

SYRIZA-ANEL governments Health Policies and their theoretical effect on Efficiency

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Abstract

Introduction: Health policies in the financial crisis seek to increase the efficiency of health system units. The Greek SYRIZA-ANEL government implemented policies to achieve the increase of the efficiency of the National Health System (ESY) units and especially of the secondary hospitals.

Objective: We enterprise to capture the theoretical effect of the health policies of the Greek governments SYRIZA-ANEL on the change in efficiency of hospitals. The study was designed to assess the impact of the health policies of the SYRIZA-ANEL governments on changing the efficiency of public hospitals.

Methodology: Data collection was performed after a literature review. The systematic collection of information was carried out with keywords and then through systematic processing of the texts in which the keywords were found. The data were obtained from a literature review of international scientific journals included in the Hellenic Academic Libraries Link (HEAL-Link) database and from other internationally recognized scientific journals. This study will serve as a further applied study of the change in efficiency in the context of postdoctoral research.

Result: The health policies regarding health care and funding of the SYRIZA-ANEL governments have a positive effect on efficiency mainly through the increase of outputs and the cost policies have a positive effect mainly through the reduction of inputs.

Conclusions: Some policies greatly increase outputs and inputs to a lower extent and have a positive effect on changing efficiency. Some (fewer) policies increase inputs and consequently reduce efficiency. Policy mixing increases the efficiency of public hospitals. It is up to future research to measure the change in the efficiency of Greek public hospitals.

Keywords: Health policy, Health efficiency, SYRIZA-ANEL, Data Envelopment Analysis (DEA), inputs - outputs.

Introduction

Health policies study and are focused specifically on increasing efficiency in modern health systems (Jacobs, Smith & Street, 2006). The pursuit of efficiency is a goal of the health systems, to reduce waste of resources and ensure the population's access to health services without financial difficulties (Masri & Asbu, 2018). The creation of systems that produce, among others, efficient results constitutes a goal of health policies and is studied by evaluating performance (Kumah et al., 2020). Health efficiency is an important goal for health systems and can be changed with the appropriate reforms of these systems (Gheorghie et al., 2019). A number of studies point to the grow-

ing importance of the concept of efficiency for health policies (Jeong & Gunji, 1994; Palmer & Torgerson, 1999; Gwatkin, 2001; Medeiros & Schwierz, 2015; Varabyova & Müller, 2016; Wenzl, Naci & Mossialos, 2017; Trnka & Stöckelová, 2019). (Jeong & Gunji, 1994) cite efficiency as a goal that is commonly accepted in the study of health policy. Trnka & Stöckelová (2019) cite efficiency as a key reference concept in discussions of modern medicine. Health policies attempt to use the resources spent in the health sector to produce good results and improve the value for money relationship (Varabyova & Müller, 2016). However, despite the efforts, health systems are often characterized by a widespread lack of efficiency (Medeiros & Schwierz, 2015), which can be attributed to the following factors that cause waste of resources:

- non-optimal settings for the provision of care.
- ineffective provision of acute hospital care.
- fraud and corruption in healthcare systems
- large unexplained variation in the quantity and quality of care among several countries as well as within the same country and
- non-optimal mixture of preventive versus therapeutic care.

Combating inefficiencies to simultaneously ensure the conversion of health care costs and modern expensive health technologies into beneficial health services for citizens is a pursuit of health policies (Jacobs, Smith & Street, 2006).

Health policies in the financial crisis seek to increase the efficiency of health system units (Simou & Koutsogeorgou, 2014; Thomson et al., 2015; Földes, 2016; Kaitelidou et al., 2016). Health policies that attempt to increase efficiency are about reducing cost by cutting expenses (Dervenis, Kastanioti, & Polyzos, 2013; Busse et al., 2013; Graban & Toussaint, 2018; Kocher & Adashi, 2011; Yap & Tan, 2012). The policies implemented by countries in an economic crisis are aimed at reducing costs and not so much at improving efficiency (Wenzl, Naci & Mossialos 2017). Health care reforms seek to improve efficiency but also equality in order to provide health services to all regardless of income (Gwatkin, 2001). However, the efficiency that is required in times of financial constraint conflicts with equality in its implementation, creating problems in the provision of health to individuals, but does not conflict with justice. The efficiency of organizations expressed as the result of the generated output divided by the inputs, in order to calculate the success of the way in which the inputs are converted into outputs (Keh, Chu & Xu, 2006; Wu, 2009; Bartuševičienė & Šakalytė, 2013). Health efficiency responds to the need for increasing demand for health services in relation to available funds. It also measures the relationship between the intermediate outputs (number of patients treated, waiting time) or less frequently the final outputs (lives saved, years of life extension, adjusted quality years of life (QALYs) to inputs (costs, in the form of labor, capital or equipment) (Palmer, & Torgerson, 1999). Health efficiency has its peculiarities in relation to the general expression of efficiency. The basic outputs of health are the levels of health that fluctuate even in the absence of a health system (Evans *et al.*, 2001). In general, health levels also depend on social factors outside the health system. Efficient resource allocation is particularly important in modern health settings where low growth and financial

constraints predominate (Afonso & Aubyn, 2005).

The impact of health policies on the efficiency of hospitals must be done in a specific way. Policies affect each of the inputs and outputs in a specific way. Then, the increase or decrease of each input or output is what attempts to increase or decrease the value of efficiency accordingly. In our study, we emphasize some frequently encountered inputs and outputs that determine the change in efficiency, such as:

Inputs:

- Medical Personnel
- Clinical staff
- Other personnel
- Number of beds
- Financial data (Costs)

Outputs:

- Number of discharges
- Hospitalization days

These inputs and outputs refer to a number of efficiency studies using the DEA method, such as Kaitelidou *et al.* (2012), Polyzos (2012), Katharakis, Katharaki & Katostaras (2014), Kaitelidou *et al.* (2016), Fragkiadakis *et al.* (2016), Flokou, Aletras & Niakas (2017), Xenos *et al.* (2017).

Lee, Chun & Lee (2008) showed that the number of beds, doctors and nurses constitute inputs and the number of outpatients constitute outputs, which affect the efficiency of hospitals. Asandului, Roman & Fatulescu (2014) highlighted the importance of three variables; the number of physicians, the number of hospital beds, and public health expenditure as a GDP percentage in changing efficiency. The number of beds and the number of hospital physicians are labelled as inputs that play a role in change of efficiency (Caballer-Tarazona *et al.* (2010). Mujasi, Asbu & Puig-Junoy (2016) choose the number of beds and medical staff as inputs and the hospitalization days and outpatients as outputs. However, Hu & Yang (2012) point to widespread concerns about the impact of beds and patient days on efficiency, in the sense that they increase ethical risk on the supply side. Some studies show health policies implemented in the financial crisis and under a regime of financial constraints with changing efficiency. Gallo & Badia (2013) demonstrate the attempted increase in efficiency of Spanish legislation in the financial crisis. Table 1 shows a series of studies on the efficiency of hospitals that use the most common inputs and outputs of efficiency studies.

Table 1: Selection of most common inputs-outputs in efficiency studies (Authors, 2021)

Researchers	Inputs						Outputs	
	Year	Beds	Doctors	Clinical staff	Administrative personnel	Financial data	Hospitalization days	Number of patients
Lee, Chun & Lee	2008	X	X	X				X
Kirigia <i>et al.</i>	2008	X	X	X		X		X
Caballer-Tarazona <i>et al.</i>	2010	X	X					
Pham	2010	X	X	X	X		X	
Chang, Hsiao & Chang	2011	X	X	X			X	
Kreng & Yang	2011		X	X		X		
Hu, Qi & Yang	2012	X	X	X		X	X	
Dimas, Goula, & Soullis	2012	X				X		X
Varabyova & Schreyögg	2013	X	X	X	X			
Audibert <i>et al.</i>	2013	X	X					X
Kirigia & Asbu	2013	X	X	X		X		X
Asandului, Roman & Fatulescu	2014		X	X		X		
Jehu-Appiah <i>et al.</i>	2014	X	X	X	X	X	X	
Kawaguchi, Tone, & Tsutsui	2014		X	X				X
Narci <i>et al.</i>	2015	X	X	X				X
Alonso, Clifton & Díaz-Fuentes	2015	X	X	X				X
Narci <i>et al.</i>	2015	X	X	X	X			X
Van Ineveld <i>et al.</i>	2016		X	X			X	X

The review of the impact of health policies on inputs and outputs is necessary in order to follow the analysis of the impact of the health policies on the inputs and outputs of efficiency. Such a description is made by Kirigia *et al.* (2008), which distinguish health policies for the increase of efficiency of hospitals as follows:

In terms of increasing outputs, health policies can be:

- Programs to promote preventive, curative and rehabilitative health that will increase the demand of the population
- Reducing financial barriers to effective access to health services (out-of-pocket costs and time costs)
- Improving the health services' response to the expectations of actual and potential health care recipients
- Improving the technique and perceived quality of the health services provided in the inefficient hospitals

Regarding the reduction of inputs (if it is difficult to increase the provision of care), the health policies are implemented with the following:

- Transfer instead of dismissal of redundant specialized staff to Health Centers (KY) (not already ineffective ones)
- Shifting excessive drug costs to PFY
- Transport of surplus hospital beds

Kirigia & Asbu (2013) determine the required input reductions for hospitals in order to increase efficiency as follows:

- Creation of workers' mobility pools
- Availability of extra beds in the public or private sector (avoidance of Roemer's law - excessive admission and stay)

The Narci *et al.* (2015) propose some drastic measures for inefficient hospitals, related to their operating status, such as:

- the closure of inefficient hospitals. This is a policy that directly affects the efficiency of the health system, but has social consequences and threatens the criterion of equality.
- shrinking of ineffective hospitals
- merger of ineffective hospitals. But the merger could lead to increased costs due to ineffective medical services and a lack of a competitive environment.

They also point to the importance of a number of funding-related factors that play an important role in increasing the efficiency of public hospitals. Such factors are:

- the existence of closed integrated budgets and
- performance-based financing
- the development of Diagnosis Related Group (DRG) as a financing system

Finally, they point out the importance of the General Practitioners as a filter for referral services.

In terms of cost reduction, this is an input reduction for efficiency. Pham (2011) advocates reducing costs to limit inputs without reducing health care benefits. Dimas, Goula & Soulis (2012) point out policy interventions towards cost reduction through better management and redistribution of their resources based on a DEA study. Resource recovery aims to reduce operational, medical and procurement costs. Also, an energy policy aimed at environmental benefits can be useful in reducing costs (Malik *et al.*, 2018).

Lee, McCullough & Town (2013) point to the introduction of Health Information Technology (HIT) in improving the efficiency of health services. The introduction of HIT produces marginally high products, but the overall benefits are real but modest. SYRIZA-ANEL's health policies were largely implemented under financial constraints

at the end of the financial crisis, under the influence of the 3rd memorandum of cooperation. These policies are classified according to the model Mladovsky *et al.* (2012), which is enriched by Gallo & Badia (2013) and the similar one by Kaitelidou & Kouli (2012) which classifies health policies into:

- Policies intended to change the level of contributions for publicly financed health care
- Policies intended to affect the volume and quality of publicly financed health care
- Policies intended to affect the costs of publicly financed health care

and according to the literature review of Farantos & Koutsoukis (2022), those shown in Table 1.

Table 1: The health policies of the SYRIZA-ANEL governments (Farantos & Koutsoukis, 2022)

Categories of policies	Financial contribution policies to the health system	Care policies	Cost reduction policies
Health Policies	Health funding growth policy Changing the way of financing through a new social security institution Increase in sub-categories and total hospital expenditure Policy to cover funding from the state and the funds and not from the recipients of health services	Development of a two-level Primary Health Care (PFY) System Beneficiary expansion policies Policies to extend the provision of expansion services to beneficiaries - refugees Policies to promote the rights of health care recipients ESY human resources reorganization policies e-health development policy Mental Health Services (MH) Modernization Policy Atlas Health Edition for all regions of the country	Pharmaceutical cost control policies with annual budgets for classification levels of anatomical therapeutic chemicals Pharmaceutical cost reduction policies with drug catalogues, generic drugs, central supplies Cost reduction policy with the reconstitution of the Drug Evaluation Committee Cost reduction by forecasting annual budgets for classification levels of anatomical therapeutic chemicals Policy of modernization of the centrally controlled health supply system Environmentally sustainable health care with simultaneous cost reduction Negative health care policy during the refugee crisis

The SYRIZA-ANEL government implemented policies to achieve the increase of the efficiency of the ESY units and especially of the secondary hospitals. Here are some of the policy interventions identified to increase the efficiency of the health system: According to Economou (2018), the new PFY system, implemented in 2017, incorporated the basic principles of the World Health Organization (WHO) to provide health services, but results mainly in better access to health care, and more rational and efficient use of existing services and resources, as a result of reduced hospital admissions due to well-organised referral services. The efficient use of resources is therefore highlighted. According to Burgi (2010), the establishment of Local Health Units (TOMY) designed by the Minister of Health, Andreas Xanthos, aimed at decongesting public hospitals from excessive attendance. This is beneficial for the overall efficiency of the system, although in public hospitals it reduces discharges (outgoing patients). Onvee *et al.* (2021) express the view that, throughout the past decade, governments sought to increase the efficiency of hospitals, under conditions of limited resources and at the same time with a view to combating inequality. The arrival of SYRIZA as a left-wing government, gave impetus to this effort, with the expansion of free access of the uninsured to public health structures and the operation of a new PFY system also with free access.

Wenzl, Naci & Mossialos (2017) address the issue of expenditure cuts and their effect on cost reduction (and therefore give a different picture of the effect of expenditure cuts on overall efficiency that includes both public and private inputs). Expenditure cuts could lead to a replacement of public sources with private sources of co-financing. As private sources of co-financing are difficult to control, as would be the case for a single-buyer buyer, the total cost of health services can rise. Thus, they essentially distinguish between the efficiency of public units of the health system and overall efficiency.

The reduction of costs and its effect on the increase of efficiency, was dictated for the specific period of governance and under the influence of the Third Memorandum which partially continued the policy pursued under the influence of the previous Memoranda. The Greek governments SYRIZA-ANEL were called upon to further rationalize public health expenditures with measures to improve financial management, reduce costs and increase the efficiency of hospitals.

In terms of expenditure cutting, the importance of further reducing pharmaceutical spending was one of the priorities of the SYRIZA-ANEL governments. According to Karamanoli, (2015) the efficiency of state drug management prior to this government was limited. Cooperation with notable Greek companies producing generic drugs would enable the increased pharmaceutical costs to be brought under control. This effort was part of a major overhaul of health policy regarding the functioning of the health system and the reduction of its expenditure.

Regarding the reduction of staff, which is an input for efficiency, according to Petmesidou (2019), staff shortages have intensified, due to a freeze on recruitment for several years, and persistent dependence on appointments based on employment contracts with a medical contract. What is important now is that the lack of nursing staff seriously affects the provision of services - in some of them the main hospitals in Athens had organised the work so that a single nurse in the second year of the

studied government, would care for 20 or more patients. This points to the approach of the efficiency threshold in terms of number of staff, which is unfavorable for the operation of the system.

During the SYRIZA-ANEL government, new policies were implemented or some of the existing policies that had an impact on the efficiency of the units of the health system were continued. A decrease in the number of employees in ESY was observed at a rate of 14% in the year 2017 compared to the year when the reduction of these employees began - in 2011. The Ministry of Health (MoH) leadership recognized the Human Resources (HR) problems at ESY and with the help of experts, proposed health policies to address these problems. Among these problems was the ineffectiveness manifested by previous structural changes in ESY (Onvlee *et al.* 2021).

According to Kaitelidou *et al.*, (2016), in an assessment of the attempted increase in the efficiency of Greek hospitals until 2016, the restructuring of secondary care providers has begun in recent years, aiming to reduce costs and streamline health structures. The policy measures already implemented in the second year of the study period included the rewording of the hospital map, combining them into fewer units under joint administration, cuts and / or rearrangement of clinical and functional beds, changes in the operation of several ESY healthcare facilities, relocation of staff and redistribution of heavy equipment throughout the territory. Until then, however, these policies had limited application, and according to a recent study, their positive effect on the overall efficiency of hospitals was not significant. Improving efficiency was also sought through measures such as the introduction of a double-entry accounting system for costing services, the full-time operation of hospitals, the extension of outpatient hours and the review of emergency and on-call services. This information gives an idea of the efforts to increase efficiency made in the Greek ESY. In our research that follows, however, the study is sought in a systematic way through the precise determination of the impact of health policies on the aforementioned inputs and outputs found in the literature for the study of efficiency. Then, health policies are based on a known model for their impact on efficiency. In this way, the theoretical impact of the health policies of the SYRIZA-ANEL governments on the change in efficiency of hospitals is described.

Based on the above, the research question is formulated as follows: 'How do the health policies of the Greek SYRIZA - ANEL governments theoretically affect the change in the efficiency of the secondary health units?'. This question, once answered, will further serve the continuation of postdoctoral research.

Materials and methods

The basic material consists of studies that emerged from the literature review and includes specific information on the subject under study. The material spans across five points:

- health policies and their impact on efficiency
- studies in which research inputs and outputs participate in the change in efficiency
- the health policies of the SYRIZA-ANEL governments
- the impact of these policies on the inputs and outputs of Greek hospitals and

- the impact of these policies on the efficiency of Greek hospitals

The systematic classification of this material and the factors and relationships between the elements of the material (health policies, inputs, outputs, efficiency) leads to the attempted generalization of the way in which the health policies of the SYRIZA-ANEL governments affect the inputs and outputs and consequently the efficiency of public hospitals.

The methods used are for qualitative research. The database of the HEAL-Link was used, in combination with a more general search, which was carried out with the research's keywords. The research area examined was that of the health policies of the SYRIZA-ANEL governments and their theoretical impact on efficiency. For this examination, the crucial issue was to find the health policies which described the measures and legislation on health policies and efficiency. To address this issue, well-known models found in the literature were used, based on all the information obtained from the literature review on health policies, their impact on inputs and outputs, and efficiency. The models used to systematically classify and present the findings are:

- The first model of Wenzl, Naci & Mossialos (2017) was used to classify the reviewed health policies.
- The second model of Wenzl, Naci & Mossialos (2017) was used to categorize the policies of the SYRIZA-ANEL governments and their effect on costs, inputs and outputs and consequently on efficiency.

Finally, the results report was conducted through discussion.

Results

Based on the impact of health policies that increase efficiency and the literature review on government-initiated inputs or increases in outputs, the reviewed SYRIZA-ANEL governments' health policies are classified based on their impact on efficiency inputs and outputs. Table 2 shows the SYRIZA-ANEL governments' contribution and health care policies and implementation measures for the impact on efficiency. Table 3 shows the cost reduction policies of the SYRIZA-ANEL governments and implementation measures for the impact on efficiency.

The Wenzl, Naci & Mossialos (2017) developed a framework for assessing efficiency and cost in European countries' health policies during the economic crisis. The model is shown on an axis indicating the changes (increase or decrease) of inputs and outputs that affect costs and ultimately efficiency. Policies are positioned on the vertical axis based on their impact on health outcomes or overall service volume, and on the horizontal axis based on impact on inputs and costs. The broken line is the boundary between efficiency and inefficiency while the slope of the line represents an additional amount of resources that a society is willing to spend in order to acquire an additional health unit. The health policies of the SYRIZA-ANEL governments have been placed on this chart based on their characteristics.

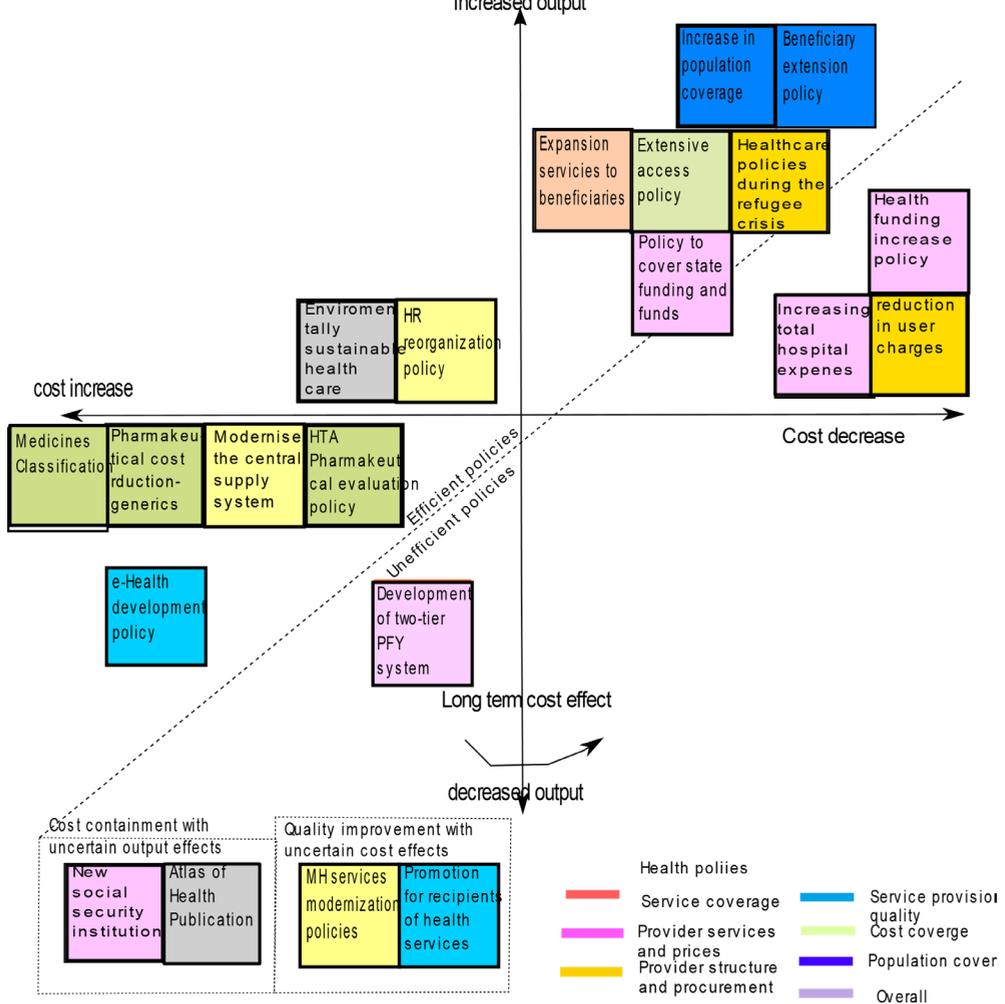
Table 2. SYRIZA-ANEL governments' contribution and health care policies and implementation measures for the impact on efficiency (Authors, 2021)

SYRIZA-ANEL government	Policy	Measure taken	Measure description	Effect on inputs		Effect on outputs
	Health funding increase policy	Development of a resource allocation mechanism	Remark: Reaction from austerity measures	Small increase in staff	Increasing the cost of health services	Increase of hospitalization days
	Change in the way of financing through a new social security institution	New social security institution	Partial exemption from state funding	Reducing the cost of health services		Increase in outgoing patients
	Increase of the individual categories and the total expenses of the hospitals	Total (ministry and funds) increase in funding	Submission of hospitalizations and inclusion in the budgets	Increasing the cost of health services		
	Policy to cover state funding and funds	Removal of access barriers	Cancellation of tickets	Cost increase		Increase of incoming patients
	Development of two-tier PFY system	One level for initial access and one advanced one	Screening of health service recipients	Further reduction of doctors	Further reduction of nursing staff	Reduction of incoming hospital patients
	Beneficiary expansion policy	Free access of citizens	Access to uninsured, vulnerable persons and persons with health problems	Cost increase	Further increase of doctors & nurses	Increase in outgoing patients
	Expansion policy for the provision of expansion services to beneficiaries	Abolition of tickets for secondary	Benefit to all its citizens	Cost increase	Further increase of doctors & nurses	Increase in outgoing patients
	Health promotion policy for recipients of health services	Offices of health service recipients	Processing of submitted complaints and grievances	Slight increase in administrative costs		
	HR reorganization policy	Facilitation of mobility, appointments and instruments	Staff transfers, facilitation of appointments	Meeting needs with the same staff (rational distribution)	Avoidance of collapse efficiency threshold	
E-health development policy	Mandatory e-health applications	Patient file (AHFY) - Import user register	Reduction of services (cost effect)			
MH Modernization Policy	Modernization of MH	Introduction of innovative scientific therapy Recipient committees			Increase in outgoing patients	
Atlas of Health publication for all regions of the country	First stage for creating a health map	Mapping of available health resources in the country	Recruitment for real needs (workforce reduction)	Proper distribution of staff (effect on inputs)		

Table 3. SYRIZA-ANEL government cost reduction policies and implementation measures to affect efficiency (Authors, 2021)

Policy	Measure taken	Measure description	Effect on inputs		Effect on outputs
Pharmaceutical cost reduction policy with lists of drugs, generics	extension of the mandatory discount and prescription control	significant price cuts, increased counter payments, mandatory online prescription	Reduction of pharmaceutical costs		
Pharmaceutical cost control policy for the classification of therapeutic substances	Implementation of cost control protocols through budgets	Combating pricing distortions	Reduction of pharmaceutical costs		
Health Technology Assessment (HTA) Pharmaceutical Expenditure Evaluation Policy	Modern evaluation methodologies and trading	Institution of evaluation and approval / rejection of drugs	Reduction of pharmaceutical costs		
Policy to modernize the centrally controlled health supply system	Re-establishment of the central authority for health supplies	Central strategic planning and implementation of health supplies	Reduction of procurement costs		
Environmentally sustainable health care while reducing costs	Installation and upgrading of roof systems	Energy upgrade and cost reduction	Energy cost reduction		
Extensive access policy (negative cost impact)	Universal free access of non-immigrants to ESY	Cancellation of tickets - partial exemption from prescription	Cost increase		Increase in outgoing patients
Health care policy during the refugee crisis (negative cost impact)	Free medical care for refugees	Introduction of specialized examinations - treatments	Cost increase		Increase in outgoing patients

Figure 1
The health policies of the SYRIZA - ANEL governments in terms of efficiency



Source: Authors (2021). The model of Wenzl, Naci & Mossialos, (2017) is used.

Figure 1 shows that the SYRIZA-ANEL governments are implementing a policy mix that includes more efficiency-oriented policies, such as policies for the expansion of beneficiaries and groups, funding from the state or funds and expenditure-cutting policies and others that have negative impact on efficiency, such as two-tier PFY policies chosen because they have a positive impact on equality and equity in health care delivery. Thus, the mix of health policy of the SYRIZA-ANEL governments has a positive effect on increasing efficiency.

Wenzl, Naci & Mossialos, (2017), grouped the health policies of the countries of the European Union during the economic crisis into categories, according to their

characteristics. Other policies, such as those of southern European countries, respond immediately to cost-cutting, while others continue existing reforms. The effect of health policies on cost reduction has an effect on the change in efficiency, since efficiency is inversely proportional to inputs, with one of the main ones being cost. We grouped the reviewed health policies of the SYRIZA-ANEL governments, based on this model. This grouping is shown in Table 3. The table shows the grouping of model-based policies, how they affect the health system and their impact on model-based costs. We correlated the model policies with the reviewed policies and assessed their impact on inputs and outputs. The symbols + and - indicate a positive and negative quantitative effect on the values, while the symbols in parentheses indicate a slight effect on these values.

Table 4. Categorization of the policies of the SYRIZA-ANEL governments and impact on cost-effectiveness

The health sector is affected by	Effect type	Effect on Cost	Description of the policy type	Effect on inputs	Effect on outputs	Effect on efficiency
Population coverage and access to services	Coverage Increase	+	Expand coverage for uninsured populations or vulnerable groups	(+)	+	+
	Reduction of population coverage	-	None			
Service coverage	Service coverage increase	+	Ad-hoc expansion of coverage for added services	(+)	+	+
			Increase public health budgets or expand public health interventions (control, prevention)	+		-
	Service coverage reduction	-	None			
	Change of mix of services	-	Increasing the supply and accessibility of PFY for hospital care substitution		-	-
	Value based changes	+/-	Introduction of HTA program to determine coverage (all types of benefits, including services)	-		+
			Introduction of the HTA program for the definition of drug coverage and / or devices	-		+
Amount of coverage and access to services	Reduction of user fees	+	Hospital and / or special care	+	+	(-)
	Increase in billing exceptions	+	None			
	Increase in usage charges	-	None			
	Reduction of usage charge exceptions		None			

Table 4. Categorization of the policies of the SYRIZA-ANEL governments and impact on cost-effectiveness (continued)

The health sector is affected by	Effect type	Effect on Cost	Description of the policy type	Effect on inputs	Effect on outputs	Effect on efficiency	
Payments and prices of health care providers	Increase in the prices of providers	+	None		+	+	
	Reduction of providers' prices	-	Reduction or freezing of PFY funding or prices	-	(-)	+	
	Reduction of income of health workers	-	None			+	+
					-		-
	Reducing the prices of health technology	-		General substitution	-		+
Reduction in the prices of drugs or devices through direct cuts or indirect policies (e.g. increased competition, central supply, tendering, reference pricing, etc.)				-		+	
Provider structure and supplies	Cut above the limit	-	Centralization of the supply of medical supplies	-		+	
	Increasing the number of staff	+	Removing the restrictive barriers to the level of staff of health workers	+		-	
	Changing the skill mix	-	Strengthening the role of nurses to replace physicians with nurses in primary care	-		+	
	Cuts in capital investment	-	Reduction or delay of publicly funded capital investments in hospitals	-		+	

Source: Authors based on the model of Wenzl, Naci & Mossialos (2017)

The health policies of the SYRIZA-ANEL governments were placed in this model. Then, the impact of these policies on the inputs and outputs of public hospitals and, consequently, on efficiency was assessed.

Discussion

We studied the impact of the health policies of the SYRIZA-ANEL governments on the inputs and outputs of Greek hospitals. As we observed, regarding the contribution and health care policies of the SYRIZA-ANEL governments and the respective implementation measures for the effect on efficiency, some policies, such as the change of the way of financing through a new social security institution, the policy of reorganization of ESY human resources, the eHealth development policy, MH modernization policy and, to a lesser extent, the issue of the Health Atlas for all regions of the country, have a positive impact on reducing inputs or increasing outputs or both at the same time. Some of the other policies, such as the policy of increasing health funding, the policy of covering state and organizational funding, the policy of expanding beneficiaries and the policy of extending the provision of beneficiary expansion services, have simultaneously increased inputs and outputs, thus affecting the change in efficiency in a dual way (but with a greater emphasis on increasing output). The development of a two-tier PFY System reduces inputs and also reduces outputs much more directly (to calculate the efficiency of hospitals alone). The increase in sub-categories and total hospital expenditure and the policy of promoting the rights of health care recipients increase inputs, albeit slightly, that is, they slightly reduce efficiency. It is concluded that contribution and health care

policies have an overall positive effect on increasing the efficiency of hospitals. Regarding the cost reduction policies of the SYRIZA-ANEL governments and implementation measures for the effect on efficiency, most of the health policies, i.e. the policy of limiting the cost of medicines with lists of drugs - generics, the policy of controlling the cost of drugs for classification of therapeutic substances, the policy of assessing HTA expenditure on drugs and the policy of modernizing the centrally controlled health supply system, aim to reduce pharmaceutical costs and environmentally sustainable health care while at the same time cost reduction aims to reduce energy costs. These policies help to reduce inputs and in particular costs and therefore seek to increase efficiency. However, other policies, such as the policy of extended access and the policy of providing health services during the refugee crisis, are oriented towards the fulfillment of the criterion of equality in the provision of health services rather than efficiency. However, while these policies increase costs (hospital costs), they also cause a larger increase in outpatients, thus having a dual effect on hospital efficiency. It is concluded that all policies that affect costs have a positive effect on the efficiency of hospitals to a higher or lower extent.

The continuation of the discussion focuses on the placement of the health policies of the SYRIZA-ANEL governments in a diagram based on the model of Wenzl, Naci & Mossialos (2017). The first thing that is observed is that during the classification there is an accumulation of health policies in the 2nd and 3rd quadrants of the diagram. This fact demonstrates in principle that most of the health policies pursued have dual effects: an attempt to reduce inputs results in a reduction in outputs, while an attempted increase in outputs results in a decrease in inputs. What differentiates the aforementioned policies in terms of their impact on efficiency is the estimated relationship between their impact on outputs and their impact on inputs. For example, an increase in the number of beneficiaries has been blamed for increasing costs. However, this policy has a direct effect on increasing the number of incoming patients and therefore outgoing patients from public hospitals. This immediate increase in patients offsets the increase in costs, since these resources are mostly limited and these resources will serve more health care recipients.

What is also observed from this diagram is that the majority of health policies are above the dividing line between effective and ineffective policies and are classified as more or less effective. Although policies that have an effect on the unambiguous increase of inputs versus outputs are rare, the overall picture shows that health policies are effective for the most part. In the 1st quadrant, policies regarding mainly health care and the health system financing are brought together, while in the 3rd quadrant policies aiming to reduce costs are brought together. It is clear that the SYRIZA-ANEL governments are continuing the reform in the field of cost reduction, implementing effective policies, but the overall picture is also positive in terms of changing efficiency of health care and financing.

Finally, the discussion concludes with the grouping of the health policies of the SYRIZA-ANEL governments based on the model of Wenzl, Naci & Mossialos (2017). From this grouping we observe the positive effect of some health policies, as opposed to the negative effect of others on the change in the efficiency of public hospitals. Some policies directly increase costs, such as lowering usage fees, and inevitably

have a negative effect on changing efficiency. But some other cost-increasing policies, such as extending coverage for vulnerable populations or groups, directly increase inpatients, i.e. outputs, and therefore increase efficiency. Cost-cutting policies, such as lowering drug prices, undoubtedly increase efficiency.

Conclusions

The health policies of the SYRIZA-ANEL governments are mostly divided into four groups in terms of their impact on efficiency through fluctuations of the most commonly used inputs and outputs in efficiency studies. On the one hand, there are policies that greatly increase outputs and inputs to a lower extent and have a positive effect on changing efficiency. Such policies are policies to extend access for vulnerable groups and eliminate user charges. On the other hand, are the policies that greatly reduce inputs and slightly fluctuate outputs and also increase efficiency. Such policies are those that continue the policies of previous governments to reduce ESY's pharmaceutical and supply costs. Some (fewer) policies increase inputs and consequently reduce efficiency. Finally, there are policies with uncertain effects on efficiency. The overall picture shows that the health policies of the SYRIZA-ANEL governments generally increase the efficiency of hospitals. What can be seen is that the health policies of the SYRIZA-ANEL governments have a positive effect on the change of efficiency. This is definitely due to the large increase in outputs that occur due to the implemented policies. Health policies of these periods are compatible with the efficiency criterion in terms of the specific policy mix and the specific conditions under which they apply. It is up to future research to measure the change in the efficiency of public hospitals and to create a comprehensive picture of the impact of the health policies of the SYRIZA-ANEL governments on the change in the efficiency of hospitals.

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