

# The Greek Hospital Sector and Its Cost Efficiency Problems in Relation to Unexpected Hospital Demand: A Policy-making Perspective

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## Abstract

Public hospitals in Greece are part of a National Health System, established in 1983. This paper presents the hospital sector changes in Greece over the last 20 years, emphasizing cost efficiency. We break down its historical developments into two periods: 1983-1999 and 2000-2008. From the historical review, it is concluded that the system is cost inefficient, based on two components. First, a number of resources are idle, and second, part of the hospital capacity is never used or is misused. However, idle resources and unused stand-by capacity is not a sufficient condition to determine whether a public hospital is running below optimal cost efficiency level. Such a practice could be an optimal (cost efficient) response by hospital managers to meet unexpected demand. This is an issue that needs further research in order to investigate whether part of this inefficiency could be explained by the reserve capacity held by hospitals due to unexpected demand.

**Keywords:** National health system, Greece, Cost efficiency, Unexpected hospital demand

## 1. Introduction

The cost efficiency problems of the Greek public hospitals are well recognized (Athanassopoulos et al 1999, Giokas 2001). Public hospitals in Greece are part of a National Health System (NHS) of providing health care services. This system was established in 1983, and since then it has been the subject of various criticisms, evaluations, revisions, and modernizations (Tountas et al 2002, Carpenter 2003, Mossialos and Allis 2005, Davaki and Mossialos 2005, Nikolentzos and Mays 2008).

This paper presents the hospital sector changes in Greece over the last 20 years, emphasizing the cost efficiency, with focus on the opinions and comments expressed by policy makers, hospital administrators, trade unions, Greek authorities on health policy issues and the political and financial Greek press. Also, a number of reports produced by various think tanks, academic and non-academic organizations and independent experts are presented.

The problem of cost efficiency of the Greek public hospital sector is not independent from the political and social environment of Greece. One of the difficulties of the general Greek political system is the implementation of all those policies decided by the government and approved by the Greek parliament. Attempts to implement new policies, not only in the health care area, were faced by strong resistance by trade unions, opposition political parties, popular press, and other socio-political interest groups (Mossialos and Allin 2005, Davaki and Mosssialos 2005). In many cases, the opposition was well founded and justified. In other cases, it was motivated by peculiar incentives, i.e. an aim to protect their vested interests, even though this might have added to the problem of cost inefficiency.

This political and social environment is further influenced by the political and geographical position of Greece as a member of the European Union (EU). Greece became a member of the EU in 1981 and a member of the euro zone in 2002. Equitable and efficient provision of health care services constitutes one of the most important pillars of the so-called European Social Model. The study of Greece's belated social modernization at the geographical edge of Europe is worth pursuing because it can be useful for other countries in south-eastern Europe that want to follow a similar path of economic and social development, i.e. to become full members of the EU. Two of these countries, Romania and Bulgaria, have already joined the EU in 2007. The EU exerts an indirect pressure on social (health) policy spending because it requires fiscal discipline. If Greece is to be maintained within the euro zone, budget deficits should not exceed 3% of Gross Domestic Product (GDP), and public debt should be less than 60% of GDP. The latter can be higher but it should have a declining trend.

The development of the Greek health system was the result of the wider social and political developments that took place after the Second World War. In its modern concrete form, it was established in 1983. This system constituted the main reform priority of the socialist party, which came to power in 1981. However, important policy initiatives were taken before 1981 and played an important role in the creation of a climate of change in the health care sector. A significant part of these preparatory actions aimed at expanding services and meeting the health care needs of the entire Greek population (Alexiadou et al 2005).

The next section briefly presents the policy initiatives that predated the establishment of the Greek NHS. This helps understand the political environment and the corresponding policy developments that gave rise to the foundation of the Greek NHS. Following this, the paper provides an overview of the organizational characteristics and historical developments of the Greek NHS. Next, I draw together opinions of academics, policy makers, popular press, and other stakeholders of the Greek health care system that have identified the major problems of the Greek hospital sector. These opinions and policy positions, which in many cases are contradictory, are used to extract some key points that relate to the cost efficiency of Greek public hospitals. After that, key points on efficiency problems of the Greek public hospitals are discussed. Finally, some concluding remarks are offered, and further research is suggested for future policy developments.

## 2. The Pre-NHS Era

An important initiative predating the NHS was the establishment of the Foundation of Social Insurance (IKA) in 1934, which provided funded health services for all private sector employees (blue- and white-collar workers). Today, this foundation constitutes the largest insurance fund in Greece, providing for half of the Greek population. After many years, another large category of workers, those working in the agricultural sector, acquired their own insurance body. The Organization of Agricultural Insurance (OGA) was founded in 1961 and provided health insurance both to those directly insured and to their families. During the same period, other categories of workers, such as bank employees, civil servants, and the self-employed, were also provided with insurance (WHO 1996).

Health care was provided by private agents. They included both individual doctors delivering primary health care and small private clinics providing hospital care. The medical profession throughout this period was a dominant force in controlling the administration of the system. As far as the state was concerned, it provided only a few hospitals that operated in big cities supplemented by charitable organizations such as Red Cross and hospitals that were built and operated by philanthropists of the Greek Diaspora and local authorities (Alexiadou et al 2005).

Before 1981 there was no serious attempt to establish a public health system in Greece. It was widely recognized that health care spending did not provide the anticipated services and a number of people were not able to have access to good quality health care. Due to political developments in the post war period such as the civil war after the end of the Second World War (1944-1949), the political instability that followed and the dictatorship from 1967-1974, public health care provision was a very low priority of the government. In other words, many people had no access to public health care, public education and other publicly provided services because of their political beliefs. The situation was exacerbated by a number of other problems such as:

- the lack of homogeneity in the funding of health services and in the proportion of the population that received these services,
- the existence of geographic inequalities in the provision of health services, especially between rural and urban areas,
- the significant shortage of human resources, especially in hospitals,
- the absence of coordination between the Ministry of Health (MoH) and other organisations that participated in the decision-making process in the health care sector and
- the lack of effective incentives in regard to the methods of remuneration of doctors and other health service professionals, a fact that was directly related to the ineffectiveness of health services and the development of corrupt practices, such as payments “under the table” giving rise to an underground economy in the Greek health sector.

All the above were the conclusions of research carried out by a government think tank, the Centre of Programming and Economic Research (KEPE), on health services, in 1976. In its proposals about the health sector, KEPE suggested the unification of the three largest insurance funds - IKA, OGA and TEVE (Note 1) - which covered almost 85% of the country's population, as well as the introduction of a system of “family doctor” (KEPE 1976).

During the period of the dictatorship (1967–1974), the planning for restructuring health care provision continued, but the attempts made during this period to ensure the equal provision of health services to all geographical regions,

the creation of a system of “family doctor”, the increase of the nursing personnel, as well as the enhancement of psychiatric care did not bring the desired results. Apart from these attempts, measures were also taken during this period to create a unified funding body of health services. However, immediately after the fall of the authoritarian regime in 1974, Greece had not made any significant achievements in the health services sector. Health expenditures had fallen, and the attempts to create a unified health system were not successful (WHO 1996).

The collapse of dictatorship in 1974 and the restoration of democracy gave rise to a new momentum for social reforms. Health, along with education and welfare policies, received a lot of attention. There was a wide belief that these goods should be publicly provided and be free for all in need of such services. The MoH prepared a plan, which became known as the “Doxiadis Plan”. The principal points of this plan related to the creation of a body responsible for the planning and coordination of health policies, and the development of a network of rural health centres primarily staffed by family doctors (WHO, 1996). Political objections, including the medical profession, social insurance funds, and opposition political parties were the main sources of resistance to some very innovative reform proposals. However, new political developments instigated a change in the direction of social policies in Greece, with health policy being the first priority. In 1981, a new left-oriented party came to power with an explicit mandate to create a national health system in Greece and establish a modern European welfare state.

### **3. The establishment of the Greek NHS and its organization: the emphasis is put on the secondary health care**

For the purposes of this paper, I broke down the historical developments of the Greek NHS into two periods: 1983-1999 and 2000-2008. The former period is characterized by the establishment of the NHS and its very early reactions and policy actions toward its development. The latter period deserves a separate analysis for two very important reasons. First, this period coincides with a huge policy initiative to restructure the health and welfare sector of Greece as part of the EU’s development assistance under the “Operational Program of Health and Welfare”. The Health and Welfare sector was one of eleven such programs, devoted to specific sectors such as education, employment, environment, culture, agriculture, transportation, information technologies etc financed by the Third Structural Funds of the EU. Second, during the same period new legislation was implemented with the aim of reorganizing the NHS. During that period the issues of efficiency became an important policy priority, emphasizing also the regional development of the health care system in order to decentralize the decision-making process.

#### *3.1 The 1983-1999 period*

In 1983, the government of the Pan-Hellenic Socialist Movement (PASOK) created the Greek NHS (Law 1397/1983). This reform was considered as one of the most important political initiatives of the postwar period in the area of social policy (Note 2). It received wide political support. In this system, the State was defined as the only provider of both primary and secondary health care, while it called for the gradual closing down of private health care units or their absorption by the NHS. Moreover, the state would be responsible for ensuring the universal and equal provision of health care services to the entire population. The system was based on the Canadian System and specifically on the Ontario Health Insurance Plan because many PASOK members, including its President and in 1981 Prime Minister of Greece Professor Andreas Papandreu, were living in Toronto in exile during the period of dictatorship. This system was further studied by the official visit of the first Minister of Health of PASOK’s Government Mr. Paraskevas Aygerinos to Canada prior to establishing the Greek NHS.

The development of a national network of primary health care, staffed by a large number of general doctors, was one of the priorities of the political leadership. More specifically, among the aims of the government was the construction of 400 health centres, 180 of which would be located in rural areas and 220 in large cities. In regard to the planning of health policies, a Central Health Council (KESY) would be created with an advisory role vis-à-vis the MoH. The creation of regional health councils with significant responsibilities concerning the planning and control of the operation of health units within their jurisdiction constituted another basic pillar of the NHS. Finally, all workers of the Greek NHS would be full-time and be exclusively employed and paid by a monthly salary. The Ministry of Health hoped that this arrangement would reduce private expenditures on health and would contribute to the elimination of the corrupt practices that had been observed among doctors, who were receiving “under the table” payments from their patients (WHO 1996).

The establishment of the Greek NHS would change the process of decision-making in health care provision. The proposed changes of the organization and management of health care services in Greece, as well as the creation of regional health councils, were not implemented during this period. It was the MoH that was responsible for the development, financing, and provision of health care services. However, the involvement of other Ministries in the organization and management of the health care sector (i.e. the Ministry of Employment, which is responsible for

the social insurance funds, the Ministry of National Defence that is responsible for 13 military hospitals, as well as the Ministry of Education that is responsible for the university hospitals) created a cumbersome bureaucratic system, which resulted in delays in decision-making and inefficiencies (WHO 1996, Theodorou 2002). Developments in the second period of the Greek NHS attempted to mitigate some of these difficulties of the first period with new government initiatives and the adoption of new legislation.

With the adoption of the NHS in 1983, private health care services followed their own path of development. Even though the construction of new private clinics was banned, the construction and operation of diagnostic centres was not forbidden. As a result, the number of these centres increased significantly. It is estimated that in the 1985-1995 period, the number of diagnostic centres increased by 30% (Souliotis 2000). As a result, public health insurance funds were significantly surcharged due to the contracts they had signed with these diagnostic centres. Moreover, with the conservative party in power, from 1990 to 1993, new health care legislative reforms were introduced (Law 2170/1992). Among other things, it was proposed that doctors employed in public hospitals could choose to be either full- or part-time within the NHS, with some private practice being allowed. Moreover, the establishment of new private for-profit hospitals and clinics, with certain requirements concerning the quality of services, was reintroduced. These developments at legislative level led to a proliferation of private initiatives, which took advantage of the shortages and weaknesses of the public health system.

### 3.2 *The 2000-2008 period*

The period 2000-2008 has been characterized by two structural changes in the Greek health care services. The first relates to the implementation of an eight-year program, that is the “Operational Program of Health and Welfare” prepared by the Greek MoH and approved by the EU. The second concerns the new policy initiatives undertaken by the Greek MoH for the re-organization of the Greek NHS.

#### 3.2.1 *The Operational Program of Health and Welfare*

The Operational Program of Health and Welfare is financed through both the Third Structural Funds of the European Community and National public funds. Its implementation extends from 2000 to 2008. During this period, health and welfare in Greece has absorbed an amount of money equals to over €500 million. Its main objectives for the third period of structural funds were as follows:

- Develop public health.
- Improve population’s health and social protection.
- Upgrade the quality and the effectiveness of health care provision.
- Create self-reliant fully integrated regional systems of health care and welfare provision.
- Ensure equity in regional distribution of health care provision throughout Greece.

Public hospitals became the main concern of the program. (Note 3) Under the general priority of public health (called in the program “Priority No. 1”), there is a provision of measures to be implemented that will modernize the infrastructure of Greek public hospitals, improve the quality of the service they offer, including medical provision and hospitality services, and improve human resources through continuing education and training programs. Special provisions are made in the program to re-organize public hospitals along the lines of modern management and administration. To this direction, new policy initiatives were taken, including legislative actions and the adoption of the Law 2889/2001 called “Improving and Modernizing the National Health System”.

#### 3.2.2 *The New Legislative Initiatives to Restructure the Greek NHS*

Eighteen years after the official establishment of the Greek NHS, the MoH decided to address a significant organizational issue of the health care services. In 2001 the Law 2889 was approved by the Greek parliament. Among the main provisions was the creation of 17 Regional Health Systems (PESYs) in order to decentralize the decision-making process in the health care services. The Law also aimed at establishing a new administrative structure in hospitals (i.e. appointment of hospital administrators). Moreover, in regard to the operation of the hospitals, afternoon and evening shifts were established in all public hospitals, during which doctors could offer their services to private patients as well. The introduction of afternoon and evening services aimed to a certain extent to facilitate citizen access (Note 4) to hospital care and to strengthen the competitiveness of public hospitals against the private sector by increasing their efficiency. Patients using the afternoon and evening services, mostly for consultation, would have to pay additional fees, either through their private insurance or out-of-pocket. The bigger percentage of these private payments (60%) is attributed to doctors and other hospital staff involved in the private delivery of care and a smaller percentage (40%) is retained by the hospital. In that way, doctors would be able to increase their salaries through practicing in afternoon and evening shifts and would not need to resort to

black market activities. With this new reform the MoH attempted to tackle a major problem, that is, the “hidden economy” or the black-market phenomenon, which has seen rapid growth in Greek hospitals. Diagram 1 presents the organization of the health services before and after the approval of Law 2889/2001.

Apart from the changes in the afternoon and evening operation of public hospitals, another important change relates to the decentralization and regional structure of the Greek NHS’s units. Greece was divided into 17 Regional Health Systems (PESYs). The responsibilities of each PESY included service planning and coordination, financial control and quality supervision of all health care units in the region, under the coordination and control of the MoH. The new decentralized health system was expected to achieve better local needs assessment, better responsiveness to local problems, and immediate solutions for the patients’ problems at the local level. Under the previous structure, these functions rested within the MoH, whose heavy bureaucratic mechanisms did not adequately respond to service needs. It was expected that after this health reform, the MoH would be able to focus on strategic and planning issues. In relation to this study, the most important objective of the PESY was the effective organization and management of the health care units that were under its jurisdiction in order to achieve high allocative and cost efficiency. For the first time, the term “efficiency” is used so explicitly in a policy initiative of the Greek NHS authorities. Previously, all policy initiatives were aiming at making the system more effective in meeting the goal of better and equitable health care provision.

With the Law 3329, (Note 5) which was approved by the conservative government in 2005, the 17 regional health care councils established in 2001 remained the same, but were renamed to Administrative Health Regions (YPE). Two years after, in 2007, the government reduced the number of health regions to 7 from 17 (Note 6) (Law 3527/2007) attempting to reduce (mainly fixed or administrative, in this case) costs, increase the productivity, and improve the effectiveness of the health care units. Actually, this was a reaction to pressures coming from the Greek public opinion (popular press), policy makers and health academics (Note 7) that 17 YPE was too many for the population of Greece (about 11 million) and there were noticeable significant duplications of services provided, with scarce resources wasted. Their views are presented in the next section of this paper.

Another area of this reform concerns the new hospital management structure. According to the Law 2889/2001, hospitals became decentralized subsidiary units of each PESY, with managerial and financial autonomy (Diagram 1). They were governed by a new management structure, which enjoyed a large array of responsibilities. Hospitals had a five-member management team, consisted of the managing director and divisional directors for medical services, nursing, administration, and finance, and the hospital scientific committee. The new management teams consisted of hospital staff members who could directly implement managerial decisions. However, with the Law 3329/2005 public hospitals transformed from decentralized subsidiary units of each YPE to individual entities with their own management and budgets. The structure of management team of the hospital turned back to political-based composition.

According to the law 2889/2001, hospital managers should be appointed for a five-year period by independent committees, which assessed the candidates’ managerial experience and knowledge of the health care system. However, in practice, the majority of the hospital managers were selected by political party preferences rather than previous experience and knowledge. Performance contracts would be agreed with hospital managers on the basis of quantitative and qualitative indicators. This measure constituted a significant improvement in comparison with the previous system, in which no priorities were set. However, the latter was abolished with the Law 3329/2005. Under this newly established organisational scheme, hospital managers are appointed directly by the MoH for two years, based mainly on their political affiliation, and to a lesser extent on other qualifications, a situation that resembles what was the case prior to 2001, where hospital managers were political appointees and largely inexperienced managers. Under the new legislation framework which is in power today, there are no quantitative or qualitative indicators for assessing their performance, but the Minister of Health evaluates their performance and decides about the extension (or not) of their appointment for two more years. Moreover, hospital managers are limited in terms of the amount of money they can use to purchase hospital supplies. This can be considered a reaction to claims that costs can be reduced, if hospital supplies are organized at a more centralized level. Bulk buying may reduce the price paid for each unit of supply. In other words, there are economies to be made by buying greater quantities of hospital supplies.

Another issue that was dealt by the new legislative initiative of 2001 was the funding of the NHS. Health care provision in Greece is financed through a system that combines tax-based and insurance-based statutory finances. Until 1983, health care services were financed predominantly through social insurance funds (the Bismarck model), while after the establishment of the NHS, the intention was to be financed mainly through taxes (the Beveridge model). However, these changes were only partially implemented. The 1983 health care reforms focused only on the side of health care provision, and to a lesser extent on the side of financing. In 2001, the creation of an

integrated Health Insurance Fund was proposed (Organization for the Management of Health Care Financial Resources – ODIPY), which would include the blue-collar workers (IKA), the farmers (OGA), the self-employed (OAEE), the civil servants (OPAD) and the sailors (House of the Sailor). In total, these five insurance funds cover 90% of the insured population. ODIPY was planned to manage health care resources and act as a purchaser of primary health care and hospital services from each health care provider (public and private) on the basis of cost and quality. It would also reimburse pharmaceutical care. According to the MoH, existing differences in entitlement and coverage were expected to decrease and ODIPY would be in a position to offer a comprehensive package of services to the insured population (Theodorou 2002). On this issue, Professor of Health Policy E. Mossialos at LSE stated that, at present, the best way for the Greek NHS to move forward is the implementation of the example of Austria. According to this, "... an integrated organization should be created, not an integrated fund or health body. This organization should not aim at equalizing provision, but, rather, at gathering resources and purchasing services without threatening the 'packages' of the various professional sectors. One such organization ... would give the opportunity to the government to eliminate inequalities, while increasing, at the same time, the provisions of some funds". (Note 8)

Many people have criticized the Greek NHS as being ineffective and inefficient (wasting public funds). However, very few people would prefer to return to the pre-1983 period and abolish the NHS. All the criticism and legislative initiatives aim at improving it. In this spirit, the next section presents a critical evaluation of the Greek NHS.

#### **4. An evaluation of the Greek NHS: the case of the hospital sector**

This section looks at various structural characteristics of the Greek NHS and the criticisms that have been raised based on opinions expressed in popular press, on various studies produced by think tanks, and the opinions of policy makers, who most of them are academics but have long experience in consulting various governments on health policy issues. A lot of them sat on government policy committees and have served in various government posts related to the NHS. The choice of issues to be presented here is selective and relates to the basic theme of this study, i.e. the cost efficiency of public hospitals.

In order to implement all structural changes in the health sector proposed in 1983, and presented in the previous section, significant resources were required. Public health expenditure increased from 3.7% of GDP in 1980 to 5.1% in 1985. After a fall in late 1980s to 4%, they picked up again in the 1990s exceeding 5% of GDP (OECD 2006). Diagram 2 depicts the development of public expenditures since the 1980s. The increase in expenditure can be attributed mainly to a) the increase of salaries, mostly of the medical staff, b) the appointment of health professionals, c) the investments in infrastructure (i.e. hospitals and rural health centres), and d) the purchase of new medical technologies (Theodorou 2002).

An increase was also observed in private health expenditures (Diagram 3). From 1980 to 1995, private health expenditure raised from 2.9% to 4.6% as a percentage of GDP. From 1995 to 2004, the share remained almost the same, close to 4.6% (OECD, 2006).

Despite the significant increases in health care expenditures over the last three decades, the NHS is not effective in meeting its primary goal, which is to provide free and universal health care services to all Greek citizens. For example, 97% of private health expenditures consist of direct payments, meaning that a significant part of the population pays directly out-of-pocket for its health services. This situation has led, over the years, to an increase of social inequalities. (Note 9)

The Laboratory of Organisation and Evaluation of Health Services of the University of Athens (UoA) reported that "... in Greece, the public sector covers far less than 50% of total health expenditures. Public consumption fell from 46.6% in 2003 to 42.8% in 2005. In real amounts, public consumption increased only slightly, from 4.6 billion euros to 4.9 billion euros, while private expenditure increased from 7.7 billion euros to 10.1 billion euros. This means that households were burdened, in 2005, with 2.4 billion euros in comparison with 2003'. Professor L. Liaropoulos at UoA noted that 'the inequality of access to the health services is the worst and most dangerous form of inequality'. (Note 10)

A study carried out by the National Centre of Social Research (EKKE), a government think tank of social policy, reported that today "... Greece spends 9.9% of its GDP on its health system, including both public and private expenditures, a percentage that is among the highest in the EU. However, the degree of citizen satisfaction scores an average of 4.8 on a ten-point scale". As noted by the Professor of Health Economics at UoA President of EKKE, J. Yfantopoulos, in the daily press "... any future reform in the health care sector should not aim at increasing quantitative provisions by boosting health expenditures, but it should, instead, focus on the rational management and use of resources with the view of improving the quality of health services and promoting their just and efficient use". (Note 11) In other words, the system should become more cost efficient. This statement identifies the major

problem that the Greek NHS faces today, i.e. the inefficient use of scarce resources. Thus, it becomes clear, at least to a part of the academic community, that more can be done in providing better health services with less money. This cost inefficiency issue in Greece has also been identified in an international study by the IRIS Network (International Research Institutes). They reached similar conclusions. The study used a sample of 20,000 individuals from 23 countries. They found that: “six out of 10 people in Greece report that they are unsatisfied with the services provided by the NHS, while the majority of citizens (72%) put the blame on the poor management of the system and not on the lack of sufficient funding”. (Note 12)

On the political agenda, the funding of health care services in Greece constitutes an ambiguous issue that has been a major concern of the MoH over the last 30 years. In a recent interview in one of the most widely read daily economic newspapers, the prior Minister of Health Mr. Dimitris Avramopoulos, coming from the right-wing party of New Democracy (ND), reported: “As has been repeatedly noted, adequate resources are being provided in the NHS. The issue is rather their rational management, so that we can achieve the best results by making appropriate choices”. (Note 13)

Opposing views are heard, too. On behalf of the opposition, the MP of PASOK, Mr. Manolis Skoulakis, reported in the same newspaper: “I do not accept or adopt the argument that is repeatedly put forward by the Minister of Health Mr. Dimitris Avramopoulos, namely that the health care sector does not need more resources but that it rather needs “re-arrangement” of existing resources. On the contrary, I believe that the public health system is in need of extra resources, which should be invested in human capital, infrastructure and medical-technological equipment. Besides, over the last years, OECD data have shown that our country comes last in rank order with regard to the percentage of public expenditures that are invested in the health sector – only 53% – implying a need for further public funding of the NHS ...”. (Note 14)

Another source of inefficiencies in the Greek NHS is the system of payment and remuneration of health service providers, i.e. doctors. According to Brian Abel-Smith (1994, p. 203), a way of maximising efficiency is the change of incentives to the providers. In Greece, doctors and other health professionals in primary care or public hospitals receive monthly salaries by the state. Such payment methods do not provide any efficiency-promoting incentives, and practices of unofficial payments are indirectly encouraged, i.e. payments “under the table”. The basic cause of corruption at this level is the poor funding of services, or more specifically, the inadequate remuneration of health professionals. The prior Minister of Health reported, among other things that “... we have already noted that the medical and nursing staff of our country, like all employees in the health sector, are carrying out an admirable job that is not remunerated accordingly. We will move toward this direction, and we will attempt to find all possible sources of funding, through the rational management of public money, which will let us upgrade the salaries of doctors and other health care professionals ...”. (Note 15)

Even though the salaries of hospital doctors doubled after 1983, they did not reduce the extent of the phenomenon of payments “under the table” nor the illegal practice of private provision of medical services. According to a study carried out by the University of Athens in 2006, the “under the table” payments to public hospital doctors from their patients were estimated to have reached an annual average of 200 million euros. (Note 16)

Nowadays, it is stated that neither the absolute number of staff is adequate, nor the distribution of human resources is effective. Health professionals, i.e. doctors, nurses, paramedical personnel, administrative staff, etc. increased significantly in numbers during the 1980s and particularly after the establishment of the NHS. However, according to data published in the daily press, the geographical distribution of doctors is ineffective. (Note 17) It is noted that in the islands, 40% of the available posts for doctors are vacant. Doctors prefer to work in the two greatest cities of Greece (Athens, the capital city, and Thessaloniki), while at the same time, the countryside and small cities cannot provide the health care services needed due to shortage of personnel. This unequal distribution of medical staff between these two cities and the rest of the country creates induced demand for health care services. From data of the National School of Public Health (NSPH) published in the daily press, it is stated that “...the great majority of hospital doctors are concentrated in the capital city of Athens” for example “... Athens has 3.3 doctors for every 1,000 inhabitants” while “on the contrary, the regions of Sterea Ellada and Evia have 0.4 doctors for every 1,000 inhabitants, the region of Thessaly has 0.8 and the region of Thrace 1.1...”. The president of the Pan-Hellenic Medical Association, Mr. M. Kalokairinos, stated that in order to improve the present situation, strong economic incentives, i.e. both financial and professional advancement should be provided. (Note 18)

The issue of the inadequacy of human resources in the health sector constitutes a “hot potato” in the hands of the MoH. According to the daily press, the inadequacies are observed in both the hospitals of the rural areas and the hospitals of Attica. Shortages are mainly observed in medical, nursing and paramedical staff. Lack of staff is one of the main reasons usually cited to explain the underutilization of hospital beds. However, this might also be an

indication of mismanagement of human and other resources. Sometimes, as released by professionals of the hospital sector, shortages are so acute that they result in the “closing down” of entire hospital departments or in new hospitals curtailing their operation. (Note 19)

Especially on the islands, the problem becomes more serious during the summer months, when hospitals have to meet the demand coming from both the local residents and the tourists. As a result, the number of patients transferred to hospitals in Athens is increased, putting people’s lives in danger. (Note 20)

Another phenomenon that is observed in hospitals outside Athens is the inadequate health care provided during the weekends. The significant shortages in nursing staff do not allow the regular operation of their departments, a large proportion of which operate poorly during these two days of the week. Due to this fact, hospital services concentrate only on meeting the needs of real emergency cases. (Note 21)

In many hospitals outside Athens, (i.e. Thessaloniki, Patras, Larissa, Chania, Leivadia, Giannitsa, Pyrgos, Alexandroupolis, Rethimno, etc.) staff shortages affect more seriously the Intensive Care Units (ICUs). According to data published in the daily press, almost 150 beds in these units (25% of the total bed supply in ICUs of the Greek NHS) remain closed even though they are fully equipped. The main reason for their non-operation is the lack of nurses. According to the vice-president of the Greek Society of Intensive Care, Mr. A. Armaganidis “...Greece has a very small number of intensive care beds” and he explained that “the World Health Organisation (WHO) recommends that 8-12% of hospital capacity should be intensive care beds, a proportion that in our country is only 3%”. (Note 22) The title “rusting modern units” refers to ICUs and depicts the situation in the public hospitals of Greece. (Note 23) According to data from the Greek Society of Intensive Care, this situation leads to the tragic account of 300 deaths per year. (Note 24) In an attempt to “heal the wounds” from the loss of human life, the MoH started “renting” intensive care beds from the private sector, so that it could meet immediate needs. However, according to the president of the Greek Society of Intensive Care, Mr. A. Mavromatis “... the recourse to the private sector constitutes an ‘absurdity’, as the cost of operation of one intensive care bed is €200 per day in a public hospital but the cost in the private sector is more than €300”. (Note 25) Thus, the issue of cost efficiency is raised again, but this is an argument from those who have vested interests in reducing the outsourcing of health care services from public hospitals to private service delivery.

The same situation of neglect is observed in the hospitals of Attica according to the president of the Pan-Hellenic Federation of Public Hospital Employees – POEDIN, Mr. S. Koutsoubelis. He stated that “35% of the permanent posts in hospitals are not filled”, while there are significant differences among hospitals. (Note 26) As announced by employees, the shortage of nurses reached 60% in the hospital “Sotiria”. Shortages in human capacity lead to significant increases in the waiting time of patients, who need to be admitted for a surgery or other type of treatment. (Note 27) Again, the claim that there is a shortage of staff might be a manifestation of inefficient use of human resources and not the lack of it, and thus, more should be done with the existing hospital workforce.

According to a study carried out by the UoA, the most common way of bypassing the waiting list in a public hospital is the characterisation of a patient as an “emergency case” (Liaropoulos et al, 2008). This practice is frequently applied in Greek hospitals, given that 48.5% of hospitalized patients are characterized as “emergencies”, (Note 28) while they are not. Of course, in order to provide such facilitation, doctors are “remunerated” by receiving “under the table” payments. As the study shows “... patients who are hospitalized in public hospitals with the mediation of a third person (often a doctor) give an extra payment to their doctor more frequently (1.72 times) than those who follow the usual procedures”. The main reason for doing so is to ensure that the health care received is of higher quality (Liaropoulos et al, 2008). According to the Professor L. Liaropoulos at UoA “what is driving people to get involved in these kinds of transactions is the ineffectiveness of the social insurance system of our country” and he concluded by stating that “... the operation of 39 Health Insurance Funds and Sectors constitutes an unbelievable anachronism, the elimination of which would solve important funding problems related to the country’s social insurance system ...”. (Note 29)

The integration of the main insurance funds, which had been proposed by KEPE in the pro-Greek NHS era, was never realized. With regard to this, there are issues of unequal access to health care units and health care services, as well as issues of heterogeneity with regard to the economic incentives provided to health service providers, i.e. doctors in primary and secondary care (Theodorou, 2002). Related to the same issue, Professor E. Mossialos at LSE, stated that “It is a mistake to compare the Greek system to the British model, as Greece has maintained the differentiated sectors of health insurance, resulting in differentiated provision of health services and inequalities in terms of access to health services”. (Note 30) He continued by stating that “almost half of the Greek population is insured by IKA and they can use either the public NHS hospitals for their hospitalization and the IKA polyclinics for consultation or they need to pay out-of-pocket in the private sector. Another categorization of employees, i.e.



civil servants, has more options, including services provided in the private sector". On the basis of research data, Professor E. Mossialos highlighted that "... the health system generates inequalities to the lower socioeconomic classes and the elderly people" while "... a significant proportion (25%) of the elderly with very poor health do not use hospital services, as the waiting lists and the payments "under the table" do not allow them to do so". (Note 31)

A significant side effect of the shortages in human resources has been the non-use of hospital infrastructure (i.e. buildings, beds, technological equipment). As denounced by the employees of the "Asklepieio Voulas", the ICU of the hospital is being used as a storage area, while the exhaustion of the staff generates questions regarding the quality of the services provided. According to reports by the POEDIN, "... the administration of public hospitals owes their staff a total of 70,000 days of holiday. This requires hiring new personnel by public hospitals". (Note 32) Moreover, another publication refers to the "inhumane conditions" observed, especially in the ICUs, from where employees are trying to escape due to the intensive pressure they experience on a daily basis and in fact, without any economic incentive. (Note 33)

Another important issue that has received a lot of attention and was given priority after the establishment of the Greek NHS was the construction of new hospitals. The number of public hospitals increased from 112 in 1980 to 141 in 2005. Diagram 4 shows the number of public and private hospitals from 1980 to 2005. As demonstrated in the diagram, during the first decade (1980-1990), the number of public hospitals increased, but it eased off in the period of 1991-2005 (ESYE, 2008). Opposite was the trend in the construction of private hospitals. Private clinics decreased from 468 in 1980 to 170 in 2005 (ESYE, 2008). During the first four years of implementation of the Greek NHS, private clinics decreased drastically, but the decrease slowed down after 1987. The main reason was that new private hospitals were not allowed to operate. The trend for hospital beds is similar (Diagram 5). (Note 34)

In the health care systems of developed countries, hospitals absorb the largest part of total health expenditures. For this reason, there is great need to ensure their effective and efficient operation. Therefore, the significant resources that are given to them, either by the state or by the citizens, should be utilized in the best possible way, so that hospitals can achieve their primary goal, which is the improvement and the provision of good quality health service to all. In other words, meeting the many health care needs with limited economic resources implies that these resources should be used efficiently. More specifically, in the case of Greece, hospitals use approximately 60% of the total public health expenditures (Giokas, 2001). The size of this amount puts pressure on the MoH to consider a more "rational" allocation of hospital resources. This is a great challenge given the changing environment that hospitals face.

Anecdotal evidence reported in daily press show that public hospitals in Greece are operating very poorly, primarily inefficiently. Newspaper articles have titles such "New hospitals on ... half-holiday" and "Super modern hospitals – *phantoms*" clearly convey the dominant situation in the health care sector of Greece. To my knowledge, apart from Mouza's study (2002) which forecasts the number of hospital beds that the Greek NHS needs by 2011, there is dearth of empirical studies, which would determine the optimal number and size of hospitals. It appears that hospital construction serves political needs and not the need to provide services to as many as possible. In general terms, in Greece, the construction of tertiary educational institutes (universities and technological institutes), hospitals, courthouses and other public service organizations serve the purpose of creating employment and economic activity in regions and areas that happened to have a strong political lobby in the central government (i.e. a minister in the government comes from this area). Moreover, the need to build infrastructures in Greece serves other needs as well. It is a way of channelling public funds into the big lobby of construction companies that in turn inflate the cost of construction for creating buildings and infrastructures that require high operating costs in terms of maintenance. Many EU funds from the Second and Third Community Support Frameworks were used to build infrastructures, in which the actual cost was higher than the one forecasted in the original budget. In particular, the actual cost of construction of ten regional hospitals exceeded by 28% the original budget costs, while this amount may increase to 80%, or 133 million euros. (Note 35)

With regard to the medical equipment of the hospitals, the data published in the daily press show a disappointing situation. The Greek NHS is characterized as 'naked' of modern medical equipment. (Note 36) Out of 191 magnetic tomographers, public hospitals have only 29, while their distribution is not based on actual needs. As an example, it is reported that "... none of the three large oncologic hospitals of the country – Agios Savvas, Metaxa, and Theageneio of Thessaloniki – has a magnetic tomographer". Moreover, as reported in the same newspaper "over the last five years, only one magnetic tomographer has been installed in the public sector, in the "G. Gennimatas" hospital, in 2007".

Similar problems are also observed with regard to radial tomographers. From the 336 radial tomographers that exist in the country, 116 are installed in hospitals of the Greek NHS. Yet, almost half of them (54) are very old, putting in

danger the health of both patients and hospital personnel (increased radiation). At the same time, it is planned to provide two public hospitals with radial tomographers, but, due to the lack of blood-donor departments, they cannot use these very expensive machines - each machine costs 1-1.5 million euros. (Note 37) In other words, there is no rational planning of investing in infrastructure and new medical equipment in the Greek NHS. This “Medieval” situation in the Greek NHS, in terms of the medical equipment, seems to change. According to public press, the MoH will buy modern screening machines amounted to 50 billion euros, by the end of 2008 or near after. (Note 38)

Another important issue reported very often in Greek daily press is the procedures by which public hospitals purchase their supplies. (Note 39) Supplies are bought at a higher price than the spot market price, reflecting the inefficiency of hospital purchasing management of materials and supplies. However, in many cases, hospital providers have claimed that the higher price is necessary to compensate them for the long delays that are observed in paying for their goods and services that they provide to public hospitals. Thus, the cost of supplies could be reduced, if payments were made without delays. (Note 40) Even worse, in some cases supplies paid by scarce public funds are never used. According to a study carried out in one of the biggest hospitals of Attica, the “Attikon” hospital, it is concluded that “...obscurities in the specification of material supplies, the technical specifications of which are often identified by individuals who are not acquainted with their use...” as well as “... specifications that reflect in a photographic manner the products of specific companies...” are recorded as the main problems during the conduct of competitions for hospital supplies. As an example, it is reported that the “Attikon” hospital manages a minimum of 20 million euros per year for material supplies. (Note 41)

Public press also reports claims that bribery is used to secure purchases by public hospitals. The entire tendering process has been criticized. (Note 42) Million of euros are spent for purchasing “useless” materials with non-transparent processes. The prior Minister of Health, Mr. Dimitris Avramopoulos anticipates to save 500 million euros, per year, as a result of the new system of acquiring hospital supplies. (Note 43) According to the new Law for hospital supplies (3580/2007) there will be a National Committee for Health Supplies (EPY) that will organize and materialize on an annual basis, for the whole public hospital sector in Greece, public competitions for supplies. (Note 44) Thus, the system will be centralized in order to minimize the loss (in money), however, with relatively low flexibility in the case of emergencies and unexpected demand.

Mr. D. Dritsas, Emeritus General Director of the General Counting House of the State and Ex Special Secretary of Treasury and Budget, stated in the daily press (Note 45) that apart from the recognized problems of bad management and corruption in hospitals, the MoH should focus on the real problems of the Greek hospital sector and the inability to manage these problems. On the basis of past measures and estimates, 35% of total hospital expenditures are related to operational costs, the bulk of which consist of all kinds of material supplies. Hospital supplies, according to Mr. Dritsas, constitute the main source of debt in public hospitals. According to data presented by PASOK, the opposition party, unpaid hospital debts for drugs, reagents, orthopaedic and sanitary material amounted between 1-1-2005 and 31-08-2008 to 4.4 billion euros. (Note 46) On the basis of these data, a new regulation regarding the debts should be put forward in 2008 as regards the debts of the years 2005, 2006 and 2007. It is a very common practice in Greece that the MoH to settle the accumulated debts of public hospitals every four-five years. Over the last ten years, three such settlements have taken place, in 1997, 2001, and 2005. In the last settlement, in 2005, the MoH covered an amount of 2.2 billion euros. (Note 47)

According to Brian Abel-Smith (1994), a significant parameter that increases hospital effectiveness and efficiency is the rational use of technology and of newly developed medication (Abel-Smith, 1994, p.203). The irrational and excessive use of drugs constitutes a significant indicator of the inefficiency of the health care system, especially in the developed world. The control of medical prescriptions by the State is considered to be a difficult process, especially when there is a lack of necessary technological tools. According to the Greek MoH, the approval of a Law on Primary Health Care would allow the State to control the rate and procedures of medical prescriptions, a fact that would contribute to the reduction of unreasonable surcharges of social insurance funds. In fact, as the prior Minister of Health stated: (Note 48) “Undoubtedly, expenditures on medication constitute a very significant part of hospital supplies and of the respective debts of social insurance funds”.

Pharmaceutical expenditures constitute only one part of the new and innovative technological developments that significantly increase the cost of health care systems in developed countries. Other expenditures include new biomedical technology, genetics, and modern imaging. Yet, as explained by the Professor J. Kyriopoulos at NSPH, “... while the production of health services in the hospital sector... remains about the same in terms of volume or is often decreasing, the cost of each of these services is increasing geometrically”. (Note 49)

Moreover, the new technology is quite expensive compared with the old one, while its maintenance by specialized staff implies an extra cost for the health system. This cost should be compared with the effectiveness of the new

medical technology in promoting free and universal health care to Greek citizens. With regard to the same issue, the prior Minister of Health stated that “The use of new technologies in the health sector is, for us, a challenge, but also a necessity. By using new technologies, we will be able to put in practice the electronic health file and provide efficient services in every part of the country. Alongside the introduction of the electronic health card ... we will control ... the format and content of medical services ...”. He continued by stating that “whatever the cost of applying new technologies, it is outweighed by the multiple benefits brought about in terms of the quality and the short and (mainly) long term cost of health services”. (Note 50) Mr. Manolis Skoulakis, MP of PASOK, states that “the funding pressures faced by all health systems in the world in order to acquire new medical and technological products, treatment methods, or medications is putting an extra burden on the Greek NHS, with which we are obliged to deal with care and reason”. He continues by stating that “... the increasing dependence on new technological developments is expected to bring about ... in the end, greater economic efficiency”. (Note 51) However, as stated by the Professor J. Kyriopoulos at NSPH, “... the lack of efficient distribution of technological resources and the absence of technical methods for medical and economic evaluation undermine the achievement of greater economic efficiency in the context of the Greek NHS”. (Note 52)

In a study on the efficient use of resources in Greek hospitals, in 1992, it was found that there was significant room for improvement in many of them (Giokas, 2001). He identified that there was a potential for saving up to 20% on hospital expenditures. The difference between the actual and the efficient cost was 27% for general hospitals and 16% for teaching hospitals. Non-efficient hospitals could produce the same result, if the daily cost per patient was reduced by 26%. At least 4.1% of health care costs from the GDP were due to inefficiencies created by public, general and teaching hospitals.

Apart from the funding issue per se, there are many other problems related to the efficiency problems of the NHS in most developed countries. One of them is related to the unnecessary hospitalization of patients and their lengthy stay in the hospital (Abel-Smith, 1994, p.203). In Greece, according to the prior Minister of Health “... only 40% of those hospitalized in public hospitals are in need of hospital care”. (Note 53) These statements raise significant questions about the efficient use of public scarce resources, i.e., hospital personnel, buildings, medical equipment and other hospital supplies. Mr. Manolis Skoulakis, MP of PASOK recognizes as the main solution to this problem the enforcement of the primary health care services. In particular, he stated that: (Note 54) “...the upgrading of the Health Centres with the use of modern protocols, the replacement of rural doctors by specialized doctors, the creation of dynamic Regional Health Stations all over the country, and the completion of the (still under-construction) Urban Health Centres will create a network of modern primary health care services, both in the cities and in the rural areas, upgrading the quality, facilitating the access, increasing the efficiency of the Greek NHS, reducing significantly the economic burden of the secondary health care services”. In relation to this thesis, a study carried out in Spain, during the period 1992-1999, showed that a rise in use of primary care emergency services did not reduce use of the hospital Accident and Emergency Departments (Oterino de la Fuente et al, 2007).

A recent study supervised by Professor J. Kyriopoulos at NSPH showed that one of the most serious weaknesses of primary health care services is “... the absence of a priority policy with regard to appointments, which would be based on the real health needs of the population”. (Note 55) The absence of a rational policy for making appointments suppresses every opportunity for an efficient use of limited economic resources. It is suggested that the existing primary health care units should be further equipped with medical, nursing and administrative staff, on the basis of their accessibility. It is also suggested that these units should be appropriately staffed with medical doctors. The study also notices the need for additional medical equipment and infrastructure that is expected to upgrade all services offered by these units. The total cost is estimated to one billion euros, if all these structural changes in the primary health care units will be completed within a five-year period. From the total 1,714 regional health care units all around the country, 205 are Health Centres in rural areas and only 11 are Health Centres in urban areas. According to the initial Greek NHS plan of 1983, 220 rural health centres and 180 urban health centres should have been constructed, but the current situation shows that Greece falls short of 169 health centres in big cities. Despite all this, and with regard to rural health centres, even though they were constructed as originally planned, their inadequate staffing is still an issue. Therefore, the adequate staffing of health centres and the creation of urban health centres to fully cover the health needs of the citizens with reasonable geographical accessibility should become a priority in the political agenda. This message emerged from the recent WHO report, which is dedicated to primary health care (WHO, 2008b).

A comprehensive evaluation of the Greek NHS developments and policy initiatives in the post-2000 period was made by the Greek OKE, an independent government-funded organization, in a number of reports (called opinions) that adopted throughout this period. (Note 56) All social partners of Greece, including the Greek Medical

Association and Greek Pharmacists Association, are members of the Council. For the purpose of his study, their positions and policy recommendations are very important. Their main points are as follows: (Note 57)

- There is a need to have a total and well-documented evaluation of how the Greek NHS has worked so far in order to provide a complete assessment of the various attempts to reform it through the legislative initiatives.
- Related to this is the need to establish an evaluation system of the Greek public hospitals with measurable criteria of their efficient and effective operation.
- Doctors' performance should be objectively and transparently evaluated along with relating their salary to their efficiency.
- Public hospitals' mechanism of acquiring their various supplies, including food, is very problematic. Apart from all the legislative initiatives there is a practical need to improve the accounting system of public hospitals by adopting modern methods of accounting and implementing information technology.
- Medical staff in such areas of need as general practice, social medicine and occupational medicine must be hired.
- A mechanism of protecting patients' rights must be established.

Summing up the above presentation of the various views on the problems that the Greek NHS faces, primarily in terms of its cost efficiency, it can be said that the sources of such inefficiencies are multiple and relate to the initial planning of building a public hospital in a specific area, the size of the hospital, the staffing of the appropriate mix of personnel (medical, nursing, technical and administrative), and the purchase of hospital supplies and medical equipment.

The discussion presented in this section shows that there is a great concern among policy makers, politicians and the Greek public opinion about the cost efficiency of the operation of the Greek public hospitals. The next section provides an exposition of the cost efficiency problems of the Greek NHS.

### **5. The cost efficiency problems of the Greek hospital sector**

From the previous discussion it becomes clear that public opinion in Greece, policy makers, the academic health community and the MoH agree that the NHS should be re-organized to meet the needs of the today's society. The crucial question to be answered is if more can be done given the public and private funds available for health services in Greece.

A number of stakeholders have raised the issue of reducing the cost. However, it seems that public opinion in Greece is split on this issue. There are those that claim that the system needs more funding because more and better health care services are required. On the other hand, there are those that stress more the importance of either doing more with available funding or reduce the cost of current operation.

The most important cost inefficiency arises from bottlenecks in the provision of required inputs. For example, available beds are not used because of lack of qualified medical and nursing staff. However, is the observation of empty beds an indication of hospital inefficiency or is it an optimal decision made by hospital administrators to cope with unexpected demand? This question is further validated by the observation made by some trade unionists of the hospital sector that their staff works overtime and more days to meet the lack of medical and nursing staff. To what extent is this due to lack of staff or the result of meeting unexpected demand? If the latter is the case, then hiring more staff may not be a cost efficient approach. Hospital administrators' current approach of using more of their staff overtime is optimal because in this way, they reduce the cost in serving unexpected demand. If unexpected demand imposes a cost on hospitals, then the flexible use of medical and nursing staff is a cost efficiency reaction. Most probably the existence of unused resources such as beds in Greek public hospitals is the result of either an inefficient allocation of resources or it is the efficient response to unexpected demand. Empirical evidence can shed some light on this issue. It is quite possible that both are true: some resources are wasted and some efficiently remain idle to serve unexpected demand.

Another important issue of cost efficiency is the building of new hospitals and other health related infrastructure. If funds are misused, then the building of new capacity would require more funds to operate and maintain the hospital. However, unused new capacity might again be interpreted as an efficient reaction to minimize the cost of operation. If it is true that hospitals have been built to serve political needs and for embezzlement of public funds, then these hospitals should not operate under full capacity and some may not operate at all. This is cost efficient because the system saves on the operating cost of public hospitals, i.e. money is saved because staff are not hired for a hospital whose services nobody needs. On the other hand, if such misallocation exists, regions and hospitals that need more beds lack the basic infrastructure. For the latter hospitals, reserved capacity to meet unexpected demand will be

higher than in hospitals where there is no high demand relative to the availability of beds. This might be the case even in the greater region of Athens where the geographical distribution of hospitals and bed availability may not be an optimal one, i.e. it is not cost efficient.

Finally, the system of hospital supplies in the Greek NHS has been criticized as adding an excess cost burden. However, if unexpected demand is an issue, then meeting peak emergency demand requires short run purchases of inputs and supplies that are more expensive. The implementation of the new legislative framework by the MoH for centralized and long-term planning of hospital supplies might undermine the required short run hospital flexibility in meeting unexpected demand. However, this issue can become an argument only if unexpected demand has an impact on hospital costs.

## 6. Concluding remarks

This article was devoted to the examination of the historical developments of the Greek NHS from the period preceding its foundation to its early years of development and to more recent years of its restructuring. It is during the latter period that the issue of the efficiency of public hospitals was brought to light. This issue was examined in terms of the opinions of the various stakeholders of the Greek public hospital sector. My primary source was press rather than the academic literature. In this way, I demonstrated that the issue of hospital efficiency has a particular public policy interest, currently in Greece.

A number of policy initiatives were taken in the 2000-2008 period to make the public health care system in Greece more efficient, in particular the public hospital sector that absorbs the greater portion of total health care spending, amounting to approximately 60%.

From the public press review, it is demonstrated that the system is cost inefficient. They base their conclusions on cursory examples of resources being idle in a number of public hospitals. However, idle resources is not a sufficient condition to determine whether a public hospital is running below optimal cost efficiency level. Idle capacity could be an optimal (cost efficient) response by hospital managers to meet unexpected demand for hospital services. This is an issue that needs further research. Stochastic demand could be included as one of the explanatory variables into the hospital costs functions in order to investigate whether part of this inefficiency (Athanasopoulos et al, 1999, Giokas, 2001) could be explained by the reserve capacity held by hospitals due to unexpected demand.

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#### Notes

- Note 1. TEVE (the Greek Fund for Craftsmen and Small Traders) was created in 1934 in order to provide insurance coverage to shop owners and manufacturers.
- Note 2. The purpose of this section is not to provide a detailed assessment of the Greek NHS in all its dimensions. A number of papers have evaluated the Greek NHS from a social, political, economic, financial, historical perspective. Among others, see Carpenter (2003), Apostolides (1992), Kent (1989), Liaropoulos (2001), Matsaganis (1998), Tountas et al (1995), Tragakes and Polyzos (1998) and Tsalikis (1988). Also, OECD has published a number of studies of evaluating health care provision in Greece in comparison with other member countries.
- Note 3. It is characteristic that the priority for modernizing public hospitals has absorbed €145 million, or 28% as a percentage of the total amount spent for the whole programme (Opinion of Economic and Social Council of Greece (OKE) no. 60, 2001 – see [www.oke.gr](http://www.oke.gr)).
- Note 4. In a recent sampling (EU – Statistics on Income and Living Conditions) that took place in 2007 from the National Statistical Service of Greece (ESYE) 25% of the Greek population has declared that has difficult access to health care services - primary and secondary (Press Release, 14-10-2008) – see, also, [www.statistics.gr](http://www.statistics.gr).
- Note 5. Law 3329/2005: National Health Services and Social Solidarity.
- Note 6. OKE in its Opinion no.128 ‘National Health Services and Social Solidarity – draft law’, p.12, March 2005 has proposed the reorganization of the number of YPEs.
- Note 7. Aletras et al (2007) have found that technical and scale efficiency has been reduced following the policy changes and they conclude that the expected benefits from the reform of 2001 have not in general been achieved, at least in the short run. Their study compared the scale and technical efficiency in 51 acute general hospitals in Greece in the years 2000 and 2003 (before and after the reform).
- Note 8. See, Newspaper Kathimerini, ‘Silently, NHS is collapsing ...’ Sunday, 26 November 2006, p. 34 (in Greek).
- Note 9. See, Newspaper Vima, ‘Health in Greece is a private business’ Friday, 27 April 2007, p. A7 (in Greek).
- Note 10. Ibid.

- Note 11. See, Newspaper Vima – Special Issue: Health, ‘How NHS is gradually dying’ Saturday, 16 June 2007, pp. I-VIII (in Greek).
- Note 12. See, Newspaper Kathimerini, ‘Greeks are disappointed with NHS’ Sunday, 26 September 2004, p. 26 (in Greek).
- Note 13. See, Newspaper Naftemporiki – Special Edition: Drug – Health, February 2008, p.10 (in Greek).
- Note 14. Ibid, p.16.
- Note 15. Ibid, p.10.
- Note 16. See, Newspaper Ethnos, ‘Bleeding in the pocket due to ...public health’ Thursday, 16 November 2006, p. 4 (in Greek).
- Note 17. See, Newspaper Apogeumatini of Sunday, ‘Better a waiter in Athens than a doctor ... in Ikaria’ Sunday, 22 May 2005, pp. A16-A17 (in Greek).
- Note 18. Ibid.
- Note 19. See, Newspaper Nea, ‘New hospitals are...rusting’ Wednesday, 10 August 2005, pp. 12-13 (in Greek).
- Note 20. A fixed request by the local authorities of islands is the existence of a helicopter on a permanent basis or the existence of speedboat ambulances in order to immediately cover emergency cases (Newspaper Eleutherotypia, ‘Asking for speedboats ambulances’ Tuesday, 12 August 2008, p.18-19 (in Greek).
- Note 21. See, Newspaper, Vima – Special Issue: Health, ‘How NHS is gradually dying’ Saturday, 16 June 2007, pp. I-VIII (in Greek).
- Note 22. See, Newspaper Ethnos, ‘150 beds of intensive care are ‘rusting’’ Tuesday, 7 June 2005, p. 22 (in Greek).
- Note 23. See, Newspaper Ethnos of Sunday, ‘Threat of heart attack in NHS’ 17 July 2005, p. 31 (in Greek).
- Note 24. See, Newspaper Ethnos, ‘150 beds of intensive care are ‘rusting’’ Tuesday, 7 June 2005, p. 22 (in Greek).
- Note 25. Ibid.
- Note 26. See, Newspaper Ethnos of Sunday, ‘Threat of heart attack in NHS’ Sunday, 17 July 2005, p. 31 (in Greek).
- Note 27. See, Newspaper, Vima – Special Issue: Health, ‘How NHS is gradually dying’ Saturday, 16 June 2007, pp. I-VIII (in Greek).
- Note 28. This is an important point that will be picked up in chapter six, where I discuss the empirical results of the impact of elective and emergency admissions on hospital costs.
- Note 29. See, Newspaper Vima, ‘Secretaries receive ‘black envelope’ too’ Sunday, 17 February 2008, pp. A42-A43 (in Greek).
- Note 30. See, Newspaper Kathimerini, ‘Silently, NHS is collapsing ...’ Sunday, 26 November 2006, p. 34 (in Greek).
- Note 31. Ibid.
- Note 32. See, Newspaper, Vima – Special Issue: Health, ‘How NHS is gradually dying’ Saturday, 16 June 2007, pp. I-VIII (in Greek).
- Note 33. See, Newspaper Ethnos of Sunday, ‘Threat of heart attack in NHS’ Sunday, 17 July 2005, p. 31 (in Greek).
- Note 34. The correlation between public hospitals and beds is estimated to be  $r=.984340$ , while the correlation between private hospitals and beds is estimated to be  $r=.973025$ .
- Note 35. See, Newspaper Eleutherotypia of Sunday, ‘Ten provincial hospitals are in a ‘coma’’ Sunday, 26 February 2006, pp. 58-59 (in Greek).
- Note 36. See, Newspaper Kosmos Ependyti, ‘NHS is naked of modern medical equipment’ Weekend, 1 & 2 March 2008, p. 44 (in Greek).
- Note 37. Ibid.
- Note 38. See, Newspaper Kosmos Ependyti, ‘Finally ... a dose of modernization in the NHS’ Weekend, 4 & 5 October 2008, p.44 (in Greek).

Note 39. See, Newspaper Imerisia, 'Suppliers at work, supplies in dead stock' Weekend, 14 & 15 July 2007, p. 40 (in Greek).

Note 40. See, Newspaper Kosmos Ependyti, 'The new system of hospital supplies in 10 ... simple steps' Weekend, 5 & 6 July 2008, p. 44 (in Greek).

Note 41. See, Newspaper Imerisia, 'Suppliers at work, supplies in dead stock' Weekend, 14 & 15 July 2007, p. 40 (in Greek).

Note 42. See, Newspaper Vima, 'Orgy of wastefulness in hospitals' Sunday, 24 June 2007, p. A52 (in Greek).

Note 43. See, Newspaper Naftemporiki – Special Edition: Drug – Health, February 2008, p.11 (in Greek).

Note 44. See, Newspaper Kosmos Ependyti, 'The new system of hospital supplies in 10 ... simple steps' Weekend, 5 & 6 July 2008, p. 44 (in Greek).

Note 45. See, Newspaper Vima, 'Public hospitals are the big patient' Sunday, 18 November 2007, p. B6 (in Greek).

Note 46. See Newspaper Eleutherotypia, 'The public hospitals 'sink' because of debits' Wednesday 17 September 2008, p.18 (in Greek).

Note 47. See, Newspaper Ethnos, 'The NHS owes 4.4 billion euros' Wednesday 17 September 2008, p.26 (in Greek).

Note 48. See, Newspaper Naftemporiki – Special Edition: Drug – Health, February 2008, p.11 (in Greek).

Note 49. Ibid, p.51.

Note 50. Ibid, p.11.

Note 51. Ibid, pp.16-17.

Note 52. Ibid, p.51.

Note 53. Ibid, p.12.

Note 54. Ibid, p.17.

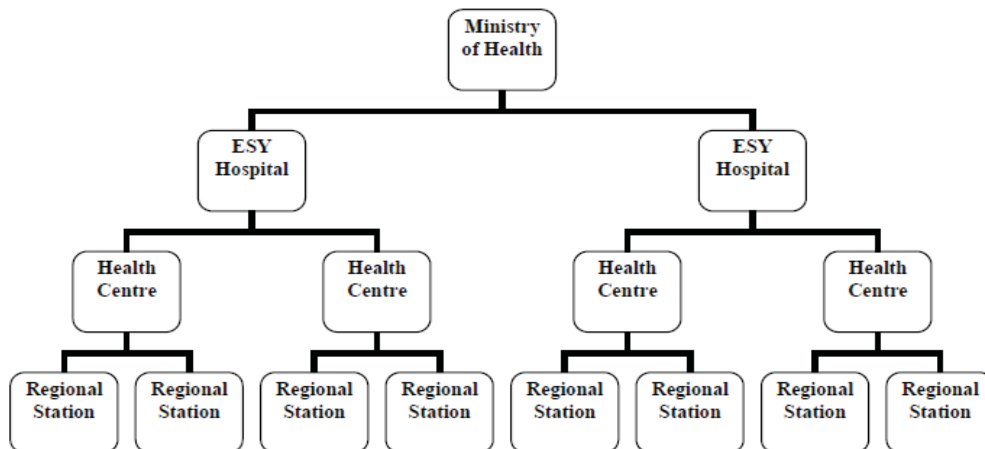
Note 55. See, Newspaper Kosmos Ependyti, 'Primary care costs a lot' Friday 7 – Sunday 9 March 2008, p. 46 (in Greek).

Note 56. These reports are available on the website: [www.oke.gr](http://www.oke.gr).

Note 57. Opinion of OKE no.94 'Improvement of the National Health System and other issues of the Ministry of Health', September 2003.



*Prior to 2001 Reform*



*After the 2001 Reform*

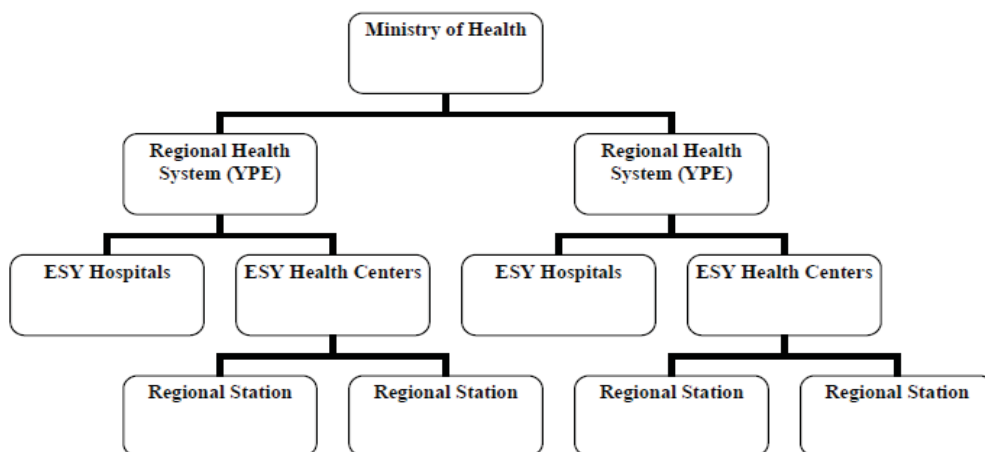


Diagram 1. Organisational structure of the Greek NHS

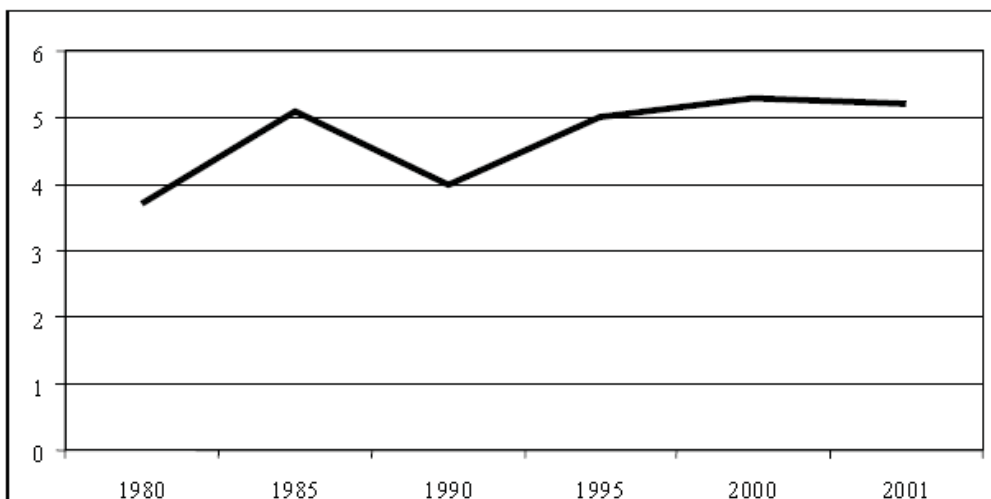


Diagram 2. Public health expenditures - % GDP (1980-2001)

Source: OECD, 2006.

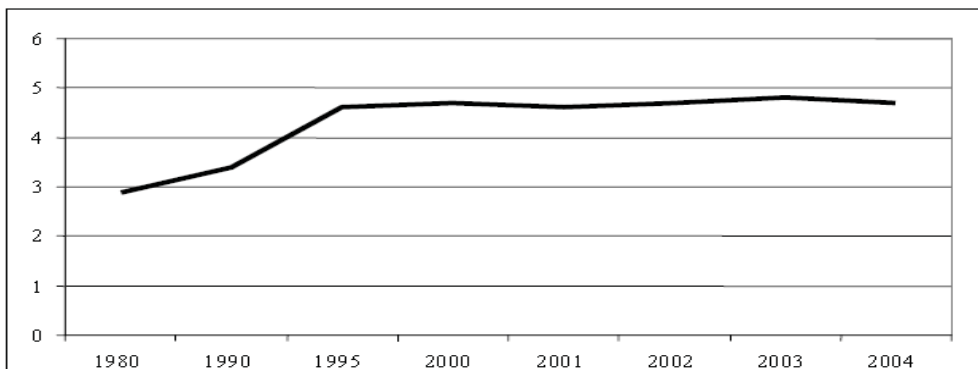
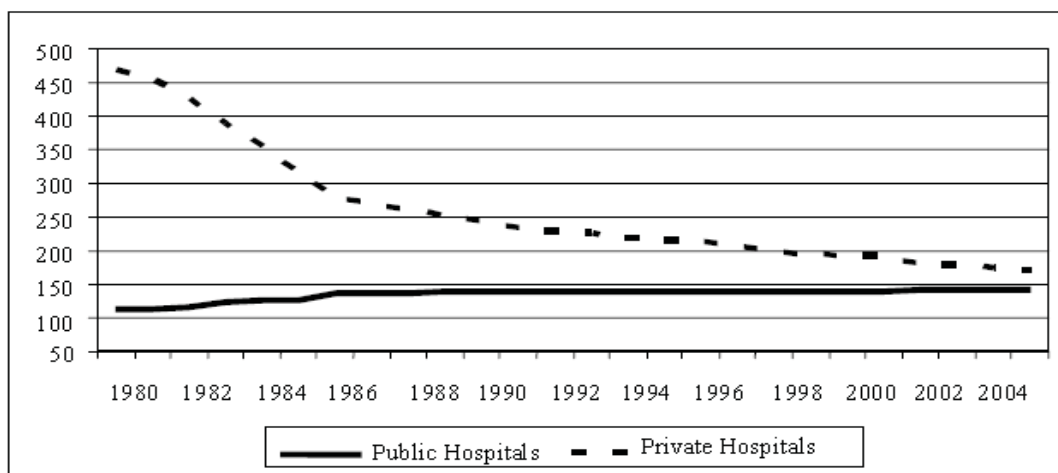


Diagram 3. Private health expenditures - % GDP (1980-2004)

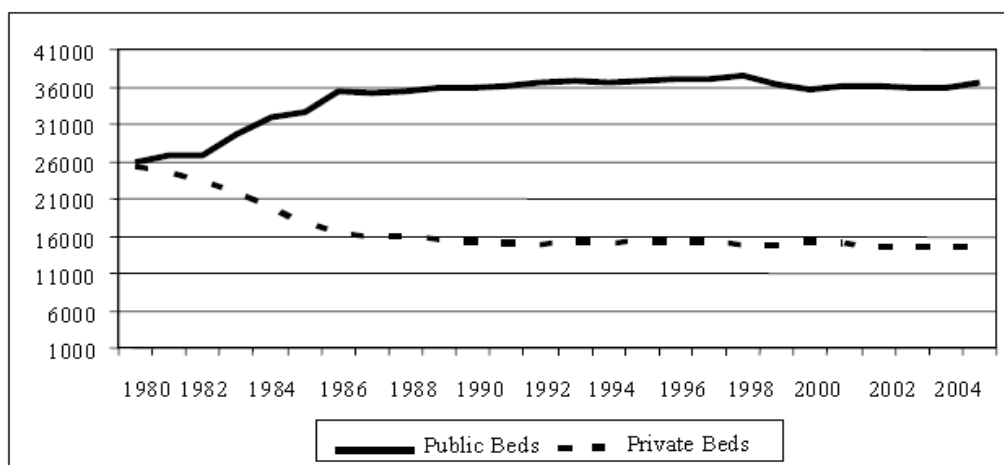
Source: OECD, 2006.



\* Military hospitals are excluded.

Diagram 4. Number of public\* and private hospitals, 1980–2005

Source: ESYE, 2008.



\* Military hospitals are excluded.

Diagram 5. Number of beds in public\* and private hospitals, 1980–2005

Source: ESYE, 2008.