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across regions? Evidence from the Italian
experience**

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Does federalism induce patient's mobility across regions? Evidence from the Italian experience

Abstract

In recent years, the accreditation of private hospitals followed by the decentralisation of the Italian NHS into 21 regional health systems, has furnished a good empirical ground for investigating the “voting with their feet” Tiebout principle. We consider the competition between public and private hospitals - and the rules supervising the financial agreements between regional authorities and providers of hospital care - as a potential determinant factor for cross border mobility in the Italian NHS. The model we propose considers an institutional variable set at a regional level that, *ceteris paribus*, succeeds in driving CBM flows towards accredited private hospitals. We assume that some northern and central regions accredited private providers not only to meet the internal need of hospital care, but also with the aim of attracting patients' inflows from other regions, particularly from the South of Italy, where the services supplied do not cover such a broad range of hospital specialization and/or do not guarantee the same perceived quality of care. The geographical gradient in this context is considerable: in 2011 the southern regions show a negative balance of - 1.046 billion euro for patients' migration, while the northern ones report a surplus of 863 million euro. Evidence, both from the normative inspection and the statistical analysis, suggests the presence of strategic incentives provided by some regions with the twofold objective of accrediting a good quality health system and contextually overcoming the risk of production excess by driving financial resources from patients' inflows.

Key words: patient choice, hospital accreditation, competition, cross border mobility, federal NHS

JEL Classification code: I11; I18; H3

1. Introduction

In Italy, the accreditation of private hospitals has been carried out with the objective of increasing competition among providers, improving the quality of care and containing the health expenditure. Patient free choice is the appropriate tool through which enhancing these goals. However, as different authors suggest, competition does not necessarily lead to beneficial effects in the health care sector, as its results depend to a considerable extent on the rules of the system (Le Grand *et al.* 1998, Cellini *et al.* 2000, Propper *et al.*, 2004). For the Italian NHS, the “rules of the system” are a federal setting relying on the financial autonomy of each region, and patient free choice, which means the possibility of choosing hospital care outside regional borders. As a consequence, every year, consistent flows of patients migrate from one region to another causing a considerable financial impact on regional budgets. Given the Italian institutional setting and the related rules governing the financial coverage of hospital admissions, we want to investigate whether more competition between public and private providers is likely to influence the cross border mobility (CBM) flows among regions.

According to most authors, the main determinants of patient choice in choosing a hospital are perceived quality of services (influenced by the availability of information on hospital performance), distance from the hospital and waiting times (Levaggi and Zanola, 2004; Cantarero, 2006; Fabbri and Robone, 2010). Gravity models are frequently used to explain patients’ mobility across regions or Health Districts (HD). In very general terms, a patient will choose a hospital in region A, with respect to a hospital in region B where he lives, if the cost of moving offsets the difference in quality between the two hospitals. The higher the difference in quality between region A and region B and the lower the travel costs, the higher the probability of observing a migration between A and B (Levaggi and Zanola, 2004). There is a range of variables employed in gravity models to explain patients’ mobility across regions or HD, including population density at origin/destination HD, per capita income at origin/destination HD, technology index at origin/destination HD and availability of at least a Hospital Trust in the HD of destination, in order to indicate the presence of a well-endowed hospital able to attract patients’ inflows (Fabbri and Robone, 2010). With regard to the last issue, between 1992 and 1999, the hospital accreditation policies - including the choice of accrediting well-endowed hospitals - have been autonomously implemented by each region within the context of Italy’s federal setting.

We want to investigate whether, beside the well-known determinants of patients’ CBM, there are incentives offered by some regions that are likely to attract patients’ inflows. Consistent CBM flows may prove beneficial at a regional level for different reasons, like absorbing any excess production in the hospital sector (Levaggi and Manoncin, 2013), balancing the regional health care budget (Balia *et al.*, 2013), increasing the use of local services (accommodations, restaurant and tourist facilities), and rising the perception of quality within a region, which means a good electoral feedback for regional authorities. The model we propose considers an institutional variable set at a regional level that, *ceteris paribus*, succeeds in driving CBM flows towards accredited private hospitals. We assume that a few northern and central regions have accredited new providers not only to meet the region-wide hospital care requirements, but also with the aim of attracting patients’ inflows from other regions, particularly from southern Italy, where the

services do not cover such a broad range of hospital specializations and/or do not guarantee the same perceived quality of care. The geographical gradient in this context is significant. In 2011, the southern regions reported a negative balance amounting to -1.046 billion euro for CBM, while the northern regions reported a surplus amounting to 863 million euro (Del Bufalo, 2013). Within this framework, the “money follows the patient” principle is strictly complied with, with the result that the southern regions pay for both their inner inefficiencies (in terms of fixed costs) and their patients’ escape, while the northern regions attract financial flows to balance their budgets. Actually, patient mobility is somehow unavoidable since, when dealing with very rare treatments, it is efficient to concentrate the supply in few hospital centres (Hanlon and Skedgel, 2006; Sciattella and Spandonaro, 2012). Apart from these cases, we consider the patient’s decision to move to another region as both a manifestation of his dissatisfaction with the local health care supply (Fabbri and Robone, 2010), and the marketing efforts of private providers in the region of destination.

We don’t investigate the CBM phenomenon *per se*, but we rather focus on the institutional setting regulating the accreditation process in selected regions and try to analyse its impact on patient choice in the Italian decentralised NHS. We consider the accreditation - and the consequent rules supervising the financial agreements between regional authorities and providers of hospital care - as a possible determinant factor for cross border mobility in the Italian NHS. What makes the case of Italy appealing from a policy perspective is the decentralisation of its NHS in 21 different regional health systems¹ that, together with patient free choice, offers a good empirical ground for investigating Tiebout’s “voting with their feet” principle (Tiebout, 1956). This paper contributes to the previous literature by including an institutional variable among the factors explaining the CBM flows. In a sector where information is asymmetric, patients’ choice may be strategically influenced by the supply side of hospital care and easily piloted towards private providers.

The competition between private and public hospitals is examined from an institutional, regulatory and empirical perspective. With this view in mind, we have selected a sample of regions deemed significant in terms of positive CBM balance (see Figure 1) and representative of different regional health care models. The selected regions are Lombardy (quasi market model) and Emilia Romagna (integrated model) in the North, Tuscany (prevalence of public beds) and Lazio (prevalence of private beds) in the Centre, and Molise - the only southern region showing a positive balance for hospital CBM - in the South. The remainder of the paper is organized as follows. Section 2 presents the institutional framework governing the provision of hospital services in Italy’s NHS. Section 3 analyses the normative framework regulating the hospitals’ accreditation process both at a national and a regional level, as well as the contractual agreements entered into by purchasers and providers of hospital care services. Section 4 describes the relevant data and the statistical analysis. The discussion (section 5) summarises the main findings, while the conclusions (section 6) address a few policy proposals suitable for regulating the CBM phenomenon in the hospital sector that, on a yearly basis, involves nearly 810,000 patients (Del Bufalo, 2012-2013).

¹ In Italy there are 19 regions and two autonomous provinces, namely Trento and Bolzano, and each of them has its own health care system.

2. Institutional background

The reform of the Italian NHS, which started in 1992 and was finalized in 1999, introduced competition among providers with the twofold objective of increasing the quality of care and containing the health care expenditure (France et al., 2005; Brenna, 2011). The main features of the theoretical model are the separation between purchaser and provider, with competing providers, centrally set prospective prices (DRG tariffs), the provision of greater and more accessible information on quality and the encouragement of entry, mainly from the private sector (Propper et al., 2006).

Further to the reform, the hospital sector underwent a sweeping change: many private providers were accredited and, just like public hospitals, were granted public funds for the hospital activity delivered within the NHS scheme. In Italy, the provision of hospital treatments is completely free of charge for patients. Each region, through its Local Health Authorities (LHA)², is financially responsible for the health services delivered to its resident population. Accredited private hospitals can treat patients within the NHS scheme, i.e. free of charge, and be reimbursed by the LHA the patient belongs to (Fabbri and Robone, 2010). Health care funds are distributed by the regions to the LHAs based on capitation arrangements. At the beginning of the year, each LHA allocates a share of its budget for hospital activity: hospital treatments can be provided by independent public hospitals (i.e. Hospital Trusts, bearing full responsibility for their own budgets), accredited private hospitals, or public hospitals directly managed by the LHA. With the first two categories of providers, the purchaser (LHA) contracts the number and typology of admissions as well as the restrictions (overall ceiling, tariff caps and cuts) in case of an excess production. Admissions are paid on a DRG scheme. If hospital treatments are sold to non-enrolled persons, LHAs receive additional resources for the treatments they export. Similarly, LHAs that pay for the treatments they import, i.e. for the admission of their patients in a hospital which is not in their territory, will suffer from financial outflows.

This framework can be transposed on a larger scale at an interregional level, where sizable financial flows reimburse patients mobility across regions. Italy implemented its fiscal federalism in 2000. Each region, through its internal taxation, raises the funds needed to finance its health care sector³. In compliance with the patients' free choice principle, the individuals are allowed choosing the provider of their hospital care without any geographical constraint, whether inside or outside their region of residence. In the latter case, however, this gives rise to a financial transaction between regions of residence and destination, respectively, through a conventional flat rate (TUC). Very often, regions providing lower quality hospital care pay those that are better endowed (presumably the ones which accredited high-quality hospitals) for the hospital treatments provided to their outgoing patients. From a financial point of view, each region has a strong incentive to limit its outflow of patients and to attract an inflow of patients from other regions. In a federal setting, as it is the case in Italy, it becomes crucial to find out whether the regions showing high

² LHA are public firms operating in the health sector, which represent the third level of Government after the Central Authority and the Region. In Italy there are 143 LHAs with a population of beneficiaries varying from 150,000 to 400,000 (2012 data, Ministry of Health).

³ Yet, although regions are required to autonomously finance their Health Services, a balancing Fund was created in order to compensate for cross-regional differences in fiscal capacity.

patients' inflows developed their accreditation process mostly to meet their internal care requirements, or to promote competition between private and public hospitals, or, essentially, with the indirect aim of attracting cross border mobility. Most of the regions showing a positive CBM balance transformed their deficits into net gains through CBM revenues (Balía et al., 2013).

This analysis focuses on acute admissions, which represent almost 80% of the entire CBM phenomenon in terms of volume and financial flow. Figures 1 and 2 show a clear geographical gradient, with the southern regions exhibiting high escape values and most of the northern and central regions showing marked attraction values⁴. If we look at longitudinal CBM balance data (2000-2005-2010), the stability of the trend suggests the presence of a structural misallocation of resources in the Italian NHS (figure 3).

3. The accreditation process between centrally set rules and regional regulations

In Italy, the hospital accreditation process began in 1992 with decree no. 502/92, which established the qualitative standards of providers in order to implement a new health care system where public and private hospitals would compete for the provision of health care. The objectives were competition increase, health expenditure control and a better quality of care. After a few years of minor changes in the regulations, the reform was finalized in 1999 (decree no. 229/99), with the definition of a four-step process of accreditation. This procedure, also called the "four A" system, is organized as follows: 1) **A**uthorization to build the hospital facility, 2) **A**uthorization to carry out the health care activity, 3) **I**nstitutional **A**ccreditation, 4) **C**ontractual **A**greements. While the first two steps relate for the most part to technical aspects, the other two reflect quite closely the health policy approach of each region and, therefore, require to be commented on. The institutional accreditation is the stage that allows the provider to work for the Italian NHS, and it is only granted with the prior authorization of the region, consistently with the internal hospital supply planning. The much debated trade-off between resources planning and competition (Le Grand, 1999) is well represented in this context. This step has been performed autonomously at a regional level, with no central supervision that would guarantee an equitable allocation of resources among regions for the hospital sector. Some regional health systems have accredited high quality or very specialised hospitals, while others have not, and this picture follows a North-South gradient. The final step - the contractual agreement - is the tool that grants public funds to accredited private hospitals: lacking this agreement, a private provider can still admit NHS patients, but only on a "private funding" basis. At the beginning of the year, each LHA renovates through a contractual agreement with individual public or accredited private providers the type and maximum number of admissions (overall ceilings), as well as the financial

⁴ For each region the "attraction index" is given by the percentage ratio between cross border admissions and total discharges within the region. The "escape index" is the ratio between the number of individuals leaving their residence region to be hospitalized elsewhere in Italy, and the total number (in-and outside the region) of resident patients' admissions.

restrictions applied (tariff caps or cuts). In general terms, only private providers comply with these restrictions: if public providers exceed their upper production limit, they are actually refunded ex-post by the region for any budget loss. This behaviour - which raises an important equity question - represents for public providers an additional financing that is denied to private hospitals (Brenna, 2007; Caroppo and Turati, 2007).

This consideration brought us to investigate more closely, within the selected sample of regions, the regulations governing the contractual agreements, assuming that a more extensive entrepreneurial autonomy is granted to accredited private hospitals, which often balance their budget by drawing resources from the CBM flows. Indeed, the regional legislation of all the regions of the sample, with the exception of Molise, shows that the LHAs determine with private providers the maximum number of admissions (*ceilings*) *just for resident patients*, contextually excluding cross border patients from any kind of restriction. This is the case, for example, of Lombardy and Emilia Romagna, for which the financing of CBM admissions is paid extra-budget at the end of the year⁵. This condition implicitly recognises a diverse entrepreneurial authority to private providers, which are set on a different contractual scheme from public providers. Based on this mechanism, a production excess by accredited private providers can relapse financially on the patients' inflows (see, for example, Levaggi and Manoncin, 2013).

4. The analysis of Cross Border Mobility flows

The empirical analysis focuses on the CBM acute admissions for the five regions of the sample: Lombardy, Emilia Romagna, Tuscany, Lazio and Molise. We consider only the publicly financed admissions, i.e. CBM patients hospitalised in public and accredited private hospitals under the NHS scheme. Data, updated to 2010, come directly from the Ministry of Health⁶, on our request, and this yields an additional value to the analysis, namely the possibility of disaggregating the patients' inflows according to the typology of the selected hospital, information that is not available on the Ministry's website (see, for example, Fabbri and Robone, 2010). The heterogeneity of the Italian hospital supply - by typology, legal ownership and degree of autonomy - requires a brief description. Considering the public providers, the Public Hospital Trusts are independent public hospitals controlled by a general manager appointed by the region. They are separated from the LHA with whom they contract the volume and typology of admissions. On the contrary, very little autonomy is given to the LHA hospitals, which are run directly by the LHAs. The University Hospitals and the IRCCSs (Treatment and Research Institutes), are for the most part (either public or private) teaching facilities or hospitals carrying on research activity for which they receive extra funds from the Government. The private hospitals include also: i) religious hospitals, almost all of them classified as non-profit

⁵ "The payment of the cross-border admissions is not accounted for in the budget, nor is the access of non-resident patients subject to restrictions by the Local Health Authorities of Emilia Romagna,..... "(General Agreement between the Emilia Romagna Region and AIOP, Association of private hospitals).

⁶ This paper is the result of a research on accreditation and CBM in the Italian federal setting commissioned by the Italian Ministry of Health to CEIS Tor Vergata.

institutions, ii) private for profit hospitals (namely, private clinics), iii) privately run Units of the LHAs (LHAs presidia) and iv) private “Research Units Hospitals”, which are hospitals devoted for the most part to research activity.

Considering the comprehensiveness and complexity of the services being provided, we can rank hospitals by (average) quality, and this places University Hospitals and IRCCSs first, followed by Public Hospital Trusts, LHAs’ hospitals and private clinics: we expect to find the same ranking in their attraction indexes.

We start from the assumption that public and accredited private hospitals (stratified by categories), provide on average the same quality of care. The literature on this issue is quite controversial at an international level and results on providers’ performance according to their ownership often diverge (Zuckerman et al., 1994; Vitaliano and Toren, 1996; Puig-Junoy, 1998). Looking at the literature on the Italian case, it seems reasonable to assume that, on average, private providers do not perform better than public ones. While no evidence could be found of a better performance by the private sector compared to the public one (Barbetta et al., 2006), there is evidence to the contrary, namely, public providers are more efficient than private ones (Berta et al., 2011).

Hence, any preference for the private sector shown by the CBM flows should not result from systematic differences in the clinical quality of the care provided. Based on this assumption, we want to test whether CBM patients would rather be admitted in public or private hospitals. Our suggestion is that the CBM patients’ preferences can be easily influenced in the presence of asymmetric information, and regional regulations can make the most of this evidence to obtain opportunistic advantages. In other words, we want to test the impact (if any) of the strategic incentives provided by some regions on cross-border patients’ preferences.

4.1 Methods

The analysis was performed considering the regions of origin/destination of the CBM flows. First of all, for each sample region, we distinguished the “boundary CBM” - which is due to territorial proximity and, to a certain extent, is to be considered structural - from the “distance CBM” that, as suggested by literature, is driven from a perceived higher quality of care characterizing the hospital of destination (Levaggi and Zanola, 2004; Cantarero, 2006; Fabbri and Robone, 2010). If patients choose the private providers irrespective of their geographical residence, this would suggest a strong induction effect from private hospitals, corroborating our hypothesis of the presence of distortions in the CBM flows among regions. Secondly, we tested with respect to both boundary and distance CBM whether there was a preference for the “hospitals that are centres of excellence”, in order to evaluate if quality/specialisation can be considered driving factors for patients’ choice.

The statistical analysis was performed using specific indices. The most common indices applied from scholars to the analysis of cross border mobility are the “attraction index” and the “escape index”. The first one is the ratio between the cross border admissions and the total discharges within the region. It indicates, for each region, the percentage of external applications for admission (from all the other regions) on the total yearly admissions. The “escape index” of any region is the ratio between the number of

individuals leaving their residence region to be hospitalized elsewhere in Italy, and the total number (in and outside the region) of resident patients' admissions. It reveals the patients' disaffection for their own region. Both parameters are good for measuring the CBM flows across regions from a national perspective. For our purposes, we needed to find more specific indicators to analyse the CBM flows among *selected* regions. Given the vector $\mathbf{X} = x_1 \dots x_{21}$ for the 21 Italian regions and the vector $\mathbf{Y} = y_1 \dots y_5$ for the five sample's regions, we built a "regional attraction ability index" (RAAI) which is given by the ratio of "patients coming from x_i , (with $i = 1, 21$) and admitted in y_j (with $j = 1, 5$) and "the total amount of passive CBM for x_i ". The newly found parameter measures for each region x_i "the percentage of resident patients in mobility who choose to be admitted in the region y_j of the sample". So, in a way, it measures the power of attraction of y_j over x_i .

$$RAAI_{y_j/x_i} = \frac{PCBM_{x_i/y_j}}{tot\ PCBM_{x_i}}$$

with

$RAAI_{y_j/x_i}$ = index of the ability of a sample region (y_j) to attract patients from another specific region (x_i);

$PCBM_{x_i/y_j}$ = number of patients resident in region x_i and admitted to hospitals in region y_j ;

$Tot\ PCBM_{x_i}$ = total number of patients resident in region x_i being admitted to hospitals in other regions (i.e. passive CBM of region x_i);

We applied the RAAI to each region of the sample and selected - for Lombardy, Emilia Romagna, Tuscany, Lazio and Molise - the three boundary regions $x_1 \dots x_3$ and the three distance regions $x_4 \dots x_6$, which export the highest percentage of their residents to that region y_j . This step is represented in table 1, with Lombardy as a sample. After that we built, in respect of each sample region, a matrix table matching the flows of patients, from each previously selected region $x_1 \dots x_6$ with the different categories of hospitals admitting them. In this second step of the analysis, we applied the attraction index formula to each hospital category: namely we matched each hospital category of the region y_j of destination with the number of patients coming from each one of the six selected regions $x_1 \dots x_6$. This would give us some cross information between the kind of mobility (boundary and distance) and the kind of hospital chosen (if public or private/excellence or not). The attraction index computed for each hospital category (AIHC) is given by a fraction. The numerator shows the number of patients coming from a selected boundary or distance region ($x_1 \dots x_6$) and admitted to a selected category of hospitals (e.g. Public Hospital Trust); the denominator shows the yearly number of admissions to that specific category of hospitals. These values allowed us to compare boundary and distance CBM using a parameter which is weighted for the total number of patients admitted to each hospital category. So, the number of beds supplied within that category should not be an issue.

The matrix tables, built for each sample region, gave us information about "boundary" and "distance" patient choice, respectively, disaggregated by type of provider. Firstly, we tested preferences according to the private/public disaggregation, then we checked the "quality seeking" preference by focusing on the

hospitals that are centers of excellence. For the sake of uniformity, we identified the hospitals that are centres of excellence with the IRCCS and the University Hospitals, which are high quality and/or very specialised hospitals that have the research and teaching activity as their common trait.⁷

4.2 Main results

With reference to each region of the sample, the results show that the attraction power is on average higher for boundary regions. Disaggregating these figures by hospital category, the highest attraction indices relate to teaching and research hospitals, followed by hospital trusts. The centres of excellence show on average the highest attraction indices, confirming, as literature suggest, that quality and/or specialisation are mobility driving factors for both boundary and distance CBM. The hypotheses suggested by literature on both gravity models and the presence of a quality driven mobility are indirectly confirmed by our analysis.

But most important, with reference to each region of the sample and every hospital category, our findings show an attraction index that is systematically higher for accredited private hospitals than for public hospitals, and this applies to both at distance/boundary choices and excellence/not excellence levels. Tables 2 and 3 report the values for Lombardy and Tuscany, respectively. For Lombardy, the aggregated attraction index for the category of private hospitals (15.9%) compared with that of public providers (5.9%) indicates a greater ability of the private sector to intercept the non-resident demand. It is interesting to observe that, although the number of beds of public providers (23,489) is much higher than that of private providers (13,924), the number of admissions in 2010 is almost the same for the two categories (66,808 public versus 66,150 private). Considering the same category of excellence hospitals (Public University Hospitals and IRCCS), a higher preference results for private hospitals (25.4% private versus 16.1% public). Since no differences in quality can be assumed between private and public providers of the same category of hospitals, this finding suggests the presence of another variable - possibly strategic incentives from the supply side – that influences patients' preferences. With reference to Lombardy, the highest attraction index is shown for the private centres of excellence (25.4%). The disparity in the public and private attraction indices remains when the result is disaggregated for each of the six regions (Piedmont, Veneto, Emilia Romagna, Puglia, Sicily and Sardinia) that contribute the most to patients' inflows in Lombardy. Specifically, both distance and boundary flows show a higher preference for private providers and, on average, the highest attraction indices relate to boundary CBM. This result could mean that the institutional variable impacts more on boundary mobility, where patients' preferences are not constrained by travel/accommodations costs. However this point needs to be investigated to a greater extent.

Even with respect to Tuscany, the results confirm an aggregated attraction index that is higher for the category of private hospitals (31.9%) than for the category of public providers (9.1%). Still, the hospitals that are centres of excellence show very high attraction indices and, again, the disparity between private

⁷ We acknowledge that many Public Hospital Trusts work as well as the hospitals that carry out research activity but, for the sake of uniformity, they could not be included in the category of the hospitals that are centres of excellence.

and public hospitals in their power of attraction is shown for each one of the six x_i regions. Private clinics, whose presence is widespread on the territory, also show a very high attraction power, highlighting how the internal structure of each regional health system could influence CBM flows. As for Lombardy, on average, the attraction indices in the category of private providers are higher for boundary regions compared to distance regions.

Data on the other sample regions are not reported, but the results are aligned with those of Tuscany and Lombardy⁸. In general, with reference to all the sample regions, the greater power of attraction exercised by private hospitals with respect to public ones is confirmed for both boundaries and distance CBM. This finding is corroborated by the CBM trend during the last three years of observation (2009-2011) that shows a progressive increase in the number of CBM patients admitted to accredited private hospitals for each region of the sample, with the exception of Molise (see Figures 4 for Lombardy). The case of Molise, the only southern region with a positive CBM balance (3,075 in 2010), is enlightening. Molise is one of the smallest regions in Italy with 319,780 inhabitants, ten hospitals, 1,425 beds and 71,248 acute admissions in 2010. Nonetheless, one patient out of four comes from another region. The highest values of its regional attraction ability index are shown for Campania (15%), Puglia (8.1%), Abruzzi (8.1%) and Lazio (6.6%), which are all boundary regions. Its attraction ability is almost exclusively due to the presence of two centres of excellence, the “IRCCS Neuromed”, specialised in neurological pathologies (with an 82.5% attraction index), and the “Biomedical Science” Academic Research Unit, both of them private. This result stresses the relevance of an accreditation policy designed to increase the perceived quality of a regional health system and confirms that both better quality care (and hospital-specialization), and private capacity of attraction are two driving factors for mobility.

While some northern and central regions have developed their accreditation process opting for an increase in the perceived quality of their regional health systems, many southern regions failed to do so, with the consequence that consistent flows of patients (and money) migrate every year from the South to those northern and central regions in order to get hospital care. Our analysis suggests that the infra-regional trade-off between competition and financial equilibrium has been solved by many regions (typically those showing higher CBM balance) by driving patients’ inflows. The arrangement of *ad hoc* contractual agreements between the regional authorities and the category of accredited private providers in order to favour non-resident patients’ admissions corroborates this hypothesis. Somehow, if patients’ inflows are prevalently steered towards accredited private providers, this phenomenon depends on the ability of the latter to induce the demand, and it is based on incentives resulting from the regulatory setup (what we call institutional variable) governing the contractual agreements between purchasers and providers of hospital care. A few northern and central regions might have furthered the accreditation of private centres of excellence with the dual objective of developing high quality regional health systems and exporting any excess production to other regions.

This fact, however, exacerbates the North-South gradient in the Italian NHS. The presence of reliable one-way flows of patients leaving their own regions to seek care elsewhere is due to a misallocation of

⁸ Data are available from the authors on request.

resources in the Italian NHS caused, inter alia, by the lack of a centralized planning during the accreditation process. Federalism did not help this picture. The perception of the quality of care provided by a region within its borders depends on the ability of that region to export net flows of services. Some regional health systems, such as those of Lombardy and Emilia Romagna, got the greatest advantages from cross-border mobility and transformed their deficits into net gains (Balía et al., 2013). While the CBM phenomenon could be explained and accepted in a few cases by the presence of specialisations, this becomes an issue when it involves a one-way flow of patients accompanied by financial resources. This unilateral flow, as Tiebout suggests, symbolises very well the inefficiencies of the regional health systems in the South, which are not able to retain their own patients and which pay at the same time for the fixed costs of their hospitals and their patients' outgoings. To this extent, due consideration should be given to equity issues related to the individual patient's possibility to move to another region, given the high travel and accommodation costs.

5. Discussion

The aim of the paper was not investigating the driving factors of cross border mobility in the Italian NHS, an issue already developed by the existing literature, but rather exploring the impact of the implemented competition in the hospital sector on patient choice, given a decentralised health system. Specifically, we focused on the presence of strategic incentives provided by some regions with the dual objective of accrediting a good quality health system and contextually overcoming the risk of an excess production by drawing financial resources from CBM flows. The analysis was structured in three phases: (i) an inspection of the institutional framework ruling the hospitals' accreditation process at a central level; (ii) a more specific insight - within a selected sample of five regions - into the regional regulations governing the contractual agreements between purchasers and providers of hospital care; and, finally, (iii) an empirical investigation of the CBM flows directed towards the five regions of the sample, in order to test for patients' preferences. The five selected sample regions exhibit the common trait of a high positive CBM balance, while they diverge with respect to the inner setting of their health care systems. The latter feature has been chosen in order to detect every possible aspect of the CBM flows due to the regional supply of hospital services, focussing mainly on the disaggregation between public and private hospitals and between hospitals that are or are not centres of excellence. The first phase has highlighted the implicit contradiction of an accreditation system that, originally set by the central government, has been formally developed at a regional level with a discrete margin of autonomy. As literature suggests, an increased competition within a publicly financed sector - given fixed tariffs - inevitably crashes with the budget constraints determined at a regional level (Le Grand, 1999, Propper et al., 2004). To this extent, the internal regulations enforced by each region to plan the maximum amount of production and the reimbursement ceilings for the hospital care providers become crucial. The premise is that production ceilings and tariff cuts and caps are *de facto* complied with only by the accredited private hospitals, since public hospitals are normally refunded *ex-post*. In consequence thereof, private providers of hospital care are allowed, and even encouraged by the contractual agreements, to make up for their excess production through CBM flows. Our regulatory assessment of the contractual agreements between purchaser and providers of hospital care shows that it is *only* in respect of private providers that CBM admissions are excluded from the production limits set on a

yearly basis and are paid extra-budget at the end of the year. This is true for all the regions of the sample, except for small Molise⁹. As a consequence, the empirical inspection shows that the attraction indices of the private providers of hospital care, stratified by homogeneous categories, are higher compared to those of the public providers. As a further finding, there is evidence, in four regions out of five, of higher weighted flows of CBM to the excellence structures (IRCCS and University Hospitals) compared to the others providers, which suggests that these facilities represent an attraction pole for the non-resident patients. Still, within this category, a higher preference for the private sector is detected.

6. Concluding remarks and policy proposals

Increased competition in the health sector can lead to diverse consequences, much depending on the rules of the system. In the Italian decentralised NHS, the process of accreditation of the hospitals, which was to meet competition requirements, has been implemented with no central coordination, thereby allowing each region to behave according to its own planning criteria and CBM strategies. Referring to the notable sentence by Julian Le Grand (1999) about the British NHS internal market reform, *“in the battle between market competition and central control, control won”*, we can reword it based on the Italian federal NHS and conclude that *“in the battle between market competition and regional control, selected regions won”*. A few northern and central regions developed the accreditation process with a view to enhancing the quality of their regional health systems, while a planning policy designed to satisfy the internal demand of hospital care is hard to find in most southern regions. Given the rules of the system - free patient choice, fixed tariffs for hospital services (which means competition played on quality alone), and regional budget constraints (the compliance with which reflects the public accountability of the individual regional system) - a few regions (typically those exhibiting well-endowed hospital sectors) took advantage of them by filling the excess capacity with patients' inflows. With reference to both boundary and distance CBM, our findings reveal a greater preference for private hospitals. Given our assumption, driven from literature, of no relevant difference in the quality of care delivered by private and public hospitals, stratified by homogeneous categories, this can be explained by the strategic incentives set by a few regions in order to favour a net export of hospital services by the private sector.

In recent years, this form of supplier-induced demand has been successfully countered by bilateral agreements entered into by boundary regions in order to decrease inappropriateness and reduce the CBM flows. Nonetheless, there is no trace of such agreements between the southern regions exporting patients and those regions where the main stream of the flows converges. Consequently, every year there is a

⁹ The geographical position of Molise, together with the presence of two high quality accredited private hospitals, suggests that CBM in this region is guaranteed with no need to have recourse to regulatory-type incentives.

considerable flow of patients (and money) moving from Italy's South, especially from Calabria, Campania, Puglia and Sicily, to selected regions in Italy's Centre and North.

The North-South gradient emerging from the analysis raises equity concerns at both a micro and a macro level. At a micro level, patients move if the perceived quality of care in another region offsets the costs of migrating, but given the high costs of moving to a distant region, patient free choice is actually limited by the resources available to the patient (CMPO, 2007). At macro level, beside the denied right of equal access to equal care, which is a basic principle of the Italian NHS, every year a flow of resources moves from the southern to the central/northern areas of the country. This gives rise to a dual policy proposal. Firstly, as far as the South of Italy is concerned, new investment in personnel, advanced technology and specialization within the hospital sector would help check the patients' outflow, as the Molise experience suggests. Contextually, the southern regions and the regions where the patients' inflows broadly converge should enter into interregional agreements that are likely to provide the former with a tool for planning the number, typology and financial coverage of the outgoing admissions.

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General Agreement 2011-2014 between Emilia Romagna Region and AIOP, Association of private hospitals

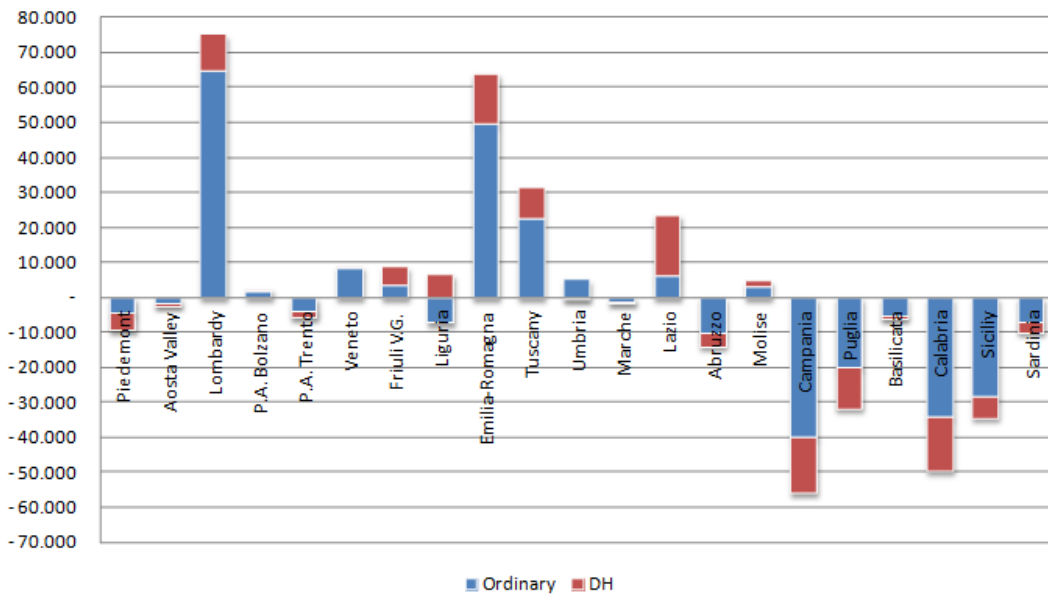
Decree of the Regional Government no. 12118/2004

Decree of the Regional Government no. 3583/2009

Decree of the Regional Government no. 2362/2011

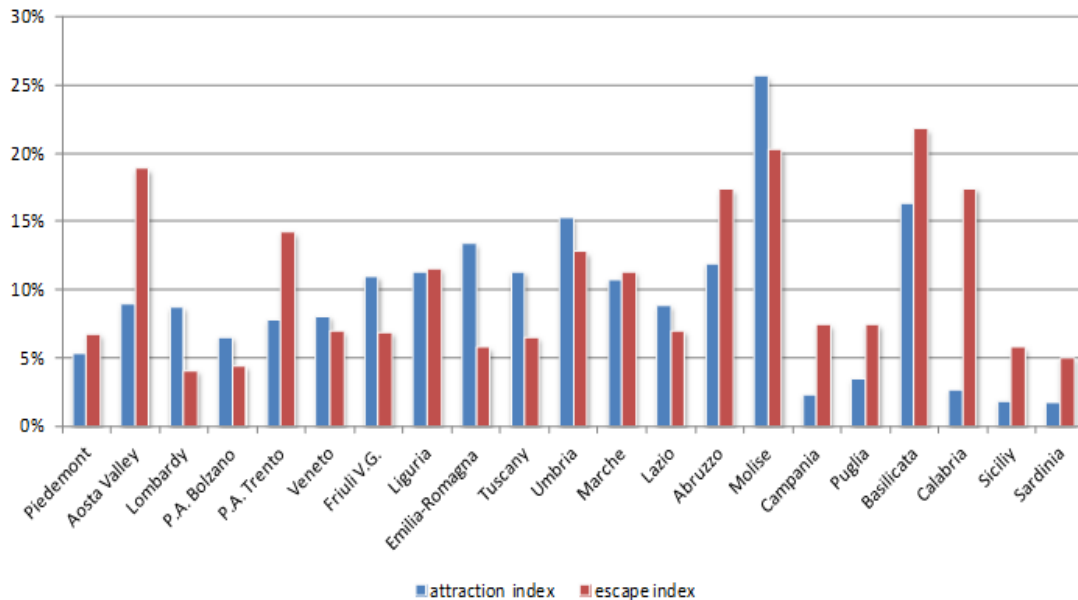
Decree of the Regional Government no. 420/2011

Figure 1
CBM balance for acute admissions (ordinary and DH) – year 2011



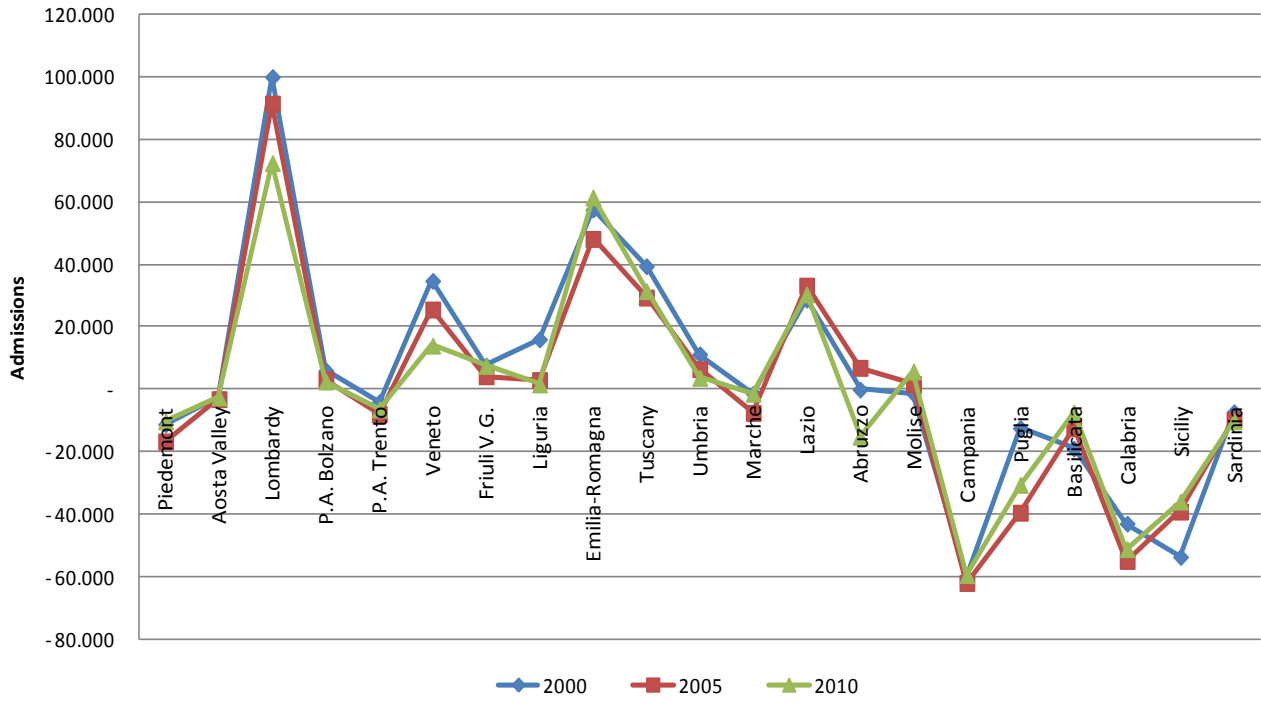
Source: elaboration of data from the Ministry of Health

Figure 2
Attraction and escape regional index – acute admissions (ordinary and DH) - year 2011



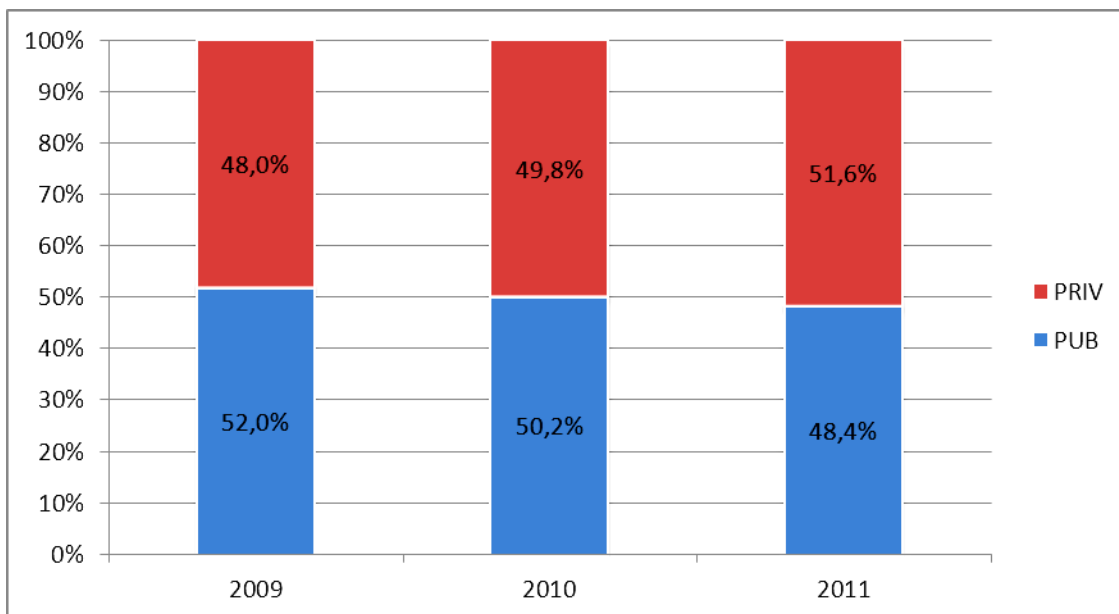
Source: elaboration of data from the Ministry of Health

Figure 3
trend of CBM balance – years 2000, 2005, 2010



Source: elaboration of data provided by the Ministry of Health

Figure 4
Lombardy: CBM acute admissions (ordinary and DH) by typology of hospital - years 2009-2011



Source: elaboration of data from the Ministry of Health

Table 1**Lombardy: Regional attraction ability index - acute admissions - year 2010**

Hospital CBM - RAAI Lombardy- Year 2010		
Resident region	Number of CBM patients admitted in Lombardy	RAAI (%)
Piedmont	25384	77.4%
Valle d'Aosta	705	19.9%
Lombardy	-	0.0%
P.A. Bolzano	480	16.5%
P.A. Trento	1902	21.4%
Veneto	9404	31,6%
Friuli V.G.	1547	17.6%
Liguria	8526	33.6%
Emilia Romagna	18300	60.6%
Toscana	6161	24.2%
Umbria	1072	8.3%
Marche	2787	13.4%
Lazio	4748	10.4%
Abruzzi	2147	7.7%
Molise	536	6.2%
Campania	8288	14.1%
Puglia	9877	23.8%
Basilicata	1631	10.5%
Calabria	9604	23.0%
Sicily	15257	38.9%
Sardinia	4602	42.9%
Total	132958	24.8%

Source: elaboration of data from the Ministry of Health

Table 2

Lombardy. Disaggregation of CBM acute admissions by category of hospitals (public/private) and kind of mobility (boundary/distance) – year 2010

	Public hospital firms	LHU's hospitals	Public University hospitals and IRCCS	Private University hospitals and IRCCS	Nonprofit-religious	Private clinics	LHU's private presidia	Research Unit hospitals	Tot Public	Tot Private	TOT
Number of beds (2009)	20904	311	2274	4497	1251	8006	170	-	23489	13924	37413
Attraction index	4.5%	1.1%	16.1%	25.4%	3.7%	9.7%	-	-	5.9%	14.8%	8.4%
Positive CBM acute admissions	44486	131	22191	41181	1626	23343	-	-	66808	66150	132958
Attraction index Piedmont-B*	0.9%	0.1%	3.3%	5.0%	0.9%	1.6%	-	-	1.1%	2.7%	1.6%
Attraction index Veneto-B	0.4%	0.1%	0.6%	1.0%	0.2%	1.2%	-	-	0.4%	1.0%	0.6%
Attraction index Emilia Romagna-B	0.8%	0.1%	1.7%	2.3%	0.2%	1.9%	-	-	0.9%	1.9%	1.2%
Attraction index Puglia-D*	0.3%	0.1%	1.6%	2.1%	0.4%	0.4%	-	-	0.5%	1.0%	0.6%
Attraction index Sicily-D	0.5%	0.1%	2.0%	2.9%	0.5%	1.0%	-	-	0.7%	1.6%	1.0%
Attraction index Sardinia-D	0.1%	0.1%	0.6%	1.0%	0.2%	0.4%	-	-	0.2%	0.6%	0.3%

Source: elaboration of data provided by the Ministry of Health

** B = boundary regions; D= distance regions*

Table 3
Tuscany, disaggregation of CBM acute admissions by category of hospitals
(public/private) – year 2010

	Public hospital firms	LHU's hospitals	Public University hospitals and IRCCS	Private University hospitals and IRCCS	Nonprofit-religious	Private clinics	LHU's private presidia	Research Unit hospitals	Tot Public	Tot Private	TOT
Number of beds (2009)	-	6460	3124	70	-	1776	155	117	9584	2118	11702
Attraction index	-	4.5%	16.5%	60.8%	-	32.7%	-	0	9.1%	31.9%	11.1%
Positive CBM - acute admissions	-	15898	35471	1210	-	15301	-	800	51369	17311	68680
Attraction index Liguria-B*	-	1.1%	1.4%	8.1%	-	7.6%	-	0	1.2%	7.6%	1.8%
Attraction index Umbria-B	-	0.5%	1.1%	3.9%	-	4.0%	-	0	0.7%	3.6%	1.0%
Attraction index Lazio-B	-	0.7%	2.2%	2.3%	-	5.8%	-	0	1.3%	5.2%	1.6%
Attraction index Campania-D*	-	0.3%	2.8%	12.5%	-	2.3%	-	0	1.3%	2.5%	1.4%
Attraction index Sicily-D	-	0.3%	1.6%	5.3%	-	2.2%	-	0	0.8%	2.1%	0.9%
Attraction index Sardinia-D	-	0.1%	0.4%	1.9%	-	0.3%	-	0	0.2%	0.4%	0.2%

Source: elaboration of data provided by the Ministry of Health

** B = boundary regions; D= distance regions*

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