166	930	258	513	2	155	79
Lombardia	101,077	67,561	15,717	40,371	220	22,249	10,508
P. A. Bolzano	5,337	3,563	763	2,187	15	1,291	411
P. A. Trento	5,359	3,480	740	2,211	7	1,462	409
Veneto	41,133	29,230	6,402	18,879	65	8,295	3,228
Friuli V. G.	14,952	10,246	2,220	6,304	26	3,402	1,167
Liguria	19,746	15,025	3,592	9,254	27	3,109	1,536
Emilia Romagna	39,538	30,339	7,063	18,294	59	6,538	2,440
Toscana	33,525	26,762	6,672	16,468	45	4,491	1,767
Umbria	7,962	6,169	1,645	3,722	17	1,131	405
Marche	14,231	11,091	2,682	6,844	11	2,132	910
Lazio	55,832	41,353	11,672	24,215	116	8,120	5,268
Abruzzo	12,284	9,122	2,253	5,819	14	2,096	738
Molise	3,347	2,673	744	1,484	7	577	81
Campania	43,382	32,407	9,839	18,840	62	7,316	3,148
Puglia	28,794	21,530	5,936	12,988	62	5,095	2,025
Basilicata	4,968	3,821	931	2,391	6	904	237
Calabria	15,841	11,762	3,368	7,037	34	2,586	1,454
Sicilia	39,411	28,757	9,021	16,158	81	7,346	2,965
Sardegna	14,115	10,707	2,961	6,320	24	2,611	612

Source: Ministry of Health data

Having regard to non-medical staff in public hospitals, there was a significant drop in the number of MIDE technicians, as in the case of the national health service (-3.1% the average annual variation in 2005-2000 and -4.9% between 2006 and 2005). The professional and administrative staff, which had grown in the years between 2000 and 2005 (with average annual variation of +0.6% and +3.1%, respectively) dropped by -5.0% and -0.2%, respectively, the following year.

Table 2.20: Employees in Public Structures, % Variation – Years 2006-2005

Regions	Total	Health Care			Profession.	Technic.	Administr.
		Total	Medical and Dental Staff	Other health professionals, mostly nurses			
Italy	-1.30	-0.42	-1.57	3.58	-5.04	-4.87	-0.23
Piemonte	6.34	10.32	5.72	20.22	-1.25	-3.61	0.93
Valle d'Aosta	-3.32	-0.75	1.98	2.19	100.00	-19.27	3.95
Lombardia	-0.16	0.93	-0.97	5.02	-2.65	-2.23	0.09
P. A. Bolzano	-19.45	-15.47	-11.38	-14.74	-25.00	-20.55	-43.54
P. A. Trento	2.82	2.56	3.50	11.22	0.00	4.65	-1.21
Veneto	-4.23	-5.74	-7.11	-0.82	4.84	-2.42	4.16
Friuli V. G.	5.01	5.05	-2.59	11.40	4.00	1.86	9.17
Liguria	6.13	5.56	4.15	8.12	-35.71	9.86	6.08
Emilia Romagna	-6.30	-6.72	-7.48	-4.38	-11.94	-4.23	-5.97
Toscana	-7.05	-5.58	-7.13	-2.77	-32.84	-15.10	-4.74
Umbria	-0.13	-0.66	-0.42	2.22	-10.53	-0.70	-3.34
Marche	1.61	2.17	3.83	4.90	-26.67	-0.98	2.02
Lazio	-2.66	-1.48	-1.12	5.29	8.41	-8.18	0.61
Abruzzo	1.67	3.45	-1.92	8.26	-12.50	-6.43	7.74
Molise	0.03	-0.48	-0.40	4.73	250.00	-0.69	15.71
Campania	0.10	1.76	1.11	3.77	-15.07	-6.52	-0.19
Puglia	-6.68	-5.58	-6.61	-4.75	-7.46	-12.05	-3.30
Basilicata	5.03	3.21	6.40	10.08	20.00	13.00	6.28
Calabria	3.78	6.10	4.92	10.04	13.33	-7.41	7.86
Sicilia	-2.73	-1.34	-2.41	2.73	10.96	-8.67	-1.13
Sardegna	0.44	0.65	1.82	0.96	-11.11	-3.87	-1.77

Source our processing of Ministry of Health data

There are, on average, 2.6 employees per bed (as in 2005), 1.9 of which are medical staff (unchanged compared to 2005). Here too the figures change geographically. While Molise and Puglia have 2 employees (of which 1.6 a medical staff member) per bed, the Region with the least availability, Friuli Venezia Giulia, has 3 employees (of which 2.1 a medical staff member) per bed (table 2.22).

**Table 2.21: Employees in Public Structures, % annual average variation
Years 2005-2000**

Regions	Total	Health Care			Profession.	Technic.	Administr.
		Total	Medical and Dental Staff	Other health professionals, mostly nurses			
Italy	0.16	0.67	1.50	-0.47	0.57	-3.10	3.09
Piemonte	-2.05	-2.41	-0.67	-4.61	-2.33	-2.68	1.06
Valle d'Aosta	-2.09	1.90	4.30	0.36	-12.94	-13.65	-2.21
Lombardia	0.17	0.25	1.04	-1.08	2.27	-1.64	3.13
P. A. Bolzano	5.60	4.83	5.75	2.25	5.92	1.48	30.41
P. A. Trento	-1.89	-1.62	-0.30	-3.51	18.47	-2.64	-1.70
Veneto	-1.86	-2.16	-1.12	-3.56	-2.40	-2.22	1.09
Friuli V. G.	-0.32	-1.00	1.55	-2.76	-0.78	-0.36	6.40
Liguria	-1.22	-0.07	0.27	-0.32	5.59	-7.88	4.00
Emilia Romagna	1.89	2.32	2.35	1.77	0.92	-0.70	2.68
Toscana	0.50	0.92	1.90	0.16	14.53	-4.21	4.49
Umbria	1.32	2.10	0.28	2.57	-1.98	-3.48	-0.42
Marche	1.16	1.87	1.40	1.72	-8.19	-4.31	7.69
Lazio	1.81	2.89	3.40	1.24	0.96	-4.79	4.37
Abruzzo	0.15	0.68	2.26	-0.21	-7.79	-4.83	3.67
Molise	2.48	3.74	4.41	2.12	-16.74	-2.46	2.46
Campania	1.08	1.91	3.01	0.63	-0.80	-3.19	3.76
Puglia	-1.77	-0.83	0.16	-1.62	-3.72	-5.68	0.39
Basilicata	1.26	3.45	2.51	2.33	4.56	-5.74	-0.96
Calabria	0.19	1.52	2.06	1.07	-1.28	-5.48	5.59
Sicilia	0.72	1.98	2.07	1.37	2.67	-2.66	0.91
Sardegna	0.39	1.54	2.07	1.29	-3.34	-4.32	5.98

Source: our processing of Ministry of Health data

In 2006, the average nurse to doctor ratio stood at 2.3 (+0.1 compared to 2005). The Regions with the lowest nurse to doctor ratio are Sicilia (1.8), Campania (1.9), Molise (2.0) and Valle d'Aosta (2.0), while those with the highest ratio are the Autonomous Province of Bolzano (2.9), Veneto (2.9), the Autonomous Province of Trento (3.0), Friuli Venezia Giulia (2.8).

Table 2.22: Employees by beds in Public Structures - Years 2006 and 2005

Regions	Total		Health Care		Medical and Dental Staff		Nurses Staff		Nurse/Doctors	
	2005	2006	2005	2006	2005	2006	2005	2006	2005	2006
Italy	2.58	2.55	1.86	1.86	0.49	0.48	1.07	1.11	2.21	2.33
Piemonte	2.73	2.90	1.84	2.03	0.49	0.52	0.99	1.19	2.02	2.30
Valle d'Aosta	2.58	2.50	2.01	1.99	0.54	0.55	1.07	1.10	1.98	1.99
Lombardia	2.87	2.87	1.90	1.92	0.45	0.45	1.09	1.14	2.42	2.57
P. A. Bolzano	3.34	2.69	2.12	1.79	0.43	0.38	1.29	1.10	2.98	2.87
P. A. Trento	2.48	2.55	1.61	1.66	0.34	0.35	0.95	1.05	2.78	2.99
Veneto	2.25	2.15	1.62	1.53	0.36	0.34	1.00	0.99	2.76	2.95
Friuli V. G.	2.87	3.01	1.97	2.06	0.46	0.45	1.14	1.27	2.48	2.84
Liguria	2.49	2.64	1.91	2.01	0.46	0.48	1.15	1.24	2.48	2.58
Emilia Romagna	2.51	2.35	1.93	1.80	0.45	0.42	1.14	1.09	2.51	2.59
Toscana	2.66	2.47	2.09	1.97	0.53	0.49	1.25	1.21	2.36	2.47
Umbria	2.47	2.47	1.92	1.91	0.51	0.51	1.13	1.15	2.20	2.26
Marche	2.50	2.55	1.94	1.98	0.46	0.48	1.17	1.22	2.53	2.55
Lazio	2.70	2.63	1.98	1.95	0.56	0.55	1.08	1.14	1.95	2.07
Abruzzo	2.24	2.28	1.64	1.69	0.43	0.42	1.00	1.08	2.34	2.58
Molise	2.07	2.07	1.66	1.65	0.46	0.46	0.88	0.92	1.90	1.99
Campania	2.94	2.94	2.16	2.20	0.66	0.67	1.23	1.28	1.87	1.91
Puglia	2.25	2.10	1.66	1.57	0.46	0.43	0.99	0.95	2.15	2.19
Basilicata	1.91	2.01	1.50	1.55	0.35	0.38	0.88	0.97	2.48	2.57
Calabria	2.63	2.73	1.91	2.03	0.55	0.58	1.10	1.21	1.99	2.09
Sicilia	2.41	2.35	1.74	1.71	0.55	0.54	0.94	0.96	1.70	1.79
Sardegna	2.15	2.16	1.63	1.64	0.44	0.45	0.96	0.97	2.15	2.13

Source: our processing of Ministry of Health data

2.4 Acute cases healthcare

2.4.1 Hospitalization rates in acute cases

In Italy, the average hospitalization rate for acute cases in inpatient care is 140.0 per 1,000 inhabitants. In particular, in the initial age the rate is 533.8 per 1,000 (healthy born infants not included); it decreases up to 66.0 hospitalizations per 1,000 inhabitants in the 1-14 age group and gradually increases up to 348.9 in the last age group (over 75). The analysis of hospitalization shows a considerable regional variability, especially in the first year of life: the highest hospitalization has been recorded in Liguria (682.1), Molise (674.9), Puglia (674.9) and Abruzzo (654.6). On the contrary, the lowest rates have been recorded in Valle d'Aosta (238.1), in the self-governing Province of Trento (345.9) and in Friuli Venezia Giulia (382.0).

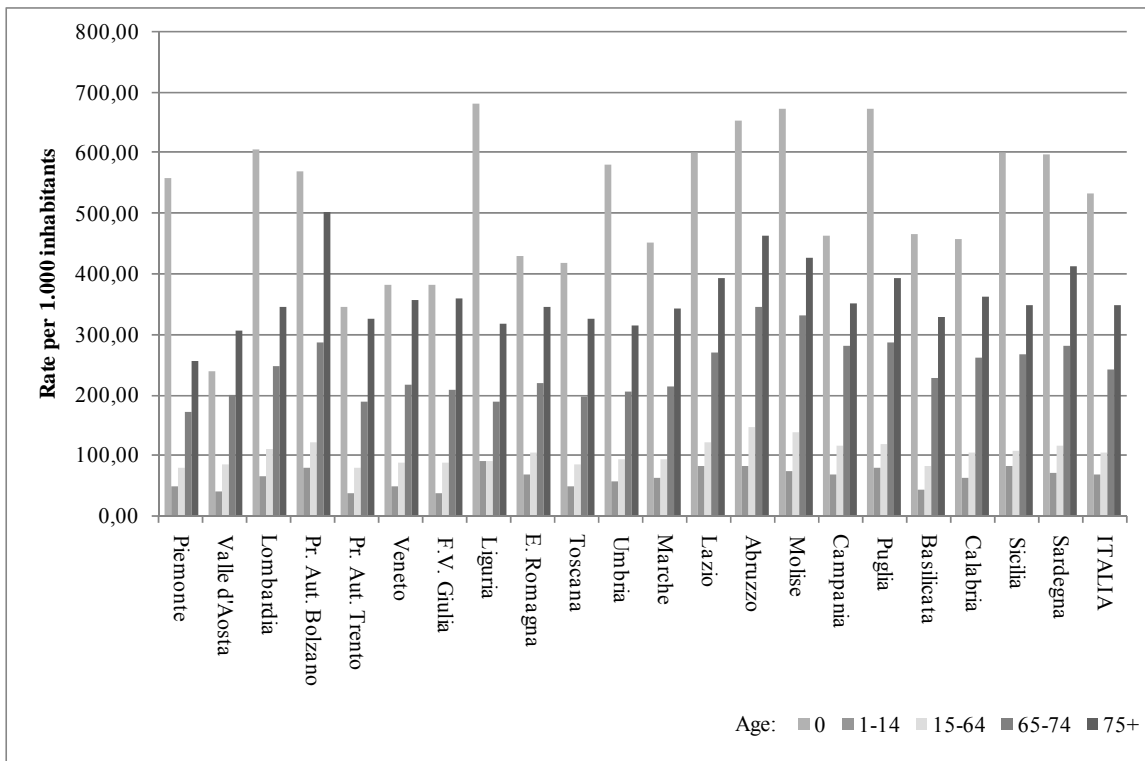
In the middle age group (15-64), on average, hospitalizations are 104,5 per 1000 inhabitants: this value almost doubles (240.3) in the 65-74 age group and triplicates (348.9) in the over 75 age group.

In this case, the variability among Regions is less significant: in fact, the range between 80 and 100 hospitalizations per 1,000 inhabitants includes 12 Regions. Extreme values have been recorded in Piemonte, where hospitalizations are 77.9 per 1,000 inhabitants and in Abruzzo, where hospitalizations are nearly the double (146.8 per 1,000) (figures 2.12 and 2.13).

As regards elderly people hospitalization, the self-governing Province of Bolzano reaches the highest rates (501.4), followed by Abruzzo (464.5), Molise (427.1) and Sardegna

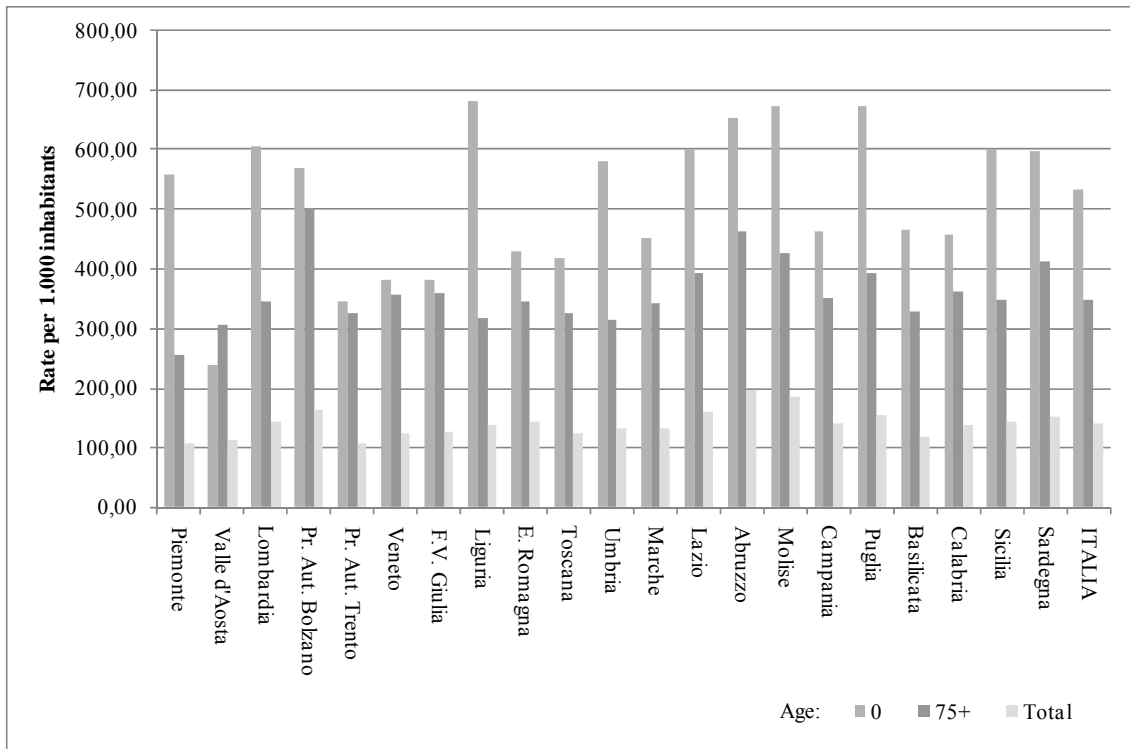
(412.8). On the whole, Central and Southern Regions show higher levels of elderly people hospitalization than Northern regions; Piemonte and Valle d'Aosta, for example, have lower rates, respectively of 254.6 e 305.9 per 1,000 inhabitants.

Figure 2.12: Hospitalization rate by age. Acute cases in inpatient care.
Values per 1,000 inhabitants - Year 2005



Source: CEIS Sanità processing of SDO data, Ministry of Health

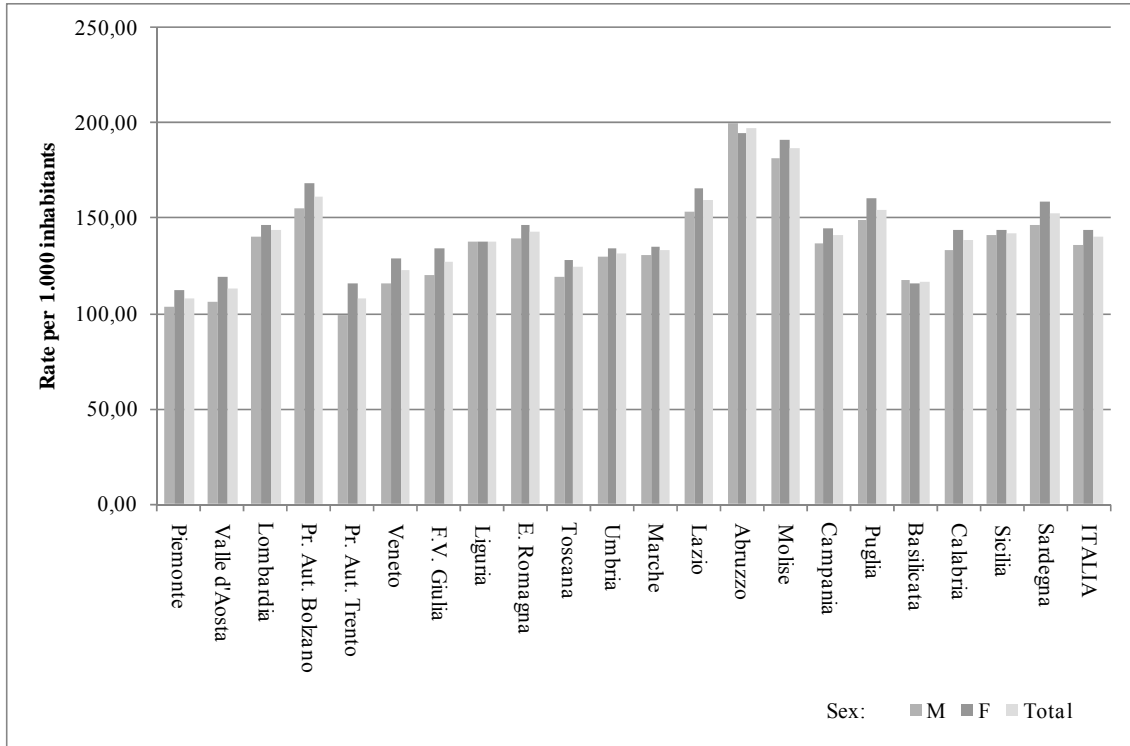
Figure 2.13: Hospitalization rate by persons aged 0 and 75+. Acute cases in inpatient care. Values per 1,000 inhabitants - Year 2005



Source: CEIS Sanità processing of SDO data, Ministry of Health

The analysis of hospitalization rate by sex shows a higher recourse to hospital healthcare in women of all Regions, with the exception of Abruzzo and Basilicata. On average, differences are more considerable in Northern Regions (figure 2.14).

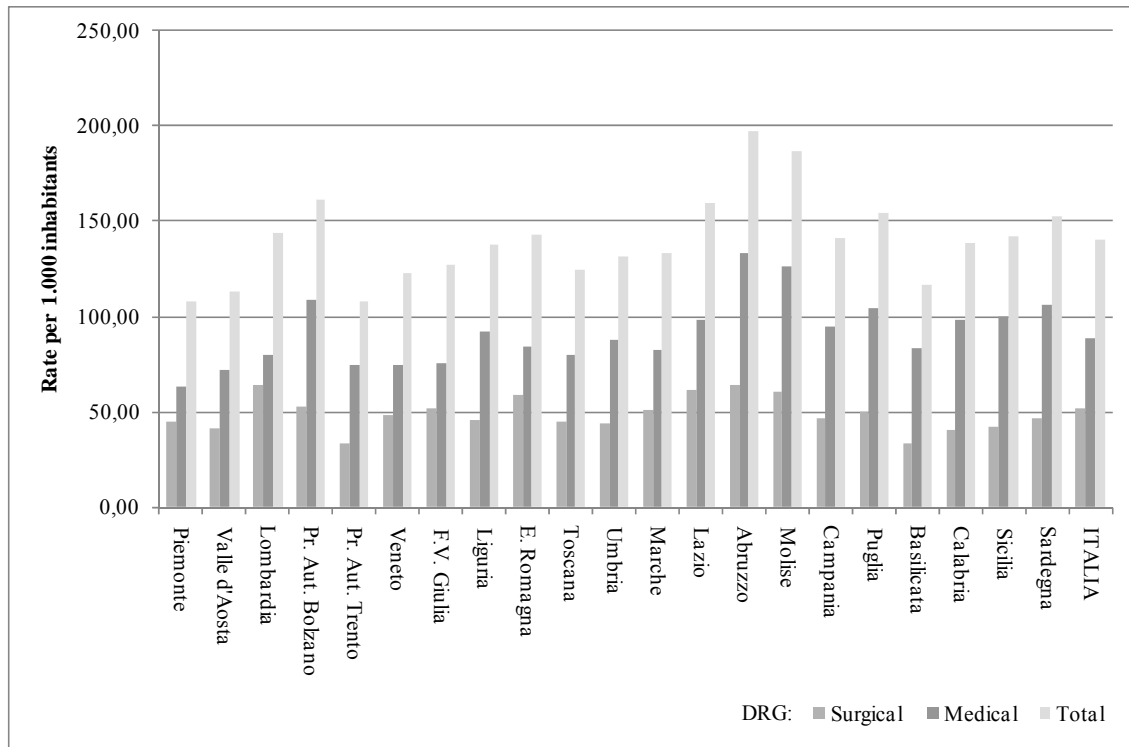
Figure 2.14: Hospitalization rate by sex. Acute cases in inpatient care. Values per 1,000 inhabitants - Year 2005



Source: CEIS Sanità processing of SDO data, Ministry of Health

In all Regions, hospitalization rates by medical DRGs are higher than surgical ones. In Northern Regions (with the exception of provinces of Trentino Alto Adige) there are unimportant differences between the two typologies, while differences substantially increase in Southern Regions. In fact, while in Lombardia and Piemonte the hospitalization rates concerning surgical DRGs are 21% and 28% lower than medical DRGs, in Basilicata, Calabria and Sicilia the percentage reaches 60% (figure 2.15).

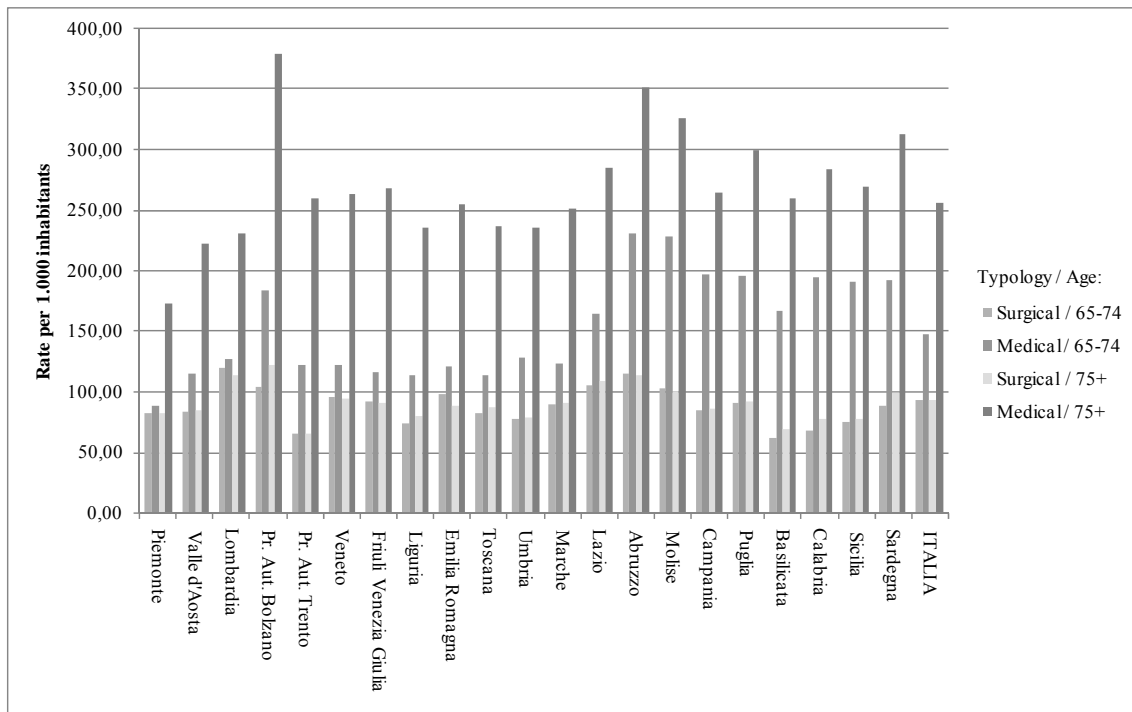
Figure 2.15: Hospitalization rate by DRG typology. Acute cases in inpatient care. Values per 1,000 inhabitants - Year 2005



Source: CEIS Sanità processing of SDO data, Ministry of Health

The differences between the hospitalization rates by DRG typology converged above all in elderly age groups: in Northern Regions they concern only the last age group, while in Southern Regions the gap between surgical and medical hospitalization is considerable in both elderly age groups (figure 2.16).

Figure 2.16: Hospitalization rate by DRG typology and age. Acute cases in inpatient care. Values per 1,000 inhabitants - Year 2005

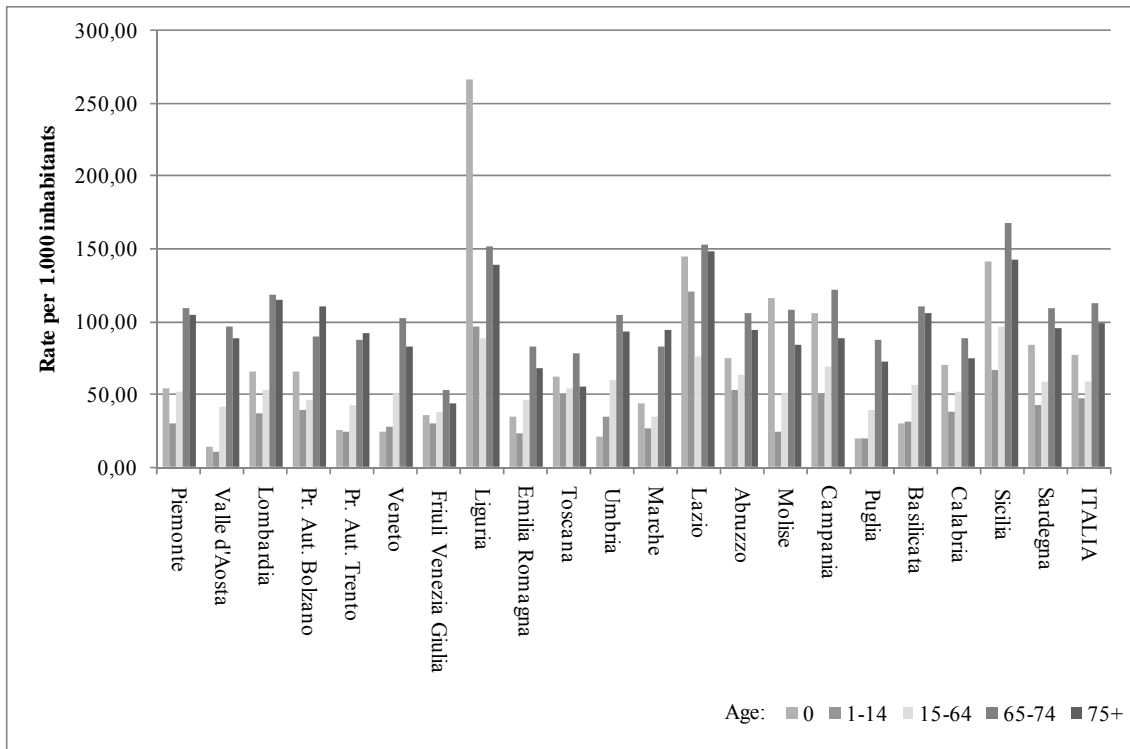


Source: CEIS Sanità processing of SDO data, Ministry of Health

In Italy, the day care rate is 66.8 hospitalizations per 1,000 inhabitants: specifically in the initial age the rate is 77.2, then it decreases in the teen-aged (47.2) and gradually increases with age, until reaching the maximum in the 65-74 range (112.4 hospitalizations per 1,000 inhabitants) (figure 2.17).

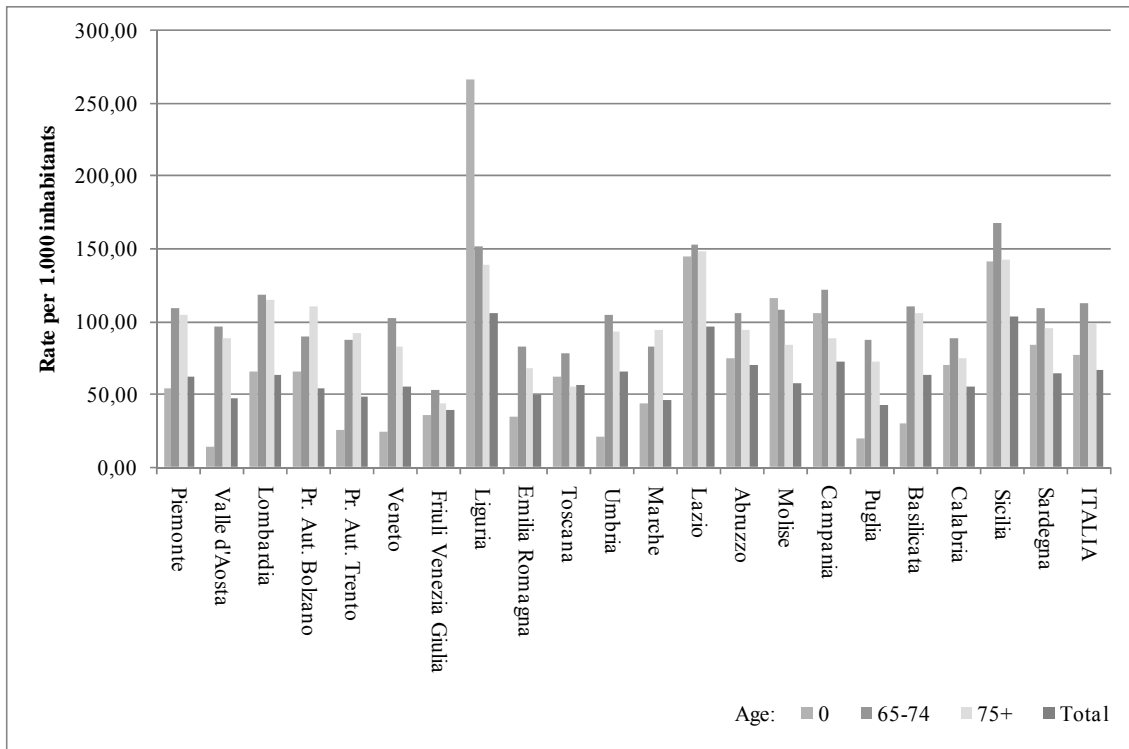
The Region with the highest hospitalization rate is Liguria (105.8 hospitalizations per 1,000 inhabitants), while the lowest rate in day care admission have been recorded in Friuli Venezia Giulia (39.1 hospitalizations per 1,000 inhabitants) (figure 2.18).

Figure 2.17: Hospitalization rate by age. Acute cases in day care.
Values per 1,000 inhabitants - Year 2005



Source: CEIS Sanità processing of SDO data, Ministry of Health

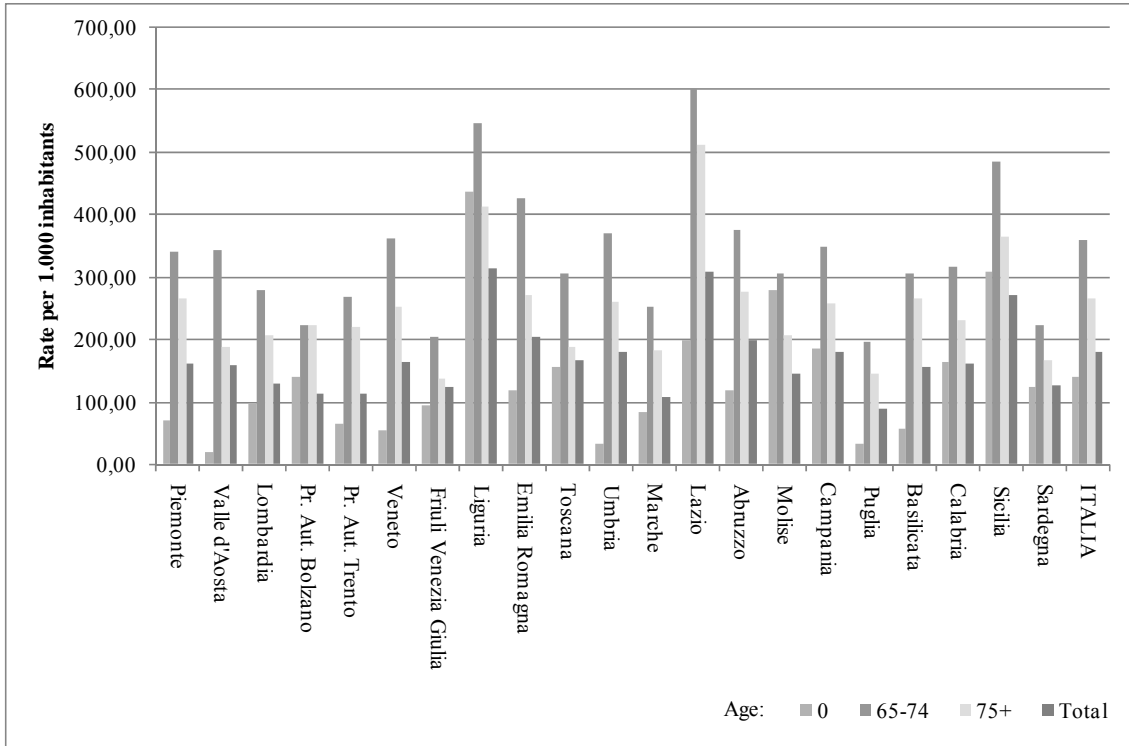
Figure 2.18: Hospitalization rate by persons aged 0 and 64+. Acute cases in day care. Values per 1,000 inhabitants - Year 2005



Source: CEIS Sanità processing of SDO data, Ministry of Health

The previous rankings are confirmed when analysing the number of day care admissions on the base of hospitalization rate in days of stay per 1,000 inhabitants. In particular, Liguria shows the highest number of admissions in the initial age (437.6 per 1,000 inhabitants), while Lazio shows the highest number of admissions in the elderly age groups (602.5 per 1,000 inhabitants in 65-74 age group and 512.8 per 1,000 inhabitants who are over 75) (figure 2.19).

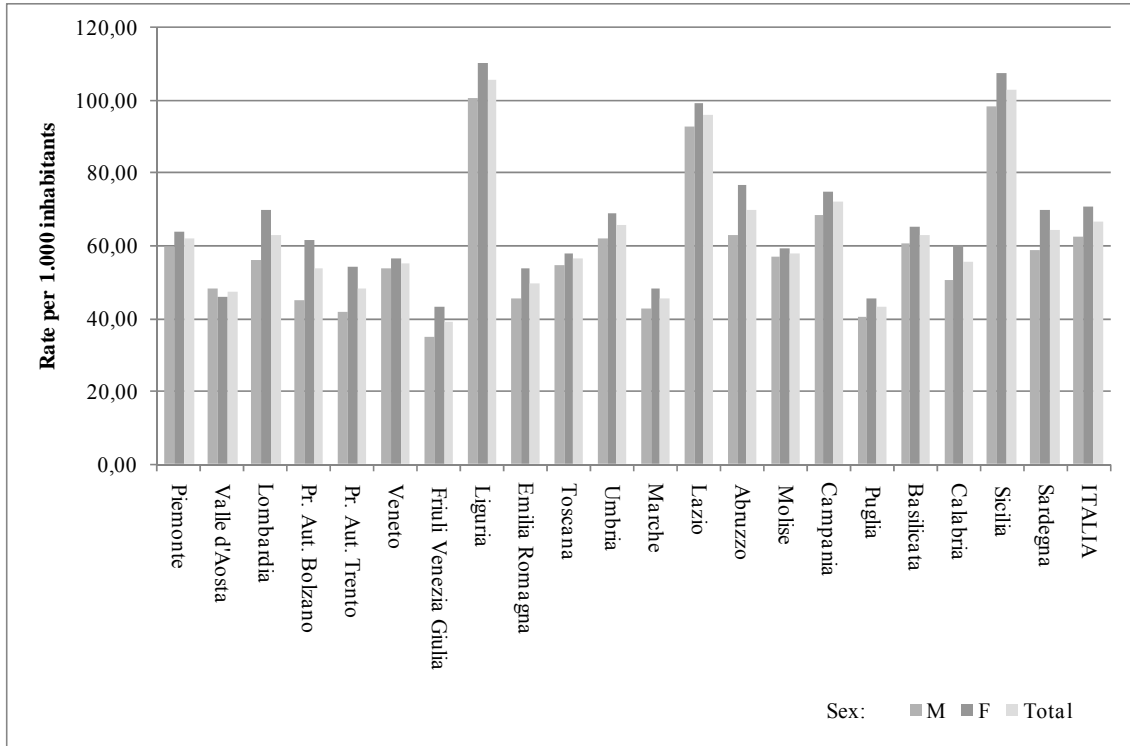
Figure 2.19: Hospitalization rate in days of stay by age. Acute cases in day care. Values per 1,000 inhabitants - Year 2005



Source: CEIS Sanità processing of SDO data, Ministry of Health

The analysis of the hospitalization rate by sex shows more day care admissions for women in all Regions, with the exception of Valle d'Aosta (figure 2.20).

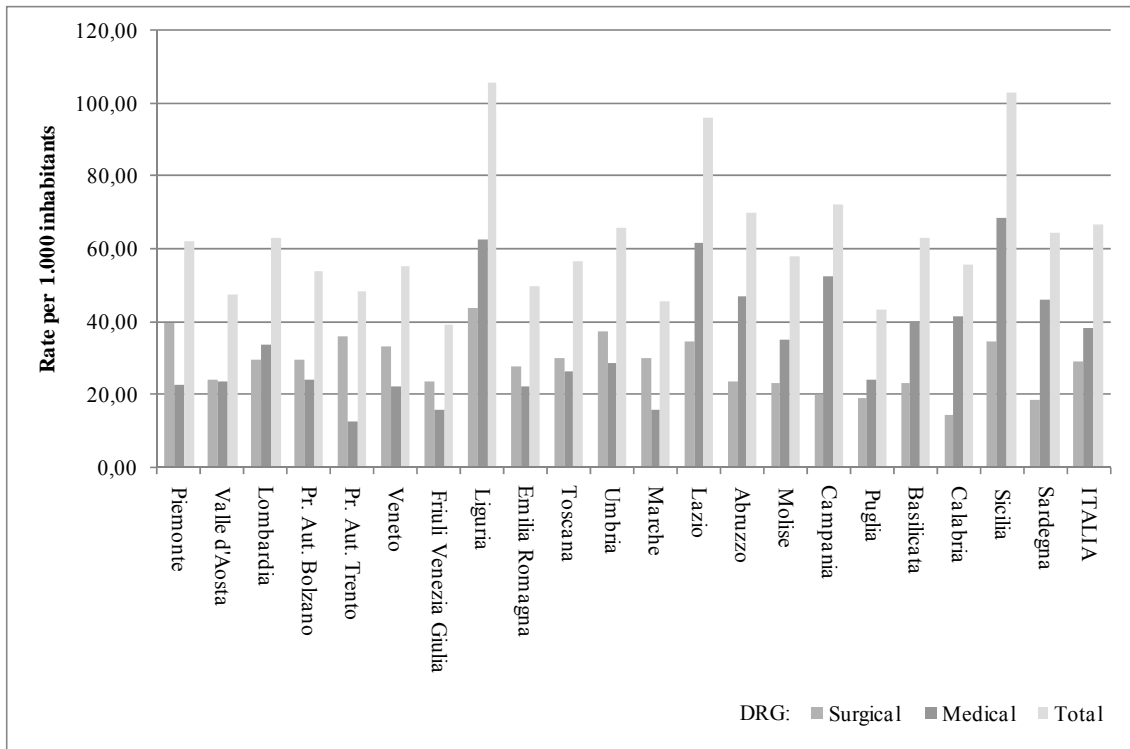
Figure 2.20: Hospitalization rate by sex. Acute cases in day care.
Values per 1,000 inhabitants - Year 2005



Source: CEIS Sanità processing of SDO data, Ministry of Health

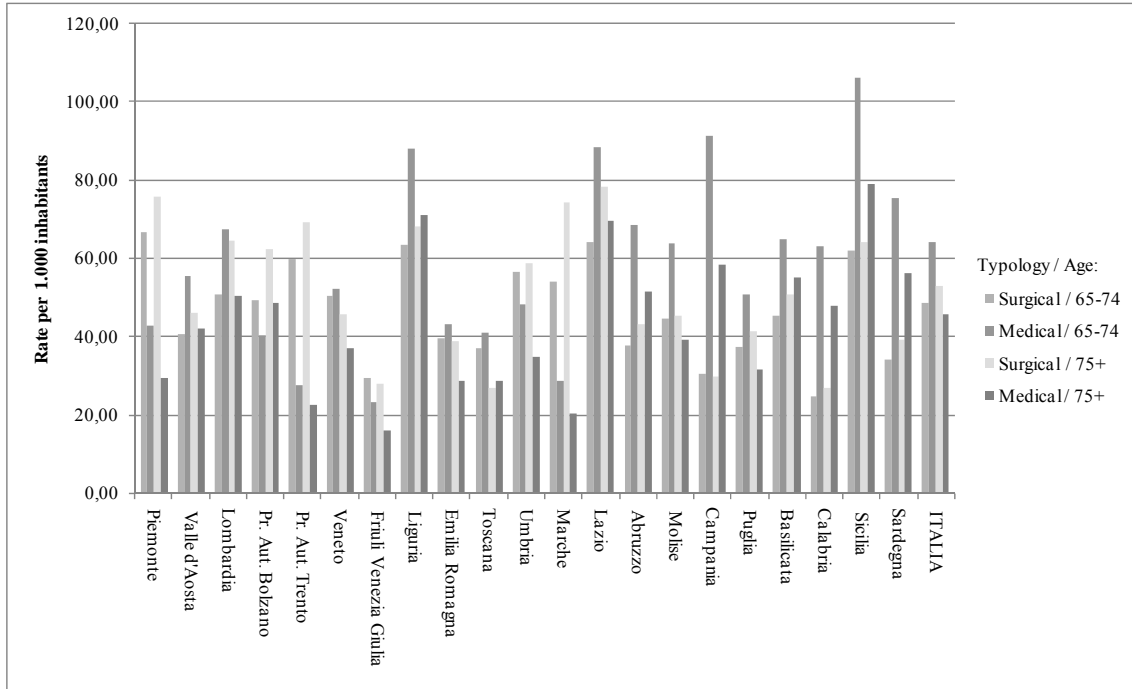
All Northern Regions, with the exception of Lombardia and Liguria, and Central Regions, with the exception of Lazio, show a higher number of day care for surgical DRGs than for medical DRGs, while Southern Regions have a lower recourse to day surgery and a very high recourse to day care. This datum suggests the hypothetical inappropriateness in all Southern Regions. The analysis of hospitalization rate by age confirms it: in Northern and Central Regions there is a considerable recourse to day surgery, above all in the last age group, and the rates for surgical DRGs are systematically lower in Southern Regions, with the exception of Puglia (figures 2.21 and 2.22).

Figure 2.21: Hospitalization rate by DRG typology. Acute cases in day care.
Values per 1,000 inhabitants - Year 2005



Source: CEIS Sanità processing of SDO data, Ministry of Health

Figure 2.22: Hospitalization rate by DRG typology and age. Acute cases in day care. Values per 1,000 inhabitants - Year 2005



Source: CEIS Sanità processing of SDO data, Ministry of Health

2.4.2 Average hospital stay and case-mix

The average hospital stay for inpatient hospitalization in acute cases is 6.7 days for each hospitalization. The highest values have generally been recorded in the Northern Regions, Valle d'Aosta (8.4), Piemonte (8.1) and Veneto (7.9); while Regions with the lowest stay in hospital are Campania, Sicilia and Abruzzo, where the average duration of stay is lower than 6 days for each hospitalization (table 2.23).

**Table 2.23: Average hospital stay by age. Acute hospitalization in inpatient care
Year 2005**

Regions	Age groups					Total
	0	1-14	15-64	65-74	75+	
Italy	6.25	3.65	5.64	7.98	9.05	6.73
Piemonte	6.03	3.74	6.8	9.48	10.77	8.08
Valle d'Aosta	6.73	2.73	6.09	10.28	12.64	8.41
Lombardia	6.06	3.61	5.28	7.7	9.22	6.47
P. A. Bolzano	6.27	2.79	5.65	8.03	9.61	6.76
P. A. Trento	6.41	3.21	6.12	9.28	10.58	7.75
Veneto	7.27	3.84	6.53	9.09	10.34	7.87
Friuli V. G.	7	3.1	5.61	8.48	9.9	7.43
Liguria	6.29	4.59	6.4	9.07	9.93	7.82
Emilia Romagna	6.53	3.59	5.42	7.59	8.72	6.63
Toscana	7.43	4.38	6.24	8.56	9.1	7.48
Umbria	5.28	3.25	5.19	7.58	7.97	6.3
Marche	6.39	3.54	5.48	7.93	9.36	6.95
Lazio	6.72	4.15	6.69	8.96	10.02	7.62
Abruzzo	5.9	3.63	4.94	7.09	7.75	5.99
Molise	5.07	3.48	5.94	8.54	9.35	7.14
Campania	6.34	3.09	4.69	6.91	7.41	5.45
Puglia	5.62	3.69	5.22	7.56	8.46	6.16
Basilicata	5.09	3.28	5.68	8.04	8.56	6.77
Calabria	5.87	3.36	5.43	7.61	8.13	6.31
Sicilia	5.79	3.57	5.16	6.87	7.5	5.82
Sardegna	6.4	3.85	5.83	7.87	8.52	6.66

Source: CEIS Sanità processing of SDO data, Ministry of Health.

The average hospital stay is closely related to the complexity of the cases treated.

The use of average weight (an indicator which describes the average hospitalizations complexity using the system of relative weights) shows that Northern Regions have a more severe casuistic, while Southern Regions have lower weights than the national reference.

In particular, Piemonte and Valle d'Aosta, that have the highest average duration of stay for each hospitalization, show higher average weights than the national average, (respectively 7% and 13%); similarly, Campania, which has the lowest average duration of stay, shows an average weight 12% lower than the national average (table 2.24).

**Table 2.24: Average weight by age and Region of residence.
Acute hospitalization in inpatient care - Year 2005**

Regions	Age groups			
	0-14	15-64	65+	Total
Italy	0.80	1.14	1.52	1.26
Piemonte	0.85	1.28	1.71	1.43
Valle d'Aosta	0.83	1.15	1.65	1.35
Lombardia	0.80	1.22	1.63	1.34
P. A. Bolzano	0.69	1.05	1.43	1.16
P. A. Trento	0.85	1.12	1.52	1.27
Veneto	0.92	1.22	1.60	1.36
Friuli V. G.	0.91	1.26	1.60	1.41
Liguria	0.94	1.29	1.65	1.43
Emilia Romagna	0.86	1.24	1.58	1.36
Toscana	0.96	1.26	1.67	1.44
Umbria	0.75	1.16	1.59	1.32
Marche	0.81	1.15	1.55	1.31
Lazio	0.83	1.12	1.47	1.23
Abruzzo	0.70	1.03	1.35	1.15
Molise	0.65	1.08	1.40	1.19
Campania	0.76	1.02	1.40	1.12
Puglia	0.75	1.03	1.43	1.14
Basilicata	0.77	1.08	1.45	1.22
Calabria	0.75	0.98	1.31	1.09
Sicilia	0.75	1.07	1.41	1.16
Sardegna	0.76	1.01	1.28	1.09

Source: CEIS Sanità processing of SDO data, Ministry of Health.

2.4.3 Value of production

In 2005, the value of national production for inpatient care in acute cases was slightly lower than € 27 bn (value obtained considering the national fares of 1997). Regions with a higher value obviously are Lombardia, Lazio, Campania and Sicilia, that altogether add up 44.5% of the Italian value of production.

The analysis of per capita value of production shows that Regions with higher costs per inhabitant are Abruzzo (€ 591.80) and Molise (€ 582.10), followed by Lazio (€ 520.95) and Liguria (€ 505.80). Lombardia, which takes up the highest share of total expense, has a per capita value of € 494.01, a value that is 7.4% higher than the national reference. On the contrary, Regions with the lowest per capita values of production are Piemonte (€ 395.69), Basilicata (€ 371.36) and the self-governing Province of Trento (€ 355.49) (table 2.25).

Table 2.25: Value of production by Region of residence. Acute cases in inpatient care. Year 2005

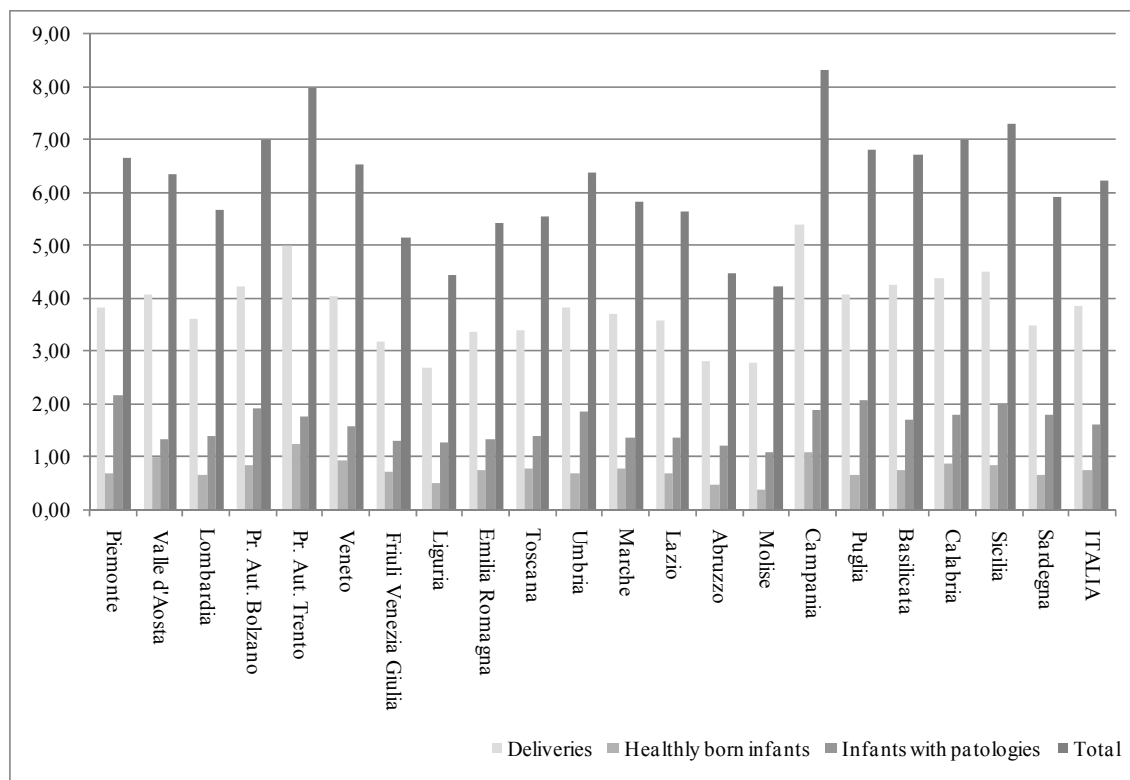
Regions	Value of Production	Share %	Per capita value of production
Italy	26,958,899,644.64	100	459.99
Piemonte	1,715,697,215.25	6.36	395.69
Valle d'Aosta	49,364,313.26	0.18	399.96
Lombardia	4,660,559,325.96	17.29	494.01
P. A. Bolzano	234,084,055.70	0.87	487.82
P. A. Trento	177,748,855.98	0.66	355.49
Veneto	2,031,497,374.76	7.54	430.48
Friuli V. G:	557,160,684.94	2.07	461.80
Liguria	809,905,243.23	3.00	505.80
Emilia Romagna	2,083,989,487.49	7.73	499.82
Toscana	1,651,632,114.42	6.13	457.63
Umbria	386,937,979.00	1.44	448.15
Marche	680,209,446.57	2.52	446.39
Lazio	2,754,454,375.12	10.22	520.95
Abruzzo	770,700,077.17	2.86	591.80
Molise	187,104,371.80	0.69	582.10
Campania	2,412,082,835.57	8.95	416.60
Puglia	1,883,313,451.42	6.99	462.75
Basilicata	221,075,481.92	0.82	371.36
Calabria	800,008,159.51	2.97	398.64
Sicilia	2,159,982,931.29	8.01	430.69
Sardegna	731,391,864.27	2.71	442.50

Source: CEIS Sanità processing of SDO data, Ministry of Health.

In order to evaluate the cost of the birth, the share of value of production concerning deliveries (DRGs from 370 to 375), healthy born infants (DRG 391) and infants with pathologies related to the delivery (DRGs from 385 to 390) was calculated.

In Italy the value of production assigned to births is 6,2% in all; in particular, the share assigned to deliveries is 3.9%, the share assigned to healthy born infants is 0,7% and the share assigned to new-born children with some pathology is 1.6%. Regions with higher shares of expense are Campania (8.3%), where the cost for deliveries is 5,4% of the total value of production, the self-governing Province of Trento (8%) and Sicilia (7.3%). Such a high cost of deliveries in Campania may be explained by the high percentage of births, but also by the high percentage of caesarean deliveries, which is equal to 60% of the total amount of deliveries in the Region (figure 2.23).

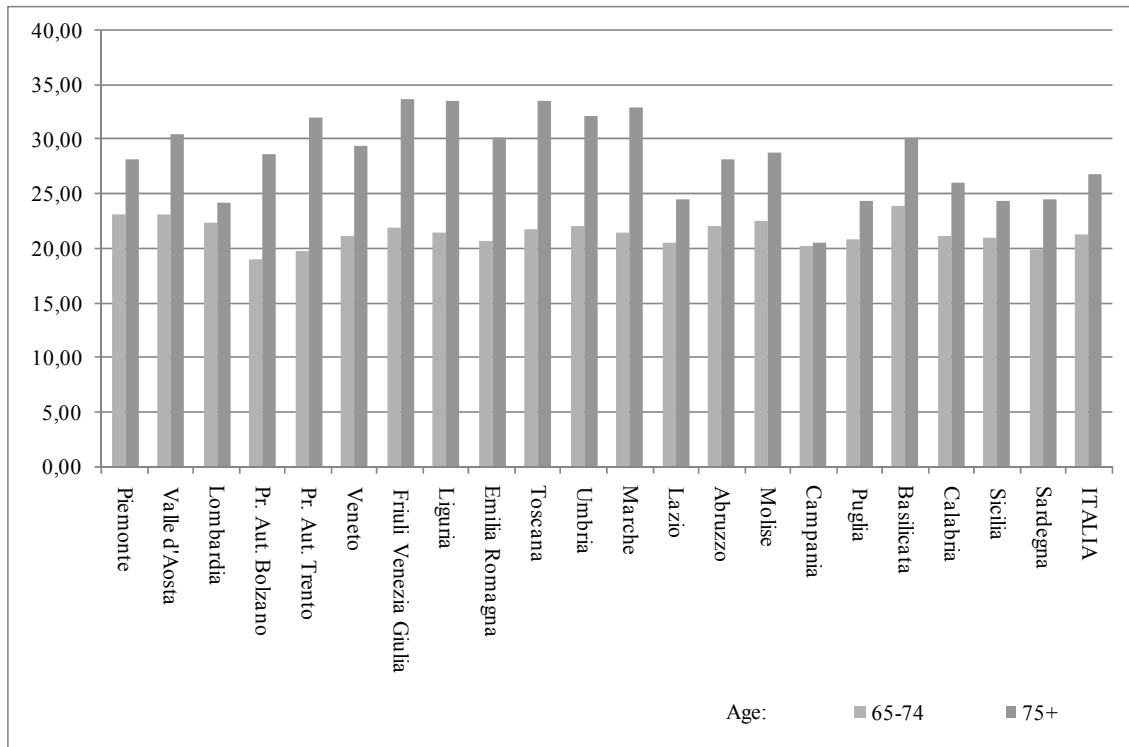
Figure 2.23: Share of birth value of production. Acute cases in inpatient care. Percentages - Year 2005



Source: CEIS Sanità processing of SDO data, Ministry of Health

In most Regions, the value of production assigned to elderly population (over 65) takes up the most substantial part of total costs. In Italy, 48.2% of the value of production converges to 65-74 and over 75 age groups (respectively 21.4% e 26.8%). Regions with higher percentages are Friuli Venezia Giulia (55.6%), Toscana (55.3%) and Liguria (55%); while Regions with lower values are Lazio and Puglia (45.1%), Sardegna (44.4%) and Campania (40.8%) (figure 2.24).

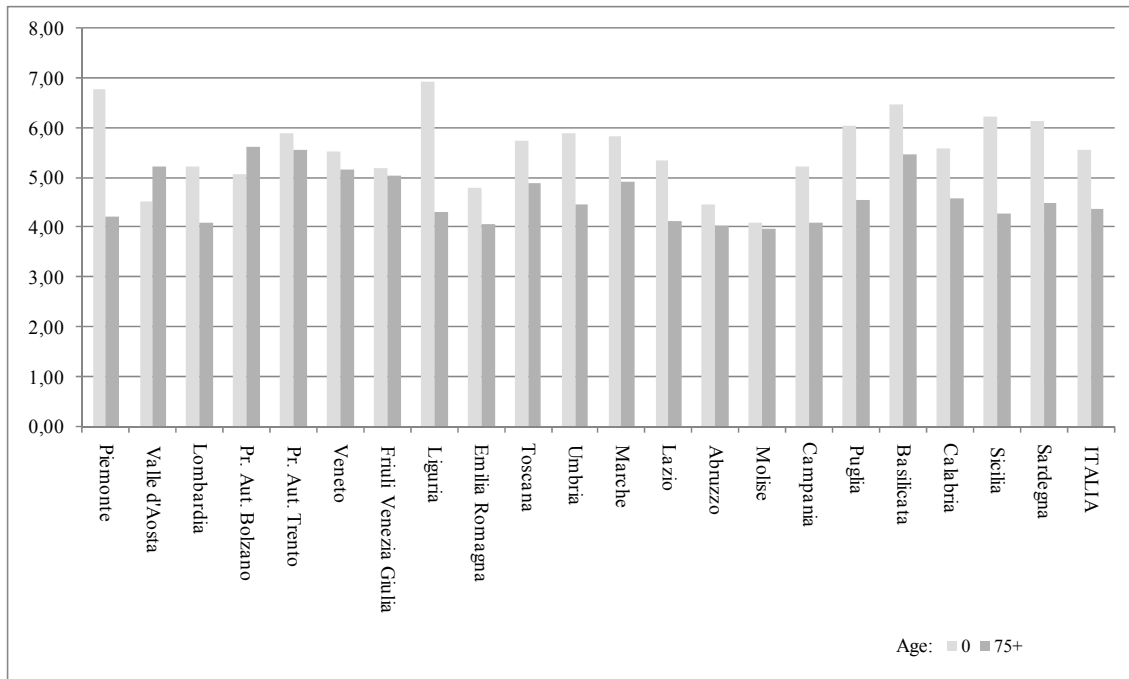
Figure 2.24: Share of value of production of persons over 65. Acute cases in inpatient care. Percentages - Year 2005



Source: CEIS Sanità processing of SDO data, Ministry of Health

Relating the value of production of each age group to the value of production of the middle age group, in proportion, Liguria appears the Region that assigns most expense to hospitalizations in initial age; the per capita value of production in this age group (healthy born infants included) is 7 times the value in the middle age group. Other Regions where initial age has a great importance are Piemonte (6.8), Basilicata (6.5) and Sicilia (6.2). As regards people over 75, Regions where this factor is more important are self-governing Provinces of Trento and Bolzano (5.6), Basilicata (5.5), Valle d’Aosta and Veneto (5.2) (figure 2.25).

Figure 2.25: Per capita value of production by age 0. 75+. Acute cases in inpatient care. Age 15-64 = 1 - Year 2005

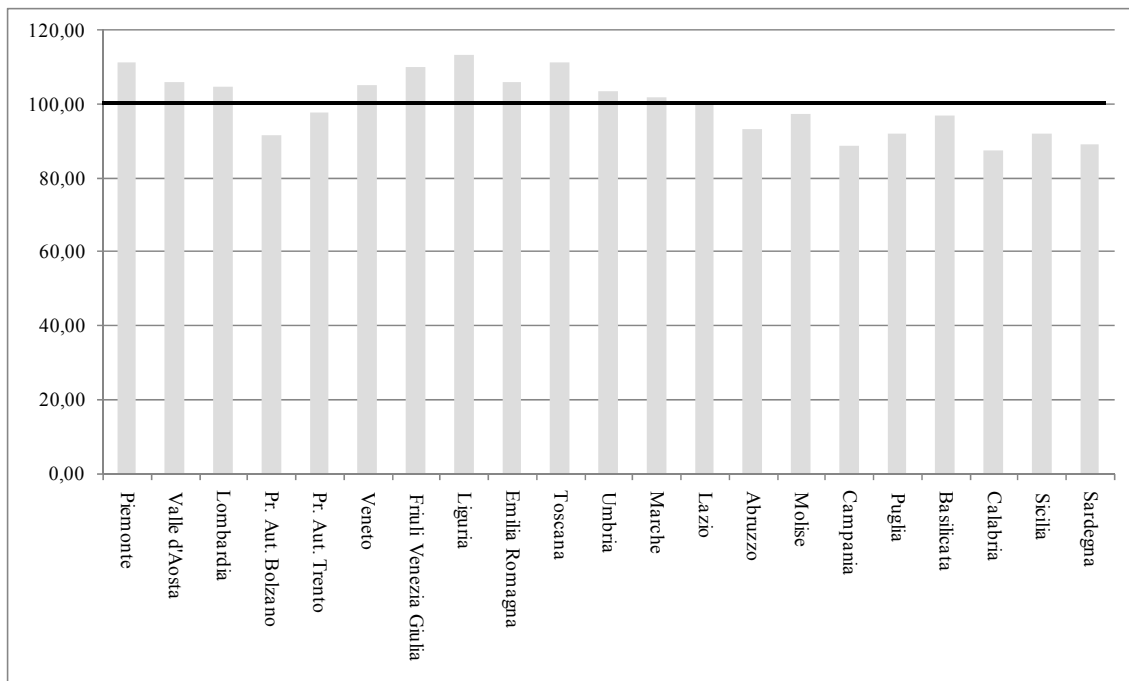


Source: CEIS Sanità processing of SDO data, Ministry of Health

Northern Regions, with the exception of self-governing Provinces of Trento and Bolzano, have an expense for hospitalization higher than the national average, which indicates a generally more complex casuistic. On the contrary, Southern Regions have systematically lower values than the national average.

Regions with higher costs for hospitalization are Liguria (+13.2% than the national reference), Piemonte (+11.5%), Toscana (+11.4%) and Friuli Venezia Giulia (+10.1%), while Regions with lower values are Sardegna (-10.6%), Campania (-11.3%) and Calabria (-12.4%) (figure 2.26).

Figure 2.26: Value of production for hospitalization. Acute cases in inpatient care. Italy=100 - Year 2005



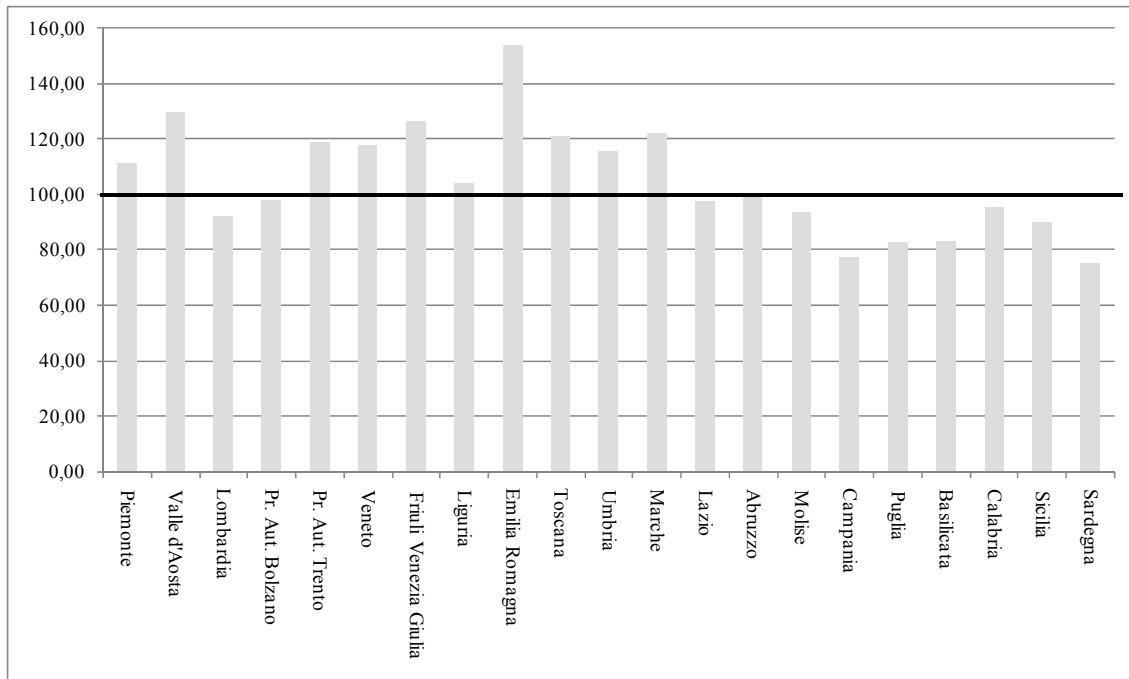
Source: CEIS Sanità processing of SDO data, Ministry of Health

As regards day care for acute cases, in 2005 the value of national production was € 4 bn, nearly 13,1% of the total expense for inpatient care for acute patients (healthy born infants excluded).

Day care shows a territorial difference on the basis of treated cases complexity too: Northern Regions (with the exception of Lombardia and the self-governing Province of Bolzano) have expenses for hospitalization systematically higher than Southern Regions.

The highest index has been recorded in Emilia Romagna, where the cost for hospitalization is 53.6% higher than the national average, in Valle d'Aosta (+29.5%) and in Friuli Venezia Giulia (+26.4%). Regions with lower values of production are Basilicata (-16.8%), Puglia (-17.3%), Campania (-22.7%) and Sardegna (-25.1%) (figure 2.27).

Figure 2.27: Value of production for hospitalization. Acute cases in day care. Italy=100 - Year 2005



Source: CEIS Sanità processing of SDO data, Ministry of Health

2.4.4 Appropriateness

Hospitalizations at risk of inappropriateness are 24.1% of the total amount of hospitalizations (inpatient care and day care); in particular for the inpatient care the percentage is 16.9% of the cases, while for day care it raises up to 39.2%.

The analysis of every single Region shows a higher percentage of inpatient care at risk of inappropriateness in Southern and Central Regions; Sardegna, Abruzzo, Calabria and Campania have percentages higher than 20%, while Northern Regions the percentages are generally lower than 13% (7.8 in Valle d'Aosta).

In the case of day care, the difference between Northern and Southern Italy is less definite, even if most Southern Regions show higher levels than the national level (with the exception of Sardegna and Campania), which shows a greater development of discharge from the hospital in Northern Italy (table 2.26).

**Table 2.26: Hospitalizations at risk of inappropriateness.
Percentages on total acute hospitalizations - Year 2005**

Regions	Inpatient Care	Day Care	Mean
Italy	16.9	39.2	24.09
Piemonte	12.0	42.3	23.05
Valle d'Aosta	7.8	38.4	16.82
Lombardia	18.1	38.8	24.41
P. A. Bolzano	18.9	45.0	25.43
P. A. Trento	12.1	45.2	22.36
Veneto	13.2	37.0	20.60
Friuli V. G.	13.2	37.8	18.99
Liguria	11.3	38.4	23.07
Emilia Romagna	14.0	33.4	19.02
Toscana	10.3	32.7	17.25
Umbria	14.1	41.5	23.22
Marche	14.9	47.4	23.21
Lazio	18.2	42.5	27.36
Abruzzo	22.7	38.8	26.94
Molise	19.0	48.4	25.96
Campania	20.9	35.1	25.70
Puglia	18.8	48.4	25.23
Basilicata	14.7	40.2	23.66
Calabria	20.7	39.2	26.00
Sicilia	17.4	39.5	26.70
Sardegna	23.2	36.7	27.19

Source: CEIS Sanità processing of SDO data, Ministry of Health

In Italy the value of production for acute cases in inpatient care concerning potentially inappropriate hospitalizations is € 2.7 bn, nearly 10.4% of the total value (healthy born excluded). Regions with the highest costs share are Sardegna (15.8%), Abruzzo (15.2%) and Calabria (14.2%), while Regions with the lowest percentages are Liguria (6.4%), Toscana (5.9%) and Valle d'Aosta (4.4%) (table 2.27).

**Table 2.27: Value of production for potentially inappropriate hospitalizations.
Acute cases in inpatient care - Year 2005**

Regions	Value of production	Share %
Italy	2,783,546,215.21	10.4
Piemonte	118,473,976.70	6.95
Valle d'Aosta	2,171,665.63	4.44
Lombardia	494,930,933.20	10.69
P. A. Bolzano	29,610,064.81	12.76
P. A. Trento	13,757,093.80	7.84
Veneto	160,035,653.84	7.95
Friuli .V. G.	43,754,794.55	7.91
Liguria	51,432,932.61	6.38
Emilia Romagna	175,449,019.52	8.48
Toscana	96,636,142.03	5.90
Umbria	33,527,750.11	8.73
Marche	61,447,080.71	9.10
Lazio	311,053,289.91	11.37
Abruzzo	116,447,643.57	15.18
Molise	22,666,168.87	12.16
Campania	326,274,223.57	13.67
Puglia	230,215,537.28	12.30
Basilicata	20,413,697.70	9.30
Calabria	112,484,417.13	14.18
Sicilia	248,035,182.82	11.58
Sardegna	114,728,946.85	15.79

Source: CEIS Sanità processing of SDO data, Ministry of Health.

2.4.5 Tariff policies

The present work only considers the tariffs concerning performances in inpatient care for acute cases, healthy born infants included. As a lot of Regions have subdivisions in groups by healthcare facilities, in order to have comparable data, rates concerning intermediate facilities without complexity were used (table 2.28).

Table 2.28: Current Regional resolutions, and grouper version

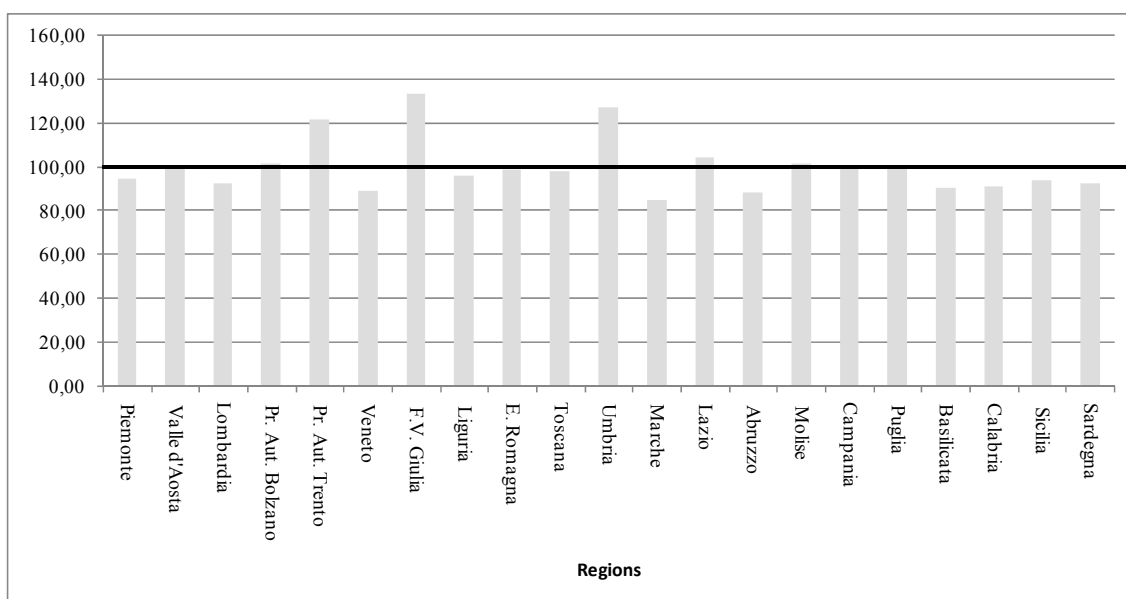
Regions	D.G.R.	Grouper HCFA Version
Piemonte	D.G.R. 44-2139 del 07/02/2006	19°
Valle d'Aosta	D.G.R. 4986 del 30/12/2004	19°
Lombardia	D.G.R. 5743 del 31/10/2007	19°
P. A. Bolzano	D.G.P. 4289 del 10/12/2007	19°
P. A. Trento	D.G.P. 546 del 07/3/2008	19°
Veneto	D.G.R. 916 del 28/3/2006	19°
Friuli V. G.	D.G.R. 780 del 13/04/2006	19°
Liguria	D.G.R. 83 del 1/02/2005	19°
Emilia Romagna	D.G.R. 1920 del 10/12/2007	19°
Toscana	D.G.R. 1404 del 27/12/2004	19°
Umbria	D.G.R. 2019 del 22/11/2006	19°
Marche	D.G.R. 2265 del 23/12/2002	14°
Lazio	D.G.R. 436 del 19/06/2007	19°
Abruzzo	D.G.R. 658 del 09/07/2007	19°
Molise	D.G.R. 111 del 09/02/2007	10°
Campania	D.G.R. 7269 del 27/12/2001	19°
Puglia	D.G.R. 1464 del 3/10/2006	19°
Basilicata	D.G.R. 2686 del 21/12/2005	19°
Calabria	D.G.R. 331 del 1/06/2007	19°
Sicilia	D.A. 2230 del 18/10/2007	19°
Sardegna	D.G.R. 9 del 9/03/2005	10°

Source: Sanidata: D.G.R. and L.R..

Both Molise and Sardegna use HCFA grouper version 10 and Marche uses version 14: the regional rates are therefore not completely comparable.

While calculating the national average, as Ministry adopts the HCFA grouper version 10, we do not consider no longer valid, modified or added ex-novo DRGs in version 19th (figure 2.28).

Figure 2.28: Average regional fare, Italy=100



Source: CEIS Sanità processing of SDO data, Ministry of Health, D.G.R. and L.R.

The calculation of average regional rate shows a considerable variability in remuneration regional levels; the maximum fare has been recorded in Friuli Venezia Giulia and is 58.1% higher than the minimum one, that has been recorded in Marche. Regions with higher rates are Friuli Venezia Giulia (+33.7% of the national average), Umbria (+27.2%) and the self-governing Province of Trento (+21.9%); while Regions with lower fares are Veneto (-11.3%), Abruzzo (-11.8%) and Marche (-15.4%).

The total coefficient of variation is 12,4 and decreases up to 10.0 if extreme values are excluded; the middle value has been recorded in Toscana (-1.6% of the national reference).

Through the analysis of average percentage variations an indication about how much each rate departs from the national average, downward (-) or upward (+), is obtained.

The calculation was carried out only considering the most common DRGs, that in 2005 were 61.2% of the cases and took up 65.5% of the total value of production (data processed by CEIS Sanità on 2005 Hospital Discharge Forms). The analysis shows a considerable variability in remuneration regional levels, the gap between maximum negative variation and maximum positive variation is 50 percentage points.

Variations in comparison with national average already pointed out with the calculation of average rate are confirmed: Marche shows higher downward variations (-15.4%), followed by Basilicata (-10.9%), Veneto (-10.5%), Calabria and Lombardia (-9.9%) and Sardegna (-9.7%). Regions with a higher increase are the self-governing Province of Trento (+24.3%), Umbria (+27.7%) and Friuli Venezia Giulia (+34.7%). The other Regions with rates above average are Molise (+1.8%), the self-governing Province of Bolzano (+2.4%) and Lazio (+4.7%).

Remaining Regions have negative variations in comparison with the average: the average decrease is -8.9% in Abruzzo, -6.4% in Piemonte, -5.1% in Sicilia, -5.0% in Liguria and -4.6% in Toscana.

Emilia Romagna, Campania, Valle d'Aosta and Puglia record variations included between -0.4% and +0.2% in comparison with the national average (table 2.29).

Table 2.29: Average percentage variations of regional fare on 100 more common DRGs. Acute cases in inpatient care

Regions	Variation
Marche	-15.37%
Basilicata	-10.86%
Veneto	-10.47%
Calabria	-9.93%
Lombardia	-9.87%
Sardegna	-9.73%
Abruzzo	-8.89%
Piemonte	-6.36%
Sicilia	-5.09%
Liguria	-4.99%
Toscana	-4.60%
Emilia Romagna	-0.37%
Campania	-0.21%
Valle d'Aosta	0.06%
Puglia	0.18%
Molise	1.80%
Pr. Aut. Bolzano	2.36%
Lazio	4.67%
Pr. Aut. Trento	24.33%
Umbria	27.67%
Friuli Venezia Giulia	34.67%

Source: CEIS Sanità processing on D.G.R., L.R data.

In order to identify, among the 100 selected DRGs, the ones with the most significant variation, the percentage variation between Regions with maximum and minimum fares was calculated. The variation coefficient was used as variability indicator.

The DRGs with more significant variation are **“Threatened Miscarriage” (DRG 379) and “Other interventions on cardiovascular system without cc” (DRG 479)**, with a maximum value of 3.7 and 4.5 times the minimum one respectively and a variation coefficient equals to 27.0 and 24.0.

In DRGs with lower rate variability, concerning “Permanent cardiac pacemaker implantation with other pathologies” (DRG 116⁶) and “Major interventions on cardiovascular system with cc” (DRG 110), the maximum values are 44.3% and 50.1% higher than the minimum one and variation coefficient is 10.4 and 13.6 (table 2.30).

⁶ In HCFA grouper 19 version, DRG 116 was modified (see Appendix): that change do not imply significant variations of the related rate level.

Tabella 2.30: DRGs with most significant variation. Acute cases in inpatient care

DRG	Description	Region Min	Region Max	%	CV
116	Permanent cardiac pacemaker implantation with other pathologies	Abruzzo	Friuli Venezia Giulia	44,34%	10,37
110	Major interventions on cardiovascular system with cc	Valle d'Aosta; Liguria; Campania; Puglia	Umbria	50,14%	13,59
203	Malignant neoplasms of hepatobiliary apparatus or pancreas	Marche	Friuli Venezia Giulia	59,98%	14,46
82	Neoplasms of breathing apparatus	Marche	Friuli Venezia Giulia	59,99%	14,15
416	Septicemia, age > 17	Marche	Friuli Venezia Giulia	60,01%	13,31
121	Cardiovascular disease with acute myocardial infarction and cardiovascular complications, discharged alive	Marche	Friuli Venezia Giulia	60,02%	14,66
75	Major interventions on chest	Valle d'Aosta; Campania; Puglia	Lombardia	63,00%	16,02
5	Interventions on extracranial vessels	Abruzzo	Friuli Venezia Giulia	63,64%	12,12
124	Cardiovascular diseases except acute myocardial infarction with cardiac catheterization and diagnosing complicated	Toscana	Friuli Venezia Giulia	63,71%	12,59
316	Renal failure	Piemonte	Friuli Venezia Giulia	64,20%	14,24
198	Cholecystectomy without common bile duct exploration	Veneto	Umbria	193,24%	32,33
158	Interventions on anus and stoma	Liguria	Umbria	203,67%	24,32
39	Interventions on eye's crystalline	Lombardia	Friuli Venezia Giulia	204,98%	26,92
132	Atherosclerosis	Lombardia	Friuli Venezia Giulia	213,92%	21,79
467	Other factors that influence the health	Veneto	Friuli Venezia Giulia	230,41%	28,52
403	Lymphoma and non-acute leukemia	Veneto	P. A. Trento	235,13%	23,99
143	Chest pain	Veneto	Friuli Venezia Giulia	240,00%	23,32
473	Acute leukemia without major surgery, age > 17	Toscana	P. A. Trento	261,80%	25,67
379	Threatened Miscarriage	Veneto	Friuli V. G.	266,43%	27,03
479	Other interventions on cardiovascular system without cc	Marche	Umbria	350,70%	24,05

Source: CEIS Sanità processing on D.G.R., L.R data.

In order to point out the impact of DRGs at risk of inappropriateness on regional variations, the analysis was repeated only considering the 43 DRGs defined “potentially at risk⁷” by the Prime Minister’s Decree of November 29th, 2001.

Differences between regional fares fluctuate between 110% concerning “Oesophagitis, gastroenteritis and miscellaneous gastro-enteric diseases, 0-17 age group” (DRG 184) and 358.9% concerning “Carpal tunnel decompression” (DRG 6). As regards DRGs at risk of inappropriateness, the distribution found in the previous analyses is no longer respected: Regions with minimum values are Lombardia, Piemonte, Sardegna and Calabria, while Regions with higher fares are again Umbria, the self-governing Province of Trento and Friuli Venezia Giulia.

The reduction of fares related to (in)appropriate DRGs may be considered as a greater attempt to demotivate the number of inappropriate hospitalizations; the analysis of correlation between average fare and inappropriate hospitalizations percentage shows that the two variables are uncorrelated ($\rho=-0.11$).

2.5 Rehabilitation healthcare

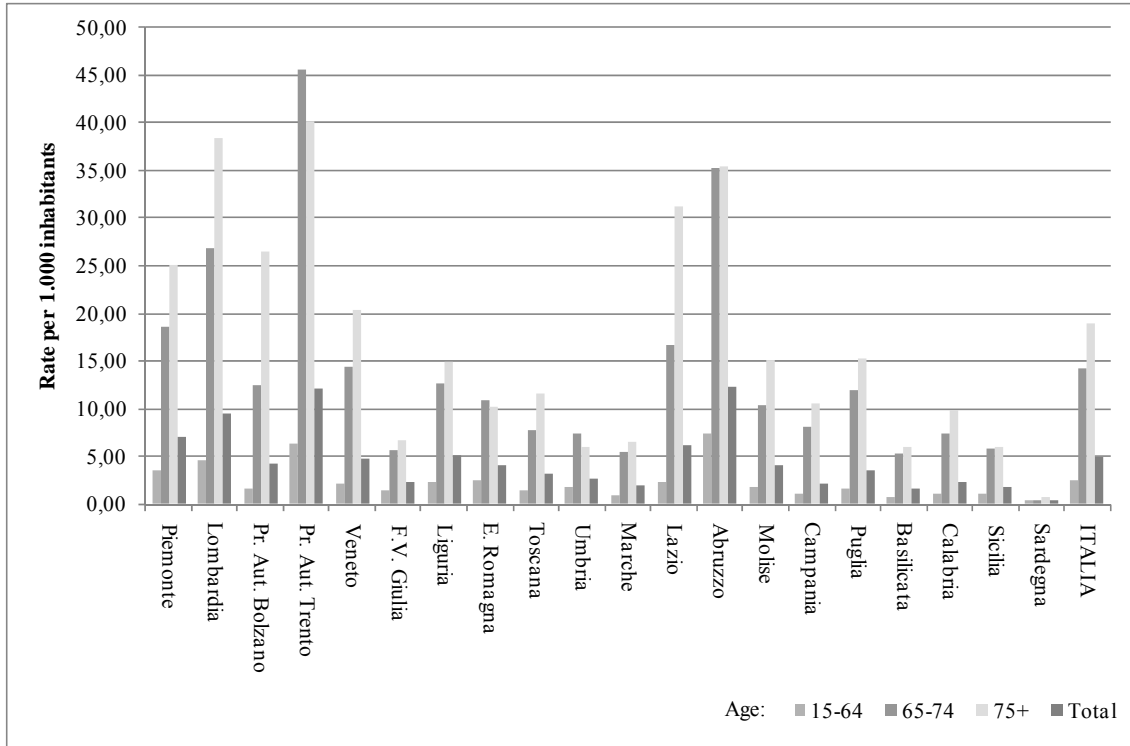
2.5.1 Hospitalization rates

In Italy, the total hospitalization rate is 4.9 hospitalizations per 1,000 inhabitants; it raises up to 14.3 hospitalizations per 1,000 inhabitants in the 65-74 age group and 19 hospitalizations every 1,000 people over 75.

In this case, the variability is higher than in the analysis on hospitalizations for acute cases: the total hospitalization rate is in fact 12.3 hospitalizations per 1,000 inhabitants in Abruzzo and 0.3 per 1,000 in Sardegna. The over 75 age group records the highest values and shows the most evident differences among Regions: on the one hand, there is the self-governing Province of Trento, where the rate is 40.2 per 1,000 inhabitants, followed by Lombardia (38.5 per 1,000) and Abruzzo (35.5 per 1,000), whereas on the other hand there are Sicily and Basilicata, where the rate is lower than 6 hospitalizations per 1,000 inhabitants over 75 (figure 2.29).

⁷ Among DRGs at risk of inappropriateness there is also DRG 222, that in HCFA grouper 19 version is no longer valid. It was not therefore considered in the inappropriateness analysis.

Figure 2.29: Hospitalization rate by age. Rehabilitation cases in inpatient care. Values per 1,000 inhabitants - Year 2005

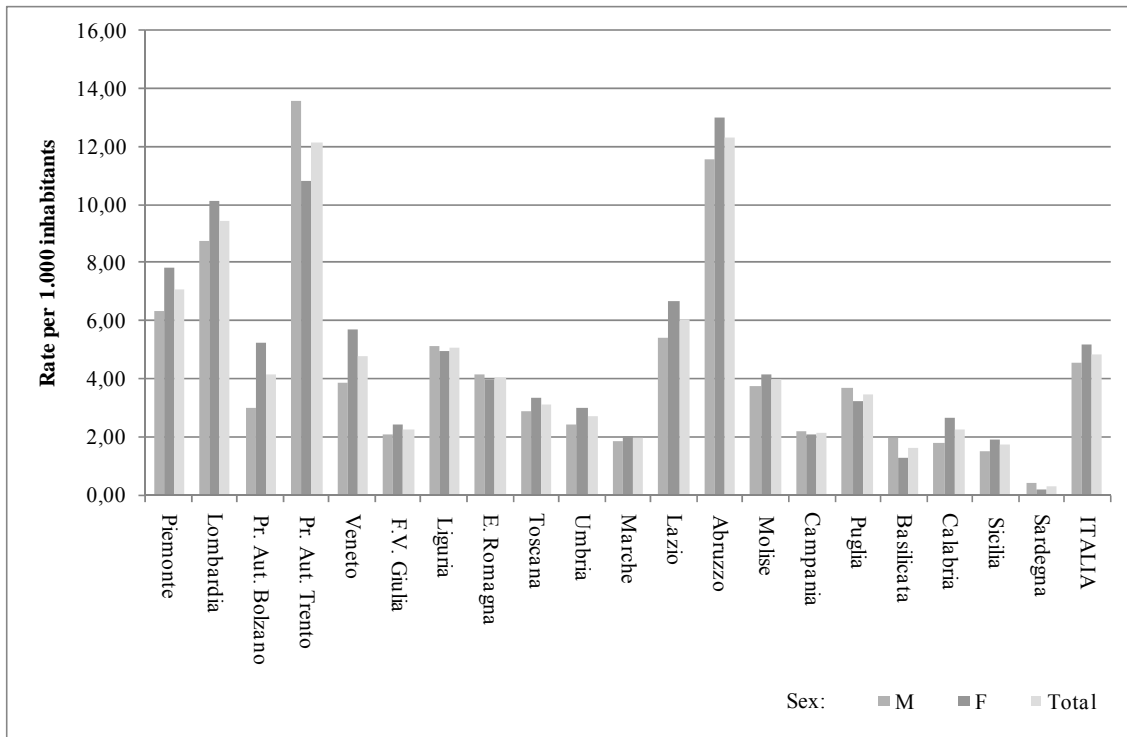


Source: CEIS Sanità processing of SDO data, Ministry of Health

The analysis of hospitalization rates by sex shows in average a recourse to hospital healthcare slightly higher in women: 5.2 hospitalizations per 1,000, while in men the value is 4.5. The differences between the sexes are tendentially lower in Southern Regions (figure 2.30).

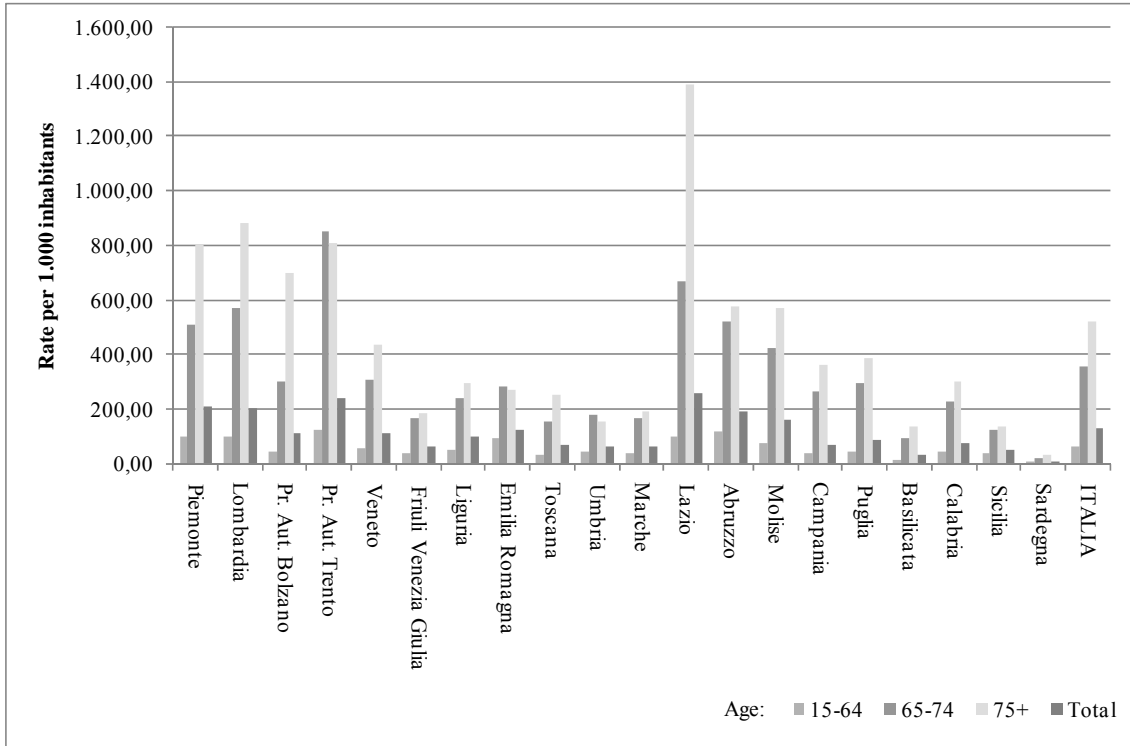
The analysis of hospitalization rates in days of stay confirms a higher value for Central-Northern Regions, in particular Lazio has the highest number of days of stay (257.3 per 1,000 inhabitants), even if the number of hospitalizations is not high. The rate of Lazio shows traces of the high number of days of stay for the over 75 age group: the value for this group is 1393 days per 1,000 inhabitants, which is a very high value, considering that the other Region with the highest number of days of stay for people over 75 is Piemonte, where the value is 801 days per 1,000 inhabitants. Regions with lower rates are Sicilia (48.8), Basilicata (29.6) and Sardegna (8.4) (figure 2.31).

Figure 2.30: Hospitalization rate by sex. Rehabilitation cases in inpatient care. Values per 1,000 inhabitants - Year 2005



Source: CEIS Sanità processing of SDO data, Ministry of Health

Figure 2.31: Hospitalization rate in days of stay by age.
Rehabilitation cases in inpatient care. Values per 1,000 inhabitants - Year 2005



Source: CEIS Sanità processing of SDO data, Ministry of Health

2.5.2 Average hospital stay

The average hospital stay in inpatient care is 26.3 days. The value is quite homogenous among the age groups considered: in fact, it is 26.9 days in the 15-64 age group, 24.8 days in the 65-74 age group and 27.4 for the elderly group. The highest average duration of stay has been recorded in Lazio (42.4 days for each hospitalization) and in Molise (39.3 days of stay). Regions with a lower average duration of stay are Basilicata (18.3) and Abruzzo (15.6) (table 2.31).

Table 2.31: Average hospital stay by age. Rehabilitation hospitalization in inpatient care. Year 2005

Regions	Age groups			
	15-64	65-74	75+	Total
Italy	26.86	24.8	27.36	26.33
Piemonte	28.00	27.55	31.87	29.27
Lombardia	20.92	21.25	22.89	21.59
P. A. Bolzano	27.82	24.16	26.48	26.18
P. A. Trento	19.67	18.66	20.14	19.45
Veneto	25.94	21.42	21.44	22.84
Friuli V. G.	28.04	29.06	27.38	28.12
Liguria	21.91	18.73	19.55	19.94
Emilia Romagna	35.80	25.89	26.56	29.95
Toscana	23.29	19.90	21.95	21.65
Umbria	22.75	23.83	25.58	23.84
Marche	36.42	30.97	29.35	32.16
Lazio	42.80	40.16	44.58	42.41
Abruzzo	15.70	14.83	16.20	15.59
Molise	41.88	40.35	37.67	39.63
Campania	31.81	32.55	34.73	33.07
Puglia	27.84	24.58	25.12	25.59
Basilicata	14.77	17.72	22.18	18.30
Calabria	40.31	30.81	30.98	33.81
Sicilia	36.74	21.16	22.42	28.38
Sardegna	24.09	39.89	47.88	30.46

Source: CEIS Sanità processing of SDO data ,Ministry of Health

2.5.3 The value of production

In 2005, the value of production for inpatient care in rehabilitation was close to € 1.8 bn; for day care the expense was € 219 M (nearly 12.4% of the inpatient care).

2.6 Long-term healthcare

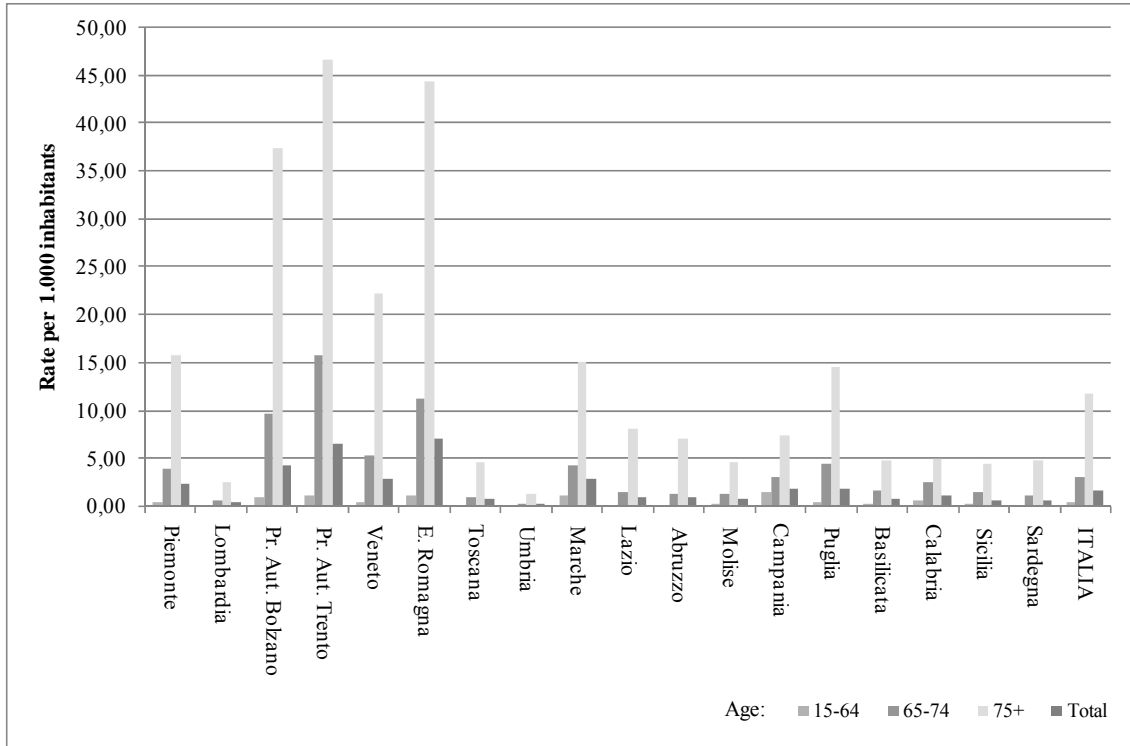
2.6.1 The need

As regards long-term healthcare, the total hospitalization rate is 1.7 hospitalizations per 1,000 inhabitants; in particular, in the 15-64 age group it is 0.4 per 1,000, it raises up to 3 hospitalizations per 1,000 inhabitants in the 65-74 age group and reaches the maximum of 11.7 hospitalizations per 1,000 inhabitants in the age group including people over 75.

The highest rates have been recorded in Northern Regions, in particular in Emilia Romagna (7 per 1,000), in Trentino Alto Adige (6.5 in the self-governing Province of Trento and 4.3 in the self-governing Province of Bolzano) and in Veneto (2.8); on the contrary, Regions with the lowest hospitalizations are Sardegna (0.5 per 1,000), Lombardia (0.3) and Umbria (0.2 per 1,000).

Long-term is not a kind of activity exclusively provided by hospitals, most of long-term patients are in nursing homes; therefore the hospitalization rates may underestimate the effective recourse to hospital healthcare (figure 2.32).

**Figure 2.32: Hospitalization rate by age. Long-term cases in inpatient care
Values per 1,000 inhabitants - Year 2005**

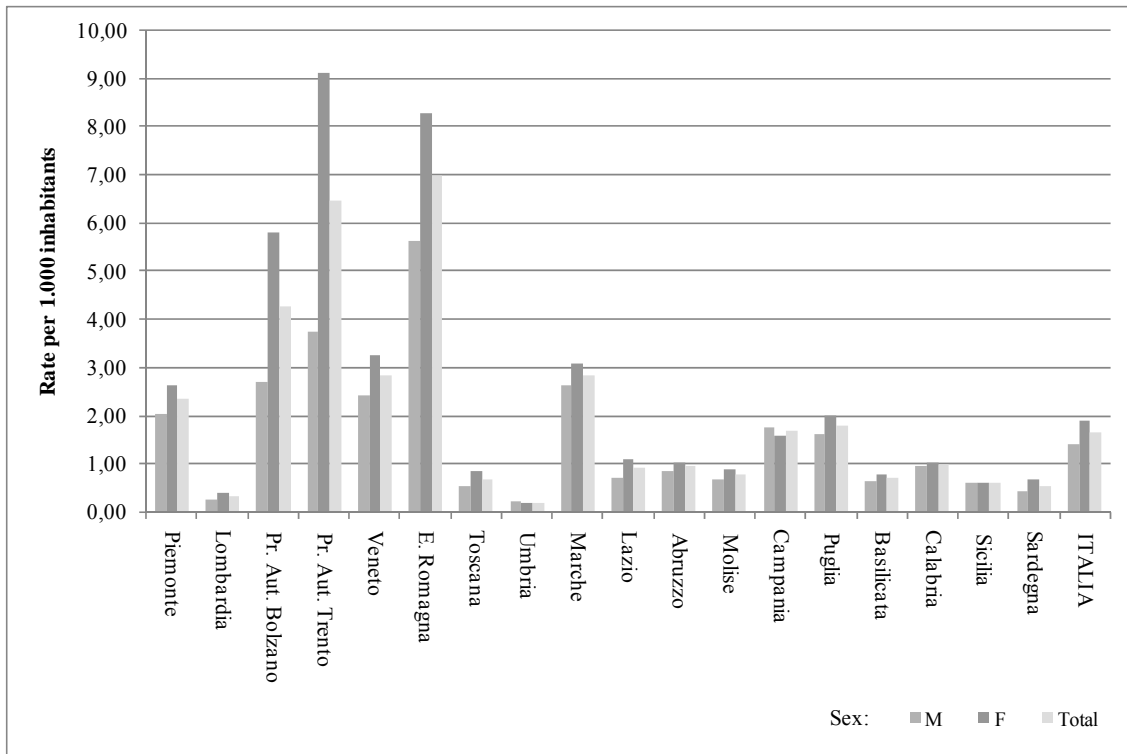


Source: CEIS Sanità processing of SDO data, Ministry of Health

The analysis of hospitalization rates by sex shows in all Regions, with the exception of Campania, Umbria and Sicilia, a higher number of hospitalizations for women. The most significant differences have been recorded in Trentino Alto Adige, where the hospitalization rates of women are nearly twice the rates for men, in Toscana and in Sardegna where the rates for men are 39% and 37% lower.

In Sicilia the number of hospitalizations is equitably distributed between the sexes (0.6 per 1,000), while in Campania and in Umbria rates for women are, respectively, 12% and 25% lower than rates for men (figure 2.33)

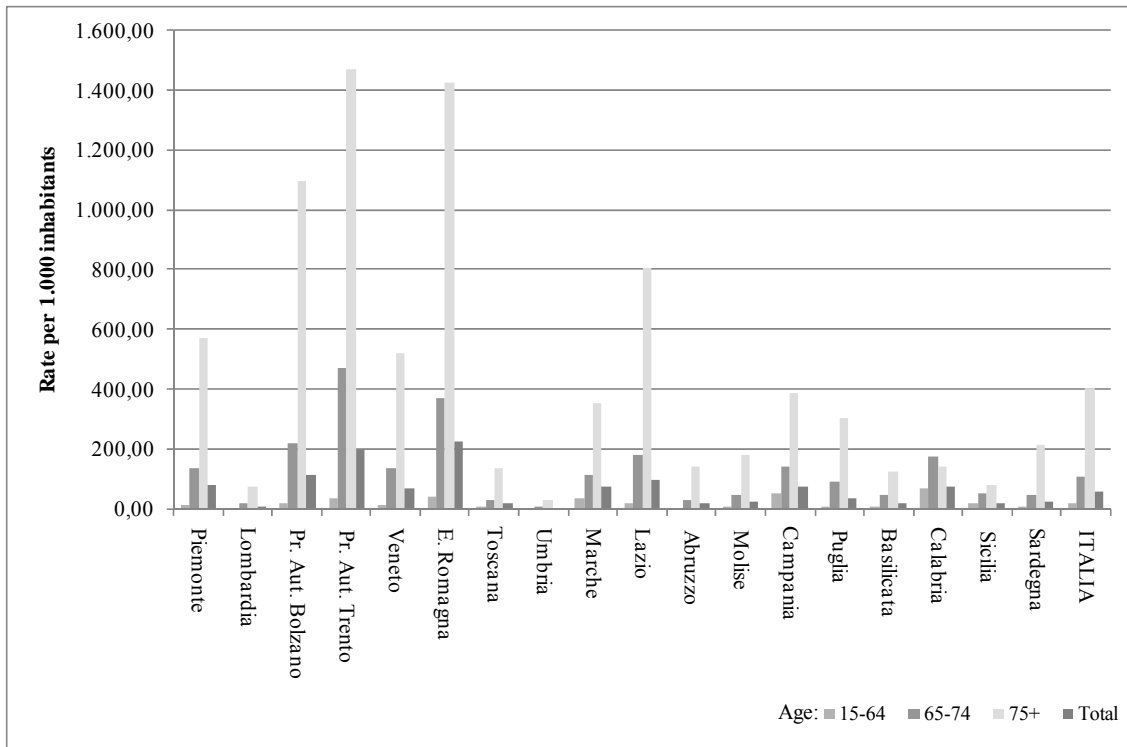
Figure 2.33: Hospitalization rate by sex. Long-term cases in inpatient care. Values per 1,000 inhabitants - Year 2005



Source: CEIS Sanità processing of SDO data, Ministry of Health

In Italy, the hospitalization rate in days of stay is in all 60.1 days per 1,000 inhabitants, the duration of stay raises with age: it is 18.2 per 1,000 in the 15-64 age group, 108.3 days in the 65-74 age group and reaches 401.8 days per 1,000 inhabitants over 75. The regional variations of the days of stay comply with variations in the number of hospitalizations: the highest rates have been recorded in Emilia Romagna (228.7) and Trentino Alto Adige (160), while the lowest ones in Lombardia and in Umbria (9.3 and 4.2 per 1,000 respectively) (figure 2.34).

Figure 2.34: Hospitalization rate in days of stay by age. Long-term cases in inpatient care. Values per 1,000 inhabitants - Year 2005



Source: CEIS Sanità processing of SDO data, Ministry of Health

2.6.2 Average hospital stay

In Italy, the average duration of stay is 36.2 days for each hospitalization and there is a considerable regional variability: in fact in Lazio the average duration of stay is 107.5 days while in Abruzzo it is 19.9 days.

The average duration of stay recorded in Lazio is greatly higher than the average duration of stay in other Regions: it is 41.8% higher than the stay in Calabria (where the value is 75.8 days for each hospitalization) and 135.7% higher than the stay in Sardegna (where the value is 45.6 days).

2.6.3 The value of production

In Italy, the value of production for inpatient care in long-term is €453 bn. Contrary to healthcare for acute cases and rehabilitation, the Region that takes up most of the costs is Emilia Romagna (28.2%), followed by Lazio (12.5%), Campania (12.2%) and Piemonte (10.7%) (table 2.32).

Table 2.32: Value of production by Region of residence. Long-term cases in inpatient care Year 2005

Regions	Value of Production	Share %
Italy	453.188.232,58	100
Piemonte	48.568.428,94	10.72
Lombardia	11.818.728,59	2.61
P. A. Bolzano	7.482.265,90	1.65
P. A. Trento	13.824.382,91	3.05
Veneto	44.091.976,27	9.73
Emilia Romagna	127.843.285,08	28.21
Toscana	10.598.284,02	2.34
Umbria	505.864,11	0.11
Marche	15.228.695,33	3.36
Lazio	56.578.015,26	12.48
Abruzzo	3.321.949,01	0.73
Molise	1.194.148,18	0.26
Campania	55.357.019,11	12.22
Puglia	20.208.860,95	4.46
Basilicata	1.499.983,27	0.33
Calabria	16.944.193,11	3.74
Sicilia	12.634.440,50	2.79
Sardegna	5.487.712,04	1.21

Source: CEIS Sanità processing of SDO data, Ministry of Health

2.7 Hospital in-patient care expenditure in OECD countries

Although hospitals have undergone deep regulatory changes, especially with regard to their organization, they have nevertheless maintained their fundamental function as care providers, preserving a key role in the health care systems of practically all the EU and, indeed, OECD member countries.

A common element to all the different hospital systems, however, is the significant amounts of outlays needed to keep them going.

Expenditure for in-patient hospital care, in fact, accounts for a rather high percentage of total health expenditure, in all the countries taken into account.

The countries allocating the largest share of health expenditure to in-patient hospital care are Iceland, Switzerland and Italy, with 56.6%, 46.2% and 45.20%, respectively. At the opposite end of the scale, the countries with the lowest allocations for in-patient care are Portugal, Sweden and the United States (20.7%, 25.0% and 25.9% of total health expenditure, respectively) (see Table 2.33).

**Table 2.33: Ratio of in-patient hospital care expenditure to total health expenditure
Percentage figures - 2000 and 2006**

Countries	2000	2006
Australia	32.70	34.60**
Austria	39.30	40.70
Belgium	35.30*	38.20
Canada	30.90	28.40
Korea	25.50	26.70
Denmark	53.20	30.20
Finland	40.40	38.30
France	35.70	36.90
Germany	35.50	35.00
Japan	38.40	38.80**
Greece		
Ireland		
Iceland	56.20	56.60
Italy	43.20	45.20
Luxembourg	36.00	40.10**
Mexico	37.30	27.40
Norway	42.80	41.20
New Zealand		28.90
Holland	36.50	37.60***
Poland	29.10***	30.10
Portugal	24.30	20.70
United Kingdom		
Czech Republic	26.60	34.60
Slovakia	26.40	27.00**
Spain	28.20	27.20
United States	28.50	25.90
Sweden	51.70	25.00
Switzerland	46.80	46.20**
Turkey	19.90	
Hungary	29.30	28.00

*dato 1997

**dato 2005

***dato 2002

Source: elaboration CEIS Sanità on OECD Health Data

In particular, the Czech Republic featured a considerable increase in expenditure for in-patient hospital care between 2000 and 2006 (+8%); other significant – albeit less remarkable – increases occurred in Luxembourg (+4.1%), Belgium (+2.9%) and Italy (+2%).

In most other countries, however, the ratio of in-patient care expenditure to total health expenditure either remained constant or dropped even, as in the case of Sweden, where, between 2000 and 2006, it dropped by 26.7%.

Overall per capita in-patient care expenditure is also extremely variable from one OECD member country to another. The countries with the highest per capita expenditure are Iceland (\$ 1,890), Switzerland (\$ 1,880) and Norway (\$ 1,863), while those with the lowest are Mexico (\$ 217), Poland (\$ 274) and Slovakia (\$ 305) (table 2.34).

In Italy, in 2006, per capita expenditure for in-patient care stood at \$ 1,181, up by an annual average of 4.9%.

**Table 2.34: Overall per capita in-patient care expenditure in OECD member countries.
Figures in US dollars (PPP)**

Countries	2000	2006
Australia	741	
Austria	1122	1469
Belgium	695*	1333
Canada	778	1045
Korea	192	395
Denmark	1265	1011
Finland	725	1021
France	865	1272
Germany	947	1180
Japan	755	960**
Greece		
Ireland		
Iceland	1537	1890
Italy	887	1181
Luxembourg	920	1664**
Mexico	189	217
Norway	1301	1863
New Zealand		708
Holland	853	1065***
Poland	213***	274
Portugal	367	439
United Kingdom		
Czech Republic	261	515
Slovakia	159	305**
Spain	432	669
United States	1303	1742
Sweden	1181	801
Switzerland	1525	1880**
Turkey	86	
Hungary	250	420

Source: elaboration CEIS Sanità on OECD Health Data

Table 2.35: Ratio of public-sector expenditure for in-patient care to overall in-patient care expenditure in OECD member countries. Percentage figures

Countries	2000	2006
Australia	73.50	77.20**
Austria	83.00	84.00
Belgium	92.00*	78.90
Canada	86.50	86.00
Korea	65.90	64.60
Denmark	93.80	93.90
Finland	84.40	87.70
France	93.70	94.40
Germany	86.30	84.00
Japan	89.80	89.70**
Greece		
Ireland		
Iceland	99.20	99.30
Italy	89.90	92.20
Luxembourg	93.90	94.80**
Mexico	68.10	61.30
Norway	92.10	93.60
New Zealand		84.60
Holland	80.90	78.70***
Poland		95.20
Portugal		
United Kingdom		
Czech Republic	98.50	98.20
Slovakia	100.00	98.30**
Spain	86.90	86.60
United States	56.90	57.50
Sweden	99.00	97.10
Switzerland	57.50	63.20**
Turkey	85.10	
Hungary	88.60	89.50

*dato 2003

**dato 2005

*** dato 2002

Source: elaboration CEIS Sanità on OECD Health Data

In all OECD member countries, expenditure for in-patient care is public and, except for Korea, Switzerland, Mexico and the United States, the ratio of public expenditure for in-patient care to total in-patient care expenditure is in excess of 77%. In particular, in Italy, public expenditure accounts for 92.2% of total in-patient care expenditure (table 2.35).

2.8 An estimate of total in-patient hospital expenditure

Based on the figures provided by the Regions, in connection with the LA costs survey for 2005⁸, we have estimated the regional shares of total hospital expenditure by both public and accredited private-sector hospitals.

⁸ The figures relating to the Autonomous Province of Bolzano, Molise and Sicily are based on estimates.

In particular, knowing the total healthcare expenditure and the accredited hospital expenditure, and assuming that the share of hospital expenditure has remained constant since 2005, we have estimated the total hospital expenditure and the share of public hospital expenditure.

Therefore, the estimated overall hospital expenditure, in 2007, was 42.1% of total public healthcare expenditure, amounting to approx. € 43.4 bn, about 80.3% of which by public hospitals and the remaining 19.7% by accredited private hospitals.

The regions with the highest per capita hospital expenditure, in 2007, were Valle d'Aosta, Trentino Alto Adige and Friuli Venezia Giulia, while those with the lowest expenditure were Lombardia, Veneto and Basilicata (table 2.40).

The regions allocating a higher share of resources to hospital services, compared to the others, are Campania, Sicily and Abruzzo.

Table 2.36: Estimated total per capita hospital expenditure⁹ and share of public expenditure in 2007

Regions	Total per capita hospital expenditure	Share of public expenditure
Italy	733.37	80.27
Piemonte	827.00	86.23
Valle d'Aosta	935.59	93.66
Lombardia	758.88	71.64
Trentino A. A.	930.33	92.53
Veneto	813.43	86.47
Friuli V. G.	882.66	95.87
Liguria	850.33	87.08
Emilia Romagna	769.80	84.54
Toscana	783.56	92.35
Umbria	787.55	94.52
Marche	760.21	92.63
Lazio		
Abruzzo	865.64	83.06
Molise		
Campania	800.38	85.79
Puglia	769.30	75.25
Basilicata	759.02	99.12
Calabria	767.95	86.85
Sicilia	815.53	82.93
Sardegna	784.88	92.85

Source: elaboration CEIS Sanità on ASSR and Ministero della Salute data

⁹ Hospital expenditure here includes A&E services, acute patient care (ordinary, day hospital and day surgery), hospital services at home, long-term and rehabilitation care, blood components and transfusion services and organ/tissue transplants.

**Table 2.37: Ratio of total hospital expenditure to healthcare expenditure
Percentage figures – Year 2007**

Regions	2007
Italy	42.05
Piemonte	45.56
Valle d' Aosta	46.73
Lombardia	44.37
Trentino A. A.	45.86
Veneto	46.62
Friuli V: G.	48.79
Liguria	43.74
Emilia Romagna	41.82
Toscana	44.03
Umbria	45.76
Marche	45.45
Lazio	
Abruzzo	49.12
Molise	
Campania	49.21
Puglia	47.56
Basilicata	46.76
Calabria	47.72
Sicilia	49.24
Sardegna	48.57

Source: elaboration CEIS Sanità on Ministero della Salute data

Taking into account the different demographics, we can break down per capita hospital expenditure by weighted population.

Table 2.38: Estimated total per capital hospital expenditure by weighted population. Figures in euros and index numbers (average for Italy=100) in 2007

Regions	2007	Index numbers
Italy	733.37	100.00
Piemonte	778.16	106.11
Valle d'Aosta	917.57	125.12
Lombardia	761.56	103.84
Trentino A. A.	972.04	132.54
Veneto	818.05	111.55
Friuli V. G.	823.37	112.27
Liguria	739.74	100.87
Emilia Romagna	720.14	98.20
Toscana	724.83	98.84
Umbria	729.46	99.47
Marche	717.22	97.80
Lazio		0.00
Abruzzo	839.42	114.46
Molise		0.00
Campania	896.57	122.25
Puglia	817.57	111.48
Basilicata	764.34	104.22
Calabria	799.87	109.07
Sicilia	856.61	116.80
Sardegna	813.96	110.99

Source: elaboration CEIS Sanità on Ministero della Salute data

Through standardization for the weighted population, the differences between the breakdowns tend to diminish but not disappear; from the highest index value, in fact, in excess of 120 in Trentino Alto Adige, Valle d'Aosta and Campania, to values of about 2% below the average in Emilia Romagna and Marche.

2.9 Expenditure trends for private hospitals accredited by the National Health System

In Italy, expenditure for private hospitals accredited by the National Health System accounts for 8.6% of overall public healthcare expenditure. The regions with the highest expenditure for accredited private hospitals are Lazio (15.1%) and Puglia (12.2%), while those with the lowest expenditure are Basilicata (0.5%), Friuli Venezia Giulia (2.1%) and Umbria (2.6%) (table 2.39).

Table 2.39: Ratio of expenditure for private accredited hospitals to overall public healthcare expenditure Percentage figures

Regions	2001	2006	2007
Italy	10.43	8.48	8.58
Nord	9.82	8.48	8.58
Centro	11.90	9.16	9.23
Sud	10.39	8.06	8.17
Piemonte	8.44	6.52	6.49
Valle d'Aosta	0.00	2.99	3.28
Lombardia	15.31	13.26	13.19
P. A. Bolzano	4.49	1.95	1.98
P. A. Trento	5.33	5.33	5.42
Veneto	5.60	6.58	6.51
Friuli V. G.	5.82	2.24	2.07
Liguria	11.13	5.90	6.86
Emilia Romagna	6.27	6.74	7.22
Toscana	4.34	3.45	3.44
Umbria	2.99	2.55	2.60
Marche	3.48	3.47	3.51
Lazio	20.50	14.77	15.09
Abruzzo	7.29	8.52	8.15
Molise	5.62	11.08	10.08
Campania	12.23	7.18	7.66
Puglia	12.17	12.15	12.17
Basilicata	0.84	0.43	0.45
Calabria	7.17	6.60	6.78
Sicilia	12.15	8.36	8.33
Sardegna	5.13	3.54	3.69

Source: elaboration CEIS Sanità on Ministero della Salute data

Table 2.40: Ratio of expenditure for accredited private hospitals to total expenditure for accredited private health services providers. Percentage figures

Regions	2001	2006	2007
Italy	7.60	9.06	9.37
Nord	5.94	7.75	8.02
Centro	6.66	8.56	8.07
Sud	10.06	10.98	11.87
Piemonte	4.75	7.40	7.79
Valle d'Aosta	12.79	9.46	9.66
Lombardia	6.68	8.45	8.65
P. A. Bolzano	2.26	1.88	1.91
P. A. Trento	2.67	3.67	3.91
Veneto	8.53	10.20	10.54
Friuli V. G.	5.14	4.87	6.02
Liguria	3.90	5.82	5.83
Emilia Romagna	4.09	5.81	6.09
Toscana	5.01	6.75	6.86
Umbria	2.53	2.95	3.04
Marche	5.58	4.91	4.83
Lazio	7.81	10.23	9.52
Abruzzo	5.55	4.98	5.27
Molise	6.46	7.50	9.19
Campania	12.02	15.11	16.28
Puglia	7.62	7.79	7.81
Basilicata	6.37	5.28	5.26
Calabria	9.49	8.85	8.00
Sicilia	11.69	12.24	14.62
Sardegna	7.87	10.09	10.21

Source: elaboration CEIS Sanità on Ministero della Salute data

In particular, hospital expenditure in Italy accounts for 9.4% of overall expenditure for accredited private health services providers, and can be broken down, geographically, as follows: 8.0% in the North, 8.1% in the Centre and 11.9% in the South. The regions in which hospitals absorb the highest share of expenditure for accredited private health services providers are Campania and Sicilia, while at the opposite end of the scale we have the Autonomous Province of Bolzano and Umbria (table 2.40).

Generally speaking, expenditure for purchasing ordinary in-patient, rehabilitation and long-term care services from accredited private hospitals differs greatly from region to region and basically reflects the relevance given to the accredited private health services providers, by the regional authorities, with respect to the delivery of hospital care services.

Table 2.41: Changes in expenditure for accredited private hospitals. Percentage figures

Regions	2006/2001	Average 2006/2001	2007/2006
Italy	6.12	1.20	4.22
Nord	11.30	2.16	6.04
Centro	5.21	1.02	1.36
Sud	0.03	0.01	3.63
Piemonte	-0.11	-0.02	3.44
Valle d'Aosta			10.67
Lombardia	10.68	2.05	4.79
P. A. Bolzano	-42.15	-10.37	4.71
P. A. Trento	27.42	4.97	5.24
Veneto	52.20	8.76	3.20
Friuli V. G.	-52.55	-13.85	2.99
Liguria	-33.08	-7.72	21.30
Emilia Romagna	42.06	7.27	11.66
Toscana	2.67	0.53	2.24
Umbria	12.34	2.35	3.68
Marche	26.40	4.80	4.89
Lazio	4.45	0.87	0.99
Abruzzo	53.54	8.95	-2.00
Molise	166.00	21.61	-6.47
Campania	-26.37	-5.94	9.57
Puglia	30.77	5.51	3.43
Basilicata	-32.24	-7.49	8.53
Calabria	12.08	2.31	8.03
Sicilia	-7.86	-1.62	-0.90
Sardegna	-12.86	-2.71	6.30

Source: elaboration CEIS Sanità on Ministero della Salute data

Expenditure trends for accredited private hospitals varies significantly from region to region: on average, it increased by an annual average of 1.2% between 2001 and 2006, and of 4.2% between 2006 and 2007. Between 2006 and 2007, the increase was higher in the North than in the Centre or the South, and especially so in Liguria, Emilia Romagna and Valle d'Aosta (table 2.41).

On average, per capita expenditure for accredited private hospitals is € 149.58: € 153.15 in the North, € 168.86 in the Centre and € 134.24 in the South (table 2.42).

The regions with the highest per capita expenditure for accredited private hospitals are Lazio and Lombardia, while those with the lowest expenditure are Basilicata and Friuli Venezia Giulia Regions, which feature a very small number of accredited private health services providers.

Table 2.42: Per capita expenditure for accredited private hospitals. Figures in euros

Regions	2001	2006	2007
Italy	140.40	144.45	149.58
Nord	136.48	145.32	153.15
Centro	167.67	169.83	168.86
Sud	130.80	129.50	134.24
Piemonte	117.63	114.19	117.81
Valle d'Aosta	0.00	59.70	65.63
Lombardia	206.18	216.85	225.57
Trentino A. A.	78.29	70.12	72.98
Veneto	76.56	110.88	113.58
Friuli V. G.	78.84	36.57	37.53
Liguria	167.20	109.72	133.28
Emilia Romagna	89.18	119.99	132.85
Toscana	60.77	60.24	61.28
Umbria	40.68	43.40	44.74
Marche	46.50	56.29	58.76
Lazio	295.82	298.01	290.63
Abruzzo	99.19	147.16	143.71
Molise	76.63	204.19	191.48
Campania	156.73	113.75	124.66
Puglia	147.18	190.32	196.92
Basilicata	9.78	6.69	7.29
Calabria	89.18	100.67	109.10
Sicilia	152.28	139.21	137.97
Sardegna	65.36	56.24	59.65

Source: elaboration CEIS Sanità on Ministero della Salute data

Focus:

Organ transplantation in Italy: A regional analysis of transplant demand and supply¹⁰

Organ transplantation is now a widely practiced and well-tested procedure for all degenerative diseases where substitution therapies are unfeasible, in which case it is the only way to ensure the patient's survival (as in heart transplants, for example), or to significantly improve his or her quality of life (as in the case of kidney transplants, in alternative to dialysis).

Organ transplants, however, entail several important issues of an economic nature (Machnicki *et al.* 2006).

First of all, in this field the classic economic problem of the scarcity of resources takes on a rather dramatic edge, because patients and doctors are required to tackle the problems posed by the lack of organs: supply by potential donors, in fact, is always well below demand, which means long waiting lists.

The economic literature has focused on the formulation of models for encouraging organ donation policies. Jacobbi *et al.* (1997) highlighted the need to extend the donor base, by balancing the related risks and benefits. The drive towards active donation policies has also been supported by Rizvi and Naqvi (1997), who approached the problem from the point of view of developing countries. The main shortcoming of these studies, however, is the fact that they are decidedly outdated and need to be brought up to date to describe and analyze the present situation.

Secondly, although organ transplants are very expensive, they produce considerable benefits in terms of the extension of life expectancy and improvement of the general conditions of life, which can be measured by means of economic assessment methods¹¹. For example, an important group of analyses examines the quality of life of patients after transplant surgery (for example, the study by Chang *et al.*, 2004, on the perceived quality of life by kidney transplant patients).

Lastly, the organ allocation schemes to patients on the waiting lists have important ethical implications (the most important of which concerns the determination of the brain death of the potential donor).

In any case, organ transplantation can be viewed as a production activity that requires multifaceted and complex procedures, performed by different professionals operating in different units in different locations. Before the actual transplant can take place, in fact, a number of preliminary stages are required, each one of which is essential for the overall success of the operation, such as:

- the diagnosis and care of the waiting recipients;
- the management of the waiting lists according to shared and transparent criteria;
- the diagnosis and care of the future donor undergoing emergency life support and the determination of death endorsed by a group of expert physician consultants;
- the removal of the organs in the hospital treating in the donor;
- the identification of the recipient on the waiting list and his or her preparation for the transplant;
- the analysis, preservation, transport and distribution of the organs;
- the implantation of the single organs;

¹⁰ By Donia Sofio A., Gitto L., CEIS Sanità- Faculty of Economics, University of Rome "Tor Vergata".

¹¹ An exhaustive review of the issues related to the economic assessment of organ transplants is set out in the above mentioned work by Machnicki *et al.*, 2006).

- post-transplant care and rehabilitation of the patients.

These activities, therefore, require the application of an efficient organization and the introduction of conventional and uniform procedures for ensuring the best possible results, in terms of effectiveness.

2.A.1. Transplant supply

According to Law 91/1999, the system for coordinating organ donation, removal and transplant activities in Italy consists of a four-tier network comprising national, regional, inter-regional and local facilities (Figure 2.A.1).

The **local coordination facilities** (Area Health Authorities and transplant centres) are responsible for managing the potential donors, with the support of expert physicians and consultants, whose task it is to follow the various donation stages, transmit the data to the competent regional centre and implement the information actions.

The **regional coordination facilities**, operating through the regional transplant centres, handle the regional waiting lists, organ removals and relations with the regional emergency life support units, besides controlling the immunological tests and allocating the organs; they also liaise with the Inter-regional transplant centre.

Currently, there are three **inter-regional coordination facilities**: AIRT (Associazione Interregionale Trapianti – Inter-regional Transplant Association), which covers Piemonte, Val d’Aosta, Toscana, Emilia-Romagna, Puglia and the Autonomous Province of Bolzano; NITp (Nord Italia *Transplant Program* – North Italian Transplant Program), covering Friuli Venezia Giulia, Liguria, Lombardia, Marche, Veneto and the Autonomous Province of Trento; and OCST (Organizzazione Centro Sud Trapianti – Centre-South Transplant Organization), which covers Abruzzo, Basilicata, Calabria, Campania, Lazio, Molise, Sardegna, Sicilia and Umbria. These inter-regional centres liaise with the relevant regional and the National Transplant Centre, in respect of all matters concerning the coordination of donors, excess organs, emergencies, the advance provision of organs and their replacement, and exchanges with the other organizations.

The **national coordination facility** consists of the National Transplant Centre, which is a technical body of the Ministry of Health¹², which monitors the nationwide donation and transplant activities through the SIT and lays down the technical and operational guidelines protocols for their implementation.

Transplants can be carried out only at the facilities (transplant centres) authorized by the competent Regional authorities, based on compliance with specific technical and professional requirements.

There are currently 47 transplant centres throughout the country, with a different distribution based on the type of transplanted organ.

Table 2.A.1 shows that there are no transplant centres in the region of Basilicata and the autonomous provinces of Trento and Bolzano, and that there is only one facility in Liguria, Marche and Umbria. In the other regions, the number of facilities range from a minimum of 2 to 5 in Lazio and 8 in Lombardia. With regard to the different regional distribution of the centres, based on the type of transplanted organ, the majority perform kidney transplants; there is a higher concentration of liver and, above all, heart transplants. Lastly, multi-organ transplants are carried out in only 9 regions (Emilia-Romagna, Lazio, Liguria, Lombardia, Piemonte, Sardegna, Sicilia, Toscana, Veneto).

¹² Its full name is the Ministry of Labour, Health and Welfare, but will be called the Ministry of Health for short.

Table 2.A.1: Regional Transport Centre by type of transplanted organ – Year 2006

Regions	No. of centres	Heart centres	Liver centres	Kidney centres	Centres transplanting other organs	Multi-organ transplant centres
Abruzzo-Molise	2	1	0	1	0	0
Basilicata	0	0	0	0	0	0
Calabria	2	0	0	2	0	0
Campania	4	1	1	2	0	0
Emilia Romagna	3	1	2	3	0	2
Friuli V G.	2	1	1	1	1	0
Lazio	5	2	3	4	0	2
Liguria	1	0	1	1	0	1
Lombardia	8	3	4	8	2	4
Marche	1	0	1	1	1	0
Piemonte -	3	2	1	3	0	1
Bolzano	0	0	0	0	0	0
Trento	0	0	0	0	0	0
Puglia	2	0	1	2	1	0
Sardegna	2	1	1	2	0	1
Sicilia	4	2	1	3	0	1
Toscana	3	1	1	3	0	1
Umbria	1	0	0	1	0	0
Veneto	4	2	2	4	3	1

Source: SIT, Ministry of Health, 2006.

2.A.2 Transplant demand

The data on potential transplant demand and patient mobility can be drawn from the waiting lists of each transplant centre: both Italian and foreign or non-EU nationals covered by the National Health Service can apply for a place on a transplant waiting list.

Table 2.A.2 shows the number of patients on the waiting lists by region.

The following flows can be identified:

- 1) *out* patients, i.e. patients who prefer to apply for a place on a waiting list outside their home region; the number of these patients is given on each line and is indicative of mobility from one's home region to another region (the data relating to resident patients who remain in their home region, of course, must not be included);
- 2) resident patients, i.e. patients who apply for a place on the waiting list in their home region, without moving elsewhere;
- 3) *in* patients, i.e. patients who are placed on a waiting list in one region but who come from outside the region. The flow of *in* patients shown in each column, therefore, records the "incoming" patients.

In brief, the last line of Table 2.A.2 gives the total number of patients on the waiting lists in each region (*in* and resident patients) and may, therefore, be considered an "attraction" factor, by the regions, for transplant purposes (in other words, the number of patients – whether resident or non-resident – who apply for a place in the waiting lists of each region).

Instead, the last column in Table 2.A.2 represents the organ requirement for each region (sum of *out* and resident patients).

Table 2.A.2: Region of residence vs. region in which a waiting list application is made

Regions	Abruzzo	Calabria	Campania	E. Romagna	Friuli V.G.	Lazio	Liguria	Lombardia	Marche	Piemonte	Puglia	Sardegna	Sicilia	Toscana	Umbria	Veneto	Totale
Abruzzo	117			66		30	4	32	14	1				2		13	279
Basilicata			1	32		42	2	10		1	10		1	4		6	109
Calabria	1	181	3	136	3	28	9	66	3	12	3		13	26	2	25	511
Campania	41	1	669	332	13	143	35	162	2	46	61	7	23	120	41	219	1915
Emilia Romagna			1	868		2	4	100	15	9			2	19		59	1079
Friuli V.G.		1		1	66			6	2	1						27	104
Lazio	85	1	5	131	2	606	3	84	6	9	2	1	11	46	18	59	1069
Liguria				29			187	51		13				9		6	295
Lombardia				157	3	2	10	1461	1	9	2	1	2	9		64	1721
Marche				72		3	1	75	95	2						48	296
Molise	37		2	20	1	16		5	10		1			2		2	96
Piemonte				26		2	7	84		448	1	1		5		11	585
P.A. Bolzano				2	1			3								3	9
Trento				5				24								18	47
Puglia	11		1	365	33	51	9	122	11	10	661	1	6	37	3	74	1395
Sardegna				17		15	4	47	1	2	1	134		4	1	12	238
Sicilia		3		116	19	19	6	129	1	33	2	7	706	25		76	1142
Toscana				112	2	8	18	54		6	1	4		197	1	8	411
Umbria			1	16		18		26	7				1	9	75	8	161
Valle d'Aosta						1		5		11			1				18
Veneto			1	42	9	1		27	1	2			1			466	550
Total	292	187	684	2545	152	987	299	2573	169	615	745	156	767	514	141	1204	12030

Source: Centro Nazionale Trapianti, 2006

Table 2.A.3. Number of patients on the waiting lists

Region of residence	OUT patients	RESIDENT patients	IN patients	TOTAL OUT patients + Residents (Transplant demand in each region)	TOTAL IN patients + Residents (Transplant demand met in each region)
Abruzzo	162	117	175	279	292
Basilicata	109	0	0	109	0
Calabria	330	181	6	511	187
Campania	1246	669	15	1915	684
Emilia Romagna	211	868	1677	1079	2545
Friuli V.G.	38	66	86	104	152
Lazio	463	606	381	1069	987
Liguria	108	187	112	295	299
Lombardia	260	1461	1112	1721	2573
Marche	201	95	74	296	169
Molise	96	0	0	96	0
Piemonte	137	448	167	585	615
Bolzano	9	0	0	9	0
Trento	47	0	0	47	0
Puglia	734	661	84	1395	745
Sardegna	104	134	22	238	156
Sicilia	436	706	61	1142	767
Toscana	214	197	317	411	514
Umbria	86	75	66	161	141
Valle d'Aosta	18	0	0	18	0
Veneto	84	466	738	550	1204
Total	5093	6937	5093	12030	12030

Source: SIT, Ministry of Health, 2006.

The first column shows the number of *out* patients. The total of *out* patients must of course coincide with the total number of *in* patients. If a patient decides to move to another region for transplant surgery, in fact, the number of *outflow decisions* must necessarily correspond to the number of *inflow decisions*. It ensues that the number of patients deciding to move from their home region for a transplant is exactly the same as the number of patients arriving in another regions for a transplant.

The last two columns take into account the outflows (plus the residents) and the inflows (plus the residents): as mentioned above, this figure is the “attraction” index of each region for transplant surgery purposes. Regions like Lombardia and Emilia-Romagna rank first for the number of resident patients on the waiting lists, but they also feature large numbers of incoming patients from other regions.

Then there are regions like Sicilia, where the majority of patients on the waiting lists are resident patients (706, compared to 61 from other regions).

Overall, Campania is the region with the highest number of patients on the waiting lists (*out* + resident patients), followed by Lombardia, Puglia and Sicilia. Campania is also the region with the highest number of *out* patients (not including residents), followed by Sardegna, Lazio and Sicilia.

This high transplant demand, however, cannot be met by the transplant supply (i.e. the number of transplant operations carried out).

Table 2.A.4 shows the number of patients that actually undergo transplant surgery. The limited number of transplants, compared to the number of patients on the waiting lists, highlights the need for the latter to identify the centres most likely to meet their transplant needs and, therefore, justifies inter-regional mobility: it can be explained by either the presence, in a certain region, of a centre of excellence for transplants, or simply because there are more donors.

It can be seen how Lombardy, once again, ranks first for number of transplants carried out: the majority of transplants (428 out of 600), however, are performed on resident patients.

In the southern regions there is a peculiar situation: for example, all the patients transplanted in Calabria (24 out of 24) were resident; in Campania, 124 transplants out of 128 were carried out on residents, and in Puglia 58 transplants out of 60 were on residents. The patients undergoing transplant surgery in the northern regions came from almost all the other regions, which obviously signifies that there is a greater mobility of patients towards these regions. In short, patients tend to move to the northern regions for transplant surgery, while in the southern regions there is a higher percentage of resident patients.

Table 2.A.4: Region of residence vs. region in which transplanted patients had made an application

Regions	Abruzzo	Calabria	Campania	E. Romagna	Friuli V.G.	Lazio	Liguria	Lombardia	Marche	Piemonte	Puglia	Sardegna	Sicilia	Toscana	Umbria	Veneto	Totale
Abruzzo	16			5	1	12		3	2	1			1	4		3	48
Basilicata			1	1		17	1	4		1				3			28
Calabria		24	1	17	1	8	3	11		5			5	7	1	6	89
Campania	5		124	30	2	34	11	23		46	1	2	5	44	1	39	367
E. Romagna				134	2	1	4	23	2	4				5		15	190
Friuli V.G.					54			2						1		12	69
Lazio	19			9		197		9		5			2	31	4	7	283
Liguria							54	15		5				2			76
Lombardia	1			24	3	1	10	428	1	13				5		20	506
Marche	1			8		1		6	51					2		2	71
Molise	8			2		2	1	2		1				2		1	19
Piemonte				1	2		3	17		255		1		8			287
Bolzano										1						1	2
Trento				1				6		1						12	20
Puglia				34	13	11	6	8		11	58		4	16		8	169
Sardegna				5	1	1		4		3	1	88		3			106
Sicilia			1	5	3	4	1	14		13		2	184	6	1	10	244
Stato estero			1			4		1				2	10	4			22
Toscana				16		1	3	12	1	7		1		181		2	224
Umbria						4		2	3				3	4	17	1	34
Valle d'Aosta										7						1	8
Veneto				2	12			10		2			2	1		213	242
Total	50	24	128	294	94	298	97	600	60	381	60	96	216	329	24	353	3104

Source: SIT, Ministry of Health, 2006

The criteria for applying for a transplant in another region vary depending on the type of organ concerned.

For example, under the Guidelines for Kidney Transplants, patients are free to apply either to a transplant centre of the region in which they live, or to any other transplant centre in the country. Moreover, if the region of residence has less than 5 donors per million inhabitants, the patient may apply to another two centres of his or her choice, besides a local centre, for a total of 3 transplant centres.

With regard to liver transplants, on the contrary, patients can apply to a single transplant centre but anywhere in the country, regardless of where they live.

Other organ transplants (heart, lungs, pancreas), although no specific guidelines have yet been issued, the procedure tends to privilege a single nationwide application made to the transplant centre chosen by the patient.

In the case of children and young people (below 18 years of age) there is a single nationwide list for all transplant programs, which means that a single nationwide application can be made, which is transmitted to the inter-regional centre competent for the transplant centre to which the application is made.

Lastly, patients can apply for a transplant abroad when the Italian facilities are unable to provide the treatment they need, or if the waiting time for surgery or care is too long. In these cases, the patient must request prior authorization from the local area health authorities (Asl). Table 2.A.4 shows that 22 patients received transplant surgery abroad in 2006.

Table 2.A.5 shows the figures relating to the inter-regional mobility flows by type of organ (heart, liver, kidney, lung, pancreas).

Table 2.A.5: Waiting lists by transplanted organ (number of patients) – Year 2006

Region of residence	Heart			Liver			Kidney			Lung			Pancreas		
	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
Abruzzo	7	13	20	0	33	33	110	100	210	0	9	9	0	6	6
Basilicata	0	8	8	0	17	17	0	81	81	0	2	2	0	0	0
Calabria	0	27	27	0	78	78	181	209	390	0	8	8	0	8	8
Campania	22	41	63	82	185	267	565	977	1542	0	29	29	0	11	11
Emilia Romagna	39	22	61	212	5	217	587	141	728	3	28	31	13	12	25
Friuli V. G.	2	1	3	15	7	22	47	24	71	0	4	4	2	2	4
Lazio	26	27	53	95	35	130	470	363	833	11	17	28	4	16	20
Liguria	0	27	27	23	11	34	155	49	204	0	15	15	9	5	14
Lombardia	142	27	169	150	72	222	1060	138	1198	66	14	80	43	6	49
Marche	0	14	14	15	30	45	78	142	220	0	8	8	2	5	7
Molise	0	5	5	0	6	6	0	85	85	0	0	0	0	0	0
Piemonte	32	31	63	20	14	34	372	68	440	21	12	33	3	12	15
Bolzano	0	3	3	0	5	5	0	1	1	0	0	0	0	0	0
Trento	0	7	7	0	8	8	0	30	30	0	1	1	0	1	1
Puglia	15	46	61	28	106	134	618	541	1159	0	15	15	0	19	19
Sardegna	26	2	28	12	21	33	94	40	134	0	11	11	2	28	30
Sicilia	35	42	77	186	51	237	460	313	773	15	13	28	9	13	22
Toscana	15	26	41	10	20	30	155	158	313	9	7	16	4	2	6
Umbria	0	13	13	0	15	15	75	43	118	0	11	11	0	3	3
Valle d'Aosta	0	3	3	0	0	0	0	14	14	0	0	0	0	1	1
Veneto	63	13	76	81	25	106	299	30	329	20	6	26	3	4	7
Total	424	399	823	929	744	1673	5326	3547	8873	145	210	355	94	154	248

Source: SIT, Ministry of Health, 2006

Campania is the region with the highest number of patients moving to other regions for liver, kidney and lung transplants, while Puglia has the highest number of out patients for heart transplants, and Sardinia for pancreas transplants. With regard to waiting lists for in patients, it is interesting to note how Lombardia attracts the highest number of patients for almost all types of organs, except for liver transplants, in which case the biggest flows are towards Emilia Romagna, followed by Sicilia.

Table 2.A.6 shows, for both 2005 and 2006, the number of donors broken down by region and by “reported” and “effective” donors per million inhabitants. Reported donors are those for whom brain death has been confirmed and who are, therefore, potential donors, as opposed to effective donors, who are those from whom at least one organ has already been removed for transplant surgery.

The region with the highest number of effective donors, in 2006, was Toscana, followed by Friuli Venezia Giulia, Piemonte and Veneto, while the southern regions ranked at the bottom of the table.

Table 2.A.6: Number of donors (per million inhabitants)

Regions	Reported donors 2006	Reported donors 2005	difference 2006-2005	Effective donors 2006	Effective donors 2005	difference 2006-2005
Abruzzo-Molise	48,0	40,4	7,6	18,3	20,2	-1,9
Basilicata	33,5	21,7	11,8	13,4	8,4	5,0
Calabria	20,9	17,4	3,5	7,5	6,5	1,0
Campania	19,6	23,7	-4,1	11,8	13	-1,2
E. Romagna	52,0	57,5	-5,5	29,6	36,4	-6,8
Friuli-Venezia Giulia	41,4	40,5	0,9	35,5	31,3	4,2
Lazio	40,7	29,7	11,0	17,6	12,3	5,3
Liguria	53,4	56,6	-3,2	38,2	40,7	-2,5
Lombardia	30,0	28,7	1,3	22,4	20,4	2,0
Marche	40,1	40,1	0,0	29,2	30,6	-1,4
Piemonte-Valle d’Aosta	50,3	48,7	1,6	30,9	34,1	-3,2
Bolzano	45,4	43,2	2,2	23,8	30,2	-6,4
Trento	8,4	6,3	2,1	6,3	6,3	0,0
Puglia	18,2	15,4	2,8	7,0	7,5	-0,5
Sardegna	31,9	34,9	-3,0	23,3	20,2	3,1
Sicilia	21,1	19,9	1,2	9,9	7,2	2,7
Toscana	74,6	53,7	20,9	42,3	31,7	10,6
Umbria	35,1	42,4	-7,3	12,1	15,7	-3,6
Veneto	42,8	44,2	-1,4	30,0	32	-2,0

Source: SIT, Ministry of Health, 2006.

The picture that emerges from this overview can be summarized as follows: with regard to transplant supply, there is a large number of multispecialist transplant facilities and (reported and effective) organ donors in the centre-north regions, while with regard to demand, the migratory flow comes primarily from the southern regions towards the northern regions.

The next step in our analysis will consist in the assessment of the relationship between the transplant demand of *out* patients and transplant supply, consisting, first and foremost, in the potential supply of organs, i.e. the number of notified donors per region (taking into account the

fact that a notified donor is not necessarily a donor that will then be used) and, secondly, in the number of centres that can perform the transplant.

2.A.3 Outcome of the estimates and open problems

Despite the many economical issues related to organ transplants, which have been examined a number of times in the medical-economic literature, there are very few studies concerning the Italian situation. The first studies were made in the 1980s (e.g., Reale *et al.*, 1987, on the location of heart transplant centres) and at the beginning of the 1990s (Famulari *et al.*, 1992, on the organization of transplants in Italy).

A regional analysis relating to different centres, broken down by type of transplanted organ, is contained in a 1993 paper (Gario, Ancona, Mittone, 1993) on the transplant activities carried out in Lombardia, in which the authors highlighted the absolute lack of information on the cost of the transplants and, therefore, focus on estimating the average costs associated with this activity. The merit of this paper is that, for the first time in Italy, it tended to focus on the financial issues linked to the management of so complex an activity as organ transplantation: we have already pointed out how transplants can be assimilated to production processes.

Other economic issues related to organ transplanting are mentioned in the studies by Clerico and Zanola, carried out between the end of the 1990s and the early years of the 2000s (1998, 2003).

A feature common to all the works published to date is that they are often based on the experience of the single transplant centres, such as, for example, the works carried out for Tuscany, relating to the transplant activities of the hospital of Cisanello (Filipponi, Pisati *et al.*, 2003, Filipponi, Urbani *et al.*, 2003, Pisati *et al.*, 2003), or the recent study by Passerani *et al.* (2007), which is based on the experience of the Niguarda hospital in Milan. Moreover, most of the time these studies are primarily experimental in nature: therefore, they do not allow generalisation and cannot be compared with other organizational arrangements or therapeutic procedures, or provide a clear assessment of the conditions of transplant demand and supply.

However, an exception to this latter criticality is the work by Quintieri *et al.* (1999), which summarizes the transplant activities carried out in Italy in the 1992-1997 five-year period, distinguishing between type of organ and describing the characteristics of both donors and recipients. A further effort towards describing the conditions of demand and supply was made by Casciani and Valeri (2000), who focus on the link between transplant demand (the patients on the waiting lists) and supply (the number of donors and transplant centres): the variables identified by the authors as demand and supply indicators are the same as those used in this paper.

No price tag can be attached to a transplanted organ (in this paper we do not consider the illegal organ market and all the problems this poses); the key constraint here is represented by the availability of organs and the presence of facilities qualified to remove and implant them. With regard to kidney transplants, Miceli *et al.* (2000) underline the difficulties patients can encounter when in need of a life-saving treatment such as an organ transplant: discriminations may emerge, not necessarily economically-related, which could be removed by identifying the factors that hinder access to this kind of treatment (for example, the authors suggest how a patient's level of education can lead to delayed access to healthcare).

In the light of this short review of papers on the condition of organ transplants in Italy, we can see that there is a lack of an ongoing analysis of transplant demand and supply. The aim of this paper – which, moreover, can be replicated simply by updating the waiting list and reported donor figures, year by year – is to remedy this shortcoming.

The data used here (relating to 2006) are aggregate data and concern the number of patients on the waiting lists, the number of reported donors, and the number of facilities in each region. The figures relating to Piemonte-Valle d'Aosta and Abruzzo-Molise have been further aggregated; on the contrary, the observations relating to the autonomous provinces of Trento and Bolzano are considered separately. The number of waiting patients and of donors have been weighted per million inhabitants.

The descriptive statistics for the variables employed are shown in Table 2.A.7:

Table 2.A.7: Descriptive statistics

Variable	Avg	Standard dev.	Min	Max
"Out" patient waiting lists	92.06	63.17	14.1	215.2
Reported donors 2006	37.23	15.68	8.4	74.6
"Out" waiting lists for heart	20.94	13.82	1	46
"Out" waiting lists for liver	39.15	44.90	5	185
"Out" waiting lists for kidney	186.68	235.49	1	977
"In" waiting lists for heart	22.31	33.97	0	142
"In" waiting lists for liver	48.89	67.22	0	212
"In" waiting lists for kidney	280.31	284.04	0	1060
Number of transplant centres	2.47	1.92	0	8
Number of transplant centres for heart	0.89	0.93	0	3
Number of transplant centres for liver	1.05	1.07	0	4
Number of transplant centres for kidney	2.15	1.89	0	8
Number of transplant centres for other organs	0.42	0.83	0	3
Multiple-organ transplant centres	0.73	1.04	0	4
Operations at heart centres	181.7	250.54	11	857
Operations at liver centres	376.30	283.34	11	878
Operations at kidney centres	456.43	409.41	18	1604
Survival rate heart transplants (%)	85.80	2.48	81.6	89.4
Survival rate liver transplants (%)	85.93	3.96	79.3	91
Survival rate kidney transplants (%)	96.91	1.32	92.5	98.2
Survival rate in complex heart cases (%)	74.19	18.10	50	100
Survival rate in complex liver cases (%)	76.82	20.07	25	100

Source: SIT, Ministry of Health, 2006 data processed by the authors.

The estimates have been made using the OLS method. The estimated equation considers the number of waiting list patients moving to other regions per million inhabitants as the predicted variable; the number of reported donors per million inhabitants and the number of transplant centres have been included among the predictors.

The findings are shown in the following table:

Table 2.A.8: Results of estimates (1)

Predicted variable: “out” patient waiting lists	Estimated coefficient	Standard error
Reported donors 2006	1.471**	0.622
Number of transplant centres	6.480	3.065

** 95% relevance; *** 99% relevance
 $R^2 = 0,464$; $F(2, 17) = 10,50$ ***

Source: SIT, Ministry of Health, 2006 data processed by the authors.

There is a positive and significant correlation between the reported donors and the patients on the waiting list; the circumstance that strikes us the most – even though the estimated coefficient is not significant – is the role played by the number of transplant centres in affecting demand by waiting patients. The estimated coefficient for the latter variable, in fact, is considerably higher than the coefficient relating to the number of donors. Patient mobility, therefore, appears to be affected by the availability of transplant centres, rather than by the donors and the concrete availability of organs.

We then repeated the estimate using the *out* patients as the predicted variable, broken down by type of organ transplant, focusing on heart and liver transplants, which can be rather complex operations. The predictors employed refer to the number of transplant centres per region, the activity rate of the centres (i.e. the ratio of transplant operations to total operations) and a survival index for the more complex cases.

The findings obtained are shown in the table below.

Table 2.A.9: Results of estimates (2)

Predicted variable: “in” patient waiting lists	Estimated coefficient – Heart (standard errors are between brackets) $R^2=0,30$	Estimated coefficient – Liver (standard errors are between brackets) $R^2=0,46$
Transplant centres	13,125* (7,766)	16,832** (6,468)
Activity of centres	-0,040** (0,017)	-0,025 (0,022)
Survival rate in complex cases	0,590** (0,234)	0,018 (0,147)
Constant	-33,335** (13,071)	8,387 (17,683)

* 90% relevance; ** 95% relevance

Source: SIT, Ministry of Health, 2006 data processed by the authors.

Not all the estimated coefficients are significant. The activity rate of the centres, which may be defined as the number of organ removals and transplants carried out, features an inverse correlation with respect to the waiting lists (i.e. the higher the number of transplant operations carried out, the lower the number of patients who will choose that centre to apply for a place on the waiting list). The high survival rate of patients undergoing complex surgery has a positive and significant effect in determining the increase in the number of applications for a place on the waiting lists by patients in need of a heart transplant. The lack of relevance of this variable in the case of liver transplants suggests the need for further investigation of the complications that can ensue following a transplant, taking into account the likelihood of a transplant rejection.

It should be highlighted how the index of complexity is calculated by the Transplant Information System based on a multivariate analysis.

The complexity of the cases is examined with respect to the most significant variables of the multivariate analyses conducted for each transplant centre, namely: - the donor's age; - the recipient's age; - the patient's prior surgical history; - the patient's prior hospitalisation. The higher the coefficient, the higher the likelihood of failure. With regard to the recipient's age, for example, the older the patient, the higher the risk factor: thus, a transplant performed on a 50-year old recipient will entail a greater risk compared to a transplant on a 30-year old recipient. The above 4 variables complicate the analysis of the cases of each centre, as well as increasing the difficulty of achieving high survival rates: therefore, they signal a greater degree of difficulty faced by the centre.

The SIT calculates the mean and cumulative risk indexes for each centre. The former is the average of the risk factors calculated with respect to all the transplants carried out by each centre: this index is related to the percentage of complex cases treated by a centre, with respect to the totality of its cases. On the contrary, the latter index, which has not been employed for the regressions calculated for this study, is related to the percentage of complex cases handled by the centre, with respect to the totality of cases nationwide.

In our opinion, the variability of the findings, and the non-relevance of several estimated coefficients, could be the signal of inadequate information among patients, their families and the general public, with respect to all the most useful elements for making the best decision.

For example, the only transplant centre performance indicators taken into account in the reports compiled by the SIT are the activities of the centres themselves, the patient survival rate and the survival rate of complex cases. Besides survival, however, it would be beneficial to also assess the improvements, if any, in the perceived quality of life of patients.

Therefore, as highlighted by Biancofiore (2007), it is to be hoped that the economic assessment studies that, to date, have been carried out predominantly in foreign countries, may be conducted in Italy as well, using the data collected by the SIT and the Associations of organ donors and transplant patients.

The other criticality, with respect to the organization of the transplant system in Italy, is the availability of organs: if the ultimate aim is to strike a balance between the demand and supply of organs, then it is necessary, first of all, to enhance the organ donation policies, providing clarifications and disseminating information on the related risks and benefits, and, secondly, to streamline and extend the national information system, in respect of the activities of the transplant centres, with a view to achieving the efficient and effective allocation of organs.

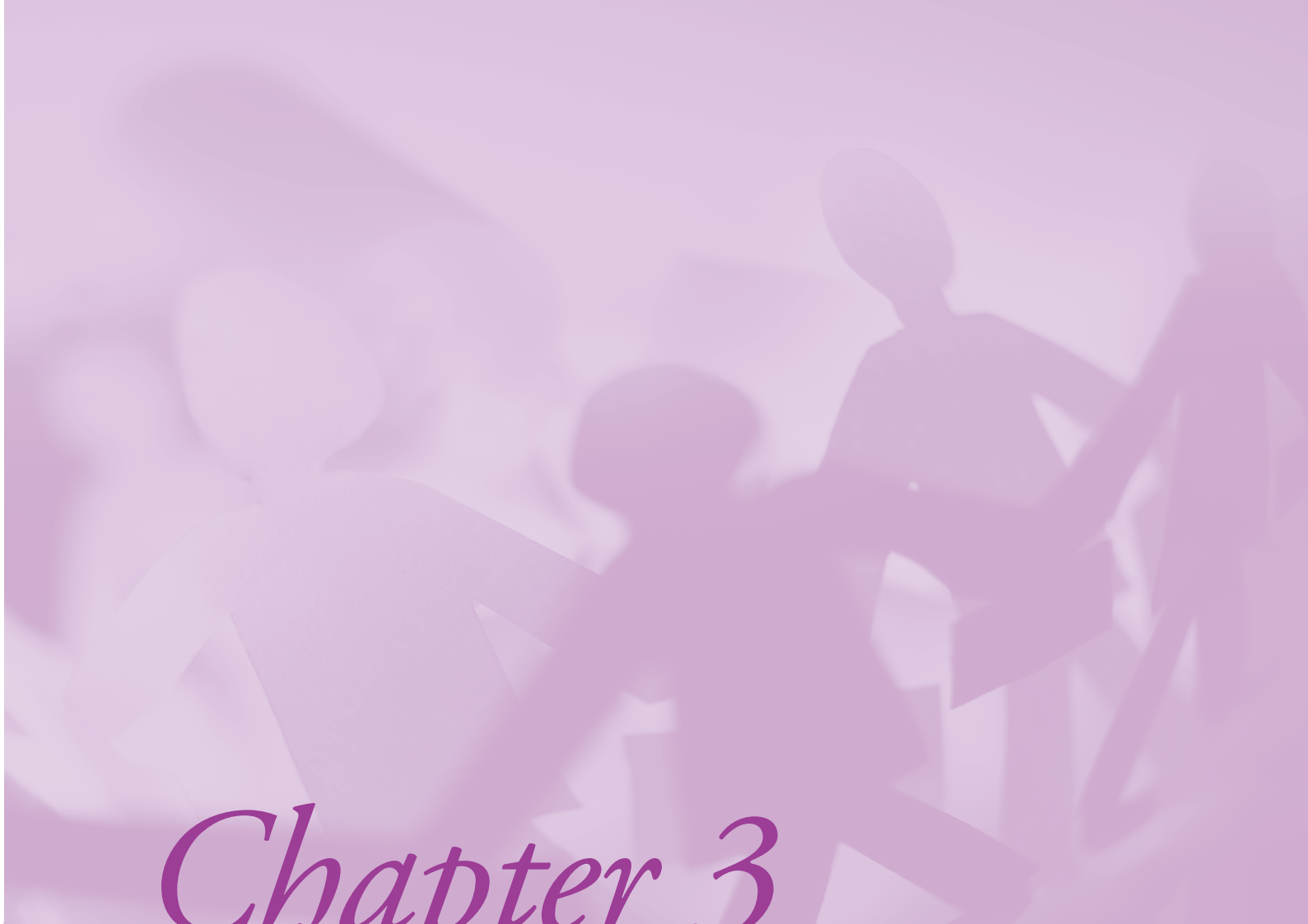
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Chapter 3

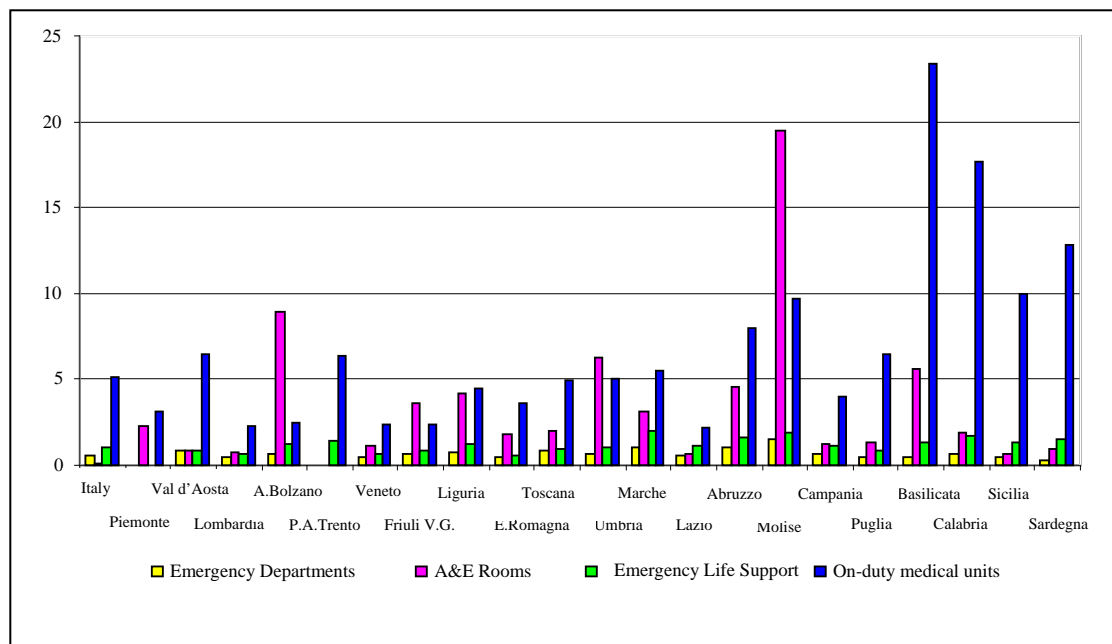
The Emergency Care System in Italy

3 - The Emergency Care System in Italy¹

The emergency care system is obviously a key element of the health service; the following paragraphs contain an in-depth analysis of the emergency care system, with figures relating to its organization and activities, which can be summarized as follows:

- the general principles of the domestic legislation framework are applied in all the Regions and the unification of the admissions classification methodology has resulted in a useful tool for the necessary reorganization of the service, with a view to streamlining care services nationwide;
- the Emergency Services Network in Italy, however, is not organized uniformly across the various Regions: there are, in fact, significant differences in how the services are delivered, Lombardia and Lazio being the Regions with the highest degree of consistency and rationality between supply (measured in number of emergency facilities) and demand (in terms of admissions complexity);

Figure 3.1: Emergency services. Rates per 100,000 population in 2006



Source: Ministry of Health 2006 Yearbook

- on average, the surveyed complexity of admissions seems low, compared to the organizational complexity of emergency services: only 16% of emergency admissions, in fact, leads to subsequent hospitalization and the death rate of patients admitted to A&E rooms is below 0.1%.

¹ Piasini L., Coticoni M., *CRINALI S.r.l.*(paragraphs 3.1 and 3.2); Francia L. CEIS Sanità- Faculty of Economics, University of Rome "Tor Vergata" (paragraph 3.3).

3.1 The framework legislation

In Italy, the levels for emergency care are set out in the D.P.R. of 27 March 1992, under which the responsibility for providing accident and emergency services rests with the National Health Service. Moreover, the decree also defines the uniform nationwide activities and sets up a central coordination unit, for the purpose of providing a set of emergency services at local and hospital level.

Subsequently, in 1996, Guidelines were issued setting out the organizational and functional requirements for the emergency services network, thus completing the definition of the emergency facilities, their competencies and management structure. The Guidelines can be summarized as follows:

- Establishment of an Emergency Control Room answering calls made to the 118 number and receiving all emergency requests. The Control Room coordinates the emergency services and operates on a 24/7 basis, mobilizing medical and paramedical staff specializing in emergency care;
- Purchasing of ambulances, mobile intensive care units and helicopter ambulances to provide local emergency services;
- Creation of an emergency care network comprising services and facilities;
- The above mentioned emergency care network, according to the Guidelines, comprises the following:
 - First aid points for the local handling of emergency cases or for stabilizing patients before transportation to a suitable care facility;
 - Hospital A&E Rooms for diagnosing and treating a condition, if possible, or stabilizing patients before safe transportation – under the coordination of the Emergency Control Room – to an appropriate specialist facility;
 - Emergency Admission Departments (Dipartimenti di Emergenza-Urgenza e Accettazione – DEA), which adopt a uniform care approach and comprise a number of operational units with autonomous clinical and care responsibilities, capable of guaranteeing seamless interdependence in view of the provision of instant and appropriate care services. The 2-tier system comprises Level 1 and Level 2 DEAs, based on the complexity of the required care and depending on the composition of the units involved.

The D.P.R. of 27th March 1992 also provides that “The DEAs must implement a triage process, consisting in the prioritizing of patients, on arrival, based on the clinical assessment of the severity of their condition and the treatment they require, by trained and qualified nursing staff that operate in accordance with the procedures laid down by the emergency services director”.

The introduction of the *triage* process, therefore, is aimed at ensuring the rapid and efficient organization of care at A&E rooms. The patient’s condition is assessed by a qualified nurse, with the task of assigning a priority code. A special form is filled out for each patient, with the outcome of the initial assessment, which must be periodically repeated while the patient remains in the emergency room, with a view to helping the staff not to underestimate any negative developments in the patient’s condition.

In many cases a “colour coding system” has been adopted, based on the use of four colours (white, green, yellow and red) identifying four different priorities, as follows:

- Red: high priority, acute danger for life, the patient’s condition is potentially life-threatening and requires immediate medical attention;
- Yellow: severe injury, the patient requires immediate care and constant observation;

- Green: slight injury, the patient can be treated when practical and requires repeated observation;
- White: low priority, minor injury.

As regards the classification of the emergency services, the latest or second-latest version of the so-called ICD-9-CM classification is used, providing an internationally-accepted standard for classifying conditions and treatments.

3.2 Facilities and care services

Table 3.1 contains figures relating to emergency facilities, compared to the regional population, enabling us to analyse the nationwide emergency network's capacity to provide emergency services.

What springs immediately to the eye are significant differences among the Regions, with respect to the provision of emergency services.

Some Regions, in fact, feature a very low ratio of Emergency Departments to population, a fact that also concerns the medium-large Regions with a rather large catchment area compared to other Regions (for example, Piemonte, which has only 0.02 Emergency Departments per 100,000 population). This figure, however, should be examined in conjunction with the amount of A&E facilities in the Region, which can be viewed as alternate or substitute facilities.

However, there are several Regions – such as Molise, Abruzzo and Marche – that feature a large number of both Emergency Departments and A&E Rooms per population.

Continuing in the analysis, we can see how, at times, there is only a limited consistency between the number of intensive care and life-support units and the amount of emergency facilities: which makes one naturally wonder how the emergency services network is organized in those Regions.

Molise, in particular, appears a paradigmatic case: as observed previously, the Region has many A&E Rooms and Emergency Departments, but it also features many on-duty medical units. This is especially the case in the smaller Regions: on the contrary, in Regions like Lombardia and Lazio – which feature a balanced emergency services network – there is also a proportionally lower number of on-duty medical units.

The observations made up to this point seem to be confirmed by the analysis of the figures relating to the number of emergency vehicles (table 3.2). Here too the benchmark cases seem to be Lombardia and Lazio.

In the case of some Regions with a high (above average) number of vehicles, this might be due to special geographical conditions, such as the presence of mountainous and remote areas, although this is not always confirmed by other similarly mountainous Regions.

Table 3.1: Emergency care services. Rates per 100,000 population in 2006

Regions	Emergency Departments	A&E Rooms	Intensive Care Units	On-duty Medical
Italy	0.59	0.09	1	5.14
Piemonte	0.02	2.3	0.02	3.09
Valle d'Aosta	0.81	0.81	0.81	6.45
Lombardia	0.47	0.77	0.63	2.28
P. A. Bolzano	0.62	8.89	1.24	2.49
P. A. Trento	0	0	1.39	6.37
Veneto	0.46	1.16	0.63	2.34
Friuli V. G.	0.62	3.65	0.81	2.42
Liguria	0.74	4.14	1.24	4.47
Emilia Romagna	0.48	1.84	0.6	3.61
Toscana	0.83	2.01	0.97	4.94
Umbria	0.69	6.28	1.04	5.07
Marche	1.05	3.17	2.03	5.56
Lazio	0.53	0.68	1.15	2.21
Abruzzo	1	4.53	1.61	7.97
Molise	1.56	19.48	1.87	9.66
Campania	0.71	1.23	1.12	3.99
Puglia	0.52	1.36	0.88	6.51
Basilicata	0.5	5.61	1.35	23.4
Calabria	0.7	1.89	1.75	17.71
Sicilia	0.48	0.68	1.32	9.95
Sardegna	0.3	0.92	1.51	12.86

Source: Ministry of Health 2006 Yearbook

Table 3.2: (Public and private) emergency vehicles. Rates per 100,000 population in 2006

Regions	“A” type ambulances	Pediatric ambulances	“B” type ambulances	Mobile intensive care units
Italy	2.09	0.08	1.9	0.57
Piemonte	0.55	0.07	1.2	0.23
Valle d’Aosta	0	0	0	0
Lombardia	0.87	0.11	0.81	0.41
P. A. Bolzano	2.07	0	6.84	0
P. A. Trento	26.87	0	15.13	0
Veneto	3.04	0	1.79	0.55
Friuli V. G.	1.8	0.06	0.56	0.12
Liguria	11.84	0.25	3.64	2.98
Emilia Romagna	3.1	0.02	0.98	0.24
Toscana	3.81	0.17	4.03	0.55
Umbria	4.38	0	4.49	0.46
Marche	2.62	0	1.77	0.85
Lazio	0.7	0.13	1.3	0.17
Abruzzo	2.91	0	2.07	0.92
Molise	0.93	0.62	2.49	1.56
Campania	1.05	0.1	2.09	0.5
Puglia	1.72	0.07	2.31	0.71
Basilicata	0.5	0.17	3.03	1.01
Calabria	1.2	0.05	0.75	0.7
Sicilia	0.94	0.08	2.03	1.06
Sardegna	1.75	0.06	2.05	0.91

Source: Ministry of Health 2006 Yearbook

Moving on to the analysis of the A&E Rooms (table 3.3), we can see that the Regions with an apparently above average number of A&E Rooms, also feature a significant degree of organizational inefficiency. The number of admissions per population, in fact, which in the majority of cases is in line with the nationwide average, does not seem to justify the large number of such facilities.

Table 3.3: Admission to A&E Rooms - Year 2006

Regions	Admissions	Admissions x 100,000	Hospitalization (%)	Deaths (%)
Italy	24,034,676	4.09	16.9	0.09
Piemonte	1,714,041	3.95	0.11	0.15
Valle d'Aosta	51,137	4.12	15.2	0.06
Lombardia	3,738,749	3.95	14.5	0.11
P. A. Bolzano	241,171	5	16.2	0.07
P. A. Trento	236,895	4.71	10.3	0.05
Veneto	2,059,713	4.35	14.1	0.09
Friuli V. G.	424,632	3.51	16.1	0.08
Liguria	700,077	4.35	15.9	0.09
Emilia Romagna	1,774,416	4.24	14.4	0.09
Toscana	1,174,640	3.24	13.4	0.11
Umbria	365,705	4.21	14.9	0.05
Marche	553,793	3.62	14.9	0.1
Lazio	2,289,921	4.32	20.2	0.15
Abruzzo	571,611	4.38	22.8	0.06
Molise	169,909	5.29	39.2	0.04
Campania	2,732,788	4.72	16.5	0.04
Puglia	1,491,395	3.66	25.8	0.06
Basilicata	173,575	2.92	24.9	0.05
Calabria	875,598	4.37	24.3	0.05
Sicilia	2,266,958	4.52	18.3	0.05
Sardegna	427,952	2.58	20.8	0.04

Source: Ministry of Health 2006 Yearbook

Moreover, compared to total admissions, the death and hospitalization rates lead us to the logical conclusion that most admissions concern patients that could be treated elsewhere, in other non-emergency facilities.

Nationwide, there is an average hospitalization rate of 16% of all admissions to A&E Rooms. Only eight Regions feature higher rates and among these Molise ranks first with 39%.

The highest death rates, even if close to the nationwide average, can be found in Lazio and Lombardia, which could depend on either the complexity of admissions or the quality of care, if we could leave aside the hospitalization rate compared to the number of admissions.

3.3 Cost-sharing charges on emergency room visits

The national healthcare regulations provide for the levying of a charge not just on drug and other medical prescriptions, but on certain emergency room services as well, primarily aimed at stemming inefficiency and responsabilizing the public, with a view to improving attendance at the accident and emergency (A&E) departments through cost-sharing schemes.

Law 296/2006 (2007 Financial Law) sets out that, in the case of emergency room services not followed up by hospital admission, for non-urgent complaints (classified as No Alert), non-exempt patients are required to pay a basic charge of €25.

This €25 charge, therefore, is levied only in the case of emergency room visits for “non-urgent complaints”, which should be handled by the patient’s GP or any other appropriate outpatient facility ensuring ‘continuity of care’.

Besides the €25 charge, the Regions may also levy extra charges for other emergency room services, such as consultant examinations, tests & imaging scans, medical treatments, etc..

According to Law 296/2006, patients suffering from acute injuries or poisoning are exempted from paying the A&E charge for non-urgent complaints. Also exempt are children aged below 14 years.

Without prejudice to the fact, however, that the regional and autonomous provincial authorities may make their own charge-exemption arrangements and are not required to apply the national regulations. A number of Regions, for example, have also implemented the charge exemptions provided for in the national regulations for specialist care services.

Unlike the case of cost-sharing charges on consultant examinations and drug prescriptions, where the schemes applied by the Regions may differ, to date, the A&E charges have been rather uniformly introduced, nationwide.

Prior to the entry into force of the 2007 Financial Law, eleven regions and autonomous provinces had already introduced A&E charges, namely Valle d'Aosta, Lombardia, Friuli Venezia Giulia, Veneto, Abruzzo, Emilia Romagna, Liguria, Toscana, Umbria, Sardegna, Marche and the Autonomous Province of Bolzano. The devolution of power to the regions, with respect to health care policies, in 2001, following the amendment of Title V of the Constitution, placed the decision as to whether to levy cost-sharing charges on the public into their hands.

Only a few regions (e.g., Emilia Romagna, Valle d'Aosta, Lombardia and Sardegna) implemented the new 2007 regulations, while others (such as the Autonomous Province of Bolzano and Friuli Venezia Giulia) decided to keep their previous cost-sharing charge arrangements.

Friuli Venezia Giulia, for example, has maintained the differential charge scheme, based on the type of service, introduced back in 1992². Likewise, the Autonomous Province of Bolzano decided to maintain the two-tier charge scheme introduced in 2002, consisting of a €15 charge for a consultant examination, if the emergency room visit is justified but is not followed by hospital admission, and a €50 charge – plus any extra charges for other services that may be required – if the visit is neither urgent, nor justified.

On the contrary, in Emilia Romagna the previous €23 charge has been increased to €25 (in both cases for a consultant examination alone; different charges are levied on other services, based on the same procedure). Lombardia too has adopted the a basic €25 charge for non-urgent complaints, in replacement of the previous cost-sharing charge, which was €35 for consultant examinations and €50 for other tests and imaging.

Sardegna, which previously levied a €15 charge on non-urgent complaints, has increased the charge to €25 and also introduced a €15 charge for 'code green' complaints.

Following the entry into force of the Financial Law, the Regions that had not previously implemented cost-sharing arrangements for emergency room visits (Sicilia, Piemonte, Molise, Campania, Basilicata, Calabria, Lazio and the Autonomous Province of Trento) have since introduced the national provisions, without any particular "customization", except for Puglia which introduced both a basic €25 charge for non-urgent complaints and an extra charge for any specialist care that may be required.

² Charges are as follows: 1) 7.74 € for the emergency room visit; 2) 10.32 € for a consultant examination; 3) 18.07 € for laboratory tests; 4) 12.91 € for chest X-rays; 5) 23.24 € for other X-rays; 6) 30.98 € for ultrasounds; 7) 12.91 € for electrocardiograms; 8) 23.24 € for electroencephalograms (including neurological exams); 9) 12.91 € for other imaging scans (specialist exams) – The services from 3 to 9 include the emergency room visit charge (Source: ASSR (2007))

Table 3.4: Current cost-sharing charges on emergency room visits

Regions	Current cost-sharing charges on emergency room visits	Applied cases	Charge-exemption
Abruzzo	25 €charge; 36,15 €charge for consultant examination, laboratory tests ,etc	No Alert (for non-urgent complaints; emergency room services not followed up by hospital admission)	Patients suffering from acute injuries or poisoning are exempted from paying the A&E charge for non-urgent complaints. Also exempt are children aged below 14 years. Charge exemptions provided for in the national regulations for specialist care services.
Basilicata	25 €charge	No Alert (for non-urgent complaints; emergency room services not followed up by hospital admission)	Patients suffering from acute injuries or poisoning are exempted from paying the A&E charge for non-urgent complaints. Also exempt are children aged below 14 years
Calabria	25 €charge	No Alert (for non-urgent complaints; emergency room services not followed up by hospital admission)	Patients suffering from acute injuries or poisoning are exempted from paying the A&E charge for non-urgent complaints. Also exempt are children aged below 14 years.
Campania	25 €charge	No Alert (for non-urgent complaints; emergency room services not followed up by hospital admission)	Patients suffering from acute injuries or poisoning are exempted from paying the A&E charge for non-urgent complaints. Also exempt are children aged below 14 years. Charge exemptions provided for in the national regulations for specialist care services
Emilia Romagna	25€for a consultant examination alone + different charges are levied on other services based on the same criteria of specialist health care services	No Alert (for non-urgent complaints; emergency room services not followed up by hospital admission)	Patients suffering from acute injuries or poisoning are exempted from paying the A&E charge for non-urgent complaints. Also exempt are children aged below 14 years
Friuli V. G.	Charges are as follows: 1) 7.74 €for the emergency room visit; 2) 10.32 €for a consultant examination; 3) 18.07 €for laboratory tests; 4) 12.91€for chest X-rays; 5) 23.24 €for other X-rays; 6) 30.98 €for ultrasounds; 7) 12.91 €for electrocardiograms; 8) 23.24 €for electroencephaolograms (including neurological exams); 9) 12.91€for other imaging scans (specialist exams) – The services from 3 to 9 include the emergency room visit charge	No Alert (for non-urgent complaints; emergency room services not followed up by hospital admission)	Patients suffering of chronic illness or disabling SEGUE

Regions	Current cost-sharing charges on emergency room visits	Applied cases	Charge-exemption
Lazio	25 €charge	No Alert (for non-urgent complaints; emergency room services not followed up by hospital admission)	Patients suffering from acute injuries or poisoning are exempted from paying the A&E charge for non-urgent complaints. Also exempt are children aged below 14 years.
Liguria	25 €charge for a consultant examination alone; max 36.15 €charge for other services that may be required.	No Alert (for non-urgent complaints; emergency room services not followed up by hospital admission)	Patients suffering from acute injuries or poisoning are exempted from paying the A&E charge for non-urgent complaints. Also exempt are children aged below 14 years. Charge exemptions provided for in the national regulations for specialist care services.
Lombardia	25 €charge	No Alert (for non-urgent complaints; emergency room services not followed up by hospital admission)	Are exempted children aged below 14 years and citizens over 65. Charge exemptions provided for in the national regulations for specialist care services.
Marche	25 €charge	No Alert (for non-urgent complaints; emergency room services not followed up by hospital admission)	Are exempted children aged below 14 years
Molise	25 €charge	No Alert (for non-urgent complaints; emergency room services not followed up by hospital admission)	Patients suffering from acute injuries or poisoning are exempted from paying the A&E charge for non-urgent complaints. Also exempt are children aged below 14 years. Charge exemptions provided for in the national regulations for specialist care services.
Piemonte	25 €charge	No Alert (for non-urgent complaints; emergency room services not followed up by hospital admission)	Patients suffering from acute injuries or poisoning are exempted from paying the A&E charge for non-urgent complaints. Also exempt are children aged below 14 years
P.A. Bolzano	25 €charge	If the emergency room visit is justified but is not followed by hospital admission	Charge exemptions provided for in the national regulations for specialist care services. Also exempt are children aged below 14 years with particular conditions
	50 €charge – plus any extra charges for other services that may be required (max 100 €).	If the visit is neither urgent, nor justified	Charge exemptions provided for in the national regulations for specialist care services
P.A. Trento	25 €charge	No Alert (for non-urgent complaints; emergency room services not followed up by hospital admission)	Patients suffering from acute injuries or poisoning are exempted from paying the A&E charge for non-urgent complaints. Also exempt are children aged below 14 years. Charge exemptions provided for in the national regulations for specialist care services

SEGUE

Regions	Current cost-sharing charges on emergency room visits	Applied cases	Charge-exemption
Puglia	25 €charge + extra charge for any specialist care that may be required.	No Alert (for non-urgent complaints; emergency room services not followed up by hospital admission)	Patients suffering from acute injuries or poisoning are exempted from paying the A&E charge for non-urgent complaints. Also exempt are children aged below 14 years. Charge exemptions provided for in the national regulations for specialist care services
Sicilia	25 €charge	No Alert (for non-urgent complaints; emergency room services not followed up by hospital admission)	Patients suffering from acute injuries or poisoning are exempted from paying the A&E charge for non-urgent complaints. Also exempt are children aged below 14 years. Charge exemptions provided for in the national regulations for specialist care services
Sardegna	25 €charge	No Alert (for non-urgent complaints; emergency room services not followed up by hospital admission)	Patients suffering from acute injuries or poisoning are exempted from paying the A&E charge for non-urgent complaints. Also exempt are children aged below 14 years. Charge exemptions provided for in the national regulations for specialist care services
	Ticket di 15€	Code green complaints	
Toscana	25 €charge for the emergency room visit and for laboratory tests plus max 25€ for any specialist care that may be required	No Alert (for non-urgent complaints; emergency room services not followed up by hospital admission)	Charge exemptions provided for in the national regulations for specialist care services.
Umbria	25 €charge	No Alert (for non-urgent complaints; emergency room services not followed up by hospital admission)	Patients suffering from acute injuries or poisoning are exempted from paying the A&E charge for non-urgent complaints. Also exempt are children aged below 14 years. Charge exemptions provided for in the national regulations for specialist care services
Valle D'Aosta	25 €charge	No Alert (for non-urgent complaints; emergency room services not followed up by hospital admission)	Patients suffering from acute injuries or poisoning are exempted from paying the A&E charge for non-urgent complaints. Also exempt are children aged below 14 years.
Veneto	25 €charge for the emergency room visit; max 36.15 €charge for other services that may be required.	No Alert (for non-urgent complaints; emergency room services not followed up by hospital admission)	Patients suffering from acute injuries or poisoning are exempted from paying the A&E charge for non-urgent complaints. Also exempt are children aged below 14 years. Charge exemptions provided for in the national regulations for specialist care services

Source: processing of SANIDATA of data ASSR/AGENAS 2007 and national and regional regulation al2008

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The background of the top half of the page features a light purple gradient. Overlaid on this gradient are several dark purple silhouettes of people of various ages and ethnicities, all holding hands in a circle, symbolizing community and support.

Chapter 4

*Residential assistance
system: Healthcare
Residential Structures.*

4 – Residential assistance system: Healthcare Residential Structures¹.

Recent years have seen increasing attention to form of residential assistance to the unhealthy outside the hospital. Such an higher attention is linked to a variety of factors:

1. a growth in demand of healthcare services fuelled by a progressive aging of the population;
2. a growing need for rationalizing expenditures and therefore reshaping services;
3. more attention to the necessity of accompanying the sick and disabled even at terminal stages of life.

Such a growing importance of residential assistance has been reflected in the predisposition of the new Italian National Health System (INHS), where one of the 13 fundamental “bricks” has been devoted to this issue.

As underlined by the Commission for the definition and updating of the levels of assistance, the "residential" assistance may not be so dissimilar from the "hospital" one with reference to the gradient of assistance required by patients; this because there can be chronic conditions that require significant and ongoing medical treatments, including support for the vital functions like breathing or nutrition; and this may require a level of assistance even higher than that of patients in the Hospital. However it seems that residential services, through appropriate reclassification of the structures and a gradation of the levels of assistance, can offer the opportunity of optimizing the services offered with relation to both they effectiveness and costs.

The correctness of this approach seems to be supported by the presence of negative correlation between rates of hospitalization for the elderly and supply of beds in RSA.

As shown in Figure 4.1 that brings together the allocation of beds in RSA and Socio healthcare residence for the not self caring elderly (RSSA) (data for 1,000 individuals over 65 years old) with the rate of hospitalization for the same band of age.

In the graphic, although the presence of some values that seem to be regional outliers, is possible to notice a certain negative correlation between the two variables; that may be symptomatic of a tendency to hospitalize the elderly when places in socio sanitary residential structures are scarce.

We must however underline that our analysis shows highly diverse meanings attributed to the definition of Residential Structures for Assistance (RSA) and of socio healthcare residences with great differences between Regions in both definition and roles assigned to those structures. Such a differentiation and the vagueness of definition leads in certain Regions to a redefinition of RSA splitting them not only on the basis of the type of users (RSA, RSA dementia, nuclei Alzheimer), but also introducing new types of more or less temporary structures classified with relation to the gradient of assistance provided; example of such a differentiation are the Flexible Residences (RSF), the Residences linked to an Hospital (RSAO) and the highly medicalised RSA (RSA-M).

The emerging of these types actually shows the need to classify users according to the level of health care required calculated on parameters as objective as possible.

¹ Doglia M., CEIS Sanità, Faculty of Economics, University of Rome “Tor Vergata”.

Unfortunately such an heterogeneity of definition, can hardly be matched, by the legislation with a clear set of requirements (sometimes also for issues linked to “political realism”). Therefore many of the requirements defined by the law are subject to exceptions, left somehow general or, as in the case of Lombardia, left in part at the level of suggestion or intention (in the sense that only apply to new structures).

Moreover, in many cases, there seems to be a great difficulty on the part of managers to adapt their structures to regional requirements in the manner and time limits specified by the law. This difficulty, often reported in the preambles of the resolutions themselves is also evident in the delay to the application of many regional laws.

The analysis of existing legislation seems therefore to highlight the need for careful monitoring by the policy makers as the RSA system seems to be far from that of a competitive market environment; indeed strong differences between requirements for existing structures and new facilities (with obvious effects on costs and barriers to entry) and sometimes the explicit ban on issuing new permits make the market closed only to the incumbent. All this, together with the obvious location advantages, the usual imperfect information issues typical of many healthcare markets and the weakness of users, clearly show the importance of a careful regulation of this kind of structures together with an efficient system to monitor level of assistance provided.

Such monitoring can be done only through an homogeneous reclassification of structures and a continuity and uniformity of data streams; is for this reason that we feel that the work of the 12th INHS brick in redefining and reclassifying structures and in defining the necessary information to be provided and collected can be the starting point for developing a system for the monitoring and governance of residential structures.

Other types of data (such as the ISTAT ones) may provide important indications regarding the location, design and development of residential operators; they however actually appear, as made available to the public, too aggregated to provide the basis for such a necessary detailed analysis. However, until the complete implementation of the work of the 12th brick, they are the few data able to provide a uniform and comprehensive picture of residential socio-sanitary structures in Italy.

4.1 Healthcare Residential Structures: characterization

The Commission for the establishment and maintenance of essential levels of assistance in its report "Prestazioni Residenziali e Semiresidenziali" stresses on the fact that the National laws referring to residential services are relatively few.

It recall the following acts:

- L. Mar 11 1988, n. 67 - art. 20 (Budget Law 1988)
- D.P.C.M. 22 December 1989 was replaced by DPR January 14th, 1997.
- Project Objective Protection of Health of the Elderly 1994-1996
- D.P.C.M. February 14th, 2001 - Decree on Social Integration health
- D.P.C.M. November 29th, 2001 - Definition of Essential Service Levels.

In particular it is necessary to draw attention to the DPR Jan 14th 1997 (Act of address and coordination of structural requirements technological and organizational minimum for the pursuit of health) that defines the structural organizational and technological minimal requirements for the pursuit of health by public and private residential structures thus providing the Regions and Autonomous Provinces with a reference legislation fixing the minimum criteria for the authorization and the accreditation of RSA in Italy.

The decree classifies structures in:

- a) structures that provide in-patient hospital assistance with a continuous cycle and/or day care for acute;
- b) facilities that provide care benefits program in outpatient regime, including the rehabilitation, diagnostic and laboratory instruments;
- c) facilities that provide in-residential, a continuous cycle and / or daytime.

In particular, under Item c, RSA are defined as "structures offering an average level of medical care and rehabilitation nursing, accompanied by a "high" support and residential assistance to the non-self caring, elderly or not, with outcomes of physical, mental, sensory or mixed diseases not curable at home."

The decree emphasizes therefore that RSA are "destined to non-self caring, not treatable at home, with geriatric, neurological and nervous stabilized diseases".

Therefore the criteria for admission in a RSA seems to be linked to three orders of factors: to be non-self caring, to be not curable at home and to the need for a "high" support and residential assistance.

This kind of structures is therefore directed to users similar to that of Home Integrated Assistance(HIA), however they take care of individuals for which the assistance at home seems to be impossible for the lack of household support or the excessive weight that this would put on the household.

This kind of residences is not the only component of extra hospital residential healthcare, but they are flanked by structures addressed to support specific areas of assistance such as mental health and addictions, such structures however find their references in legislation often different from that examined here.

In this paper the analysis has been focused on measures containing provisions specifically directed at residential facilities for which sufficiently reliable extrapolations of data are actually possible with the available datasets (namely Socio healthcare residences, Residential Structures for Assistance etc.). We have not considered legislation related to mental health and addiction. In particular, given that the analysis of structures for palliative care has already been made it has been chosen to focus on RSA that seem to be the structures that present the highest heterogeneity in definitions and classification.

In highlighting these differences it has been chosen to place greater emphasis on structural and organizational requirements (and, within the latter, the requirements related to staff and hours of assistance to be provided to the users). This is because we feel that these requirements are more correctly comparable as characterized by greater "objectivity" and therefore more suitable for exemplification and statistical analysis.

The second section of the paper analyses the data of the phenomenon to provide a statistical description of it. For the quantitative analysis should be noted that, although we can agree with the Commission for defining and updating of the Levels of essential assistance, when it says that 'performance data are virtually non-existent in the absence of a national information flow that would allow to classify each episode of hospitalization" and that "it does not exist a flow to build indexes of case-mix for those assisted and to assess the suitability of treatments", we must also consider that in Italy there is a variety of sources that can provide interesting information on the phenomenon of residential assistance. Unfortunately, these sources are often fragmentary and referred to a specific territory or issue. Moreover, given the heterogeneity in the definitions and classifications adopted at the regional level and the different levels of service provided by the different structures, it appears difficult to bring together without bias data from various surveys, observations and experimentations.

It was therefore chosen to refer only to those national surveys that can guarantee unequivocal definitions and data collection procedures, providing an official and validated dataset.

In practice we have referred to the survey on residential social care conducted annually by the Italian institute for statistics (ISTAT).

That survey collects, each year from 1999, through a postal questionnaire information on all the structures in which people in need find housing.

The survey, started again after several years of suspension, is conducted in collaboration with the Interregional Centre for the IT and the statistical systems (CISIS). In particular, in Piemonte, Veneto, Emilia Romagna, Marche, Sardegna and in the Autonomous Province of Trento and Bolzano data collection is carried out directly by the regional or provincial statistical offices, according to criteria agreed with ISTAT. Subsequently, the data collected are transmitted to ISTAT, which ensure their integration, validation and processing.

4.2 Healthcare residences

Relating to the minimum structural and technological requirements, the DPR Jan 14th 1997 requests a receptive capacity of not less than 20 and not more, exceptionally, of 120 bed places, divided into groups called nuclei, of 10/20 individuals; guests should be placed in rooms with 1 to 4 beds and ensure the privacy of visitors and access and movement to wheelchairs, this act however does not set a standard and / or a minimal size for the rooms.

The decree also establishes the presence and composition of various common areas:

- **Residential Area** with, among other things: toilets equipped for the not self caring; ambulatory; a local for control personnel with attached toilet; kitchen; living room/ game room/ TV room/ collective space etc.
- **Evaluation and Treatment Area**, which must have spaces and equipment for Outpatients and illness specific assessments, an area used for rehabilitation; gym with equipment for the required activities.
- **Socialization Area** with: bar, polyvalent hall; services for the guests etc.
- **General Support Area** which must have: an entrance with concierge services; mail and telephone; administrative offices; kitchen, pantry and ancillary rooms (if not contracted out); Laundry and ironing (if not contracted out); stores; mortuary room etc.

Essential organizational requirements comprise:

- the presence of a multidimensional assessment made by validated instruments;
- collection of those individual multidimensional assessments to allow control from the Region and the Ministry;
- creation of an individualized care plan;
- involvement of the host's family

It is moreover requested the presence of medical staff, nursing, assistance to person, rehabilitation and social assistance in relation to the structure size and type of services provided. Such personnel will operate under the terms and logic of the team. The decree however does not define benchmarks for the quantification of the staff.

This general regulation has nevertheless been supported by many regional acts that have implemented and integrated it, defining, in almost all Regions, more precise (but heterogeneous in the territory) standard of personnel and design and dimensioning of spaces.

Table 4.1 tries to summarize, in relation to certain more "objective" parameters, the regional differences in implementing the requirements defined by the DPR January 14th, 1997.

This table shows the presence in most of the Regions of exceptions to the law or of extensions to the deadline for making structures compliant.

In particular exceptions may cover the maximum number of guests allowed, the size of the nuclei as well as the size of the rooms or the number of beds allowed in them.

In practice our analysis reveals a highly differentiated treatment between facilities already operating and new structures that want to access the market.

Moreover it is important to consider, when reading table 4.1 that, although many Regions have punctually defined the staff requirements for RSA, these requirements are not homogenous and sometimes are difficult to compare, not only because they are expressed in different unit of measure (time, operators) but also because of the different methods to define a unit of personnel and the corresponding working time (for example taking into consideration or not the estimate times that a single personnel unit will not work for illness or holidays). Also on this issue there seem to be differences in treatment between structures already operating and new facilities; in fact while for the first the calculation is often based on the average number of beds occupied the year before, for the second the reference parameter is the number of beds to be authorized.

Another feature to highlight is the presence in many Regions of several structures that belongs to the RSA family and refer to the national law for this kind of structures but that, in some way, differ from the RSA general definition (among these we can include RAF, the RSA-M, the RSAO etc.) those differences, as underlined also by the proposal contained in the Final Report of the 12th INHS Brick for a new classifications criteria based on assistance gradient provided, shows possible weakness of the definition so far adopted that not only promotes strong interregional differences in the punctual description of requirements, but often fails by defining "standard" to seize all levels of assistance necessary.

Table 4.1: RSA (Nursing Facilities) Requirements

Regions	Dimension (Beds)	Dimension (Beds) Possibilities of departing from standard	Dimension (Settlement)	Beds per room	Room Dimension	Possibility to depart from previous standard	Minimal standard of Medical Care	Minimal standard of Nursing Care-	Minimal standard of other kind of Care	H24	Other Tipologies
Italy	20-120	120	10-20	1,2,3,4	n.a.	Yes	No, must be related to the dimension and kind of services.	No, must be related to the dimension and kind of services.	No, must be related to the dimension and kind of services.	n.a.	n.a.
Abruzzo	20-120	120	20	1,2	12, 18, 26 and 32 sqm	Yes	Yes	Yes	Yes	Yes	
Basilicata	20-120	120	10-20	1,2,3,4	n.a.	Yes	DPR 14 th January 1997	DPR 14 th January 1997	DPR 14 th January 1997	n.a.	
Calabria	20-120	120	10-20	1,2,3,4	n.a.	Yes	DPR 14 th January 1997	DPR 14 th January 1997	DPR 14 th January 1997	n.a.	RSA with high medical treatment (RSA-M)
Campania	20-120	120	10-20	1,2,3,4	n.a.	Yes	DPR 14 th January 1997	DPR 14 th January 1997	DPR 14 th January 1997	n.a.	
Emilia Romagna	max 60	120	20-30	1,2	12,18	Yes	Yes	Yes	Yes	Yes	
Friuli Venezia Giulia	20-120	120	10-20	1,2,3,4	n.a.	Yes	DPR 14 th January 1997	DPR 14 th January 1997	DPR 14 th January 1997	n.a.	
Lazio	20-80	120	10-20	1,2,3,4	12, 18, 26 and 32 sqm	Yes	Yes	Yes	Yes	Yes	
Liguria	20-120	120	10-20	1,2,3,4	n.a.	Yes	DPR 14 th January 1997	DPR 14 th January 1997	DPR 14 th January 1997	n.a.	
Lombardia	20-120	>120	10-20	1,2	12, 18 mq	Yes	Yes	Yes	Yes	Yes	
Marche	20-120	120	20-30	1,2,3,4	12, 18, 26 and 32 sqm	Yes	Yes	Yes	Yes	Yes	“Settlement of RSA (NAR), Curative RSA(RST)
Molise	max 80	120	20-25	1,2,3,4	12, 18, 26 and 32 sqm	Yes	Yes	Yes	Yes	Yes	RSA for Dementia, RSA for Disability

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Piemonte	20-80	120	10-20	n.a.	n.a.	Yes	Yes	Yes	Yes	Yes	Yes	Flexible RSA(RAF)
Puglia	60	120	fino a 20	1,2,3,4	12, 18, 26 and 32 sqm	Yes	Yes	Yes	Yes	Yes	Yes	
Sardegna	40-120		20-25	n.a.	n.a.	Yes	Yes	Yes	Yes	Yes	Yes	Alzheimer Care Settlement
Sicilia	20-120	120	10-20	1,2,3,4	12, 18, 26 and 32 sqm	Yes	Yes	Yes	Yes	Yes	Yes	
Toscana	20 - 120	120	20	1,2,3,5	n.a.		Yes	Yes	Yes	Yes	Yes	“Modular”. RSA Basic Module + specialistic
Trentino-Bolzano	20-120	120	10-20	1,2,3,4	n.a.	Yes	DPR 14 th January 1997	DPR 14 th January 1997	DPR 14 th January 1997	n.a.	n.a.	
Trentino-Trento	20-120	120	fino a 20	1,2,3,4	n.a.	Yes	Yes	Yes	Yes	Yes	Yes	RSA in Hospital (RSAO)
Umbria	da 20 a 60	120	10-20	1,2	12, 18 mq	Yes	Yes	Yes	Yes	Yes	Yes	
Valle D’Aosta	20-120	120	10-20	1,2	12, 18 mq	Yes	Yes	Yes	Yes	Yes	Yes	NAR, RST, RSD e RSA for Rehabilitation (RSR)
Veneto	da 20 a 40	120	20	1,2,3,4	12, 18, 26 and 32 sqm	Yes	Yes	Yes	Yes	Yes	Yes	RSA in Hospital (HRSA)

Source: National and Regional Legislation

4.3 Data on Healthcare Residences

ISTAT collects information about a great variety of residential structures such as reception centres, nocturnal reception centres, family houses, social and educational communities for children, social rehabilitation communities, housings, institutes for children, residences of assistance for self-sufficient elderly, socio-sanitary residences for elderly, residential structures for healthcare assistance (RSA) and Reception centres for immigrants. It has been chosen to select only data related to those typologies of residential structures that, on the basis of the descriptions provided by ISTAT itself in the questionnaire to the respondents, seemed to have an higher health related connotation.

We have therefore chosen to consider only:

- Communities for social rehabilitation (CSR): defined by ISTAT as a "residential structure hosting individuals with social problems of various kinds: the elderly with limited self-sufficiency, with physical, mental or sensory impairment, drug or alcohol addicts, resigned from prison and other people in distress. This type of community is characterized by the adoption of specific projects finalized to the rehabilitation and recovery of personal capacity. The projects are implemented with the help of specialized personnel and are aimed, if possible, at the reintegration of guests in society."
- Socio healthcare residence for the not self caring elderly (RSSA): defined by ISTAT as a "residential structure intended primarily for the elderly that are not self-sufficient, equipped with specialist medics and nursing. The services offered are highly integrated social and health care ones and pursue the goal of obtaining the maximum possible recovery of guests' psycho-motor capabilities."
- Residential Structures for Healthcare Assistance (RSA): defined by ISTAT as a "residential structure for not self-sufficient elderly or disabled persons, who need a specific support and medical care, nursing and rehabilitation. Assistance provided complements an average level of health care, with a high level of housing assistance, protection and hotel services."

These three types have been, in this work grouped as "residential structures with high healthcare relevance" (RSHR).

We must stress that the definition of RSA given by ISTAT in its survey, appears very similar to the one included in the DPR Jan 14th 1997. This similarity prompted us to use the ISTAT data rather than that from Ministry of Health. The two figures are indeed difficult to integrate because the Ministry classifies bed places and structures on the bases of the type of user assisted rather than the type of structure. The two figures appear, however, at least in macro-aggregates sufficiently consistent; with reference to 2005, the Statistical Yearbook of the Ministry reported 4602 residential structures (of whom 3297 accredited private and 1305 public), this data seems consistent with the ISTAT one reported in table 4.6.

The comparison between ISTAT data and ministerial ones may in future provide further interesting information and insights.

With regard to data by ISTAT, have been reported data on the regional distribution, the size (indicated as the average number of bed places), the development of structures over time and some data on tariffs differentiation.

Table 4.4 shows that ,for "residential structures with high healthcare relevance" the average number of structures that have started their activity each year has grown from an average of 17.5 structures per year in the period 1950-1979 to an average of about 85.8

structures per year in the period 2000-2005. The highest average yearly number of structures that have started their activity has been for all those considered in years between 1990 and 1999.

Table 4.2: RSA. Nursing Facilities (with medical care prevision) – 2005/12/31 Italy

Regions	CSR	RSSA	RSA	Total
Italy	722	1,531	1,412	3,665
Piemonte	116	223	79	418
Valle d'Aosta	2	23	7	32
Lombardia	57	27	556	640
Trentino-Alto Adige	61	63	65	189
Veneto	19	238	56	313
Friuli-Venezia Giulia	63	87	35	185
Liguria	52	164	52	268
Emilia-Romagna	71	348	66	485
Toscana	16	37	247	300
Umbria	14	26	6	46
Marche	22	56	57	135
Lazio	76	18	59	153
Abruzzo	23	34	16	73
Molise	17	18	1	36
Campania	31	20	29	80
Puglia	22	46	8	76
Basilicata	5	6	0	11
Calabria	15	10	26	51
Sicilia	30	77	22	129
Sardegna	8	9	23	40

Source: ISTAT

According to ISTAT, in Italy, in the three categories selected, there were around 3,665 active structures at 2005, December 31st (table 4.2). The table also shows how, according to ISTAT data, the majority of RSA and RSSA is concentrated in the North. This figure is reflected in table 4.3 that shows the availability of bed places in facilities selected respectively in relation to the whole population, the population 65 or more years old and to the people more than 74 years old. Table 4.3 shows that the availability of bed places is significantly higher in Northern Regions compared to Central and Southern ones with the exception of Emilia Romagna and Molise.

The situation clearly varies depending on the type of structure considered, while the CSR are quite present in the Northern Regions (especially in Trentino, Friuli and Liguria) and in some Regions of the Center (Lazio and Abruzzo) where they assume values more than double the national average, a peak is represented by Molise (1.71 posts per 1,000 inhabitants compared to a national average of 0.34). The availability of bed places in RSSA is particularly large (compared to the national situation) in Veneto, Valle d'Aosta, Trentino and Liguria. The RSA are more wide spread in Lombardia and Trentino, in particular, however, while in Lombardia the relative abundance of beds per 1,000 inhabitants in RSA is partly offset by a shortage of beds in RSSA (only 0.3 places per 1,000 inhabitants compared to a national average of 1.64 places) in Trentino the high availability of places in RSA stands together with a large availability of bed places in RSSA (6.04 posts per 1,000 inhabitants, nearly twice the national average). Such an uneven availability of bed places in structures with similar function suggests to evaluate data considering RSA and the RSSA jointly. If availability of bed places in these two types of structures is referred only to the elderly population (more involved with services provided) are still the northern Regions together with Emilia Romagna to have the higher

proportion of beds while several Central and Southern ones present values lower than the national average (with the exception of Toscana and Molise, which deviate little from it).

Table 4.3: RSA: Nursing Facilities (with medical care provision) – Beds per 1000 resident, 2005/12/31

Regions	Social-Rehabilitative Communities			RSA for Seniors			RSA		
	p.l. per 1,000 abitanti	p.l. per 1,000 abitanti (età 65 o+)	p.l. per 1,000 abitanti (età 75 o+)	p.l. per 1,000 abitanti	p.l. per 1,000 abitanti (età 65 o+)	p.l. per 1,000 abitanti (età 75 o+)	p.l. per 1,000 abitanti	p.l. per 1,000 abitanti (età 65 o+)	p.l. per 1,000 abitanti (età 75 o+)
Italy	0.34	1.76	3.79	1.64	8.40	18.16	1.64	8.41	18.18
Piemonte	0.45	2.04	4.45	3.07	13.84	30.19	1.41	6.34	13.82
Valle d'Aosta	0.24	1.23	2.64	5.93	29.75	64.09	1.20	6.05	13.03
Lombardia	0.18	0.95	2.15	0.30	1.55	3.53	5.39	28.22	64.10
Trentino A. A.	0.81	4.65	9.72	3.04	17.41	36.41	5.41	31.02	64.85
Veneto	0.06	0.34	0.72	4.90	25.91	55.36	1.05	5.54	11.83
Friuli-V. G.	0.80	3.62	7.39	6.17	27.81	56.74	1.42	6.39	13.04
Liguria	0.70	2.63	5.35	5.63	21.21	43.22	1.72	6.47	13.17
E. Romagna	0.27	1.20	2.45	4.28	18.91	38.42	0.52	2.29	4.65
Toscana	0.12	0.51	1.03	0.47	2.04	4.14	3.00	13.01	26.42
Umbria	0.51	2.20	4.43	1.49	6.41	12.92	0.33	1.43	2.88
Marche	0.24	1.05	2.14	2.05	9.18	18.74	0.97	4.35	8.88
Lazio	0.82	4.38	9.87	0.20	1.08	2.44	0.78	4.15	9.37
Abruzzo	0.79	3.75	7.76	1.57	7.44	15.39	0.61	2.92	6.04
Molise	1.71	7.87	16.26	3.17	14.60	30.16	0.06	0.29	0.59
Campania	0.18	1.20	2.73	0.11	0.74	1.68	0.18	1.17	2.66
Puglia	0.39	2.32	5.17	0.64	3.76	8.35	0.07	0.44	0.97
Basilicata	0.15	0.77	1.68	0.42	2.12	4.63	0.00	0.00	0.00
Calabria	0.33	1.83	3.98	0.17	0.94	2.05	0.58	3.20	6.99
Sicilia	0.26	1.44	3.14	0.84	4.78	10.40	0.18	1.03	2.23
Sardegna	0.11	0.65	1.44	0.22	1.29	2.88	0.72	4.19	9.33

Source: ISTAT

The average size of the structures (expressed in number of beds) does not show a clear trend. However, the structures in the central or Southern part of the country tend to be smaller than those in the north. Bigger structures seem to be in Veneto and Lombardia.

Comparing elderly hospitalization with the availability of bed places in RSA and RSSA there is a negative correlation between variables that may be symptomatic of a tendency to hospitalize elderly in the absence of beds in RSA or RSSA (figure 4.2).

Figure 4.3 instead shows the relationship between the allocation of beds in the RSA and RSSA (data for 1,000 individuals 75 or more years old) and the average weight on ordinary hospitalization for acute in this population group. Such variables show a positive correlation possible symptom of a greater appropriateness of hospitalization for acute in the elderly population in those Regions where more places are available in residential structures, indirectly confirming the figure above, or substitutability between hospitalization and hosting in RSA and RSSA.

Table 4.4: Average annual number of RSA facilities starting their activity (ordered by starting year). Facilities active on 2007/12/31 – Italy.

	1950-1979	1980-1989	1990-1999	2000-2005
Social-rehabilitative Communities	2.6	11.3	26.6	21.0
RSA for Seniors	7.7	26.7	34.9	27.3
RSA	7.2	14.7	40.8	37.5
TOTAL	17.5	52.7	102.3	85.8

Source: ISTAT

Table 4.5: Average Number of Beds – RSA Facilities – 2005/12/31 Italia

Regions	Social-rehabilitative Communities	RSA for Seniors	RSA	Total
Italy	28	62	68	58
Piemonte	17	60	77	51
Valle d'Aosta	15	32	21	28
Lombardia	30	103	91	86
Trentino A. A.	13	47	81	48
Veneto	16	97	88	90
Friuli V. G.	15	85	49	55
Liguria	21	55	53	48
E. Romagna	16	51	33	43
Toscana	26	46	44	43
Umbria	31	49	48	44
Marche	16	56	26	37
Lazio	57	59	70	62
Abruzzo	45	60	50	53
Molise	32	57	20	44
Campania	34	32	35	34
Puglia	73	56	38	59
Basilicata	18	41	n.a.	31
Calabria	44	34	45	42
Sicilia	43	55	41	50
Sardegna	23	41	51	43

Source: ISTAT

Table 4.6 shows the distribution of structures according to the management (public or private). This table shows a significant involvement of the private sector (both profit and no profit) in the management of residential facilities in general and in particular of RSA. This figure confirms the importance of careful regulation to reduce as much as possible barriers to entry in the sector.

Table 4.6: RSA Facilities for type and properties – 2004 Italy

Type	Public	Private	Non available	Total
Social-rehabilitative Communities	199	471	52	722
RSA for Seniors	634	766	131	1,531
RSA	398	938	76	1,412

Total	1,231	2,175	259	3,665
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Source: ISTAT

Table 4.7 shows how the differentiation of tariffs is much more present among the RSSA and the RSA than among the CSR. Around one third of both types of structures in fact applies some kind of tariff differentiation predominantly linked to the user's level of disability.

Table 4.7: Number of RSA applying differentiated tariffs schemes – 2004 Italy

Type	Guest Income	Guest Disanilities	Other	Other - Room Facilities	Other - Guest Residence	Not Indicatd	Facilities with at least one criteria	Total Facilities	Percentage
Social-rehabilitative	45	59	32	1	4	19	105	736	14.3%
RSA for Seniors	143	334	230	80	33	51	503	1,380	36.4%
RSA	105	317	172	59	34	24	447	1,273	35.1%
Total	293	710	434	140	71	94	1,055	3,389	31.1%

Source ISTAT

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The background of the top half of the page features a light purple gradient. Overlaid on this gradient are several dark purple silhouettes of people of various ages and ethnicities, holding hands in a circle. The silhouettes are semi-transparent, allowing the gradient to show through them.

Chapter 5

*Financing healthcare:
an overview*

5 - Pharmaceutical assistance system¹

Pharmaceutical assistance system's analysis in Italy, for whom you can refer to following paragraphs, firstly makes come out how in Italy pharmaceutical sector was object of several regulatory interventions, aimed to limit pharmaceutical expenditure, that since 1995 until 2001 had made register a total (public and private) pharmaceutical expenditure's increase in current values of almost 75%. Public political activity about pharmaceutical expenses' containment at a national level, differently from the past, didn't limit itself to regulatory interventions on drugs' price, but also intervened through acts on amount of sold.

In a federalism's logic, also Italian Regions intervened both through classic interventions of citizens' partaking to expenditure and by testing alternative interventions, such as maintenance or implementation of distribution 'in name and on behalf of', prescription limits' use of some drugs' categories (e. g. prices of reference of pumping inhibitors and minimum quota of equivalent drugs).

All these interventions, in a different degree, had made register in 2007 a territorial total pharmaceutical expenditure's decrease of 2.6% (a decrease caused by public pharmaceutical expenditure's decrease of 5.4% and private pharmaceutical expenditure's increase of 4%) with respect to the year before (in 2006 decrease was of 1%). Therefore, rise trend inverted, but private expenditure's quota increased as well, that is yet the second one at the level of OECD Nations. Facing a total pharmaceutical expense's decrease, also regional solutions' variability is growing (table 5.1).

Prescription limits, today imposed, like also various processes for *off label* employment of drugs, changes in exemption and partaking levels make us perceive significant regional shifting from national uniformity principle of protection rights.

A mostly important area of prescription limits is emblematic for these differences, that is referred to regional measures about prices of reference for ATC A02BC homogeneous therapeutic category's drugs – acid pump inhibitors (PPI). In Abruzzo, Calabria, Campania, Puglia, Sicilia the minimum price of reference in this category is calculated € 0.90, in Sardegna € 0.76; in Lazio maximum price corresponding to price of reference of a lansoprazole's packet is refunded to chemist's (since 2007, October 26th € 4.61 for low dosage packets and € 8.54 for higher dosage ones); in Molise the charged to SSR's account expenses for PPI is € 5.76 for low dosage packets and € 10.67 for higher dosage ones, with completely different incentives about prescriptive case mix.

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Table 5.1: Regional regulation's 'level'

Regions	Prescription limits' level*	Off-label application proceedings **	Partaking level ***	Pumping inhibitors' prices of reference****	Generics' quota *****
Piemonte	2	1	1	0	0
Valle d'Aosta	0	0	0	0	0
Lombardia	0	1	1	0	0
T. Alto Adige	0	0	0	0	0
P.A. Trento	0	0	0	0	0
P.A. Bolzano	0	0	1	0	0
Veneto	2	1	1	0	0
F. V. Giulia	0	1	0	0	0
Liguria	1	0	1	1	1
E. Romagna	0	0	0	0	0
Toscana	0	1	0	0	1
Umbria	0	0	0	0	0
Marche	0	1	0	0	1
Lazio	1	1	1	1	0
Abruzzo	2	1	1	1	0
Molise	1	1	1	1	0
Campania	0	0	1	1	0
Puglia	0	1	1	1	0
Basilicata	1	1	0	0	1
Calabria	1	0	0	1	0
Sicilia	1	0	1	1	1
Sardegna	0	0	0	1	0

* 0: No reported limit; 1: ≤ 2 prescription limits; 2: >2 prescription limits

** 0: No regulated application proceeding; 1: definition of regional application procedures

*** 0: No ticket; 1: ticket

**** 0: No indicated; 1: indicated price of reference

***** 0: No provided generics' quota; 1: generics' quota

Source: our elaboration on regional Bur

Another example is equivalent drugs' use. that at a regional level arrived to 20.3% of the charged to SSN's account pharmaceutical expenditure (+48.18% as to 2006) and 30.7% of consummated quantity (+21.34% as to 2006). Equivalent drugs' use. in order to increase prescriptive suitability of sanitary concerns and equalized agencies. adopts different regional policies. By correlating net pro-capite pharmaceutical expenditure with generics' quota of net expenditure (figure 5.1) we can determine four different regional situations: Regions that have a high pro-capite expenditure and a high generics' quota (Abruzzo, Liguria, Puglia, Sardegna, Sicilia); Regions with a low pro-capite expenditure and a high generics' quota (Basilicata, Marche, Umbria, Emilia Romagna and Toscana); Regions that have both a low pro-capite expenditure and a low generics' quota (Friuli Venezia Giulia, Veneto, Valle d'Aosta, Trentino Alto Adige, Molise, Piemonte); at last. Regions that have a high pro-capite expenditure and a low generics' quota (Lombardia, Calabria, Lazio, Campania).

For most part of Regions (with exception of Valle d'Aosta and Trentino Alto Adige) further 70% of 2007 net expenditure for class A equivalent drugs is consisting in *branded* drugs.

Figure 5.1: Correlation between pro-capite pharmaceutical expenditure and generics' quota - Year 2007

Basilicata Marche Umbria Emilia Romagna Toscana	Generics' share on public expenditure	+	Sicilia Abruzzo Sardegna Liguria Puglia	+
-				
Friuli V.G. Veneto Valle d'Aosta Trentino A. A. Molise Piemonte			Lombardia Calabria Lazio Campania	Pro-capite pharmaceutical expenditure
			-	

Source: Sanidata elaboration on regional Bur

In 2007 total pharmaceutical consumption overcame 30 Mil of doses. about 525 doses per inhabitant, 1.719 Mld of totally consumed packets, 29 drugs' packets bought by every citizen.

At a regional level the highest consumption (class A-SSN) is in Lazio with 1.020 DDD/1000 ab die, followed by Sicilia and Calabria, whereas the P.A. of Bolzano and Trento demonstrate to have the lowest one.

These differences between regional consumptions is reflected in expenditure: in fact, even if almost all Regions could keep pace with programmed found of territorial expenditure (with exception of Lazio that shows the highest expenditure in Italy with 14.9% of Calabria with 14.5% and Sicilia with 14.5%), most of them are still further than total found of 16%.

Sanitary structures' expenditure by standing on overage in Italian Regions at 4.3% of total expenditure contributed to overcome the found of 16% in 10 Regions (Lazio 17.7%, Sicilia 17.1%, Sardegna 17.0%, Calabria 16.8%, Abruzzo 16.6%, Puglia 16.5%, Campania 16.4%, Umbria, Toscana, Liguria 16.1%).

A Regions' ranking can be deduced from level of overcoming of the found of 16% (net of payback paid by concerns) and level of regional interventions (table 5.2).

Table 5.2: Influence of regulation on pharmaceutical expenditure

		REGIONAL INTERVENTIONS' LEVEL **		
		LOW	MEDIUM	HIGH
OVERCOMING FOUND (16%)*	HIGH		Sardegna	Lazio Sicilia
	LOW	Umbria	Toscana Campania Calabria	Puglia Liguria Abruzzo
	NONE	Valle d'Aosta Trentino Alto Adige Emilia Romagna	Friuli Venezia Giulia Lombardia Marche	Basilicata Piemonte Veneto Molise

*NONE: ≤16%; LOW: >16%<17%; HIGH: ≥17%

**In according to Table 5.1.LOW:-; MEDIUM: +/++; HIGH: >++

Source: Sanidata elaboration

A medium-high level of intervention causes lack of overcoming or a low overcoming in most part of Italian Regions (Friuli Venezia Giulia, Lombardia, Marche, Basilicata, Piemonte, Veneto, Molise, Toscana, Calabria, Campania, Puglia, Liguria, Abruzzo); not including Sardegna, Lazio and Sicilia, Valle d'Aosta, Trentino Alto Adige and Emilia Romagna, although have a low level of regulatory interventions, manage to keep pharmaceutical expenditure below found of 16%. Finally, Umbria shows low overcoming facing few regulatory interventions in pharmaceutical sector.

5.1 National policies about drugs

In Italy, in the last years, pharmaceutical sector was object of several regulatory interventions, aimed to contain pharmaceutical expenditure, that since 1995 until 2001 had made register a total pharmaceutical expenditure's increase (public and private) in current values of almost 75% (about of 100% if we consider only gross territorial public expenditure). Since 2002, also because of ridding of ticket in 2001 (L. n. 388/2000), it has been decided that charge to be paid by SSN for territorial pharmaceutical assistance doesn't have to be higher than 13% (at national level and in each Region) out of total sanitary expenditure.

In the last three years. the Italian Agency of Drug (AIFA) emanated measures, aimed to complete the recovery of pharmaceutical expenditure's overcoming happened in 2005 and to limit the expenditure in 2006; above all, AIFA's Decision n. 26 (2006. September 27th), into force since 2006 October 1st, applied a further reduction of 5% on price to public, IVA inclusive, of all repayable drugs by SSN (class A), then extended during all 2007 by Financial Act of 2007 (L. n. 296/2006). Therefore, several interventions were adopted. consisting in cuts in prices. firstly directed to selected categories of drugs and then generalized to all categories repaid by SSN; these, at first time born as temporary cuts. actually became permanent. The main innovation of Financial Act of 2007 was to allow pharmaceutical firms to request to AIFA effects' suspension of Decision n. 26 (2006. September 27th), facing to amounts' payments to

Regions. established by equivalence tables of economical and financial effects for SSN. caused by reduction of 5% (*Pay Back* system. extended until 2008 December 31st).

The L. n. 222/2007 also established that since 2008 charge to be paid by SSN for territorial pharmaceutical assistance, including both expenditure of distributed drugs according to conventional regulation – gross of quota of partaking to expenditure to be paid by assisted – and direct distribution of class A drugs for repayment (with also distribution ‘on behalf of’ and for hospital-resignation), will not be higher than 14% (at national level and in each Region) of usual financial support of government, by keeping at 16% total charge.

5.2 Regional interventions

Expenditure’s control for pharmaceutical assistance, which has been occurred since 2002, transferred to Regions the task of adopting measures in order to limit pharmaceutical expenditure below programmed found (changed from 13%² in 2007 to 14%³ in 2008). Above all, main measures were aimed to:

- 1) citizens’ partaking to expenditure through tickets on drugs;
- 2) maintenance or implementation of distribution ‘in name and on behalf of’ through agreements with whole sellers and chemists’;
- 3) prescription limits for some categories of drugs.

5.2.1. Pharmaceutical ticket

Today (2008, September) pharmaceutical ticket is in force in ten Italian Regions (Piemonte, Lombardia, Veneto, Liguria, Lazio, Molise, Abruzzo, Campania, Puglia, Sicilia) and in Autonomous District of Bolzano (picture 5.2). Recently it has been introduced in Campania (2007, January 1st) by fixing it at € 1.50 per packet with a maximum of € 3 per prescription, in Abruzzo (2007, January 1st) where it costs € 0.50 per packet with a maximum of € 1 per prescription and in Lazio (2008, September 17th) with a minimum of € 1 per packet and a maximum of € 3.50; further modifications were about: ticket’s change in Sicilia (2007, April 4th) from € 2 per packet until a maximum of € 4.50 (before from € 0.50 to € 2 per packet), and changes in new exemptions’ system in Piemonte (2008, January). In Regions where ticket doesn’t exist in any case citizens pay for possible difference between price of reference and price of the most expensive pharmaceutical preparation. Incidence on net pharmaceutical expenditure of Regions, where ticket was applied in 2007, is of 6.1% vs 1.7% of Regions, where it was not applied (difference between price of reference and price of the most expensive pharmaceutical preparation).










² L. n. 405/2001

³ L. n. 222/2007

Figure 5.2: Tickets' application in Italian Regions



Legend

-  No ticket
-  0,5€ a packing max 1€ a prescription
-  1€ a packing max 3€ a prescription for price drugs > 5€
-  2€ /4,50€ a prescription
-  2€ a packing max 4€ a prescription
-  2€ a packing max 5,50€ a prescription
-  Bolzano 2€ a packing max 4€; Trento no ticket
-  1,50€ a packing max 3€ a prescription
-  1€ /3,50€ a prescription

Source: Sanidata elaboration on regional BUR

5.2.2. Direct and 'on behalf of' distribution

Also about distribution Regions adopted different Decisions. The art, 8, paragraph 1, letters a, b and c of L. n. 405/2001 provided for alternatives to chemist's for distribution whom Regions can have recourse to, in order to limit pharmaceutical expenditure, by enabling them to put into action direct distribution of drugs in MHT (Manual Hospital Territory) and to make agreements with trade-union of public and private chemist's; costs' control is a direct outcome

of this distribution system, by involving a 50% average discount for ASL which buy drugs directly in producers firms.

Then, AIFA with Decision 2004 October 29th introduced MHT as instrument to guarantee assistance continuity, by determining a list of active principles which can be object of distribution's alternatives according to likeness conditions with direct distribution.

Direct distribution means to dispense drugs to patients for home-consumption, through sanitary structures. Within direct distribution there are pharmaceutical services distributed:

- in case of resignation after a hospitalization or specialistic visit, only for first total therapeutic cycle;
- to chronic and/or under therapy patients;
- to patients under home residential or half-residential assistance.

'On behalf of' distribution is a direct distribution made by public and private chemist's operating within the National Health Service on behalf of ASL for only patients who are resident in their territory through specific agreements. This kind of distribution allows to act a save for SSR. throughout territorial distribution of hospital-packets and to guarantee to patients who need periodic controls a widespread distribution within territory.

All Regions use these alternative mechanisms of distribution. with exception of Abruzzo and Calabria. which didn't make agreements about 'on behalf of' distribution and adopt only direct distribution (table 5.3).

Table 5.3: Direct and 'on behalf of' distribution

Regions	Direct distribution	'On behalf of' distribution
Abruzzo	YES	NO
Basilicata	YES	YES
Calabria	YES	NO
Campania	YES	YES
Emilia Romagna	YES	YES
Friuli V. G.	YES	YES
Lazio	YES	YES
Liguria	YES	YES
Lombardia	YES	YES
Marche	YES	YES
Molise	YES	YES
Piemonte	YES	YES
Puglia	YES	YES
Sardegna	YES	YES
Sicilia	YES	YES
Toscana	YES	YES
Umbria	YES	YES
Valle d'Aosta	YES	YES
Veneto	YES	YES
P.A. Trento	YES	YES
P.A. Bolzano	YES	YES

Source: Sanidata elaboration on regional BUR

5.2.3. Prescription limits

Another way to bring under control pharmaceutical expenditure adopted by Regions is imposing prescription limits for some drugs categories (table 5.4).

There are prescription limits by not permitting more than a packet per prescription in Abruzzo, Basilicata, Calabria, Lazio, Molise and Sicilia. In Abruzzo this limit is provided for drugs that concern note 66 (selective F.A.N.S. and COXIB excluding equivalents). for oral antibiotics, whose packet is useful for a six days therapy and for F.A.N.S. by injection. In Basilicata and Calabria there is a prescription limit to one packet per prescription for all pharmaceutical preparations and galenicals with exception of single-dose antibiotics, drugs for phlebotomy and interferon for chronic hepatitis. In Molise and Lazio limit to one packet per prescription is provided for *statine* and in Sicilia for Inhibitors of Proton Pump (not including equivalents).

Table 5.4: Some prescription limits for drugs to the account of SSN

Regions	Prescription limits
Abruzzo	1 packet per prescription for drugs that concern Nota 66 (excluding equivalents) 1 packet per prescription for some oral antibiotics. whose packet is useful for a six days therapy and for F.A.N.S. by injection
Basilicata	1 packet per prescription (excluding: single-dose antibiotics. drugs for phlebotomy and interferon for chronic hepatitis and packed and for many prescriptions galenicals max 6 packets; chronic patients max 2 packets)
Calabria	1 packet per prescription (max 2 packets. if doses' number doesn't allow a 30 days therapy)
Lazio	1 packet per prescription (statine C10AA + Ezetimibe- Sinvastatina C10BA02)
Liguria	max 6 packets per prescription for ache therapy's drugs
Molise	1 packet per prescription STATINE C10AA
Piemonte	max 6 packets per prescription for codeine + paracetamol (other prescriptions with the same date for a 30 days therapy)
Sicilia	1 packet per prescription for Inhibitors of Proton Pump (not including equivalents)
Veneto	max 6 packets per prescription for single-dose antibiotics and drugs only for phlebotomy and Interferon for chronic hepatitis

Source: Sanidata elaboration on regional BUR

5.2.3.1 Prescription limits for Inhibitors of Pump

A particularly important area of prescription limits is referred to regional measures about prices of reference for drugs of homogeneous therapeutic category ATC A02BC "Inhibitors of acid pump"- PPI (table 5.5); expenditure for this category of drugs (after *statine*. the second one for expenditure) made register in 2007, at a national level a more than 14% fall as to 2006.

Containment's interventions passed by Regions establish that, if a therapy with inhibitors of proton pump is required, doctors can make only prescription of drugs whose cost for a definite dose a day - referred to price to public - isn't higher than minimum price of reference of this therapeutic category.

In Abruzzo, Calabria, Campania, Puglia and Sicilia minimum price of reference is calculated € 0.90, € 0.76 in Sardegna. In Lazio and Molise expenditure to the account of SSR for PPI is € 5.76 for low dosage packets and € 10.67 for higher dosage ones.

Table 5.5: Prices of reference of Inhibitors of pump

Regions	Contents
Abruzzo	Prescription's indications PPI ≤ € 0.90/DDD.
Calabria	Expenditure to the account of SSR for PPI ≤ € 0.90/DDD
Campania	Expenditure to the account of SSR for PPI ≤ € 0.90/DDD
Lazio	Lansoprazole's price of reference
Liguria	Expenditure to the account of SSR is represented by generic drug's cost
Molise	Expenditure to the account of SSR for PPI is: € 5.76 for low dosage packets
Puglia	Misoprostol's prescription or expenditure to the account of SSR for PPI ≤ € 0.90
Sardigna	Expenditure to the account of SSR for PPI is € 0.76/DDD.
Sicilia	Expenditure to the account of SSR for PPI is €0.90

Source: Sanidata elaboration on regional BUR

5.2.3.2 Minimum quotas of generically equivalent drugs

In order to increase the appropriateness of the drugs prescribed by local health units and other similar health facilities, as from fiscal year 2008, the Italian regions have been required to implement directives designed to contain the cost and improve the quality of various types of prescription by ensuring the implementation of quotas of generically equivalent drugs (table 5.6).

For example, in the region of Basilicata, quotas have been set for Proton Pump Inhibitors (90 packs per every 100 inhabitants of which 75% must contain generic active ingredients) and HMG-CoA reductase inhibitors (an important category of hypolipemizing drugs) with the aim of ensuring that at least 25% of prescriptions propose generic active ingredients.

In Liguria, an analysis of consumption has led to an increase in the use of various categories of generic drugs (HMG-CoA reductase inhibitors, oxicam-derived anti-inflammatory drugs, heparines, alpha-adrenergic antagonists, antidepressants) with a view to achieving the same quotas (in terms of unit doses disbursed) as those registered by the highest-scoring health units in 2007, an increase of at least 50%. Thus for each class of drug percentage indicators have been established for the prescription of unit doses of various generic drugs or, in the case of selective serotonin reuptake inhibitors, macrolides and non-associated ACE inhibitors of drugs which have the same price.

In the regions of Sicilia, Marche and Toscana the quota of generically equivalent drugs to be prescribed has been established in relation to the total number of unit doses prescribed per Proton Pump Inhibitors, dihydropyridine derivatives, non-associated inhibitors, HMG reductase inhibitors, adrenergic drugs, selective serotonin reuptake inhibitors and other antidepressants.

Table 5.6: Minimum Quotas of Generically Equivalent Drugs

Regions	Title	Comments
Basilicata	Health, economic and financial planning objectives of health units in the Region of Basilicata. Year 2008-2009	ATC A02BC - Proton pump inhibitors: prescriptions limited to 90 packs per every 100 inhabitants. of which 75% of packs must contain generic active ingredients; ATC C09AA - HMG CoA reductase inhibitors: prescription of drugs containing generic active ingredients $\geq 25\%$
Liguria	2008. Allocation of the financial resources of local health units and similar health facilities. Directives and Objectives.	Increase of 50% with respect to highest percentage consumption scored by all local health units of the region in 2007. for the following categories of drug: ATC C10AA - HMG CoA reductase inhibitors ATC M01AC - Oxicam-derived anti-inflammatory drugs ATC B01AB - Heparines ATC G04CA - Alpha-adrenergic receptor antagonists ATC N06AX – Other antidepressants: the use of generic drugs or medicines which have the same price as generic drugs must respect the following indicators (unit doses disbursed per annum): ATC N06AB - Selective serotonin inhibitors: 90% ATC J01FA – Macrolides: 80% ATC C09AA - Non-associated ACE inhibitors: 95% ATC C09BA - ACE inhibitors + diuretic: 65% ATC J01DC – Second generation cephalosporins: 95% ATC C08CA - dihydropyridine-derivative Ca antagonists: 80%
Marche	Health Service 2007 Orientations for Health Units and Rest Homes and Hospitals for the Elderly	ATC A02BC - Proton pump inhibitors: generically equivalent drugs $\geq 50\%$ of total unit doses in the same ATC class; to be increased in 2008/2009. ATC C08CA - Dihydropyridine-derivatives: generically equivalent drugs $\geq 30\%$ of total unit doses in the same ATC class ATC C09C C09D – Substances acting on the renin-angiotensin system: generically equivalent drugs $\geq 20\%$ of total packs in the same ATC class ATC C09AA – Non-associated ACE inhibitors: generically equivalent drugs $\geq 40\%$ of total unit doses in the same ATC class ATC C10AA - HMG CoA reductase inhibitors: generically equivalent drugs $\geq 50\%$ of total unit doses in the same ATC class; to be increased in 2008/2009 ATC G04CA - Alpha-adrenergic receptor antagonists: generically equivalent drugs $\geq 85\%$ of total unit doses in the same ATC class ATC N06AB - Selective serotonin inhibitors: generically equivalent drugs $\geq 90\%$ of total unit doses in the same ATC class ATC N06AX – Other antidepressants: generically equivalent drugs $\geq 15\%$ of total unit doses in the same ATC class
Sicilia	Measures relative to the reorganization of the regional health system. Subsidized pharmaceutical supply initiatives.	ATC A02BC- Proton pump inhibitors: prescription of generically equivalent drugs $\geq 50\%$ of all packs disbursed in 2007 and $\geq 60\%$ of all drugs of the same ATC class in 2008. ATC C09AA - Non-associated ACE inhibitors: generically equivalent drugs $\geq 40\%$ of all packs of same ATC class disbursed ATC C10AA - HMG CoA reductase inhibitors: generically equivalent drugs $\geq 50\%$ of all packs of same ATC class disbursed ATC G04CA - Alpha-adrenergic receptor antagonists: generically equivalent drugs $\geq 70\%$ of all packs of same ATC class disbursed ATC N06AB - Selective serotonin inhibitors: generically equivalent drugs $\geq 60\%$ of all packs of same ATC class disbursed in 2007 and 70% of all packs of same ATC class disbursed in 2008 ATC N06AX - Other antidepressants: generically equivalent drugs $\geq 15\%$ of all packs of same ATC class disbursed

SEGUE

Toscana	Pharmaceutical supply service 2007	ATC A02BC - Proton pump inhibitors: generically equivalent drugs $\geq 70\%$ of all unit doses of same ATC class ATC C08CA - Dihydropyridine-derivatives: generically equivalent drugs $\geq 30\%$ of all unit doses of same ATC class ATC C09AA - Non-associated ACE inhibitors: generically equivalent drugs $\geq 40\%$ of all unit doses of same ATC class ATC C10AA - HMG CoA reductase inhibitors: generically equivalent drugs $\geq 60\%$ of all unit doses of same ATC class ATC G04CA - Alpha-adrenergic receptor antagonists: generically equivalent drugs $\geq 85\%$ of all unit doses of same ATC class ATC N06AB - Selective serotonin reuptake inhibitors: generically equivalent drugs $\geq 90\%$ of all unit doses of same ATC class ATC N06AX - Other anti-depressants: generically equivalent drugs $\geq 15\%$ of all unit doses of same ATC class
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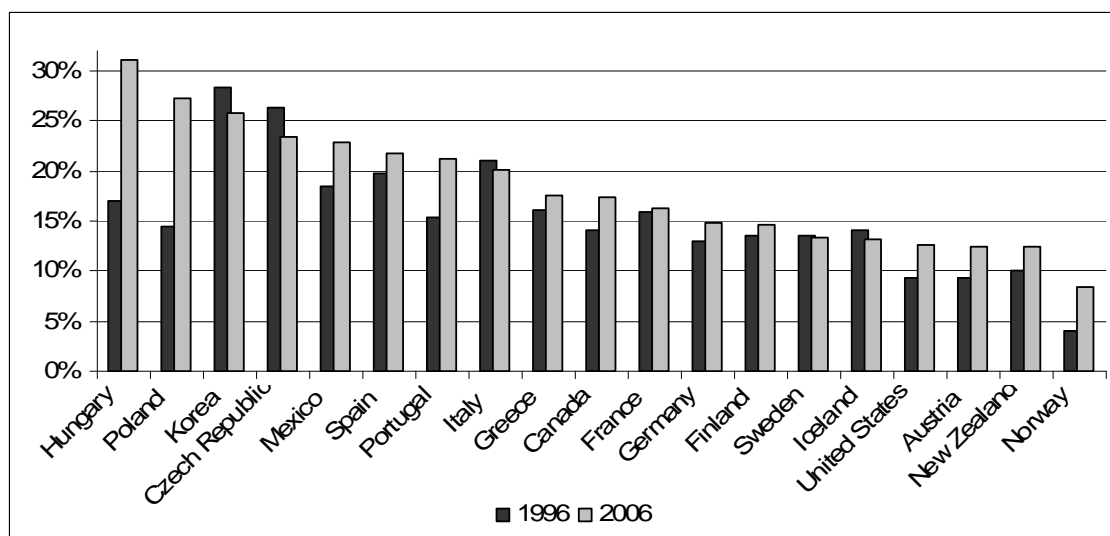
Source: Sanidata on Regional Official Bulletin data

5.3 Expenditure on drugs and medicines: the trends

Throughout the world, expenditure on drugs and medicines accounts for a large proportion of all health service expenditure (figure 5.3). Indeed, according to OECD data, expenditure on pharmaceuticals accounts for 18.2% of all health expenditure in OECD countries (2006). Since 1996 expenditure on drugs and medicines has increased by 0.3% per annum, posting a total increase of 4% in the decade between 1996 and 2006. With respect to all the other OECD countries for which data are available⁴, Italy spends more than the OECD average on drugs and medicine, with pharmaceutical expenditure accounting for 20% of all health expenditure (although, contrary to the trends posted by other OECD countries, this highlights a decrease in expenditure on drugs and medicines of 1.1%). As can be seen in the following graph, the OECD country with the greatest incidence of expenditure on drugs and medicines is Hungary (31% of all health expenditure), while the nation scoring the lowest incidence is Norway (8.5% of all health expenditure). The considerable variation in expenditure on drugs and medicines posted by OECD countries is the result not only of a great variability in price, in the volumes of drugs prescribed and in the volumes of drugs consumed, but also of the different ways in which each country's health expenditure is structured.

Figure 5.3: Percentage of total health expenditure allocated to expenditure on drugs and medicines in OECD countries. (value %) – Years 1996-2006

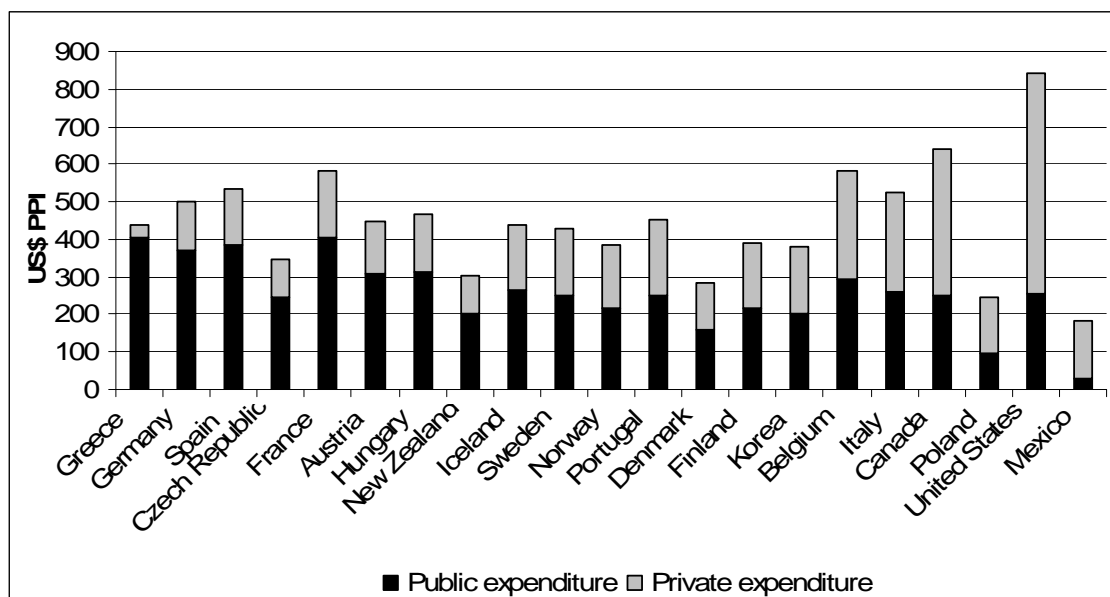
⁴ Hungary, Poland, Korea, Czech Republic, Mexico, Spain, Portugal, Italy, Greece, Canada, France, Germany, Finland, Sweden, Iceland, United States of America, Austria, New Zealand, Norway.



Source: CEIS Sanità based on OECD data

A comparison of expenditure per head on drugs and medicines in OECD countries in 2006 ranks Italy in sixth place (with respect to all the other OECD countries for which data are available) with a expenditure per head of US\$ 524 (figure 5.4). The top five places being occupied by the United States of America (US\$ 843), Canada (US\$ 639), Belgium (US\$ 584), France (US\$ 581) and Spain (US\$ 533) respectively. Separate analyses of public and private expenditure on drugs and medicines per capita in Europe shows that Italy is the country with the second highest percentage of private expenditure on drugs and medicines per capita (50% of all expenditure on pharmaceuticals), preceded only by Poland where private expenditure accounts for 61% all expenditure on drugs and medicines per capita. However, when all OECD countries are considered, the greatest percentage of private expenditure on drugs and medicines is scored by Mexico (85%), followed by the United States of America (70%) and Canada (61%).

Figure 5.4: Expenditure per capita on drugs and medicines in OECD countries (in US\$ and assuming equal purchasing power) - Year 2006



Source: CEIS Sanità based on OECD data

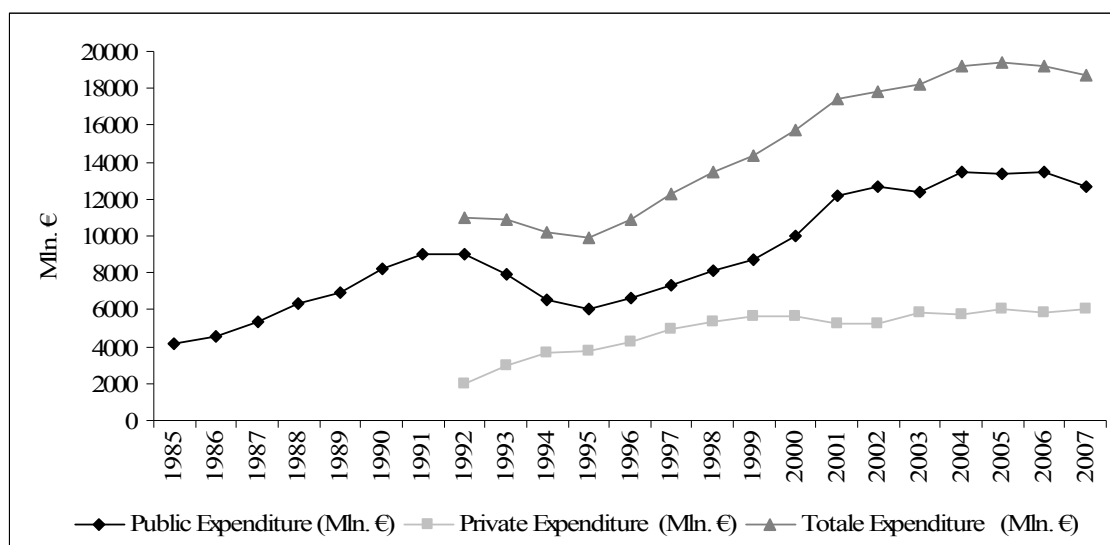
5.4 National and regional expenditure on drugs and medicines

As can be seen in figure 5.5, overall expenditure (both public and private) on drugs and medicines⁵ in Italy in 2007 stood at € 18,760 million⁶. posting a decrease of 2.6% over the previous year (€ 19.254 million) and highlighting an increase in private expenditure of approximately 4% (unlike the previous year, when values similar to those posted in 2005 were scored), as well as a decrease in public expenditure of 5.4% (the greatest decrease posted since 1996). Unfortunately, despite the size of the increase in private expenditure (€ 0.23 million), private expenditure on drugs and medicines has not compensated the decrease in public expenditure (€ 0.73 million). The increase in private expenditure posted in the health service balance sheet is mainly due to the 25% increase in private expenditure on Class A drugs (acquired directly by citizens), the 1.9% increase in private expenditure on self-administered treatments (drugs and medicines sold without prescription and over-the-counter drugs and medicines) and the 0.9% increase in private expenditure on prescribed Class C drugs and medicines.

⁵ Including subsidized treatments (available at chemists) and directly distributed treatments.

⁶ OSMED, (2008), *L'uso dei farmaci in Italia*. National Report 2007, Rome, June 2008.

Figure 5.5: Total pharmaceutical expenditure in Italy. Mln € - Years 1985-2007

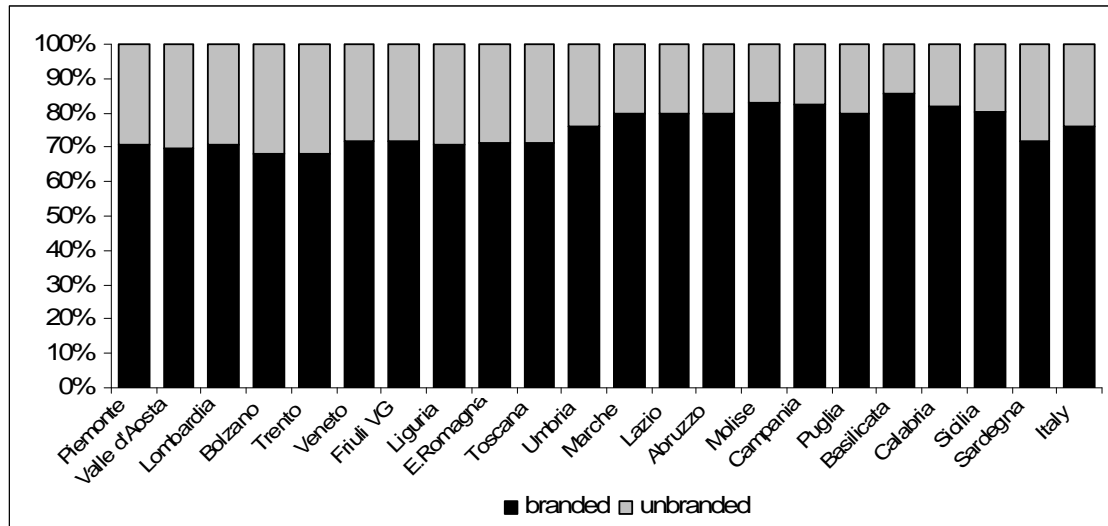


Source: CEIS Sanità based on OECD data

Decreases the total pharmaceutical expenditure and grows the generic drug market that reaches the 20.3% of the public pharmaceutical expenditure (+48.18% in comparison to 2006) and the 30.7% of the quantity consumed (+21.34% in comparison to 2006). The use of unbranded drugs is limited (figure 5.6). In the greatest part of the Regions (with exclusion Valle d'Aosta and Trentino Alto Adige) more than the 70% of the public expenditure for generic drug (2007) is branded.

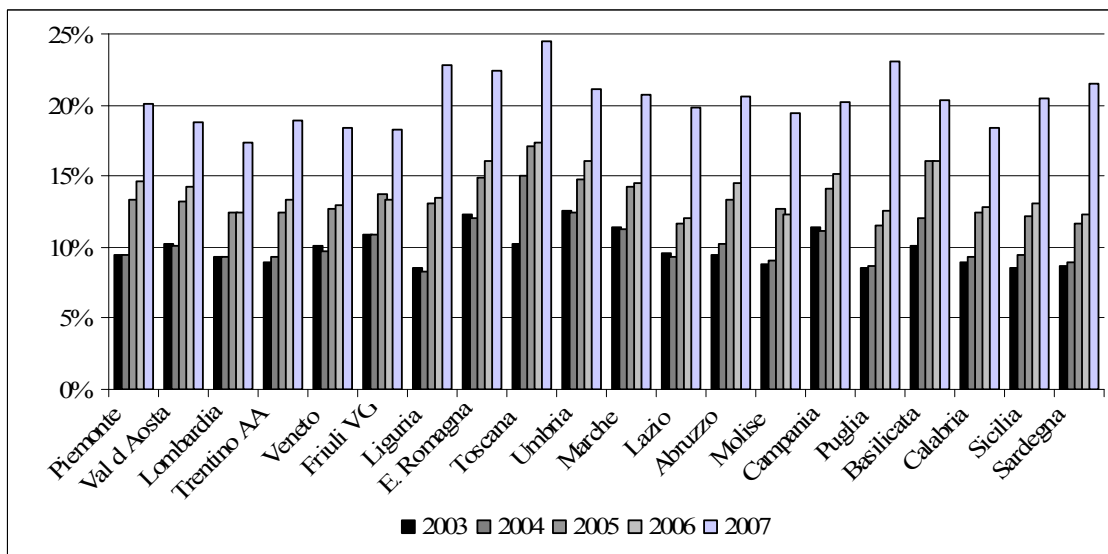
The incidence of the generic drugs on public expenditure in comparison to 2006 has had a 45.8% increase in Toscana (24.5%), Puglia (23.0%), Liguria (22.8%) and Emilia Romagna (22.4) are the Regions that introduce a great expenditure for generic drugs on the public pharmaceutical expenditure, Lombardia (17.3%), Friuli Venezia Giulia (18.2%), Calabria (18.4%) and Veneto (18.4%) are those with incidence for generic drugs expenditure lowest (figure 5.7).

Figure 5.6: Generic drugs expenditure: share of *branded* and *unbranded*) (value %) - Year 2007



Source: CEIS Sanità based on OECD data

Figure 5.7: Regional generic drugs expenditure on public pharmaceutical expenditure (value %) - Years 2003-2007



Source: CEIS Sanità based on OECD data

The territorial pharmaceutical expenditure related to the first 5 months of 2008 emphasize a continuity in the lowering expenditure (-1.3%) in comparison to the same period of 2007 that the national pharmaceutical expenditure 2008 to remain below the health fund. Such reduction, as in the preceding year, it doesn't derive from the lowering of the number of prescriptions (+6.2% in the same period) but from the reduction of the average expenditure for

prescription determined by the interventions on the prices of the drugs launched by the Italian Agency of the Drug (selective cut of drugs prices to great impact on expenditure, from July 15th 2006, and further cut generalized of the 5% on the all drugs, from October 1st 2006) supported by the interventions of control launched by the single Regions and by a considerable number of patents expired between 2007 and 2008 (table 5.7).

In 2007, non hospital pharmaceutical expenditure (territorial expenditure) has represented the 11.8% of the regional expenditure, maintaining an elevated variability among the Regions: the Regions and Autonomy Province of North Italy present a expenditure below the 13% found (from the 8.7 of Province of Bolzano to the 11.5 of Liguria), also those of the Centre are found below the 13% found to exception of Lazio that represent the tallest expenditure in Italy with 14.9%; the regions of the South that overcome the found are Calabria (14.5%) and Sicilia (14.5%).

The overall (table 5.8) pharmaceutical consumption, comprehensive of the territorial prescriptions and of that allocate through the public structure (hospitals. ASL. IRCSS), has overcome the 30 mln. of doses (DDD). of which 70% to load of the National Health Service (around 525 doses for inhabitant), 1.719 mlds, the confections altogether consumed (+2.6% in comparison to 2006). and 29 confections of drugs purchased by every inhabitant (2006 same data) 17 of which reimbursed by the NHS.

The pharmaceutical consumption of class A-NHS is increased of almost 3% in comparison to 2006, every thousand inhabitants have been prescribe 881 doses of drug a day to 857 registered in 2006 (+51.7% if compared to 2000).

Table 5.7: Calendar deadlines of the patents - Years 2007-2008

Molecule	Month	Year
Flurithromycin	1	2007
Amtolmetin guacil	2	2007
Flumazenil	2	2007
Rimexolone	2	2007
Trandolapril	2	2007
Tropisetron	2	2007
Bisoprolol	3	2007
Ciprofloxacin	3	2007
Alendronic acid	4	2007
Cetirizine	4	2007
Simvastatin	4	2007
Doxazosin	5	2007
Fluconazole	5	2007
Octreotide	5	2007
Quinapril	5	2007
Piperacillin	7	2007
Lisinopril	8	2007
Loratadine	9	2007
Fluvoxamine	11	2007
Leuprorelin	11	2007
Amlodipine	12	2007
Cefixime	12	2007
Clarithromycin	12	2007
Enalapril maleato + idroclor	12	2007
Gangiclovir	12	2007
Omeprazole	12	2007
Pravastatin	12	2007
Ramipril	12	2007
Risperidone	12	2007
Salbutamol	12	2007
Zolpidem	12	2007
Parnaparin	1	2008
Manidipine	4	2008
Cefuroxamine axetil	5	2008
Toremifene	5	2008
Bicalutamine	7	2008
Cefepime	7	2008
Fluvastatin	8	2008
Cefprozil	9	2008
Ondansetron	11	2008
Ropinirole	11	2008
Cilazapril	12	2008
Felodipine	12	2008
Lacidipine	12	2008
Lomefloxacin	12	2008
Mefloquine	12	2008
Roxatidine	12	2008
Sumatriptan	12	2008
Venlafixine	12	2008

Source: CEIS Sanità based on OECD data

Tabella 5.8: The pharmaceutical consumption in Italy - Year 2007

Therapeutics class	DDD*	%	Confection 2007 (mln)	Confection 2006 (mln)	Δ % 06/07
Class A-NHS	19.004	61.4	977	953	2.5
Class A private	1.705	5.5	129	113	14
Class C with prescription	4.085	13.2	297	299	-0.6
Self-treatment (public and private drugstore)	3.529	11.4	316	311	1.7
Self treatment (commercial business)	106	0.3			
Public structure	2.534	8.2			
Total	30.962	100	1.719	1.675	2.6

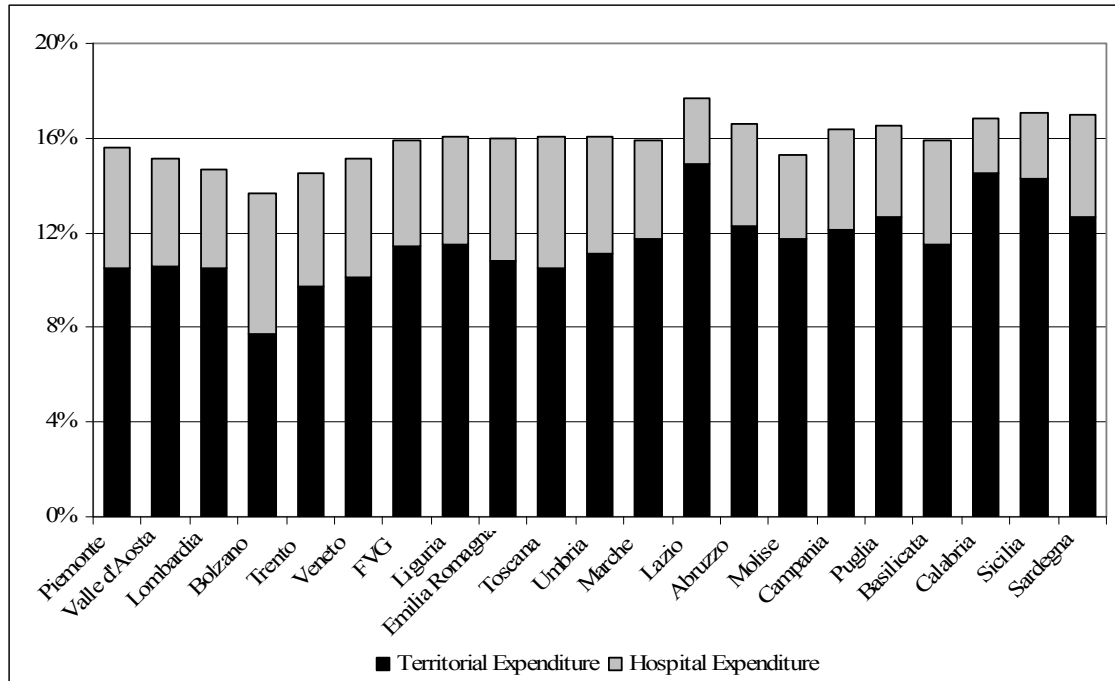
* Mln treatment days

Source: CEIS Sanità based on OECD data

The Region with the most elevated (class A-NHS) consumption is Lazio with 1.020 DDD/1000s ab. die (-0.9% in comparison to 2006) followed from Sicilia and Calabria in which 999 and 997 doses every thousand inhabitants are respectively registered. the Province of Bolzano and Trento register the lowest consumption.

In conclusion the public pharmaceutical expenditure (amount the territorial expenditure and hospital pharmaceutical expenditure) amount 16.0% of the national health expenditure. But while the 13% limit has substantially been respected (except for Lazio, Calabria and Sicilia). the 16% limit (13% territorial expenditure +3% hospital expenditure) has been exceed from 10 Regions: Lazio 17.7%, Sicilia 17.1%, Sardegna 17.0%, Calabria 16.8%, Abruzzo 16.6%, Puglia 16.5%, Campania 16.4%, Umbria, Toscana, Liguria 16.1%. In average, in Italy the hospital pharmaceutical expenditure on the health expenditure found has been of 4.3% (+1.3% of that expected) (figure 5.8).

**Figure 5.8: Pharmaceutical expenditure over Regional Health Fund.
(Value %) - Year 2007**

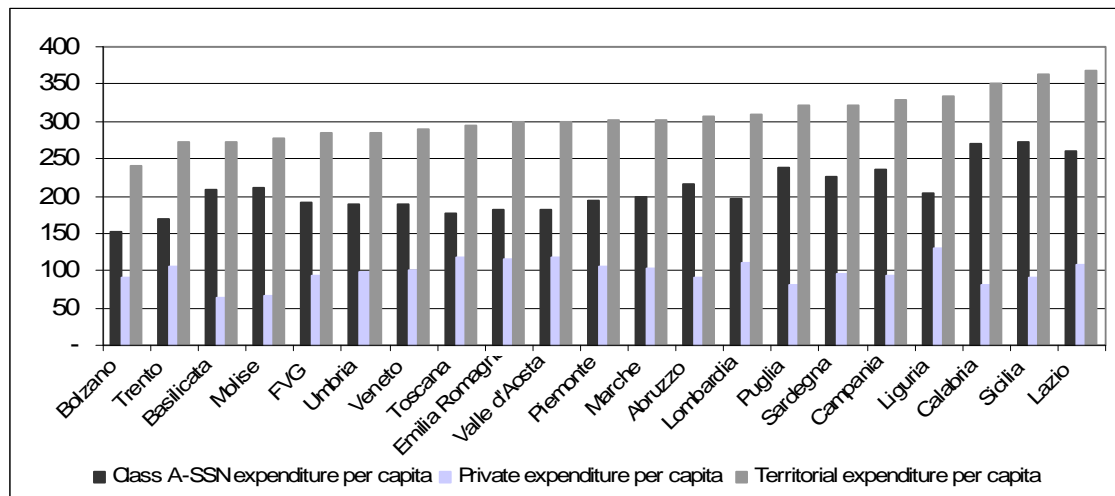


Note: to net firm pay-back

Source: CEIS Sanità based on Farmindustria data

The territorial pharmaceutical per capita expenditure (figure 5.9) provable that the Regions that have overcome the 13% found introduces a expenditure per-capita high in comparison to others (Lazio € 367.90, Sicilia € 362.80, Calabria € 351.80). While Lazio also introduces a private expenditure per capita high (€ 109.00; the sixth one after Liguria € 130.20, Valle d'Aosta € 117.90, Toscana € 116.80, Emilia Romagna € 116.20 and Lombardia € 111.40) Sicilia with € 90.50 and Calabria with € 81.30 of private expenditure per-capita are below the national average (€ 98.04).

Figure 5.9: Pharmaceutical per capita weigh expenditure (€) - Year 2007



Source: CEIS Sanità based on OECD data

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The background of the top half of the page features a light purple gradient with several dark purple silhouettes of people. Some silhouettes appear to be holding hands, while others are in various poses, suggesting a group of people in a medical or community setting. The overall tone is professional and humanistic.

Chapter 6

The specialist medical assistance system in Italy

6 - *The specialist medical assistance system in Italy*¹

Out-patient specialist assistance covers a fundamental role for the Italian Healthcare System: within the overall budget, it is second only to pharmaceutical assistance and is certainly the type of assistance most used because of its peculiarity in carrying out services of different nature and complexity.

Out-patient specialist assistance includes (on the basis of the classification of assistance levels distinguished by the DPCM of 29th November 2001) therapeutic and rehabilitation services, instrumental and laboratory diagnostics.

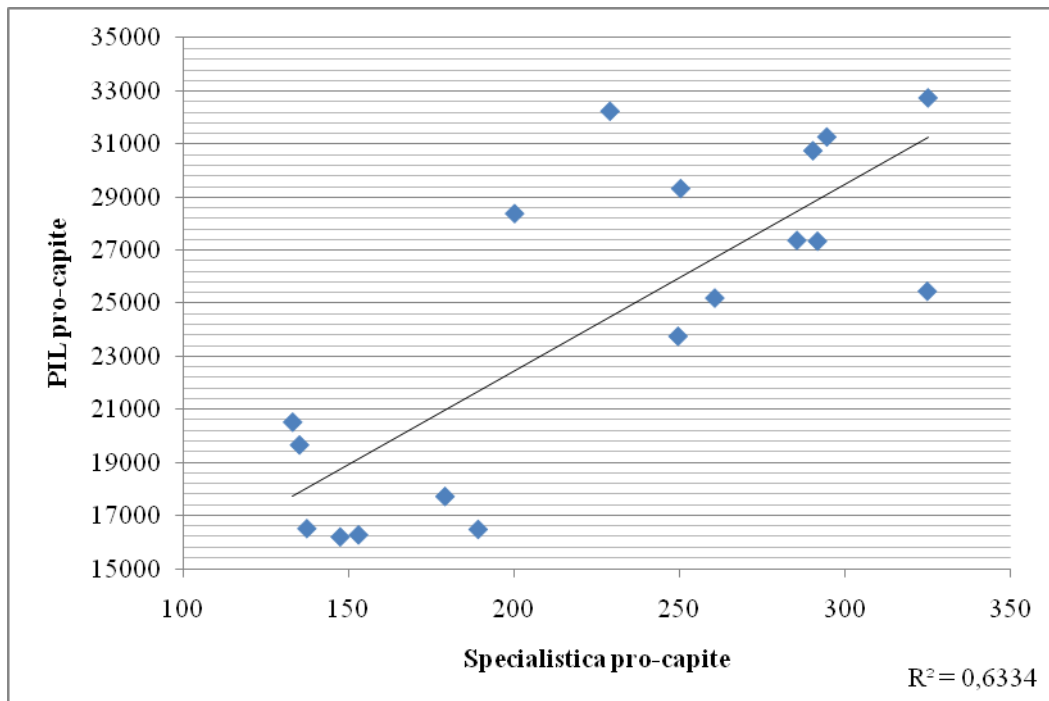
The present paper wishes to analyze out-patient specialist assistance from an economic-financial point-of-view, the quantity of services delivered and, lastly, the regional allocation of the same.

From the analysis of out-patient specialist assistance, which we will refer to subsequently, the following noteworthy elements emerge:

- 1) There is the presence of an evident correlation between total per capita specialist expenditure and the per capita GNP (*proxy* also on formal education).
- 2) It must be underlined that no correlation between the share of totally charged visits and the per capita GDP has been discovered, meaning that it is not the income, but rather presumably the waiting lists or the quality of services that lead to using private specialist services.
- 3) Total specialist health costs are estimated between €11.5 and 12-billion, 70% of which is attributable (as demonstrated by OECD figures) to public facilities and the remaining 30% to accredited private ones. This is despite the fact that the latter make up approximately half of the overall facilities. It is estimated that Valle d'Aosta and Liguria spend over €300.00 per capita in public and private specialist services; the last ones in the classification are Sicilia, Sardegna and Abruzzo with a per capita expenditure below € 140.00 that is equal to less than half compared to the Regions spending maximum per capita amounts.

¹ Polistena B.; (from par. 6.1 to par. 6.8), Alato C.; Polistena B. (par. 6.8), CEIS Sanità, Faculty of Economics, University of Rome "Tor Vergata".

Graph 6.1: Correlation between total per capita specialist expenditure and per capita GNP. Value in Euro - Year 2006

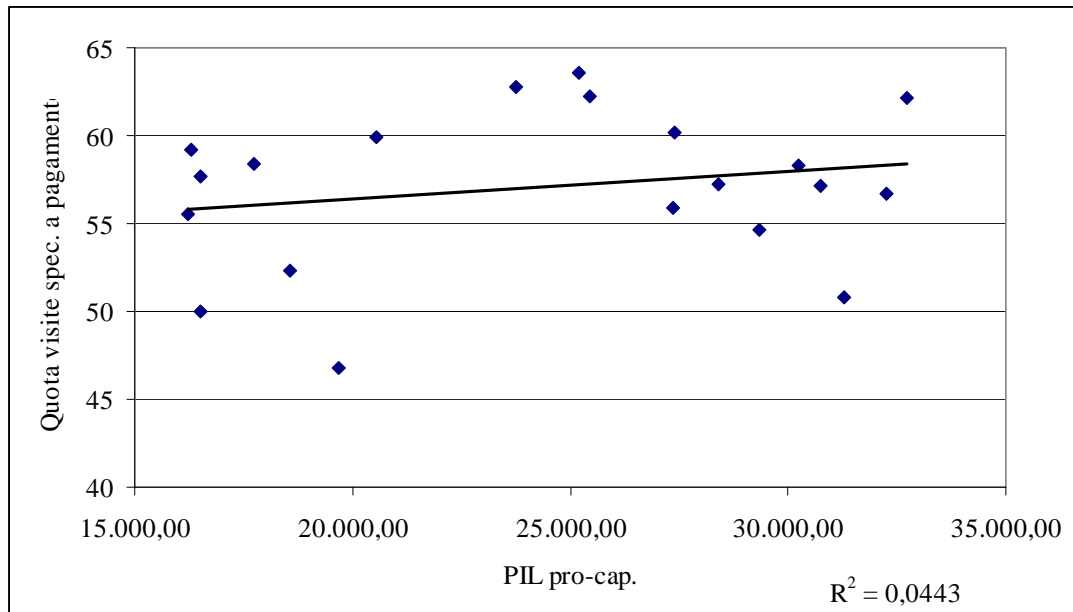


Source: CEIS Sanità elaboration according to ISTAT and Ministry of Health data²

- 4) As the total per capita specialist expenditure regresses for the per capita GDP, the share of total private specialist expense and the average hospitalization period the only variable that significantly influences specialist expenditure emerges (amongst those analyzed) namely the per capita GDP. In other words, Regions with the most accreditation spend less in total specialist expenditure but this seems to depend on the lower income (which may eventually be interpreted as a proxy on formal education) and not on the type of distributor.

² Today the Ministry of Labour, Health and Social Policies. The term Ministry of Health will be used for the sake of brevity.

Graph 6.2: Share of totally charged visits and per capita GDP
Value in Euro - Year 2006



Source: CEIS Sanità elaboration according to ISTAT and Ministry of Health data

- 5) Only Lombardia, Sicilia, Sardegna and Friuli Venezia Giulia possess a *prescription charge* for out-patient specialist services that is different from the other Regions. Despite this substantial homogeneousness, equity is not guaranteed since the regions adopt different tariff systems and therefore the incidence on patients is different in any case.

Table 6.1: Total specialist per capita expenditure - Year 2006

Regions	Value in €
Italy	204.5
Valle d' Aosta	325.1
Liguria	324.9
Trentino A. A.	294.5
Piemonte	291.7
Emilia Romagna	290.3
Toscana	285.4
Marche	260.6
Veneto	250.3
Umbria	249.5
Lombardia	228.9
Friuli V. G.	200.1
Puglia	189.1
Basilicata	179.1
Campania	152.9
Calabria	147.4
Sicilia	137.3
Sardegna	135.1
Abruzzo	133.0
Lazio	n.d
Molise	n.d

Source: CEIS Sanità elaboration according to Ministry of Health data

6.1 OECD specialist expenditure

According to OECD data, specialist expenditure³ in Italy was equal to 2.7% of the GDP in 2006 – registering a 0.3% upward trend compared to 2001. The greatest share of specialist expenditure over GDP can be observed in the United States during 2006 (6.9%), followed by Portugal (3.3%) that registered a value equal to half of the U.S.A figure and by Sweden (3.1%). The countries with minor specialist expenditure over GDP are instead Poland, the Czech Republic and Hungary (respectively 1.2%, 1.6% and 1.7%).

³ The figure includes services delivered within hospitals.

Table 6.2: Specialist public and private per capita expenditure. Value in dollars (PPP)

Countries	1990	1996	2001	2006
Australia	348	501	754	
Austria	432	620	744	895
Belgium	540	684		637
Canada	424	506	684	920
Korea	85	170	343	493
Denmark	342	455	666	841
Finland	429	363	464	690
France	344	440	553	603
Germany	538	573	638	744
Japan	493	490	665	
Greece				
Ireland				
Iceland	382	469	692	826
Italy	415	485	643	788
Luxembourg		996	651	
Mexico			134	249
Norway	286		583	830
New Zealand				599
Holland	245	276	544	
Poland				170
Portugal			500	679
United Kingdom				
Czech Republic		280	236	345
Slovakia			123	
Spain		494	648	759
United States	1090	1625	2154	3011
Sweden		475	873	1084
Switzerland	541	742	960	
Turkey	104	134		
Hungary			220	301

Source: CEIS Sanità elaboration according to OECD Health Data

During 2006 Italy registered expenditure both within the public and private sectors. equal to \$ 788.00. This figure represents an upward trend equal to 23.6% compared to 2001 (4.2% annual average).

The cost of services per citizen goes from an amount of \$ 3.011.00 for the United States to \$ 1.084.00 for Sweden and down to \$170.00 registered for Poland, only preceded by Mexico (\$ 249.00) and Hungary (\$ 301.00): therefore an extreme swing between OECD countries is evident.

Public and private specialist expenditure in Italy constitutes an important share of the total healthcare budget: 30.1% in 2006 and 29% in 2001. The countries in which the percentage of out-patient expenditure over the total healthcare budget is greatest are again the United States, followed by Sweden. The countries with a specialist expenditure that is lowest over the total healthcare budget are France and Norway.

**Table 6.3: Share of public and private specialist expenditure over total healthcare budget.
Expressed in percentages**

Countries	1991	1996	2001	2006
Australia	29.00	29.30	31.50	
Austria	26.10	26.40	25.70	24.80
Belgium	39.10	35.60		18.30
Canada	24.60	24.60	25.00	25.00
Korea	28.60	29.70	37.90	33.30
Denmark	23.80	23.00	26.40	25.10
Finland	32.00	24.10	24.20	25.90
France	23.70	21.50	21.40	17.50
Germany		23.90	22.70	22.10
Japan	44.00	29.50	32.00	
Greece				
Ireland				
Iceland	23.60	23.70	24.30	24.70
Italy	30.00	30.10	29.00	30.10
Luxembourg	49.90	50.00	23.80	
Mexico			24.40	31.40
Norway			17.90	18.40
New Zealand				24.50
Holland	17.20	14.80	21.30	
Poland				18.70
Portugal			31.90	32.00
United Kingdom				
Czech Republic		30.50	21.80	23.10
Slovakia			18.40	
Spain		39.50	39.60	30.90
United States	40.80	42.70	43.80	44.80
Sweden		25.50	34.80	33.90
Switzerland	25.90	26.80	27.70	
Turkey	64.90	62.30		
Hungary			22.70	20.00

Source: CEIS Sanità elaboration according to OECD Health Data

**Table 6.4: Share of public specialist expenditure over total out-patient budget
Expressed in percentages**

Countries	1991	1996	2001	2006
Australia	60.40	60.20	71.40	
Austria	68.40	64.20	65.70	67.70
Belgium				61.40
Canada	69.40	64.20	62.60	62.60
Korea	36.90	39.50	53.90	52.10
Denmark	73.50	74.20	78.80	78.40
Finland	78.30	74.30	72.80	73.80
France	66.10	69.20	68.60	64.50
Germany		77.60	74.90	69.40
Japan	84.80	85.30	82.40	
Greece				
Ireland				
Iceland	63.70	52.90	59.90	62.60
Italy	78.90	68.50	70.90	74.90
Luxembourg	88.10	87.70	84.50	
Mexico			6.70	23.30
Norway			62.30	62.80
New Zealand				69.60
Holland	54.70	48.70	58.20	
Poland				57.20
Portugal				
United Kingdom				
Czech Republic		93.40	90.70	90.00
Slovakia			85.50	
Spain		63.30	62.40	56.90
United States	34.50	39.30	40.50	41.10
Sweden		76.20	78.20	77.90
Switzerland		47.70	47.90	
Turkey				
Hungary			48.50	53.00

Source: CEIS Sanità elaboration according to OECD Health Data

In general, the share of public specialist expenditure is greater than the private one, with the exception of Mexico and the United States.

In Italy, 74.9% of specialist expenditure for the year 2006 is considered public by the OECD.

6.2 The Requirements

The multi-dimensional survey conducted by ISTAT reports that an average of 1.9 visits were carried out in 2005 per citizen. The number of visits carried out between 2000 and 2005 increased by 16.7% (equal to 4.5-million services delivered) and especially involved individuals over the age of 75 (+36.7%). The number of specialist visits increased, again between 2000 and 2005, by 10.5% while general visits increased by 20.5%. The overall increase of visits was verified, in over 50% of the cases of repeated prescriptions, in 917,000 cases due to sickness and in 895,000 cases for check-ups. The most numerous specialist visits are those in the field of

Orthodontics (26.9%), followed by orthopaedics (11.4%), ophthalmology (10.8%) and cardiology (9.5%). The greatest increase compared to 1999-2000 was registered for urological (+35.4%), cardiologic (+34.3%), geriatric (+33.0%) and dietetic visits (+32.8%).

Marche and Umbria stand out for having the highest share of charged visits; on the contrary, the lowest percentages were registered in Sardegna and in Sicilia. There is a high share of families with a low social *status* (46.8%) who are burdened with the entire expense and this makes one consider the difficulties that the Health System has in offering citizens adequate services.

Table 6.5: Specialist visits by type of visit⁴ - Year 2005

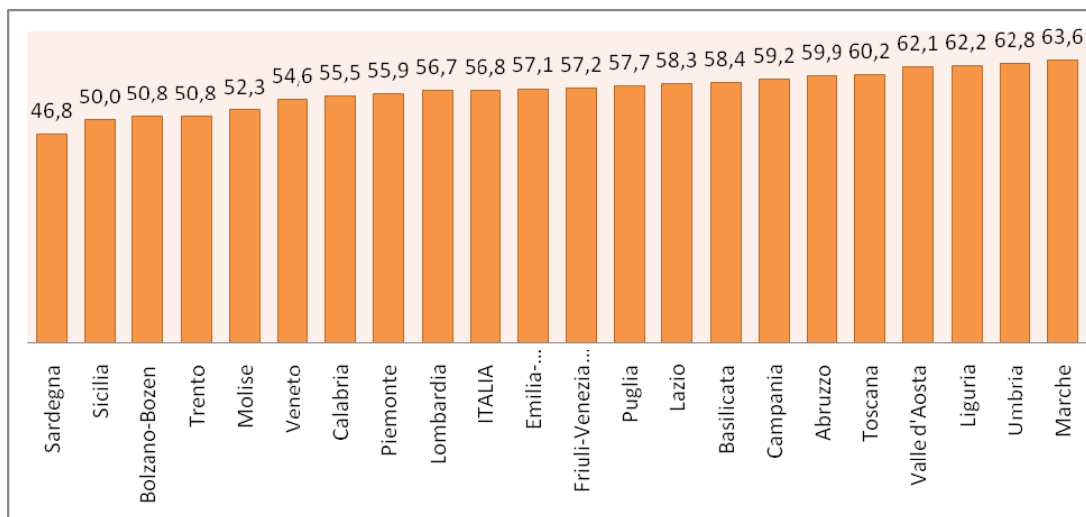
Type of specialist visit	Percentage composition by type	Number of visits (in thousands)	% difference compared to 1999-2000	% totally charged
Dentistry	26.9	3.894	2.3	92.0
Orthopaedics	11.4	1.653	16.7	45.8
Other specialist treatment	11.0	1.590	14.9	37.6
Ophthalmology	10.8	1.566	3.6	50.7
Cardiology	9.5	1.374	34.3	31.3
Obstetrics-gynaecology	8.1	1.166	3.5	64.5
Otorhinolaryngology	4.3	619	-3.7	42.5
Neurology	3.6	517	28.6	39.5
Urology	3.5	501	35.4	31.1
Dermatology	3.4	495	2.9	52.8
Gastroenterology	2.8	401	5.5	34.0
Psychiatry. Psychology	2.0	295	18.5	32.2
Dietetics	1.8	255	32.8	57.1
Geriatrics	1.0	149	33.0	27.3
Total	100	14.475	10.5	56.8

Source: CEIS Sanità elaborations according to ISTAT data

During the four weeks previous to the survey 15.3-million assessments were carried out beyond the states of hospitalization: 10.7-million laboratory assessments (18.4 per 100 citizens) and 6-million specialist examinations (8 per 100 citizens). The said figures were steady compared to 2000 and demonstrate greater utilization on behalf of woman than men. An amount equal to 21% of specialist check-ups is charged to the patient: Lazio, Puglia, Marche and Sicilia are the Regions where specialist tests are most frequently to the burden of the consumers.

⁴ Carried out during the four weeks prior to the survey.

**Graph 6.3: Regional share of totally charged specialist visits⁵
Expressed in percentages - Year 2005**



Source: ISTAT

People with a higher social *status* undergo more specialist visits and testing, while people with lower formal education generally tend to undergo more general visits (41.2% compared to 18.1%), lab testing (23.3% compared to 16.9%) and hospitalization (4.4% compared to 2.3%).

One especially goes for private specialist visits and testing due to the reliability of the physician or the facilities of reference (71.5% and 55.0% respectively). Even in the case of public facilities, reliability is the main reason for turning to the same (53% for specialist visits and testing).

The professional figure which has the highest degree of reliability in Italy is that of the family physician (64.3%), immediately followed by the private specialist (32.1%) and the hospital physician (13.3%).

6.3 Medical services

Approximately 1.3-billion specialist laboratory, diagnostics, medical physics and rehabilitation services were delivered in Italy during 2006 together with other clinical treatment (equal to 1.1-billion in 2005, with a 12.91% increase).

⁵ Carried out during the four weeks prior to the survey.

Table 6.6: Services by type - Year 2006

Regions	Total	Chemical. clinical. microbiological analysis. etc.	Imaging diagnostics Radiology diagnostics	Imaging diagnostics Nuclear Medicine	Diagnostics	Medical physics	Other treatment
Italy	1,287,330,978	984,221,641	57,416,347	3,009,191	60,425,538	82,592,963	160,090,836
Piemonte	91,732,841	68,994,181	4,374,008	132,769	4,506,777	6,694,530	11,537,353
Valle d'Aosta	2,789,465	2,129,155	130,830	2,683	133,513	126,939	399,858
Lombardia	218,117,101	167,581,743	9,799,033	306,765	10,105,798	13,020,689	27,408,871
P. A. Bolzano	9,743,325	6,154,648	415,013	89,696	504,709	633,729	2,450,239
P. A. Trento	11,525,245	9,130,509	498,202	6,714	504,916	435,087	1,454,733
Trentino A. A.	21,268,570	15,285,157	913,215	96,410	1,009,625	1,068,816	3,904,972
Veneto	117,684,399	88,697,905	5,234,697	202,927	5,437,624	8,629,402	14,919,468
Friuli V. G.	23,679,146	19,118,213	869,362	35,917	905,279	747,226	2,908,428
Liguria	40,312,663	28,981,661	1,729,191	284,549	2,013,740	3,055,550	6,261,712
Emilia Romagna	91,037,794	71,846,931	4,074,827	125,336	4,200,163	1,706,646	13,284,054
Toscana	86,779,845	69,158,415	4,084,930	224,440	4,309,370	1,168,977	12,143,083
Umbria	13,893,834	10,771,172	770,695	2,978	773,673	205,898	2,143,091
Marche	31,153,159	24,066,305	1,368,332	53,088	1,421,420	1,407,585	4,257,849
Lazio	127,548,525	94,320,915	5,314,008	369,618	5,683,626	14,476,105	13,067,879
Abruzzo	27,128,242	20,561,327	1,104,168	285,161	1,389,329	878,176	4,299,410
Molise	7,204,960	5,449,062	318,731	12,092	330,823	324,605	1,100,470
Campania	117,045,927	88,270,416	6,168,920	256,528	6,425,448	11,383,346	10,966,717
Puglia	87,215,872	68,705,403	3,863,856	150,364	4,014,220	5,966,845	8,529,404
Basilicata	11,991,067	8,637,959	457,023	16,842	473,865	1,717,596	1,161,647
Calabria	42,022,006	32,019,175	1,547,320	70,328	1,617,648	2,625,921	5,759,262
Sicilia	95,313,201	75,706,773	3,856,240	304,442	4,160,682	4,198,720	11,247,026
Sardegna	33,412,361	23,919,773	1,436,961	75,954	1,512,915	3,189,391	4,790,282

Source: Ministry of Health

The prevailing sector is obviously laboratory testing, amounting to over 984-million in 2006 and above 858-million in 2005; followed by medical physics services (approx. 83-million), diagnostics (60-million in 2006 and over 55-million in 2005) while the other specialist services amount to a total of 160-million in 2006 and 144-million in 2005.

Table 6.7: Average ann. variation specialist medical services by type - Years 2006-2001

Regions	Chemical. clinical. microbiological. etc. analysis	Diagnostics	Medical physics and rehabilitation
Italy	5.32	2.36	-9.11
Piemonte	3.22	4.43	-0.45
Valle d'Aosta	12.04	3.83	-1.64
Lombardia	2.20	0.84	-4.34
P. A. Bolzano	22.41	13.86	2.21
P. A. Trento	24.64	13.43	-2.55
Trentino A. A.			
Veneto	3.68	-3.16	-2.75
Friuli V. G.	2.91	-1.67	-12.30
Liguria	6.20	6.39	11.67
Emilia Romagna	8.47	9.18	-9.94
Toscana	5.21	1.72	-24.08
Umbria	1.83	5.25	-26.61
Marche	4.14	-0.03	-15.48
Lazio	7.49	4.60	-11.62
Abruzzo	19.66	16.66	-12.29
Molise	18.48	8.82	-10.46
Campania	4.79	4.56	-7.13
Puglia	12.79	2.14	-0.12
Basilicata	8.72	4.33	-2.79
Calabria	4.12	3.76	-18.54
Sicilia	4.49	1.16	-25.95
Sardegna	4.91	-4.58	-10.89

Source: CEIS Sanità elaboration according to Ministry of Health data

The *case mix* is therefore modified: in the absence of micro-data, one is not capable of obtaining an estimate in value, but it is possible to observe that there has been an increase of 5.3% for laboratory testing, 2.4% for diagnostic services and a decrease of 9.1% for medical physics and rehabilitation. The regional trend is nevertheless irregular in the different Regions and according to the branches taken into consideration.

An average of 21.9 specialist medical services were registered in Italy in 2006 for each citizen, against the 19.5 delivered in 2005; in particular, 16.8 were laboratory services, 1.03 diagnostics (of which 0.98 were radiology diagnostics and 0.05 were nuclear medicine), 1.4 medical physics and 2.7 “other specialist clinical services”.

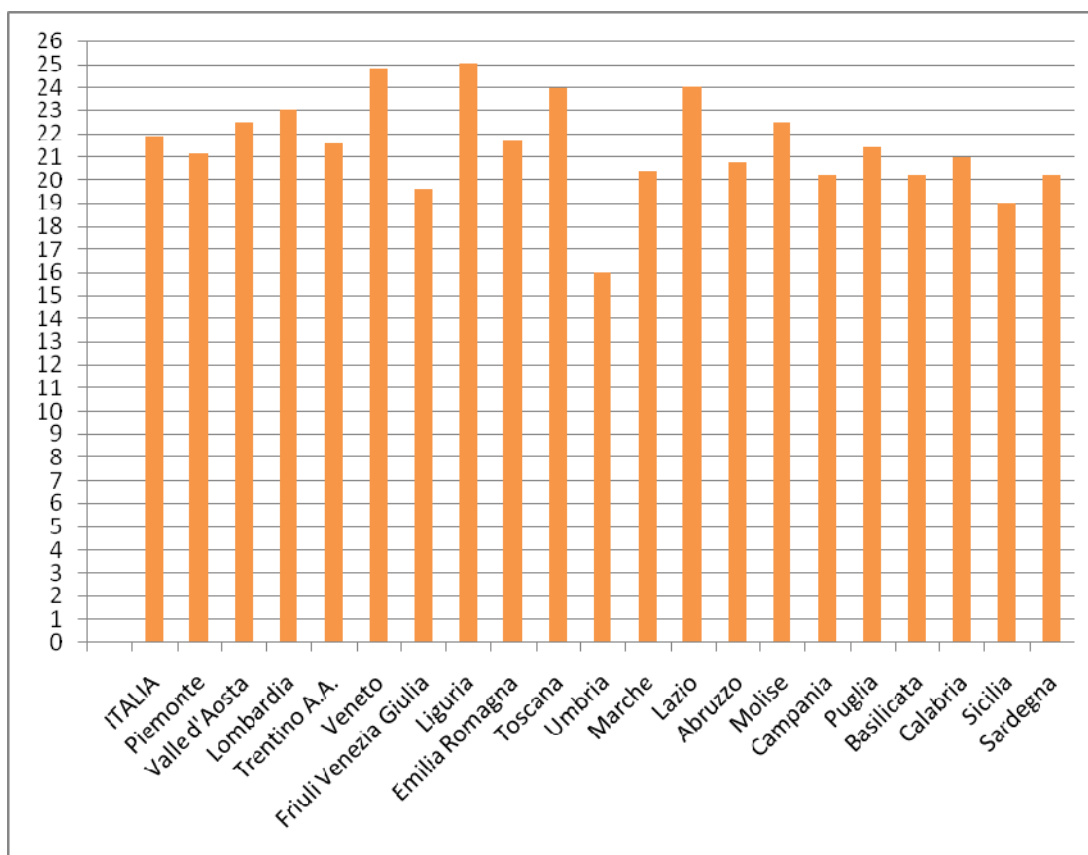
Regional distribution is rather dissimilar, going from 25 medical services per citizen in the Liguria region to 16 for the Umbria region.

Table 6.8: Per capita services by typology – Year 2006

Regions	Total per capita	Chem. clinical. microbio. etc. analysis per citizen	Imaging diagnostics. Radiolog. diagnostics per citizen	Imaging diagnostics. Nuclear medicine per citizen	Diag-nostics per citizen	Medical physics per citizen	Clinical per citizen
Italy	21.91	16.75	0.98	0.05	1.03	1.41	2.72
Piemonte	21.13	15.89	1.01	0.03	1.04	1.54	2.66
Valle d'Aosta	22.50	17.17	1.06	0.02	1.08	1.02	3.23
Lombardia	23.02	17.69	1.03	0.03	1.07	1.37	2.89
P. A. Bolzano							
P. A. Trento							
Trentino A. A.	21.59	15.52	0.93	0.10	1.02	1.08	3.96
Veneto	24.84	18.72	1.10	0.04	1.15	1.82	3.15
Friuli V. G.	19.60	15.82	0.72	0.03	0.75	0.62	2.41
Liguria	25.04	18.00	1.07	0.18	1.25	1.90	3.89
Emilia Romagna	21.74	17.16	0.97	0.03	1.00	0.41	3.17
Toscana	23.97	19.11	1.13	0.06	1.19	0.32	3.35
Umbria	16.01	12.41	0.89	0.00	0.89	0.24	2.47
Marche	20.38	15.74	0.90	0.03	0.93	0.92	2.79
Lazio	24.04	17.78	1.00	0.07	1.07	2.73	2.46
Abruzzo	20.78	15.75	0.85	0.22	1.06	0.67	3.29
Molise	22.45	16.98	0.99	0.04	1.03	1.01	3.43
Campania	20.21	15.24	1.07	0.04	1.11	1.97	1.89
Puglia	21.42	16.87	0.95	0.04	0.99	1.47	2.09
Basilicata	20.18	14.54	0.77	0.03	0.80	2.89	1.96
Calabria	20.96	15.97	0.77	0.04	0.81	1.31	2.87
Sicilia	19.00	15.09	0.77	0.06	0.83	0.84	2.24
Sardegna	20.18	14.45	0.87	0.05	0.91	1.93	2.89

Source: CEIS Sanità elaboration according to Ministry of Health data

Graph 6.4: Per capita out-patient specialist medical services - Year 2006



Source: CEIS Sanità elaboration according to Ministry of Health data

For that which concerns laboratory testing, the Region with the greatest number of services per citizen is Toscana with an average of 19.1; on the other hand, the Region with the lowest amount of services is Umbria with 12.4 per capita.

Whereas for that which regards diagnostics, Liguria is the Region with the largest amount of medical services per capita (1.3), while Friuli Venezia Giulia is on the other extreme (as in 2005) with an average per capita amount of diagnostic services equal to 0.75.

For that which regards the medical physics sector, the largest amount of services was delivered in Basilicata (2.9), followed by Lazio (2.7); whereas the lowest amount was registered in Umbria (0.2) with an over 13-fold difference.

And finally, relative to other services, Trentino Alto Adige registers a per capita average amount of services equal to 3.96 whereas Calabria has the lowest share with 1.0 services per citizen.

Table 6.9: Per capita services per population weighted average - Year 2006⁶

Regions	Total per capita	Chemical. clinical. microbiological. etc. analysis per capita	Imaging diagnostics Radiology diagnostics per capita	Imaging diagnostics Nuclear medicine per capita	Diagnostics per capita	Medical physics per capita	Clinical per capita
Italy	21.91	16.75	0.98	0.05	1.03	1.41	2.72
Piemonte	20.13	15.14	0.96	0.03	0.99	1.47	2.53
Valle d'Aosta	22.09	16.86	1.04	0.02	1.06	1.01	3.17
Lombardia	22.89	17.59	1.03	0.03	1.06	1.37	2.88
P. A. Bolzano	21.38	13.51	0.91	0.20	1.11	1.39	5.38
P. A. Trento	23.27	18.43	1.01	0.01	1.02	0.88	2.94
Trentino A. A.	22.36	16.07	0.96	0.10	1.06	1.12	4.11
Veneto	24.85	18.73	1.11	0.04	1.15	1.82	3.15
Friuli V. G.	18.59	15.01	0.68	0.03	0.71	0.59	2.28
Liguria	22.68	16.31	0.97	0.16	1.13	1.72	3.52
Emilia Romagna	20.72	16.36	0.93	0.03	0.96	0.39	3.02
Toscana	22.69	18.08	1.07	0.06	1.13	0.31	3.18
Umbria	15.24	11.81	0.85	0.00	0.85	0.23	2.35
Marche	19.64	15.17	0.86	0.03	0.90	0.89	2.68
Lazio	24.13	17.84	1.01	0.07	1.08	2.74	2.47
Abruzzo	20.44	15.50	0.83	0.21	1.05	0.66	3.24
Molise	21.97	16.62	0.97	0.04	1.01	0.99	3.36
Campania	22.04	16.62	1.16	0.05	1.21	2.14	2.06
Puglia	22.45	17.69	0.99	0.04	1.03	1.54	2.20
Basilicata	20.43	14.72	0.78	0.03	0.81	2.93	1.98
Calabria	21.74	16.57	0.80	0.04	0.84	1.36	2.98
Sicilia	19.83	15.75	0.80	0.06	0.87	0.87	2.34
Sardegna	20.55	14.71	0.88	0.05	0.93	1.96	2.95

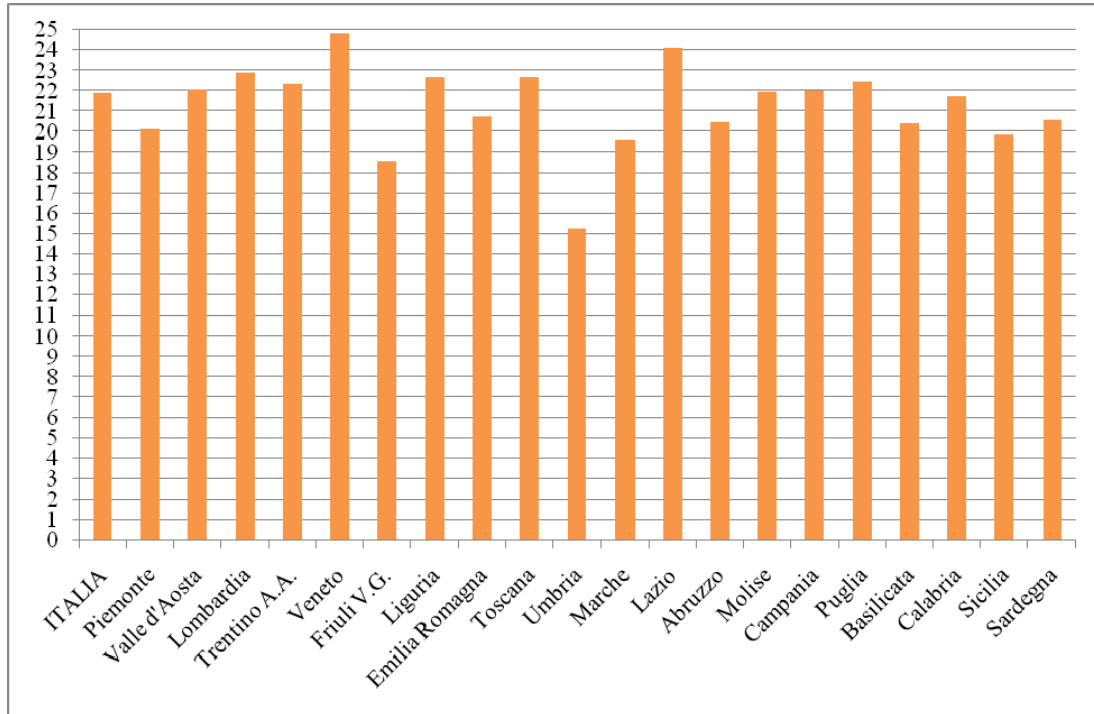
Source: CEIS Sanità elaboration according to Ministry of Health data

The analysis per population weighted average⁷, therefore standardized by age, demonstrates a correlation between northern and southern regions for total specialist medical services in 2006 although absolutely significant differences were surveyed.

⁶ Unfortunately information relative to the subdivision of services delivered by public and private facilities is not available.

⁷ Data by specialist service, data provided by the Ministry of Health.

**Graph 6.5: Out-patient specialist medical services by population weighted average
Year 2006**



Source: CEIS Sanità elaboration according to Ministry of Health data

Specialist medical services in Italy compared to 2005 are on an average upward trend.

6.4 Offer

In 2006, the offer of specialist medical services was guaranteed on the national territory by 9,971 facilities (out-patients' departments and laboratories) with a 5.4% reduction compared to 2005 (10,538 facilities in 2005); some of these deliver services in various fields.

Table 6.10: Number of facilities - Year 2006⁸

Regions	Total out-patient departments and laboratories	Clinical: Total	Diagnostics: Total	Laboratory: Total
Italy	9.971	6.416	3.061	4.235
Piemonte	441	393	197	176
Valle d'Aosta	3	3	2	1
Lombardia	824	662	411	354
P. A. Bolzano	176	155	57	19
P. A. Trento	35	32	18	16
Trentino A. A.	211	187	75	35
Veneto	460	391	154	159
Friuli V. G.	131	121	35	29
Liguria	369	271	117	110
Emilia Romagna	456	394	202	164
Toscana	900	588	173	143
Umbria	102	82	38	35
Marche	202	144	69	100
Lazio	906	522	370	482
Abruzzo	155	91	48	96
Molise	48	32	16	19
Campania	1.462	619	372	823
Puglia	675	386	167	340
Basilicata	112	73	23	53
Calabria	455	274	119	207
Sicilia	1.713	920	333	814
Sardegna	346	263	140	95

Source: Ministry of Health

In detail, 4,235 facilities deliver laboratory services (previously 4,258 in 2005). 6,416 deliver clinical services (6,705 in 2005) and 3,061 offer diagnostics services (3,049 in 2005)⁹.

Of the facilities surveyed, 4,120 are public accredited ones (equal to 41.3% of the total) whereas 5,851 are private facilities.

The public/private territorial distribution is considerably dissimilar between Regions: the percentage of private facilities in the Sicilia Region reaches 81.7% (even in 2005 Sicily registered a density of private facilities that was greater than the public ones), followed by Campania with 79% (78.4% in 2005); at the other extreme. the Autonomous Province of Bolzano only possesses 17.1% of private facilities (16.8% in 2005).

Accredited private facilities make up 41.9% of the total in the clinical field; 49.4% in the field of diagnostics and 67.8% in the laboratory analysis sector.

⁸ Hospital facilities are excluded.

⁹ Some facilities deliver services in various branches.

**Table 6.11: Share of accredited private facilities by branch.
Expressed in percentages – Year 2006**

Regions	Private clinical	Private diagnostics	Private laboratory	Total private facilities
Italy	41.88	49.40	67.84	58.68
Piemonte	16.54	26.90	24.43	18.82
Valle d'Aosta	66.67	50.00	0.00	66.67
Lombardia	50.60	54.74	58.76	59.59
P. A. Bolzano	16.77	12.28	26.32	17.05
P. A. Trento	25.00	22.22	31.25	31.43
Trentino A. A.	18.18	14.67	28.57	19.43
Veneto	49.62	46.10	42.77	56.52
Friuli V. G.	24.79	28.57	37.93	30.53
Liguria	19.93	40.17	44.55	31.71
Emilia Romagna	37.31	48.51	32.32	41.45
Toscana	31.97	49.71	53.85	38.78
Umbria	7.32	18.42	37.14	22.55
Marche	33.33	27.54	57.00	50.99
Lazio	45.59	56.49	73.86	66.67
Abruzzo	49.45	45.83	68.75	69.68
Molise	56.25	56.25	63.16	66.67
Campania	53.31	69.35	87.24	79.00
Puglia	32.90	38.32	67.06	56.44
Basilicata	21.92	34.78	50.94	41.96
Calabria	35.04	46.22	69.08	55.38
Sicilia	66.96	55.26	83.91	81.67
Sardegna	37.26	53.57	53.68	50.58

Source: CEIS Sanità elaboration according to Ministry of Health data

In general, there has been an upward trend between 2004 and 2005 for public facilities, which once again decreased between 2005 and 2006.

It must be specified that the said figures are not indicative of the real importance of accredited private facilities, since the average dimensions and types of facilities are diverse.

6.5 Dimensions of the delivering facilities

In order to obtain some sort of information albeit of an approximate nature it is possible to compare the services delivered with the number of facilities per branch.

Table 6.12: Average services per facility and per branch - Year 2006

Regions	Clinical	Chemical. clinical. microbiological. etc. analysis	Diagnostics
Italy	24,951.81	232,401.80	19,740.46
Piemonte	29,357.13	392,012.39	22,877.04
Valle d'Aosta	133,286.00	2,129,155.00	66,756.50
Lombardia	41,403.13	473,394.75	24,588.32
P. A. Bolzano	15,807.99	323,928.84	8,854.54
P. A. Trento	45,460.41	570,656.81	28,050.89
Trentino A. A.	20,882.20	436,718.77	13,461.67
Veneto	38,157.21	557,848.46	35,309.25
Friuli V. G.	24,036.60	659,248.72	25,865.11
Liguria	23,105.95	263,469.65	17,211.45
Emilia Romagna	33,715.87	438,091.04	20,792.89
Toscana	20,651.50	483,625.28	24,909.65
Umbria	26,135.26	307,747.77	20,359.82
Marche	29,568.40	240,663.05	20,600.29
Lazio	25,034.25	195,686.55	15,361.15
Abruzzo	47,246.26	214,180.49	28,944.35
Molise	34,389.69	286,792.74	20,676.44
Campania	17,716.83	107,254.45	17,272.71
Puglia	22,096.90	202,074.71	24,037.25
Basilicata	15,912.97	162,980.36	20,602.83
Calabria	21,019.20	154,682.00	13,593.68
Sicilia	12,225.03	93,005.86	12,494.54
Sardegna	18,214.00	251,787.08	10,806.54

Source: CEIS Sanità elaboration according to Ministry of Health data

Counting out Valle d'Aosta (which has a singular situation), the Region with the greatest average dimension per facility in 2006 was Friuli Venezia Giulia (709,150.43). followed by the Autonomous Province of Trento (644,168.11). The Region with the greatest "fragmentation" is Sicilia (117,725.43), followed by Campania (142,243.99). Generally, in the southern Regions, the fabric of out-patient departments and laboratories is on an average distinguished by small dimensions – with evident risks for their efficiency and quality.

The differences are noteworthy: once again taking Friuli Venezia Giulia and Sicilia as examples, we can observe how the average dimension of the laboratories in the former Region is 7 times greater than that of the latter while it is twice that of the "other" diagnostic facilities.

In particular, in 2006 the laboratory and diagnostic services per facility were mostly concentrated respectively in Friuli Venezia Giulia and Veneto.

The Autonomous Province of Bolzano was on the contrary characterized by the lowest average number of diagnostic services per facility.

**Table 6.13: Variation of average services per facility and per branch.
Expressed in percentages**

Regions	2006/2005			2006/2004		
	Clinical	Chemical. clinical. micro-biological. etc. analysis	Diagnostic	Clinical	Chemical. clinical. micro-biological. etc. analysis	Diagnostic
Italy	15.76	15.29	8.16	20.84	15.19	8.58
Piemonte	26.25	28.83	10.03	19.05	-1.85	2.34
Valle d'Aosta	129.17	1.80	101.59	144.44	12.36	103.77
Lombardia	-2.96	3.39	-0.34	-2.66	4.36	4.67
P. A. Bolzano	60.54	43.67	106.77	38.98	35.15	76.96
P. A. Trento	-0.38	-0.23	6.46	29.69	13.71	25.39
Trentino A. A..	34.41	13.77	51.24	32.36	22.61	48.87
Veneto	2.90	7.91	5.73	0.27	12.51	10.19
Friuli V. G.	9.55	13.86	-1.74	14.75	30.00	10.33
Liguria	36.00	15.06	12.51	136.99	60.35	74.16
Emilia Romagna	7.72	9.37	8.85	10.25	-17.42	-35.74
Toscana	37.07	44.50	45.48	60.43	66.02	61.04
Umbria	-2.68	1.17	12.77	1.22	6.40	8.55
Marche	39.38	21.64	1.42	44.94	36.44	21.98
Lazio	84.59	86.92	66.72	59.47	37.86	24.27
Abruzzo	117.37	46.13	90.37	85.07	56.40	40.40
Molise	83.31	32.72	-20.81	53.00	28.79	-18.83
Campania	6.20	3.31	-7.11	8.83	2.00	11.34
Puglia	-7.93	11.69	-4.19	25.81	39.47	8.63
Basilicata	22.14	1.84	-6.67	4.14	4.54	5.74
Calabria	25.31	22.41	-3.52	32.17	27.73	16.50
Sicilia	1.32	6.98	-4.48	6.49	3.37	-2.76
Sardegna	2.94	-2.01	-13.48	10.28	6.79	-17.11

Source: CEIS Sanità elaboration according to Ministry of Health data

The variations bring to light how, between 2004 and 2005, a slight increase was registered only in the clinical branch (the number of analysis and diagnostics have remained more or less constant); whereas between 2005 and 2006 the increase of services was evident: +15.8% for clinical services, +14.3% for analysis services and +8.2% for diagnostic services.

In terms of ratio with the population served, in 2006 the average target users for out-patient departments and laboratories were equal to 5,892 inhabitants per facility. Again in this case, the figure is geographically very variable: it goes from a number of average citizens per facility equal to 41,326 in Valle d'Aosta to the figure for Sicilia that is equal to 2,929.

Within the clinical, diagnostics and laboratory branches there is an average number of citizens per facility that is respectively equal to 9,157, 19,194 and 13,873.

Table 6.14: Average potential users of the facilities. Inhabitants per facility - Year 2006

Regions	Total out-patient dept. and laboratories	Clinical	Diagnostics	Laboratory
Italy	5,892	9,157	19,194	13,873
Piemonte	9,845	11,048	22,039	24,669
Valle d'Aosta	41,326	41,326	61,989	123,978
Lombardia	11,499	14,313	23,054	26,766
P. A. Bolzano				
P. A. Trento				
Trentino A. A.	4,669	5,268	13,135	28,147
Veneto	10,301	12,118	30,768	29,801
Friuli V. G.	9,223	9,986	34,522	41,665
Liguria	4,364	5,941	13,762	14,638
Emilia Romagna	9,183	10,628	20,730	25,534
Toscana	4,022	6,156	20,924	25,314
Umbria	8,509	10,584	22,839	24,797
Marche	7,568	10,617	22,157	15,288
Lazio	5,855	10,162	14,337	11,006
Abruzzo	8,421	14,344	27,194	13,597
Molise	6,686	10,028	20,057	16,890
Campania	3,961	9,355	15,567	7,036
Puglia	6,032	10,548	24,380	11,975
Basilicata	5,304	8,138	25,830	11,209
Calabria	4,405	7,315	16,844	9,683
Sicilia	2,929	5,453	15,067	6,164
Sardegna	4,785	6,295	11,826	17,428

Source: CEIS Sanità elaboration according to Ministry of Health data

The figure seems to be quite variable at the regional level. For that which concerns the clinical branch, the highest figure was registered in Valle d'Aosta (41,326), followed by Abruzzo (14,344); and the lowest figure was that in Trentino Alto Adige (5,268); regarding the diagnostics branch, the highest figure was observed in Valle d'Aosta, followed by Friuli Venezia Giulia (35,552) and the lowest amount was registered in Sardegna (11,826 citizens); finally, for that which regards laboratory analysis, Valle d'Aosta again reaches the maximum average number of citizens per facility equal to 123,978 and Sicilia possesses the lowest number of target users equal to 6,164 citizens.

Regarding target users, the average amount of citizens per facility has increased by 6.2% between 2005 and 2006; these figures have increased particularly in Valle d'Aosta and in Abruzzo (+35.5%) while they have decreased in Basilicata and Umbria.

It is important to stress how the private sector (accredited) is important, but with different characteristics over the territory also due to the different accreditation practices.

The greater fragmentation of facilities in the south also comes to light which are generally of a small dimension. Nevertheless, overall one can observe a progressive increase in the average dimensions of the facilities.

Unfortunately it is impossible to separate the real contribution of private and public facilities in terms of the quantity and quality of services.

Nevertheless it must be underlined that the said figure is distorted by the fact that it does not take into consideration hospital facilities. For example, supposing that every hospital facility

is equipped with an analysis laboratory. the variability between Regions would be considerably reduced estimating the target users for all laboratories (including hospital labs). The Regions in which the reduction in the number of citizens per facility is greatest are those with the highest number of target users: Piemonte, Valle d'Aosta, Lombardia, Trentino Alto Adige, Emilia Romagna, Toscana, Umbria and Molise. Therefore presumably not only the facilities in these Regions are less fragmented on an average, but hospital facilities are employed to a considerable degree.

6.6 Evolution of specialist medical expenditure financed by the medical insurance plan

Financed specialist medical assistance equals 3.5% of the overall budget in Italy: 2.9% in the north, 2.9% in the centre and 4.7% in the south; in particular, specialist expenditure equals 9.4% of the budget in Italy: 8% in the north, 8.1% in the centre and 11.9% in the south.

Table 6.15: Share of expenditure for specialist medical services over total expenditure. Value expressed in percentages

Regions	2001	2006	2007
Italy	3.24	3.51	3.52
North	2.36	2.91	2.95
Centre	2.83	3.22	2.93
South	4.68	4.51	4.68
Piemonte	1.80	2.59	2.74
Valle d'Aosta	3.27	2.39	2.46
Lombardia	3.15	3.75	3.74
P. A. Bolzano	0.61	0.52	0.53
P. A. Trento	0.93	1.30	1.38
Veneto	3.04	3.81	3.77
Friuli V. G.	1.75	1.38	1.60
Liguria	1.58	1.94	1.91
Emilia Romagna	1.41	1.89	1.97
Toscana	1.59	1.89	1.88
Umbria	0.77	0.82	0.84
Marche	1.77	1.47	1.47
Lazio	4.24	4.74	4.22
Abruzzo	2.23	1.94	1.99
Molise	2.38	2.97	3.57
Campania	6.18	6.30	6.58
Puglia	3.51	3.40	3.28
Basilicata	2.28	1.79	1.70
Calabria	4.13	3.62	3.10
Sicilia	5.79	5.16	5.86
Sardegna	2.85	3.40	3.31

Source: CEIS Sanità elaboration according to Ministry of Health data

**Table 6.16: Share of expenditure for out-patient specialist services over total budget.
Expressed in percentages**

Regions	2001	2006	2007
Italy	7.60	9.06	9.37
North	5.94	7.75	8.02
Centre	6.66	8.56	8.07
South	10.06	10.98	11.87
Piemonte	4.75	7.40	7.79
Valle d'Aosta	12.79	9.46	9.66
Lombardia	6.68	8.45	8.65
P. A. Bolzano	2.26	1.88	1.91
P.. A. Trento	2.67	3.67	3.91
Veneto	8.53	10.20	10.54
Friuli V. G.	5.14	4.87	6.02
Liguria	3.90	5.82	5.83
Emilia Romagna	4.09	5.81	6.09
Toscana	5.01	6.75	6.86
Umbria	2.53	2.95	3.04
Marche	5.58	4.91	4.83
Lazio	7.81	10.23	9.52
Abruzzo	5.55	4.98	5.27
Molise	6.46	7.50	9.19
Campania	12.02	15.11	16.28
Puglia	7.62	7.79	7.81
Basilicata	6.37	5.28	5.26
Calabria	9.49	8.85	8.00
Sicilia	11.69	12.24	14.62
Sardegna	7.87	10.09	10.21

Source: CEIS Sanità elaboration according to Ministry of Health data

The Regions with the greatest incidence of specialist services covered by a medical insurance plan are Campania and Sicilia; whereas those with the lowest incidence are the Autonomous Province of Bolzano and Umbria.

Table 6.17: Expenditure variation by specialist assistance. Expressed in percentages.

Regions	2006/2001	Yearly average 2006/2001	2007/2006
Italy	41.30	7.16	3.27
North	58.93	9.71	6.09
Centre	55.47	9.23	-8.35
South	24.04	4.40	6.00
Piemonte	86.00	13.21	9.69
Valle d'Aosta	0.10	0.02	3.91
Lombardia	52.20	8.76	4.99
P. A. Bolzano	13.79	2.62	4.67
P. A. Trento	79.03	12.35	9.33
Veneto	62.31	10.17	3.19
Friuli V. G.	-2.79	-0.56	28.54
Liguria	55.06	9.17	2.73
Emilia Romagna	76.07	11.98	8.73
Toscana	53.44	8.94	1.77
Umbria	41.68	7.22	3.69
Marche	5.24	1.03	3.53
Lazio	61.93	10.12	-11.88
Abruzzo	14.34	2.72	5.06
Molise	68.65	11.02	23.18
Campania	27.78	5.02	7.16
Puglia	26.72	4.85	-0.54
Basilicata	2.19	0.43	0.21
Calabria	6.76	1.32	-10.15
Sicilia	19.33	3.60	12.94
Sardegna	50.99	8.59	-0.91

Source: CEIS Sanità elaboration according to Ministry of Health data

Specialist expenditure covered by a medical insurance plan in Italy has increased on an average by 7.2% during the 2001-2006 period and by 3.3% between 2006 and 2007.

In the north, specialist services covered by a medical insurance plan have grown more than the national average. both within the five-year period taken into consideration and during the last year; in the centre. specialist expenditure greatly increased between 2001 and 2006 and then was significantly reduced between 2006 and 2007. In the southern Regions the specialist expenditure grew by +4.4% between 2001 and 2006 and then continued to be on the rise between 2006 and 2007 (+6%).

The Regions which registered the greatest increase are Friuli Venezia Giulia and Molise, whereas Lazio and Calabria have undergone a significant decrease in specialist services covered by a medical insurance plan between 2006 and 2007.

On an average. every individual spends €61.00 for specialist medical assistance: this figure is more than average in the North and the Centre respectively by €9.00 and €8.00. while it is greatly lower than average in the south by €15.00.

The Regions with the highest per capita specialist expenditure are Campania and Sicilia, with figures on a net upward trend compared to the previous year, as the southern Regions on an average; on the other hand, the Regions with the lowest specialist expenditure are Umbria and Trentino Alto Adige.

**Table 6.18: Expenditure per medical insurance plan specialist assistance per capita.
Value in Euro**

Regions	2001	2006	2007
Italy	43.62	59.75	61.31
North	32.84	49.92	52.64
Centre	39.85	59.64	53.63
South	59.01	72.44	76.81
Piemonte	25.12	45.40	49.67
Valle d'Aosta	49.53	47.69	49.23
Lombardia	42.38	61.30	63.89
Trentino A. A.	12.23	17.64	18.85
Veneto	41.61	64.27	65.83
Friuli V. G.	23.73	22.55	28.88
Liguria	23.68	36.01	37.04
Emilia Romagna	20.12	33.56	36.18
Toscana	22.30	33.03	33.45
Umbria	10.43	14.04	14.47
Marche	23.71	23.90	24.62
Lazio	61.19	95.56	81.32
Abruzzo	30.32	33.50	35.07
Molise	32.44	54.81	67.69
Campania	79.27	99.84	107.00
Puglia	42.52	53.28	53.01
Basilicata	26.63	27.46	27.65
Calabria	51.41	55.27	49.82
Sicilia	72.52	85.86	96.98
Sardegna	36.32	54.14	53.53

Source: CEIS Sanità elaboration according to Ministry of Health data

Table 6.19: Expenditure for medical insurance plan specialist assistance per citizen per population weighted average. Index numbers (Italy average=100) - Year 2007

Regions	2007	Index numbers
Piemonte	47.38	77.28
Valle d'Aosta	48.38	78.91
Lombardia	63.59	103.72
P. A. Bolzano	12.29	20.05
P. A. Trento	26.19	42.72
Veneto	65.89	107.47
Friuli V. G.	27.4	44.69
Liguria	33.62	54.84
Emilia Romagna	34.61	56.45
Toscana	31.73	51.75
Umbria	13.8	22.51
Marche	23.8	38.82
Lazio	81.52	132.96
Abruzzo	34.52	56.30
Molise	66.26	108.07
Campania	116.44	189.92
Puglia	55.41	90.38
Basilicata	27.93	45.56
Calabria	51.57	84.11
Sicilia	101.11	164.92
Sardegna	54.31	88.58

Source: CEIS Sanità elaboration according to Ministry of Health data

Even specialist expenditure for weighted average population, although reducing the variability between Regions still demonstrates an extreme difference between Regions. This is obvious thanks to the index figures that go from 189 in Campania to 20 for the Autonomous Province of Bolzano.

6.7 Total specialist medical expenditure (estimate)

Using the data supplied by the Regions during the EAL (Essential Assistance Levels) expenditure survey referring to 2005¹⁰, the regional shares of specialist expenditure attributable to public and accredited private facilities have been estimated.

The overall burden of specialist services is on the average equal to 11.7% of the total public health budget. Therefore, had the figures remained constant in 2006, the expenditure for specialist medical services would have amounted to a figure between €11.5-billion and €12-billion.

Approximately 70% of the costs would be attributable to public facilities, whereas the remaining 30% would be attributable to private accredited ones despite the fact that these constitute approximately half of the total facilities; the said estimate is sufficiently coherent with OECD figures (table 6.4).

¹⁰ Molise and Lazio data is not available.

Table 6.20: Share of specialist expenditure delivered by private facilities over total specialist expenditure budget. Expressed in percentages - Year 2006

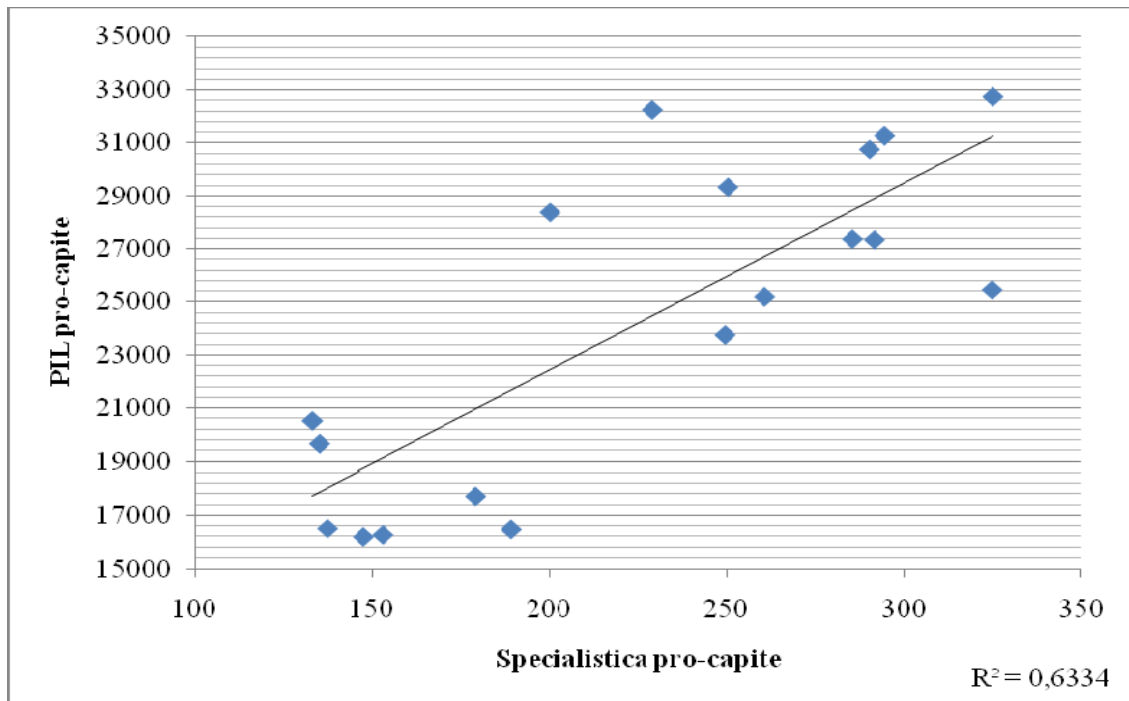
Regions	Private Specialist % over total specialist
Italy	29.37%
Piemonte	15.57%
Valle d'Aosta	14.67%
Lombardia	26.78%
P. A. Bolzano	2.82%
P. A. Trento	12.22%
Veneto	25.68%
Friuli V. G.	11.27%
Liguria	11.08%
Emilia Romagna	11.56%
Toscana	11.57%
Umbria	5.63%
Marche	9.17%
Lazio	
Abruzzo	25.18%
Molise	
Campania	65.30%
Puglia	28.18%
Basilicata	15.33%
Calabria	37.51%
Sicilia	62.53%
Sardegna	40.09%

Source: CEIS Sanità elaboration according to Ministry of Health data

As the total per capita specialist expenditure decreases for the per capita GDP, the share of private specialist medical expenditure over the total specialist budget and average hospitalization, the significance of the said regression emerges ($R^2=71.4\%$), but the only variable that significantly influences specialist expenditure (amongst those surveyed) is the per capita GDP.

In other terms, the Regions with the most accreditation spend less in total specialist medical services but this seems to depend on the lower income (education) and not on the type of distributor.

**Graph 6.7: Regional Correlation between GDP and specialist health expenditure.
Value in Euro - Year 2006**



Source: CEIS Sanità elaboration according to Ministry of Health and ISTAT data

Table 6.21: Estimate of total specialist expenditure per citizen - Year 2006

Regions	Specialist services per citizen
Italy	204.5
Piemonte	291.7
Valle d' Aosta	325.1
Lombardia	228.9
Trentino A. A.	294.5
Veneto	250.3
Friuli V. G.	200.1
Liguria	324.9
Emilia Romagna	290.3
Toscana	285.4
Umbria	249.5
Marche	260.6
Lazio	
Abruzzo	133.0
Molise	
Campania	152.9
Puglia	189.1
Basilicata	179.1
Calabria	147.4
Sicilia	137.3
Sardegna	135.1

Source: CEIS Sanità elaboration according to Ministry of Health data

The Regions with the highest per capita specialist medical expenditure are those in the north (respectively Valle D'Aosta, Liguria and Trentino Alto Adige) and in the centre. Whereas the second half of the place list includes the Regions located in the south and in particular the last positions are occupied by Abruzzo, Sardegna and Sicilia: as already mentioned beforehand, these Regions are characterized by an income that is lower than average.

6.8 Prescription Charges

Unlike the procedure for pharmaceutical prescription charges, prescription charges for specialist services are rather homogeneous in all the Regions.

In fact, most of the Regions absorb the national regulations which call for participation in medical expenses (prescription charge) by the beneficiary who benefits from medical services charged to the National Health Scheme. The maximum charge per prescription is equal to € 36.15 and each prescription may contain up to 8 services in the same specialist branch (services from different specialist branches must be prescribed on different prescriptions).

The 2007 Italian Financial Law also provided, for that which concerned out-patient department specialist medical services that the beneficiaries who were not exempt from participation in cost-sharing are held to pay a fixed share for each prescription equal to €10.00. But the said charge was abolished following the 2008 Italian Financial Law.

The tariffs for medical services make reference to the regional tariff system, which is periodically updated in accordance with ongoing regulations.

The only Regions that do not adhere to the national regulations are Lombardia, Sicilia, Sardegna, Friuli Venezia Giulia and Lazio.

In Lombardia, in accordance with DGR No. 5875 of 21st November 2007, regarding instrumental diagnostics and out-patient department specialist medical services, the maximum charge per prescription is fixed at €36.00 owing to balanced Budget. In addition, taking into consideration the years gone by since the introduction of the Lit. 70-million limit (€36,151.98) and taking into account the increase of the average value in the tariff system to €38,500,00 as the limit of overall family income for beneficiaries over 65 years of age as outlining the exclusion from co-participation.

In Sardegna, despite suspension of the fixed rate equal to € 10.00 per specialist prescription. the roof for participation in the cost of out-patient department specialist services has been increased from €36.15 to €46.15.

In Sicilia a classification is made on the basis of income (ISEE). For individuals belonging to family groups with an ISEE (equivalent economic situation) lower than €7,000.00 – specialist services of instrumental and laboratory diagnostics are to the total burden of the National Health Scheme; individuals belonging to family groups with an ISEE higher than € 7,000.00 – a contribution is to be made for specialist services of instrumental and laboratory diagnostics equal to €2.00 per prescription. in addition to co-participation up to an amount of € 36.15. Moreover for the said individuals. should the prescription contain services whose costs are greater than €36.15 of the charges. then a further payment equal to 10% of the difference between the total amount of the tariffs referring to the services contained in the prescription and a share of €36.15 are to be paid.

In Friuli Venezia Giulia. the prescription charge is confirmed at €36.00 – as it has for recent years.

In the Lazio Region, as of 1st December 2008 in accordance with the Action Plan whose objectives include those relative to the increase in co-participation by citizens for specialist services, a fixed contribution has been introduced in addition to the present maximum prescription charge equal to €36.15 per prescription for non-exempt patients. respectively equal to:

- € 15.00 per prescription for Nuclear Magnetic Resonance (NMR) and CAT scan services;
- €5.00 per prescription for physiokinesistherapy services;
- €4.00 per prescription for out-patient department specialist services and APA (Body of Out-Patient Department Services) that are not included in the previous points.

In addition. as of 1st January 2009 in the Lazio Region. the rights of beneficiaries to total exemption by income and category will be recognized on the basis of the application of Regional ISEE.

It is also important to note that despite most of the Regions apply a prescription charge up to €36.15. this does not mean that there is an ongoing condition of equity; in fact there are significant differences in the tariff systems of the single Regions. Citizens from different Regions will find they are co-participating to different degrees for the specialist services they receive.

In accordance with the national regulations, individuals belonging to the following principal categories are exempt from paying prescription charges:

1. exempt from co-participation for age and income:
 - citizens over the age of 65¹¹.
 - citizens under the age of 14¹²;

¹¹ Exemption applied generally according to income of family, referring to the previous year, that is not greater than €36,151.98;

- bearers of social pensions and family dependents;
 - pensioners at the minimum amount, over 60 years of age and with family dependents¹³;
 - the unemployed registered as such in unemployment offices¹⁴;
 - dependents of the above-mentioned unemployed citizens;
 - non-EEC citizens. regularly residing in Italy and registered in unemployment offices;
 - dependents of the above-mentioned unemployed individuals;
2. exempt for disability¹⁵:
 - disabled servicemen or disabled belonging to categories going from I to V;
 - civil invalids and work invalids with a reduction of working capacity greater than 2/3;
 - civil invalids possessing mobility allowance;
 - the blind and the deaf mutes;
 - ex-deportees in Nazi KZ prison camps (1);
 - victims of terrorism or organized crime;
 3. exempt for pathology;
 - individuals suffering from chronic and invalidating disease;
 - individuals suffering from rare disease;
 4. exempt for purposes or conditions of social interest in the case of:
 - early cancer diagnosis;
 - maternity protection (Ministerial Decree of 10th September 1998);
 - HIV prevention in individuals at risk;
 - promotion of blood. organs and tissue donation;
 - protection of individuals damaged by vaccinations. etc.

Regions may independently promote their own legislations on the subject of exemptions.

¹² In the specific case of *prescription charges* for Specialist services, the roof is reduced: children under the age of six are exempt, belonging to families with an income (referring to the previous year) not greater than € 36,151.98.

¹³ This term denotes a family that during the previous year had a total income lower than €8,263.00, increased up to €1,362.22 for the dependent spouse and an additional €516.00 for each dependent child;

¹⁴ The term unemployed refers to an individual who has lost his/her job and is registered in the unemployment office, therefore it does not refer to an individual who has never been employed. The condition must be present at the time when the service is delivered;

¹⁵ The following are also exempt for all specialist services related to invalidating pathologies;

- disabled servicemen and for services belonging to the categories from VI to VIII;
- work invalids with a reduction in their working capacity inferior to 2/3;
- those who have had an accident on the job or a professional sickness;
- categories equated by law to war invalids and mutilated servicemen.

The background of the top half of the page features a light purple gradient with several faint, overlapping silhouettes of people holding hands in a circle, suggesting a community or support group.

Chapter 7

*Health and Social
care integration:
the Italian regions
experience*

7 - Health and Social care integration: the Italian regions experience¹

This chapter contributes to the scientific debate on the need to develop a *welfare* system based on the integration of social care and healthcare services, able to overcome a sectoral approach in service delivery. It describes the state of art of the development of an integrated system of actions regarding social services and healthcare services. In particular, a description of the “social and health performances” is provided, according to the different paths through which social and health integration has been achieved by the Italian regions in governing and managing social policies.

7.1 Health and Social care integration reforms

The reform of the *welfare* system introduced by Constitutional Law 3/2001 – better known as reform of the *Titolo V* – represents a radical innovation. The Italian health and social care systems were reformed according to principles such as subsidiarity, participation, health and social care integration and appropriateness.

In order to understand the reform of the Italian health and social care systems is useful to analyse:

1. *The role that public institutions play* – at different levels: national, regional and municipal – after the devolution of power and responsibilities to lower levels of government closer to the needs of citizens/users.

In this *welfare* framework the role of the state is to set principles and objectives of social policies, to establish general *criteria* for policy implementation, to define the essential levels of care and to monitor social policy outcomes and implementations. Regions define the architecture of the system through programming, coordination and governing of health and social services. Provinces should contribute to the integrated planning of social interventions and services. Finally, the local government has the task to design, provide and manage the services.

In this *welfare* framework regions are the key actors of social and health care policies and it's desirable a certain extent of co-operation with local governments in policy design and implementation.

2. *The advantages of appropriate planning instruments for the management of social and healthcare policies.*

In the Italian experience plans are the main tools for social and healthcare policies management at the regional level. These plans have a pivotal role building social policies that enhance the principles of vertical and horizontal subsidiarity.

We can distinguish between three different kinds of plans: the national social plan, regional plans and area plans (*Piani di Zona*). The national plan has the primary role of steering

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and mobilising various actors across several institutional levels and to build an integrated steering network.

Regional plans include guidelines for the local plans formulation. Area Plans are becoming the preferred solution for integrated local interventions. They develop along different steps: need assessment, prioritisation of interventions and adequate integration of resources.

7.2 Devolution and social services provision

Reforms of the *welfare* state require quite a different approach in policy design and management.

After the adoption of Law 328/2000, some of the Italian regions passed laws that reorganised the regional systems of social services, others approved social plans or evolved the regulation of the sector.

From 2003 to 2007, nine Italian regions approved laws for the reorganisation of the entire system of social services: Basilicata, Calabria, Emilia Romagna, Friuli Venezia Giulia, Liguria, Puglia, Piemonte, Sardegna and Toscana. Campania did not approve a law to regulate the system but was one of the first regions to adopt guidelines that do not substantially differ from the national ones. Molise and Valle d'Aosta, the same year of national legislation adoption, passed a law reordering this issue. Even though in the case of Valle d'Aosta the reorganisation was focused especially to health aspects. Other regions, which already had a law governing the issue, preferred to adopt a sectoral legislation, such as Abruzzo, Provincia Autonoma di Bolzano, Lazio, Marche, Provincia Autonoma di Trento, Umbria and Veneto.

Municipalities, as single entities or associated forms, are the main actors in the management of social and health services and interventions. They manage funds, the accreditation process and monitor the quality of services.

The main differences rely on the presence or absence of guidelines on sectoral policies.

The reform laws of Toscana, Liguria, Friuli Venezia Giulia and Basilicata provide guidelines on specific areas such as: family, children, elderly, disability, immigrants, risk of social exclusion, mental health, prevention and treatment of addictions. Toscana is also active in areas like the contrast of violence against women and nomads; Friuli Venezia Giulia focuses on prisoners and homeless.

Toscana rules each one of the issues, indicating necessary interventions or explicitly referring to later acts in which these interventions should be defined. The laws of Liguria and Friuli Venezia Giulia do not provide specific guidance on services but rather guidelines on policy and programmatic initiatives. Puglia identifies three priority areas: family (to which is devoted a great deal of attention by inserting a special title in the second law of reorganization. This title identifies objectives and prioritise actions and establish a consulting body of family associations); economic aid and poverty fight; immigrants support.

In Basilicata, Liguria and Emilia Romagna, regional laws established funds for disabled persons, which primarily finance the health and social care services that are included in the essential levels of care. In May 2003, Lombardia introduced vouchers for health and social care services. Citizen can use them to “buy” integrated services provided by either public or private provider accredited by the region.

Another strategy run by some of the regions is based on the constitution of inter-sectoral groups. Abruzzo is running pilot experiments for Assisted Living Residences and Integrated Home Care services: an integrated programming for the Social Service Emergencies and the “Single Entry Point to the services for individuals and families”. In the Campania region, an integrated team elaborated the regional law on the regional Assisted Living Residences, while in

Provincia di Trento, integrated teams are active to support Integrated Home Care and services devoted to protect elderly in periods of extremely hot weather. Finally, in Marche, inter-sectoral teams jointly drafted general acts for the reorganisation of an integrated social and health care system and sectoral plans for elderly, children and drug addicted.

Minor progresses are recorded in other regions in terms of initiatives and guidelines development for the integration of health and social care policies. In Calabria this topic is postponed to the establishment of an Integrated regional round table and in the Provincia di Bolzano the coordination and harmonisation between the social and the health plans – either in their strategic goals and in their resources.

7.3 Managed integration: regional and area plans

This part of the paper aims to describe regional and local planning in the Italian experience.

Social Regional Plans hold different names: *Piano Sociale Regionale* in Abruzzo, Calabria, Friuli Venezia Giulia, Lazio, Liguria, Marche, Puglia, Sardegna, Umbria and Valle d'Aosta; *Piano Regionale Socio-Assistenziale* in Basilicata and Molise; *Piano Sociale* at Bolzano; *Piano Socio-Sanitario* in Lombardia and Sicilia; *Piano Sociale e Sanitario* in Emilia Romagna; *Piano Sociale Integrato* in Toscana; *Piano Sociale e Assistenziale* in Trento; *Piano Regionale Servizi alla Persona e alla Comunità* in Veneto.

Puglia has quickly introduced a new social regional plan; Calabria and Sardegna have presented a draft plan; Toscana and Liguria have approved the plan after Law 328/2000 – but before the approval of the law of reorganisation – and periodically update their social plans; in Emilia Romagna and Piemonte discuss projects for new social plans.

Some of the regions – that have not agreed on an organic framework law after the national one – have endorsed a regional social plan in 2000. These are: Abruzzo, Lombardia, Molise, Sicilia, Provincia Autonoma di Trento, Valle d'Aosta. This practice may be seen as a political will to intervene in the system of social services without approving a proper law of reorganization of the regional system. Basilicata, on the other hand, approved an organic legislation after the national law. Regional Law 4/2007 instituted the “Integrated regional network of social services for citizenship” (*Rete regionale integrata dei servizi di cittadinanza sociale*) – no social regional plan followed.

Provincia Autonoma di Bolzano, Marche, Umbria have social regional plans before the national law, even though they were approved close before the national law. These regions did not approve laws to reorganise social services systems, although some of these acts are quite dated.

Procedures for plans approval are quite different among regions. They range from interventionist tendencies like in Puglia – where no participative processes were instituted – to some forms of conciliation like in the case of the laws of Piemonte and Calabria that were formulated with the participation of representative local bodies and – in the case of Calabria – including third sector representatives.

Emilia Romagna, Friuli Venezia Giulia, Sardegna e Toscana have a more concerted approach to the process of approving the plan which include consultations or agreements with representative regional bodies and local authorities that express opinions on the draft plan formulated by local government.

Three priorities emerge from the analysis of the regional plans:

- strengthening third sector to facilitate interdisciplinary coordination and social and healthcare integration;

- set priorities for the system as well as for the social *welfare*;
- consolidate the institutional and managerial structures in order to define more stable ways of managing integrated services.

Fostering the strengthening of social cohesion contrasting the risk of social exclusion and supporting the integration of policies. These are the priorities of Basilicata, Emilia Romagna, Friuli Venezia Giulia, Puglia, Lazio, Lombardia, Marche, Molise, Piemonte, Sardegna, Toscana, Umbria, Valle d'Aosta, Veneto and Provincia Autonoma of Trento.

Abruzzo, Calabria and the Provincia Autonoma of Bolzano have identified interventions on Health and on the system as their strategic priorities. The former represents the measures of the efficacy and the institutional, professional and community strategies to achieve them. The latter – the system objectives – are aimed at defining the fundamental players in the network services and enabling the provision of services in order to have the basic levels of care fairly distributed on the territory.

The choice of these regions, joint with Provincia di Bolzano, is to give priority to the growth of public sector intervention and – at the same time – the development of the non-profit system in order to enhance the integration between public and private sectors and decentralisation of services delivering.

Campania and Liguria have identified the main priority in the consolidation of institutional and managerial structures for the establishment of more stable forms of associated management of services. A strong emphasis is also dedicated to the enhancement of the skills of the social and health care services worker. This is another key strategic commitment on which the two regions plan to focus.

In terms of territorial planning, most of the regions identified specific regional areas for the management of social services. These areas often involve more than one municipality – with the exception of large cities where areas are unique or, in some cases, where a single city can be divided in several areas. The implementation of the reform of the Area Plans is not in line with the expected results, not yet. The municipal areas should ensure a network of social services combining an effective management of municipalities and the active involvement of third sector organisations.

But the analysis shows a very unbalanced situation. Some regions are far behind in implementing the area plans. In some other cases a more prescriptive approach was adopted, identifying criteria and contents to be included in Area Plans, leaving only an inspective and control role to intermediary institutions rather than establishing a partnership to share strategies and co-planning with the local level. In the former case regions, municipalities or associations of municipalities have more autonomy in exercising the function of programming; in the latter, they seem more bound and limited in their choices.

7.4 Managed integration: models of intervention for social and health care services development

The reform process in the health and social care sector in Italy can be referred to two main drivers: the development of a participated *welfare* and the focus on territories. These confirm the need to manage social policies in a modern way including a number of institutional levels and actors and the need to offer integrated services in the territory to be more and more close to citizens.

The integration of social and health care policies is a need that arises from the many and continuous demographic, social and cultural changes. These changes cause increased needs of

the weakest part of population. The nature of these needs is often complex and requires the provision of a combination of both health and social care services, and though the development of an integrated system. The areas considered at risk in the plans are maternal and child health, elderly, disability, mentally illness, drug addiction, terminally illness, HIV. In order to ensure adequate benefits, in addition to economic resources was necessary a collaboration between the services and integration among organizational and managerial levels of the institutions involved. The law 833/78 established the National Health Service stating the principle of functional integration of basic health and social services, to be carried in the Local Health Authorities (*Unità Sanitarie Locali*, USL). The subsequent legislation on health and social care has kept the integration goal and defined, since the '80s, the organization of services in the territories (USL and Districts), the management skills at various institutional levels (regions, provinces, municipalities, singly or in association) and programming tasks of the regions, held in regional health plans.

Specifically, the Decree 229/99 has stated new relationships between regions, municipalities and local healthcare organizations in health and social care planning at local level. The Decree stated that health and social integration concerns «all the activities which meet, through a complex process of *welfare*, health needs of persons requiring health services together social protection». According to this legislation, municipalities are required for better accountability in health planning and health and social care planning. To the healthcare organisations is asked to adopt the Local implementing plan, in accordance with procedures established by the regional law and with the participation of local stakeholders. Districts adopt the Program of regional or district activities (PAD) in which are organically defined the activities, the services locations and districts areas and the determination of funding for health and social integration.

Framework Law 328/2000 deals with social and health care integrated systems. It especially addresses the issue of health and social integration in relation to: the general principles of programming; the institutional levels of programming and the functions of municipalities and regions; the definition of the integrated system of interventions and social services. This act reaffirms also the centrality of the territory in the development – through the Area Plans – the network of social services and their steering and the integration with health interventions.

The enforcement of planning to social and health services is highlighted by health and social plans that – in addition to defining the expected objectives, the tasks among institutional levels, the resources to be allocated – list the types of services planned for disadvantaged areas and the related service providers.

According to the National Health Plan 1998-2000, the integration of health policies «comes from a close relationship between prevention, care and rehabilitation, favours the continuity of care between hospital and territory, highlights the various responsibility centres, gives value to public and private relationships, promotes solidarity and investment enhances in health sector in local communities».

The National Health Plan 1998-2000 defines several levels for the achievement of the objective of social and health integration:

- *institutional*. Institutional integration is achieved by establishing a set of legal tools, such as delegation, agreements and programme agreements between the manager of care services (municipality or municipal districts) and local health care organizations. The extreme complexity of the health and social measures requires the collaboration between the different institutions that indicate frame and basic elements for the collaboration between social and healthcare systems. Specifically, regions in their

(social and health) plans, should set priorities, criteria, funding and organizational guidelines; they should promote cooperation by requiring institutions to formulate integrated Zone. The district may be considered the “container” where is successfully implemented the management of integrated processes and resources. It is also the structure where various players carry on operational planning, collaboration and actions.

- *managerial*. The managerial integration occurs at local level. The district has a strategic policy of unification, of connection and coordination between services of different institutions. The regional program of activities (a district health plan) and the Zone Plan (the instrument through which the municipality draws the integrated system of health and social care services) define the health and social needs and the necessary actions to address them.
- *organisational*. The organisational integration is realised among different types of professional skills. This integration can take place within the same service or services belonging to different institutions. It is necessary to recognize and enhance the work at a territorial and district level, as a place in which professionals from different institutions could collaborate for integrated interventions.
- *financial*. Financial integration is achieved through the proper allocation of resources into the funds of the two sectors (health and social), respectively for health services and care activities in healthcare field. This correct attribution can be provided if in the agreement program, where the responsibilities for each institution according to the activities to ensure, are clearly defined.

The concept of integrated services network is better specified in the National action plan of interventions and social services 2001-2003. There are additional resources to favour associated municipalities and joint service provision in regional areas coinciding with the health districts. Finally it defines the types of services divided for areas of intervention and establish *criteria* for the split of the expenditure between the National Health Service and the municipalities.

The “social and health services” are defined as those activities whose objective is to fulfil those issues that need of combination of social and health care interventions – through integrated pathways - ensuring at the same time the continuity between the two kinds of intervention.

According to the prevalence of needs (nature of need, complexity and intensity of care, length) and to the resources involved in the processes, these services are classified in (Decree February 14 2001):

- *health services with social relevance*, whose aim is “the promotion, prevention, detection, containment and removal of degenerative or disabling outcomes of congenital or acquired diseases”. These services are within the authority of healthcare organisations and are placed in individual projects with a duration of medium and long-term and provided in outpatient, home or in residential or semi-residential facilities;
- *social services with health relevance*, activities whose purpose is to support personal needs, problems of disability or exclusion which are health state determinants. These activities are under the responsibility of municipalities. They can be provided with some form of cost sharing with final users and they are carried through economic support measures, domestic help and social accommodations;
- *health and social services with a high level of integration between health and social care*, characterised by therapeutic intensity and healthcare components, they primarily act in areas such as maternal, elderly, disability, psychiatric illnesses and addictions to drugs, alcohol and drugs, diseases for HIV infections and terminal illness, incapacity or

disability resulting from chronic degenerative diseases. These high-integrated performances in health and social-care are provided by the healthcare organizations and are in charge of the health fund. They may be provided via ambulatories, home care or in residential facilities and, in particular (referring to the needs of health and social-related functions and psycho-physical limitations of people ability), during the extensive phases and long-term assistance. Integrating social and healthcare takes place at local level is a joint responsibility of the healthcare organizations and municipalities. The integrated processes between institutions will result in the district, including the unitary management of various sources of resources.

It would be more appropriate to establish the necessary structures for the management of health and social activities in order to enable the effective pursuit of a participatory planning process with the local community, identifying a model of government that can coordinate health and social system activities. This can occur through the application of the article 3-*quater* of the Decree 502/92, identifying the district as the most appropriate local healthcare organisation for the relationships with local governments and population. It is the most appropriate structure to facilitate the health and social integration. The district is the structure with technical and functional, economical and financial autonomy, with separate accounts within the budget of Local Healthcare Authority (ASL), which covers primary care services related to health and social activities and the coordination of departments and hospital services, including hospital devices. The district is also a privileged forum for regional planning and for municipalities, through the district mayors Committee. The Programme of territorial activities aims to set the location of services, to determine the resources for integrating health and social services and for ASL and municipalities, finally to establish the ambulatories.

The aim consists in identifying a model of governance for health and social integration able to accomplish both institutional and managerial integration models. The district assumes the role of strategic coordination between health and social-health functions – responsibility of the Local Health Authorities – and social-care and assistance services managed by local authorities. The objective is to favour the access of citizens to the whole system of social and health services.

Following the institutional and/or organisational models of integration proposed by the academic literature, it is possible to formulate the proposal of an organisational model of social and health integration. The creation of a “health and social district centre” through which to achieve both the institutional and managerial integration by assigning municipalities and healthcare organizations to jointly administer health services and health and social services in the districts. Institutional integration is realised through the establishment of a specific instrument of governance, the program agreement between the managing body of services, the municipality and the local healthcare organization. The managerial integration is carried out at local level through the Area Plan, a tool designed by the municipal integrated system of health and social services, which directly involves active healthcare organisations and local municipalities.

Hence, the organizational model is achieved:

1. at the *institutional* level, through the Program Agreement - within the Area Plan - formulated by the management of the different services and the local healthcare organization and through the districts. The Program Agreement specifies the goals to achieve in a single area, the skills of each institutional actor, the available resources, how to manage the integration system, all the tools for monitoring, verification and shared assessments. The model could be facilitated by the establishment of a territorial area for social services in common with healthcare organizations (ASL). In this sense,

municipalities that sign the Program Agreement must coincide with those that are combined to the ASL. In order to pursue the program goals, it is possible to set-up a committee composed of the mayors of municipalities of the health and social District and the chief executive officers of the ASL, and of the roundtables concerning co-operation activities of integrated health and social services, open to different stakeholders (properly identified). This type of integration can become even more intense if we plan to share the spaces for care (e.g. the district building where both ASL and municipality co-operate) and to provide services jointly.

2. at the *managerial* level, through the formulation of Area Plans, as programmers of the system of social and health services, to be attended by ASL and local municipalities. The Area Plan defines the area of social programs and their integration in all areas. It must be coherent with the contents of the Program of Territorial Activities (PAT) and with the Social Plan at the national and regional levels. It is defined by the Program Agreement Committee and by the participation of the Table of Devising on health and social services.
3. at the *organisational* level, through the valorisation of territories and the empowerment of professionals operating at the district level. It could be also possible to plan a joint procurement and co-design health and social services. Service design here means to define service contents, to target users, to choose service delivery methods, to price services and to identify communication tools to be applied to services.

Finally, *financial* integration could be achieved through the creation – integrating the regional fund for social care functions – of a regional fund for health and social functions that is financed, at the district level, with resources of municipalities and healthcare organizations.

These thoughts were possible thanks to the ideas that emerged from the analysis we made of some Program Agreements that begin setting-up in Italy. We refer, for example, to the experience of the health and social district of City of Siracusa, to the health and social integrated interventions in the City of Forlì, to the health and social services managed by City of Siena.

Even so, the model can be considered a “strong model” only if this is defined and characterised by the identification and the selection of forms for the relationship between (social and health) systems able to ensure a more sustainable institutional integration and more effective forms of co-operation at the managerial level.

7.5 Concluding remarks

After a period of separation of health and social services, managerial reforms in the healthcare sector and the introduction of regulations on the integration of social services and interventions took place. It was driven more by the subsidiarity principle and by appropriateness, than by a rational approach, although, more recently, a gradual bridging between the two fields, with different trends from region to region, is occurring.

This spanning process highlights contingent reactions to common issues that are complex and unavoidable: the need to reorient the definition of social services around people and the community, hence becoming demand rather than supply-oriented, according to the specific institutional model.

Certainly, models, tools and arrangements greatly depend from the type and history of relations between the public regulator and the public and private operators and their degree of sustainability and dissemination.

Rather than a need for institutional separation - focused on the need to demarcate the institutional responsibilities of social protection - a tendency to look for ways to integrate

services, especially through the management mechanisms of the different institutional actors (healthcare organizations, municipalities, not for profit and for profit organizations), is taking shape.

This is leading to the progressive ripening of the separation between the functions of regulation and management. The latter, of responsibility of public and private operators, is becoming more and more standardized in terms of production and service requirements, hence fostering competition.

Under the driver of increasing healthcare needs and spread of situations of illness, and – on the other hand – the dissemination of technologies and models of cultural interaction, a gradual division between the institutional model (managerial organizations for healthcare, municipal responsibility for social services) and service and production models is becoming remarkable; with the result that the institutional model and the service-producing one seldom coincide.

The drivers for change and especially the comparison invest primarily the rethinking of the model and the role of the “district” as a territorial, intermediary and homogeneous institutional area for services delivery and production, around which co-operative relations among the different institutional players involved are especially interwoven.

This is a change that, in presence of institutional separation (managerial organizations for healthcare, municipal responsibility for social services) refers primarily to the organizational and management model of integration between health and social care services.

The sustainability condition of this challenging and radical change depends on the appropriateness of the financial leverage, which should be strength enough to make the health and social assistance more effective for users and efficient in terms of expenditure, especially taking in consideration the common source of regional funding. In other words, a budget for social and health integration which does not even reach an average of 10% of the current annual expenditure totally triggered by municipalities and healthcare organizations - and that suffers from low intensity of investments in structures and ICTs (information and communication technologies) - cannot materially support a real change in terms of actors’ behaviours. It cannot contribute to address the challenges of innovation and integration upon which the efficiency and sustainability of public expenditure in general and healthcare expenditure in particular depend.

The final observation is that the ongoing experiences of integration – and the conditions of sustainability drawn from these – provide useful implications and give rise to relevant reflections: the integration of health and social care services should be: (i) demand oriented (i.e. based on the characteristics of users and depend on the composition of the population and the features of the territory); (ii) it should be based on the separation of the regulation and management responsibilities; and (iii) it should be based on cooperative relations, characterizing the application of the subsidiarity principle.

These conditions are essential for achieving the cohesion and social inclusion goals set by the National Strategic Framework for the regional development policy 2007-2013. The inadequacy of models and mechanisms put in place for health and social care integration, especially regarding the functioning of the districts, is one of the most evident barriers to the material well-being, hence to the social and economic development of disadvantaged areas, where the coverage and the effectiveness of service delivery plays a central role.

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The background of the top half of the page features a light purple gradient with several dark purple silhouettes of people. The silhouettes are arranged in a way that suggests a group of people, possibly a family or a care team, interacting in a home care environment. One person appears to be assisting another, and there are other figures in the background, some holding what might be medical equipment or documents.

Chapter 8

The Home Care system

8 - The Home Care system¹

Following the extension of life expectancy and the probable increase of disabilities and chronic disease, new and often complicated needs arise that are astraddle the social and health fields. Within this sphere, a growing importance is assumed by home care models. It is not by chance that recently the detailed definition of essential care levels for home care² have been outlined, contemplating different intensity levels of care based on the different levels of complexity in each case of treatment.

The objective of the present paper is therefore that of initially analyzing the various national regulatory guidelines that discipline the “birth” and development of home care; subsequently analyzing consequent regulations produced by the various regions. The paper is then addressed towards the quantitative analysis of home care supply and demand represented initially by an approximate figure estimating the number of disabled or not self-sufficient persons who benefit from the service.

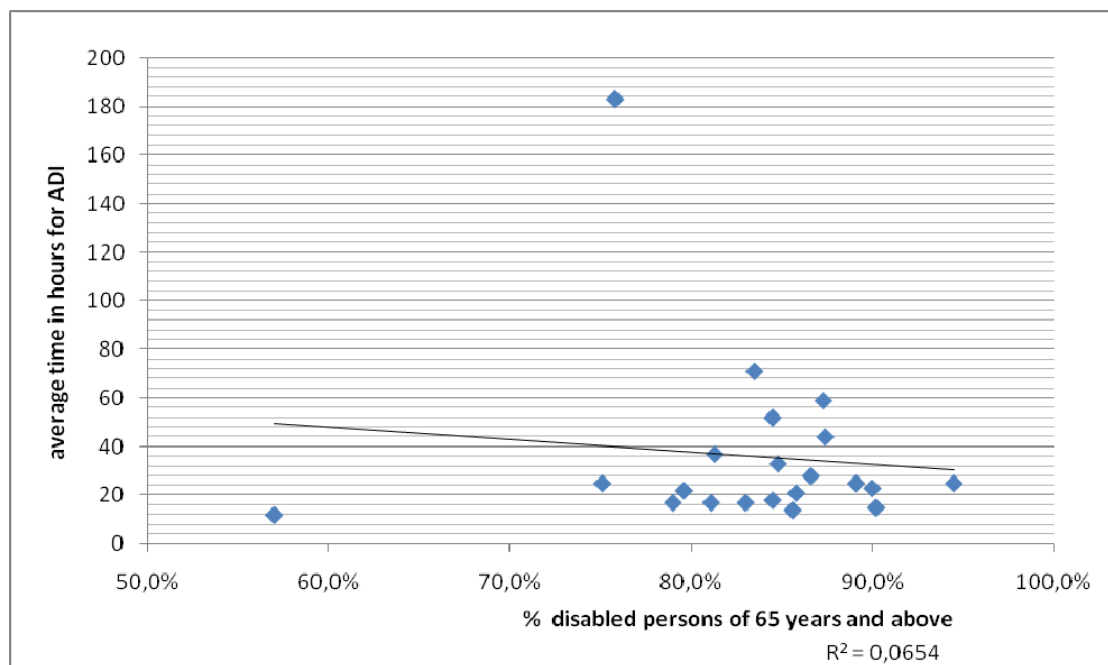
The following paragraphs will provide the investigation studies, meanwhile the following aspects deserve to be pointed out:

- The elevated variability in the percentage of individuals over 65 years of age that each Region assists with home care, in addition to the intensity of care itself (number of annual hours on the average delivered per elderly citizen supported), being there no significant correlation between the two variables (also due to the presence of evidently anomalous figures).
- At the national level, 24 annual hours have been delivered in 2006 on the average for each elderly patient supported in Home Care. As mentioned earlier, the figure presents remarkable variability within different Regions; in fact, it goes from 183 hours dedicated to each elderly individual supported in the Valle d’Aosta region, to Sardegna with figures that nearly triple the national ones (71 hours) and to the Veneto and Molise regions that stand below the 15-hour mark (table 8.1). One may suppose that there might be significant comparability problems with the available data: the data in fact demonstrates how the southern Regions seem to distribute a number of hours of care that is on the average greater for each beneficiary; at the same time, one may presume that the figure does not take into consideration the hours effectively delivered, but rather those that are supplied directly, thereby neglecting monetary benefits such as *vouchers* and care cheques. In order to promote an effective and efficient home care system, it is therefore necessary to establish an information system that is more suitable than the existing one.

¹ Ploner E., CEIS Sanità, Faculty of Economics, University of Rome “*Tor Vergata*”.

² “Nuova caratterizzazione dell’assistenza territoriale domiciliare e degli interventi ospedalieri a domicilio” (2006).

Figure 8.1: Percentage of individuals over 65 assisted with ADI and the hours in case of treatment - Year 2006



Source: CEIS Sanità elaboration from the Ministry of Health data.

Table 8.1: Average time in hours of ADI for old-age individual - Year 2006

Regions	Average Time (in hours) over 65
Italy	24
Valle d'Aosta	183
Sardegna	71
Campania	59
Puglia	52
Basilicata	44
Sicilia	37
Abruzzo	33
Marche	28
Toscana	25
Piemonte	25
Liguria	25
Emilia Romagna	23
P. A. Trento	22
Lazio	21
Lombardia	18
Friuli V. G.	17
Umbria	17
Calabria	17
P. A. Bolzano	15
Veneto	14
Molise	12

Source : Ministry of Health

- Of the 180 ASLs (Local Health Units) present on the national territory in 2006, 7 are still not offering Home Care, despite the fact that the D.P.C.M. (Decree President of the Council of Ministers) of 29th November 2001 sanctioned that this type of service is part of the Essential Care Levels that must be warranted in a uniform manner all over the Italian territory (table 8.2).

Table 8.2: ASLs without service of ADI Anno 2006

Regions	N. ASLs without ADI
Umbria	1
Lazio	1
Puglia	1
Calabria	2
Sicilia	2

Source: CEIS Sanità elaboration from the Ministry of Health data..

8.1 National orientations on the subject of home healthcare

The merit for the propagation of integrated home care (ADI) and the multidisciplinary approach that is indissolubly linked to it should be recognized to Geriatrics. In fact, Geriatrics has been the first medical discipline that had to come to terms with the fact that the nature of the needs of the not self-sufficient elderly individuals is often complex since it is characterized both by healthcare and by social elements; the integration between prevention, primary care and treatment are in fact not able to meet up with the composite social-healthcare needs. These act alongside healthcare elements and, especially, alongside social ones. In these cases, non-intervention on the social level might nullify even the most complicated healthcare intervention.

Therefore it is not surprising that the first definition of ADI can be found within the “Protection of the health of the elderly” Objective Project valid for the 1991-1995³ five-year period. Within the said document, ADI is defined as «a body of medical, nursing, rehabilitation, social-assistance services delivered in the home of the patient, in compliance to minimum service standards in integrated form as established by individual care programmes, defined thanks to the participation of professional figures interested in each single case». Moreover, the above-mentioned Project extends ADI application beyond a purely geriatric sphere, defining it as a service oriented towards the satisfaction of the needs of individuals who have the necessity for continuous care services. Therefore ADI is carried out when, for reasons of healthcare organization or for social reasons, a form of care service alternative to hospitalization is deemed appropriate.

Home hospitalization, as considered by the same Objective Project (unlike ADI that provides for nursing staff, general practitioners, etc. making their calls to the patient’s home) represents a body of highly specialized services distributed to the beneficiary’s home by a hospital team. These are services that, in the majority of cases, are addressed either to terminally-ill individuals or those suffering from chronic disease in new acute stages or from evolutionary chronic disease. Therefore more visits a day are necessary for these situations, to be carried out by specialized healthcare experts, doctors and nurses. The implementation of home hospitalization reaches two principal objectives: in the first case, it allows determined patients,

³ Home care was born in the social-assistance field within the Regions and only subsequently did it become distinguished by another form of home care, with specific healthcare characteristics, and that the Objective Project has denominated integrated home care.

who still have not concluded their hospital “path”, to return home and therefore avoid the discomfort caused by long hospitalization periods; and in the second case it gives patients the certainty of being treated by a team of experts for their specific disease.

More recent definitions of ADI, which nevertheless refer to those supplied by the Objective Project, can also be found within the National Health Scheme valid for the 1998-2000⁴ three-year period. According to the said Plan, «...the conditions necessary for ADI are: personnel planning to meet the demands within the district, multidimensional evaluation, the totality and intensity of treatment, the continuance of treatment, collaboration between healthcare and social service operators, collaboration of family members, evolutionary evaluation of results». Therefore, in summary, the good performance of home care is the fulfilment of the following conditions:

- support based the verification of pre-defined eligibility criteria: a Multidimensional Evaluation Unit⁵ (UVM) must be instituted within each health District. Its task is that of evaluating the conditions of the potential patient through multidimensional evaluation (VMD) in order to bring to light both healthcare and social needs;
- guaranteeing thorough and coordinated administration of interventions: the security of effective administration fundamentally depends upon the availability of all the professional figures necessary for Integrated Home Care, in addition to other structural and technological resources⁶.

Subsequent National Health Schemes⁷ underline that ADI and home hospitalization must be guaranteed and coordinated by the social-healthcare District; it therefore seems evident how the territory that has always been considered the supplier of extra-hospital services must be addressed towards a new services offer that considers hospitalization as extra-territorial care that is more and more reserved for acute pathologies. The territorial field must become the reference premises for personalized care, aimed at the administration of chronic diseases and intervention at an average and lower technological level, from prevention to rehabilitation.

Nevertheless, the Decree President of the Council of Ministers (D.P.C.M.) of 29th November 2001⁸, although listing the services included in the area of social-healthcare integration⁹ with extreme precision and having declared that the supply of services should be regulated according to the different degree of social fragility and accessibility, therefore defining the element of Essential Care Levels that must be warranted to all citizens as fundamental, a regulatory framework is still non-existent for the social sector that determines from a univocal point-of-view the Essential Social Services Levels (the so-called LIVEAS) in accordance with Law No. 328/2000.

⁴ The 1998-2000 National Health Scheme sustains that «...home treatment, and in particular integrated home care, represents a privileged basis for interventions aimed at guaranteeing the flexibility and effectiveness of interventions. Home care becomes integrated (ADI) when different professionalisms (healthcare and social) collaborate to establish humanitarian projects, namely aimed at the different nature of needs. Integrated home care (ADI) programming must contemplate the complementary nature between different services, the validation of nursing, the collaboration of family members, keeping in mind that close collaboration between hospital and district may foster home care for non self-sufficient patients».

⁵ Composition of the Multidimensional Evaluation Units (UVM) may vary in relation to the demands that must be satisfied. For example, in the case of eventual support for an elderly person, the UVM will be constituted by a geriatrician, a nurse and a social worker. In this case, one might speak of a Geriatric Evaluation Unit (UVG).

⁶ For example, areas for administration, for material, telemedicine equipment, etc.

⁷ National Health Scheme for the 2003-2005 three-year period; National Health Scheme for 2006-2008.

⁸ Even the Legislative Decree No. 229/1999 indicates ADI among the functions and resources guaranteed by the social-healthcare Districts and home care services amongst those that are the possible object of integrative funds by the National Health Scheme. Finally, ADI is included within the Essential Assistance Levels.

⁹ ADI and home hospitalization.

In particular, Law No. 328/2000 stresses that interventions in the social-services field are to the burden of Municipalities while the social-healthcare ones are shared at a local level by the Municipalities and the Local Health Units (ASLs). In substance, the afore-mentioned law has created a Welfare model that is more and more municipalized and oriented towards the creation of a system of social services and assistance within the network of local administrative autonomies. Therefore entrusting the discipline of social services to the exclusive legislation of the Regions.

Moreover, through the above regulatory framework the legislator defines ADI as a coordinated body of healthcare services integrated with interventions of social-assistance nature delivered at home and aimed at satisfying the needs of elderly disabled and patients suffering from chronic degenerative disease who are partially, totally or temporarily non self-sufficient and who are in need of continuing assistance. Therefore ADI includes various services both of a healthcare nature (nursing services, specialized treatment by specialists belonging to the ASLs, rehabilitation services, etc.) and services of a social-assistance nature (such as hygiene and personal care, domestic help, escorting beneficiaries on errands, etc.).

It therefore seems evident how Home Care is distinguished into various levels of assistance that depend upon the specific necessities of the person requesting them. In particular, one can speak of:

- first level: services characterized by low healthcare intensity and high social-assistance intensity;
- second level: services characterized by average assistance intensity with the presence of a physician or nurse at home once or more times a week;
- third level: services characterized by high healthcare intensity and by high social-assistance intensity.

In short, concerning the logic of interventions, it is evident how a regulatory discipline has been progressively put into place that tends to discourage turning to forms of institutionalization while choosing territorial interventions aimed at keeping individuals within their own family and social environment, also in the attempt to avoid turning to unneeded hospitalization.

Moreover, since these individuals have needs that are characterized by a blend of health and social-assistance elements, there is a greater fundamental necessity to integrate the policies of social-assistance character with those more of a purely healthcare nature.

Therefore, overall, the main guidelines seem to be channelled towards:

- keeping the non self-sufficient individual within his/her own home;
- creating a network of services for the improved personalization of services based on the specific needs of each individual and that simultaneously allow for social-healthcare integration;
- paying greater attention to the quality of services and the capacity of choice, personalization and independence of the individual.

Nevertheless, consequent to the fact that the social component of social-healthcare interventions is not regulated at a central level from a regulatory point-of-view, social-assistance interventions have followed differentiated paths at a local and especially regional level. This has very often generated different ADI models and therefore produced a rather non-homogeneous national framework. Therefore the comparison of data regarding distribution of home care within the Regions is quite complicated.

Table 8.3 reports the principal national regulations relative to Integrated Home Care.

Table 8.3: Principal National Regulations relative to ADI 1992 - September 2008

Provision	Title
Prospective assistance n. 97 January-March 1992	Objective project for the protection of elderly health
Decree of the President of the Republic 1 st March 1994	Approval of the National Health Scheme valid from 1994 to 1996
Decree of the President of the Republic of 23 rd July 1998	Approval of the National Health Scheme valid from 1998 to 2000
Legislative Decree n. 229/1999	Provision for the rationalization of the National Health System, by the art.1 of the law n. 419 of 30 th November 1998
Law n. 328/2000	Quadratic law for the realization of the integrated system of the participation and social service
Decree of the President of the Republic n. 270/2000	Executive rule of the national collective agreement for the relationship of the general practitioners-
Decree of the President of the Republic n. 272/2000	Executive rule of the national collective agreement for the relationship of the chosen pediatrics-
Decree of the President of the Council Ministry of 14 th February 2001	Legal proceeding of the address and coordination in matters of social-health performance-
Decree of the President of the Council Ministry. of 29 th November 2001	Definition of essential level of assistance
Decree of the President of the Republic of 23 rd May 2003	Approval of the National Health Scheme valid from 2003 to 2005
Permanent conference for the relationship among the State, the Regions and Provicie Autonome di Trento e Bolzano. Legislative measure 23 rd march 2005	Understanding according to the article 2 – nonies of the law n. 138 of 26 th May 2004, of the convention of the decree to the law – law n. 81 of 29 th March 2004, on the proposal of the National collective agreement for general medicine and for the conventional medical specialists – Supplemented text of the national collective agreement for the general medicine-
Permanent conference for the relationship among the State, the Regions and Provicia Autonome di Trento e Bolzano. Legislative measure 15 th December 2005	Understanding according to the art. 5 of the Agreement between the State and the Regions, <i>rep.</i> n. 1805 of 24 July 2003, on the hypothesis of the national collective agreement for the relationship with the pediatrics – National Collective Agreement for the pediatrics
Decree of the President of the Republic of 7 th April 2006	Approval of the National Health Scheme valid from 2006 to 2008
Law n. 296/2006	Disposition for the formation of the annual balance sheet and the budget of the State (Financial Law 2007)
Law n. 244/2007	Disposition for the formation of the annual balance sheet and the budget of the State (Financial Law 2008)

Source: Sanidata elaboration.

A brief remark is to be made regarding a recently published document entitled “Nuova caratterizzazione dell’assistenza territoriale domiciliare e degli interventi ospedalieri a domicilio” (New Characterization of Territorial Home Care and Hospital Interventions at Home), which was approved at the end of 2006 by the National Commission for the definition and updating of the LEA (Essential Assistance Levels). The said document defines the main home services distinguished by need profile and professional figures involved, homogenous eligibility criteria and indicators verifying the delivery of home care.

From this moment on, for that which regards healthcare, one will no longer be speaking of home assistance but of home treatment in order to clearly distinguish between healthcare and

integrated social-healthcare, from the forms of home assistance of a social-assistance nature. In particular, through the said regulatory disposition, the Italian legislator has defined home treatment as a body of «medical, nursing, rehabilitation treatment delivered by qualified personnel for the treatment and assistance to non self-sufficient and frail individuals, with ongoing pathologies or results of the same, to stabilize their clinical conditions, limit their functional decline and improve their daily quality of life. In the field of integrated home care, the integration with Municipal social services seems fundamental».

On the other hand, in relation to the specific needs of the beneficiaries, home care can be distinguished as follows:

- home treatment services: characterized by occasional or programmed cyclical health service; these represent a services response (qualified from a professional point-of-view) to a medical, nursing and/or rehabilitation category of need. It does not presuppose taking the patient on as dependent, nor does it necessitate evaluation by the UVM (Multidimensional Evaluation Unit). These are generally requested by the physician responsible for the patient's treatment process;
- integrated first and second level care (former ADI): these address patients who, although not presenting specific criticality, nonetheless need continuous assistance and programmed interventions. The general practitioner (MMG) assumes a central role as he/she is responsible for the clinical treatment processes and participates in the definition of objectives and assistance processes through multidimensional evaluation and the drafting of an Individual Assistance Programme (PAI);
- integrated third level home care and palliative home treatment for terminally ill patients: these are professional interventions aimed at patients with highly complex needs, in the presence of specific criticality, such as terminally-ill patients (oncology or otherwise), patients with the necessity to be fed through artificial parenteral nutrition, patients who require invasive ventilation breathing support, etc. For the activation of this kind of treatment, multidimensional evaluation by the UVM is necessary in the first place, followed by the definition of a treatment plan of the multidisciplinary PAI type (Individual Assistance Programme).

Each treatment course is identified by three variables that allow its objective measurement and allow it to become comparable; in particular, the three dimensions that qualify each treatment profile are the following:

- duration of treatment: it is the period lapsing between the date of admission and the date of discharge (GDC or days of treatment);
- value of the Effective Day of Assistance (GEA): being the relation between the total costs of the treatment duration and the number of Effective Days of Assistance delivered; namely, the average cost per access;
- assistance intensity (CIA or Coefficient of Assistance Intensity), reached by the relationship between GEA and GDC. It is practically the relation between average cost of assistance per day and the period which the service is responsible for. This parameter should assume different values in relation to the complexity of the case and the social and family situation that influence the frequency of necessary home access (table 8.4).

Table 8.4: Qualification Standard of the LEA for home care

Type of Home Care	Nature of Need	Assistance Intensity (CIA=GEA/GDC)	Average Time	Forecast Professional Figure according to the and average time in minutes for home admission	Efficacy of service (time band 8 – 20)
Home care Service (occasional or programmed cyclical health service)	Clinical Functional			<ul style="list-style-type: none"> • Nurses (15 - 30') • Rehabilitation Professionals(30') • Medical Practitioners (30') 	5 days/week 8 hours/day
Integrated first level home care (former ADI)	Clinical Functional Social	Up to 0,30	180 days	<ul style="list-style-type: none"> • Nurses (30') • Rehabilitation Professionals (45') • Medical Practitioners (30') • Social health Providers (60') 	5 days/week 7 8 hours/day
Integrated Second Level home care (former ADI)	Clinical Functional Social	Up to 0,50	180 days	<ul style="list-style-type: none"> • Nurses (30 - 45') • Rehabilitation Professionals (45') • Dietician/Nutritionists (30') • Medical Practitioners 45') • Social Health Providers (60 - 90') 	6 days/week 10 hours/day from Mondays to Fridays 6 hours on Saturday
Integrated Third Level home care (former ADI)	Clinical Functional Social	Over 0,50	90 days	<ul style="list-style-type: none"> • Nurses (60') • Rehabilitation Professionals(60') • Dietician/Nutritionists (60') • Psychologists (60') • Medical Practitioners and/or Medical Specialists (60') • Social Health Providers (60 - '90) 	7 days/week 10 hours/day from Mondays to Fridays 6 hours/day Saturdays and Holidays Medical Emergency Availability Hour: 8/20
Palliative Care terminal illness (former Home Hospitalization Palliative Care)	Clinical Functional Sociale	Over 0.60	60 days	<ul style="list-style-type: none"> • Nurses (60') • Rehabilitation Professionals (60') • Dietitians/Nutritionists (60') • Psychologists (60') • Medical Practioners and/or Medical Specialists (60') • Social Health Providers (60 - 90') 	7 days/week 10 hours/day from Mondays to Fridays 6 hours/day on Saturdays and Holidays Medical Emergency Availability 24 hours

Source: Ministry of Health

The fundamental requisites for the activation of home treatment are the following:

- condition of non self-sufficiency¹⁰ and the presence of ongoing pathologies or results of the same that necessitate treatment which may be delivered in the home;
- suitable family or informal support;
- suitable living conditions;
- informed consent by the individual and his/her family;
- assumption of responsibilities by the MMG (general practitioner).

A negative note of the afore-mentioned document is represented by the fact that consequently no framework is offered for that which concerns the integration of home care with social home assistance of municipal competence. It does not offer any useful information regarding the moment of integration of the two forms of assistance and this fact will certainly have consequences at the local level.

8.2 Home Healthcare in the Regions

In the majority of regional situations, home care services are accessed to through multidimensional evaluation that investigates into the physical, mental and functional state of the patient, in addition to his/her economic and social-relational context. In order to carry out the said task, all the Regions have instituted competent services for home care (Centro di Assistenza Domiciliare, CAD, in the Lazio Region; Nuclei Operativi di Assistenza Domiciliare, NOAD in the Emilia Romagna Region, etc.), the Unità Valutativa Multidisciplinare (Multidisciplinary Evaluation Unit-UVM) – also defined in the various contexts as Unità Valutativa Distrettuale o Territoriale (District or Territorial Evaluation Unit) – which has the task of pointing out the most complicated cases using multidimensional evaluation. The aim of multidimensional evaluation is that of preparing the Individualized Assistance Plan (PAI), which lays out the things to be done by whom and the use of a set timetable schedule. This multi-professional team is permanently made up of a physician, a social worker and a nurse/health assistant, with the eventual participation of other medical figures according to the characteristics of the patient in question. Moreover, on the basis of what has been established by the 1998-2000 National Health Scheme for the organization of the UVM (Multidimensional Evaluation Unit) system, all the Regions must appoint a person responsible for the process (*care manager*) who will be in charge of guaranteeing continuing assistance, singling out concrete solutions that may allow for the integrated delivery of professional services and the activation of the services envisaged; a person responsible for the case must moreover be appointed (*case manager*), who will supervise the stages of the individualized intervention plan and who is responsible for the clinical aspects of the assistance programme that has been defined as a whole. This generally corresponds to the MMG (General Practitioner).

Moreover, a single instrument for multidimensional evaluation has still not been adopted in Italy; in the wake of this, some Regions have considered it necessary to proceed with the approval of instruments guaranteeing:

- systems evaluating the conditions of non self-sufficiency on the regional territory;
- quantification of points of access to the home care services network.

¹⁰ Non self-sufficiency is evaluated by measuring the individual's capacity to carry out essential functions of everyday life, articulated in two groups: activities for one's personal care (*Activities of Daily Living-ADL*) and instrumental activities (*Instrumental Activities of Daily Living-IADL*). In order to measure the ADL and the IADL, some scales are used establishing the quantity of help necessary in order for the individual to carry out the functions necessary for daily life.

To this extent, we wish to use the example of the SVAMA (Multidimensional Evaluation of the Elderly) card in the Veneto Region, the SCHEMA POLARE in the Toscana Region, the RUG (Resource Utilization Groups) in the Lazio Region and AGED PLUS for the evaluation of non self-sufficient elderly individuals in the Liguria Region. These procedures allow the Multidimensional Evaluation Unit to assess applications of non self-sufficient patients in a homogeneous way, measuring their social and social-health conditions, defining the consequent assistance profile.

Usually requests originate from the patient's MMG (General Practitioner) in all the Regions; although the family, social workers, the patient himself/herself or the hospital discharging ward (in the case of protected discharge) may formally fill out the afore-mentioned application. In general, the Regions do not anticipate deadlines for taking responsibility; for example, the Toscana Region has established that taking responsibility of the patient must occur in "reasonably quick" periods of time, without any further specifications; the Lazio Region specifies that responsibility must be taken for the patient within two working days following the definition of the PAI (Individualized Assistance Plan) for non-urgent situations and within 24 hours for emergency situations, while neglecting to define the period of time necessary to accede the PAI.

In any case, most of the Regions have singled out an individual port of access (PUA) in the Districts-which is defined in many ways: *punto unico di accesso* (single access point) in Toscana; *sportello sociale* (social desk) in Emilia Romagna; *sportello di cittadinanza* (citizen's desk) in Liguria; *porta unica di accesso* (single port of access) in Puglia; etc. – to the integrated network of home services whose functions, although combined in a different manner within the regional spheres, substantially refer to the following:

- information: listening to the requests and the needs and then addressing the individual towards the most suitable channels for offering him/her more specific information;
- support: actively addresses or accompanies the individual towards infrastructures supplying services such as setting up appointments (taking responsibility) and setting into action the services by professional teams;
- promotion: protects and promotes the correct use of the integrated system of services;
- observatory: activities monitoring the services and interventions delivered on the territory of reference.

All the Regions, except for Lombardia, have regulated home care procedures by providing direct delivery of services by the social-healthcare district; for example Liguria, Emilia Romagna, Toscana and Veneto have tried to join together and place onto the network the different aspects involved in assistance (families, associations, the private sector and the social sector), while continuing to administer and distribute the services directly. In 2004 Toscana once again drafted the guidelines for the creation of an ADI integrated territorial model, aimed principally at the elderly, whose foundations are the individual port of access, on the protocol for evaluation the conditions of need (*Schema Polare*) and a project for a personalized assistance plan.

It must be considered that in fact more than one Region flanks forms of monetary benefits to the direct delivery of services.

The Toscana Region makes a distinction between direct and indirect home care (care cheques, that are considered a monetary allowance) and direct delivery of services through service vouchers and recognition of infrastructures (form referable to *vouchers*). Emilia Romagna employs care cheques within programmes that are the most personalized ones possible (even in this case, it seems to be a form of *voucher*). The Liguria Region, within the

sphere of an individual care plan, delivers up to €800,00 a month to the disabled, including escort allowance and Fund for the non self-sufficient.

The Lombardia Region, through the Resolution of the Regional Council No. 12902/2003, has explicitly introduced the social-healthcare *voucher* instrument. It is none other than a purchasing title, namely a voucher used for paying a service. In fact, using the social-healthcare *voucher*, the individual may acquire integrated home care services from public and private subjects, from profit and non-profit organizations recognized by the Region¹¹. The monthly value of the *vouchers* has been established in relation to the three levels of home care, determined on the basis of: 1) the human and technical resources employed during treatment schedules; 2) the type of care required; and 3) the complex nature of the programmed care intervention, as reported in the following table:

Care levels	Economic extent
1° Basic profile	€362,00
2° Profile for complicated cases	€464,00
3° Profile for terminally-ill patients	€619,00

This patient/monthly tariff in a certain sense wishes to file away the rule of payment per single access by professionals, in order to create a sort of monthly budget through which the individual in need may purchase different services; in principal, each patient is free to choose where he/she wishes to be treated.

Therefore, considering that the beneficiary of the *voucher* has the freedom to choose the qualified organizations he/she wishes to turn to in order to obtain the services indicated in his/her purchase entitlement, the fundamental advantage of *vouchers* is constituted by the fact that they represent an instrument that may contribute to the development of a social-healthcare services system and the creation of a broader and more differentiated market-thus incrementing competition between the dispensing subjects. However, considering the informational asymmetry that characterizes the exchange of care services, one can predict some risks in the measure in which not all the subjects benefiting from the *vouchers* have the necessary competence and information to carry out a wise and well-pondered choice amongst the different delivering infrastructures.

The broadest group of Regions (of which Emilia Romagna, Veneto, Toscana, Liguria, Abruzzo, Sardegna, etc. are a part) have classified home care into three levels based on the intensity of assistance required: ADI with a low assistance intensity; ADI with an average assistance intensity; and ADI with a high assistance intensity. Even the Lombardy region has distinguished three levels of assistance, dedicating the third one only to terminally-ill patients.

¹¹ In order to deliver services remunerated by the *vouchers*, the suppliers (be they public or private, either profit or non-profit) must possess the requisites outlined by D.G.R. No. 12902/2003; in particular, it requests that:

- the legal representative has not been subjected to penal sentences, does not possess ongoing penal procedures and enjoys full civil rights;
- the social aim be in accordance with the specificity of the sector;
- the potential supplier be working in the sector for at least the past two years;
- the professional services be carried out by staff that is qualified according to the specificity of the social-healthcare services to be delivered;
- possession of professional capability, in addition to organizational-administrative capabilities is ascertained by the ASL that is competent for this task within the territory.

The subjects that are recognized by the ASL as possessing the prescribed requisites may request their validation.

Moreover, there even exists a whole series of home care that is especially of a specialist nature: home artificial nourishment (NAD) in Lazio, Liguria, Lombardia, Toscana and Veneto; home treatment (Tad) for those suffering from AIDS in Emilia Romagna and Veneto; ADI palliative treatment for terminally-ill patients in Lazio, Lombardia, Veneto and Emilia Romagna; ADI for patients suffering from dementia/Alzheimer in Veneto; ventilation breathing support in Veneto.

Obviously the typologies and the quantity of professional figures involved vary depending on the basis of the adopted method.

In summary, for that which regards the delivery of home care, in the different regional contexts one witnesses a rather broad spectrum of administrative models, particularly on the basis of the professional resources that are effectively available; one goes from situations where the direct delivery of service satisfies all the assistance necessities and requests, especially in Veneto and Emilia Romagna, to situations in which the delivery of services is delegated to other subjects, as in Lombardia and Lazio where third sector subjects prevail.

8.3 Disability figures in Italy

ISTAT (Central Statistics Office) estimates that approximately 2.6-million individuals have disability problems (table 8.5); moreover, disability appears to be more widespread with aging: the disability rate goes from 17.7 in people over the age of 75 (13.6 every 100 men and 20.6 every 100 women) to a value of 41.6 for people in their eighties (34.2 disabled every 100 men and approximately 45.0 every 100 women).

Table 8.5: Disabled persons of 6 years and above for gender and age bracket. Absolute value and disability tax for 100 persons - Years 2004-2005

Absolute Value (data in thousand)											
Gender	Age Bracket										Total
	6 - 14	15 - 24	25 - 34	35 - 44	45 - 54	55 - 64	65 - 69	70 - 74	75 - 79	80 and above	
Male	41	19	28	46	51	76	64	99	131	328	882
Female	39	17	23	41	50	98	111	180	289	879	1,727
Male and Female	80	36	51	87	101	174	175	279	420	1,207	2,610
Tax for 100 persons											
Gender	Age Bracket										Total
	6 - 14	15 - 24	25 - 34	35 - 44	45 - 54	55 - 64	65 - 69	70 - 74	75 - 79	80 and above	
Male	1.60	0.60	0.60	1.00	1.30	2.20	4.20	7.80	13.60	34.20	3.30
Female	1.60	0.60	0.50	0.90	1.30	2.70	6.40	11.30	20.60	45.30	6.10
Male and Female	1.60	0.60	0.60	0.90	1.30	2.50	5.40	9.70	17.70	41.60	4.70

Source: CEIS Sanità elaboration from ISTAT data

Disability is more widespread among women: 6.1% of women have disabilities compared to the male rate that is equal to 3.3%. The disadvantage of women cannot only be justified by their longer life expectancy; in fact, this phenomenon arises from the age of 55 in all the age brackets.

In the period taken into consideration, the Regions with the highest rates of disability were Sicilia (6.05%), Umbria and Molise (5.88%) and Basilicata (5.85%) (table 8.5). These figures are followed by, in decreasing order, Campania (4.67%), Piemonte (4.62%) and Sicilia (6.05%). Lombardia (3.80%), the Provincia Autonoma di Trento (2.79%) and the Provincia Autonoma di Bolzano (2.47%) are the regions with the lowest disability rates. It therefore appears evident how the Central and Southern regions are those suffering from the highest disability figures (table 8.6).

Most of the disabled live alone (32%) or with their partner as childless couples¹² (26.7%). It is evident how the percentage of disabled living alone increases with age: it goes from a rate of 24.5% of disabled individuals living alone in the 65 to 74 age bracket, up to a percentage equal to 41.8% for those who are older than 75 and simultaneously, within the same age bracket, the rate of disabled who live as a couple decreases (43% within the 65–74 age bracket and 26.3% for those over 75 years of age). This is largely due to the death of one of the two partners.

¹² The term “couple” refers to married and unmarried couples.

Table 8.6: Disabled persons of 6 years and above. Absolute Value and Disability Tax. Year 2004-2005

Regions	Absolute Value	Disability Tax
Italy	2,609,000	4.73%
Piemonte	190,000	4.62%
Valle d' Aosta	5,000	4.31%
Lombardia	337,000	3.80%
P. A. Bolzano	11,000	2.47%
P. A. Trento	13,000	2.79%
Veneto	182,000	4.11%
Friuli V. G.	52,000	4.54%
Liguria	86,000	5.65%
Emilia Romagna	171,000	4.35%
Toscana	179,000	5.23%
Umbria	48,000	5.88%
Marche	75,000	5.21%
Lazio	217,000	4.36%
Abruzzo	66,000	5.35%
Molise	18,000	5.88%
Campania	252,000	4.67%
Puglia	212,000	5.54%
Basilicata	33,000	5.85%
Calabria	105,000	5.54%
Sicilia	285,000	6.05%
Sardegna	72,000	4.59%

Source: CEIS Sanità elaboration from ISTAT data , Multiscope Survey Second Cycle

With age increase also comes an increase in the percentage of disabled who live in families as “an associated member in families containing only one unit”¹³ (11,5% in the *over 75* age bracket); whereas, as can be expected, the rate of disabled living with either both their parents or with only one parent is greater between the 6-44 age bracket (61.8% in the former case, 11.8% in the latter) in comparison to higher age brackets. A rate of disabled that cannot be neglected, equal to 7.5% in the *over 65* age bracket, lives in other families (especially with brothers and/or sisters or is the parent of married offspring) (table 8.7).

¹³ The definition of ISTAT for family is a group of people that lives together, who are related by marriage or kinship, affinity, adoption, guardianship or by affectivity. A nucleus is a body of people who make up a relationship as couples or of the parent-offspring kind. A family may contain a nucleus, may be formed by a nucleus plus other aggregated members, by more than one nucleus (with or without aggregated members) or by no nucleus (persons living alone, families made up of (for example) two sisters, one parent and an offspring who is separated, divorced or widowed, etc.).

Table 8.7: Disabled persons of 6 years and above for age bracket and position in the family. Percentage value - Year 2005

Position in the Family	Age Bracket				Total
	6 - 44	45 - 64	65 - 74	75 and above	
Persons who live alone	3.90	12.00	24.50	41.80	32.00
Associated member in families containing only one unit	2.00	2.90	3.80	11.50	8.40
Parent in couple with sibling	13.40	37.80	13.50	4.40	10.40
Parent in one unit with only one parent	1.20	5.80	7.50	8.70	7.40
Couple without sibling	2.00	24.70	43.00	26.30	26.70
Child in a couple	61.80	3.60	-	-	6.40
Child with only one parent	11.80	7.30	0.20	0.10	2.00
In other families	3.90	5.80	7.50	7.20	6.80

Source: ISTAT.

Disabled individuals who possess elementary school or no formal education amount to 72.7%, while 18.9% have obtained a middle school diploma while only 8.4% have obtained a secondary school diploma or a degree. With the exception of the 25-44 age bracket in which 48.6% of the disabled possess a middle school diploma whereas 31.9% do not possess any formal education diploma or simply an elementary school education. When compared to the education levels, higher percentages of disabled can be observed in lower education levels of all age brackets.

In particular, while 71.6% of disabled individuals within the 6-24 age bracket declare that they do not possess any formal education or simply elementary school, 20.7% of the disabled belonging to the same age bracket have obtained middle school diploma and 7.8% have a high school leaving certificate.

The fact that the higher percentages of disabled who do not possess formal education or have lower levels of education lie within the over 65 age bracket (76.3% in the 65-74 bracket and 78.5% over 75 years of age) may be partly due to the high percentage of elderly people present in the population taken into consideration, namely the elderly population that being disabled could not have access to higher levels of education (table 8.8).

Table 8.8: Disabled persons of 6 years and above for age bracket and study title. Percentage value - Year 2005

Study Title	Age Bracket					Total
	6 - 24	25 - 44	45 - 64	65 - 74	75 and above	
Degree and diploma	7,80	19,60	16,70	7,70	6,30	8,40
Middle School Diploma	20,70	48,60	29,80	15,90	15,20	18,90
Elementary School and Non-formal education	71,60	31,90	53,50	76,30	78,50	72,70

Source: ISTAT.

8.4 Potential ADI offer on the territory

The Integrated Home Care services are, as has been underlined at length, included in the services that are part of the Essential Levels of Assistance (LEA) in the territorial sphere, in accordance with the D.P.C.M. (Decree of the President of the Council of Ministers) of 29th November 2001, it being understood that each single region is autonomous in the organization of the services. Therefore the delivery of Integrated Home Care within the LEA interests every single ASL. Consequently, in order to gain information regarding the potentiality of services offered by ADI on the territory, the percentage of ASLs offering ADI services can be used as indicators, and its value of reference is 100% (table 8.9).

Table 8.9: ASLs with service of ADI. Percentage value - Years 2004–2006

Regions	% ASL with ADI-Year 2006	Variation % ASL with ADI 2004-2006
Italy	96	3.30
Piemonte	100	0.00
Valle d'Aosta	100	0.00
Lombardia	100	0.00
P. A. Bolzano	100	0.00
P. A. Trento	100	0.00
Veneto	100	4.80
Friuli V. G.	100	0.00
Liguria	100	20.00
Emilia Romagna	100	0.00
Toscana	100	8.30
Umbria	75	0.00
Marche	100	0.00
Lazio	92	8.30
Abruzzo	100	16.70
Molise	100	0.00
Campania	100	7.70
Puglia	92	0.00
Basilicata	100	0.00
Calabria	82	18.20
Sicilia	78	-11.10
Sardegna	100	0.00

Source: CEIS Sanità elaboration from Ministry of Health data

The value of the national indicator has grown from 2004 to 2006 by 3.3%. During the last year taken into consideration, the Regions that still have not activated ADI services in all the ASLs in their territory are the following: Umbria (75%), Lazio (92%), Puglia (92%), Calabria (82%) and Sicilia (78%).

Between 2004 and 2006, the Regions that have increased the number of home care services have been: Veneto (+4.8%), Liguria (+20.0%), Toscana (+8.3%), Abruzzo (+16.7%), Campania (+7.7%) and Calabria (+18.2%). The remaining Regions, except for Sicilia that has reduced the number of ASLs offering home care services (-11.1%) during the period in question, have an unvaried percentage of services offered.

Moreover, the constant and progressive aging of the population, the growing demand for hospital beds, the increase in acute patients and especially the necessity for rationalizing the

resources available have, by certain aspects and in the presence of specific pathologies¹⁴, “imposed” the regions to also offer home hospitalization services. In order to investigate into the offer of home hospitalization services both by the public hospital facilities and by the accredited nursing homes (insurance-covered), the percentages at the regional level of services are considered activated by the infrastructures themselves (table 8.10).

Table 8.10: Structure of public recovery and cases of accredited care who distributes the service of the home hospitalization. Percentage value - Years 2004–2006

Regions	Structure of public recovery		Cases of accredited care	
	% of the total structure 2006	Variation % 2004-2006	% of the total structure 2006	Variation % 2004-2006
Italy	10.70	1.20	2.00	1.60
Piemonte				
Valle d' Aosta				
Lombardia	5.00	1.40		
P. A. Bolzano				
P. A. Trento				
Veneto	20.00	-1.10		
Friuli V. G.	11.80	6.20		
Liguria	5.60			
Emilia Romagna	3.80	0.20	6.50	
Toscana	9.50	2.70		
Umbria	9.10		20.00	
Marche	6.10	-2.70		
Lazio	13.00	3.90	3.50	1.10
Abruzzo	4.50	0.00		
Molise	25.00	0.00		
Campania	21.80	7.30	2.90	
Puglia	39.50	0.60	2.70	
Basilicata				
Calabria	2.70	2.70		
Sicilia	1.40	0.00	1.60	
Sardegna	18.20	6.10		

Source: CEIS Sanità elaboration from Ministry of Health data.

Over the last year taken into consideration, and on the basis of the available data, the Regions with the highest percentage of public hospital infrastructures that entail home hospitalization services are: Puglia (39.5%), Molise (25.0%), Campania (21.8%) and Veneto (20.0%).

From 2004 until 2006, overall the value of the international indicator has increased by 1.2%. Comparing the data between the extremes of the time interval taken into consideration, one can observe that the Lombardia, Friuli Venezia Giulia, Emilia Romagna, Lazio, Campania and Sardegna regions have increased the percentage of active home hospitalization services, while the Veneto and Marche regions have reduced this figure.

¹⁴ Terminally-ill patients (suffering from cancer and not), patients with degenerative neurological disease in an advanced stage (ALS, muscular dystrophy), patients with the necessity for invasive ventilation breathing support, patients in a vegetative state and state of minimum consciousness, etc.

For that which concerns the supply of home hospitalization by insurance-covered nursing homes, between 2004 and 2006 the national value has undergone an increase equal to 1.6%. It is impossible to make any comparisons on the dynamics of this since the only Region that can furnish data for the entire period taken into consideration is Lazio.

8.5 Resorting to Integrated Home Care

Although in principle ADI is addressed to the entire non self-sufficient population, in reality it especially supports the elderly population (ages 65 and above) (Table 8.11).

Table 8.11: Treated cases in ADI - Years 2004–2006

Regions	2004				2006			
	Treated Cases	% treated elderly (over 65)	Treated elderly for 1.000 elderly resident	Tax for 1.000 inhabitants	Treated Cases	% treated elderly (over 65)	Treated elderly for 1.000 elderly resident	Tax for 1.000 inhabitants
Italy	373.414	84.10	28.20	6.50	414.153	84.10	30.00	7.05
Piemonte	22.039	78.70	18.60	5.20	19.890	75.10	15.30	4.58
Valle	55	89.10	2.00	0.50	66	75.80	2.00	0.53
Lombardia	70.754	86.50	35.20	7.70	76.641	84.50	35.20	8.09
P. A.	227	83.70	2.50	0.50	357	90.20	4.00	0.74
P. A.	1.073			2.20	1.572	79.60	13.30	3.13
Veneto	45.987	82.50	43.70	9.90	54.556	85.60	51.40	11.51
Friuli V.	25.896	78.80	77.70	21.60	26.133	79.00	75.80	21.63
Liguria	5.364	91.70	11.80	3.40	13.858	94.50	30.70	8.61
Emilia	52.382	88.00	49.80	12.80	59.093	90.00	55.90	14.11
Toscana	25.825	89.00	28.10	7.20	20.092	89.10	21.30	5.55
Umbria	5.860	83.10	24.80	6.90	9.881	83.00	40.60	11.39
Marche	10.025	89.40	26.90	6.70	14.595	86.60	36.30	9.55
Lazio	44.900	84.50	39.20	8.60	41.719	85.80	34.90	7.86
Abruzzo	11.930	82.30	36.60	9.30	11.314	84.80	23.20	8.67
Molise	6.971	67.20	67.80	21.70	6.723	57.00	83.30	20.95
Campania	11.741	89.80	12.40	2.00	11.785	87.30	11.20	2.04
Puglia	10.476	80.90	12.60	2.60	13.556	84.50	16.90	3.33
Basilicata	5.727	82.20	40.90	9.60	5.873	87.40	40.40	9.89
Calabria	4.821	85.20	11.60	2.40	11.252	81.10	25.00	5.61
Sicilia	8.630	79.60	7.90	1.70	10.701	81.30	9.90	2.13
Sardegna	2.731	73.10	7.30	1.70	4.496	83.50	13.00	2.72

Source: CEIS Sanità elaboration from Minisry of Health data

Over the course of 2004, patients assisted in their homes amounted to 373.414; of these approximately 84% were represented by the elderly, ages 65 and above. Whereas over the course of 2006, patients assisted in their homes at the second and third level amounted to 414.153, with the same incidence of elderly individuals as in 2004.

Although, over the course of the period taken into consideration, the level of coverage was slightly on the rise-the number of elderly patients assisted is still rather low and amounts to about 3%. The differences between the various Regions are rather marked, going from Valle

d'Aosta that seems to be assisting only 2% of its elderly citizens, while Molise takes care of about 8%.

At the national level, a total of 6 patients every 1,000 citizens were assisted by Integrated Home Care services in 2004 and the figure rises to approximately 7 in 2006 with a remarkable regional variability: Friuli Venezia Giulia (21.60 in 2004 and 21.63 in 2006), Molise (21.70 in 2004 and 20.95 in 2006) and Emilia Romagna (12.80 in 2004 and 14.11 in 2006) are the Regions that have registered the highest figures of Home Care. Whereas, over the course of 2006, the Regions that have registered the lowest rates were: Valle d'Aosta (0.53), Provincia Autonoma di Bolzano (0.74), Campania (2.04) and Sicilia (2.13).

The previous report would not be complete in describing the different regional commitments on the subject of second and third level home care without considering even the average hours that are employed for each elderly person taken under responsibility, in addition to the number of cases treated (table 8.12). In fact, the average hours that have been dedicated to each elderly patient have increased from 2004 to 2006 by approximately 2%, but some Regions have drastically reduced their commitment in favour of this age bracket. For example, Emilia Romagna, Umbria, Sicilia and Sardegna have decreased their average "hourly" services in ADI, but at the same time have increased the percentage of elderly patients taken under their responsibility. This means that some ASLs in the above-mentioned Regions have aimed at supporting a greater amount of elderly patients, reducing at the same time the number (already low) of average hours of assistance per single elderly patient treated.

Tabella 8.12: Average time in hours accredited assistance for elderly residents. Years 2004-2006

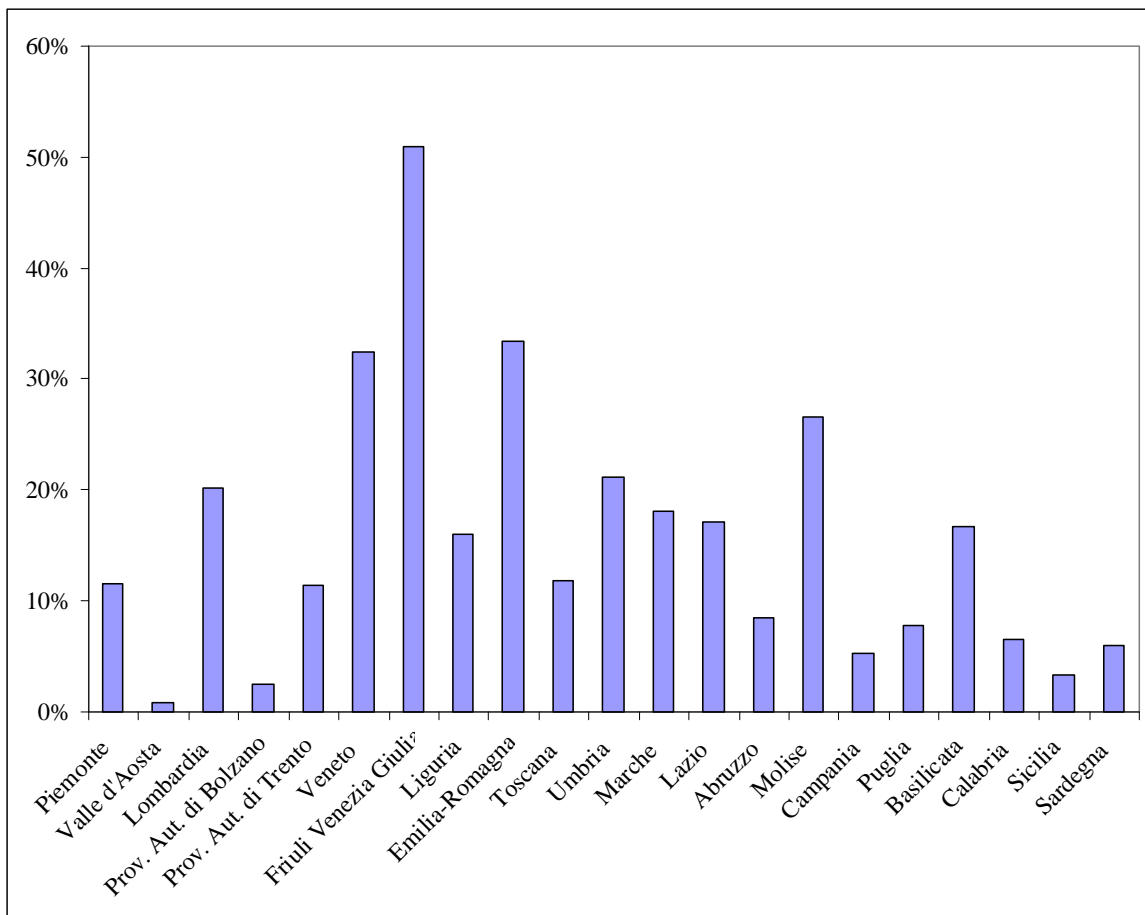
Regions	Average Hour 2006	Variation Annual Average 2004-2006
Italy	24	2.005
Piemonte	25	2.062
Valle d'Aosta	183	-13.219
Lombardia	18	-2.667
P. A. Bolzano	15	22.474
P. A. Trento	22	
Veneto	14	0.000
Friuli V. G.	17	19.024
Liguria	25	2.062
Emilia Romagna	23	-7.704
Toscana	25	17.851
Umbria	17	-24.723
Marche	28	-10.557
Lazio	21	2.470
Abruzzo	33	43.614
Molise	12	0.000
Campania	59	31.731
Puglia	52	15.470
Basilicata	44	1.156
Calabria	17	-43.365
Sicilia	37	-1.325
Sardegna	71	-13.550

Source: CEIS Sanità elaboration from the Ministry of Health data

From the analysis of data emerges that in 2005, Veneto (32%), Friuli Venezia Giulia (51%), Emilia Romagna (33%) and Molise (27%) have been the Regions registering the highest percentages of disabled patients treated in Integral Home care. Over the course of the same year, the proportion of disabled assisted in their own homes has been 15% of the total amount of disabled citizens.

The Regions that instead have presented the lowest percentages have been: Valle d'Aosta (1%), Campania (5%), Sicilia (3%) and Sardegna (6%) (figure 8.2).

Figure 8.2: Regional comparison of treated disabled in ADI. Percentage Value - Year 2005



Source: CEIS Sanità elaboration from ISTAT and Ministry of Health data.

8.6 Health expenditure for ADI (estimate)¹⁵

Using the data provided by the Regions within the sphere of LA cost survey referring to 2005¹⁶, the regional expenditure shares per integrated home care services attributable to public and private insurance-covered facilities have been estimated.

¹⁵ Polistena B. CEIS Sanità, Faculty of Economy, "Tor Vergata" University of Rome.

¹⁶ The figures for Lazio and Molise are not available.

The overall burden for ADI expenses thus estimated is equal to 1.05% of the total public healthcare budget for 2006, amounting to approximately €937 million.

On an average, €16 was spent per capita in Italy during 2006.

Regions with higher ADI expenses per capita are: Umbria (€41.18), Emilia Romagna (€26.88) and Toscana (€25.63) while those with a lower one are Campania, Valle d'Aosta and Calabria (respectively €6.64, €7.32 and €7.40).

The regions that set aside a larger share of resources for home care compared to the others are Friuli Venezia Giulia, Umbria, Marche and Emilia Romagna; vice-versa, a scarce budget is dedicated to Integrated Home Care (ADI) by Valle d'Aosta, the Provincia Autonoma di Trento, Campania, Calabria and Puglia.

Therefore there is not a net differentiation between Northern and Southern Italy, but substantial diversities between the Regions notwithstanding their geographical position.

Table 8.13: Estimate expenditure for total ADI per-capita - Year 2006

Regions	ADI Expenditure per-capita	% Expenditure for ADI
Italy	15.95	0.01
Piemonte	21.65	0.01
Valle d'Aosta	7.33	0.00
Lombardia	13.97	0.01
Trentino A. A.	14.28	0.01
Veneto	17.35	0.01
Friuli V. G.	46.68	0.03
Liguria	15.89	0.01
Emilia Romagna	26.88	0.02
Toscana	25.64	0.01
Umbria	41.18	0.02
Marche	25.94	0.02
Lazio		
Abruzzo	20.85	0.01
Molise		
Campania	6.64	0.00
Puglia	7.75	0.00
Basilicata	18.16	0.01
Calabria	7.40	0.00
Sicilia	22.67	0.01
Sardegna	8.58	0.01

Source: CEIS Sanità elaboration from the Ministry of Health data

Taking into consideration that the elderly are those principally benefiting from home care, we have calculated the pro capita expense for ADI for the over-65 age bracket.

Table 8.14: Expenditure for ADI for population over 65 - Year 2006

Regions	ADI Expenditure per-capita population over 65
Italy	80.83
Piemonte	96.50
Valle d'Aosta	36.29
Lombardia	71.86
Trentino A. A.	80.80
Veneto	90.44
Friuli V. G.	206.96
Liguria	59.94
Emilia Romagna	118.31
Toscana	110.43
Umbria	176.91
Marche	114.93
Lazio	
Abruzzo	98.02
Molise	
Campania	43.36
Puglia	44.87
Basilicata	91.49
Calabria	40.44
Sicilia	126.10
Sardegna	48.70

Source: CEIS Sanità elaboration from the Ministry of Health data

A high variability by Region can be observed; Regions with a higher pro capita expense for the over-65 age bracket are Friuli Venezia Giulia, Umbria and Sicilia; while those with a lower ADI ratio are Valle d'Aosta, Calabria and Campania.

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The background of the top half of the page features a light purple gradient. Overlaid on this gradient are several dark purple silhouettes of people of various ages and sizes, holding hands in a circle. The silhouettes are semi-transparent, allowing the gradient to show through them.

Chapter 9

Healthcare Spending

9 - Healthcare Spending¹

An analysis of healthcare spending, as illustrated in the paragraphs that follow, points to the following considerations worthy of note:

1. In the countries of Europe, as well as the United States and Japan, total average per capita healthcare spending is equal to €3,385.1, while the average annual variation for the period 1996-2006 was 5.9%. The countries of Northern Europe (Holland, Belgium, Norway and Luxembourg) showed above-average per capita spending and, at the same time, a rapid rate of increase. Portugal, Spain, Greece, the United Kingdom and Iceland, on the other hand, registered an above-average variation but a level of total per capita spending on healthcare that fell below the average. France, Austria, Switzerland and the United States showed above-average per capita spending but a below-average variation. Italy, together with Japan, Finland, Sweden, Iceland, Denmark and Germany, belongs to the group of countries whose figures for per capita spending and average annual variation are both below average.

As a rule, there is a slight negative correlation between levels of spending and growth in spending: In terms of spending, therefore, the different healthcare systems tend to converge. Italy can be considered a virtuous country when it comes to spending, having registered below-average spending and limited growth.

Figure 9.1: Total per capita healthcare spending for 2006 and average annual increase 2006-1995 Europe, United States and Japan

Growth - Portugal Spain Greece United Kingdom Iceland	+ Holland Belgium Luxembourg Norway +
Japan Italy Finland Sweden Iceland Denmark Germany	Level France Austria Switzerland United States -

Source: CEIS Healthcare processing of OECD Health Data for 2008

¹ Polistena B., CEIS Sanità, Faculty of Economics, University of Rome "Tor Vergata".

2. In the regions of Italy, average public per capita spending on healthcare, based in a weighted population, is equal to €1,744, while the average annual variation for the period 2001-2007 was 5.1%. As shown by the following table, Emilia Romagna, Lazio, Molise, Trentino Alto Adige, Valle d'Aosta and Veneto present both above-average levels of healthcare spending and rapid growth. In Basilicata, Friuli Venezia Giulia, Lombardia and Puglia, the levels of variation are above average, but total per capita healthcare spending is below average. Abruzzo and Piemonte register above-average per capita spending, but below-average variations. Finally, Calabria, Campania, Liguria, Sardegna, Sicilia, Toscana and Umbria are regions where both per capita spending and the average annual variation are below average.

Figure 9.2: Regional per capita public healthcare spending for 2007 and the average annual increase for 2007/2001

<p>Growth</p> <p>-</p> <p>Basilicata Friuli Venezia Giulia Lombardia Puglia</p>	<p>+</p> <p>Emilia Romagna Lazio Molise Trentino Alto Adige Valle d'Aosta Veneto</p> <p>+</p>
<p>Calabria Campania Liguria Marche Sardegna Sicilia Toscana Umbria</p>	<p>Level</p> <p>Abruzzo Piemonte</p> <p>-</p>

Source: CEIS Healthcare processing of data from the Ministry of Health²

The behaviour of the different geographic areas is not, therefore, uniform.

Analysing the break-down of spending in the regions of Italy, where average per capita public spending on healthcare is €1,702.95 and average per capita private spending is €476.27 (in the year 2006), the majority of the northern regions, plus Lazio, were found to have both public and private average per capita spending at levels higher than the average. Friuli Venezia Giulia, Lombardia and Veneto, on the other hand, registered levels of per capita public spending that were lower than the Italian average, though their levels of private spending were above-average. Abruzzo and Molise are the only two regions where public spending is higher than the average and private spending is lower. The majority of the southern and central regions present both public and private per capita spending that are below average.

² Currently the Ministry of Labour, Health and Social Policies. Hereinafter, for the sake of brevity, the term Ministry of Health shall be used.

As was to be expected, in the southern regions, where per capita income is lower, private spending is below average. With the exception of Abruzzo and Molise (regions subject to plans for reducing spending), public spending is also below average in these regions. Of the northern regions, only Friuli Venezia Giulia, Veneto and Lombardia show below-average public spending. The variability of public spending was found to be greater than that of private spending.

Figure 9.3: Break-down (public/private) of healthcare spending - Year 2006

<p style="text-align: center;">Private</p> <p style="text-align: center;">- +</p> <p style="text-align: center;">Friuli Venezia Giulia Lombardia Veneto</p>	<p style="text-align: center;">+ -</p> <p style="text-align: center;">Toscana Piemonte Emilia Liguria Trentino Alto Adige Valle d'Aosta Lazio</p> <p style="text-align: center;">+ -</p>
<p style="text-align: center;">Public</p> <p style="text-align: center;">- +</p> <p style="text-align: center;">Calabria Basilicata Puglia Campania Sardegna Marche Sicilia Umbria</p>	<p style="text-align: center;">+ -</p> <p style="text-align: center;">Abruzzo Molise</p> <p style="text-align: center;">- +</p>

Source: CEIS Sanità processing of data from ISTAT and the Ministry of Health

- When the regions are classified according to their corrected public spending by weighted population, the ranking is led by Trentino Alto Adige, Lazio and Valle d'Aosta, with per capita spending of more than €1,970 and respective margins of 18%, 14% and 13% above the average. The regions with the lowest weighted per capita spending, on the other hand, are Basilicata, Calabria and Sardegna, respectively at levels of 9.4%, 8.5% and 6.8% below average.

Table 9.1: Regional ranking of per capita healthcare spending (weighted population) and index numbers (average for Italy=100) - Year 2007

Regions	Figures in euro	Index numbers
Trentino A. A.	2,052	117.66
Lazio	1,988	113.99
Valle d'Aosta	1,972	113.07
Molise	1,852	106.19
Emilia. Romagna	1,785	102.35
Veneto	1,773	101.66
Abruzzo	1,759	100.86
Piemonte	1,754	100.57
Italia	1,744	100.00
Friuli V. G.	1,737	99.60
Liguria	1,737	99.60
Lombardia	1,732	99.31
Toscana	1,710	98.05
Sicilia	1,705	97.76
Campania	1,684	96.56
Umbria	1,655	94.90
Puglia	1,644	94.27
Marche	1,630	93.46
Sardegna	1,626	93.23
Calabria	1,595	91.46
Basilicata	1,580	90.60

Source: CEIS Sanità processing of data from ISTAT and the Ministry of Health

- When the cost of healthcare is averaged in terms of the SSR, or per-resident spending in the individual regions, those with the highest levels of per-resident spending for 2007 were found to be Valle d'Aosta, Trentino Alto Adige and Liguria, while the regions showing the lowest figures were Sardegna, Puglia and Lombardia. Per capita spending per resident is lower than per capita spending per producer region in Lombardia, Veneto, Emilia Romagna, Toscana, Umbria, Lazio and Molise, while it is markedly higher in Valle d'Aosta and Calabria.

When the regions are classified according to per-resident public spending, corrected for the weighted population, the regions with the lowest levels of spending turn out to be Umbria, Basilicata and Marche, while the regions showing the highest spending are Valle d'Aosta, Trentino Alto Adige and Lazio. The regions of noteworthy size with lower levels of spending are Sardegna and Toscana.

Table 9.1a: Regional ranking of per capita public healthcare spending per resident (weighted population) - Year 2007

Regions	Euro
Valle d'Aosta	2108.28
Trentino A. A.	2063.51
Lazio	1974.81
Molise	1793.60
Piemonte	1756.65
Abruzzo	1752.63
Veneto	1749.32
Liguria	1746.26
Sicilia	1746.15
Campania	1734.63
Friuli V. G.	1727.45
Emilia Romagna	1714.24
Calabria	1701.14
Puglia	1689.92
Lombardia	1686.28
Toscana	1681.85
Sardegna	1661.93
Marche	1657.86
Basilicata	1647.08
Umbria	1637.46

Source: CEIS Sanità processing of data from the Ministry of Health and ISTAT

5. The econometrics model constructed shows how the variables of income, ageing of the population and financing push healthcare spending upward. Advances in technology also result in increased healthcare costs, though, at the same time, when used appropriately, they improve the quality of the care.
The cost-sharing arrangements present the expected negative sign, demonstrating how they contribute to controlling healthcare spending.
Finally, a higher percentage of direct disbursement also proves to be a significant factor, being accompanied by lower levels of spending; this result would appear to a failure in the management of the public/private relationship, creating an unjustified effect of expansion as a result of higher levels of allocation, most likely due to a duplication of services.
6. When the estimates are repeated solely with regard to the regions subject to plans for reducing spending, a number of interesting differences emerge, as compared to application of the model to all the regions of Italy, with significant roles being played by other variables as well: first of all, the rate of beds per inhabitant, a possible sign of the inefficiency of healthcare systems with an excess supply of hospital services; next, the “percentage of individuals with lower levels of education”: a higher percentage of the population without formal education, or with only an elementary school certificate, has a negative effect on total healthcare spending (in this case, it can be presumed that the income effect is not fully accounted for by the GDP); finally, the mortality rate. Variables that do not prove to be significant, in contrast to the national model, are the minimum user charges and per capita financing, demonstrating both the limited connection between financing and spending and the ineffectiveness of policies to limit spending.

9.1 Analysis of healthcare spending in the OECD countries

Healthcare systems in the OECD countries are showing noteworthy growth in terms of their size and importance. The progress made in treatment and in the development of new medicines has contributed to an ongoing improvement in the state of health enjoyed by the OECD countries in recent decades³. At the same time, healthcare spending has never been so high, continuing to absorb an ever increasing percentage of the GDP.

All things considered, healthcare spending in Italy, over the medium period, would not appear to be out of control. Between the different regions, however, there are noteworthy differences between both spending and its growth. Private spending, being tied to income, is highly variable, while public spending would not appear to compensate for the differences.

Medical treatments and healthcare spending are not the lone factors that influence health; the health of the populations of developed countries is definitely influenced by socio-economic factors and by lifestyles, in addition to the supply of healthcare treatment per se⁴.

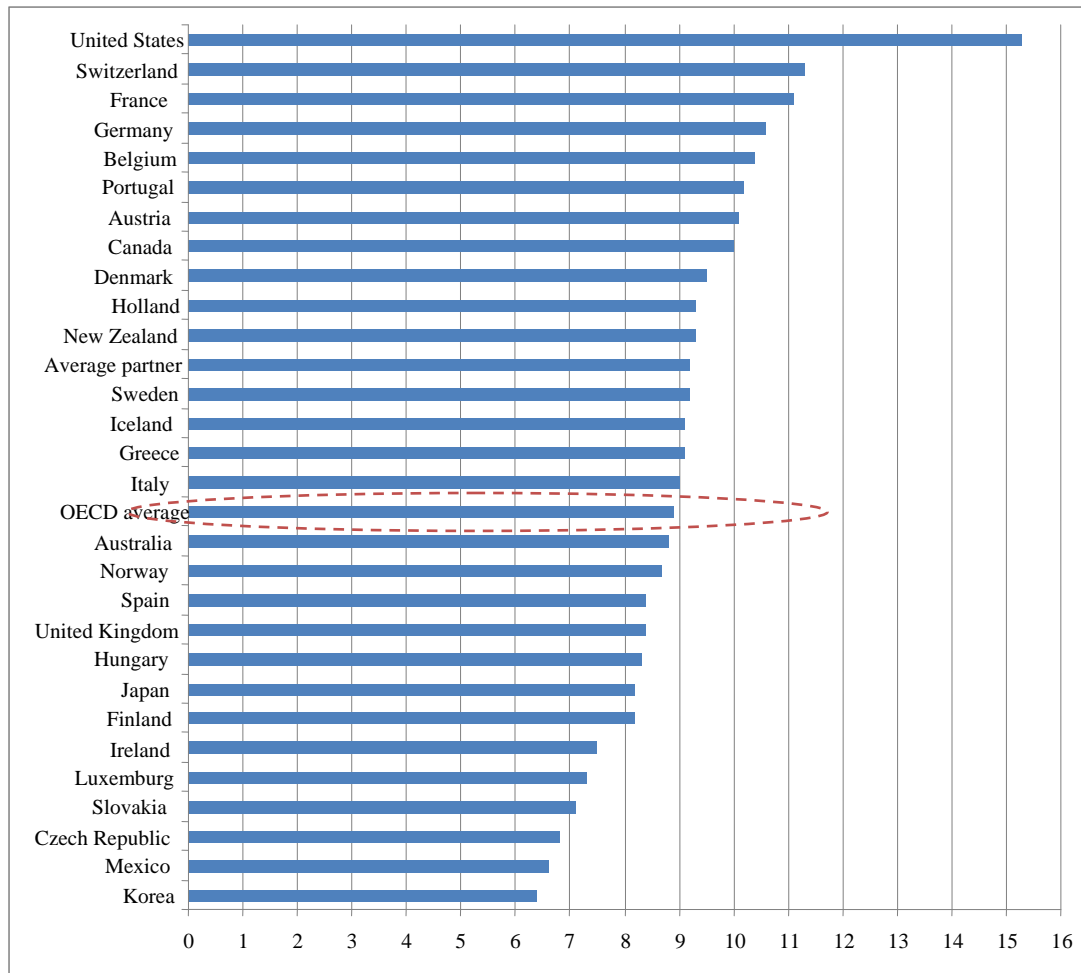
The increased life expectancy in the OECD countries has led to increased healthcare costs as well, in some cases at a level higher than the country's rate of economic growth.

The portion of the GDP allocated for (total) healthcare spending in 2006 varied considerably from one country to another: looking at the OECD countries, the figures range from the 15.3% of the United States to 6.2% in Poland. After the United States, countries which registered especially high figures in 2006 were Switzerland, France and Germany, at respective levels of 11.3%, 11.1% and 10.6% of the GDP; on the other end of the scale are Turkey, Korea and Mexico, with respective figures for healthcare spending as a percentage of the GDP of 6.1%, 6.4% and 6.6%.

³ Source: OECD Health Data.

⁴ Source: OECD Health Data Report.

Figure 9.4: Spending on healthcare as a percentage of GDP in the OECD countries Year 2006⁵



Source: CEIS Healthcare processing of OECD Health Data 2008

The OECD figures show that Italy, although its spending is in line with the OECD average, at 9.0% of the GDP (the OECD average is equal to 8.9%, as in the previous year), ranks below its main partners⁶ in the European Union, such as France and Germany.

An analysis of total per capita healthcare spending finds the United States once again ranked “first”, with healthcare spending of \$ 6,714, followed by Switzerland (\$ 4,311). Looking at the countries at the bottom of the ranking, Turkey showed per capita spending of only \$ 591 on healthcare in 2006. The comparison is made at equal levels of purchasing power.

Per capita spending in Italy is \$ 2,614, as compared to the OECD average of \$ 2,824 for 2006.

⁵ The figures for Australia, Turkey, Japan and Slovakia refer to the year 2005.

⁶ The partners’ average takes into account Germany, France, Spain, Sweden and Norway.

**Table 9.2: Total per capita healthcare spending of the OECD countries.
Figures in dollars (PPP)**

Countries	1970	1975	1980	1985	1990	1995	2000	2005	2006
OECD average	198	387	631	923	1,189	1,495	1,950	2,701	2,824
Australia		437	643	928	1,200	1,611	2,265	2,999	2,999
Austria	196	435	784	939	1,631	2,259	2,859	3,507	3,606
Belgium	150	350	644	969	1,358	1,854	2,377	3,421	3,488
Canada	301	480	780	1,264	1,738	2,057	2,513	3,460	3,678
Korea			89	160	329	502	753	1,276	1,480
Denmark		543	897	1,256	1,544	1,871	2,379	3,169	3,349
Finland	185	345	571	925	1,367	1,440	1,794	2,523	2,668
France	194	369	669	1,036	1,449	1,997	2,421	3,306	3,449
Germany	269	572	971	1,409	1,769	2,275	2,671	3,251	3,371
Japan	151	301	585	874	1,125	1,551	1,967	2,474	2,474
Greece	161		491		853	1,264	1,429	2,283	2,483
Ireland	117	275	516	658	792	1,204	1,801	3,126	3,082
Iceland	175	375	755	1,184	1,667	1,910	2,736	3,373	3,340
Italy					1,359	1,538	2,053	2,496	2,614
Luxembourg						1,911	2,554	4,153	4,303
Mexico					296	386	508	724	794
Norway	144	323	668	943	1,370	1,863	3,039	4,328	4,520
New Zealand	216	424	508	639	990	1,244	1,604	2,223	2,448
Holland		450	741	967	1,416	1,799	2,337	3,192	3,391
Poland					290	411	583	843	910
Portugal	48	155	276	397	636	1,036	1,509	2,029	2,120
United Kingdom	161	295	470	694	965	1,350	1,847	2,580	2,760
Czech Republic					560	899	980	1,447	1,490
Slovakia						603	603	1,130	1,130
Spain	95	212	363	497	873	1,193	1,536	2,260	2,458
United States	351	590	1,065	1,765	2,738	3,656	4,570	6,347	6,714
Sweden	312	531	944	1,271	1,592	1,746	2,284	3,012	3,202
Switzerland	346	621	1,017	1,460	2,034	2,598	3,256	4,069	4,311
Turkey		45	70	68	156	173	432	591	591
Hungary						660	852	1,440	1,504

Source: CEIS Healthcare processing of OECD Health Data

Table 9.2a: Average annual variation in total per capita spending in the OECD countries. Percentage figures

Countries	1975/1970	1980/1975	1985/1980	1990/1985	1995/1990	2000/1995	2005/2000	2006/2005
OECD average	14.29	10.27	7.89	5.19	4.70	5.46	6.73	4.56
Australia		8.03	7.61	5.28	6.07	7.05	5.77	
Austria	17.29	12.50	3.67	11.68	6.73	4.82	4.17	2.82
Belgium	18.47	12.97	8.51	6.98	6.42	5.10	7.55	1.96
Canada	9.78	10.20	10.14	6.58	3.43	4.09	6.60	6.30
Korea			12.45	15.51	8.82	8.45	11.12	15.99
Denmark		10.56	6.96	4.22	3.92	4.92	5.90	5.68
Finland	13.27	10.60	10.13	8.12	1.05	4.49	7.06	5.75
France	13.72	12.64	9.14	6.94	6.63	3.93	6.43	4.33
Germany	16.29	11.16	7.73	4.66	5.16	3.26	4.01	3.69
Japan	14.79	14.21	8.36	5.18	6.63	4.87	4.69	
Greece					8.18	2.48	9.82	8.76
Ireland	18.64	13.41	4.98	3.78	8.74	8.39	11.66	-1.41
Iceland	16.47	15.02	9.42	7.08	2.76	7.45	4.27	-0.98
Italy					2.51	5.95	3.99	4.73
Luxemburg						5.97	10.21	3.61
Mexico					5.45	5.65	7.34	9.67
Norway	17.54	15.64	7.14	7.76	6.34	10.28	7.33	4.44
New Zealand	14.44	3.68	4.70	9.15	4.67	5.21	6.74	10.12
Holland		10.49	5.47	7.93	4.90	5.37	6.43	6.23
Poland					7.22	7.24	7.65	7.95
Portugal	26.42	12.23	7.54	9.88	10.25	7.81	6.10	4.48
United Kingdom	12.88	9.76	8.11	6.82	6.95	6.47	6.91	6.98
Czech Republic					9.93	1.74	8.11	2.97
Slovakia							13.38	
Spain	17.41	11.36	6.49	11.93	6.44	5.18	8.03	8.76
United States	10.95	12.54	10.63	9.18	5.95	4.56	6.79	5.78
Sweden	11.22	12.20	6.13	4.61	1.86	5.52	5.69	6.31
Switzerland	12.41	10.37	7.50	6.86	5.02	4.62	4.56	5.95
Turkey		9.24	-0.58	18.07	2.09	20.08	6.47	
Hungary						5.24	11.07	4.44

Source: CEIS Healthcare processing of OECD Health Data 2008

An important observation to make is that healthcare spending slowed by 3.1% between 2005 and 2006 in the OECD area, the lowest rate of growth since 1997. During the last decade, healthcare spending rose considerably between 2000 and 2003 (at an average rate of 6.2%), while growth began to slacken off in 2003, showing average increases of 3.6%, and registering a further decrease in 2006.

9.2 The dynamics of healthcare spending in the OECD countries

The progress made by medicine in the prevention, diagnosis and care of health constitutes one of the primary factors in increased costs for healthcare⁷, taking the form of the development and dissemination of new technologies and new medicines, as well as the

⁷ Source: OECD Health data.

decision-making processes on the procedures for financing new instruments, treatments or medicines.

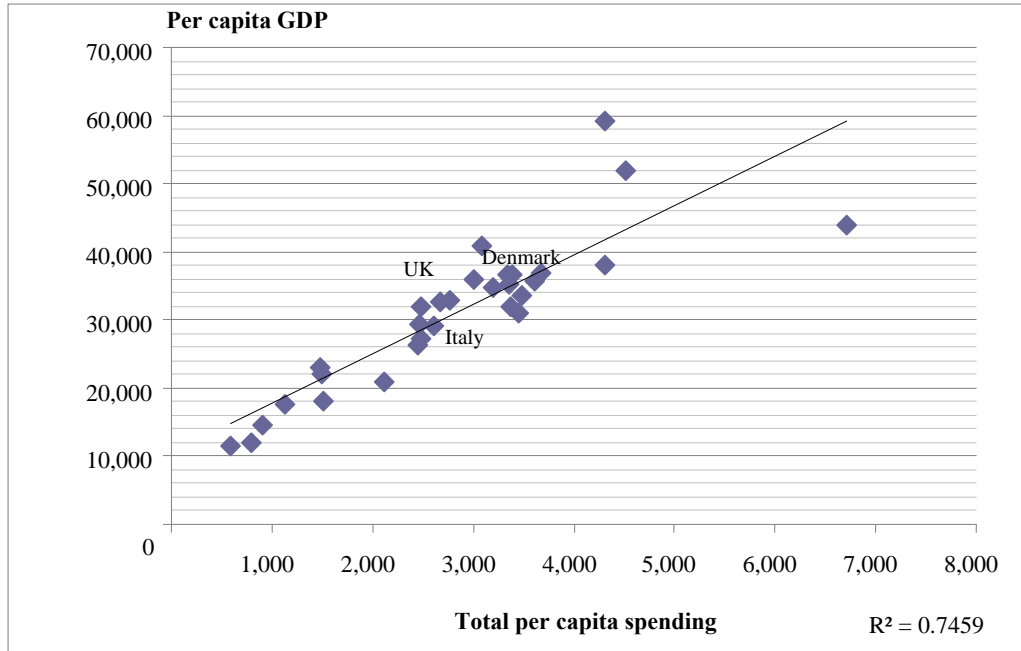
Table 9.3: Spending as a percentage of the GDP in the OECD countries.
Percentage figures

Countries	1970	1975	1980	1985	1990	1995	2000	2005	2006
Average OECD	5.01	6.31	6.58	6.74	6.96	7.68	7.82	8.92	8.87
Australia		6.50	6.30	6.60	6.90	7.40	8.30	8.80	
Austria	5.20	7.00	7.50	6.50	8.40	9.70	9.90	10.30	10.10
Belgium	3.90	5.60	6.30	7.00	7.20	8.20	8.60	10.70	10.40
Canada	6.90	7.00	7.00	8.10	8.90	9.00	8.80	9.90	10.00
Korea			3.40	3.40	4.00	3.90	4.60	6.00	6.40
Denmark		8.70	8.90	8.50	8.30	8.10	8.30	9.40	9.50
Finland	5.50	6.20	6.30	7.10	7.70	7.70	7.00	8.30	8.20
France	5.40	6.40	7.00	8.00	8.40	9.90	9.60	11.20	11.10
Germany	6.00	8.40	8.40	8.80	8.30	10.10	10.30	10.70	10.60
Japan	4.60	5.70	6.50	6.70	6.00	6.90	7.70	8.20	8.20
Greece	5.40		5.90		6.60	8.60	7.80	9.00	9.10
Ireland	5.10	7.30	8.30	7.50	6.10	6.70	6.30	8.20	7.50
Iceland	4.70	5.70	6.30	7.20	7.80	8.20	9.50	9.40	9.10
Italy					7.70	7.30	8.10	8.90	9.00
Luxemburg	3.10	4.30	5.20	5.20	5.40	5.60	5.80	7.80	7.30
Mexico					4.80	5.60	5.60	6.40	6.60
Norway	4.40	5.90	7.00	6.60	7.60	7.90	8.40	9.10	8.70
New Zealand	5.20	6.70	5.90	5.10	6.90	7.20	7.70	8.90	9.30
Holland		7.00	7.40	7.30	8.00	8.30	8.00	9.20	9.30
Poland					4.80	5.50	5.50	6.20	6.20
Portugal	2.50	5.10	5.30	5.70	5.90	7.80	8.80	10.20	10.20
United Kingdom	4.50	5.50	5.60	5.90	6.00	6.90	7.20	8.20	8.40
Czech Republic					4.70	7.00	6.50	7.10	6.80
Slovakia							5.50	7.10	7.10
Spain	3.50	4.60	5.30	5.40	6.50	7.40	7.20	8.30	8.40
United States	7.00	7.90	8.70	10.00	11.90	13.30	13.20	15.20	15.30
Sweden	6.80	7.50	8.90	8.50	8.20	8.00	8.20	9.20	9.20
Switzerland	5.40	6.90	7.30	7.70	8.20	9.70	10.30	11.40	11.30
Turkey		3.00	3.30	2.20	3.60	3.40	4.90	5.70	5.70
Hungary						7.30	6.90	8.50	8.30

Source: CEIS Healthcare processing of OECD Health Data 2008

As a rule, the OECD countries with a higher per capita GDP show more sizeable per capita healthcare spending, as demonstrated by the correlation coefficient of 74.6%. Nevertheless, there are noteworthy differences between the various countries, depending, at least in part, on the healthcare policy decisions made regarding levels of spending held to be appropriate.

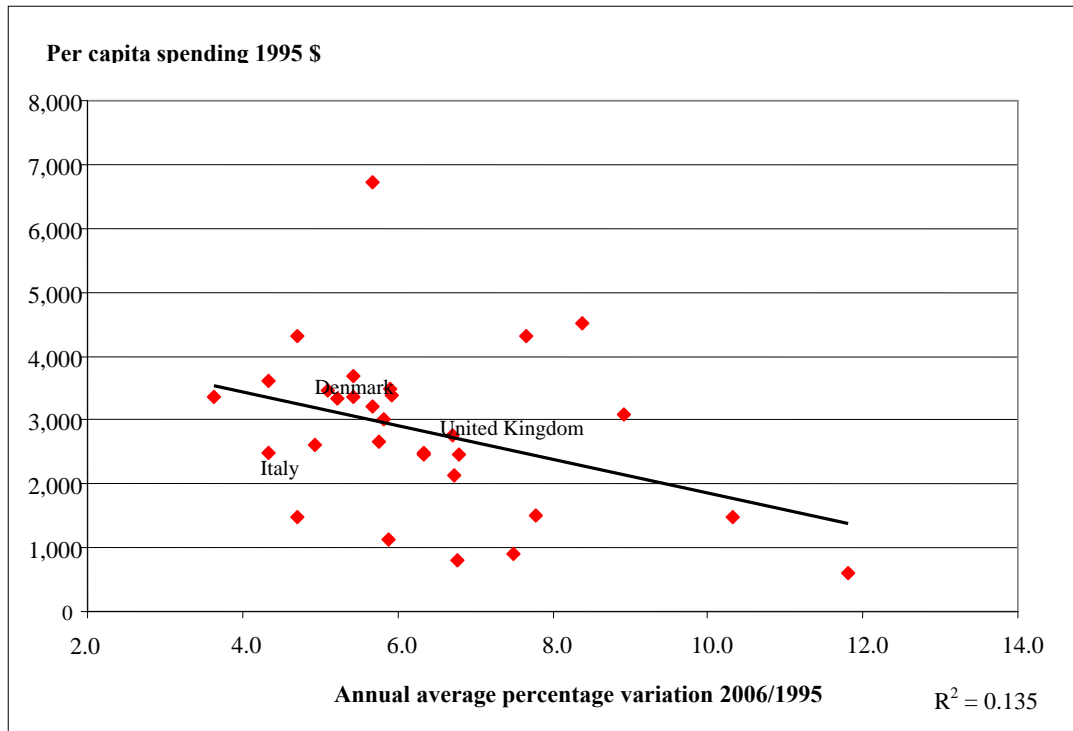
Figure 9.5: Correlation between OECD per capita healthcare spending and per capita GDP. Figures in dollars (PPP) – Year 2006⁸



Source: CEIS Healthcare processing of OECD Health Data 2008

⁸ The figures for Australia, Turkey, Japan and Slovakia refer to the year 2005.

Figure 9.6: Correlation between the level of healthcare spending in 1995 and the 2006/1995 increase OECD Countries – Figures in dollars (PPP)



Source: CEIS Healthcare processing of OECD Health Data 2008

The above graph also shows that the countries which started from a lower level of spending registered the highest increases.

Total per capita spending on healthcare in Italy is in line with the average for the partner countries, showing an average annual variation that, over the long period, was not elevated, compared to the average. The public systems of universal care (we have included Denmark, Italy and the UK on the graphs) proved to be parsimonious (below-average levels of spending). Compared to the others, Italy showed lower growth than might have been expected, based on the initial spending levels.

According to an analysis carried out by the OECD, the lower spending increase in recent years is traceable, in particular, to a slow-down in pharmaceutical spending, which rose by only 2% in 2006, compared to 6-7% in earlier years. The United States is the country that destines the largest amount of resources for medicine, with per capita spending of \$ 843 in 2006, followed by Canada, Belgium and France. The USA is also the only OECD country where private spending on pharmaceuticals is higher than public spending. Italy holds sixth place on the ranking, at per capita spending of \$ 524 on pharmaceuticals, a figure higher than the OECD average of \$ 440. The nations with lower levels of pharmaceutical spending are New Zealand, Denmark, Poland and Mexico (this last country with per capita spending of \$ 182). The variations in spending on pharmaceuticals between the different countries reflect differences in the price and consumption levels of medicines, as well as in the rapidity and extent to which the use of new and more costly pharmaceuticals spreads (regarding these factors, reference should be made to the chapter on pharmaceutical assistance).

9.3 The break-down of healthcare spending in the OECD countries

The public sector absorbs the largest portion of healthcare spending, with the exceptions of the United States, Mexico and Korea, where it accounts for respective percentages of 45.8%, 44.2% and 55.1% of total healthcare spending; still, even in the United States, where the private sector plays a key role in financing spending, public spending on healthcare accounts for 7.0% of the GDP, a percentage comparable to the OECD average (6.5% of the GDP). In Italy, public healthcare spending in 2006 was equal to 6.9% of the GDP, as compared to a percentage of 2.0% for private spending.

Table 9.4: Portion of total healthcare spending OECD countries represented by public spending. Percentage figures

Countries	1970	1975	1980	1985	1990	1995	2000	2005	2006
OECD average	72.6	76.8	73.1	73.3	72.7	72.2	72.3	72.9	72.8
Australia		73.6	62.6	70.6	66.2	65.8	67	67	
Austria	63	69.6	68.8	76.1	72.8	72.6	75.8	76.5	76.2
Belgium						78.5			
Canada	69.9	76.2	75.6	75.5	74.5	71.4	70.4	70.2	70.4
Korea			23.2	32.9	39.5	38.1	48.5	53.1	55.1
Denmark		85.4	87.8	85.6	82.7	82.5	82.4		
Finland	73.8	78.6	79	78.6	80.9	74.1	73.4	75	76
France	75.5	78	80.1	78.5	76.6	78.6	78.3	79.9	79.7
Germany	72.8	79	78.7	77.4	76.2	81.6	79.7	77	76.9
Japan	69.8	72	71.3	70.7	77.6	83	81.3	82.7	
Greece	42.6		55.6		53.7	52	60.9	62.8	61.6
Ireland	81.7	79	81.6	75.7	71.7	71.9	73.5	79.5	78.3
Iceland	66.2	87.1	88.2	87	86.6	83.9	81.1	81.4	82
Italy					79.5	70.8	72.5	76.7	77.2
Luxemburg	88.9	91.8	92.8	89.2	93.1	92.4	89.3	90.2	90.9
Mexico					40.4	42.1	46.6	45.5	44.2
Norway	91.6	96.2	85.1	85.8	82.8	84.2	82.5	83.5	83.6
New Zealand	80.3	73.7	88	87	82.4	77.2	78	77.4	77.8
Holland		67.9	69.4	70.8	67.1	71	63.1		
Poland					91.7	72.9	70	69.3	69.9
Portugal	59	58.9	64.3	54.6	65.5	62.6	72.5	71.8	70.6
United Kingdom	87	91.1	89.4	85.8	83.6	83.9	80.9	86.9	87.3
Czech Republic	96.6	96.9	96.8	92.2	97.4	90.9	90.3	88.6	87.9
Slovakia							89.4	74.4	
Spain	65.4	77.4	79.9	81.1	78.7	72.2	71.6	70.6	71.2
United States	36.3	40.9	41.2	39.6	39.4	45.3	43.7	45.1	45.8
Sweden	86	90.2	92.5	90.4	89.9	86.6	84.9	81.7	81.7
Switzerland				50.3	52.4	53.8	55.6	59.6	60.3
Turkey		50	29.4	50.6	61	70.3	62.9	71.4	
Hungary						84	70.7	70.9	70.9

Source: CEIS Healthcare processing of OECD Health Data 2008

As a rule, in all the European countries, the public portion of spending first fell and then began rising once again.

As a result, private healthcare spending in our country followed a pronounced upward trend in our country between 1995 and 2006, while it had fallen to a noteworthy extent between 1990 and 1995.

9.4 Public healthcare spending in Italy

Based on the statistics of the Ministry of Health, public healthcare spending in Italy went from €80,122 billion in 2002 to €103,123 billion in 2007, making for an average annual increase, in terms of face value, of 5.17%. Total public spending on healthcare was in line with the national average in the north (5.14%), higher than the average in the central regions (5.80%) and below the national average in the south of Italy (4.86%).

It is important to note that this variation is influenced by the fact that the costs of the IRCCS, not a part of the calculation in the past, have been included.

Table 9.5: Public healthcare spending and annual rates of variation

Year	Ministry of Health ⁹	
	billions of euro	Rate of Variation
2001	76.70	
2002	80.12	4.46
2003	82.72	3.25
2004	89.61	8.33
2005	96.20	7.35
2006	100.05	4.00
2007	103.12	3.07

Source: CEIS Health processing of data from Ministry of Health

As shown by the statistics, the years 2006 and 2007 marked a slow-down in the growth of spending, following two years of noteworthy growth.

An analysis of healthcare spending by individual region points to an extreme degree of variability: the regions in which spending on healthcare grew most rapidly during the five-year period 2001-2006 were Lazio, Valle d'Aosta, Molise and Sicilia, while the regions registering the highest growth between 2006 and 2007 were Friuli Venezia Giulia, Lombardia and Calabria. In contrast, the regions in which healthcare spending showed the lowest growth during the five-year period were Friuli Venezia Giulia, Calabria and Campania, while Lazio and Sicilia recorded decreases in spending between 2006 and 2007 (these same regions, having registered sharp annual increases during the five-year period 2001-2006, were subject to cost-reduction plans).

⁹ The total statistic does not include extraordinary operations and transfers to Bambin Gesù and SMOM.

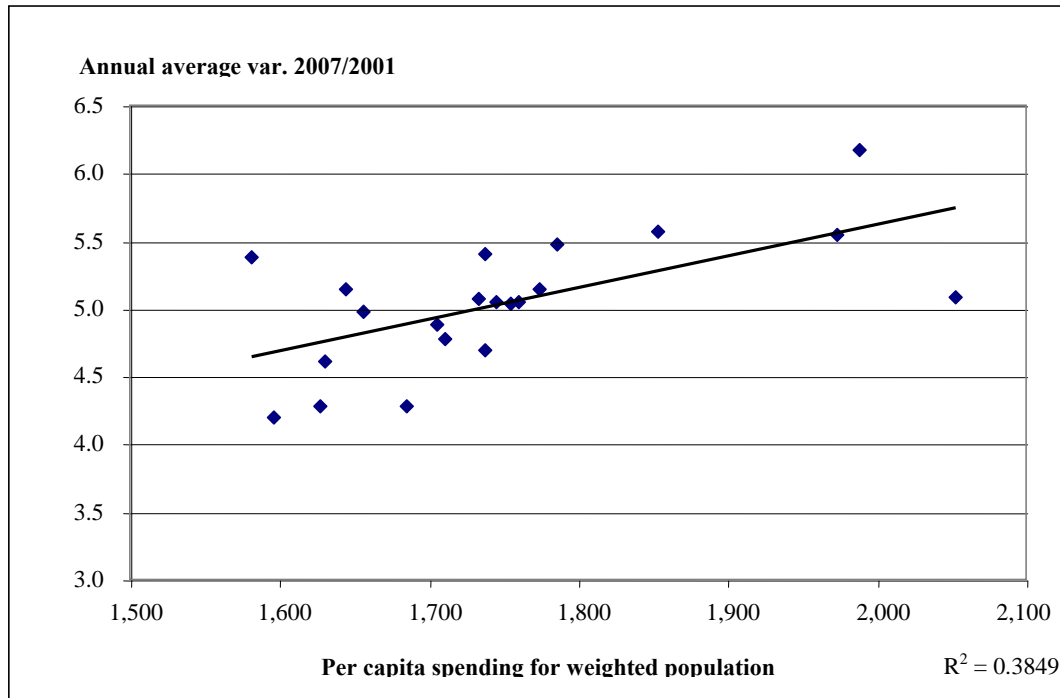
Table 9.6: Variations in public healthcare spending¹⁰. Percentage values

Regions	2006/2001	Annual average 2006/2001	2007/2006
Italy	30.45	5.46	3.07
North	28.88	5.21	4.85
Central	36.68	6.45	0.65
South	28.91	5.21	2.16
Piemonte	29.23	5.26	3.98
Valle d'Aosta	37.20	6.53	0.80
Lombardia	27.84	5.04	5.33
P. A. Bolzano	33.15	5.89	3.35
P. A. Trento	27.55	4.99	3.41
Veneto	29.54	5.31	4.32
Friuli V. G.	23.37	4.29	11.18
Liguria	26.16	4.76	4.41
Emilia Romagna	32.06	5.72	4.31
Toscana	29.35	5.28	2.31
Umbria	31.66	5.65	1.71
Marche	26.50	4.81	3.69
Lazio	45.01	7.72	-1.19
Abruzzo	31.32	5.60	2.37
Molise	34.82	6.16	2.76
Campania	25.46	4.64	2.58
Puglia	30.90	5.53	3.25
Basilicata	30.37	5.45	5.07
Calabria	21.72	4.01	5.19
Sicilia	33.90	6.01	-0.56
Sardegna	26.36	4.79	1.85

Source: CEIS Healthcare processing of data from the Ministry of Health

¹⁰ In calculating public spending, we have not included spending for overtime and transfers to Bambin Gesù and SMOM.

Figure 9.7: Per capita regional healthcare spending by weighted population for 2001 and annual average variation 2007-2001



Source: CEIS Healthcare processing of statistics from the Ministry of Health

There is no clear, direct relationship between the level of per capita healthcare spending for the weighted population and the average annual variation, demonstrating the extreme variation in results between the different regions.

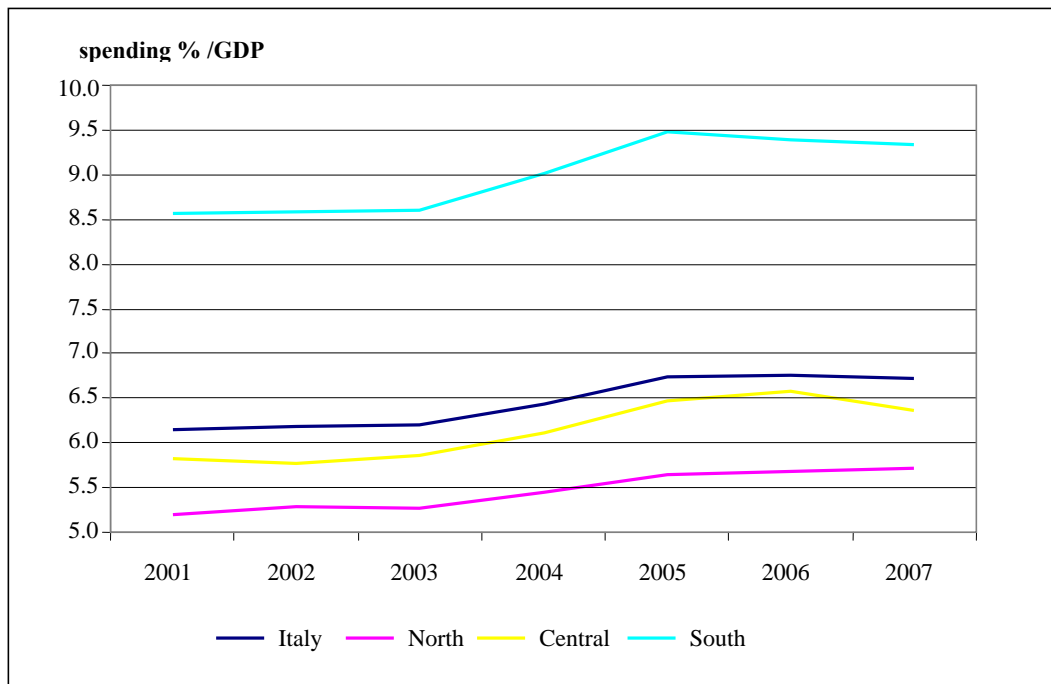
The reasons for growth in healthcare spending can undoubtedly be traced to structural factors, such as the increase in the elderly segment of the population, a trend that, based on ISTAT forecasts, is destined to grow, as well as to scientific progress, which generates increased opportunities for therapy, at times producing more costly technology.

In light of the long-term constraints on the public spending budget, aggravated by the low level of economic growth, rising healthcare spending is a cause for concern, on account of its critical effect on public accounts, and in order to avoid the prospect, brought to light by the OECD, of average spending in Italy reaching 9.7% of the GDP by 2050.

Public healthcare spending in Italy as a whole was equal to 6.7% of the GDP in 2007, marking a slight reduction from the levels of 2006 (6.8%), while healthcare spending in northern, central and southern Italy absorbed respective levels of 5.7%, 6.4% and 9.3% of the GDP in 2007, and 5.7%, 6.6% and 9.4% in 2006. As shown by the graph, healthcare spending as a percentage of GDP was similar in Italy as a whole and in the central and northern regions, while the south showed distinctly higher levels. This discrepancy is tied to the fact that the southern regions, on the average, present a GDP that proves significantly lower than that of the central and northern region in addition to which the balancing mechanism used between the regions results in a situation where there is little or no correlation between overall healthcare spending and levels of income; the effect of redistribution engendered by the mechanisms of solidarity implicit in universal type systems of social security tend to invert the relationship that

normally exists between the portion of the GDP absorbed by healthcare assistance and the average per capita GDP.

Figure 9.8: Public healthcare spending as a percentage of the GDP.
Geographic break-down - Years 2001/2007



Source: CEIS Healthcare processing of statistics from the Ministry of Health

Healthcare spending as a percentage of GDP shows levels greater than 9% in Campania, Sicilia, Molise, Calabria and Puglia, while the lowest values, below 6%, were registered in Lombardia, Emilia Romagna and Veneto.

Table 9.7: Regional public healthcare spending as a percentage of GDP

Regions	2001	2006	2007
Italy	6.14	6.76	6.72
North	5.20	5.68	5.72
Centre	5.83	6.58	6.37
South	8.56	9.39	9.34
Piemonte	5.76	6.34	6.36
Valle d'Aosta	5.39	6.08	5.89
Lombardia	4.67	5.05	5.11
P. A. Bolzano	5.89	6.47	6.44
P. A. Trento	5.64	6.13	6.09
Veneto	5.30	5.77	5.77
Friuli V. G.	5.53	5.81	6.20
Liguria	6.68	7.30	7.30
Emilia Romagna	5.11	5.77	5.76
Toscana	5.82	6.35	6.28
Umbria	6.40	7.20	6.99
Marche	6.07	6.38	6.36
Lazio	5.70	6.69	6.34
Abruzzo	7.21	8.29	8.27
Molise	8.55	9.73	9.68
Campania	9.14	9.72	9.73
Puglia	8.35	9.43	9.36
Basilicata	7.74	8.63	8.74
Calabria	9.07	9.25	9.55
Sicilia	8.85	9.98	9.72
Sardegna	7.56	8.08	8.01

Source: CEIS Healthcare processing of data from the Ministry of Health

Given the natural differences in the regional levels of income, it is only on account of the mechanisms of solidarity that per capita spending on healthcare remains essentially uniform among the regions.

Table 9.8: Regional public per capita healthcare spending. Figures in euro

Regions	2001	2006	2007
Italy	1346.46	1702.95	1743.97
North	1389.91	1713.62	1785.65
Central	1408.77	1853.81	1830.37
South	1259.47	1606.98	1642.06
Piemonte	1393.75	1750.35	1815.30
Valle d'Aosta	1514.97	1999.60	2002.21
Lombardia	1346.50	1635.82	1710.34
Trentino A. A.	1599.55	1981.36	2028.55
Veneto	1367.13	1685.12	1744.99
Friuli V. G.	1354.00	1633.06	1809.18
Liguria	1502.80	1859.23	1943.97
Emilia Romagna	1422.82	1779.63	1840.64
Toscana	1399.80	1748.16	1779.50
Umbria	1361.15	1701.82	1720.85
Marche	1337.98	1620.88	1672.70
Lazio	1442.82	2017.90	1925.54
Abruzzo	1361.30	1727.34	1762.28
Molise	1364.64	1843.00	1898.70
Campania	1281.92	1585.29	1626.41
Puglia	1209.83	1565.96	1617.57
Basilicata	1168.96	1537.62	1623.07
Calabria	1244.10	1525.11	1609.39
Sicilia	1253.46	1665.34	1656.11
Sardegna	1274.56	1590.16	1615.90

Source: CEIS Healthcare processing of data from the Ministry of Health

**Table 9.8a: Per capita public regional healthcare spending.
Index numbers (average for Italy =100)**

Regions	2001	2006	2007
Piemonte	103.51	102.78	104.09
Valle d'Aosta	112.52	117.42	114.81
Lombardia	100.00	96.06	98.07
Trentino A. A.	118.80	116.35	116.32
Veneto	101.54	98.95	100.06
Friuli V. G.	100.56	95.90	103.74
Liguria	111.61	109.18	111.47
Emilia Romagna	105.67	104.50	105.54
Toscana	103.96	102.65	102.04
Umbria	101.09	99.93	98.67
Marche	99.37	95.18	95.91
Lazio	107.16	118.49	110.41
Abruzzo	101.10	101.43	101.05
Molise	101.35	108.22	108.87
Campania	95.21	93.09	93.26
Puglia	89.85	91.96	92.75
Basilicata	86.82	90.29	93.07
Calabria	92.40	89.56	92.28
Sicilia	93.09	97.79	94.96
Sardegna	94.66	93.38	92.66

Source: CEIS Healthcare processing of data from the Ministry of Health

Per capita public spending on healthcare in Italy is, on the average, €1,744, meaning €42 less than in the previous year.

Despite the what is stated above, the regional results show a fair amount of variability: the highest levels of per capita public spending on healthcare are those of Trentino Alto Adige (€2,029) and Valle d'Aosta (€2,002), while the lowest figures were registered by Calabria (€1,609) and Sardegna (€1,616).

Per capita spending is well above average, by more than 10%, in Trentino Alto Adige, Valle d'Aosta, Liguria and Lazio, while levels in Puglia, Sardegna and Calabria fall well below the average.

Between 2006 and 2007 spending rose to a noteworthy extent in Friuli Venezia Giulia, as well as in Basilicata and Calabria, while it fell only in Lazio and Sicilia, meaning the regions with the highest deficits.

Table 9.8b: Per capita public regional healthcare spending for the weighted population¹¹. Figures in euro and index numbers (average for Italy =100) – Year 2007

Regions	Figures in euro	Index numbers
Italy	1,744	100.00
North	1,764	101.15
Central	1,823	104.53
South	1,672	95.87
Piemonte	1,754	100.57
Valle d'Aosta	1,972	113.07
Lombardia	1,732	99.31
Trentino A. A.	2,052	117.66
Veneto	1,773	101.66
Friuli V. G.	1,737	99.60
Liguria	1,737	99.60
Emilia Romagna	1,785	102.35
Toscana	1,710	98.05
Umbria	1,655	94.90
Marche	1,630	93.46
Lazio	1,988	113.99
Abruzzo	1,759	100.86
Molise	1,852	106.19
Campania	1,684	96.56
Puglia	1,644	94.27
Basilicata	1,580	90.60
Calabria	1,595	91.46
Sicilia	1,705	97.76
Sardegna	1,626	93.23

Source: CEIS Healthcare processing of data from the Ministry of Health

As was to be expected, given that age is held to be the preponderant factor in terms of the absorption of resources, spending based on the weighted population (in terms of the per capita quota), “reduces” the differences between the regions, diminishing the levels of the northern regions and increasing levels in the south.

Still, a noteworthy amount of variability remains, as shown by the index numbers. The regions of Trentino Alto Adige, Lazio and Valle d’Aosta present respective index numbers of 118, 114 and 113, the values for Piemonte, Lombardia, Veneto Friuli Venezia Giulia, Liguria and Abruzzo are close to the national average, while those for Marche, Sardegna, Calabria and Basilicata are the farthest removed from the average for the country as a whole.

Noteworthy differences can be observed between the per-capita spending index numbers for the weighted population and those for the non-weighted population. Looking at the matrix of the rankings, the regions that undergo the most significant changes are Emilia Romagna, as well as Friuli Venezia Giulia, Veneto and Liguria, which show a level of spending for the weighted population much closer to the Italian average than per capita spending. On the other hand, Sardegna, together with Basilicata and Sicilia, present levels of spending for the weighted population that are higher than the levels for the non-weighted population.

¹¹ In this case, the population was weighted by reformulating its proportions on the basis of the weight implicit in the financing of the regions under the resolutions of the Inter-Ministerial Committee on Economic Planning.

Table 9.8c: Rankings of per capita spending index numbers for weighted and non-weighted populations - Year 2007

Regions	Weighted population	Non-weighted population	Difference
Abruzzo	7	10	-3
Basilicata	20	15	5
Calabria	19	19	0
Campania	14	11	3
Emilia Romagna	5	16	-11
Friuli V. G.	10	17	-7
Lazio	2	5	-3
Liguria	9	2	7
Lombardia	11	14	-3
Marche	17	18	-1
Molise	4	4	0
Piemonte	8	6	2
Puglia	16	20	-4
Sardegna	18	9	9
Sicilia	13	8	5
Toscana	12	7	5
Trentino A. A.	1	1	0
Umbria	15	13	2
Valle d'Aosta	3	3	0
Veneto	6	12	-6

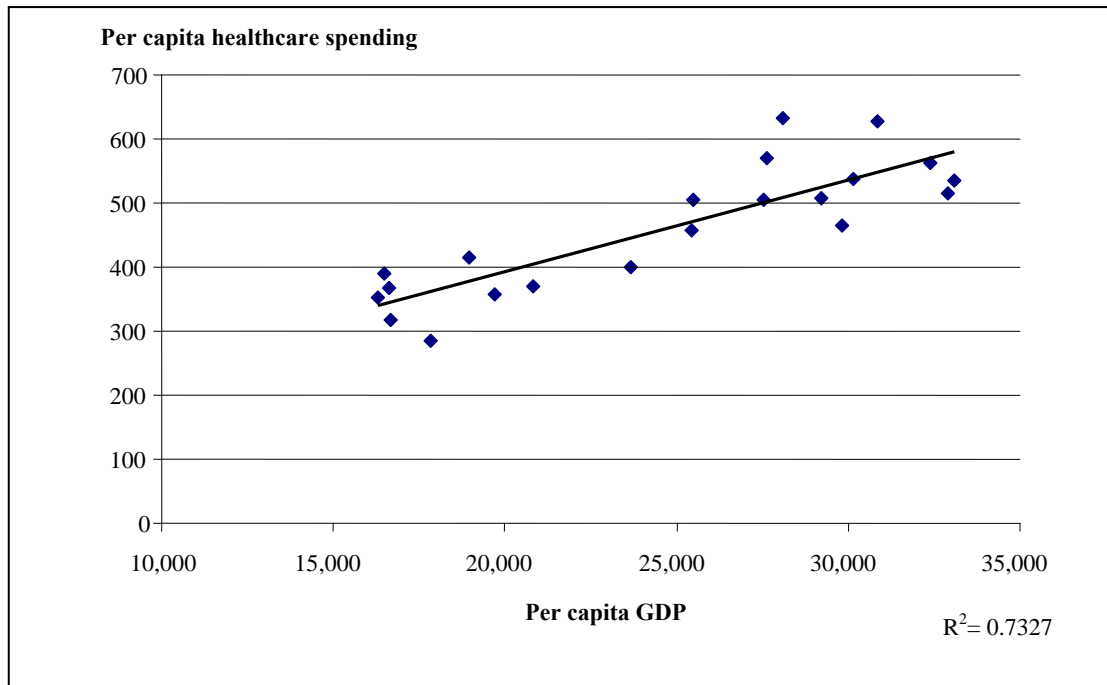
Source: CEIS Healthcare processing of data from the Ministry of Health

9.5 Private spending on healthcare in Italy

In 2006, private spending accounted for an average of 21.9% of all spending, down slightly compared to 2005 (22.1%). Private spending was clearly higher in the north (24.7%) than in the central regions (21.4%), and especially as compared to the south (17.9%), in lines with levels of family income.

As shown by the graph, there is an unmistakable positive correlation between private spending and family income ($R^2=73.3\%$): the regions with higher per capita GDPs register higher levels of per capita private spending.

Figure 9.9: Correlation between per capita private spending on healthcare and per capita GDP by region. Figures in euro - Year 2006



Source: CEIS Healthcare processing of ISTAT statistics

The regions with the highest percentages of private spending in 2006 were Friuli Venezia Giulia, Emilia Romagna and Lombardia, with respective figure of 27.9%, 26.1% and 25.5%. In contrast, the regions with the lowest levels of private spending, registering figures of less than 18%, were Basilicata, Sicilia and Abruzzo.

Table 9.9: Private spending as a percentage of total spending

Regions	2001	2005	2006
Italy	23.55	22.09	21.85
North	26.19	24.93	24.66
Central	23.76	21.82	21.43
South	19.47	18.07	17.94
Piemonte	26.10	24.73	24.56
Valle d'Aosta	23.53	21.68	20.47
Lombardia	26.97	26.04	25.55
P. A. Bolzano	21.75	20.65	19.98
P. A. Trento	21.94	20.97	20.27
Veneto	25.10	23.61	23.17
Friuli V. G.	28.43	27.01	27.93
Liguria	22.82	21.69	21.34
Emilia Romagna	27.58	25.93	26.07
Toscana	23.44	22.50	22.41
Umbria	20.22	18.98	19.06
Marche	23.83	22.50	22.04
Lazio	24.45	21.62	21.03
Abruzzo	19.66	17.37	17.65
Molise	20.02	18.22	18.37
Campania	19.36	17.69	18.21
Puglia	21.16	19.40	19.01
Basilicata	17.59	15.82	15.61
Calabria	21.15	21.14	20.37
Sicilia	17.81	16.69	16.02
Sardegna	19.02	18.15	18.41

Source: CEIS Healthcare processing of data from the Ministry of Health

Per capita private healthcare spending in Italy is equal to €476.3; each citizen of northern Italy spends an average of €545.6, while the figure is €505.7 in the central regions and €351.4 in the south.

Between 2005 and 2006 private healthcare spending grew by an average of 2.6% (3.8%, in terms of prices for the year 2005), a rate lower than that registered by public spending, which grew by 4% between 2005 and 2006. The highest rate of growth was observed in the regions of central Italy, which showed an average annual increase of 3.1%, while in the south, though the starting level was lower, private spending grew by only 1.9%. In the north, growth in private healthcare spending was equal to 2.8%.

Table 9.10: Per capita private spending on healthcare. Values in euro

Regions	2000	2005	2006
Italy	435.50	474.79	476.27
North	506.20	549.77	545.62
Central	453.08	494.04	505.75
South	318.62	345.17	351.39
Piemonte	505.61	554.09	569.82
Valle d'Aosta	455.93	511.12	514.61
Lombardia	515.82	554.06	561.35
P. A. Bolzano			534.76
P. A. Trento			464.70
Trentino A. A.	449.16	500.61	499.02
Veneto	467.20	495.84	508.26
Friuli V. G.	532.05	617.57	632.88
Liguria	459.02	510.96	504.43
Emilia Romagna	555.48	604.52	627.43
Toscana	437.86	490.60	504.91
Umbria	354.03	384.54	400.86
Marche	429.26	456.02	458.13
Lazio	486.15	525.20	537.21
Abruzzo	344.93	355.81	370.18
Molise	357.21	405.96	414.76
Campania	323.18	348.66	352.86
Puglia	338.66	362.92	367.58
Basilicata	259.71	277.93	284.47
Calabria	342.21	381.98	390.09
Sicilia	285.91	312.82	317.65
Sardegna	317.56	346.66	358.71

Source: CEIS Healthcare processing of ISTAT data

The regions where private spending has grown the most are Umbria, Emilia Romagna and Abruzzo, while those where it has grown the least are Liguria, Provincia Autonoma di Trento and Marche.

Table 9.11: Variations in private per capita healthcare spending. Percentage figures

Regions	Annual average 2000/2005	2006/2005
Italy	2.27	2.61
North	2.47	2.81
Central	2.41	3.06
South	1.76	1.86
Piemonte	2.35	3.11
Valle d'Aosta	2.99	1.59
Lombardia	2.38	2.20
P. A. Bolzano	3.58	1.18
P. A. Trento	2.75	0.30
Veneto	2.15	3.34
Friuli V G.	3.48	2.78
Liguria	2.23	-0.17
Emilia Romagna	2.75	4.69
Toscana	2.92	3.53
Umbria	2.59	5.33
Marche	2.05	1.13
Lazio	2.16	2.96
Abruzzo	1.22	4.52
Molise	2.54	1.84
Campania	1.78	1.24
Puglia	1.56	1.37
Basilicata	1.20	1.93
Calabria	2.03	1.88
Sicilia	1.90	1.63
Sardegna	1.91	3.83

Source: CEIS Healthcare processing of ISTAT data

Total spending varies to a greater extent between the regions than does public spending: the effect of private spending, therefore, is to increase the gap between the regions.

9.6 Direct public spending on healthcare functions in Italy

In analysing the component parts of public spending on healthcare, a distinction must be made between the portion made directly and that disbursed to affiliated/accredited operations.

Direct spending constitutes the largest portion, at figures, for 2007, of 62.5% for Italy as a whole, 63.2% for the north, 63.7% for the central regions and 60.6% for the south.

Table 9.12: Direct spending as a percentage of public spending on healthcare

Regions	2001	2006	2007
Italy	57.39	61.26	62.47
North	60.21	62.42	63.24
Central	57.51	62.42	63.72
South	53.45	58.95	60.61
Piemonte	62.07	64.97	64.89
Valle d'Aosta	74.43	74.79	74.55
Lombardia	52.87	55.65	56.83
P. A. Bolzano	72.85	72.21	72.15
P. A. Trento	65.20	64.51	64.78
Veneto	64.30	62.61	64.19
Friuli V. G.	65.88	71.62	73.49
Liguria	59.61	66.71	67.32
Emilia Romagna	65.41	67.52	67.72
Toscana	68.23	72.00	72.59
Umbria	69.75	72.01	72.36
Marche	68.25	69.95	69.53
Lazio	45.71	53.69	55.64
Abruzzo	59.84	61.08	62.22
Molise	63.23	60.34	61.21
Campania	48.56	58.31	59.60
Puglia	53.89	56.31	58.05
Basilicata	64.25	66.18	67.59
Calabria	56.46	59.02	61.32
Sicilia	50.50	57.87	59.96
Sardegna	63.79	66.25	67.56

Source: CEIS Healthcare processing of data from the Ministry of Health

The regions with the higher levels of direct spending are Valle d'Aosta and Friuli Venezia Giulia, while those with the lowest levels of direct spending are Lazio and Puglia.

The main spending item is personnel, equal to 32.77% of total public spending in Italy as a whole; the geographic break-down is 32.27% in the north, 32.06% in the centre and 33.93% in the south. As can be observed, the portion of spending absorbed by personnel in the south is higher than the Italian average, in addition to being higher than the other geographical compartments for 2007 as well.

In Italy as a whole, and in the other geographical compartments too, the percentage of total spending represented by spending on personnel decreased both during the five-year period 2001/2006 and between 2006 and 2007.

The spending entry for personnel was equal to 52.5% of direct public spending in Italy; looking at the geographic break-down, it stood at 51.0% in the north, 50.3% in the central regions and 56.0% in the south, confirming that the percentage of spending absorbed by the south for personnel is higher than the Italian average.

Table 9.13: Spending on personnel as a percentage of direct spending

Regions	2001	2006	2007
Italy	61.09	54.51	52.46
North	58.07	53.30	51.02
Central	60.50	51.79	50.32
South	66.11	58.09	55.98
Piemonte	59.57	54.83	52.97
Valle d'Aosta	62.59	58.06	54.84
Lombardia	58.27	53.18	49.82
P. A. Bolzano	59.80	56.87	62.76
P. A. Trento	57.69	57.02	55.85
Veneto	56.43	51.14	47.77
Friuli V. G.	56.31	52.05	53.61
Liguria	59.02	54.46	51.90
Emilia Romagna	57.79	52.92	50.97
Toscana	58.33	51.39	49.76
Umbria	59.20	52.13	51.19
Marche	58.39	54.73	53.09
Lazio	63.78	51.16	49.76
Abruzzo	61.73	53.82	51.03
Molise	64.13	58.72	55.60
Campania	68.82	58.43	56.20
Puglia	61.81	54.31	52.37
Basilicata	61.54	57.09	54.32
Calabria	71.08	64.99	60.28
Sicilia	67.63	59.17	58.27
Sardegna	63.82	58.21	56.56

Source: CEIS Healthcare processing of data from the Ministry of Health

The regions where spending on personnel absorbed the highest percentages of direct spending on healthcare in 2007 were the Provincia Autonoma di Bolzano and Calabria, while the regions where the level of direct spending absorbed was lowest were Veneto and Toscana.

It is important to note that, over the years, spending on personnel (salaried employees) has grown due to the tendency of the aggregate expense to follow increases in the cost of living, with cyclical variations occurring on account of contract renewals. Over the last 5 years, levels of such spending have grown by 4.12% in Italy as a whole, 3.96% in the north, 4.46% in the central regions and 4.14% in the south.

The phases during which the relative weight of personnel costs has been lightened have been characterised by measures designed to limit spending, such as rules on turnover and limitations on hiring in the public sector, while instances of growth are tied to contract renewals, automatic mechanisms of career advancement, exceptions to hiring freezes etc.

Table 9.14: Regional spending for salaried personnel¹². Figures in euro per employee

Regions	2001	2006	Average annual variation 2006/2001
Italy	41,608.04	61,142.85	8.00
North	39,459.73	55,740.62	7.15
Central	42,410.88	60,826.58	7.48
South	44,394.26	70,449.92	9.68
Piemonte	39,755.11	60,829.56	8.88
Valle d'Aosta	46,479.29	92,333.62	14.71
Lombardia	37,522.13	45,382.99	3.88
P. A. Bolzano	62,969.46	79,508.15	4.77
P. A. Trento	43,460.85	63,043.29	7.72
Veneto	39,552.70	62,151.95	9.46
Friuli V. G.	35,615.40	49,200.44	6.68
Liguria	39,658.81	55,080.88	6.79
Emilia Romagna	40,747.45	67,347.01	10.57
Toscana	39,975.13	69,844.06	11.81
Umbria	42,948.36	69,641.92	10.15
Marche	44,552.56	66,667.35	8.39
Lazio	43,948.78	52,666.05	3.69
Abruzzo	40,825.31	60,340.77	8.13
Molise	46,627.79	62,600.54	6.07
Campania	47,239.57	72,103.89	8.83
Puglia	43,083.62	67,723.21	9.47
Basilicata	46,761.01	69,470.41	8.24
Calabria	44,363.48	74,028.79	10.78
Sicilia	44,882.48	72,596.66	10.10
Sardegna	40,242.39	71,922.21	12.31

Source: CEIS Healthcare processing of data from the Ministry of Health

In 2006, per-employee personnel spending in Italy as a whole was equal to €61,142.85. Looking at the geographic break-down, we find the north positioned slightly below the national average (€55,740.62), the central regions in line with the average (€60,829.56), and the south distinctly above (€70,449.22) the national average.

During the five-year period 2001-2006, per-employee spending grew at an average annual rate of 8.0% in Italy as a whole: 7.1% in the north, 7.5% in the central regions and 9.7% in the south.

The regions with the highest levels of per-employee spending in 2006 were the Valle d'Aosta and the Provincia Autonoma di Bolzano, while those with the lowest levels of per-employee spending were Lombardia and Friuli Venezia Giulia.

The regions where per-employee spending showed the greatest growth were Valle d'Aosta, Sardegna and Toscana (average annual variation of more than 12.0%), while those where such spending grew the least were Lazio and Lombardia (average annual variation of less than 4%). Despite the quantitative and qualitative differences in staffing, finding explanations for the difficulties observed proves difficult.

Another important function of direct spending is goods and assets, which absorbed 11.8% of total public spending in all of Italy in 2007. In the north and central regions, spending on goods and services was higher than the national average, at respective figures of 12.1% and

¹² The per-employee spending figures for 2007 are not available.

12.8% of total public spending, while spending on goods and assets in the south was lower than the average (10.9% of public spending).

Table 9.15: Spending on goods and assets as a percentage of direct spending

Regions	2001	2006	2007
Italy	15.78	18.44	18.93
North	16.85	18.84	19.09
Central	16.30	19.03	20.06
South	13.79	17.49	17.98
Piemonte	17.53	20.26	20.76
Valle d'Aosta	13.08	15.55	16.14
Lombardia	16.97	18.30	18.59
P. A. Bolzano	16.04	14.95	15.87
P. A. Trento	15.09	16.58	16.88
Veneto	16.89	19.33	19.63
Friuli V. G.	15.34	19.39	18.81
Liguria	16.61	18.38	18.42
Emilia Romagna	16.96	18.84	18.97
Toscana	18.17	20.46	21.12
Umbria	16.83	19.52	20.44
Marche	20.09	22.44	22.83
Lazio	12.84	16.77	18.31
Abruzzo	17.20	20.53	20.62
Molise	14.15	17.29	17.98
Campania	11.24	16.71	16.95
Puglia	15.16	20.86	21.94
Basilicata	15.82	19.10	20.49
Calabria	11.87	13.74	14.10
Sicilia	13.38	15.60	15.75
Sardegna	17.55	19.09	20.15

Source: CEIS Healthcare processing of data from the Ministry of Health

The portion (of direct spending) absorbed by spending on goods and assets in 2007 was higher than the national average (18.9%) in both the north (19.1%) and the central regions (20.1%), while the level was lower than the average in the south (18.0% of direct spending).

Despite the above figures, the regions that committed the largest portion of their direct spending to goods and assets in 2007 were the Marche and Puglia. In contrast, the regions that spent the least were Calabria and Sicilia.

Table 9.16: Variation in spending for goods and assets. Percentage values

Regions	2006/2001	Annual average 2006/2001	2007/2006
Italy	62.74	10.23	7.90
North	49.32	8.35	7.64
Central	73.11	11.60	8.32
South	80.24	12.50	8.00
Piemonte	56.33	9.35	6.38
Valle d'Aosta	63.92	10.39	4.24
Lombardia	45.12	7.73	9.24
P. A. Bolzano	23.06	4.24	9.57
P. A. Trento	38.64	6.75	5.72
Veneto	44.42	7.63	8.61
Friuli V. G.	69.57	11.14	10.66
Liguria	56.21	9.33	5.60
Emilia Romagna	51.50	8.66	5.30
Toscana	53.67	8.97	6.47
Umbria	57.64	9.53	7.02
Marche	44.83	7.69	4.87
Lazio	122.59	17.35	11.79
Abruzzo	60.01	9.86	4.75
Molise	57.26	9.48	8.37
Campania	124.07	17.51	6.37
Puglia	88.17	13.48	11.96
Basilicata	62.15	10.15	15.13
Calabria	47.19	8.04	12.20
Sicilia	78.84	12.33	4.00
Sardegna	42.79	7.38	9.62

Source: CEIS Healthcare processing of data from the Ministry of Health

Spending on goods and assets grew by an annual average of 10.2% during the five-year period 2001-2006, and by 7.9% between 2006 and 2007. Looking at the geographic breakdown, in the north spending on goods and assets grew by 8.4% between 2001 and 2006, and by 7.6% between 2006 and 2007; in the central regions the increase was 11.6% during the five-year period and 8.3% in the last year; in the south, the increases for the respective periods were 12.5% and 8.0%.

The regions in which spending for goods and assets grew the most between 2006 and 2007 were Basilicata and Calabria, while those where such spending grew the least were Sicilia and Valle d'Aosta, which showed levels three times lower than the maximum rates and roughly 2 times lower than Italian average.

In terms of services, just as occurred for spending on goods and assets, the northern and central regions showed percentages (of total spending) higher than the national average, while the percentage in the south was far lower. The portion of total public spending utilised in Italy as a whole for services was 12.0%, while the figure for the northern regions was 12.9%, that for central Italy 13.2% and 9.8% was the level in the south.

On the average, spending on services accounts for 19.1% of direct spending: 20.5% in the north, 20.7% in the central regions and 16.1% in the south.

The regions in which the largest portions of direct spending are absorbed by spending on services are Veneto and Lazio, while those that absorb the lowest levels are Calabria and Marche.

Table 9.17: Regional spending on services as a percentage of total direct spending

Regions	2001	2006	2007
Italy	16.42	18.56	19.14
North	18.08	19.74	20.48
Central	16.64	20.31	20.74
South	13.71	15.68	16.14
Piemonte	15.88	17.06	16.97
Valle d'Aosta	18.82	19.26	20.61
Lombardia	18.17	19.40	20.45
P. A. Bolzano	19.89	20.00	15.87
P. A. Trento	13.99	17.17	17.98
Veneto	19.91	21.83	24.34
Friuli V. G.	18.56	23.02	22.10
Liguria	17.37	19.20	20.17
Emilia Romagna	18.49	20.47	20.61
Toscana	16.99	18.46	19.83
Umbria	17.19	20.39	20.30
Marche	14.16	15.33	14.64
Lazio	17.14	23.27	23.39
Abruzzo	14.16	17.04	16.87
Molise	16.02	16.54	17.40
Campania	13.93	15.79	16.26
Puglia	15.93	17.11	17.58
Basilicata	18.18	16.13	17.64
Calabria	10.79	12.83	12.73
Sicilia	12.72	15.44	15.85
Sardegna	11.90	14.60	15.84

Source: CEIS Healthcare processing of data from the Ministry of Health

Table 9.18: Variation in spending on services. Percentage values

Regions	2006/2001	Annual average 2006/2001	2007/2006
Italy	57.42	9.50	8.39
North	45.89	7.85	10.19
Central	81.11	12.61	4.89
South	62.56	10.21	8.11
Piemonte	45.28	7.76	3.34
Valle d'Aosta	41.14	7.13	7.48
Lombardia	43.66	7.51	13.40
P. A. Bolzano	32.74	5.83	-18.09
P. A. Trento	54.90	9.15	8.72
Veneto	38.27	6.70	19.30
Friuli V. G.	66.37	10.72	9.52
Liguria	56.09	9.31	10.65
Emilia Romagna	50.95	8.58	5.32
Toscana	48.29	8.20	10.80
Umbria	61.24	10.03	1.76
Marche	40.39	7.02	-1.53
Lazio	131.25	18.25	2.96
Abruzzo	61.30	10.03	3.22
Molise	32.75	5.83	9.68
Campania	70.72	11.29	8.01
Puglia	46.91	8.00	9.39
Basilicata	19.14	3.56	17.37
Calabria	51.34	8.64	8.41
Sicilia	86.31	13.25	5.75
Sardegna	61.08	10.00	12.64

Source: CEIS Healthcare processing of data from the Ministry of Health

Spending on services grew by an annual average of 9.5% during the five-year period 2001-2006, and by 8.4% between 2006 and 2007. Looking at the geographic break-down, we find that spending on services in the north grew by 7.8% between 2001 and 2006, and by 10.2% between 2006 and 2007; in the central regions the increase was 12.6% during the five-year period and 4.9% in the last year; in the south, the figures for the respective increases were 10.2% and 8.1%.

The regions in which spending on services grew the most between 2006 and 2007 were Veneto and Basilicata, whereas such spending actually decreased in the Provincia autonoma di Bolzano and the Marche.

As a rule, goods and services constitute a changing aggregate that is on the rise, in large part because it absorbs staff transformations, as in cases where – perhaps by taking advantage of employee turnover - employment contracts are transformed from a salaried to a self-employed basis; the heading is further “inflated” by costs transferred from the personnel category in the wake of decisions to fully outsource certain non-core functions (typically kitchen services, cleaning, laundry etc.). Modifications in the relations through which funding is credited also have an effect, changing the percentage of total activities under direct control and thus modifying the aggregate.

9.7 Public healthcare spending on subsidies for functions in Italy

Spending on subsidies/credits in Italy varies to a noteworthy extent from region to region, showing a downward trend over the years; in 2007 it was equal to 37.5% of total spending in Italy, with figures of 36.8% in the north, 36.3% in the central regions and 39.4% in the south.

Table 9.19: Spending on subsidies as a percentage of total spending

Regions	2001	2006	2007
Italy	42.61	38.74	37.53
North	39.79	37.58	36.76
Central	42.49	37.58	36.28
South	46.55	41.05	39.39
Piemonte	37.93	35.03	35.11
Valle d'Aosta	25.57	25.21	25.45
Lombardia	47.13	44.35	43.17
P. A. Bolzano	27.15	27.79	27.85
P. A. Trento	34.80	35.49	35.22
Veneto	35.70	37.39	35.81
Friuli V. G.	34.12	28.38	26.51
Liguria	40.39	33.29	32.68
Emilia Romagna	34.59	32.48	32.28
Toscana	31.77	28.00	27.41
Umbria	30.25	27.99	27.64
Marche	31.75	30.05	30.47
Lazio	54.29	46.31	44.36
Abruzzo	40.16	38.92	37.78
Molise	36.77	39.66	38.79
Campania	51.44	41.69	40.40
Puglia	46.11	43.69	41.95
Basilicata	35.75	33.82	32.41
Calabria	43.54	40.98	38.68
Sicilia	49.50	42.13	40.04
Sardegna	36.21	33.75	32.44

Source: CEIS Healthcare processing of data from the Ministry of Health

The largest portion of spending on subsidies is that for pharmaceutical care, which absorbs 29.9% of subsidised spending (11.2% of total public spending) in Italy, with figures of 27.0% in the North (9.9% of total public spending), 31.9% in the central regions (11.6% of total public spending) and 32.7% in the south (12.9% of total public spending).

The incidence of spending on pharmaceutical care as a percentage of current spending on healthcare has fallen in all areas of the country, albeit to different degrees. The regions of the northwest are at the bottom end of the scale, presenting the lowest relative incidence of spending for subsidising pharmaceuticals; the regions of the northwest also allocate a level of spending on subsidies for pharmaceuticals similar to that of the northeast.

The central regions and, to an even greater extent, the south have also shown a reduction in the portion of spending on pharmaceuticals.

Table 9.20: Spending on subsidies for pharmaceuticals as a percentage of total subsidised spending

Regions	2001	2006	2007
Italy	35.68	31.95	29.92
North	33.29	28.36	26.96
Central	36.46	33.95	31.88
South	38.06	35.29	32.68
Piemonte	36.07	30.19	28.72
Valle d'Aosta	45.80	36.98	36.02
Lombardia	28.45	24.43	23.28
P. A. Bolzano	32.71	22.19	20.37
P. A. Trento	28.45	24.64	23.91
Veneto	35.73	26.92	26.61
Friuli V. G.	38.55	42.47	40.22
Liguria	39.77	38.69	34.19
Emilia Romagna	37.29	32.79	30.70
Toscana	43.36	38.33	37.16
Umbria	48.58	41.61	39.88
Marche	47.42	41.44	38.98
Lazio	31.06	30.63	28.00
Abruzzo	40.91	33.09	30.83
Molise	41.64	28.89	26.91
Campania	33.58	31.80	29.59
Puglia	38.49	33.58	30.46
Basilicata	47.67	38.85	36.03
Calabria	42.57	41.71	39.99
Sicilia	38.52	37.14	34.25
Sardegna	44.20	42.01	38.94

Source: CEIS Healthcare processing of data from the Ministry of Health

In Italy as a whole, pharmaceutical spending fell between 2006 and 2007, going from 12.4% to 11.2% of total spending on healthcare. In the north and in the central regions, spending on subsidised pharmaceuticals fell under the limit of 13% set for subsidised spending in both 2006 and 2007, whereas, in the south, this threshold was exceeded in 2006, when the figure still stood at 14.5%, though it decreased to 13.0% in 2007.

The regions that still outspent the ceiling of 13% in 2007 were Calabria and Sicilia, while the most virtuous regions, meaning the ones with the lowest levels of spending on subsidised pharmaceuticals, were the Provincia Autonoma di Trento and Valle d'Aosta.

Table 9.21: Variation in spending on subsidised pharmaceuticals. Percentage values

Regions	2006/2001	Annual average 2006/2001	2007/2006
Italy	6.18	1.21	-6.49
North	3.70	0.73	-2.52
Central	12.56	2.40	-8.73
South	5.41	1.06	-9.24
Piemonte	-0.08	-0.02	-0.87
Valle d'Aosta	9.22	1.78	-0.86
Lombardia	3.31	0.65	-2.30
P. A. Bolzano	-7.55	-1.56	-4.92
P. A. Trento	12.67	2.42	-0.42
Veneto	2.22	0.44	-1.25
Friuli V. G.	13.04	2.48	-1.64
Liguria	1.14	0.23	-9.41
Emilia Romagna	9.02	1.74	-2.93
Toscana	0.74	0.15	-2.88
Umbria	4.31	0.85	-3.73
Marche	4.61	0.90	-1.07
Lazio	21.94	4.05	-13.48
Abruzzo	2.93	0.58	-7.41
Molise	0.91	0.18	-6.42
Campania	-3.71	-0.75	-7.48
Puglia	8.19	1.59	-10.05
Basilicata	0.52	0.10	-6.63
Calabria	12.24	2.34	-4.79
Sicilia	9.91	1.91	-12.86
Sardegna	11.95	2.28	-9.26

Source: CEIS Healthcare processing of data from the Ministry of Health

The initiatives undertaken to limit spending on subsidised pharmaceuticals have demonstrated their effectiveness, resulting not only in a slowdown of growth rates, but also, in many cases, in a reduction in the absolute values.

Between 2006 and 2007 subsidised spending fell by an average of 6.5%: 2.5% in the north, 8.7% in the central regions, and 9.2% in the south.

The regions showing the highest per capita pharmaceutical spending were Calabria (€248.95), Lazio (€239.12) and Sicilia (€227.11), while those with the lowest levels of spending were Trentino Alto Adige (€141.32), Veneto (€166.26) and Lombardia (€171.90).

In Italia, each individual (weighted population) spends an average of €195.8 on pharmaceuticals: with a figure of €172.1 in the north, while the levels for the central regions and the south are, respectively, €205.3 and €223.4, figures well above the national averaged, and even further removed from the average in northern Italy.

The regions where weighted per capita spending on pharmaceuticals is highest are Calabria (€258.7), Lazio (€240.9) and Sicilia (€237.2), while those with the lowest levels are Trentino Alto Adige (€147.6), Veneto (€167.4) and Lombardia (€172.14).

**Table 9.22: Per capita spending on subsidised pharmaceuticals by weighted population
Figures in euro and index numbers (average for Italy = 100) – Year 2007**

Regions	Figures in €	Index numbers
Italy	195.82	100
North	172.14	
Central	205.26	
South	223.36	
Piemonte	172.18	87.93
Valle d'Aosta	180.29	92.07
Lombardia	172.14	87.91
Trentino A. A.	147.65	75.40
Veneto	167.37	85.47
Friuli V. G.	180.41	92.13
Liguria	190.32	97.19
Emilia Romagna	172.3	87.99
Toscana	168.87	86.24
Umbria	177.34	90.56
Marche	189.06	96.55
Lazio	240.91	123.03
Abruzzo	200.16	102.22
Molise	191.18	97.63
Campania	216.41	110.51
Puglia	218.46	111.56
Basilicata	190.9	97.49
Calabria	258.68	132.10
Sicilia	237.82	121.45
Sardegna	210.11	107.30

Source: CEIS Healthcare processing of data from the Ministry of Health

As shown by the index numbers, there continue to be noteworthy variations in spending for subsidised pharmaceuticals, based on the weighted population: the figures range from 132 in Campania (+32% above the average) to 75 in Trentino Alto Adige (-25% below the average).

In Italy as a whole, spending on hospital subsidies accounts for 8.6% of total spending. The regions with the highest levels of subsidised hospital spending are Lazio (15.1%) and Puglia (12.2%), while those with the lowest percentages of spending on hospital subsidies are Basilicata (0.5%), Friuli Venezia Giulia (2.1%) and Umbria (2.6%).

Table 9.23: Spending on hospital subsidies as a percentage of subsidy spending

Regions	2001	2006	2007
Italy	7.60	9.06	9.37
North	5.94	7.75	8.02
Central	6.66	8.56	8.07
South	10.06	10.98	11.87
Piemonte	4.75	7.40	7.79
Valle d'Aosta	12.79	9.46	9.66
Lombardia	6.68	8.45	8.65
P. A. Bolzano	2.26	1.88	1.91
P. A. Trento	2.67	3.67	3.91
Veneto	8.53	10.20	10.54
Friuli V. G.	5.14	4.87	6.02
Liguria	3.90	5.82	5.83
Emilia Romagna	4.09	5.81	6.09
Toscana	5.01	6.75	6.86
Umbria	2.53	2.95	3.04
Marche	5.58	4.91	4.83
Lazio	7.81	10.23	9.52
Abruzzo	5.55	4.98	5.27
Molise	6.46	7.50	9.19
Campania	12.02	15.11	16.28
Puglia	7.62	7.79	7.81
Basilicata	6.37	5.28	5.26
Calabria	9.49	8.85	8.00
Sicilia	11.69	12.24	14.62
Sardegna	7.87	10.09	10.21

Source: CEIS Healthcare processing of data from the Ministry of Health

In Italy as a whole, spending on hospital subsidies accounts for 9.4% of total subsidy spending: 8.0% in the north, 8.1% in the central regions and 11.9% in the south. The regions where hospitals absorb the largest shares of spending on hospitals are Campania and Sicilia, while those where it absorbs the lowest percentages are the Provincia Autonoma di Bolzano and Umbria.

As a rule, therefore, spending for the purchase of services of ordinary hospitalisation, rehabilitation and long-term on a subsidised basis show marked variations between the different regions, reflecting the roles played by private operators in the supply of hospital care.

Table 9.24: Variation in subsidised hospital spending. Percentage values

Regions	2006/2001	Annual average 2006/2001	2007/2006
Italy	6.12	1.20	4.22
North	11.30	2.16	6.04
Central	5.21	1.02	1.36
South	0.03	0.01	3.63
Piemonte	-0.11	-0.02	3.44
Valle d'Aosta			10.67
Lombardia	10.68	2.05	4.79
P. A. Bolzano	-42.15	-10.37	4.71
P. A. Trento	27.42	4.97	5.24
Veneto	52.20	8.76	3.20
Friuli V. G.	-52.55	-13.85	2.99
Liguria	-33.08	-7.72	21.30
Emilia Romagna	42.06	7.27	11.66
Toscana	2.67	0.53	2.24
Umbria	12.34	2.35	3.68
Marche	26.40	4.80	4.89
Lazio	4.45	0.87	0.99
Abruzzo	53.54	8.95	-2.00
Molise	166.00	21.61	-6.47
Campania	-26.37	-5.94	9.57
Puglia	30.77	5.51	3.43
Basilicata	-32.24	-7.49	8.53
Calabria	12.08	2.31	8.03
Sicilia	-7.86	-1.62	-0.90
Sardegna	-12.86	-2.71	6.30

Source: CEIS Healthcare processing of data from the Ministry of Health

The figures for subsidised hospital spending differ notably from one region to the next: average annual growth was 1.2% between 2001 and 2006, and 4.2% between 2006 and 2007. Between 2006 and 2007, growth was higher in the north than in the central regions and in the south, with especially high rates in Liguria, Emilia Romagna and Valle d'Aosta.

In Italy as whole, the percentage of total public spending on healthcare devoted to basic medicine is 5.8%, in line with the figures for the north (5.4%) and the central regions (5.5%), while the percentage in southern Italy is significantly higher (6.6%); the limited variation in spending on general medicine, as a percentage of total public spending on healthcare, reflect the absence of noteworthy changes in the overall staffing of general practitioners, paediatricians selected from the lists of the public service and public physicians on call.

In Italy as a whole, spending for general medicine as a percentage of overall subsidised spending stands at 15.50% for 2007, breaking down into 14.6% for the north, 15.2% for the central regions and 16.9% for the south.

Table 9.25: Spending on basic medicine as a percentage of subsidised spending

Regions	2001	2006	2007
Italy	13.80	15.30	15.50
North	13.32	14.67	14.57
Central	13.46	14.67	15.22
South	14.56	16.46	16.87
Piemonte	13.72	15.97	15.67
Valle d'Aosta	19.57	19.05	18.85
Lombardia	11.11	12.77	12.44
P. A. Bolzano	15.78	15.27	15.18
P. A. Trento	15.56	15.58	15.16
Veneto	15.88	15.44	15.70
Friuli V. G.	16.32	20.38	20.54
Liguria	11.82	14.33	14.15
Emilia Romagna	15.62	16.17	16.49
Toscana	18.56	21.75	21.43
Umbria	18.96	19.96	19.91
Marche	19.24	20.94	20.34
Lazio	10.12	10.76	11.61
Abruzzo	16.40	15.92	17.15
Molise	17.77	17.54	19.00
Campania	14.07	17.71	17.16
Puglia	13.01	14.22	14.42
Basilicata	20.68	24.53	25.71
Calabria	16.47	17.72	17.56
Sicilia	13.80	14.89	16.27
Sardegna	17.59	20.01	20.68

Source: CEIS Healthcare processing of data from the Ministry of Health

The growth in spending on basic care is sufficiently uniform from one region to the next, and it is, by any measure, lower than the rates of growth of overall healthcare spending; furthermore, the variations in absolute value are fully traceable to the renewal of employment agreements, in accordance with national collective bargaining contracts, as well as to supplementary care services.

Table 9.26: Variation in spending on basic medicine. Percentage values

Regions	2006/2001	Annual average 2006/2001	2007/2006
Italy	31.45	5.62	1.14
North	34.05	6.04	1.86
Central	31.75	5.67	0.86
South	28.50	5.14	0.47
Piemonte	38.97	6.80	2.21
Valle d'Aosta	31.69	5.66	0.66
Lombardia	38.22	6.69	-0.10
P. A. Bolzano	31.97	5.70	2.94
P. A. Trento	30.23	5.43	-0.11
Veneto	31.88	5.69	1.64
Friuli V. G.	28.09	5.08	4.71
Liguria	26.08	4.74	1.24
Emilia Romagna	28.38	5.12	5.70
Toscana	33.60	5.96	-1.29
Umbria	28.20	5.09	0.18
Marche	30.26	5.43	2.14
Lazio	31.44	5.62	2.15
Abruzzo	23.52	4.32	7.07
Molise	43.48	7.49	8.89
Campania	28.01	5.06	-3.66
Puglia	35.56	6.27	0.51
Basilicata	46.32	7.91	5.48
Calabria	23.29	4.28	-1.61
Sicilia	22.90	4.21	3.28
Sardegna	34.05	6.04	1.18

Source: CEIS Healthcare processing of data from the Ministry of Health

In Italy, each citizen spent an average of €101.43 for basic medicine in 2007, with figures of €95.60 for the north, €101.11 for the central regions and €109.13 for the south.

Another major item to be analysed is subsidised specialised care, which is equal to 3.5% of total spending in Italy as a whole, with figures of 2.9% for the north, 2.9% for the central regions and 4.7% for the south; spending on specialised care constitutes 9.4% of subsidised spending in Italy as a whole, with levels of 8.0% in the north, 8.1% in the central regions and 11.9% in the south.

Table 9.27: Spending on specialised care as a percentage of subsidised spending

Regions	2001	2006	2007
Italy	7.60	9.06	9.37
North	5.94	7.75	8.02
Central	6.66	8.56	8.07
South	10.06	10.98	11.87
Piemonte	4.75	7.40	7.79
Valle d'Aosta	12.79	9.46	9.66
Lombardia	6.68	8.45	8.65
P. A. Bolzano	2.26	1.88	1.91
P. A. Trento	2.67	3.67	3.91
Veneto	8.53	10.20	10.54
Friuli V. G.	5.14	4.87	6.02
Liguria	3.90	5.82	5.83
Emilia Romagna	4.09	5.81	6.09
Toscana	5.01	6.75	6.86
Umbria	2.53	2.95	3.04
Marche	5.58	4.91	4.83
Lazio	7.81	10.23	9.52
Abruzzo	5.55	4.98	5.27
Molise	6.46	7.50	9.19
Campania	12.02	15.11	16.28
Puglia	7.62	7.79	7.81
Basilicata	6.37	5.28	5.26
Calabria	9.49	8.85	8.00
Sicilia	11.69	12.24	14.62
Sardegna	7.87	10.09	10.21

Source: CEIS Healthcare processing of data from the Ministry of Health

The regions with the highest incidence of subsidised specialised care, as a percentage of total subsidised spending, are Campania and Sicilia, while those with the lowest incidence of such care are the Provincia Autonoma di Bolzano and Umbria.

In Italy as a whole, subsidised spending on specialised care grew by an annual Average of 7.16% during the five-year period 2001/2006, and by 3.3% between 2006 and 2007; it thus grew at a higher rate than subsidised hospital spending and basic medicine.

Table 9.28: Variation in spending for specialised care. Percentage values

Regions	2006/2001	Annual average 2006/2001	2007/2006
Italy	41.30	7.16	3.27
North	58.93	9.71	6.09
Central	55.47	9.23	-8.35
Sud	24.04	4.40	6.00
Piemonte	86.00	13.21	9.69
Valle d'Aosta	0.10	0.02	3.91
Lombardia	52.20	8.76	4.99
P. A. Bolzano	13.79	2.62	4.67
P. A. Trento	79.03	12.35	9.33
Veneto	62.31	10.17	3.19
Friuli V. G.	-2.79	-0.56	28.54
Liguria	55.06	9.17	2.73
Emilia Romagna	76.07	11.98	8.73
Toscana	53.44	8.94	1.77
Umbria	41.68	7.22	3.69
Marche	5.24	1.03	3.53
Lazio	61.93	10.12	-11.88
Abruzzo	14.34	2.72	5.06
Molise	68.65	11.02	23.18
Campania	27.78	5.02	7.16
Puglia	26.72	4.85	-0.54
Basilicata	2.19	0.43	0.21
Calabria	6.76	1.32	-10.15
Sicilia	19.33	3.60	12.94
Sardegna	50.99	8.59	-0.91

Source: CEIS Healthcare processing of data from the Ministry of Health

In the north, spending on subsidised specialised care grew at a higher rate than the national both during the five-year period under consideration and in the last year; in contrast, specialised spending in the central regions, which showed noteworthy growth between 2001 and 2006, fell significantly between 2006 and 2007. In the south, spending on specialised care grew by 4.4% between 2001 and 2006, showing a further increase (6.0%) between 2006 and 2007.

The regions that showed the largest increase were Friuli Venezia Giulia and Molise, while Lazio and Calabria registered noteworthy decreases in spending on subsidised specialised care between 2006 and 2007.

Table 9.29: Spending on subsidised rehabilitation as a percentage of subsidised spending. Percentage values

Regions	2001	2006	2007
Italy	6.35	5.89	5.76
North	4.17	4.07	3.75
Central	5.97	5.35	5.63
South	9.11	8.49	8.47
Piemonte	2.91	4.24	4.94
Valle d'Aosta	4.09	1.67	1.64
Lombardia	4.33	3.70	3.86
P.A. Bolzano	25.39	1.91	1.90
P. A. Trento	1.25	0.54	0.49
Veneto	2.84	4.30	1.09
Friuli V. G.	1.89	2.49	2.47
Liguria	12.93	17.27	18.21
Emilia Romagna	1.05	0.34	0.36
Toscana	4.90	4.16	4.35
Umbria	9.57	5.85	6.28
Marche	6.43	7.84	7.58
Lazio	6.00	5.36	5.74
Abruzzo	13.93	17.44	18.04
Molise	13.01	12.30	11.46
Campania	9.33	7.78	7.64
Puglia	9.95	9.91	10.71
Basilicata	12.15	14.76	18.80
Calabria	6.92	5.99	6.62
Sicilia	8.07	6.09	4.77
Sardegna	6.73	8.18	7.65

Source: CEIS Healthcare processing of data from the Ministry of Health

A high level of variation was also observed when spending on subsidised rehabilitation was analysed for the different geographic areas: such spending absorbs 2.2% of total spending on healthcare, with figures of 1.4% in the north, 2.0% in the central regions and 3.3% in the south, levels that, on the average, are lower than in the previous year.

Spending on rehabilitation absorbs 5.8% of subsidised spending: 3.7% in the north, 5.6% in the central regions and 8.5% in the south.

It is important to note that, while spending levels expressed in per capita terms can provide an initial assessment of the value of the resources utilised, as well as an indirect indication of the efficiency of the healthcare systems, only a “comparison” with the outputs and, to an even greater extent, the outcomes can add true value to the system of knowledge, making it possible to arrive at the right decisions regarding policies and initiatives affecting the healthcare system.

9.8 An analysis of Healthcare Costs

The analysis carried out up to this point, based on the data of the Ministry of Health, considers spending in terms of the production of healthcare services within the regions, without taking into account the costs tied to passive mobility, including costs sustained for incoming mobility.

When the cost of care is analysed on the basis of the regional healthcare systems, meaning the expense sustained by the residents of the individual regions for care, the regions with the highest levels of spending per resident in 2007 prove to be Valle d'Aosta, Trentino and Liguria, while those with the lowest levels are Sardegna, Puglia and Lombardia.

Per capita spending per resident is lower than the per capita cost of production in regions with a noteworthy capacity of attraction, such as Lombardia, Veneto, Emilia Romagna, Toscana, Umbria, Lazio and Molise, while it is markedly higher in Valle d'Aosta and Calabria.

Table 9.30: Per-resident regional healthcare spending. Figures in euro

Regions	2001	2002	2003	2004	2005	2006	2007*
Piemonte	5901.069	6037.838	6316.437	7140.677	7314.243	7611.51	7913.63
Valle d'Aosta	192.377	206.077	213.316	227.607	244.446	265.177	267.17
Lombardia	11767.9	12488.44	12534.45	13051	14362.63	15068.73	15894.92
P.A. Bolzano	772.9	854.928	900.377	933.681	974.199	1027.553	1062.135
P.A. Trento	726.589	781.373	824.42	858.557	893.004	935.657	966.989
Veneto	6051.701	6296.784	6556.442	6917.299	7420.26	7873.351	8218.527
Friuli V.G.	1578.652	1669.88	1736.641	1898.056	1995.014	1961.135	2181.756
Liguria	2363.253	2432.593	2525.43	2906.591	2956.361	3010.272	3142.334
Emilia Romagna	5430.136	5820.681	6026.275	6517.825	6878.716	7144.127	7465.336
Toscana	4807.877	5049.578	5181.065	5581.803	5977.37	6221.563	6367.645
Umbria	1103.615	1163.152	1254.766	1305.068	1391.783	1461.051	1486.329
Marche	1984.291	2090.58	2128.816	2339.487	2429.022	2521.933	2613.342
Lazio	7317.086	7487.984	7958.109	8987.661	9971.347	10634.33	10507.45
Abruzzo	1699.169	1821.983	1883.68	1950.359	2185.943	2246.344	2299.865
Molise	451.768	450.744	488.647	514.279	580.42	572.268	588.563
Campania	7573.433	7818.586	8072.861	8871.069	9661.497	9463.482	9700.391
Puglia	4961.345	5150.475	5295.569	5650.062	6305.305	6559.722	6767.176
Basilicata	758.616	780.687	820.14	877.335	930.114	954.23	1000.533
Calabria	2681.898	2742.476	2772.347	2973.249	3074.1	3270.936	3429.619
Sicilia	6437.11	6709.445	6909.048	7641.971	8026.608	8555.864	8509.003
Sardegna	2134.653	2267.325	2325.154	2470.193	2631.131	2692.056	2740.75

Source: CEIS Healthcare processing of the data of the Ministry of Health

Table 9.31: Per capita regional healthcare spending per resident. Figures in euro

Regions	2001	2002	2003	2004	2005	2006	2007
Piemonte	1398.55	1433.04	1492.78	1672.21	1689.13	1753.10	1818.04
Valle d'Aosta	1612.91	1723.83	1764.27	1865.02	1989.50	2138.90	2140.58
Lombardia	1306.95	1382.44	1376.10	1411.41	1529.06	1590.33	1665.18
Trentino A. A.	1603.03	1739.70	1814.63	1862.14	1915.84	1992.85	2039.93
Veneto	1342.26	1390.07	1432.35	1489.87	1578.80	1661.64	1721.68
Friuli V. G.	1336.44	1410.84	1457.42	1584.11	1656.00	1623.08	1799.24
Liguria	1496.68	1549.42	1606.31	1842.56	1856.65	1869.58	1954.34
Emilia Romagna	1369.07	1460.82	1495.27	1597.32	1656.98	1706.04	1767.67
Toscana	1375.70	1443.96	1473.44	1565.25	1661.18	1718.72	1750.21
Umbria	1339.03	1407.84	1504.14	1538.96	1620.35	1683.48	1702.62
Marche	1355.34	1421.08	1433.93	1554.66	1599.32	1649.61	1701.29
Lazio	1430.14	1463.33	1546.52	1726.69	1892.11	2004.67	1912.77
Abruzzo	1347.16	1443.29	1479.39	1516.73	1682.44	1720.93	1755.89
Molise	1405.33	1406.52	1522.04	1598.64	1802.81	1783.28	1838.83
Campania	1326.78	1371.35	1410.08	1540.02	1668.94	1634.19	1675.32
Puglia	1232.31	1281.37	1316.01	1398.19	1549.91	1611.12	1662.75
Basilicata	1265.62	1306.66	1374.18	1469.57	1559.17	1606.22	1691.98
Calabria	1328.51	1364.67	1381.07	1478.24	1529.96	1631.87	1716.48
Sicilia	1293.09	1351.17	1389.56	1527.40	1601.13	1705.30	1696.08
Sardegna	1305.76	1390.27	1419.82	1503.38	1594.57	1625.95	1651.61

Source: CEIS Healthcare processing of data from the Ministry of Health

**Table 9.31a: Per capita regional healthcare spending per resident (weighted population)
Figures in euro**

Regions	2007
Piemonte	1,756.65
Valle d'Aosta	2,108.28
Lombardia	1,686.28
Trentino A. A.	2,063.51
Veneto	1,749.32
Friuli V.G.	1,727.45
Liguria	1,746.26
Emilia Romagna	1,714.24
Toscana	1,681.85
Umbria	1,637.46
Marche	1,657.86
Lazio	1,974.81
Abruzzo	1,752.63
Molise	1,793.60
Campania	1,734.63
Puglia	1,689.92
Basilicata	1,647.08
Calabria	1,701.14
Sicilia	1,746.15
Sardegna	1,661.93

Source: CEIS Healthcare processing of data from the Ministry of Health and ISTAT

Looking at per-resident spending based on a weighted population¹³, the regions with the lowest levels of spending are Umbria, Basilicata and Marche, while those with the highest levels are Valle d'Aosta, Trentino Alto Adige and Lazio.

9.9 Databanks and estimated model

As a continuation of the earlier CEIS reports and the international literature, in the interests of analysing healthcare spending in Italy and its key factors, it was decided to utilise a panel model of fixed effects, based on the linear function.

The variables taken into consideration are the figures for per capita GDP: a proxy of the economic level reached and, as demonstrated by the literature, the most "important" underlying factor of healthcare spending; both theory and past empirical evidence point to the existence, on the aggregate level, of a positive correlation between economic conditions and the share of the GDP spent on healthcare.

An important role in the analysis is played by demographic variables, and especially estimates of the impact of ageing, analysed by taking the percentage of the population over 75 years of age, seeing that the international literature is in agreement over the fact that the first and primary cause of increased healthcare spending is the ageing of the population. In addition, considering the debate that has been underway since the 80's on the impact of the cost of death on healthcare spending, given claims that ageing has less of an impact on increased healthcare spending than death, seeing that healthcare spending grows in the days immediately preceding death, it was decided to study the cost of death, analysing the impact of this variable on total healthcare spending.

On the institutional level, achieving an understanding of the impact of public-sector intervention is of fundamental importance, which is why the finding contemplated under the resolutions of the Inter-Ministerial Committee for Economic Planning, meaning the *ex ante* funding, has been included; in addition, given the noteworthy differences between the organisational systems in the various regions of Italy, an analysis of how the subdivision between direct spending and management and subsidy/allocation funding influences total healthcare spending was deemed to be of fundamental importance.

A further variable included was level of education, meaning the percentage of individuals without diplomas or with only an elementary-school education, as a co-variable of both the social and economic condition.

Another important element to be analysed in examining healthcare policies is the effect of minimum user charges on healthcare spending, a factor studied solely on the basis of volume of minimum charges on pharmaceuticals, given that the figures for such charges on specialised care are not available.

Bed spaces in hospital facilities are also included in the model, in an attempt to analyse the efficiency of the system.

In determining the distinguishing characteristics of the offerings of the regional healthcare systems, the variable of personnel rate was analysed, seeing that, as found previously, it constitutes the largest cost item.

Finally, consideration was given to the impact of technology, utilising as a proxy the number of TAC and magnetic resonance devices present.

¹³ In this case, the population was weighted by reformulating its proportions on the basis of the weight implicit in the financing of the regions under the resolutions of the Inter-Ministerial Committee on Economic Planning.

The estimated model consists of a panel of fixed effects on the 20 regions of Italy for the years 1995-2006.

With the following defined as:

SST = total per capita healthcare spending

PIL = per capita GDP

FIN = per capita financing obtained from the resolutions of the Inter-Ministerial Committee for Economic Planning

SDSC = ratio between public spending managed directly and public spending managed through subsidies

TPD = salaried personnel rate

POP_75+ = percentage of the population over 75

M = generic mortality rate

TK = per capita spending for minimum user charges on pharmaceuticals

TPL = bed place rate

TEC = TAC and RMN per 100,000 inhabitants

STS = % without diploma or with elementary-school education

The estimative model is:

$$SST=f(PIL;FIN;SDSC;TPD;POP_75+;M;TK;TPL;STS;TEC)^{14}$$

It was decided to initially estimate the model on the national level, subsequently utilising it for the regions subject to cost-reduction plans: Lazio, Sicilia, Campania, Abruzzo, Molise e Liguria.

First, we shall analyse the general model; the variables identified in the final model¹⁵ explain the variability of 64% in total per capita healthcare spending. The effect of time, in particular, is captured almost in its entirety (R^2 within 97%), while the effect of the variability between regions is also explained in an unquestionably satisfactory manner (R^2 within 58%).

Table 9.32: Regression model on the panel data, Italy - Years 1995-2006

SST	Coefficients	P> t
PIL	0.0374	0.000
FIN	0.1286	0.055
SDSC	-67.4989	0.004
POP_75+	170.5934	0.000
TK	-2.0445	0.015
TEC	4.6147	0.000
Constant	-675.9454	0.000

Source: CEIS Health processing of data from ISTAT and the Ministry of Health

GDP, age and the institutional variables thus prove meaningful, and present the expected plus or minus sign, with this being especially true for financing, and for direct spending as a percentage of subsidised spending.

Confirmation is obtained of the fact that an increase in income leads to an increase in healthcare spending, and that the ageing of the population influences the growth of healthcare spending; this year, it would once appear that increased financing pushes healthcare spending, pointing to the possibility that there might be a substantial duplication of functions between the

¹⁴ For the sake of simplicity, the underscores regarding the regions and the timing have been omitted.

¹⁵ The model presented is the final one, meaning that non-meaningful variables have been removed.

public and private sectors, as well as a tendency on the part of the regional system to “take advantage” of the greater resources made available by the Central Government.

The variable of direct spending as a percentage of subsidised spending turns out to be significant, and presents a minus sign, appearing to point to a failure to manager relations between the public and private sectors, resulting in an unjustified extension of higher percentages of allocation, in all likelihood due to a duplication of services.

We find the minimum user charge to be a significant variable, with the expected minus sign demonstrating that the initiative can reduce healthcare spending.

Finally, the variable of technology is important: improvements in technology increase costs, but, at the same time, when used in an appropriate manner, the improve the quality of treatment.

The results illustrated above constitute mediated outcomes for forms of behaviour that differ notably on the regional level.

The analysis was repeated for the regions subject to cost-cutting plans.

The variables identified in the final model¹⁶ explain the 55% variability of total per capita healthcare spending. The effect of time, in particular, is captured almost in its entirety (R^2 within 98%), while the effect of the variability between regions is also explained in an unquestionably satisfactory manner (R^2 within 75%).

Table 9.33: Regression model on the panel data, Regions of Lazio, Sicilia, Campania, Abruzzo, Molise and Liguria - Years 1995/2006

SST	Coefficients	P> t
PIL	0.0592	0.000
SDSC	-91.9312	0.047
M	1.4635	0.003
POP_75+	224.5961	0.000
TPL	7.2182	0.008
STS	-10.8985	0.011
TEC	5.1412	0.000
Constant	-1324.7380	0.003

Source: CEIS Healthcare processing of data from ISTAT and the Ministry of Health

The analysis performed for these regions brings to light a number of important factors that differ from those of the average Italian model: other variables take on importance, such as the rate of hospital beds per patient, a possible sign of inefficiency of the system, which presumably has excess offerings; another such variable is the percentage of individuals with lower levels of education, seeing that, when a greater percentage of the population has no diploma, or possesses only an elementary-school education, total healthcare spending tends to be lower (in this case, it can be presumed that the effect of income is not fully manifested by the GDP, but it could also be that less educated individuals consume less, or that there exist access barriers); finally, there is the mortality rate, which should back the option that the cost of death is an important factor.

Variables that are not significant, in contrast to their importance in the national model, are the minimum user charge and per capita financing, confirming the negligible connection, in the case of these regions, between the spending and the financing allocated, on the one hand, and the instruments for limiting spending, on the other.

¹⁶ The model presented is the final one, meaning that any non-significant variables have been removed.

9.10 Forecast of total healthcare spending

Based on the estimative model, a forecast of the trend in healthcare spending has been drawn up. The following assumptions were made:

- that the forecast for the GDP in the DPEF 2009-2013 is accurate;
- that financing on the part of the Central Government will follow the quantities indicated in Legislative Decree 112/2008;
- demographic forecasts have been borrowed from the ISTAT;
- with regard to technology, the trend for the medium period has been extrapolated;
- it is assumed that the share of direct spending will grow slightly over the next few years, as a result of the financial constraints placed on the central-southern regions where there is a larger number of accredited private structures;
- it was assumed that minimum charges will rise slightly, as a result of the cost-cutting plans.

The trend that emerges is one of moderate but constant growth resulting in spending that constitutes 8.8% of the GDP in 2010, for annual growth of 0.05 points of the GDP.

Table 9.34: Forecast for total healthcare spending

Year	2006	2007	2008	2009	2010
Total Healthcare Spending	128.3	130.9	138.1	143.6	149.3
TV%	4.7%	2.0%	5.5%	4.0%	4.0%
%PIL	8.7%	8.5%	8.7%	8.8%	8.8%

Source: data processed by CEIS Healthcare

It should be noted that growth in 2007 was especially limited, due to the postponement to 2008 of contract renewals. Obviously, the prospect of a financial crisis has a bearing on the forecast, seeing that it will contribute to limiting consumption, and especially in the private sector.

9.11 The future development of public and private healthcare spending

With regard to the future development of public spending, it is held that the short-term outlook will be dominated by factors of inertia tied to the rigidity of the public offerings, together with exogenous shocks resulting from, for example, renewals of contracts and agreements. Certain sectors shall constitute a partial exception, such as pharmaceuticals, where cost-sharing mechanisms and initiatives regarding prices and quantities could lead to sudden changes in the trends.

In light of the above, the general approach taken was one of extrapolating trends for the individual spending items, with the middle period used as the reference framework; this last choice is based on the reasonable need to avoid projecting into the future the statistical anomalies (or, quite often, accounting anomalies) that have been recorded in the past, but not always on justified economic grounds.

In the case of the sectors subject to contract renewals, consideration has been given to the fact, with the expense distributed over a number of years; with regard to pharmaceuticals, the current trend was confirmed, in the wake of initiatives to rationalise prices and quantities.

Table 9.35: Forecast for public healthcare spending

Year	2006	2007	2008	2009	2010
Trend in Public Healthcare Spending	100.4	102.4	107.8	113.6	120.0
TV%	5.3%	2.0%	5.3%	5.3%	5.7%
%GDP	6.8%	6.7%	6.8%	6.9%	7.1%

The resulting outlook is more dynamic than that contemplated in the economic planning documents, especially for 2010; in effect, the timing of the expenses is distributed differently during the two preceding years, with the government's forecast concentrating more costs in the year 2008.

Should events follow the scenario draw up, and were there to be adequate public financing, private spending would essentially remain constant, and maybe even show a slight decrease.

Table 9.36: Forecast for private healthcare spending

Year	2006	2007	2008	2009	2010
Private Healthcare Spending	26.1	28.6	30.3	30.1	29.3
TV%	2.6%	9.4%	6.0%	-0.6%	-2.7%
%GDP	1.8%	1.9%	1.9%	1.8%	1.7%

Source: data processed by CEIS Healthcare

Should this not be the case, then any initiatives involving cost-sharing would obviously shift a portion of the public spending to the private sector, modifying the trends illustrated above.

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The background of the top half of the page features a light purple gradient. Overlaid on this gradient are several dark purple silhouettes of people of various ages and ethnicities, all holding hands in a circle. The silhouettes are semi-transparent, allowing the gradient to show through. The overall mood is one of unity and community.

Chapter 10

Equity in the SSN

10 - L'equità nel SSN¹

As made in the previous years it has been chosen to include in the CEIS report a chapter on measures of equity in the so-called burden space. Those measures, proposed by the World Health Organization (WHO), consider the weight of healthcare expenditures left by the National Health System on households.

In the analysis it has been chosen to stress on impoverishment and the so called “catastrophic payments” we feel in fact that these measures can give important policy advices.

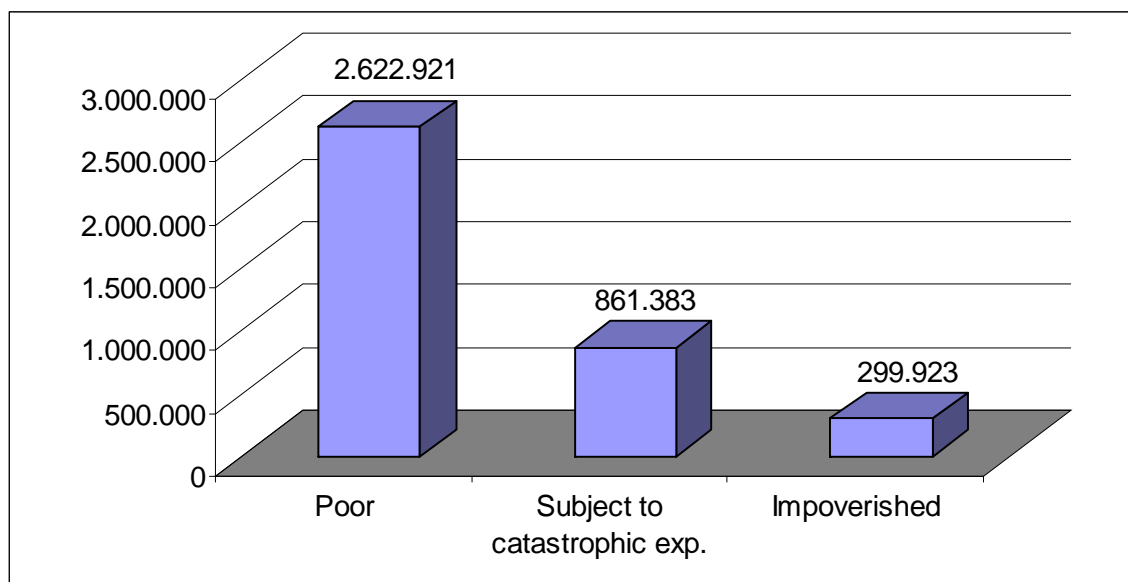
In Italy we can estimate that 349,180 households impoverished in 2006 (accounting for 1.5% of the total number of resident households) if the thresholds used are corrected to take into account their healthcare component the impoverished households are about 299,923 (the 1.3% of the totality of resident households). In 2005 we had counted for 345,363 impoverished households (still the 1.5% of total resident ones) or 310,822 households using the corrected thresholds.

A substantial stability of impoverishment can therefore be observed that confirms the ineffectiveness of policies to contrast the phenomenon.

Moreover we can estimate that about 861,383 (accounting for the 3.7% of the totality of resident households) had to face catastrophic payments for healthcare (CATA). This means that the percentage of households that had to face catastrophic payments has decreased slightly in 2006 (they were 4.1% in 2005).

¹ Doglia M., CEIS Sanità, Faculty of Economics, University of Rome “Tor Vergata”.

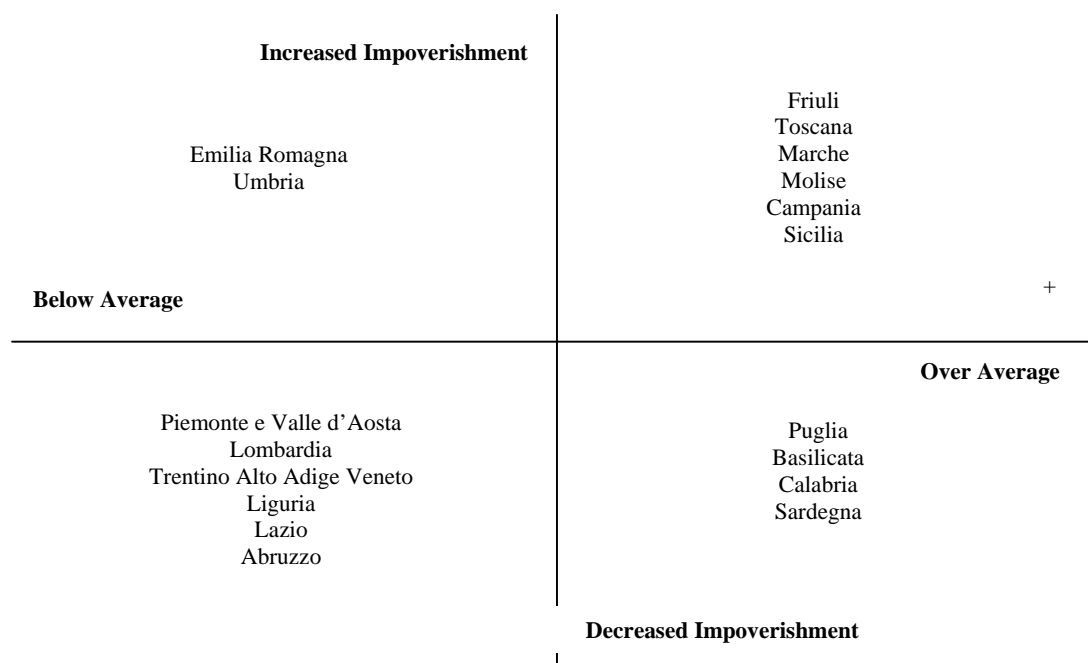
Figure 10.1: Poor, impoverished and subject to catastrophic payments households - Year 2006



Source: CEIS elaboration on ISTAT data

Equity measures evaluated locally do not show a clear common trend however some signs of a decrease in impoverishment for southern Regions in 2006 is present. Moreover the use of those indicators has shown that the lack of homogeneity in protective capability by the Regional Health Systems (RHS) between Northern and southern Regions may be due partially to differences in the contest in which the RHS operate.

Figure 10.2: Distribution of Regions by level and variation of impoverishment



Source: CEIS elaboration on ISTAT data

Figure 10.2 shows the positioning of different Regions with respect to the average impoverishment and the variation between 2005 and 2006. Obviously both measures must be interpreted very carefully as they may be influenced by sample variability.

Also in 2006 data seem to confirm the extreme fragility of those household with one or more elderly members (i.e. “Single person 65 or more years of age” and “Childless couple with reference person over 65 years of age”) those two groups account in fact for about a quarter of the household in the sample but for half the impoverished ones.

Another important phenomenon that emerges from our analysis is the presence of a relevant number of households that, whether not yet impoverished, fall because of healthcare expenditures in the so-called poverty risk zone . We cannot say if it is right to help those household we can however underline that some kind of careful thinking about them might be necessary by the policy makers.

Moreover the contemporary reading of poverty and impoverishment dynamics between 2005 and 2006 and those of OOP expenditures in the same period seem to support the idea of the impossibility by household to compress health expenditures that cause impoverishment, sustaining their appropriateness and therefore suggesting the necessity of an urgent intervention to help impoverished households.

10.1 Data and methodology

As for the previous years our analysis is based on data from the so called households' budget survey (HBS) annually produced by the Italian National Institute for Statistics (ISTAT) that collects the consumption expenditures of a sample of around 25.000 households each year. Data considered are related to the two latest editions available (2005 and 2006).

In the definition of health out of pocket expenditure (OOP) we have chosen, as already done in previous editions of the CEIS Report on Healthcare, to include also the expenses for assistance to the handicapped as well as to the not self caring elderly peoples even if these kind of expenses are not "strictu sensu" health expenditures, (because of the share of services provided by non medical personnel).

We have chosen to include this kind of expenditures in the health related OOP not only to grant continuity with previously published data, but also because these expenditures play a great role in determining impoverishment and catastrophic payments linked to disability (Doglia and Spandonaro, 2007a and 2007b).

This year, as previously done (Doglia and Spandonaro, 2007a, 2006a, 2006b, 2005), the indicators proposed by the WHO have been adapted to the Italian reality by the use of relative and absolute poverty lines calculated by ISTAT. Moreover, this year the data aggregation and selection criteria have been slightly modified to make poverty data fully compliant with those published by ISTAT. With this aim the aggregation criteria has been the same used by ISTAT in evaluating poverty in Italy, therefore average expenditure has been calculated excluding life insurances, extraordinary maintenance of buildings, loans restitution and mortgages.

To keep, at least partially, continuity with previous works we have chosen not to change the criteria used in evaluate catastrophic payments (that are not directly linked with poverty).

Moreover as one of the more critical aspects of burden space measures of equity is the choice of the thresholds (Doglia and Spandonaro, 2005, 2006a), we have chosen to eliminate from the relative poverty threshold evaluated by ISTAT the small included healthcare component.

To do this we have recalculated impoverishment removing from the relative poverty line of an household made by two individuals the individual average OOP expenditure (coherently with the methodology used by ISTAT to evaluate poverty line). For households with a number of components different from two the corrective factor has been rescaled using the ISTAT equivalence scale.

Moreover as Italy seem to be moving toward federalism and to regional autonomy we have tried to evaluate local impoverishment taking into account regional characteristics, to do this we have calculated, coherently with ISTAT methodology, regional relative poverty lines, we have corrected them to consider the OOP component included in those lines and have evaluated regional impoverishment with reference to those lines.

10.2 Impoverishment and catastrophic payments

As already stated, In Italy we can estimate that 349,180 households impoverished in 2006 (accounting for 1.5% of the total number of resident households) if the thresholds used are corrected to take into account their healthcare component the impoverished households are about 299,923 (the 1.3% of the totality of resident households). In 2005 we had counted for 345,363 impoverished

households (still the 1.5% of total resident ones) or 310,822 households using the corrected thresholds.

We can therefore state a substantial stability of impoverishment therefore confirming the ineffectiveness of policies to contrast the phenomenon.

Moreover we can estimate that about 861.383 (accounting for the 3.7% of the totality of resident households) had to face catastrophic payments for healthcare (CATA). This means that the percentage of households that had to face catastrophic payments has decreased slightly in 2006 (they were 4.1% in 2005).

Table 10.1: Impoverishment, poverty and catastrophic payments. Distribution of households in quintiles of standardised consumption. Percentage values - Year 2005²

Quintiles	1	2	3	4	5	Total
Poor	54.3%	0.0%	0.0%	0.0%	0.0%	11.1%
Impoverished	6.1%	0.4%	0.1%	0.0%	0.0%	1.3%
Subject to cat. payments	14.0%	2.2%	1.3%	1.2%	1.7%	4.1%

Source: CEIS elaboration on ISTAT data

Table 10.2: Impoverishment, poverty and catastrophic payments. Distribution of households in quintiles of standardised consumption. Percentage values - Year 2006

Quintiles	1	2	3	4	5	Total
Poor	55.6%	0.0%	0.0%	0.0%	0.0%	11.1%
Impoverished	5.7%	0.5%	0.1%	0.0%	0.0%	1.3%
Subject to cat. payments	12.6%	1.9%	1.2%	1.3%	1.3%	3.7%

Source: CEIS elaboration on ISTAT data

Those data appear of great interest if read in conjunction with the dynamics of OOP expenditures made by Italian households and the share of OOP on total expenditure made by impoverished ones; table 10.3 shows in fact a decrease in private healthcare consumption of about 4.7%; such a decrease is however mostly due to reduction of expenditures made by richest households. The share of expenditure made by impoverished households has instead increased from 2.7 to 3%. Such a figure may well support the impossibility of reducing health related expenditures by the poorest households that have therefore to get impoverished. At the same time this seem to give evidence of the appropriateness of consumption made by impoverished households thus showing the necessity to intervene to help households in difficulty.

Another relevant analysis has been to evaluate poverty and impoverishment for households with a consumption in the immediate proximity of the poverty line (+10%) the so called “risk of poverty area”.

² Table differ from the one published last year as both impoverishment and poverty are now evaluated according to ISTAT aggregation scheme; moreover impoverishment has been calculated with corrected ISTAT thresholds (see par. 10.1) and consumption quintiles have been calculated only on consumption considered for impoverishment.

This analysis has allowed to show another important effect of healthcare expenditures together with impoverished households there is a great number (282,850 households about 1.2% of the total resident ones) that, while not yet impoverished fall in the “risk of poverty area”. Together with those households there are many ones that do not result from impoverishment because already poor but that never less are sent deeper in poverty by health OOP expenditures.

Table 10.3: OOP expenditure and OOP expenditure share for Impoverished households in Italy - Years 2005 and 2006

Quintiles	Health OOP share impoverished households		Variation
	2005	2006	2006/2005
Total	2.7%	3.0%	-4.7%
1	28.8%	29.7%	-0.3%
2	6.4%	7.0%	+0.5%
3	1.4%	1.4%	+0.1%
4	0.2%	0.1%	-4.5%
5	0.0%	0.0%	-8.3%

Source: CEIS elaboration on ISTAT data

With regard to what kind of households is more exposed to impoverishment risk the analysis confirms a particular fragility by the households with one or more elderly members (i.e. “Single person 65 or more years of age” and “Childless couple with reference person over 65 years of age”) to those typologies are associated the higher incidences of impoverishment (2.2% e 2.6% respectively); such data are particularly relevant if we consider that even if they represent about one quarter of the sample they account for about 50% of the whole impoverishment.

Also the situation of households with more than two children is worrying as the incidence of impoverishment in this kind of households is much higher than the national average and one out of four of this kind of household is already poor.

**Table 10.4: Poor, impoverished and subject to catastrophic expenditures households
Incidence by household typology - Years 2005-2006**

Household Typology	2005			2006		
	Poor	Impoverished	Subject to catastrophic exp.	Poor	Impoverished	Subject to catastrophic exp.
Single person less than 35 years of age	4.9%	0.0%	0.8%	2.9%	0.0%	0.4%
Single person between 35 and 64 years of age	3.1%	0.3%	1.2%	3.4%	0.4%	1.5%
Single person 65 or more years of age	11.7%	2.6%	7.2%	12.6%	2.2%	7.7%
Childless couples with reference person less than 35 years of age	4.8%	0.5%	1.2%	5.5%	0.2%	0.4%
Childless couple with reference person between 35 and 64 years of age	4.8%	0.9%	1.8%	4.8%	0.5%	1.2%
Childless couple with reference person over 65 years of age	12.9%	2.1%	6.8%	12.5%	2.6%	5.9%
Couple with 1 child	8.8%	1.0%	2.3%	8.6%	0.6%	1.9%
Couple with 2 children	13.6%	1.1%	3.3%	14.5%	1.2%	3.0%
Couple with 3 or more children	24.5%	1.3%	7.6%	25.6%	1.9%	5.9%
Single parent	13.4%	1.4%	3.4%	13.8%	0.7%	2.6%
Other	19.9%	1.7%	7.4%	17.8%	2.5%	5.9%
Total	11.1%	1.3%	4.1%	11.1%	1.3%	3.7%

Source: CEIS elaboration on ISTAT data

Table 10.5: Distribution of households by typology. Percentage values - Years 2005-2006

Household Typology	2005			2006		
	Total	Impoverished	Subject to catastrophic exp	Total	Impoverished	Subject to catastrophic exp
Single person less than 35 years of age	2.9%	0.0%	0.5%	3.1%	0.0%	0.3%
Single person between 35 and 64 years of age	9.8%	2.1%	2.9%	10.5%	3.3%	4.5%
Single person 65 or more years of age	14.5%	28.3%	25.7%	14.8%	25.4%	31.3%
Childless couples with reference person less than 35 years of age	2.1%	0.8%	0.6%	1.9%	0.3%	0.2%
Childless couple with reference person between 35 and 64 years of age	7.3%	4.8%	3.2%	7.2%	2.9%	2.4%
Childless couple with reference person over 65 years of age	11.3%	17.7%	18.9%	11.1%	23.0%	18.0%
Couple with 1 child	17.2%	12.4%	9.7%	17.8%	8.6%	9.1%
Couple with 2 children	17.1%	14.4%	13.8%	16.9%	15.9%	13.8%
Couple with 3 or more children	4.2%	4.2%	7.9%	4.1%	6.1%	6.7%
Single parent	8.1%	8.2%	6.7%	7.3%	3.9%	5.1%
Other	5.6%	7.1%	10.2%	5.3%	10.7%	8.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: CEIS elaboration on ISTAT data

To analyse the phenomenon at a regional level, we have considered, together with the impoverishment figures evaluated with reference to the national poverty line (table 10.6) also a new impoverishment indicator (that we will call “regional impoverishment” that corresponds to impoverishment calculated, for each Region, only on regional data on the basis of a regional poverty line evaluated applying the ISTAT methodology only to those data (table 10.7).

Also for regional impoverishment the regional poverty line will be corrected to get into account the OOP share included in the relative threshold as defined by ISTAT.

**Table 10.6: Poor, impoverished and subject to catastrophic expenditures households
Incidence by Region of residence and national thresholds. Percentage values
Years 2005-2006**

Regions	2005			2006		
	Poor	Impoverished	Subject to catastrophic exp	Poor	Impoverished	Subject to catastrophic exp
Italy	11.1%	1.3%	4.1%	11.1%	1.3%	3.7%
Piemonte e Valle d'Aosta	7.1%	0.9%	3.0%	6.5%	0.6%	2.5%
Lombardia	3.7%	0.7%	2.2%	4.7%	0.6%	2.5%
Trentino A. A.	5.1%	0.6%	4.0%	6.2%	0.6%	3.3%
Veneto	4.5%	0.9%	3.3%	5.0%	0.6%	1.9%
Friuli V. G.	7.2%	1.1%	2.1%	8.2%	1.5%	2.7%
Liguria	5.2%	0.8%	3.5%	6.1%	0.3%	1.2%
Emilia Romagna	2.5%	0.3%	1.2%	3.9%	0.7%	2.1%
Toscana	4.6%	0.4%	1.7%	6.8%	1.5%	2.7%
Umbria	7.3%	0.8%	2.1%	7.3%	1.0%	3.8%
Marche	5.4%	1.0%	1.9%	5.9%	1.5%	1.3%
Lazio	6.8%	0.9%	2.1%	7.0%	0.7%	2.2%
Abruzzo	11.8%	1.4%	3.8%	12.2%	1.3%	3.2%
Molise	21.5%	1.3%	6.1%	18.6%	2.1%	4.2%
Campania	27.0%	2.0%	7.7%	21.2%	2.1%	6.0%
Puglia	19.4%	2.8%	6.8%	19.8%	2.0%	5.2%
Basilicata	24.5%	2.1%	8.5%	23.0%	1.6%	9.1%
Calabria	23.3%	4.1%	11.2%	27.8%	3.5%	7.3%
Sicilia	30.8%	3.0%	8.7%	28.9%	3.1%	9.0%
Sardegna	15.9%	2.6%	6.0%	16.9%	1.5%	4.9%

Source: CEIS elaboration on ISTAT data

The meaning of those two indicators is slightly different in the sense that while classical impoverishment measures impoverishment related to the average standard of living in the whole country, regional impoverishment includes in the threshold differentiation part of the lack of homogeneity, taking to a context standardization. It may therefore be more useful to evidence the difficulties of different RHS in protecting households net of differences in the regional context.

Table 10.6 does not show between 2005 and 2006 a clear trend in local impoverishment a slight tendency in impoverishment reduction for southern Regions (with the exception of Campania and Molise) is however present.; we must however remember that all those variations are subject to sample variability that may bias effective variations in the phenomenon. Moreover impoverishment figures for southern Regions still remain higher than the national average.

Table 10.7: Poor and impoverished households Incidence by Region of residence and regional thresholds. Percentage values - Years 2005-2006

Regions	2005		2006	
	Impoverished	Poor	Impoverished	Poor
Italy	1.2%	7.1%	1.2%	7.6%
Piemonte e Valle d'Aosta	1.6%	8.5%	2.2%	10.1%
Lombardia	1.1%	8.1%	1.2%	8.2%
Trentino A. A.	1.6%	7.9%	1.2%	8.0%
Veneto	1.0%	6.3%	0.5%	8.9%
Friuli V. G.	0.7%	8.1%	2.4%	9.3%
Liguria	1.7%	7.2%	0.9%	7.0%
Emilia Romagna	1.1%	6.5%	1.2%	8.5%
Toscana	1.3%	6.5%	1.5%	7.1%
Umbria	0.3%	6.2%	1.0%	5.9%
Marche	0.9%	3.6%	0.8%	3.5%
Lazio	1.0%	6.8%	0.8%	7.3%
Abruzzo	1.4%	5.6%	1.3%	5.8%
Molise	1.3%	11.3%	1.8%	8.1%
Campania	1.3%	5.6%	1.1%	4.9%
Puglia	1.2%	6.3%	1.2%	6.5%
Basilicata	1.3%	10.0%	1.2%	8.0%
Calabria	2.6%	5.9%	1.5%	6.2%
Sicilia	1.1%	8.6%	0.9%	7.4%
Sardegna	2.1%	6.8%	1.3%	8.6%

Source: CEIS elaboration on ISTAT data

Table 10.7 shows the values of indicators with reference to regional thresholds, this kind of analysis confirms some kind of reduction in southern regions impoverishment figures but, moreover shows how at least part of the differences in protective capability between the northern and southern RHS is caused by differences in the level of consumption (and therefore richness) of the context in which they act.

The regional impoverishment analysis evidences also the possible presence of criticalities in the capability of granting equity in northern RHS like, for instance, Piemonte/Valle d'Aosta e Friuli (where regional impoverishment figures result particularly high at levels of 2.2 and 2.4% respectively). We must however consider that, particularly for Friuli, the particularly high variation with respect to the last year figures may be due to the extraction of a too unfavourable sample (with consequent bias in the estimations).

10.3 The impact of different kind of *out of pocket* expenditures

In the following tables are shown the composition of OOP expenditures respectively for households poor, impoverished and subject to catastrophic payments. It has already been shown (Doglia and Spandonaro, 2007a^o e 2007b) that those figures cannot correctly explain determinants

for impoverishment, they may however provide some information on how the different households in difficulties consume.

Table 10.8: Composition of *out of pocket* expenditures by standardised consumption quintiles. Poor households. Percentage values - Year 2006

Kind of expenditure	%
Hospital	0.2%
Specialist care	11.8%
Dental care	3.3%
Auxiliary services	1.8%
Tests	5.0%
Apparatus and prothesis	2.9%
Thermal care	0.0%
Pharmaceutical treatment	73.2%
Disability	1.8%

Source: CEIS elaboration on ISTAT data

Coherently with previous years figures Pharmaceutical treatments have a relevant weight on expenditures made by poorer households, this is probably due to imperfection in the co-payments scheme and in the lack of effectiveness in the exemption system.

Table 10.9: Composition of *out of pocket* expenditures by standardised consumption quintiles. Impoverished households. Percentage values - Year 2006

Kind of expenditure	1	2
Hospital	0.0%	2.8%
Specialist care	18.9%	24.6%
Dental care	4.7%	13.9%
Auxiliary services	0.9%	1.9%
Tests	6.7%	7.0%
Apparatus and prothesis	7.3%	4.3%
Thermal care	0.0%	0.0%
Pharmaceutical treatment	60.0%	36.7%
Disability	1.7%	8.6%

Source: CEIS elaboration on ISTAT data

Pharmaceutical treatments weight decreases with the increase of household income as for impoverished households different kind of expenditures with relevant impact (like dental care) became present.

As already shown (Doglia e Spandonaro, 2007a° and 2007b) the relatively low incidence of disability expenditures may be deceiving as are this kind of expenditures that has the highest probability to cause impoverishment.

Table 10.10: Composition of *out of pocket* expenditures by standardised consumption quintiles. Households subject to catastrophic payments. Percentage values - Year 2006

Kind of expenditure	1	2	3	4	5
Hospital	0.0%	1.6%	0.6%	2.0%	10.7%
Specialist care	17.6%	18.7%	12.6%	3.2%	3.5%
Dental care	4.2%	9.5%	24.0%	42.5%	60.2%
Auxiliary services	2.2%	1.6%	5.6%	1.1%	2.0%
Tests	4.4%	10.3%	3.0%	1.7%	0.4%
Apparatus and prothesis	5.6%	3.9%	5.8%	2.2%	5.7%
Thermal care	0.0%	0.0%	0.0%	0.0%	0.1%
Pharmaceutical treatment	63.6%	44.4%	12.4%	6.7%	5.4%
Disability	2.5%	10.1%	36.0%	40.6%	11.9%

Source: CEIS elaboration on ISTAT data

In catastrophic expenditures, with the increase of income, the dental care and to a lesser extend hospital expenditures (evidently private) gain a significant role.

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The background of the top half of the page features a light purple gradient with several dark purple silhouettes of people. The silhouettes are arranged in a group, with some individuals appearing to be in conversation or a meeting. The overall aesthetic is clean and professional.

Chapter 11

*The impact of the
Health National
System on economy*

11 - The impact of the Health National System on economy¹

The continuous technological evolution, the consequential growth of the therapeutic opportunities and the limited public resources has always involved one great attention toward the analysis cost-effectiveness of the technologies and chemicals. This public function is intent on containment of the health public expenditure in the respect of the health preservation. The technological development also represents however an opportunity of growth for the economic system. In fact, according to Confindustria², the importance of the "health sector" divided in: manufacture of pharmaceutical, chemical and botanic products for medicinal uses; manufacture of surgical, orthopaedic instruments, of lenses and sight glasses; trade of pharmaceutical products, tools and sanitary instruments; trade to the detail of medicines, medicinal, instruments and therapeutic material; hospital services; out-patient performances has progressively gone increasing within the national economic system. In 1996 the incidence on the GDP resulted equal to 4.9%, in 2004 it was attested to 5.6 (esteemed in 73.5 Bn. Of €) in constant evaluation prices. In the period 1996-2004, the production and the added value of the sector have grown to about 4% annual middle rate.

Also the Study Ambrosetti 2006 indicate as the industry to the health sector produces therefore in overall a direct and indirect added value, esteemed in the order of the 12% of the GDP, positioning to the third place after Housebuilding and Constructions and Alimentary³.

The present chapter, continuing the job developed in the precedents years (CEIS Reports), wants to offer further elements of knowledge on the contribution given to the national economic system by the industrial sectors leading "the health sector" (pharmaceutical industry and industry of the medical services), both in terms of added value, and of contribution in terms of research and qualified occupation.

11.1 The pharmaceutical industry

In term of value (€ 519.5 Bn.), the world pharmaceutical industry grew by 6.4% compared to 2006. The Italian pharmaceutic industry registered in 2007 a value (farmacia+ospedali) ex-factory of € 16.7 Bn. (+1,4% compared to 2006), equal to 3.2% of the world Market, the 6th place is attested to in the world ranking. The increase sales (+1.4%), even if positive, results inferior to the average (+5%) of the principal manufacturing Countries of drugs (USA, Japan, Germany, France and United Kingdom) and a -0,2% market share loss compared to preceding year.

The Countries with the strongest balance of trade are Switzerland (€ +15.9 bn.), Germany (€ +9.9 bn.) and Ireland (€ +9.8 mlds.); those with balance negative elevated USA (€ -14.8 Bn.) and Japan (€ -3.9 bn.). Italy has a positive balance of trade (€ +1.2 bn.) if the only commerce of medicines (manufactured and not) is considered and adverse (€ -2.6 mlds.) in the case of the total pharmaceutical commerce (commerce of the drugs, pharmaceutical first matter and other products). The Regional level of concentration of the

¹ Ratti M., CEIS Sanità, Faculty of Economy, University of Rome "Tor Vergata."

² See study Confindustria (2006)

³ See Study Ambrosetti (2006).

first 4 exporting Regions (C4) of pharmaceutical drugs in Italy is around 77%; for the first 8 (C8) is 91,6%. Similar is the level of concentration of the Regions with great importing of pharmaceutical drugs 85,5% (C4) and 95,2% (C8) (table 11.1).

Table 11.1: Concentration to regional level of export and import in Italy, year 2007

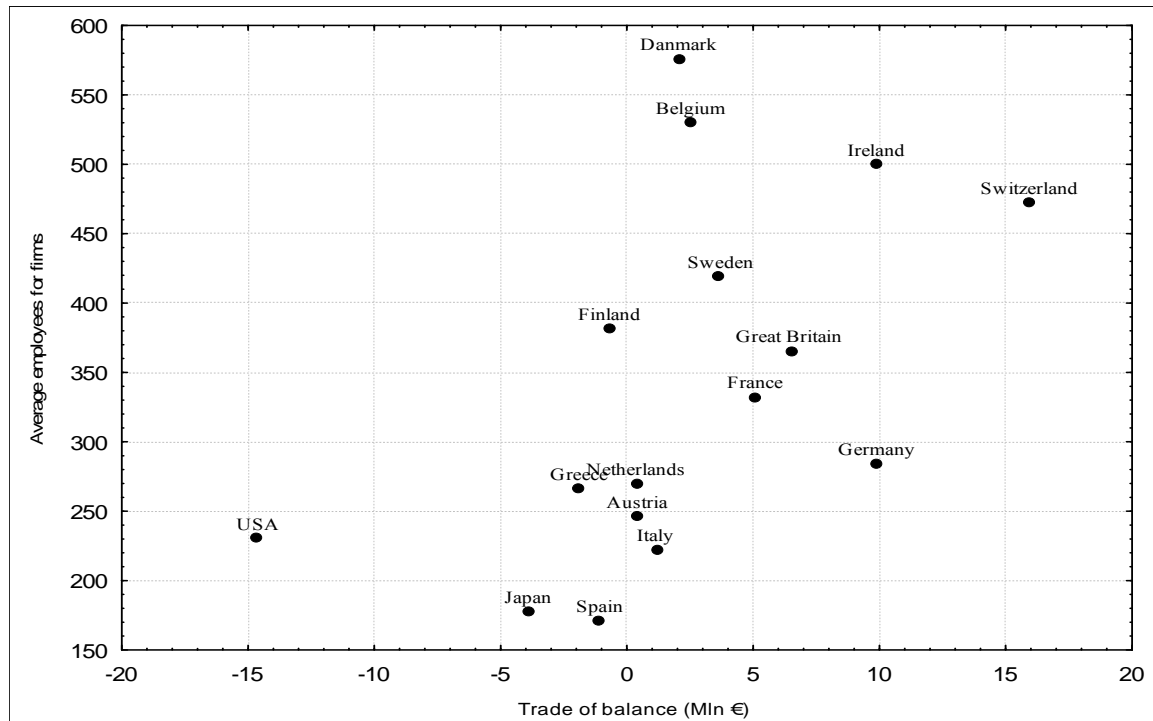
	C4	C8
Exports	76,9%	91,6%
Imports	85,5%	95,2%

Source: Our analysis of data from Farmindustria 2008

The pharmaceutical industry, in 2007, employs in USA 292,400 units for 1268 firms, Japan (188,954 employees for 1062 firms), Germany (113,200 employees for 398 firms) and Italy (72,000 employees for 324 firms) follow. The structural balance of the pharmaceutical Italian industry, in 2007, unlike the principal pharmaceutical Countries (USA, Japan, Germany, France and United Kingdom), is in negative both as respects the employment (-2.3%), both as it respects the number of the firms (-10.5%) in comparison to 2006.

The Countries with positive balance of trade, as already observed in the Report-CEIS 2007, are those that register a average high dimension of firm and also a high value of employee on the production as Switzerland (average dimension of 472 units and a production for employee equal to €547,588) and Ireland (average dimension of 500 units and a production for employee equal to € 608,143) In examining industrial policy, therefore, the correlation between average company size, performance and market productivity would appear particularly worthy of attention. (figure 11.1) although many other factors contribute to explain the behaviour of the pharmaceutical firms.

Figure 11.1: Correlation between balance of trade and average employees for firm Year 2007



Source: Our analysis of data from the Farmindustria

To world level the pharmaceutical/biotechnological sector expresses, among the various manufacturing categories (on base of the 37 principal suitable world manufacturing sectors in the ICB (Industrial Classification Benchmark)), the high value of expenditure in R&D equal to €70,523.5 mln. what it represents the 19.3% of the overall investment in R&D. The investments in R&D, have allowed the introduction of 640 new pharmaceutical molecules on the world Market between 1990 and 2007. In Italy the expenditure in R&D in 2007 has been of €1,170 mln., equal to 14,0% of the total expenditure in R&D of the manufacturing sector and to 10.4% of the Italian manufacturing sector. Always in Italy in 2007, fixed gross investments are registered in the pharmaceutical sector of €1,075 mln. (+3.9% in comparison to 2006); an value added of €6,853 mln. (+0.5% in comparison to 2006); and an investment for employee of €14,930 (the double in comparison to the average Italian industry).

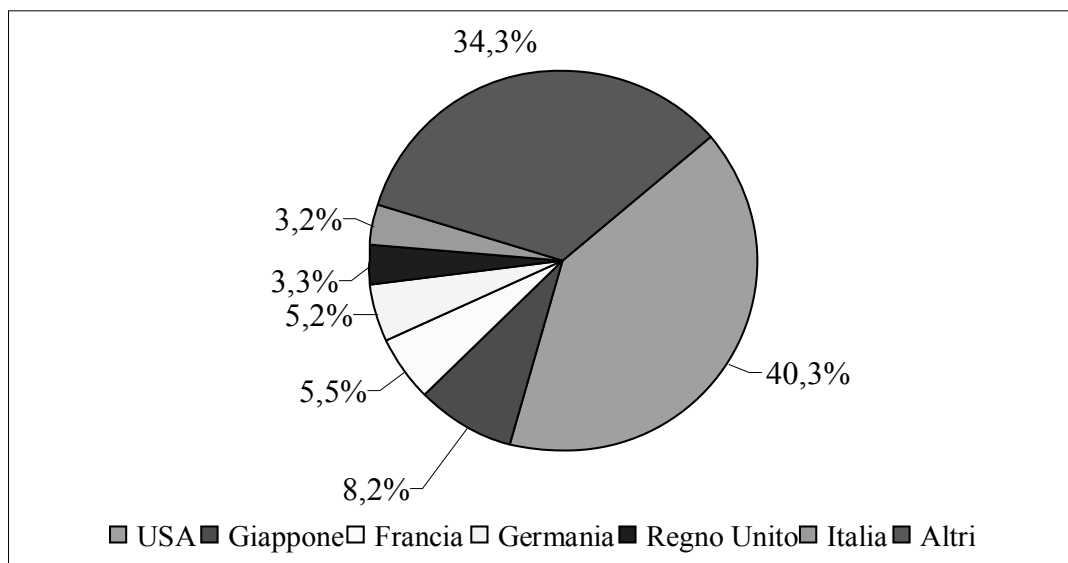
11.1.1 The world pharmaceutical industry

In terms of value (€ 519.5 bn.; 31.7% of world chemical industry) the world pharmaceutical industry registered grew by 6.4% compared to 2006 (-1.1% respected to 2006).

The Italian pharmaceutical industry registered, in 2007, total ex-factory sales (pharmacies+hospital) of € 16.7 bn. (+1,4% compared to 2006), equal to 3.2% of the world

market (-0.2% compared to 2006), meaning that it holds 6th place worldwide, not far removed from the United Kingdom. The USA, with a sales ex-factory of € 209.3 bn. (40.3% of total) is in first place, even if, lose a market share equal to 5% to forehead of a increase of sales ex-factory of a 4.10%. To the second place there is Japan (€ 42.7 bn.) with a market share of 8.2% and a loss of the market of 1.2%. Follow France (€ 27.1 bn.), Germany (€ 25.4 bn.) and United Kingdom (€16.4 bn.) (figure 11.2).

Figura 11.2: Share of world pharmaceutical market - Year 2007

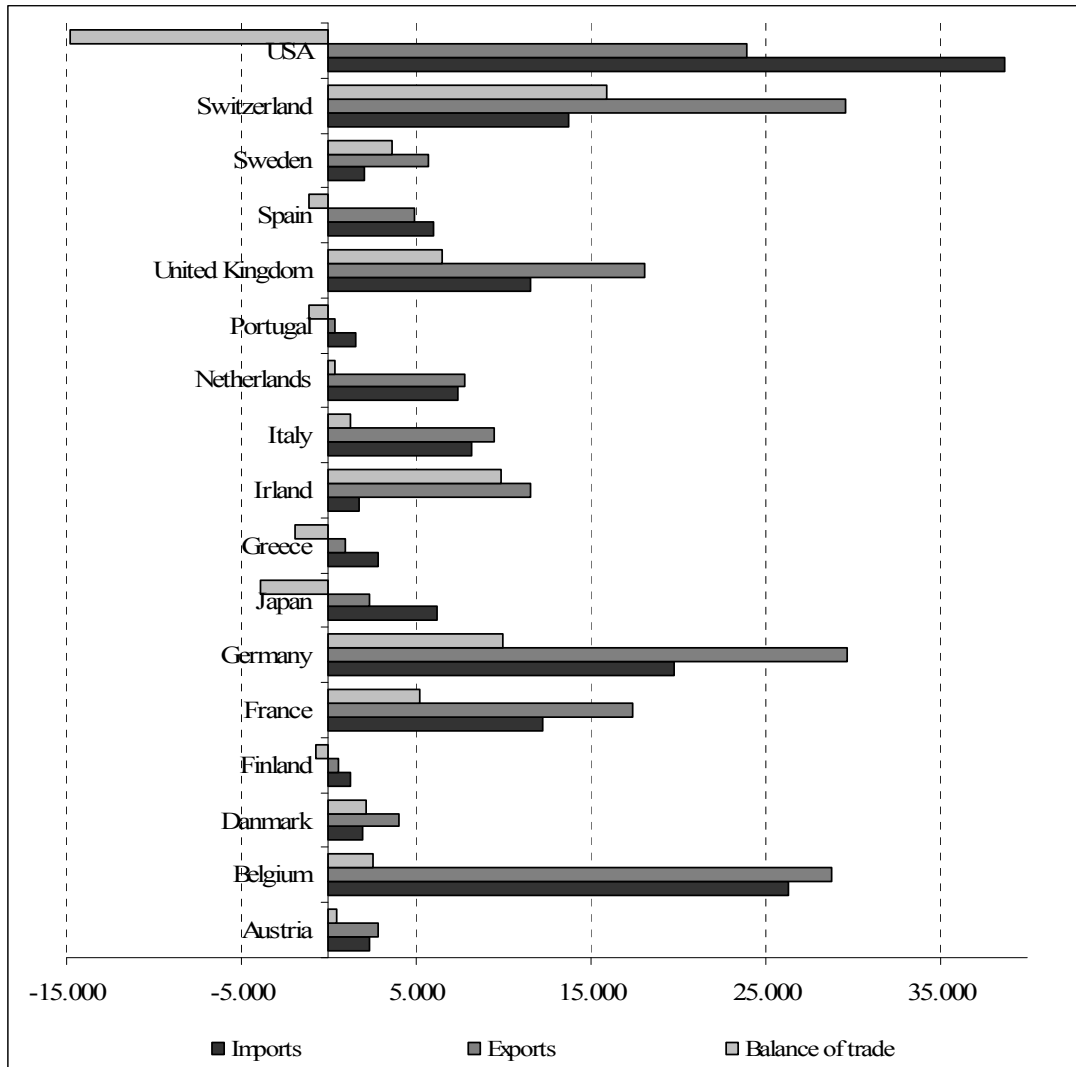


Source: OECD 2007

The Countries with the best balance of trade are Switzerland (€ +15.9 bn.), Germany (€+9,9 bn.), Ireland (€+9.8 bn.), the United Kingdom (€+6.5 bn.), France (€+5.2 bn.), Sweden (€+3.6 mlds.). In contrast, determines an adverse balance instead for the USA (€-14.8 bn.), Japan (€ -3.9 bn.), Greece (€ -1.9 bn.), Portugal (€ -1.1 bn.) and Spain (€ -1.1 bn.) (figure 11.3). The situation of the balance of trade in Italy differs to second if the only commerce of drugs (manufactured and not) or the total (commerce of the drugs, subjects first pharmaceutical and other commodities) commerce is considered. In the first case, the balance of trade is positive with a balance of € +1.2 bn.; in the second, instead, the commercial balance is of € -2.6 bn. (the value of the importations is equal to € 14.5 bn, that of the export to € 11.9 bn).

The pharmaceutical industry, in 2007, in USA employ 292,400 units (+3.7% in comparison to 2006), follow Japan with 188.954 employees (-6,9% in comparison to 2006), Germany (113,200; +0.1% in comparison to 2006), France (103,350; +1.8% in comparison to 2006), the United Kingdom and Italy 72,000 employees (respectively +5.9% and -2.3%). Also for the number of firms USA employ the first place with 1268 units, they follow Japan 1062 drives, Germany 398 drives (-8.9%), Italy 324 drives (-10.5%) and France 311 drives (-1.3%) (chart 11.2). If however, we consider the number of firms for million inhabited areas, to the first place find Ireland with 11.78 firms, per second Switzerland with 9.7 firms and to the third Japan 8.3 firms; Italy is above the European average (4.7 firms) with 5.5 firms for million of inhabitants.

Figure 11.3: Imports, exports and balance of trade in the pharmaceutical industry worldwide (€mln.) - Year 2007



Source: Efpia, Eurostat 2008

Table 11.2: Number of firms and employees in the pharmaceutical industry worldwide Years 2006-2007

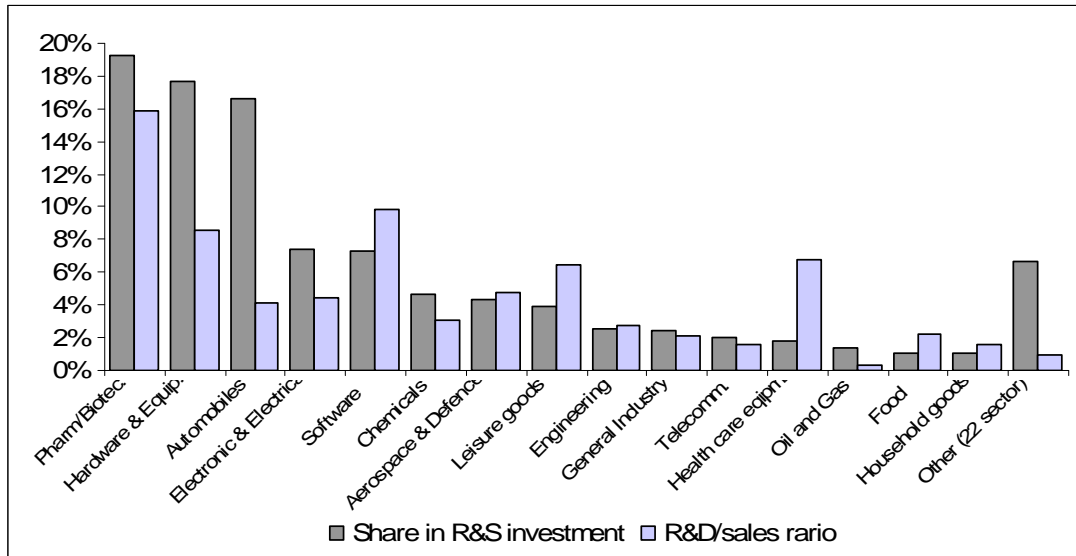
	number of firms 2007	number of firm 2006/2007	number of employees 2007	n°Occupati 2006/2007	Average employees per firm 2007	Average employees per firm 2006/2007	Product per employee 2007 (€)
Spain	228	-3.8%	39,117	-0.4%	172	3.4%	318,506
Japan	1062	0.0%	188,954	-6.9%	178	-6.8%	352,602
Italy	324	-10.5%	72,000	-2.3%	222	2.4%	313,486
USA	1268	0.0%	292,400	3.7%	231	3.9%	1,267,344
Austria	39	-9.3%	9,593	-4.1%	246	5.6%	195,351
Greece	43		11,450	0.9%	266		58,166
Netherland	60	-7.7%	16,200	0.0%	270	8.4%	349,630
Germany	398	-8.9%	113,200	0.1%	284	9.8%	209,090
France	311	-1.3%	103,350	1.8%	332	3.2%	333,275
Norway	14	16.7%	4,691	2.8%	335	-11.8%	121,936
United Kingdom	197	1.0%	72,000	5.9%	365	4.7%	345,125
Finland	16	23.1%	6,110	0.2%	382	-18.6%	140,262
Sweden	44	7.3%	18,434	-12.1%	419	-18.2%	390,366
Switzerland	72	0.0%	34,000	6.1%	472	6.1%	547,588
Ireland	49	2.1%	24,500	2.1%	500	0.0%	608,163
Belgium	55	0.0%	29,155	1.9%	530	1.9%	180,449
Denmark	30	11.1%	17,286	2.1%	576	-8.1%	305,334
Bulgaria			8,249	-1.4%			29,701
Cyprus			739	0.0%			108,254
Estonia			229	-8.0%			91,703
Latvia			1,839	1.4%			51,659
Lithuania			846	-30.6%			37,825
Malta			445	0.0%			76,404
Poland	116	1.8%	30,000	0.0%	259	-1.7%	45,567
Purtogal			10,581	-3.4%			172,857
Czech Republic	54	0.0%	9,442	0.0%	175	-0.1%	79,750
Rumania			20,000	119.2%			11,150
Slovakia			1,800	-32.6%			104,444
Slovenia			6,500	0.0%			155,538
Hungary			15,365	2.5%			120,404

Source: Efpia, Eurostat, Farmindustria 2008

Finally, looks important to trace the activity of R&D. To world level the pharmaceutical/biotechnological sector expresses, among the various manufacturing categories, the tallest value of expenditure in R&D equal to € 70,523.5 bn that represent the 19.3% (figure 11.4) of the total investment in R&D (on base of the 37 principal suitable world manufacturing sectors in the ICB (Industrial Classification Benchmark)) and the 15.9% of the value added. In 2007 is been introduced in the world Market. Analysing the expenditure in R&D between 1990 and 2006 (figure 11.5) is noticed as the R&D of the European industry has been exceeded over between 1995 and 2000 by that USA; after 2000 the gap is reducing: € 24,759 bn. in Europe (+21.7% in comparison to 2000; +14% in comparison to 2006) against the € 27,451 bn. of USA in 2005 (+7.67% in comparison to 2000; +10.3 in comparison to 2005). Europe reinvests in R&D (figure 11.6) a great share for

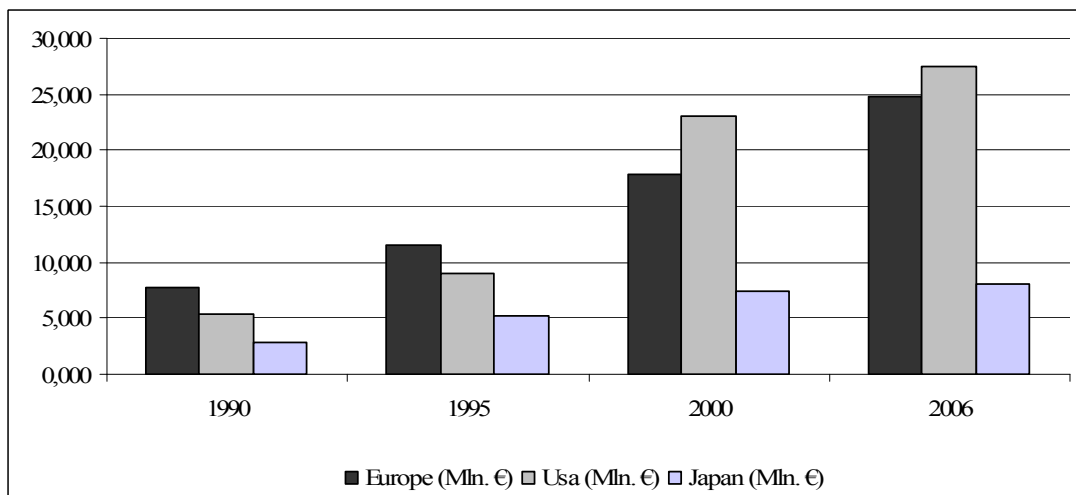
the whole period examined (1990-2006) in comparison to USA and Japan. The investments in R&D, have allowed the introduction of 640 new pharmaceutical molecules on the world Market between 1990 and 2007 (figure 11.7). In 2007 have been introduced in the Market world 25 new chemical and biological (-29% in comparison to 2006) molecules: 12 in the Market USA; 10 in that European; and one in that Japanese; 2 in other countries.

Figure 11.4: Ranking of industrial sectors by aggregate R&D from the world EU scoreboard - Year 2007



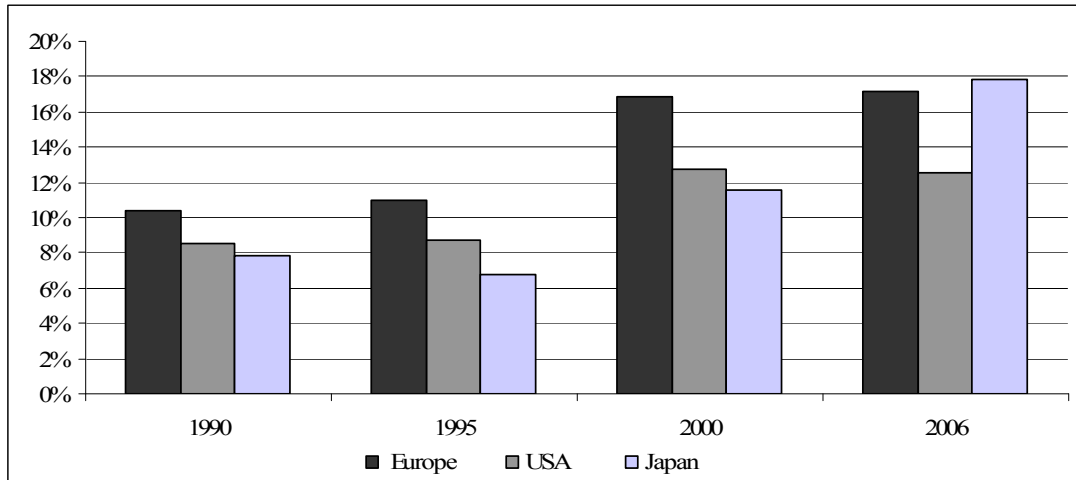
Source: EU Industrial R&S Investment Scoreboard, Joint Research Centre, Directorate General Research, European Commission

Figure 11.5: Pharmaceutical expenditure on R&D - Years 1990-2006



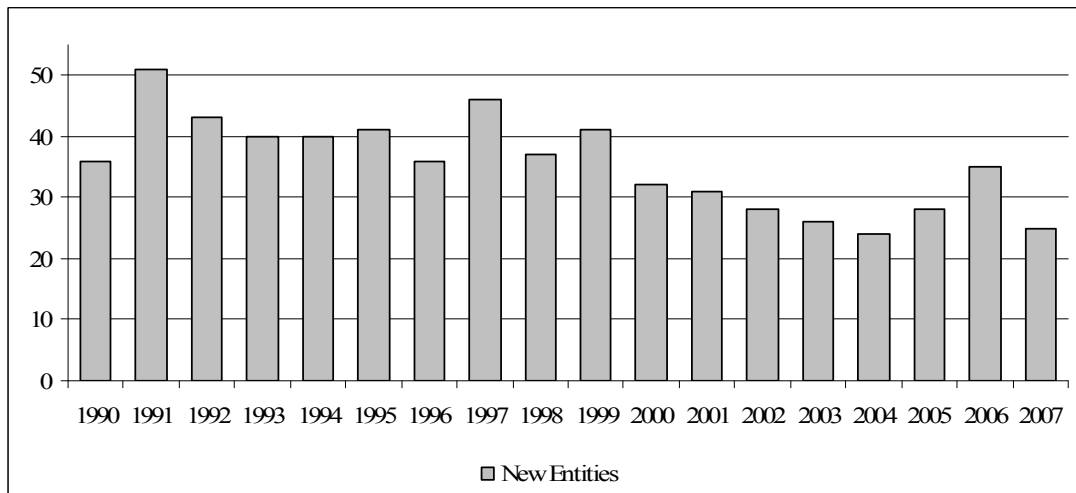
Source: Industry association EFPIA 2008

Figure 11.6: Share of pharmaceutical market absorbed by the R&D - Years 1990-2006



Source: our analysis of data from the industry association EFPIA 2008

Figure 11.7: Number of new active substances launched on the world market Years 1990-2007



Source: EFPIA 2008

11.1.2 The pharmaceutical industry in Italy

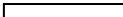



Italy, in 2007, with a sales ex-factory of € 16.7 bn places to the sixth placed of the world ranking. The +1.4 sales upsurge, inferior course to the average of the +5% of the principal manufacturing Countries of drugs (USA, Japan, Germany, France and United Kingdom), provokes a loss of market share of the -0.2% in comparison to the preceding year. Also, the number of pharmaceutical firms (324) active on the Italian (figure 11.8) territory and the number of busy overall (72,000) (chart 11.3) have respectively suffered, in 2007, a bending of the -10.5% and of the -2.3%. The Region with high employment in the

sector is the Lombardia (33,100; -2.9% in comparison to 2006), follow the Lazio with 16,800 (-4% in comparison to 2006) and Toscana with 7.200 units.

A remarkable quota of the employees, the 8.7% (+0.3% in comparison to 2006) equal to 6,250 units, are employ in activity of search, against an average of the industry overall approximately of the 1%. As for the number of total employ, find a great employment of the employ in R&D in Lombardia (2,800; 45%), Lazio (1,130; 18%), Veneto (800; 13%), Toscana (670; 11%); is important to also signal the Abruzzo that has 140 employ in research (10.6 employees for 100,000 inhabitants).

Figura 11.8: Allocation of the pharmaceutical firms on the Italian territory-year 2007



-  no presence
-  1-20 Firms
-  20-50 Firms
-  >50 Firms

Source: Our analysis of data from the Farmindustria

Tabella 11.3: Employees in the italian pharmaceutical industry - Year 2007

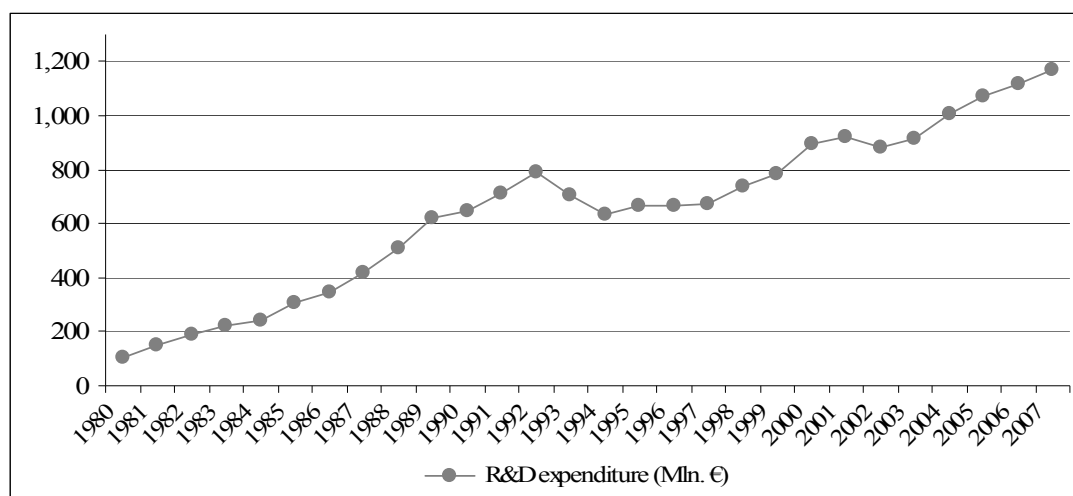
Regions	Total number of employees in the industry	% on the total employees in the industry	Number of employees in R&D	% of employees in R&D/ employees in the industry	Total empl./ 100.000 inab.	Employees in R&D/ 100.000 inab.
Abruzzo	1400	1.94%	140	0.19%	106.89	10.69
Basilicata	43	0.06%			7.27	
Calabria					-	
Campania	950	1.32%	50	0.07%	16.41	0.86
Emilia Romagna	3,500	4.86%	365	0.51%	82.87	8.64
FVG	420	0.58%	20	0.03%	34.64	1.65
Lazio	16,800	23.33%	1,130	1.57%	305.83	20.57
Liguria	500	0.69%			31.10	
Lombardia	33,100	45.97%	2,800	3.89%	346.76	29.33
Marche	1,100	1.53%	50	0.07%	71.61	3.26
Molise						
Piemonte	2.000	2.78%	70	0.10%	45.95	1.61
Puglia	357	0.50%			8.77	
Sardegna						
Sicilia	1,350	1.88%	150	0.21%	26.91	2.99
Toscana	7,200	10.00%	670	0.93%	197.90	18.42
TAA	180	0.25%	5	0.01%	18.10	0.50
Umbria						
Valle D'Aosta						
Veneto	3,100	4.31%	800	1.11%	64.94	16.76
Italy	72,000	100%	6,250	8.68%	121.76	10.57

Source: *Farmindustria 2008*

The expenditure in R&D in 2007 has been of € 1,170 bn. (figure 11.9), equal to 14.0% of the total expenditure in R&D of the manufacturing sector and to 10.4% of the Italian manufacturing sector.

In comparison to 2006 the expenditure in research is grown of 4.9% confirming the positive trend of the last years (+130.9% from 2000).

Figura 11.9: R&D expenditure in Italy - Years 1980-2007



Source: Our analysis of data from the Farmindustria

The contribution in fixed gross investments of the pharmaceutical sector (table 11.4) is equal to € 1,075 bn. with an increase in comparison to +3.9% the 2006; the investment for employee is esteemed in € 14,930 the double in comparison to the average of the Italian industry (€ 7,240).

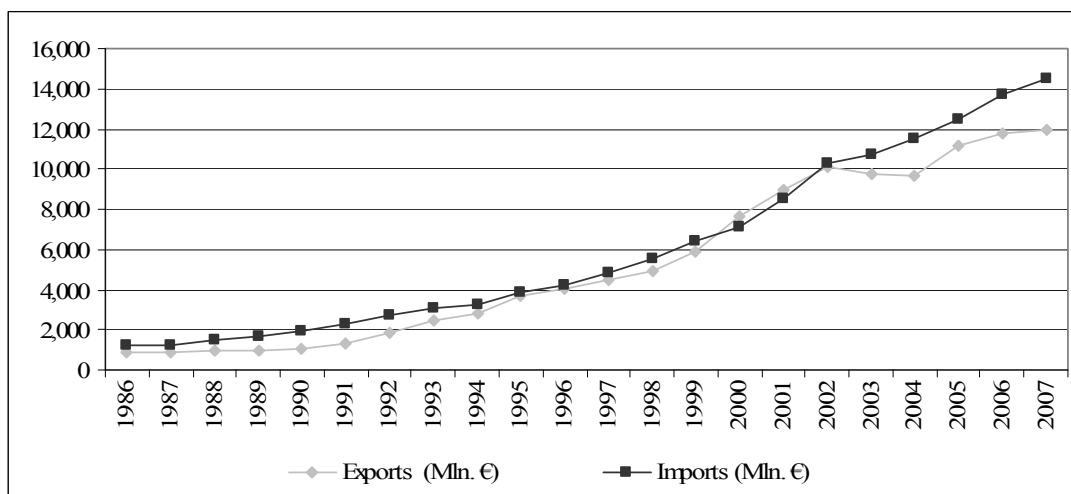
Tabella 11.4: Gross fixed investments in Italy, year 2007

	Pharmaceutical Industry	Total industry Italy
Fixed gross investments 2007 (Mln. €)	1,075	48,814
Δ 2007/2006	3.90%	2.10%
Investment per employee 2007 (Mgl. €)	14.93	7.24

Source: Farmindustria, Istat 2008

The balance of trade of the Italian pharmaceutical sector makes to register in 2007 a positive balance of € 1.2 bn., if the only commerce of medicines (manufactured and not) is considered; adverse of € 2.6 bn. (+€ 0.62 bn. in comparison to 2006) if the subjects pharmaceutical and other products are also considered. The total exports have reached the value of € 11,945 bn. with a growth in comparison to the 2006 of the 1% and 55% in comparison to 2000; the importations are increased of 6% (€ 14,512 bn.) in comparison to 2006 and of 104% in comparison to 2000. From 2002 the importations have a average double trend of growth in comparison to the exports (7.15% of the importations against 3.54% of the exports) (figure 11.10). Analysing the commercial interchange of the Regional pharmaceutical industry, can be noticed as the Italian adverse balance is mainly caused by the adverse balance of the Lombardy (€ -4,192 bn.) and partly from that of the Lazio (€-392 bn.) and of Puglia (€325 bn.). The other Regions (except Toscana, Calabria and Sardegna) introduce a positive trade balance; remarkable is the positive balance of the Marche (€ 1,441 bn.), of Campania (€ 294 bn.) and of the Emilia Romagna (€ 231 bn.) (table 11.5).

Figure 11.10: Balance of trade of the Italian pharmaceutical industry (proprietary medicines+active ingredients) - Years 1986-2007



Source: ISTAT

Table 11.5: Trade balance of pharmaceutical regional industry - Year 2007

Regions	Export (Mln. €)	Import (Mln. €)	Trade Balance (Mln. €)
Lombardia	3,654	7,846	-4,192
Lazio	3,048	3,440	-392
Marche	1,700	259	1,441
Toscana	776	863	-87
Emilia Romagna	577	346	231
Campania	445	151	294
Puglia	371	696	-325
Veneto	353	212	141
Piemonte	317	291	26
Abruzzo	256	161	95
Sicilia	220	147	73
TAA	60	31	29
Umbria	42	6	36
FVG	35	16	19
Liguria	33	24	9
Basilicata	24	3	21
Molise	17	14	3
Calabria	1	4	-3
Sardegna	1	5	-4
Valle d'Aosta	0	0	0
Italy	11,930	14,515	-2,585

Source: Farmindustria 2008

11.1.3 The industrial market for generic drugs

A segment of the pharmaceutical industry of increasing interest is that of the production of the equivalent drugs.

The international data on the volume and on the consumption of equivalent drugs are furnished by the Associations of category: European Generic Medicines Association (EGA) and European Federation of Pharmaceutical Industries and Association (EFPIA).

The historical series of EGA (1994-2004) show as the market of the equivalent drugs in Europe assumes different trends of value (table 11.6) and volume prescriptive (chart 11.7). In USA the equivalent drug is mostly consolidated, in comparison to the European average (around 16% of the market value and 30% of the prescriptive volume in 2004), absorbing the 24.5% of the value of the pharmaceutical total market and around the 63% of the prescriptive volume; similar is the situation of Canada with the 18.1% of the total value and the 44.5% of the volume preprescriptive; more contained values reflect the situation in Japan with the 5.2% of the total value and the 16.8% of the volume prescriptive.

Table 11.6: Value of the European market for generic drugs as percentage of total drugs - Years 1994 2004

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Austria	5.50%	5.80%	5.90%	6.10%	5.80%	5.70%	5.80%	6.10%	6.50%	7.60%	8.80%
Belgium	0.80%	0.80%	0.80%	1.00%	1.10%	1.20%	1.30%	2.20%	2.60%	3.80%	4.80%
Denmark	39.30%	36.20%	34.20%	32.90%	31.80%	30.30%	30.10%	29.30%	29.00%	28.30%	29.70%
France	0.90%	0.80%	0.80%	0.80%	0.90%	1.20%	2.20%	2.80%	3.90%	5.30%	6.60%
Great Britain	8.60%	8.30%	8.90%	10.30%	10.40%	11.80%	13.80%	11.10%	13.30%	17.00%	20.10%
Italy	0.90%	0.90%	0.80%	0.70%	0.70%	0.70%	0.70%	0.90%	1.70%	2.20%	2.50%
Holland	8.50%	8.90%	8.90%	9.80%	10.80%	12.00%	13.50%	14.20%	17.90%	21.90%	17.70%
Poland	66.40%	66.80%	65.70%	62.10%	58.40%	59.20%	57.60%	57.80%	57.60%	56.90%	60.50%
Portugal	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.60%	0.80%	2.50%	6.70%	8.60%
Spain	1.70%	1.50%	1.40%	1.30%	1.40%	1.90%	2.80%	3.60%	4.00%	4.50%	5.00%

Source: European Generic Medicines Association

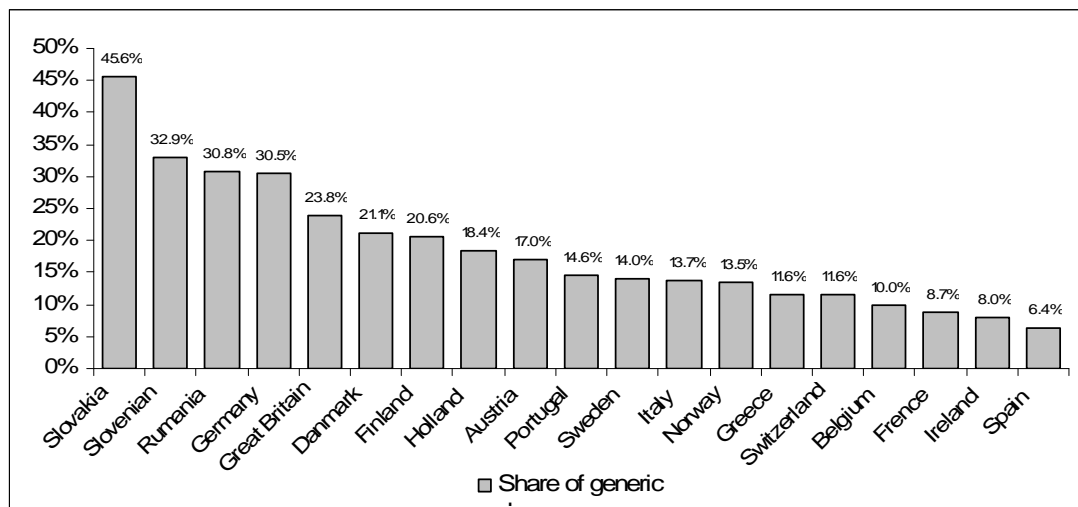
Tabella 11.7: Volume of the European market for generic drugs as percentage of total drugs - Years 1994-2004

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Austria	9.20%	9.80%	10.20%	10.60%	10.70%	11.00%	11.50%	12.30%	13.10%	14.30%	15.80%
Belgium	2.20%	2.30%	2.60%	2.90%	3.10%	3.10%	3.30%	4.70%	5.70%	6.90%	8.00%
Danmark	61.30%	58.50%	58.10%	58.40%	58.30%	59.00%	59.80%	63.30%	72.80%	66.00%	69.70%
France	1.80%	1.60%	1.60%	1.60%	1.70%	2.20%	3.90%	5.00%	6.70%	9.10%	10.40%
Great Britain	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	49.00%
Italy	1.40%	1.50%	1.40%	1.20%	1.20%	1.20%	1.20%	1.70%	2.80%	3.80%	4.50%
Holland	19.90%	22.60%	25.30%	27.10%	28.90%	33.00%	34.70%	35.90%	39.90%	43.10%	44.30%
Poland	90.80%	89.60%	88.50%	8.90%	85.00%	84.30%	83.80%	83.80%	84.00%	83.90%	84.70%
Portugal	0.80%	0.80%	0.90%	0.80%	0.90%	0.90%	0.90%	1.20%	2.30%	5.60%	7.20%
Spain	2.00%	1.90%	1.90%	1.90%	2.00%	2.50%	3.10%	4.00%	4.90%	6.10%	8.10%

Source: European Generic Medicines Association

Recent data (figure 11.11) highlight in Europe contrasted two situations of market of the equivalent drugs: from a share the Countries with a consolidated Market (Austria, Holland, Finland, Denmark, Great Britain, Germany, Romania, Slovenia, Slovakia); from the other that Countries that have a market of developing (Spain, Ireland, France, Belgium, Switzerland, Greece, Norway, Italy, Sweden, Portugal) equivalent.

Figura 11.11: Market share of generic drugs in value and volume in Europe, year 2006



Note: Danmark, Finland, Greece, Portugal, Great Britain, Rumania: market share of total sales; Austria, Belgium, France, Germany, Ireland, Italy, Holland and Spain: market share of reimbursable drugs

Source: *Efpia, 2008*

11.1.4 Industry of pharmaceutical drugs in Italy

The manufacturing interest for the equivalent drugs is double: thanks to the deadline of manifold patents an opportunity of great profit is always created for the so-called generic; besides adopting a public vision the conditions are created for a great follow-up of the public pharmaceutical expenditure.

The industry of the generic drugs in Italy is represented by around 48 firms; of which 48% are to national characteristic. They are located (among administrative and productive centres) on big party of the Italian (figure 11.12) territory; the Region that entertains the greatest number of firms is the Lombardy with around the 54% of the total, follow the Lazio with around 10% and Veneto with around 8%, reflecting the location of the pharmaceutical industry in its complex.

Figura 11.12: Location of the administrative and production facilities in Italian territory - Year 2007



□ no presence
■ presence administrative or productive centres

Source: Our analysis of data from the Assogenerici

The average number of employees some industry sector of the generic is estimated around the 68 units, against the 222 of the pharmaceutical industry sector. Such difference can be attributed to the typology of offered products that is not predominantly focused on the activity of R&D and utilize of advisor to the firm that are not reckoned in the calculation of the organicof the firm.

The growth of the last years (remembering however that the equivalent drug has been introduced in commerce in Italy beginning from the Financial lex 2001) is mainly due to the recent expiry of most patents (31 in 2007), to an urgent legislation and a more careful info of all the professional (medical, pharmacists) figures and not (citizen).

11.2 The medical device manufacturing sector

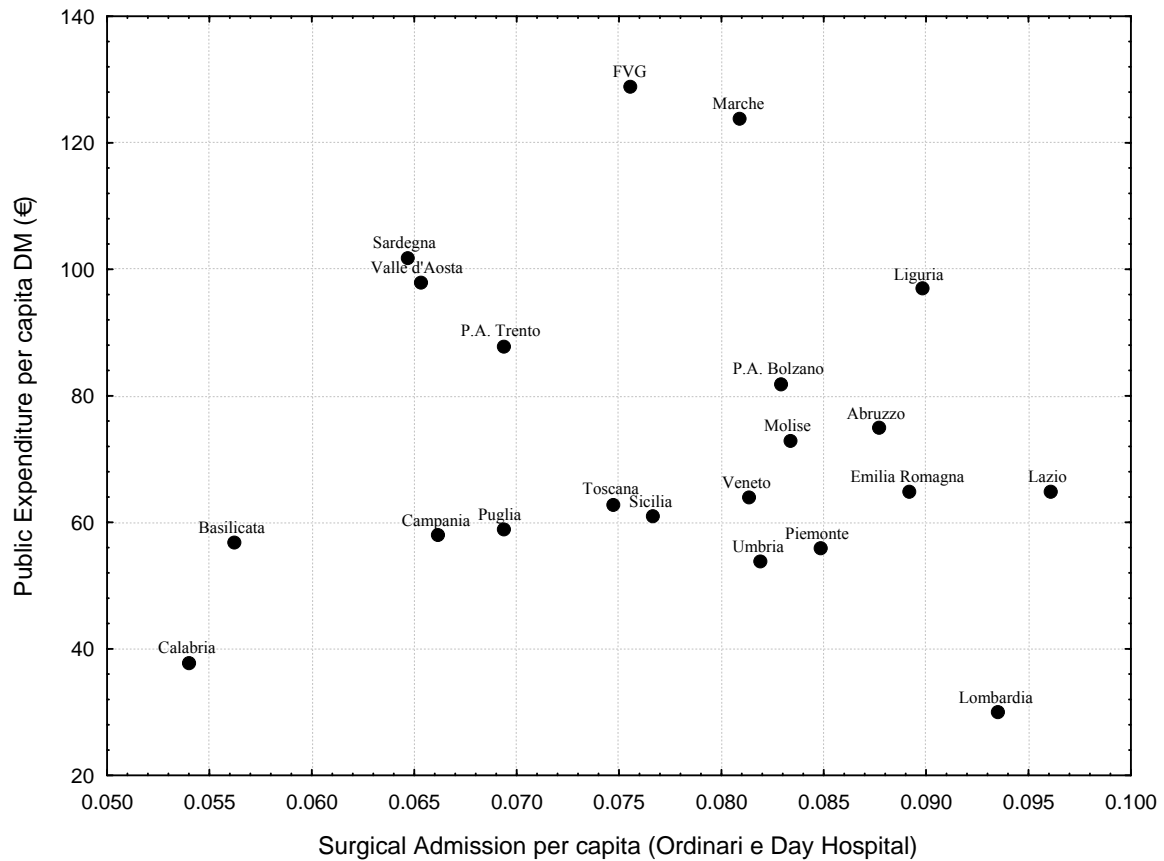
The market of the medical devices is compound from a considerable number of enterprises, of products and technologies that are the evidence of a vital and elaborate market. Such complexity, however, makes difficult to quantify in monetary term the value of the past and present market.

Currently, to international level, is appraised that in 2005 the expenditure for medical devices has been of around € 188 bn. and the value of the production equal to € 145Mld. USA represent the Country with the share of expenditure 42% and of value of the production 51% great, follow the Countries of the European Union with a 34% expenditure share and a value of the production equal to 30%, finally, Japan with a share of expenditure and value of the production around 10%.

Of the European Countries Germany represents, in 2005, the greatest share of expenditure on overall Europe equal to 31.4% and a value of the production equal to 34.3%, follows France with a share of expenditure equal to 15.6% and a value of the production of around 14% and Italy with a 11% of share of expenditure and a 12% of value of the production.

In Europe, the expenditure for medical devices in 2005 has represents 6.3% of the total health expenditure. Italy is found below the European average with an incidence on the 5.6% total health expenditure and to the 10th place if the expenditure per capita is considered for medical (€122) devices. The government expenditure for medical devices, in base to the Ministerial Economic Account (CE), is in growth: +18% in comparison to 2002; and + 4.9% as annual media of the whole period in observation (2002-2007). The Regions that have introduced a high public expenditure per capita, in 2007, are the Friuli Venezia Giulia (€ 146), the Marche (€ 125) and the Liguria (€ 106); on the contrary the Regions that introduce a lower public expenditure per capita are Calabria (23), the Lombardia (31) and the Basilicata (38). Regional difference can depend on a series of factors as for example a different charge of the data (depreciation allowance and of maintenance) or from levels of privatization more or less accented. The share of public regional expenditure per capita for medical devices doesn't seem correlated to the number of surgical admission per capita (Ordinary and in Day Hospital) (figure 11.13). It doesn't seem therefore to be a clear relationship between volumes and costs: differences can be attributed then so much to different accounting records.

Figura 11.13: Correlation medical device per capita expenditure and day surgery per capita



Source: Our analysis of data from Ministry of Health

The balance of trade is positive for the European industry system of the medical devices (approximately € 3.2 – 5.6 bn.) and negative for Italy of € 3.4 bn. With respect to a negative balance of trade highlights, in Italy, as in the rest of Europe, a productive tissue formed by considerable number of firms (550) of small dimensions (in average 55 employed) characterized by a strong incidence of business firms. The correlation between balance of trade and average dimension of enterprise implicates that the Italian enterprises should be able to grow for being competitive and to contribute to the welfare of the Country inserting in international network.

11.2.1 The medical device market worldwide

The Countries by the regulation are trying to identify with clearly the existing in terms of numerosness and value. Currently, to international level, the data can be used on the medical devices furnished by Eucomed; or from sporadic observation as that published by the US International Trade Commision (USITC) in 2007. For completeness of info will follow given by both the sources, where different the info will be used as comparison.

The estimate of world level appraise, in 2005, a expenditure for devices around € 187 bn. (for Eucomed) and a value of the production (ex-factory) equal to € 145bn. (for USITC). USA represent the Country with the high share of expenditure on the total world of 42% and a value of the production, still on the total world, equal to 51%, follow the Countries of the Union European with a 34% expenditure share and a value of the production equal to 30%, finally, Japan with a share of expenditure and a value of the production around 10% (table 11.8).

Table 11.8: International medical device expenditure and product value - Year 2005

	Expenditure 2005 (Mld. €)	Product value 2005 (Mld. €)
USA	79	74
Europe	64	49
Japan	19	15
Rest of world	25	7
Total	187	145

Source: US International Trade Commission marzo 2007 and Eucomed 2007

The market of USA production as that European are characterized by an ample range of medical devices, Japan, produces instead an reduced variety of medical devices mainly focused on, diagnostic for images and endoscopy. The European Countries have on own territory the greatest number of firms (8.500-10.000) characterized by a dimension medium-small; USA 6.000-7.000 firms of various conformation (small-medium-large); Japan approximately 750 firms of small and large dimensions (chart 11.5).

The balance of trade results positive for the European Countries (+€3.2-5.6 bn.) and for USA (+ € 1.4 bn.), negative for Japan (€ 3.9 bn.) (table 11.9).

According to USITC the determinants of the supply of the devices are verifiable in the research and development (R&D), in the access to capital, in the industry structure and consolidation, global marketing and distribution networks, in the skilled workforce, and in the standards and regulations (table 11.9). In regards the investments in R&D esteems that the firms of medical devices of USA are 10-13% of the value of the sales, the Japanese and European firms approximately 6%. The access to capital of hazard, profit to the business financing, is of easy access for American firms less for those Europeans and Japanese. The activity of merger and acquisition, profit to consolidate the internal market, has been used, also this time mainly in the American Market less in that European and Japanese. The distribution of the production happens in USA and in Europe in direct way, while in Japan is in use a mixed system of release. You esteems a high profitability (value of the production for employee) for the work of the sector of medical devices in USA (around € 240,272 for employing unit), medium for Japan (€ 139,887) and low for the European Countries of (€ 79,152 for employing unit). The USITC defines transparent the system of American, transparent and efficient regulation that European and complex that Japanese.

The determinants of the supply, always according to the USITC, can obviously be verifiable in the health needs, but also in the politics of containment of the costs. In the United States and in Japan the containment of the costs is mainly research after from the private assurances and from the Government, in Europe mainly from the Government.

Tabella 11.9: Summary of the EU, US and Japanese medical markets – Year 2005

		United States	European Union	Japan
General Information	Products	Produces a wide variety of medical devices	Produces a wide variety of medical devices	Limited production of medical devices, focused on diagnostic imaging and endoscopy
	Share of global production	51% (US trade commission)	30% (US trade commission)	10% (US trade commission)
	Share of medical device expenditure	42% (Eucomed)	34% (Eucomed)	10% (Eucomed)
	Industry	6.000-7.000 small, medium, and large companies	8.500-10.000 companies. Most are small and medium size	750 large and small companies
	Trade Balance	Trade surplus €1.4 Mld.-2005 (US trade commission)	Trade surplus €3.2 Mld.-2005 (US trade commission) €5.6 Mld (Eucomed)	Trade deficit €-3.9 billion-2004 (US trade commission)
Supply Factors	Innovation, research and development (R&D), and intellectual property	High R&D spending leads to much innovation (10-13% of sales)	Lower R&D spending leads to less innovation (6% of sales)	Lower R&D spending leads to less innovation (6% of sales)
	Access to capital	Wide availability of venture capital	Limited access to capital	Limited access to capital
	Industry structure and consolidation	Recent merger and acquisition (M&A) activity has somewhat consolidated the industry	Recent global consolidation has affected the industry, but there are relatively lower levels of intra-EU M&A	Lower levels of consolidation
	Global marketing and distribution networks	Direct distribution system	Direct distribution system	Complex distribution system
	Skilled workforce	Highly skilled workforce High productivity (€240,273 per worker-2005)	Highly skilled workforce Relatively low productivity (€79,152 per worker-2005)	Good technical skill in workforce Moderate productivity (\$139,887 per worker-2004)
	Standards and regulations	Transparent regulatory system	Trasparent, efficient regulatori system	Complex government regulatory policies place constraints on market growth
				SEGUE

Demand Factor	Healthcare Expenditure	Large and growing Healthcare Expenditures (15% Gross Domestic Product (GDP))	Constrained Healthcare Expenditure (7-8% of GDP (US trade commission) or 8,7% of GDP (Eucomed))	Constrained Healthcare Expenditure (8% of GDP)
	Cost containment policies	Government and private insurers try to contain costs	Government tries to contain costs	Government and private insurers try to contain costs
	Demographics	Population is 298.4 Mln 12% of population age 65 or older in 2005. This is expected to reach 18% by 2025	Population is 457.0 Mln 17% of population age 65 or older in 2004. This is expected to reach 23% by 2025	Population is 127.5 Mln 20% of population age 65 or older in 2004. This is expected to reach 30% by 2025

Source: United States International Trade Commission-march 2007

11.2.2 The European medical device market

The European market of the medical devices, as already said previously represents 34.3% of the total medical devices expenditure and 30% of the volume of production for medical devices. Of the European Countries the Germany has the greatest share of expenditure on total Europe equal to 31.4% and a value of the production equal to 34.3%, follow France with a share of expenditure equal to 15,6% and a value of the production of around 14%, Italy with a 11% of share of expenditure and a 12% of value of the production, Great Britain with a 10.5% expenditure share and a value of the production equal to 9%. In terms of value of the production is interesting to also signal the share expressed from Ireland of around the 10% of total Europe (chart 11.10).

For a great understanding and comparison of the data of medical devices expenditure of the different European countries can use the relationship with the total health expenditure or the expenditure per capita.

Considering the relationship with the total health expenditure, the medical devices expenditure in Europe (in 2005), represents 6.3% of the total (table 11.11). Then, the medical devices expenditure represents a remarkable share of the total health expenditure, in particular in some countries what Estonia (14.1%), the Slovak (12.3%) Republic and Latvia (11.7%). In Italy the medical devices expenditure represents the 5.6% of the total (or the 0.43% of the GDP) health expenditure with a 0.2% reduction in comparison to 2002.

**Table 11.10: Expenditure and value of production of medical devices in Europe
Year 2005**

	Eucomed Expenditure 2005 (Mln. €)	Share of expenditure (%) Eucomed 2005	Value of production (Mln. €) USITC 2005	Share of production (%) USITC 2005
Austria	830	1.30%	718	1.56%
Belgium	900	1.41%	541	1.18%
CiproCyprus	110	0.17%	5	0.01%
Danmark	1,010	1.59%	1,612	3.51%
Estonia	90	0.14%	36	0.08%
Finland	500	0.79%	803	1.75%
France	9,960	15.65%	6,317	13.77%
GermanY	20,000	31.43%	15,767	34.36%
Greece	800	1.26%	59	0.13%
Great Britain	6,700	10.53%	4,083	8.90%
Ireland	380	0.60%	4,585	9.99%
Italy	7,010	11.02%	5,556	12.11%
Latvia	80	0.13%	8	0.02%
Lithuania	110	0.17%	42	0.09%
Luxembourg	60	0.09%		
Malta	20	0.03%		
Norway	1,000	1.57%		
Holland	2,500	3.93%	1,419	3.09%
Poland	880	1.38%	593	1.29%
Portugal	650	1.02%	124	0.27%
Romania	170	0.27%		
Czech Rep.	500	0.79%		
Slovakia	210	0.33%	96	0.21%
Slovenia	190	0.30%	47	0.10%
Spain	5,500	8.64%	1,263	2.75%
Sweden	1,330	2.09%	1,997	4.35%
Switzerland	1,590	2.50%		
Ungary	510	0.80%	219	0.48%

Source: US International Trade Commission, March 2007, and Eucomed 2007

The medical devices expenditure per capita more elevated, in 2005, finds in Germany (€ 243) followed from Norway (€ 218), Switzerland (€ 215), Denmark (€ 187). Italy with medical devices expenditure per capita of € 122 place to the 10th place in the European (table 11.12) classification. If the course of the expenditure per capita is considered between 2002 and 2005, we observe that the Countries with more elevated increase are Estonia (113.3%), Slovak (95.5%) Republic, Lithuania (92.4%) and Spain (76.4%); Holland is the only country that a registered a light reduction (-0.3%) while are having an inferior growth to 10% are Germany (5.4%), Norway (5.7%), Ireland (6.5%), Cyprus (7.1%), Portugal (8.6%) and Belgium (9.6%) (table 11.12). In Italy the increase of the medical devices expenditure per capita is equal, among 2002 and 2005 to 13.9%.

**Tabella 11.11: Incidence of medical device expenditure to total healthcare expenditure
Years 2002-2005**

Countries	2002	2005	Diff. 2002-2005
Austria	4.30%	3.70%	-0.60%
Belgium	3.60%	3.30%	-0.30%
Bulgaria		6.60%	
Cyprus	4.50%	4.70%	0.20%
Danmark	5.70%	5.70%	0.00%
Estonia	10.80%	14.10%	3.30%
Finland	4.80%	4.50%	-0.30%
France	6.50%	5.80%	-0.70%
Germany	8.60%	8.60%	0.00%
Greece	4.40%	4.80%	0.40%
Great Britain	4.80%	4.50%	-0.30%
Ireland	4.90%	3.70%	-1.20%
Italy	5.80%	5.60%	-0.20%
Latvia	11.50%	11.70%	0.20%
Lithuania	8.30%	9.00%	0.70%
Luxemburg	4.10%	2.60%	-1.50%
Malta	1.70%	6.10%	4.40%
Norway	6.20%	4.60%	-1.60%
Holland	6.50%	5.60%	-0.90%
Poland	6.10%	6.90%	0.80%
Portugal	5.30%	4.80%	-0.50%
Romania		3.30%	
Czech. Rep.	7.90%	8.00%	0.10%
Slavakia Rep.	8.60%	12.30%	3.70%
Slovenia	7.10%	6.00%	-1.10%
Spain	6.10%	8.20%	2.10%
Sweden	5.10%	5.20%	0.10%
Switzerland	4.50%	4.70%	0.20%
Hungary	9.20%	7.80%	-1.40%

Source: OECD, European Commission, Eucomed Member Associations e Medistat

Tabella 11.12: European medical device market - Years 2002-2005

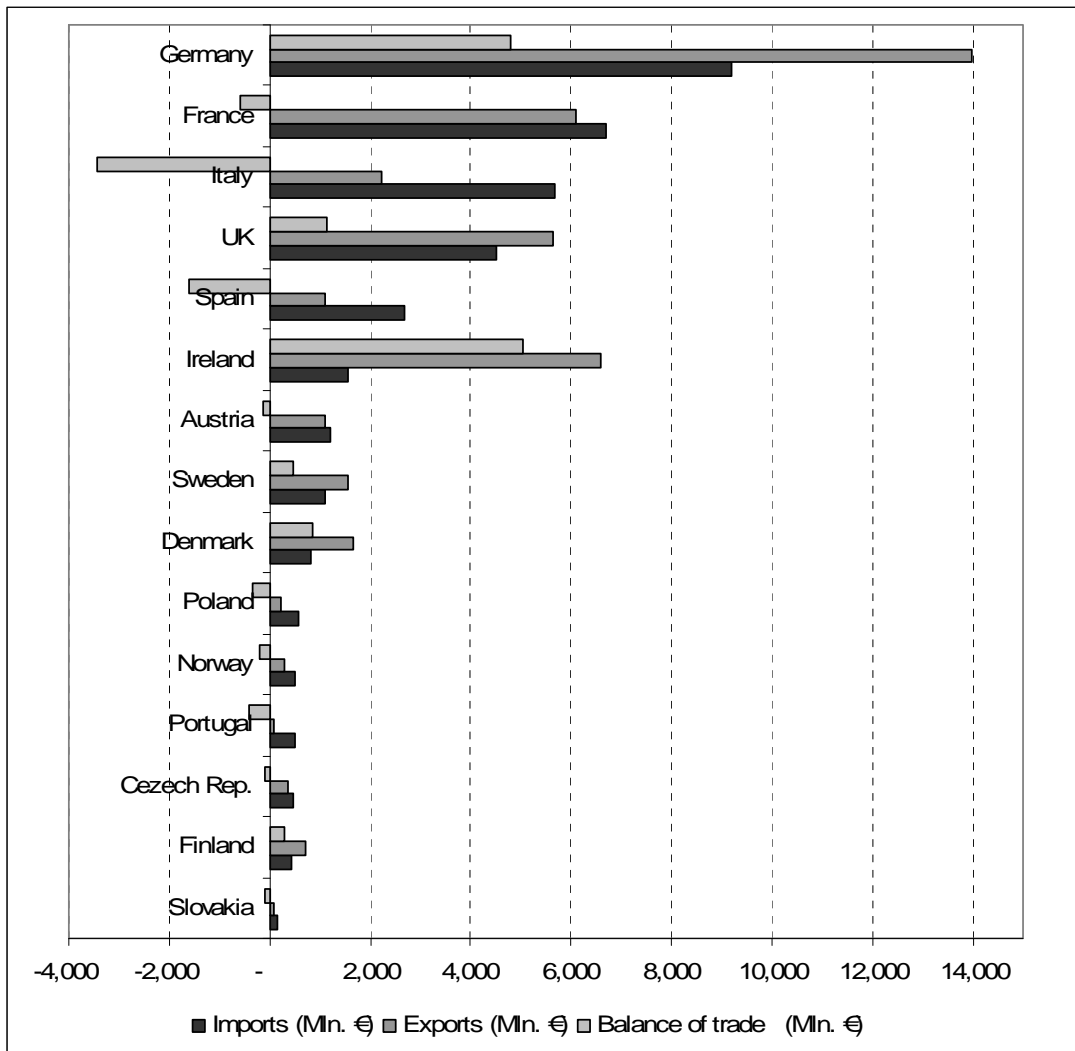
Countries	Per capita Expenditure 2002 (€)	Per capita Expenditure 2005 (€)	% Var. of per capita expend. 2002-2005
Austria	90	102	12.80%
Belgium	79	87	9.60%
Bulgaria		14	
Cyprus	41	44	7.10%
Danmark	161	187	15.80%
Estonia	30	64	113.30%
Finland	86	96	11.20%
France	150	166	10.30%
Germany	230	243	5.40%
Greece	49	72	47.60%
Great Britain	97	112	15.50%
Ireland	89	95	6.50%
Italy	107	122	13.90%
Latvia	26	33	28.10%
Lithuania	17	33	92.40%
Luxemburg	111	125	12.80%
Malta	50	61	21.00%
Norway	206	218	5.70%
Holland	154	154	-0.30%
Poland	20	23	14.50%
Portugal	57	62	8.60%
Romania		7	
Czech. Rep.	36	49	37.20%
Slavakia Rep.	20	39	95.50%
Slovenia	65	96	46.90%
Spain	73	129	76.40%
Sweden	120	148	23.60%
Switzerland	188	215	14.20%
Hungary	36	50	39.20%

Source: OECD, European Commission, Eucomed Member Associations e Medistat

The European balance of trade, in 2005 has registered a positive balance that oscillates, in base to data (Eucomed, US trade commission) among the € 3.2-5.6 bn.

To level of detail of single European Country are in hand only the data furnished by Eucomed (figure 11.14). In base to such data Ireland (€ 5,055 mln.), Germany (€ 4,794 mln.), England (€ 1,125 mln.), Denmark (€ 851 mln.), Sweden (€ 452 mln.) and Finland (€ 280 mln.) introduces a positive balance of trade; Italy has a negative balance of € 3,400 mln., around € 2,000 mln. in more in comparison to 2002. Such variation is due to the import, that is passed from € 1,440 mln. of 2002 to € 5,670 mln. in 2005, while the export has suffered a 22% cutback instead in the whole period. Also register a negative balance of trade Spain (€-1,600 mln.), France (€-584 mln.), Portugal (€-527 mln.), Poland (€-355 mln.), Norway (€-206 mln.), Austria (€-133 mln.), the Czech Republic (€-90 mln.) and Slovakia (€-83 mlns.).

Figure 11.14: Imports and exports of medical technology - Year 2005 (Mln. €)



Source: Eucomed Member Associations e Medista

The European productive tissue is characterized by a lot of firms of small dimension (table 11.13). For Eucomed the greatest number of firms is assembled in England (2,200), Germany (1,540) and Spain (1,000) that add the 44% of the firms; Italy counts approximately 550 firms as Holland, Poland and Switzerland. For the USITC (source Eurostat) the greatest number is assembled in Italy (15,350), Germany (12,020) and France (8,037) that add the 62% of the firms.

Altogether in the European industry of the medical devices are employ, in 2005, approximately 435,000 units.

Table 11.13: Firms and employees of medical device industry in Europe - Year 2005

Countries	Eucomed			US International Trade Commission*		
	Number of firms in 2005	Employees 2005	Average employees per firms 2005	Number of firms in 2005	Employees 2005	Average employees per firms 2005
Austria	550	6,000	10.91	896	6,976	8
Belgium		5,500		1,162	3,203	3
Cyprus				62	95	2
Czech. Rep.		12,760				
Danmark		14,000		379	8,935	24
Estonia				54	881	16
Finland		3,000		519	4,321	8
France	990	40,000	40.4	8,037	44,451	6
Germany	1,540	110,000	71.43	12,024	158,423	13
Greece		2,500		254	444	2
Hungary		4,250		1,878	7,839	4
Great Britain	2,200	60,000	27.27	1,751	34,575	20
Ireland		26,000		62	18,747	302
Italy	550	29,815	54.21	15,350	31,038	2
Holland	550	9,500	17.27	1,425	11,144	8
Norway		500				
Poland	550	8,700	15.82	6,068	14,764	2
Portugal		3,200		817	3,074	4
Romania		15,000				
Slovakia		2,198				
Slovenia		1,237		113	2,900	26
Spain	1,100	25,400	23.09	108	881	8
Sweden	770	15,000	19.48	4,448	14,575	3
Switzerland	550	40,000	72.73	1,243	10,183	8

*Source Eurostat

Source: US International Trade Commission marzo 2007 and Eucomed 2007

The average number of employ for firm (data Eucomed) show that the Countries with a more elevated average value are Switzerland (72.73), Germany (71.43) and Italy (54.21). Opposite the data USITCs point out an elevated average value in Ireland (302), Slovenia (26) and Denmark (26)

As regards the R&D expenditure of the firms he esteems, in Europe, a value around the 6% of the volume of production (table 11.9).

11.2.3 Medical device public expenditure in Italy

In terms of total medical devices expenditure (public and private), Italy use the 5.6% of the total health expenditure against an average European of 6.3% with a 0.2% reduction in comparison to 2002, absorbing 0.43% of the GDP (Eucomed 2007).

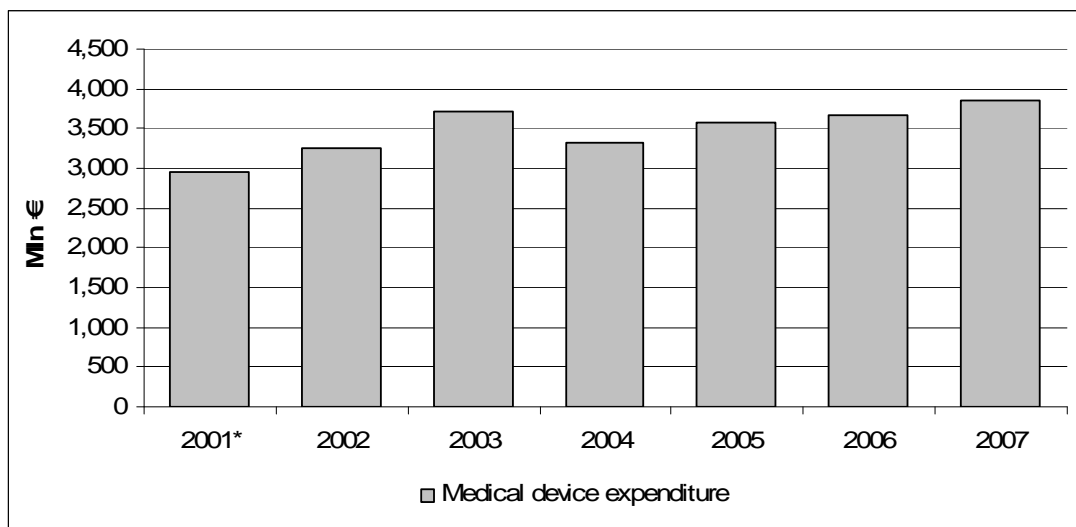
A verification of the data element for the public share is possible beginning from the data of the Ministerial Economic Accounts (CE). You are been individualized CE and you extrapolate the voices of aggregation of expenditure for medical devices:

- Sanitary surgical and health material;

- Materials prosthetics and material for haemodialysis;
- Material surgical, sanitary and diagnostic for veterinary use;
- Material diagnostic, x-ray, etc.

The data available are 2001-2007. There is an upsurge of medical device expenditure from 2002 (€ 3,259 mln.) to 2007 (€ 3,856 mln.) of 4.9% in annual average equal to 18% in the whole period. The course is not constant and introduces a bending between 2003 and 10.5% (figure 11.15) the 2004.

Figure 11.15: Medical device expenditure in the public structure - Years 2001-2007



*2001: Nd Sicilia e P.A. Bolzano

Source: Our analysis of data from Ministry of Health

The public expenditure per capita in Italy in 2007 amounted to € 65 (26% increase in comparison to 2001). The Regions that have introduced a public expenditure per capita high, in 2007, are the Friuli Venezia Giulia (€ 146), the Marche (€ 125), the Liguria (€ 106) and the Valle d'Aosta (€ 105); the Regions that introduce a public expenditure per capita low are Calabria (23), the Lombardia (31), the Basilicata (38), Umbria (57) (table 11.14). Regional difference can depend on a series of factors as for example a different charge of the data (depreciation allowance and of maintenance) or from levels of privatization more or less accented.

The share of public regional expenditure per capita for medical devices doesn't seem correlated to the number of surgical admission per capita (Ordinary and in Day Hospital) (figure 11.13). It doesn't seem therefore to be a clear relationship between volumes and costs: differences can be attributed then so much to different accounting records.

Table 11.14: Health medical device expenditure per capita (€) - Years 2001-2007

	2001	2002	2003	2004	2005	2006	2007	2007/2001
Italy	52	57	65	57	61	63	65	26%
FVG	54	60	63	120	129	133	146	173%
Marche	103	103	101	118	124	124	125	22%
Liguria	67	74	78	93	97	100	106	59%
VDA	134	147	149	86	98	102	105	-22%
Sardegna	93	105	102	91	102	100	96	3%
P.A. Trento	142	147	162	86	88	91	91	-36%
P.A. Bolzano	nd	160	159	79	82	82	83	
Abruzzo	129	145	148	69	75	79	80	-38%
Veneto	103	105	142	61	64	68	76	-27%
Molise	105	118	127	68	73	73	75	-28%
Emilia Romagna	81	86	91	61	65	68	74	-9%
Sicilia	nd	25	26	59	61	72	73	
Puglia	39	40	67	54	59	61	68	72%
Lazio	48	53	56	60	65	64	65	35%
Toscana	86	93	101	59	63	64	63	-28%
Piemonte	68	67	73	54	56	58	62	-8%
Campania	29	31	36	54	58	58	60	109%
Umbria	62	67	75	53	54	55	57	-9%
Basilicata	38	35	44	56	57	26	38	0%
Lombardia	12	6	5	26	30	30	31	157%
Calabria	35	36	37	35	38	22	23	-33%

Source: Ministry of Health

11.3 The insurance market

As highlighted by the Nobel Prize-winning economist Kenneth J. Arrow, in a fundamental article published in 1963, which is conventionally regarded as the founding moment of Healthcare Economics, the health sector is typically dominated by uncertainty, with respect to both the demand side, because it is impossible to foresee when people will fall sick, how seriously and what economic impact this can have, and the supply side, because the outcome of a treatment is also uncertain.

Moreover, the risk of disease can be reduced and, in fact, over the last century has been considerably reduced as a result of the progress made by the diagnostic and clinical sciences; it has also been proven that lifestyles can significantly affect those risks, and it has been estimated that almost 40% of diseases depend on personal behaviour (smoking, alcohol abuse, sedentary lifestyles, etc.). The previous vision applies on average to the population, while individually the uncertainty of disease remains very strong: the reason for this resides in the fact that there are other factors that must be taken into account, such as genetic factors, which are etiologically very important and which, despite the progress made in this field, are still rather obscure, especially with regard to how they work.

If, on the one hand, health risks have generally been reduced (proof of which is the rise in life expectancy), we nevertheless cannot help observing that “new” risks are emerging, such as those related to non-self-sufficiency, which itself depends on the gradual increase of life expectancy. Moreover, the economic risks related to disease have not at all

been reduced; on the contrary, they are on the rise, together with the introduction of new treatment opportunities.

This supports the social and individual importance of health care and, in this context, of the insurance aspect above all, with respect to transferring the risk: obviously, we cannot transfer the risk of falling sick, but we can transfer the costs entailed by this occurrence.

Risk transfer is the job, first of all, of insurance companies, or of governments, in which case we speak of social security.

It ensues that health systems have a primarily insurance-type function, which is exercised with a mix of social, collective and individual insurance arrangements: the percentage of each component generally defines the nature of the system.

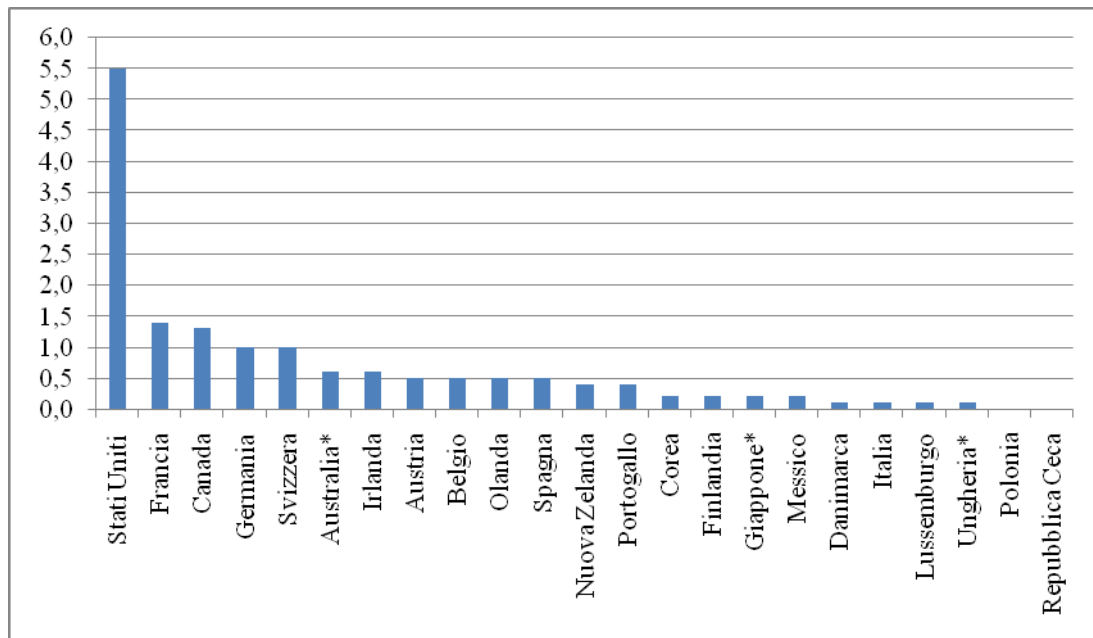
11.3.1 The international market

The (private) insurance market has developed differently, internationally, due to the fact that it depends significantly on public decisions as to the best possible mix of social and private insurance arrangements.

Having regard to OECD member countries, private insurance expenditure in 2006 accounted, on average, for 4.7% of total expenditure (slightly down compared to 2005, when it stood at 5.0%); in practical terms, health insurance represents, on average (in OECD member countries) 0.4-0.5% of the GDP, with significant differences from one member country to another. Compared to private expenditure, it equals 18.4%, the remaining amount including both entirely private out-of-pocket expenses, and the cost-sharing arrangements with public schemes.

This percentage includes expenditure for both individual and collective policies (regardless of whether they are promoted by open and closed-end funds established by the insurance companies, or local, professional, etc. mutual schemes); likewise, it includes expenditure for basic policies (if there is no public health system), supplementary or complementary policies (the so-called ‘second pillar’) and individual policies.

Figure 11.16: Health insurance expenditure in OECD member countries
Figures expressed as a percentage of the GDP (2006)



Source: CEIS Sanità su dati OECD Health Data 2008 processed by CEIS Sanità

Both the United States and France have highly-developed insurance markets (accounting for 5.5% and 1.4% of the GDP, respectively), but they differ considerably: in the former case the focus is on individual responsibility, with people covered by individual or company-level policies, while in the latter case the focus is on the principle of mutuality, i.e. on coverage by collective funds, generally established on a professional basis.

Many other countries have a significantly developed insurance market, such as Canada (1.3% of the GDP), Germany (1.0% of the GDP), Switzerland (1.0% of the GDP), Australia and Ireland (0.6% of the GDP)

The Netherlands, where, in 2006, the insurance market stood at 0.5% of the GDP, changed its scheme in 2006, as detailed further on.

Conversely, in other countries, like Norway, Iceland and Slovakia, the private health insurance market is practically non-existent.

Historically speaking, the health insurance market has developed most significantly in countries with so-called private (e.g. USA) or mutual (e.g. France) systems of health insurance, much less so in countries with a public universal system (Denmark, Italy, UK).

Recently, the Netherlands decided to supplement their previous universal system – typical of the social insurance approach – by heavily boosting the private health insurance sector.

From 1.1.2006, in fact, the *Health Insurance Act* (HIA) makes it mandatory for every person legally living or working in the Netherlands to take out health insurance with a private insurer including (at least) one (defined) basic care package.

Insurers are under the obligation to accept all insurance applications at an established price, without excluding any cover for any pre-existing conditions. Each insurer defines the premium for uniform risk classes, thus competing on the price.

Each individual is required to pay an income-based contribution (7.2% of the first € 31,200 of one's annual income made in 2008); in actual fact, this contribution is paid into a public fund, which then transfers the money to a Risk Equalization Fund (REF), whose task it is to prevent any forms of discrimination based on subjective risks. In brief, the function of the State is to equalize the risks: for each high-risk insured the insurer receives a payment from the REF, and vice versa for low-risk insureds.

Since the contributions are independent of the insurer, households are sensitive to the fees charged by the insurers, and the tendential lack of incentives for the insurers to discriminate, with respect to the health conditions of the individual insureds. Moreover, the premiums for children and youths aged below 18 are paid directly by the government into the REF.

Lastly, each person is free to take out a voluntary supplementary insurance, with respect to any treatments not covered by the mandatory scheme, such as dental care for adults, physiotherapy, prescription glasses, alternative medical treatments, plastic surgery. Over 90% of the Dutch population has taken out this supplementary insurance with the same insurer.

Insurance companies, therefore, tend to compete not just with respect to prices, but also services: based on the principle of the free choice by the insured of the care facility, insurers promote partnership agreements with the care facilities, negotiating discounts on refunds or the application of excess payments.

This example highlights the second typical function of the insurance market, that of buyers; on the US market too there is a growing focus by insurance companies on monitoring the quality of health services providers, and their efficiency too, of course, both being driven by the competition for providing better services at the lowest possible prices.

11.3.2 The domestic market

The universal nature of the Italian NHS, based on the description provided above, largely explains the limited growth of private health insurance in this country.

To get a full picture of the matter, however, in the light of the preceding paragraph, we must add that the buyer function is practically a monopoly of the Area Health Authorities – ASL – and, therefore, still basically in public hands.

This system has unquestionable advantages, but also some risks: for example, while – in principle at least – citizens/patients can express their “judgement” on a health services provider (for example, by changing hospital or outpatient facility), they are not allowed to withdraw from the ASL.

We believe that performance assessment is still scarcely developed in Italy (with a few exceptions), and competition between different ASLs doesn't seem to take off.

It ensues that the ratio of private health insurance expenditure to total health expenditure is blocked at an incredible 0.92%, while the ratio to private health expenditure (in 2006) is only 4.1%, substantially unchanged compared to the previous year. In practical terms this means 0.1% of the GDP.

To the above figures, which concern health insurance, including a significant share of claims-based and accident insurance policies, we must also add the market share of liability insurance, covering both healthcare professionals and facilities.

It should be considered that, in a period of limited growth (in 2007, net premium revenues for the motor industry totalled 3.8%, while general liability insurance only increased by 1.4%), the health sector featured a well above average growth, with health

insurance featuring +12.1%, equal to € 2,049 million, and care insurance approaching +7.5%, equal to € 377 million.

To understand the actual industry trends, of course, we must prioritarily analyse the ratio of claims paid out to premiums collected⁴: here we can see how, in the case of general liability insurance, the figure dropped from 91.0% in 2006 to 78.3% in 2007, while in the case of health insurance, from 76.3% to 73.8%, and care from 35.7% to 34.1%. Despite the technical improvements, general liability and health insurance feature a negative technical balance in 2007 as well.

In particular, we can highlight how, in the case of healthcare liability insurance, despite a substantially stable number of claims, in the latest year for which figures are available (28,400 claims in 2006, 58% of which relating to healthcare facilities and the remaining 42% for errors by healthcare professionals), a strong criticality with respect to profitability remains. This seems to depend above all on the long payment times, but also on the limited efficiency of the market as a whole, which, in many regions, features risk transfer processes that are not adequately supported by statistical data and are often grounded on a legal, rather than economic, rationale.

In particular, we must also highlight the difficulty of reviewing the approach to the brokerage function, which must obviously be carried out in a special context, such as that of public corporations. In a private market, the broker – based on a conventional agency relationship – selects the insurance options and offers them to his clients, who then make a choice; on a public market, the choice of the product depends on the outcome of a tendering process and the selection, therefore, depends on the quality of the general terms and conditions. It is obvious, therefore, that the broker becomes primarily a consultant during the tender preparation phase, although he is subject to stringent administrative constraints.

At one and the same time, however, the broker must also prove himself capable not only of an objective analysis of the risk, but also of analysing the subjective risk aversion by the corporation: the matter is no simple one and the large scale of the public health corporations, which are such as to suggested a limited risk aversion capacity, and therefore that the drive to transfer the risk largely depends on factors that are closely related to the system's inefficiency: for example, the not always consistent assessment of the damage for the internal revenue service and, therefore, of the mandatoriness of the application of the principle of recourse against a healthcare professional, or the difficulty of creating budget reserves in critical financial contexts, such as those of several central-southern regions.

11.3.3 Supplementary insurance cover

The available surveys, however, support the existence of important reasons in favour of a greater development of health insurance coverage. From the point of view of economic theory, in fact, the primary purpose of health insurance should be to provide cover from greatly increased costs (i.e. in connection with the occurrence catastrophic events): the analysis illustrated in another section of the Report shows that the occurrence of catastrophic events, in Italy, is more frequent than one would ordinarily imagine, as they concern almost one million households. Moreover, from this analysis there emerges the fact that various factors, besides, obviously, the socio-economic context, determine the conditions for

⁴ Including the sufficiency/insufficiency of the confidential amounts of claims relating to events that occurred in previous years.

catastrophic expenditure, or expenditure such as to bring households on the verge of virtual impoverishment.

These factors can be traced back to two main groups (with several overlapping areas):

- the tendency to opt out;
- the lack of supply.

The former group includes the motivations that often convince people to incur expenses outside of the NHS, or to pay NHS consultants who, outside of working hours, can receive patients, in a private capacity, in the hospital facilities in which they work, for a fee, agreed to by the patient and the consultant and approved by the hospital authorities (Translator's note: this service is known, in Italian, as *regime libero professionale intra-murario*), or the will (and possibility) of receiving more patient-tailored services (not necessarily of a strictly health-related nature), or, in any case, within a shorter timespan than is normally the case with the NHS. In the latter, we find the lack of supply of certain services, such as Long Term Care (LTC) for non-self-sufficient patients and dental services.

It is precisely to remedy the abovementioned shortcomings that, recently (31st March 2008), the Ministry of Health promoted a measure aimed, on the one hand, at overcoming the deadlock affecting the supplementary health funds (in pursuance of D. Lgs. 229/1999) and, on the other hand, creating the conditions for ensuring better care in the areas where shortcomings had been found.

The abovementioned measure, albeit with certain limitations deriving from and based on the arrangements previously set out under article 9 of the abovementioned D. Lgs. 229/1999, has attempted both to overcome the artificial contraposition between so-called "doc" and "non-doc" funds, descending, for example, in fiscal terms, from D. Lgs. 41/2000, and to broaden the range of deliverable services, by loosening the constraints deriving from the subordination to accrediting of both healthcare professionals and facilities.

The measure, inter alia, has introduced innovations, such as the subordination of the fiscal benefits and, therefore, of state aid, to the commitment by the Funds to provide services in the areas of dental care and LTC.

Last but not least, we wish to highlight the forecast of a Fund database/observatory, which should make it possible, in the future, to better understand the complex world of healthcare cover, for example, the covers historically provided by a large number of so-called *Società di Mutuo Soccorso* (i.e. friendly societies).

Obviously, we can only hope for the introduction of further measures, with respect to both the implementation of the regulations (suffice it to mention the regulations relating to the workings of the Funds and their control), and the launching of the database. It will also be necessary to further define the aspects relating to the share of dental and LTC services to be provided.

More substantial measures, moreover, are also to be hoped for in respect of the actual and effective equalization of treatment, fundamentally of a fiscal nature, and, therefore, capable of guaranteeing free competition between the different market players: insurance companies, friendly societies, contract funds, etc.; at the same time, we might also imagine the removal of certain constraints laid down under D. Lgs. 229/1999, which do not appear to be practically justified by reasons of protection and covering of citizens, but, moreover, by a bureaucratic attempt to prevent the supplementary funds from achieving a substantially 'replacement' function: which, at a closer look, seems to occur for structural

reasons of the system, such as the long waiting lists in certain sectors and the introduction of the so-called *libera professione intra-murale* (see translator's note above).

The experience briefly described introduces a further element for reflecting on the development of the insurance market: to the functions of risk transfer and buyer, in fact, we can also add another, descending from the nature of the 'new emerging needs', i.e. LTC: the financial management of the reserves pertaining to covers such as LTC, which are naturally characterized by a strong time lag between the collection of the premiums and the paying out of the benefits.

It is precisely the explicit indication of the LTC cover as a social priority, implicitly contained in the Ministerial Decree of March 2008, that makes us ask ourselves whether the supplementary Funds should not reasonably pose themselves the problem of setting up reserves, at least for this aspect.

This matter directly concerns the insurance companies, which, moreover, have matured a very precious experience in the financial field, which is necessary for an efficient reserve investment policy. The issue is a new one on the Italian scene, where, to date, health insurance has remained almost exclusively confined to assessment-method (or pay-as-you-go) based forms of management. The nature of the new needs, however, requires the differentiation of the risks and, therefore, the creation of capitalization funds, as was the case for social insurance when the second complementary pillar was developed.

Obviously, the creation of reserves, looking to the future, might have a positive effect, also in terms of supporting investments in the health sector, creating the conditions for enhanced public/private partnerships; at the same time, it will be necessary to attentively assess the expediency of extending the rules applicable to the complementary pension funds, or to introduce new specific ones for the health sector.

The need for new specific rules, moreover, is also recommended by certain health insurance characteristics, which are (in part at least) peculiar and which, therefore, must be specifically regulated: by way of example, we would like to mention here how a complex discussion is under way on the best possible duration of contracts, since there is an obvious trade-off between incentives for competition, which would seem to support the maximum possible degree of freedom for members to switch provider (a concern that was tackled, for example, by the recently approved 'Bersani Decree'), and the maximization of the welfare of the members, which would probably require some greater limits: in other words, the advantages of competition on the premiums might be cancelled should "mobility" represent a significant risk for the insurance companies, which would obviously be taken into account – ex ante – when determining the premiums themselves.

To this we must add the difficulty of providing for fair and efficient rules for switching providers, in the absence of reserves, considering that the rules that seem to predominate, in the field of health insurance today, are largely inspired by forms of annual apportionment of the risks.

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