Public-Private Competition in the Portuguese Health System: An exploratory analysis

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Abstract

For the last three decades there has been an interaction between the public and the private sectors in the Portuguese health system. Understanding the nature of that interaction is a decisive factor so as to comprehend the role of the private sector in the Portuguese National Health Service (NHS). Also, provision and supply of health care in Portugal have changed over these 30 years of NHS. Over this period, there have been sharp improvements in the NHS, a growth of the public and private sectors, and an improvement in the health of the Portuguese. Changes in the competition between the public and private sectors seem also to have operated.

This dissertation aims at developing methods to study the nature of competition between the public and private sectors in the provision of health care services, with application to the Portuguese NHS. Competition was analyzed through the study of market shares for the public and private sectors and of concentration indices, namely the Herfindahl index (H). The methods were applied to national, regional and local data from the Lisbon area.

The evolution of selected indicators was analyzed for a specific period of time. Results show that the private sector has an important role in provision in some areas, such as in oral health. Overall there has been no substantial variation in competition between the public and private sectors: the private is complementary to the public in some areas, and chooses to operate in some selected areas that are the most profitable. There is evidence on a market structure of monopolistic competition between private providers in the Lisbon area.

Keywords: NHS, health care, provision, supply, public and private sectors, competition.

1 Introduction

The health sector is a highly visible sector due to its important role in society, for the economy and for public policies. Health Economics is a relatively recent discipline that has gained autonomy and projection within the economics science in the last two decades (Barros, 2009).

Health care providers need to ensure minimum quality in health care for users, and that they use the appropriate level of staffing, equipment or facilities when they deliver health care.

In Portugal, the responsibility for provision of health care at the national level is ensured primarily by the NHS. However, since the inception of the NHS there has been a high number of private operators coexisting with the NHS, that is the largest provider. Existing evidence indicates that there is both competition and/or cooperation between the two sectors in health care provision (Dinis, 2008). There is little information about the nature of competition between the two sectors, and we have thus selected this topic to perform an exploratory analysis.

2 National Health System

Since 1979, the Portuguese health system has been based on a NHS structure with public insurance, universal coverage, almost free access at the point of use of services, and financing through taxes (Oliveira et al., 2005).

According to the Portuguese Constitution, the NHS is based on a decentralized organizational system, although it has maintained over time a centralized structure mainly due to centralised management of hospital care (Oliveira et al., 2005).

In terms of coverage, the health care system is characterized by the coexistence of three systems: (i) the NHS, described above (ii) the public and private insurers for certain professions (named health subsystems) and (iii) private health insurers for voluntary insurance, which also include mutual funds (Figueras et al., 2004).

In accordance to legislation, the Portuguese NHS provides universal coverage to all the Portuguese, being predominantly funded through national or regional taxes (Figueras et al., 2004).

Health subsystems are responsible for funding and providing health care to about 20% of the population (Simões et al., 2007).

10% of the population benefits from private health insurance. Additionally, 7% of the population is covered by mutual funds (Figuera et al., 2004).

Higher need for health care services due to an ageing population, along with other factors such as growth of the gross domestic product, innovation, technological development in the medical and therapeutic has been requiring increasing amounts of resources to the health care sector (Simões et al., 2007).

Over the last two and a half decades, there has been a growing share of health spending in GDP in countries of the European Union (EU). This trend of growth has been comparatively stronger in Portugal, which has been mainly due to higher increases in public spending, as shown in Figure 1 (Simões et al., 2007).

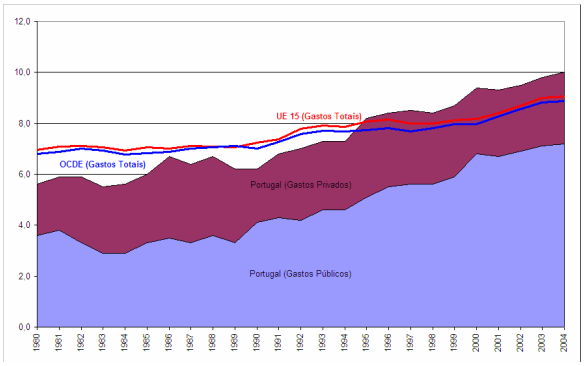

Figure 1 - Evolution in share of health spending in GDP (%) in Portugal, EU15 and OECD between 1990 and 2004 (Simões et al., 2007).

In order to understand the provision of public and private health services, financial flows in a health system move between three types of entities (Figure 2): (i) the population, (ii) the funder and (iii) providers of health care.

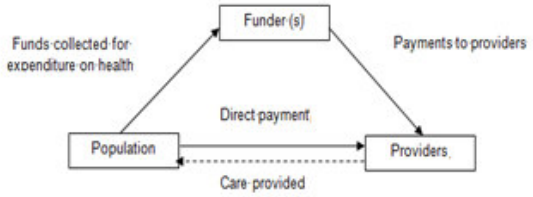

Figure 2 - Diagram of financial flows in health system (Santerre et al., 1996).

Health care provided to the population is mainly paid by two major routes: the payment by the population at the time of consumption, and payment made by the funders that insure the population (e.g. the NHS and insurers).

Typically in countries with a NHS (with a health care system similar to the Portuguese system), the state has assumed simultaneously the role of purchaser, funder and provider. More recently, in these countries there has been a gradual separation between the roles of funder, regulator and provider, where the state keeps being funder and regulator, but delegating the provision to other entities through contracts.

3 Economic Analysis in the Health Sector

Measuring the level of health is a key area with methodological challenges and difficulties in measurement, as it is hard to measure the economic value of human life and quality in health. It is necessary to define what is meant by health, before carrying out analysis on the health sector.

Health is a basic good, as it is required for an individual to have an opportunity to have a normal life in society and to be economically productive.

The health sector can be considered as a sector with features of economic organization and principles of analysis similar to other sectors, but several features make it a unique sector.

Some features of the health care market differentiate it from other sectors. For example, there is asymmetric information between the buyer and the seller (as the buyer/patient lacks knowledge about its health status and demand for health care service), and there might be moral hazard in the consumption of care by insured individuals (Gaynor et al., 2000).The need for consuming health care services is to some extent uncertain. There is also uncertainty related with the moment of consumption, the cost of medical care, the effect of treatment, among others. A consequence of uncertainty is that it is more difficult for providers to plan services, which has consequences on the public and private sectors.

It is said that asymmetry of information exists when one part involved in any transaction has better information than the other part on a variable that is relevant to the economic value of the relationship (Barros, 2009).

3.1 Health market

The study of a market should take into account three main components: the object of choice, the agent behaviour in demand, and the behaviour of the agent of the supply of services. Different agents exhibit distinct behaviours, whereas these behaviours relate to the nature of the product, in this case, health care.

The discussion of market definition is important for the analysis of business strategy and competition policies, building on the measures of market structure (usually the shares of various companies) and of the number and diversity of competitors in the area.

It is necessary to take into account the appropriate limits in order to define the concept of the market.

There are two important dimensions of market definition: the **market product** and the **geographic market**. The product market includes all products or services that are interchangeable or substitutable in terms of their objective characteristics and their prices and intended use (Gaynor et al., 2000). The geographic market depends upon the competitive

constraints that different operators might face by current competitors within a space, and these constraints may restrict operators and stop them to act independently when faced with any real competitive pressure (Gaynor et al. 2000).

In order to analyse competition in the health market, it is necessary to define the relevant market. This is essential for the subsequent competition assessment, that is, the characterization of market structure, its functioning, its barriers to entry, its degree of maturity in the background, the current competition and potential competition.

3.2 Measuring Market Structure

Market structure measures are usually defined as a function of the shares of the firms operating in the market (geographic and product). The idea is to take into account both the number of competitors and the size of inequalities.

A given market is more concentrated than other if the number of operating firms is smaller, and/or if asymmetry is higher.

Concentration measures are intended to measure, in a concise manner, the proximity of a given market to monopoly or perfect competition.

The concentration index in the health context is often used as a mean to quantify the degree of income-related or socio-economic inequality in health (Erreygers, 2006).

One of the most widely used concentration measures is the Herfindahl index (H), which is defined as follows:

$$H = \sum_{i=1}^{n} s_i^2 \qquad (1)$$

s_i is the market is share of firm i and n is the total number of firms. The value of H ranges between $\frac{1}{n}$ (minimum concentration) and 1 (maximum concentration). Note that each firm's market share is weighted by itself, so larger firms are given more weight in this computation.

Some words of caution must be added regarding the use of concentration indexes. The first difficulty has to do with the existence of holding companies. For us to obtain a measure of market power, the share of each decision agent must be considered, which does not always coincide with the share of each company.

The second problem has to do with the choice of the level of aggregation, which corresponds to the definition of the relevant market.

A third limitation stems from the fact that concentration measures are static, providing no information on the evolution of the shares of each company (Cabral, 1994).

3.3 Competition in the health care sector

The intensity of competition is greatly influenced by market structure, measured by concentration indicators. Factors that increase the intensity of competition can be: the number of competitors, the degree of product homogeneity, level of switching costs, sale conditions hardly observable by the competitors, excess capacity, interaction in a few markets, history and knowledge among companies (Mata, 2002).

Throughout the 30 years of the NHS, the relationship between the private and public sectors has not always been defined by competition but very often defined by cooperation between the two sectors (Barros, 2000). An example of cooperation has been the participation of the private sector in special programs to recover from surgical waiting lists. With the help of the private sector through contracting, the NHS can reduce more quickly waiting lists and profit with the delivery of those services.

3.4 Relationship between market structure and competition

The market structure has a sometimes a decisive role in shaping the intensity of competition, and a summary measure of market structure, concentration, is used to classify markets into four main types: monopoly, competitive markets, monopolistic competition and oligopoly (Mata, 2002).

I will follow the classification of the four main types of markets based on the value of H indicated by Mata (2002).

The health sector, being characterized by a reasonable number of providers, and with consumers having some freedom of choice, is unlikely to be a monopoly (a market with only one firm or with a dominant player, and H ≥ 0.6). Let us consider the other three possibilities.

When the good is homogeneous, we are in the presence of a competitive market when H ≤ 0.2. Competition is usually fierce, and, if there are no barriers to entry, the existence of positive economic profits leads to new firms entering, supply expands and economic profits disappear.

Monopolistic competition markets are also characterized by a large number of competitors (also H ≤0.2), but the product is differentiated.

Oligopolist markets have an intermediate level of competition (0.2 <H <0.6). There are a few firms, of similar size.

4 Methodology

This section focuses on the methodology that I use to study competition between the private and public sector in providing health care in Portugal.

4.1 Data collection

The objective of this dissertation is to study the competition between the private sector (both profit and non-profit seeking) and the public sector, using the analysis of various health care indicators. These indicators were collected from the publication Health Statistics from 2000 to 2005, of the National Statistics Institute (INE).

The following indicators were used: number of hospitals, hospital beds, hospitals according to the presence of each type of diagnostic equipment and therapeutic, movement of inmates during the year in hospitals, deliveries occurred in hospitals, assistance to small, medium and major surgery. These indicators will be assessed on a national and regional level. Regional analysis will be carried out according to regional health administrations (RHA): Norte, Centro, Lisboa, Alentejo and Algarve.

For the private sector in the great Lisboa area, it became necessary to change the type of analysis, because the whole set of data was not available. Thus, only one indicator was used, specifically the number of beds, and the required information on it was collected by contacting directly the respective suppliers.

Table 1 presents the two methods that will be employed, the market share and the Herfindahl index.

Table 1. Methods for analysis

Methods	Calculation
Market share	Proportion of official and private values
Herfindahl index	Application of the corresponding formula

4.2 Analysis of competition in the Portuguese health system

4.2.1 Market share

Market shares give evidence of the relative “power” of each entity operating in the market under analysis.

They were calculated on the basis of the data described above. It was possible to analyze the relationship between the shares of public and private (profit and non-profit seeking) entities, for the five health regions.

4.2.2 Herfindahl index

The Herfindahl index is a “good" measure of concentration, and is proportionate to market power. It allows the conduct of a coherent data analysis.

5 Results

This section is divided into two sub-sections to enable a coherent discussion of the analysis and drawing conclusions from it.

5.1 Analysis of market shares

This section is devoted to the analysis of market shares at national and regional levels, and of the private sector in Lisboa.

5.1.1 Portugal and Regional health

This subsection presents the results for the market shares in Portugal and in the five ARS. It is divided by health care indicator.

Hospital beds

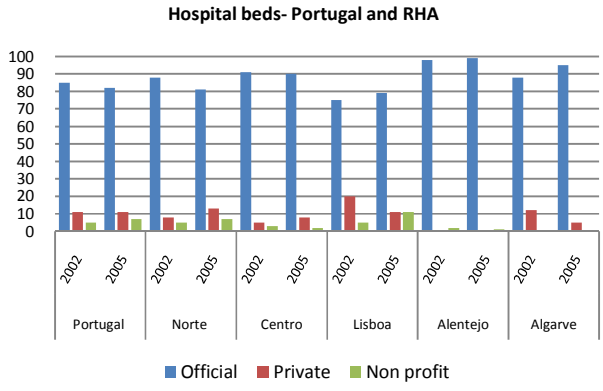

Figure 3 - Market share for hospital beds in Portugal and RHA.

It appears that the share of public offer increases in Lisboa, Alentejo and Algarve, meaning that the role of the official entities in the market has become more important. For Portugal as a whole, market shares were stable for both entities.

In ARS Norte the quota of official hospital beds has fallen, with an increase in private profit making offer.

Births

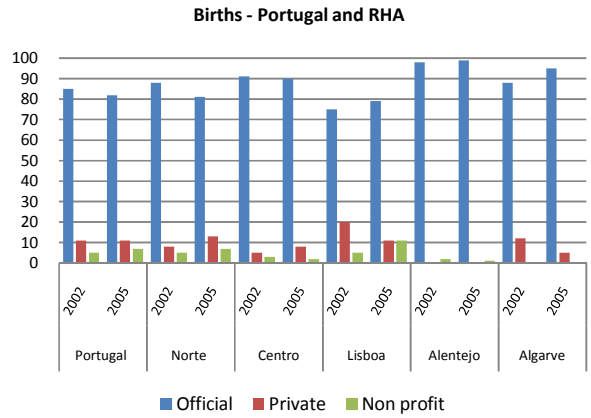

Figure 4 - Market share for Births in Portugal and RHA.

In Portugal the share of public and private entities was relatively stable. However, the opposite happened in the Norte and Lisboa health regions.

In the Norte, the market share of public hospitals has declined to the private profit seeking provision. In Lisboa region, on the contrary, the reverse occurred, with an increase in the provision by the public authority, although less pronounced than the fall observed in the Norte region.

Surgical procedures performed in hospitals

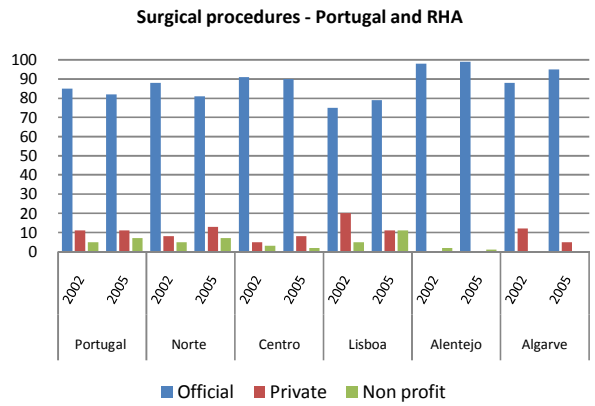

Figure 5 - Market share for surgical procedures in Portugal and RHA.

It appears that in the Norte and Lisboa regions, the situation is similar to the observed for the birth deliveries indicator, with a decrease in the official quota in Norte, and a rise in Lisboa.

The market power of public entities and of the private sector seems to have varied significantly in these two regions.

5.1.2 The Private Sector at the *Lisboa* region

This section presents the results regarding the market share of the private sector providers in Lisboa.

This analysis includes just the number of beds indicator, due to limitations in the ability to collect more data, as previously argued.

To ensure the consistency of the analysis, 2000 was assumed as a dividing year in the development of the private sector in the provision and delivery of health care, and there has been high changes in provision since the year 2000.

All hospitals and private clinics in Lisboa with inpatient service were analysed, and this information is presented in Tables 5 and 6. The market share of each private entity is reported. I analyze the before and the after 2000.

Before 2000

In this subsection I present the market shares for each hospital before 2000.

The José de Mello is the private operator who controls the highest market share in the provision of health care.

Before 2000, José de Mello, GPSaúde and Trofa Saúde represented only one hospital, as is apparent from Table 5.

Table 5. Table of Hospitals and Clinics in Lisboa before 2000, according to the number of beds and market share.

Hospitals and Clinics in Lisboa	Nº Camas	Quota [%]
Grupo José de Mello Saúde		
Hospital Cuf Infante Santo	184	19,93
GPSaúde		
Hospital São Luís	36	3,9
Grupo Trofa Saúde		
Hospital Particular de Lisboa	78	8,45
Clínica de Todos os Santos	29	3,14
Clínica de Santo António	119	12,89
Clínica de São João de Deus	36	3,9
Hospital da Cruz Vermelha	150	16,25
Clínica de São Lucas	39	4,23
Hospital da Ordem Terceira de São Francisco da Cidade	61	6,61
Hospital dos SAMS	121	13,11
Hospital de Jesus	48	5,2
Clínica Europa	10	1,08
Clínica S. Vicente Paulo	12	1,3
Total	923	100

After 2000

As can be read in Table 6, some new economic groups were formed, and these include more than one hospital.

Based on Table 6, one can observe that Hospital Cuf Infante Santo still displays the highest market share.

Table 6. Table of Hospitals / Clinics in the Lisboa, according to the number of beds and market share.

Hospitals and clinics in Lisboa	Number beds	Market share [%]
Grupo José de Mello Saúde		
Cuf Infante Santo	184	12,26
Cuf Descobertas	182	12,13
Cuf Cascais	20	1,33
GPSaúde		
British Hospital Lisbon XXI	46	3,06
Clínica Unimed Cascais	20	1,33
Hospital São Luís	36	2,4
HPP		
Hospital dos Lusíadas	160	10,66
Bes Saúde		
Hospital da Luz	150	9,99
Grupo Trofa Saúde Hospital Particular de Lisboa	78	5,2
Clínica de Todos os Santos	29	1,93
Clínica de Santo António	119	7,93
Clínica de São João de Deus	36	2,4
Hospital da Cruz Vermelha	150	9,99
Clínica de São Lucas	39	2,6
Hospital da Ordem Terceira de São Francisco da Cidade	61	4,06
Hospital dos SAMS	121	8,06
Hospital de Jesus	48	3,2
Clínica Europa	10	0,67
Clínica S. Vicente Paulo	12	0,8
Total	1501	100

5.2 Analysis of the Herfindahl index

After the presentation of the results on the market share of official and private entities, this section is devoted to the analysis of the results for the Herfindahl index.

5.2.1 Portugal and health Regions

In this subsection we will analyze results for mainland Portugal and for the five defined health regions, for year 2005, according to the values of the Herfindahl index. The presentation of results is made graphically and divided according to the clinical indicators. However, only one graph, the one for hospital beds, is presented here, given that all the other indicators I have analysed show identical results.

Hospital beds

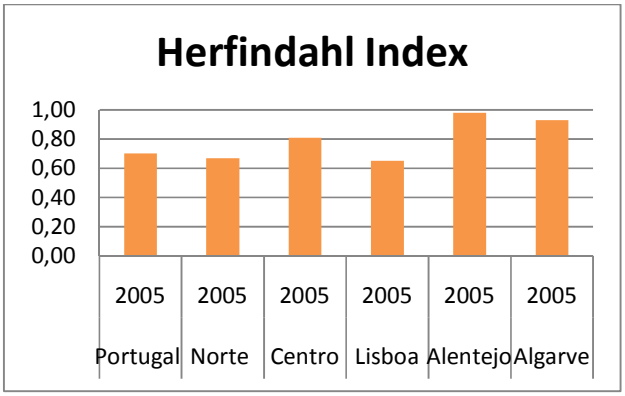

Figure 6 – Herfindahl index for hospital beds in Portugal and RHA.

It appears that in Centro, Alentejo and Algarve H has a value well above 0.6, which indicates the presence of a dominant health care provider, with no competition with other entities.

The remaining regions have a value slightly above 0.6, Lisboa being the region with the lowest H.

5.2.2 The Private Sector in Lisboa

This subsection presents the Herfindahl index for private entities in the area of Great Lisboa. We will look at the before and the after 2000.

Before 2000

The Herfindahl index calculated from equation 1, before year 2000 exhibits the value of 0.1202. Therefore, it appears that the private sector in Lisboa operates competitively.

After 2000

The values of the Herfindahl index after 2000, computed first considering each operator individually, and then taking into account the existing groups, are as follows.

With the help of equation 1 it was possible to calculate the H index using all the market shares in Table 6 independently (that is, without taking into account that some providers belong to the same decision maker). The value obtained is 0.083.

On the other hand, if one computes H bearing in mind the existence of holdings, the figure raises to 0.1220. This value is not very different from the one obtained in the analysis prior to year 2000.

We may conclude for the existence of monopolistic competition between the private providers in Lisboa, and that this has not changed significantly through the years.

6 Conclusion

The public-private competition in the provision of health care in Portugal, although being a subject of high importance, has not yet been studied with the desired attention. The present dissertation is a first step towards overcoming this failure. Based on a collection of data, some of which was not publicly available, an exploratory analysis was performed.

The public sector still holds a significant portion of the whole market. However, due to the recent emergence of private suppliers, this scenario is expected to change. Although our data does not evidence this movement for all indicators and regions analyzed, it already appears in some of them.

With regard to the analysis of Portugal and of the five health regions, it is clear that the concentration index is never below 0.6, which puts in evidence the existence of a high concentration in all regions The market is mostly public. This concentration is more pronounced in Centro, Alentejo and Algarve, with values close to 0.9.

With regard to the analysis of competition in the private sector in Lisboa, a H equal to 0.1202 was obtained before 2000. This figure was reduced to 0.083 after 2000, with the entry of several new operators. However, if groups are taken as the decision unit, the value for H is quite similar to the one prior to 2000. We concluded for the existence of monopolistic competition between the private health care providers in Lisboa. This scenario appears relatively stable, making it important to achieve remarkable differentiation through variables such as increased innovation and service quality.

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