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Healthcare Reform in Greece:
Progress and Reform Priorities

by Niki Kalavrezou and Hui Jin

***IMF Working Papers* describe research in progress by the author(s) and are published to elicit comments and to encourage debate.** The views expressed in IMF Working Papers are those of the author(s) and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.

IMF Working Paper

European Department

Healthcare Reform in Greece: Progress and Reform Priorities**Prepared by Niki Kalavrezou and Hui Jin¹**

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Abstract

We review Greek public sector healthcare policies and health-related outcomes since 2010. We find that excess spending was successfully curtailed, elements of the institutional framework were modernized, and health outcomes have been relatively favorable. However, especially prior to Covid-19, public healthcare spending had been compressed to potentially unsustainable levels, with widening inequalities and large unmet needs, especially among the poor. Higher public spending and advancing structural healthcare reforms are needed to improve the efficiency and equity of the Greek healthcare system, including strengthening primary healthcare, reducing out-of-pocket payments, and eliminating remaining insurance gaps.

Keywords: healthcare, health policy, structural reforms, health insurance

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Authors' E-Mail Addresses: nkalavrezou@imf.org; hjin@imf.org

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I. INTRODUCTION

1. The 2010 outbreak of the sovereign debt crisis in Greece pressed the government to reevaluate its overall spending priorities and efficiency. In the healthcare sector, the Greek authorities launched substantial reforms with a focus on improving the structural aspects of the system, and enhancing spending efficiency through comprehensive reforms. This has included cost-saving rationalization of spending on pharmaceuticals, the reorganization of primary and secondary healthcare networks, the merger of health insurance funds, the harmonization of healthcare benefits, changes in the system of copayments and fees, and the rationalization of public spending (resulting in overall spending cuts) and pricing policies.

2. We assess the progress made with the government’s healthcare sector reforms over the past decade. We utilize two complementary types of analyses. The narrative approach describes and examines the reforms undertaken in the healthcare system so far. A top-down quantitative benchmarking exercise then evaluates the efficiency and equity of the Greek healthcare system today. Specifically, by comparing data on input, outcomes, and intermediate structural indicators over time and across countries, the performance of the Greek healthcare system is assessed relative to peers. The two approaches assess where the efficiency and equity of the system fall short and identify reform priorities going forward.²

3. The structure of the paper is as follows. Section II summarizes the Greek healthcare system before the crisis. Section III describes the reforms undertaken during the past decade, while Section IV carries out the quantitative benchmarking exercise. Section V concludes.

II. GREECE’S HEALTHCARE SYSTEM BEFORE THE CRISIS

4. The Greek National Health System (ESY), launched in 1983, has been the main public provider, though coexisting with a vibrant private sector (Siskou et al 2008; Souliotis, 2013). ESY has delivered both primary and secondary care centered around hospitals, complemented by health centers. This orientation around hospitals has been at the expense of primary care, which was mainly provided by public health centers managed by ESY in rural areas and doctor offices operated by some social security funds (SSFs) in urban centers (especially by the SSF for private sector employees- IKA). Patients often had to wait in long lines for medical examinations or a diagnostic exam, often opting for private practitioners’ offices that could either be contracted and reimbursed by their SSFs or be paid out-of-pocket. As regards secondary care, private providers competed actively with ESY

² Public health policy is a highly complex area. Health is often perceived as a “special good” and a key aspect of individual well-being without which a person cannot perform basic economic and social functions (Anand, 2004; Sen, 1999). The sector also features substantial market failures such as information asymmetries (e.g., between healthcare providers and patients), externalities (e.g., communicable diseases), cream skimming practices, induced demand and moral hazard, overpricing mechanisms and rent-seeking opportunities (for a detailed discussion on all these issues see Glied and Smith, 2011; Olsen, 2017; Rice, 1998). The above problems, evident to various degrees in most countries, are exacerbated when a healthcare system is poorly designed. Moreover, cross-country experience indicates that such challenges have often led to various inefficiencies, inequitable access to services affecting the worse-off, and a catastrophic impact on households after health shocks. New challenges relate to rising costs driven by technological innovation and ageing populations.

providers. In 2009, almost 40 percent of total hospital beds in Greece were private (ELSTAT).³

5. ESY was supposed to establish universal coverage for the whole Greek population irrespective of socioeconomic characteristics. Before the crisis, insured individuals could typically indirectly cover uninsured spouses and children, until they came of age or until they had completed tertiary education. Unemployed individuals could usually extend their coverage for 12 months, provided they had paid a minimum of social security contributions in the year before they became unemployed. Other citizens could have access to basic healthcare services via a “booklet” for the longer-term unemployed and a “booklet” for the poor.⁴

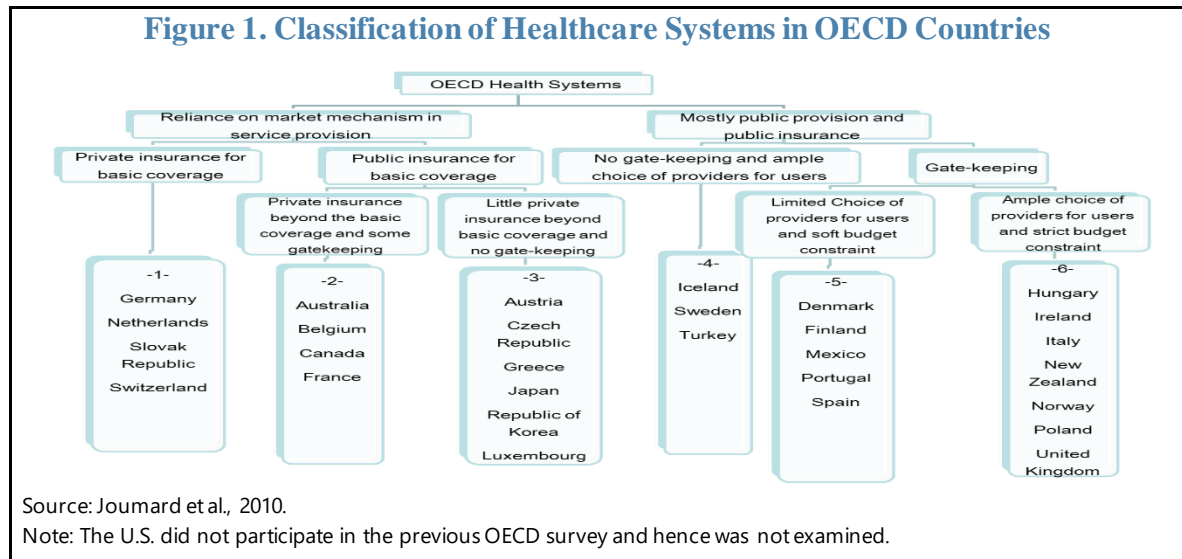
6. In the decade leading up to the 2009 financial crisis, Greek public spending on healthcare accelerated rapidly (by 2 percent of GDP). By 2009, Greece had closed its public spending gap with the rest of Europe and the OECD but with its delivery systems remaining highly inefficient and fragmented. True universal coverage had not been achieved with substantial gaps in healthcare provision and coverage remaining (Kaitelidou et al, 2013; Matsaganis, 2012; Siskou et al, 2008; Souliotis et al, 2016). In the absence of an official registry on uninsured citizens, these shortfalls manifested themselves by the large share of out-of-pocket payments, accounting for approximately 30 percent of total health expenditure (OECD). Administrative difficulties and possible social stigma in obtaining and using booklets for uninsured citizens persisted.

7. For purposes of cross-country comparison, this paper utilizes a healthcare classification scheme developed by Joumard et al. (2010). Joumard and co-authors classified healthcare systems in OECD countries into six groups (Figure 1). As of 2010, Greece is assessed to have been in ‘Group 3’ along with Austria, Luxembourg, the Czech Republic, Japan, and the Republic of Korea. Group 3 countries are characterized by public insurance provision for basic coverage, but also by a heavy reliance on market mechanisms in service provision. However, there is no primary care gatekeeping and little private insurance. Although OECD countries have mostly accomplished close-to-universal health insurance coverage, each country faces its own challenges in improving the efficiency and equity of its healthcare system, and no one group is a priori considered better. Because the

³ Here, “private” refers to the private ownership of clinics and hospitals, with services paid through out-of-pocket payments and public or private health insurance depending on the patients’ health insurance status.

⁴ Individuals (and their dependents) who recently lost their jobs and thus formal health insurance can retain the healthcare coverage up to 1 year, if their previous contribution met certain requirements (subject to further ad hoc extensions depending on the SSF). Second, for the longer-term unemployed (and their dependents), a “booklet” could be issued quarterly to those under 29 years old and annually to those between 29 and 55 years old for at least 2 years, after registration with the Manpower Employment Agency (OAED). OAED also offered health insurance coverage to long-term unemployed citizens above 55 years old, provided that they had paid a minimum amount of health insurance premium anytime or a minimum amount of SSCs in the previous year. Third, for the uninsured and ineligible for any health insurance provided by SSFs, a “pauper’s booklet” could be issued for individuals with an annual family income below EUR 6,000. However, some individuals with low income but possessing some small property were not eligible while the booklet only provided a narrow range of basic health benefits.

Greek healthcare reforms to date have not changed the basic characteristics of the Greek system, the Group 3 countries could be considered the most relevant peers in our analysis.



8. The Greek healthcare system before the financial crisis shared some deficiencies with other countries in Group 3.

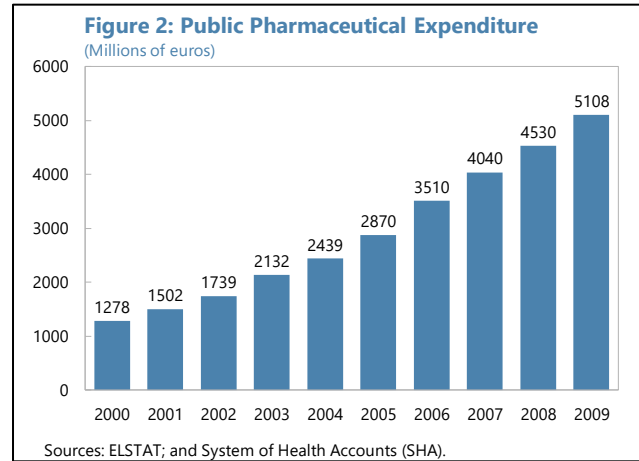
- The Greek public healthcare system comprised a myriad of public health insurance funds prior to the crisis. Such fragmentation of health insurance funds was similar to that found in two other Group 3 countries: Japan had over 3,000 insurers based on employment status as of 2009, and the Republic of Korea had more than 200 health insurance funds prior to reforms aimed at consolidation in 2000. In Greece, mandatory health insurance schemes were provided by dozens of social security funds (SSFs), mainly arranged along occupational lines leading to fragmentation and weaker bargaining power compared to single payer systems in many other OECD countries. Some pre-crisis reforms (such as Law 3655 in 2008) had already helped reduce administrative complexity by merging SSFs into larger entities. Beneath the surface however, system fragmentation persisted with several of the merged funds retaining different degrees of autonomy in terms of governance and rules. More decisive mergers in both the pension and health sectors took place during the fiscal adjustment period after 2010 (see more in section III). The absence of gatekeeping and the inadequate public primary care arrangements put a strain on hospital emergency rooms undermining the quality of secondary care. Also, the heavy reliance on private physicians (mostly specialists) for outpatient services may have incentivized the over-prescription of diagnostic tests and pharmaceuticals, while the per diem payment mechanism may have incentivized unnecessarily long stays in hospitals. Japan and the Republic of Korea shared similar problems (see e.g., Li, 2012 and Kwon, 2012).

9. The Greek healthcare system exhibited additional inefficiencies in the allocation of healthcare resources.

- Public pharmaceutical spending was the highest amongst OECD countries in 2009, and more than double compared to the OECD average (2.2 percent versus 1 percent of GDP).

Figure 2 shows the continuous increase of public pharmaceutical expenditure in nominal terms up to the advent of the crisis in 2009.

- Though overdeveloped at the expense of primary care, public inpatient care faced low levels of trust as a result of the perceived low quality of services and under-the-table payments to bypass waiting lists for examination and surgical procedures (Souliotis et al, 2016; Matsaganis, 2012; Liaropoulos et al, 2008).
- The absence of centralized procurement contributed to possible overpricing of drugs, medical equipment, and materials in hospitals. These resources could have been utilized to reduce high out-of-pocket household spending for basic health services such as primary care and prevention policies.



III. NARRATIVE APPROACH: DETAILS OF THE HEALTHCARE REFORM IN GREECE

A. Overview of the Healthcare Sector Reform

10. Healthcare sector reforms since 2010 have introduced significant policy and structural changes covering all major areas of healthcare delivery. The reforms undertaken in Greece are summarized in Table 1, following a classification used by Oxley and Macfarlan (1995). The general theme of the reforms is a combination of ‘macro’ health policy changes and ‘micro’ structural measures to improve efficiency. Revisions to ‘macro’ health policy parameters are typically less time-consuming to prepare and implement than structural measures. In the early stages (2010–2012) health policy reforms mainly included ‘macro’ measures, including budget caps (rebates and clawbacks) and price controls (reference pricing of pharmaceuticals, reductions in reimbursement prices for diagnostics). Later, the focus shifted towards structural measures (e.g., gatekeeping, e-prescription, promoting generic drugs, introducing diagnostic-related group, i.e., DRG⁵), which were expected to gradually replace some of the ‘macro’ health policy changes (e.g., clawbacks). Among the ‘micro’ structural measures, the establishment of the Single Organization for the Provision of Healthcare Services (EOPYY) to serve as a single payer of the whole public healthcare system has been a core reform.

⁵ In short, diagnostic-related group (DRG) means that the reimbursement to a hospital is based on the patient’s disease as diagnosed, instead of fee for services provided by the hospital.

B. An Assessment of ‘Macro’ Healthcare Reforms

The sections below will elaborate on the progress and challenges in each of the seven major reform areas shown in Table 1.

Price Controls

11. The introduction of reference pricing for pharmaceuticals notably reduced prices. The reform aimed to regulate prices of on-patent, off-patent and generic drugs by setting reference prices. The ex-factory reference price for an on-patent drug was set as the mean of its 3 lowest prices in EU countries. As a requirement for entering the Greek market, pharmaceutical products must have been previously priced in at least 3 EU countries. When the drug becomes off-patent, the reference price was reduced by 50 percent⁶. The reference price of a generic drug was set at 65 percent of the off-patent reference price. On top of these ex-factory prices, profit mark-ups were set for wholesalers and pharmacies based on whether the drug is compensated by EOPYY (or a small number of mandatory health insurers still outside EOPYY), whether it was a prescription drug or an OTC product, and whether it was to be used in public hospitals. However, as generics were mostly produced by Greek pharmaceutical companies and there was a sense that price reductions for generics were significantly larger than for other drugs, there was strong resistance. To preserve profit margins, continuous price reductions coupled with budget caps for pharmaceuticals may have led to substitution towards more expensive medicines (as some cheaper drugs were withdrawn from the Greek market or from the reimbursement list) and greater prescriptions in the period examined. The end of the program was accompanied by successive changes in the re-pricing mechanism. In late 2018, the frequency of the pricing revisions became annual. In the first half of 2019, the pricing mechanism was revised so that the drug prices for on- and off-patent products would be calculated as the mean of the two lowest prices in the Eurozone (as opposed to the three lowest in the EU). Products must have been previously priced in at least three Eurozone countries (two for “orphan” drugs). Furthermore, price reductions were annually capped at 10 percent (until the Eurozone mean is reached), while some price increases were also allowed. In the second half of 2019, the annual reduction cap was further reduced to 7 percent, but price increases are now no longer allowed.

12. Lower prices for diagnostic tests reimbursed by EOPYY were introduced. Prices of diagnostic exams were particularly high in Greece prior to the reductions which took place in two waves (2013 and 2015). The last one led to a 43 percent average reduction in the price of the 51 most used diagnostic tests while it also reduced the price of all other exams by 9 percent on average. The measure was complemented by a closed budget on the public expenditure for diagnostic tests (see more below). Nonetheless, both (above the ceiling) expenditure and the number of diagnostic tests continued to increase during the period examined.

⁶ Or at the mean of the 3 lowest corresponding European prices, depending on which method produces the lowest price in each case.

Table 1. Summary of Healthcare Reforms in Greece

		Reforms	Pros - Reform Goals	Cons - Lessons learned
Macro Policy Changes	Price controls	<i>Reference pricing of pharmaceuticals/ Price reductions for diagnostics</i>	Lower pharmaceutical/diagnostic prices	Met with strong resistance
		<i>Wage cuts of ESY doctors</i>	Generate savings and enhance competitiveness	Legal challenges against the reform
	Budget caps	<i>Rebates and clawbacks of pharmaceuticals</i>	Lower overall pharmaceutical expenditure	Initial delays due to complexity, above the ceiling expenditure difficult to contain
		<i>Clawbacks on private service providers</i>	Lower overall medical service expenditure	More challenging than the pharmaceutical clawback
Supply constraints	<i>Positive lists for pharmaceuticals</i>	Exclude ineffective drugs	No issues so far	
Structural Reforms	Public management and coordination	<i>Creation of a single payer EOPYY</i>	Create a single payer with uniform rules and larger bargaining power	Financing chain challenges
		<i>Reorganization of primary care entities and introduction of gatekeeping</i>	Gatekeeping role of primary care can avoid unnecessary expenditure and serve the ageing population better	Implementation delays and opposition from doctors
		<i>Merger of public hospitals</i>	Improve health system efficiency compatible with ageing	If not managed well, it may result in other inefficiencies such as longer waiting time and provision gaps
		<i>E-prescription</i>	Online prescriptions enable monitoring and regulation	Need deeper data analysis to better utilize the system
		<i>E-procurement</i>	A public-sector reform to reduce corruption on procurement contracts	Delayed implementation
	Contracting	<i>Limits on over-prescription</i>	Prevent doctors from over-prescription	Strong opposition against prescription restrictions, sanctions possibly not imposed diligently
		<i>Prescription by active substance</i>	Require doctors to prescribe active substance instead of brand names	Generic penetration has increased, but remains low
		<i>Regulation of pharmacies to promote generic drugs</i>	Require pharmacies to promote generics	Generic penetration has increased, but remains low
		<i>Introduction of DRGs</i>	Modernizing reimbursement mechanism for inpatient care	Delayed implementation
	Market mechanism	<i>Deregulation of entry to the pharmacy market</i>	Reduce entrance restrictions and promote competition	Some restrictions remain
	Demand-side reforms	<i>Increasing patients' copayments</i>	Generate savings and reduce excessive consumption	Met with strong resistance, some user fees were abolished
		<i>Strengthening the healthcare coverage of the poor</i>	Additional measures to protect uninsured individuals	Additional time is required to evaluate the impact

Source: IMF staff.

Budget Caps

13. A budget cap on public pharmaceutical expenditure was introduced through rebates and a clawback mechanism. The budget cap was coupled with the reform on reference prices which led to a complicated system of rebates and clawbacks since 2011:

- Rebates are discounts imposed on pharmaceutical companies and pharmacies once certain ceilings of pharmaceutical sale volumes are exceeded. Rebates are applied monthly or quarterly. Recently, a single rebate system was adopted with discounts ranging from 14 to 30 percent applied without any ceiling on sale volumes. Moreover, a 25 percent admission fee was introduced for products entering the positive list for the first time.
- Clawbacks are essentially explicit budget caps after the rebates. When the ceiling of pharmaceutical expenditure is exceeded, the suppliers return any revenue above the ceiling, either as direct cash returns to EOPYY or as write-offs of EOPYY accounts payable to the suppliers. The clawbacks are settled semi-annually. The pharmaceutical clawback mechanism was expanded in 2016 to include inpatient pharmaceutical expenditure.

Although the overall reform has been effective in controlling public pharmaceutical expenditure, it created distortions stemming from its across-the-board application to the entire pharmaceutical industry, including to companies which may not be responsible for the excess. Subsequently, the government introduced changes in the pharmaceutical clawback calculation that shift an additional 10 percent of the burden to the companies responsible for the excess while the remaining 90 percent is still calculated using the old method. Recent legislation allows pharmaceutical companies to settle their past clawback obligations in up to 120 installments, indicating collection difficulties as the above-the-ceiling expenditure increases year-on-year. In 2018, all clawbacks were extended up to 2022⁷ with the ceiling indexed to real GDP growth suggesting that what was initially a stop-gap measure to quickly reduce pharmaceutical spending pending the roll-out of structural reforms may have become a permanent feature of the Greek healthcare system.

14. A clawback mechanism on private hospitals, clinics and diagnostic centers was introduced in 2013. A budget cap was imposed on public expenditure for both outpatient and inpatient care provided by private hospitals, clinics, and diagnostic centers. In 2017, the clawback mechanism was further extended to cover all products and services reimbursed by EOPYY and expenditure sub-ceilings were specified for every product or service category. Similar to the clawbacks on pharmaceuticals, the budget cap was introduced as a temporary measure to be eventually replaced by structural measures, but has also been extended up to 2022 and linked to real GDP growth. The overall expenditure ceiling was set annually starting in 2013, and settlements should take place every six months. At settlement, each private entity's own budget cap is calculated based on the number of invoices they submitted, the total number of invoices submitted to EOPYY, and the overall expenditure ceiling. However, the collection of clawbacks on services and other providers proved to be much

⁷ The pharmaceutical clawback was legally challenged in the past but the appeal was rejected as the constitutional court ruling acknowledged in 2015 the temporary nature of the measure as well as its necessity given the fiscal situation of the country. Following successive extensions to the mechanism, a new appeal has been lodged but its examination in the supreme court has not yet taken place.

more challenging than those on pharmaceuticals as there are many more private providers than pharmaceutical companies, and service is more difficult to monitor or assess than with drugs. There were significant delays due to legal challenges to the 2013 clawback, delayed auditing of invoices of the 2014 clawback, and suspensions of the 2015 clawback. Greek courts have now rejected appeals against the clawback and rebate mechanisms, and an installment scheme is available to facilitate providers in settling past uncollected amounts on a monthly basis (as per the pharmaceutical clawback). This experience suggests that the clawback mechanism may not be very effective in regulating numerous small service providers.

Supply Constraints

15. The positive list for pharmaceuticals was revised and Health Technology Assessment (HTA) was introduced. Greece had a positive list for pharmaceuticals as of 2010, which was revised regularly during the reform process which have taken place smoothly. More recently, the government legislated the establishment of a Health Technology Assessment (HTA) committee, and adopted new criteria for the reimbursement of pharmaceuticals by EOPYY. According to the new rules, drugs must circulate in at least nine (9) Eurozone countries for EOPYY to reimburse them. In addition, they must be reimbursed in at least two thirds of Eurozone countries in which they circulate, and half of the countries that reimburse them must have an HTA system in place. Other criteria include unmet medical need, therapeutically added value in comparison to existing drugs or therapies, the credibility of clinical trials and cost-benefit considerations.

C. Assessment of Structural Healthcare Reforms

Public Management and Coordination

16. EOPYY was created as a single payer, by consolidating all public mandatory health insurance funds. EOPYY merged health insurance providers and benefits under various SSFs: IKA (private sector employees), OGA (farmers), NAT (seamen), OPAD (public sector employees), ETAP-MME (journalists), OAEE (self-employed), ETAA (doctors, lawyers and engineers), OPAD (public sector employees), TYDKY (municipal employees), NAT (seamen's fund), TAYTEKO (employees in banks and public utility companies) as well as the fund of the Hellenic Coast Guard. . Universal rules were applied to all EOPYY members, with equal contribution rates and entitlements. As a single payer, EOPYY has stronger bargaining power on price setting over medical supplies and services, and it is easier to regulate the system or assess its overall performance.

17. The key challenge for EOPYY is the complex financing structure of the Greek healthcare system. This complexity is captured by the arrears accumulated along the financing chain of SSFs-EOPYY-hospitals/other providers:

- EOPYY's health-contribution collection still relies on the original SSFs. In a weak economy with a fragmented SSC collection system and significant liquidity problems, the SSFs have often delayed transferring all the health contributions to EOPYY. The transfer procedure has recently improved with the consolidation of SSFs into a single pension fund

(EFKA). A medium-term reform aims to integrate all the SSC collection functions of the SSFs into the tax administration, but this reform has not been yet implemented.

- Meanwhile, revenue shortfalls of EOPYY compromise its role as a single payer. In case of liquidity constraints, EOPYY prioritizes payments to private providers (private hospitals, clinics, diagnostic centers) to avoid the build-up of arrears to the private sector. However, it has in the past run arrears to public hospitals, which sometimes receive transfers directly from the state budget. Furthermore, public hospitals also accumulate arrears towards private providers, but it is not clear whether this is caused by liquidity or administrative hurdles.
- Also, as a relatively new entity, EOPYY appears to lack the human and financial resources to conduct audits on financial claims submitted by numerous service providers. By end-2017, EOPYY gradually became able to conduct such audits in-house, but administrative problems are known to persist due to personnel shortages.

18. Primary care entities were reorganized and an introduction of gatekeeping was attempted. The reform aimed to consolidate previous ESY regional health centers and Athens IKA doctor offices into a national primary healthcare network (PEDY) to provide all outpatient services, implement health promotion policies, and act as a gatekeeper of the whole system. The first version of PEDY was established in 2014, and its gatekeeping role was also legislated, but not implemented. A new law was adopted in 2017 to replace existing PEDY units with new primary care units (TOMYs) to form a new primary care network. A commitment was also made to fully roll out the e-referral system in 2018, and open 240 primary health centers across the country over the next 2 years. However, the following issues caused delays:

- As PEDY doctors were considered exclusive and full-time public employees, the 2014 law required all PEDY doctors to quit their private practice. This requirement resulted in strong opposition and strikes by doctors. The government decided to extend the period that allowed for private practice while many doctors were able to keep their private offices through court decisions during 2014-2018. Eventually, many doctors chose their private practices in the end, and PEDY units remained underfunded and understaffed.
- There were delays in contracting and registering the population with family doctors that will act as gatekeepers. After the 2017 reform, skepticism was expressed by medical associations on the lack of adequate incentives provided to doctors (e.g., low compensation, large reference population per doctor) as well as regarding gatekeeping citing the possibility of increased access barriers.

19. The merger of public hospitals may have led to some provision gaps.

Internationally, as non-communicable diseases become increasingly important with an ageing population in many countries, the role of hospitals is changing. They are no longer standalone facilities at the center of the delivery system, the point of entry to care, or “one-stop shops” for all services. Rather, they are increasingly becoming part of a network of facilities that includes other providers such as primary care, diagnostic units and social services (World Bank et al., 2016). Therefore, there is a trend to emphasize primary care

more. Mergers pursued under the program aspired to follow this international trend. As a result, the number of ESY hospital beds was reduced by 23 percent, and the number of ESY hospitals by 13 percent during 2009-2014. The nominal annual expenditure of ESY hospitals declined by a quarter from 2012–2015, albeit mostly driven by the decrease in pharmaceutical costs. However, the merger of hospitals coupled with the significant delays in reinforcing Greece’s primary care, may have resulted in longer waiting times, shortages of medical supplies including pharmaceuticals while there are concerns that it also led to an unwelcome reduction of beds available in intensive care units (ICUs). Shortages of personnel were also widely reported, especially for nurses. The ongoing coronavirus pandemic has indicated that these shortages will need to be urgently addressed (see Section V).

20. E-prescription has fundamentally modernized the healthcare system. As of 2010, doctors used hand-written prescriptions, with no relevant information saved in a database for monitoring purposes. The e-prescription reform requires the registration of all doctors online, and prescriptions to be saved in the electronic database. By October 2016, almost all prescriptions were issued electronically. This has been a fundamental reform, which enabled monitoring, regulation, and audits of the doctors’ behavior (see contracting below). Going forward, the challenge is how to utilize the data collected in the system to further enhance efficiency, especially in terms of addressing induced demand for medical tests and pharmaceuticals.

21. E-procurement was part of a broader public-sector financial management reform to reduce corruption or negligence on public procurement contracts. Public procurement, including purchases of medical supplies, suffered from weak competition and transparency before the reform.⁸ E-procurement has been legislated, but implementation so far has been slow. In 2017 a new centralized procurement agency (EKAPY) was established. Following some initial delays, the agency launched tenders for an overall value of more than 250 million euros as of May 2021 (European Commission, 2021). Its framework is currently under review and new legislation on the agency is expected in June 2021 (ibid).

Contracting Reforms

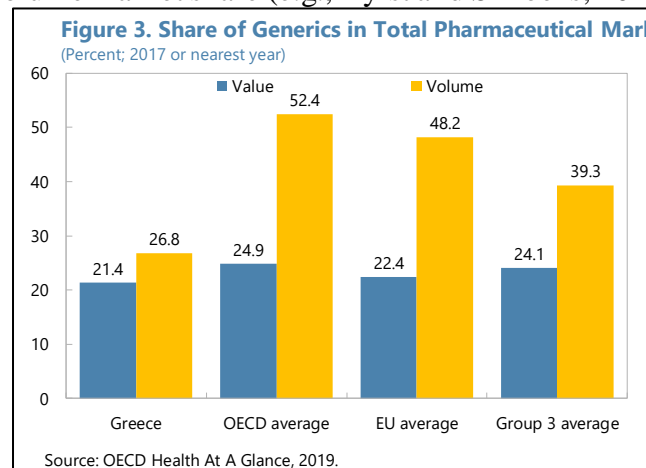
22. Reforms aimed at preventing over-prescription. As of 2010, there were essentially no restrictions on doctor’s prescription behavior, and there were concerns that over-prescription was commonplace. Following the reform, doctors could prescribe medicines only up to a pharmaceutical expenditure threshold, facilitated by the establishment of e-prescription. The threshold is disclosed to each doctor electronically, based on specialty, geographic location, number of patients, and seasonality. The threshold exempts sensitive groups, such as cancer patients and individuals who have undergone transplant surgeries. The initial implementation of the thresholds on over-prescription was relatively inflexible, and triggered legal challenges by doctors of violation fines. The rule was modified in 2014 such that only when a doctor’s prescription exceeded the threshold by over 20 percent for 3 consecutive months penalties would be imposed including a fine up to EUR 5,000, a prescription embargo up to 12 months, and even possibly the cancellation of the EOPYY

⁸ Public procurement initiatives discussed in this section mostly concern supplies procured on behalf of ESY (hospitals) and primary care entities and not the unified health fund EOPYY.

employment contract, but it is unclear these penalties have been enforced. In 2017, the Ministry of Health further enhanced over-prescription penalties based on prescription protocols.

23. Reforms promoting generic drugs. As of 2010, prescriptions were concentrated on expensive brand-name drugs. Like controls on over-prescription, reforms were introduced requiring doctors to only indicate the active substance (i.e., the International Non-proprietary Name – INN). However, each doctor can prescribe brand-name drugs up to 15 percent of the total value of his/her issued prescriptions, considering risks of decreased responsiveness of sensitive patient groups to generic drugs. The doctor is automatically alerted when this 15 percent threshold is approached via the e-prescription system. Pharmacists are now also required to notify patients of cheaper generic alternatives, and maintain a sufficient stock of generics, which was not adequately monitored until the framework was revised and improved in 2018. If the patient still opts for the brand name, he/she has the legal obligation to sign on the prescription that he/she was informed of the cheaper alternatives and is willing to pay a higher price for the brand name. In case of violation of these requirements, the pharmacy may face a fine up to EUR 5,000, and a suspension of its EOPYY contract up to 6 months.

Nonetheless, generic penetration remains low. Although over 98 percent of total value has been prescribed as active substance, by 2017 generic penetration had only reached approximately 27 percent of actual consumption compared to the OECD/EU average of almost 50 percent, despite higher out-of-pocket payments on brand products (see Figure 3). Besides the very low generic penetration, Greece has also been found to have the highest generics average unit price amongst other European countries (Papadopoulos et al, 2016) with the relevant literature suggesting a negative relationship between average unit price and volume market share (e.g., Dylst and Simoens, 2011).



24. Inpatient care was modernized through the DRG system (DRG). As of 2010, there was no proper costing of inpatient care services in Greece. Public and private hospitals were reimbursed based on a closed daily amount per specialized case that did not reflect actual treatment costs and might have led to prolonged stays in hospitals. Also, the reimbursement system was fragmented across funds and between public hospitals and private clinics. The goal of the reform was to harmonize treatment costs and introduce a common reimbursement mechanism — diagnostic-related groups — a widely used performance-based

tool for contracting and reimbursing inpatient care costs in advanced countries. In the DRG system, conditions requiring hospitalization are classified into pre-defined groups following diagnosis (e.g., on the international classification of diseases, i.e., ICD10). Each group is linked to a specific compensation amount and to a maximum length of hospital stay. The first stage of the reform in 2011 foresaw the creation of a reimbursement system using single closed hospitalization fees (known as KENs) which were based on the Australian DRG system, but was not properly implemented. A new law legislated in 2014 foresaw that a new DRG system would be fully implemented starting January 2017, following the German DRG model with some adjustment to the Greek specifics. A nonprofit company (ESAN) would implement the system, after pilots took place in late 2015. To implement the DRG system, a major behavioral change needed to take place, where every hospital and clinic, whether public or private, will have to save detailed patient information in a registry, and submit the information to ESAN regularly. This triggered privacy concerns and strong opposition as it was considered a crude cost-containment measure which would lead to increased levels of re-admissions and post-hospitalization. In 2017, ESAN was renamed (KETEKNY), its legal nature was changed from private to public with the latest plan being to launch a new, performance based DRG pilot with the participation of 18 hospitals across Greece in 2019. The new framework has not yet been implemented.

Market Mechanism Reforms

25. Promoting entry in the pharmacy market.⁹ Various regulatory obstacles to setting up a new pharmacy existed as of 2010. Legislation so far has abolished: minimum geographical distances between pharmacies; one pharmacy license per pharmacist; and exclusive right of licensed pharmacists to establish a pharmacy (no participation of non-pharmacists). In addition, opening hours of pharmacies have been liberalized, and electronic application for establishing a new pharmacy and creating e-pharmacies for online sales were made possible. The prices of over-the-counter (OTC) products were partially liberalized, and legislation was recently adopted to open up the pharmacists' profession despite strong resistance. However, a few other restrictions remain: only one pharmacy is allowed per 1,000 inhabitants; OTC products are still de facto sold mainly by pharmacies while ownership is allowed to non-pharmacists with the compulsory participation of a licensed pharmacist at 33 percent.

Demand Side Reforms

26. The reform aimed to increase copayments to reduce excessive consumption, while still protecting vulnerable groups. During the reform, the copayment rate for pharmaceuticals increased from 10 percent to 25 percent of the lowest price available (usually the generics price). Copayments are reduced for low-income pensioners and patients of certain medical status (e.g., HIV and transplant patients, pregnant women). A 1-euro fee was introduced for each prescription, and the fees for each visit to public hospitals or health centers increased from 3 euros to 5 euros. Another 25-euro admission fee was introduced per inpatient care case. Exemptions for vulnerable groups also applied. However, resistance to

⁹ These reforms were part of the efforts to liberalize closed professions in Greece in the context of structural reforms and not part of the healthcare sector reform agenda.

such increases of copayments resulted in the abolishment of the 25-euro inpatient admission fee, after less than two weeks of implementation in 2014. The 5-euro fee for visits to hospitals was abolished in April 2015. In 2018, legislation was adopted that exempts patients suffering from chronic conditions from the copayment of generics. The measure is financed through a rebate on pharmacists' sales of off-patent drugs, and is aimed at further promoting generics.

IV. SPENDING COMPRESSION, RISING UNMET NEEDS, AND REFORM PRIORITIES

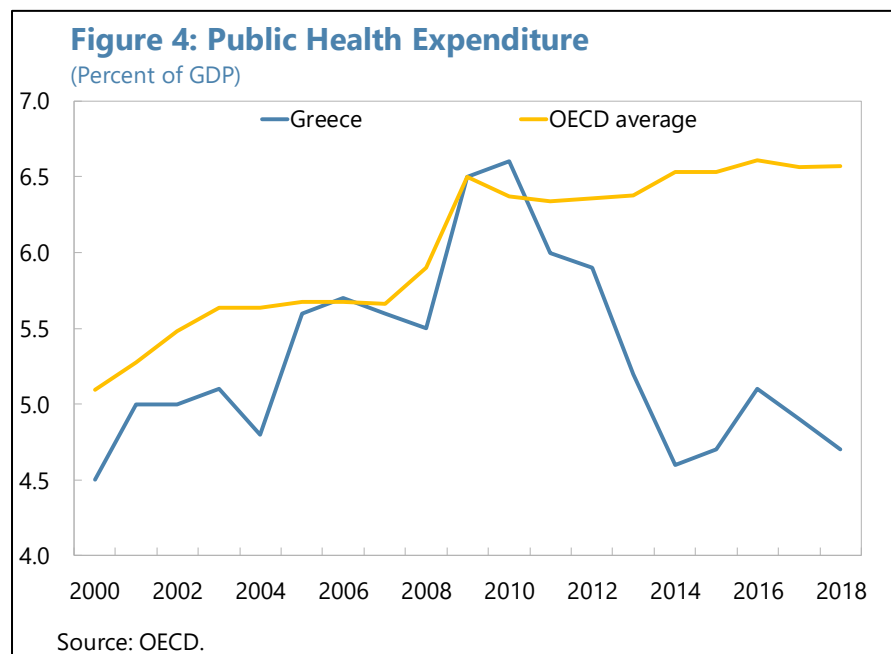
27. We apply a top-down benchmarking framework to assess remaining priorities to improve the efficiency and equity of the Greek healthcare system. We compare input (spending on health), outcome (health status and its distribution), and structural (intermediate) indicators over time in Greece and across countries. Equity measures whether health resources and status are evenly distributed across different levels of income.

28. The framework can be illustrated in an information matrix (Table 2). To evaluate the efficiency of a country's healthcare system, we analyze both public and private expenditure, which is then broken down into functional and economic classifications. Inputs could be measured in total spending in percent of GDP or per capita spending in purchasing-power parity (PPP) terms. Health outcomes include the average length and quality of life, measured by both objective indicators and subjective assessments, as well as the distribution of these outcomes across different income levels. Structural indicators cover all other intermediate factors, such as physical resources, human resources and medical services provided. We only present selected data according to the information matrix in this paper.

		Public expenditure						Private expenditure			
		Historical	Beginning of reform	Latest	Historical	Beginning of reform	Latest				
		around 2005	2009/2010	2017/2008	around 2005	2009/2010	2017/2018				
Top-down benchmarking	Input (spending)	Overall spending	Total spending	✓	✓	✓	✓	✓	✓	✓	
			Per capita spending								
			Pharmaceutical and other supply		✓	✓		✓	✓		
		Functional classification of spending	Inpatient care		✓	✓		✓	✓		
			Outpatient care		✓	✓		✓	✓		
			Other types of care		✓	✓		✓	✓		
			Administration		✓	✓		✓	✓		
			Economic classification of spending	Compensation of employees		✓	✓				
				Purchase of service		✓	✓				
		Intermediate consumption			✓	✓					
		Other current spending			✓	✓					
		Capital spending			✓	✓					
		Output		Average length	Life expectancy	✓	✓	✓	✓	✓	✓
			Infant mortality		✓	✓	✓	✓	✓	✓	
			AIDS incidence		✓	✓	✓	✓	✓	✓	
	Average quality		Mortality rates of various diseases	✓	✓	✓	✓	✓	✓		
			Perceived health status	✓	✓	✓	✓	✓	✓		
			Distribution across income levels	Perceived health status	✓	✓	✓	✓	✓	✓	
	Unmet needs			✓	✓	✓	✓	✓	✓		
	Access			✓	✓	✓	✓	✓	✓		
	Structural indicators			Physical resource	Hospitals, beds		✓	✓		✓	✓
					MRI/CT machines etc.						
					Pharmacies		✓	✓		✓	✓
			Human capital resource	Doctors		✓	✓		✓	✓	
		Nurses			✓	✓		✓	✓		
		Medical schools									
		Medical service provided	Immunization	✓	✓	✓	✓	✓	✓		
Length of stay in hospital			✓	✓	✓	✓	✓	✓			
Generic medicine prescribed											
Antibiotics prescribed	✓		✓	✓	✓	✓	✓				
MRI/CT exams taken			✓	✓		✓	✓				
Waiting time											

Note: "✓" means such data are analyzed in this paper.

29. Healthcare spending in Greece has now fallen below OECD averages and unmet needs remain high, particularly for low-income groups (Figures 4, 5 and 6). In PPP terms, both total spending and public spending per capita are at the bottom of Group 3 countries (as of 2018, Appendix Figure 1). During 2010–15, health spending declined by 1 percent of GDP, which disproportionately affected the poor, as evidenced by the rising share of out-of-pocket spending among the poorest quintile. During this period, intermediate consumption in health declined by half relative to the average level in Europe. Indeed, already in July 2013 the IMF noted that “Greece has reduced healthcare expenditures significantly since 2010, to well below the average for EU countries” and that “going forward, there is limited scope for additional fiscal savings from public health spending” (IMF, 2013). Likewise, in 2014, the Fund emphasized the need to protect low-income households, including through targeted measures and emphasized that the authorities should “continue with structural reforms in the healthcare sector to reduce inefficiencies, but take action to expand coverage to low-income households. Against the background of very high long-term unemployment, concerns remain over the uninsured with limited access to medicines and hospital care” (IMF, 2014). Currently, the largest share of unmet needs is recorded for medical and dental care, and is disproportionately concentrated at the lower end of the income distribution (Table 3). Prevention, primary care and addressing access disparities are the main areas where additional financing would be required. This puts a premium on further efforts to improve the fiscal policy mix (e.g., through rebalancing public expenditure from pensions towards targeted social protection including in the healthcare sector). At the same time, there is a need to safeguard that excess expenditure in specific areas recorded before the crisis (e.g., pharmaceuticals) is contained by non-distortionary structural measures.



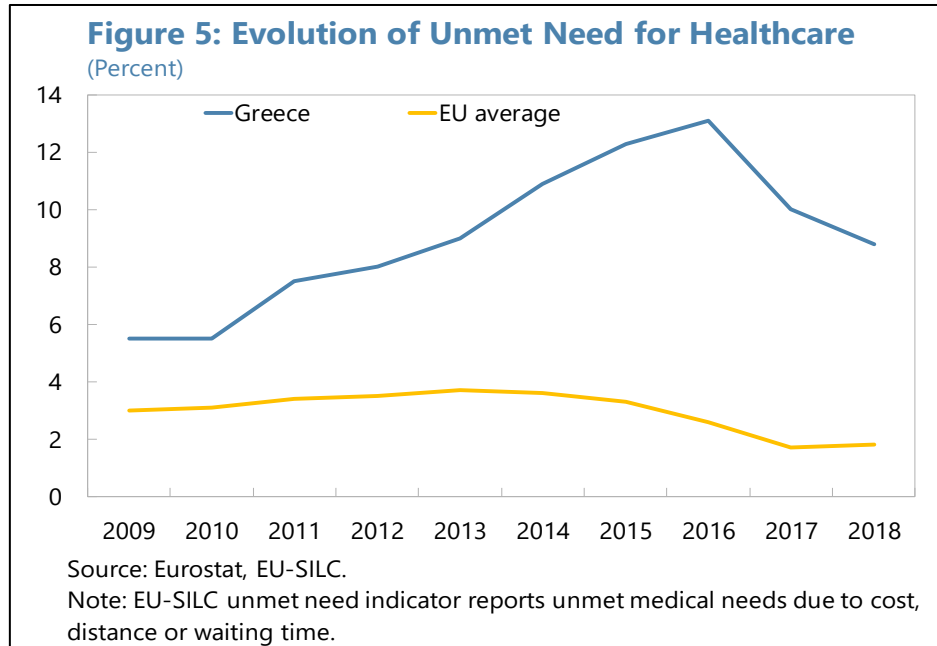


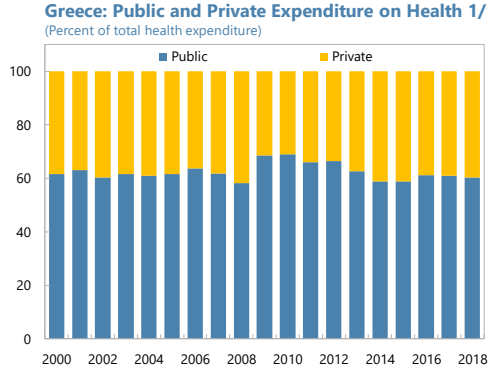
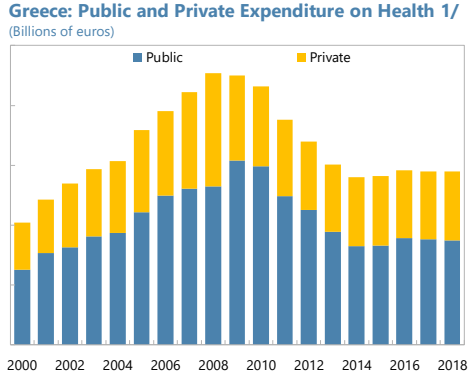
Table 3. Self-Reported Unmet Need for Healthcare Services, 2014

	Total sample	q1 (poorest 20%)	q5 (richest 20%)
Due to cost considerations			
Medical care	13.8%	23.8%	5.4%
Doctor-prescribed drugs	5.3%	21.6%	2.4%
Dental care	14.5%	24.1%	5.2%
Psychiatric care	2.7%	2.0%	9.0%
Due to other reasons			
Due to waiting list	12.8%	13.9%	8.4%
Due to distance	2.9%	8.7%	1.3%

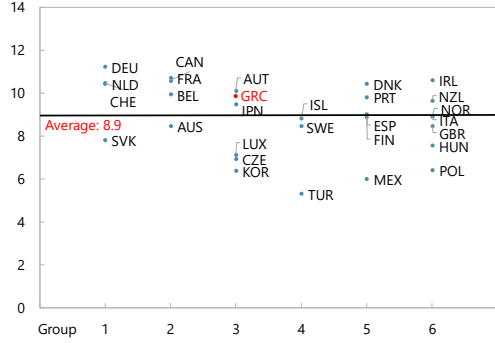
Source: ELSTAT, National Health Survey.
Notes: Analysis is weighted using survey sample weights.

30. Major public expenditure compression has been recorded in non-personnel healthcare costs (Table 4). Based on Eurostat data, health expenditure on social benefits and intermediate consumption (e.g., pharmaceuticals used in public hospitals) each declined by about 1 percent of GDP and accounted for the largest share of the decrease. As of 2017, Greece spent less on social benefits than most of its European peers in Group 3 and the Eurozone average. Compensation of employees also declined from 1.7 to 1.5 percent of GDP during 2010–2017.

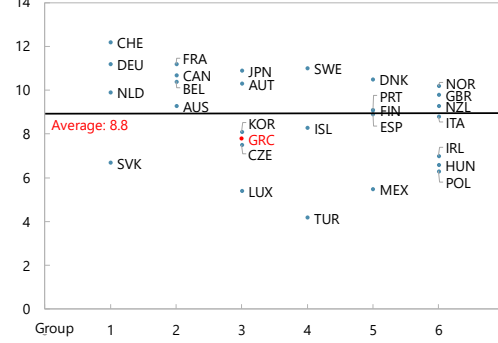
Figure 6. Health Expenditure



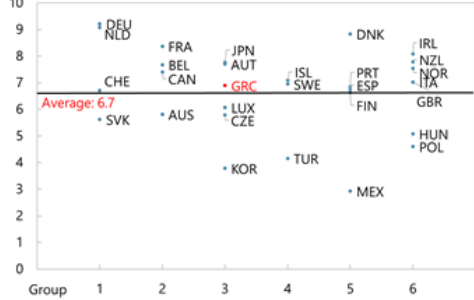
OECD Countries by Group: Total Health Expenditure, 2010
(Percent of GDP)



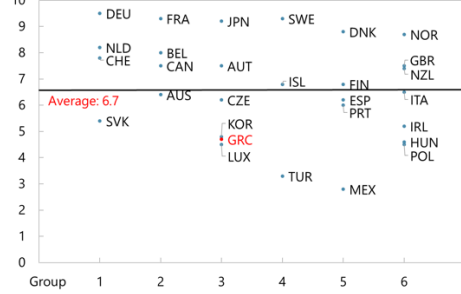
OECD Countries by Group: Total Health Expenditure, 2018
(Percent of GDP)



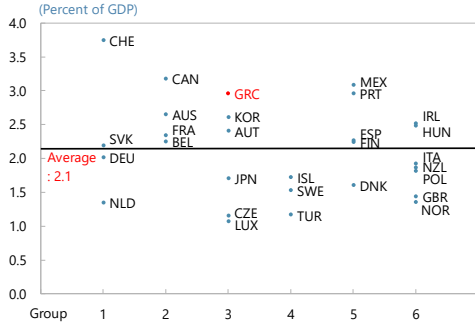
OECD Countries by Group: Public Health Expenditure, 2010
(Percent of GDP)



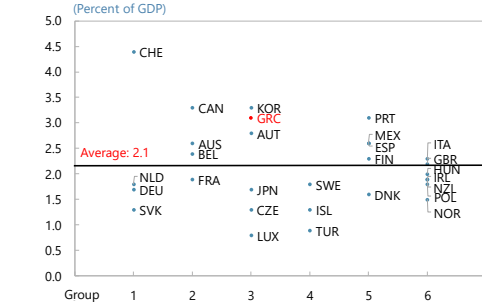
OECD Countries by Group: Public Health Expenditure, 2018
(Percent of GDP)



OECD Countries by Group: Private Health Expenditure, 2010
(Percent of GDP)



OECD Countries by Group: Private Health Expenditure, 2018
(Percent of GDP)



Source: OECD.

1/ Methodological break in 2008-09.

	Greece	Austria	Luxembourg	Czech Republic	Euroarea average
Year before Health Reform in Greece					
	2010	2010	2010	2010	2010
Total general government expenditure	6.9	7.9	4.9	7.8	7.3
Compensation of employees	1.7	2.5	0.3	1.7	1.7
Social benefits (including purchased market production)	3.1	2.7	3.7	2.9	4.2
Intermediate consumption	2.1	1.5	0.2	1.5	1.0
Other current transfers	0.0	0.4	0.1	0.1	0.1
Subsidies	0.0	0.1	0.0	0.0	0.0
Gross capital formation	0.0	0.6	0.1	0.4	0.2
Year during or after Health Reform in Greece					
	2017	2017	2017	2017	2017
Total general government expenditure	5.2	8.2	4.9	7.5	7.1
Compensation of employees	1.5	2.5	0.2	1.8	1.5
Social benefits (including purchased market production)	2.2	2.8	3.4	2.8	4.1
Intermediate consumption	1.4	1.5	0.1	1.3	1.0
Other current transfers	0.0	0.6	0.2	0.1	0.1
Subsidies	0.0	0.2	0.0	0.0	0.0
Gross capital formation	0.1	0.6	0.1	0.3	0.2

Source: Eurostat.

Notes: Data available only for EU countries; According to Eurostat, "intermediate consumption" means the purchase of goods and services by the government to produce government output; "social benefits" include social transfers in cash and social transfers in kind via market producers, with the latter being goods and services purchased by government and supplied to households without any transformation. Therefore, pharmaceuticals consumed in public hospitals would be classified as intermediate consumption, while pharmaceuticals paid for by the national health care system (for example those prescribed by specialists or primary doctors via private pharmacies) would be classified as social benefits.

31. Based on the functional classification, outpatient, long-term and preventive care are all areas where Greece spends relatively little compared to peers (Table 5). Although expenditure on medical goods¹⁰, which presumably are mostly medicines, declined by almost 1 percent of GDP during 2010-2018, it remains above that of peers. The decline mainly resulted from the regulation of prices (external reference pricing system) and related rebates and clawbacks discussed earlier. Inpatient care expenditure also declined by 0.8 percent of GDP, mostly driven by lower prices of drugs used in public hospitals, decreased personnel costs and mergers of public hospital units. As of 2018, medical goods expenditure was still relatively high compared to most peer countries, but inpatient care expenditure was around average and outpatient care remained the lowest reflecting the anemic development of the primary healthcare network, suggesting this will be a priority area for additional resource allocation in the future.

¹⁰ According to the OECD definition, expenditure on medical goods comprises medical goods dispensed to outpatients and the services connected with dispensing, such as retail trade, fitting, maintaining, and renting of medical goods and appliances. Included are services of public pharmacies, opticians, sanitary shops and other specialized or non-specialized retail traders such as mail ordering and teleshopping.

Table 5. Functional Classification of Current Public Expenditure on Health
(Percent of GDP)

Year before Health Reform in Greece	Greece	OECD average	Austria	Luxembourg	Czech Republic	Japan	Korea
	2010	2010	2010	2010	2010	2010	2010
Total expenditure	6.6	6.4	7.6	6.0	5.8	7.5	3.8
Medical goods	2.3	1.0	1.0	0.7	1.0	1.3	0.9
Inpatient care	3.0	2.0	3.0	1.6	2.0	2.6	1.1
Outpatient care	0.7	1.6	1.8	1.9	1.6	2.2	1.0
Day care	0.1	0.2	0.1	0.1	0.1	0.1	0.0
Long-term care	0.1	0.9	1.2	1.2	0.3	0.7	0.4
Home-based care	0.0	0.1	0.0	0.0	0.0	0.1	0.0
Ancillary services	0.2	0.3	0.2	0.3	0.4	0.1	0.0
Preventive care	0.1	0.2	0.2	0.1	0.1	0.2	0.2
Financing and administration	0.1	0.2	0.2	0.1	0.2	0.1	0.2

Year during or after Health Reform in Greece	Greece	OECD average	Austria	Luxembourg	Czech Republic	Japan	Korea
	2018	2018	2018	2018	2018	2018	2018
Total expenditure	4.7	6.6	7.7	4.5	6.2	9.2	4.8
Medical goods	1.4	0.9	1.1	0.5	0.8	1.5	0.9
Inpatient care	2.2	1.9	2.9	1.2	1.7	2.7	1.4
Outpatient care	0.7	1.6	1.9	1.2	1.6	2.4	1.3
Day care	0.1	0.2	0.1	0.2	0.1	0.1	0.0
Long-term care	0.1	1.1	1.1	0.9	1.0	1.8	0.7
Home-based care	0.0	0.1	0.0	0.0	0.0	0.2	0.0
Ancillary services	0.2	0.3	0.2	0.3	0.4	0.1	0.1
Preventive care	0.1	0.2	0.2	0.1	0.2	0.2	0.2
Financing and administration	0.1	0.2	0.2	0.2	0.2	0.1	0.2

Source: OECD health statistics.

Note: Public expenditure includes government schemes and compulsory contributory health care financing schemes; Total expenditure data available for 2018, functional breakdown available for 2018 or nearest year.

32. In contrast, high and rising private expenditure (mainly out-of-pocket payments) is indicative of gaps in the “universal” provision of public healthcare (Table 6). As of 2018, total private expenditure (3.1 percent of GDP) in Greece was the second highest in the peer group (after the Republic of Korea). The share of private in total health expenditure reached 40 percent compared to 31 percent in 2010 (see Appendix Table 2), the highest among peers together with the Republic of Korea. In part, this reflects the fact that several copayment rates and fees were either increased or introduced during the reform process (e.g., for pharmaceuticals, prescriptions and hospital visits, see the earlier discussion). Nonetheless, it may also reflect the widening gaps in health coverage driven by unemployment, and it suggests that Greek households are not adequately protected from health-related expenditure and shocks. Although the increases in private expenditure on medical goods and inpatient care were partially offset by a decrease in private expenditure on outpatient care, this may be masking increasing unmet needs.

Table 6. Functional Classification of Private Expenditure on Health
(Percent of GDP)

Year before Health Reform in Greece	Greece	OECD average	Austria	Luxembourg	Czech Republic	Japan	Korea
	2010	2010	2010	2010	2010	2010	2010
Total expenditure	3.0	2.3	2.6	1.1	1.2	1.7	2.5
Medical goods	0.7	0.9	0.7	0.2	0.7	0.6	0.8
Inpatient care	0.7	0.3	0.5	0.2	0.1	0.2	0.6
Outpatient care	1.3	0.7	0.8	0.4	0.3	0.5	0.7
Day care	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long-term care	0.0	0.2	0.3	0.2	0.0	0.1	0.2
Home-based care	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Ancillary services	0.2	0.1	0.1	0.0	0.0	0.0	0.0
Preventive care	0.0	0.1	0.1	0.0	0.0	0.1	0.0
Financing and administration	0.0	0.1	0.2	0.0	0.0	0.0	0.0

Year during or after Health Reform in Greece	Greece	OECD average	Austria	Luxembourg	Czech Republic	Japan	Korea
	2018	2018	2018	2018	2018	2018	2018
Total expenditure	3.1	2.2	2.6	0.8	1.3	1.7	3.3
Medical goods	1.0	0.8	0.7	0.3	0.6	0.7	0.9
Inpatient care	1.1	0.3	0.5	0.1	0.1	0.2	0.7
Outpatient care	0.8	0.7	0.8	0.3	0.4	0.5	1.1
Day care	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long-term care	0.0	0.2	0.4	0.1	0.0	0.2	0.3
Home-based care	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Ancillary services	0.2	0.1	0.1	0.0	0.0	0.0	0.0
Preventive care	0.0	0.1	0.1	0.0	0.0	0.1	0.0
Financing and administration	0.0	0.1	0.2	0.0	0.0	0.0	0.1

Source: OECD health statistics.

Note: Private expenditure includes household out-of-pocket payments and private insurance; Total expenditure data available for 2018, functional breakdown available for 2018 or nearest year.

33. Any expansion of healthcare spending should focus on reducing high out-of-pocket healthcare payments for Greek households, which would help the poor the most. Although nominal private health spending declined for all income groups, it (mostly direct out-of-pocket payments and to a much lesser extent private insurance premiums) increased as a proportion of household income during the crisis, especially for lower income groups (Table 7).

34. Since 2016, the Greek healthcare system offers universal coverage, including for the unemployed, but additional resources are needed to address remaining access gaps.¹¹ High unemployment has exacerbated the already existing structural weaknesses of the Greek healthcare system, and provision gaps rose further as public health coverage

¹¹ Access problems in most countries persist, even when universal coverage is formally in place.

depended on employment status.¹² Additional measures were introduced in 2014 to better protect the uninsured, including: (1) admission in public hospitals for inpatient care, once approved by the board of directors in each hospital; and (2) receipt of pharmaceuticals based on e-prescription issued by ESY and PEDY doctors, subject to the same copayment rates for pharmaceuticals and prescriptions as insured patients. In 2016, the government adopted new provisions, by only requiring uninsured individuals to show their social security number to receive examination and hospitalization in public hospitals and health centers. At the same time, the authorities wrote off past debt of uninsured citizens towards public hospitals for surgeries and other services.

Table 7. Greece: Average Annual Household Health Expenditure by Income Quintile

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
	(in euros)										
All households	1,296	1,257	1,199	1,132	1,087	1,119	1,155	1,210	1,168	1,166	1,212
Q1 (poorest)	880	912	503	645	607	756	641	757	670	667	746
Q2	1,002	1,037	998	805	854	949	860	1,053	931	913	968
Q3	1,122	1,131	978	924	874	981	1,102	1,139	973	975	1,012
Q4	1,469	1,198	1,274	1,081	1,204	1,116	1,142	1,227	1,204	1,193	1,239
Q5 (richest)	1,909	1,924	2,385	2,049	1,832	1,796	2,004	1,866	2,072	2,039	2,045
	(in percent of household income)										
All households	6.1	6.5	6.5	5.9	5.4	6.9	6.9	12.4	9.4	10.8	8.5
Q1 (poorest)	10.0	12.1	9.0	9.2	8.4	11.6	10.6	29.1	16.8	25.2	13.9
Q2	6.9	7.5	7.3	6.4	5.8	6.9	6.7	10.5	9.0	8.8	8.9
Q3	5.6	5.9	5.6	5.2	4.5	5.7	6.7	8.8	7.3	7.1	7.1
Q4	5.1	4.2	4.9	4.4	4.4	4.9	5.2	7.3	6.5	6.3	6.4
Q5 (richest)	3.8	3.7	4.7	4.2	3.8	4.7	5.3	5.8	6.9	6.3	6.3

Sources: ELSTAT Household Budget Survey 2008-2018; and IMF staff calculations.

Notes: Includes expenditure for medical products, appliances and equipment, outpatient services (excluding dental care), paramedical services, inpatient care and private health insurance; Net household income has been equalized using the modified OECD equivalence scale; Analysis is weighted using HBS sample weights.

35. Physical health status on average appears stable, but there are emerging risks from chronically low spending in some sectors requiring continuous monitoring (Table 8 and Appendix Figure 2). Overall, the physical health status of the Greek population has been better than the OECD average, before and after 2010. This may have resulted from specific factors in Greece not explored in this paper (e.g., environment, habits, genetic factors). According to indicators available up to 2016 or 2017, life expectancy has even improved compared to 2010, and measures on infant mortality and AIDS incidence have been constant, although Greece's leading margins over the OECD averages have shrunk. Most indicators suggest that the financial crisis has not had noticeably negative impacts on the average physical health status of the Greek population. In the initial stages of the crisis, several studies focused on the resurgence of infectious diseases such as H1N1, West Nile virus, HIV, plasmodium vivax malaria (Karanikolos et al, 2013; Kentikelenis et al, 2011; Pouloupoulos, 2012; Tyrovolas et al, 2018). Even though authors attribute these effects to

fiscal austerity, none of the healthcare reform measures targeted a reduction in spending in the areas of prevention of communicable diseases, while public spending to prevent communicable diseases in Greece has been chronically low. Appendix Figure 2 illustrates the increase in infectious and communicable diseases after 2010–2012. As the crisis progressed, studies started focusing on an observed deterioration in all-cause mortality after 2015 (Filippidis et al, 2017; Tyrovolas, 2018; Vardakas et al, 2019). Other authors argue that, despite the reduction in health expenditure and increasing unemployment, most health indicators improved, with the exception of overall mortality and suicide (Maragkaki et al, 2019). The overall consensus in the literature is that the crisis did not have a noticeable impact on the average physical health status of the Greek population initially, but that the situation may have deteriorated as the crisis progressed. As health effects associated with financial crises are widely known to manifest themselves with a lag (Stuckler et al, 2009), a continuous assessment of these epidemiological trends is required.

36. Developments in the subjective assessment of health status vary (Table 8, section of “perceived health status”). According to the OECD, the proportion of Greek population 15 years old and above self-reporting “bad health” increased from 9.7 percent in 2010 to 10.4 percent in 2017, while the proportion self-reporting “good/very good health” declined from 75.5 percent in 2010 to 74.0 in 2017. In contrast, data from ELSTAT’s National Health Survey indicate that the proportion of the Greek population reporting “bad/very bad health” declined from 8.1 percent in 2009 to 7.0 percent in 2014, and that the total level of self-perceived health has been more resilient over the same period.

37. The distribution of subjective assessment of health status warrants further investigation (Table 8, first two boxes in section 3). According to the OECD, the proportion reporting “good/very good health” of the poorest quintile increased from 67.8 percent in 2010 to 75.3 percent in 2017, while for the richest quintile it decreased from 87.6 percent to 81.8 percent. One possible explanation is that more young people were unemployed, representing a much larger share in the poorest income quintile. Data from ELSTAT’s National Health Survey lend support to this argument as after standardizing for age and gender health status appears to be broadly resilient between 2009 and 2014 for all income categories, and might even have improved after controlling for gender and age (see Appendix Table 3).

38. Indicators of average mental health have worsened slightly (Appendix Figure 2). Years lost due to mental and behavioral disorders and intentional self-harm inched up after 2012 which could suggest that the crisis had an adverse effect on the Greek population’s average mental health status. These findings are in line with results from several studies linking the crisis to a deterioration of mental health status in Greece (Economou et al, 2013; Economou et al, 2011; Kondilis et al, 2013). However, both indicators are still well below the EU average and many other Eurozone countries, including Germany, France, and Spain.

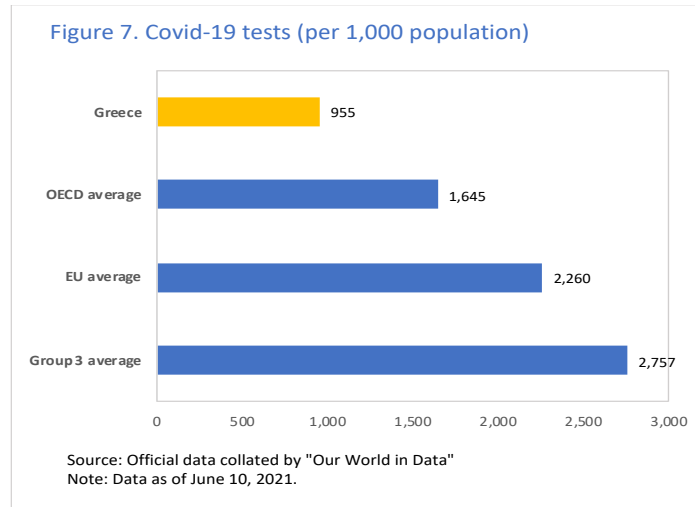
39. The pandemic also underscored that increasing the system’s permanent capacity is a priority area for further healthcare outlays. In response to the pandemic, the Greek authorities increased the country’s ICU capacity, hired additional medical staff, increased the Ministry of Health’s budget, and implemented institutional changes (such as defining primary care centers and reference hospitals to deal with coronavirus examinations and incidents). Available ICU beds increased from 565 at end-February 2020 to 840 at end-May

2020 and to 1,542 by end-April 2021. This increase however does not reflect an equiproportionate expansion of the public healthcare system's capacity as the total includes ICU beds in public and military hospitals, as well as requisitioned beds in private clinics¹³. Furthermore, medical staff increased by over 3,000 doctors and nurses and by over 10,000 subsidiary personnel within a year, but not all new hirings will be permanent. In response to the second wave of the pandemic, the government recently (in March 2021) proceeded to the requisition of 206 private physicians (pneumonologists, GPs and internists) to help alleviate the pressure on the public hospitals.

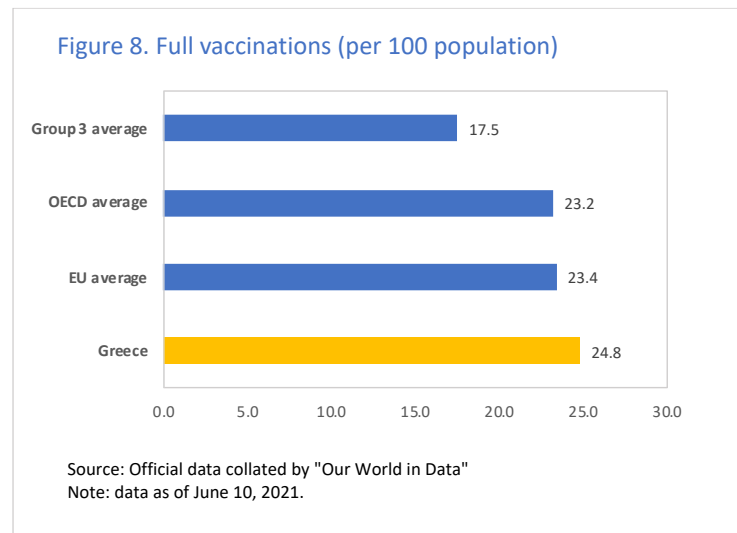
40. Extraordinary funding to support the healthcare sector is dynamic and increasing as pandemic needs emerge. Extraordinary financing to address the Covid-19 crisis was modest in the first half of 2020 and within the range of 200–300 million euros. However, it increased in the second half of the year and reached 786 million euros in total for 2020. Out of this amount, 200 million euros were used to finance wages of newly hired medical staff, 293 million euros were allocated to EOPYY and 293 million euros were used for the procurement of medical equipment and supplies. For 2021, the government has reserved a 3 billion euro cushion for various pandemic expenses, a part of which will be used to finance extraordinary needs of the public healthcare system as they emerge in the following months.

41. Greece performed relatively well during the Covid-19 pandemic, but increasing testing will be key for the country's future epidemiological performance. Greece has outperformed most other European and OECD countries in terms of its epidemiological outcomes (total number of confirmed cases and total number of deaths) during both the first and the second waves of the outbreak. However, while increasing, testing capacity for the virus (PCR and rapid tests) has been below the EU and OECD average (Figure 7). Recently, Greece adopted a self-testing initiative with self-tests provided free-of-charge to teachers, students, civil servants and some private-sector employees. Self-testing is mandatory for schools and sectors such as retail and transport and employees register the test results in an online database. Testing will play a key role in containing the virus once economic and social activities fully resume.

¹³ As of end-April 2021, 981 ICU beds out of the total were exclusively reserved for Covid-19 and 561 for other cases (figures are based on statements by the Minister of Health in April 2021).



42. The country's vaccination program is speeding up. As of early June 2021, Greece had managed to administer over 6 million vaccine doses in total and to fully vaccinate over 2.5 million citizens. Vaccines are administered free-of-charge and on a voluntary basis¹⁴ and fully vaccinated persons receive a vaccination certificate. Greece re-opened its tourism-related activities in May 2021 with the simultaneous end of its second nationwide lockdown (imposed on November 7, 2020).



43. Structural indicators on available healthcare resources point to additional shortages in healthcare provision (Table 9). There are more physicians and pharmacists in Greece than the OECD average, but significantly fewer nurses per 1,000 inhabitants in both public and private providers. After hospital mergers during the healthcare reform process, the number of hospital beds in Greece has declined from around the OECD average in 2009 to below average.

¹⁴ For the time being, the voluntary rule applies also to medical personnel.

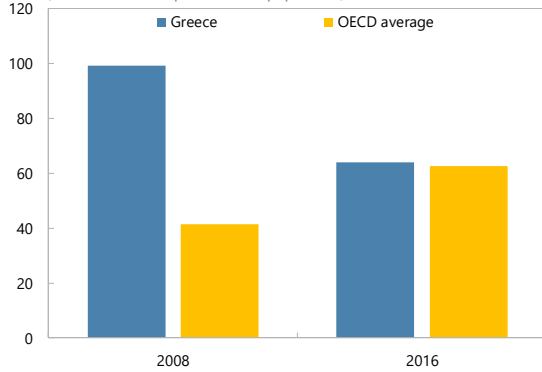
Table 8. Greece: Outcome Indicators of the Healthcare System

		2005	2010	2017
(1) Length of life				
Life expectancy at birth (female)	Greece	82.5	83.3	83.9
	OECD average	81.1	82.3	83.4
Life expectancy at birth (male)	Greece	76.8	78.0	78.8
	OECD average	75.0	76.4	78.2
(2) Quality of life				
Objective measures				
		2005	2010	2017
Infant mortality	Greece	3.8	3.8	3.5
Deaths per 1,000 live births	OECD average	5.5	4.4	3.7
AIDS Incidence	Greece	0.9	0.9	1.0
Incidence per 100,000 population	OECD average	2.2	1.8	1.5
Malignant neoplasms	Greece	213.2	196.5	199.2 1/
Deaths per 100,000 population	OECD average	225.3	212.3	195.7
Cerebrovascular diseases	Greece	162.5	111.6	81.5 1/
Deaths per 100,000 population	OECD average	98.4	79.0	59.5
Ischemic heart diseases	Greece	109.5	84.4	76.8 1/
Deaths per 100,000 population	OECD average	175.2	141.3	110.5
Self-perceived health status				
		2005	2010	2017
Good health for aged 15+	Greece	77.4	75.5	74.0
	OECD average	65.5	67.1	68.2
Fair health for aged 15+	Greece	13.7	14.8	15.6
	OECD average	23.6	22.8	22.9
Bad health for aged 15+	Greece	8.9	9.7	10.4
	OECD average	11.7	10.4	8.7
Unmet needs				
		2008	2010	2018
	Greece	5.5	5.5	8.8
	EU average	3.1	3.1	1.8
(3) Distribution				
Self-perceived health status				
		2005	2010	2017
Good health for aged 15+ (lowest income quintile)	Greece	67.7	67.8	75.3
	OECD average	55.6	59.1	60.1
Good health for aged 15+ (highest income quintile)	Greece	88.6	87.6	81.8
	OECD average	75.3	78.0	80.2
Unmet needs				
		2008	2010	2018
Unmet needs (lowest income quintile)	Greece	8.8	9.0	20.6
	EU average	5.7	5.7	3.4
Unmet needs (highest income quintile)	Greece	1.8	2.1	0.8
	EU average	1.4	1.3	0.7
Utilization of health service in Greece				
(ratio of the richest quintile and the poorest quintile)				
		2009	2014	
Doctor visits in last 12 months				
General practice doctors			0.9	1.1
Dentist			1.4	1.4
Other specialties			1.6	1.7
Diagnostic tests in last 12 months				
Blood pressure measurement			1.0	1.2
Cholesterol measurement			1.1	1.2
Blood sugar measurement			1.1	1.1
Mammogram			3.0	3.9
Pap-smear			2.2	5.6

Figure 9. Indicators of Healthcare Utilization

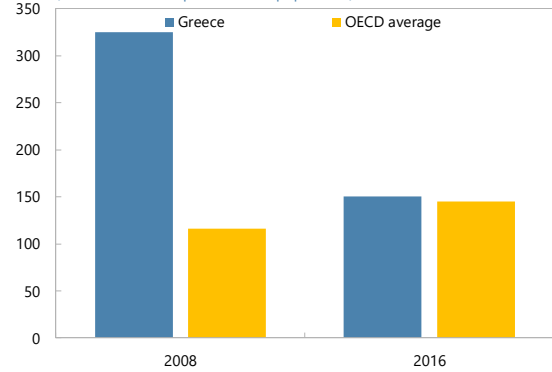
Computed Tomography Exams

(Number of exams per thousand population)



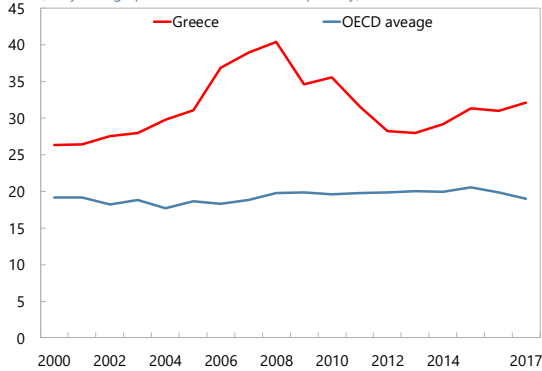
Magnetic Resonance Imaging Exams

(Number of exams per thousand population)



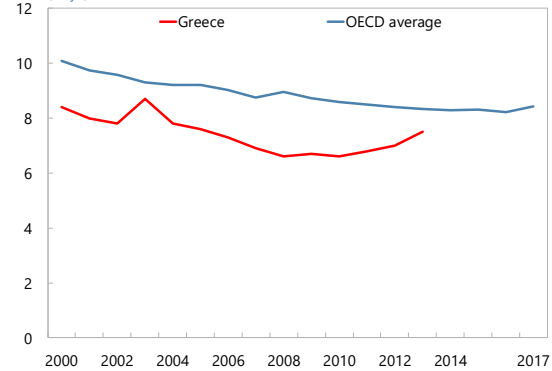
Antibacterials for Systematic Use 1/

(Daily dosage per thousand inhabitants per day)



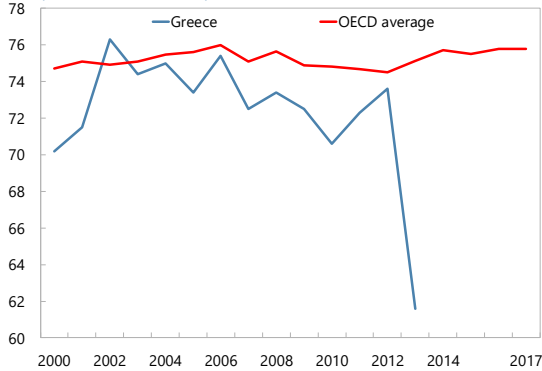
Inpatient Care Average Length of Stay

(Days)



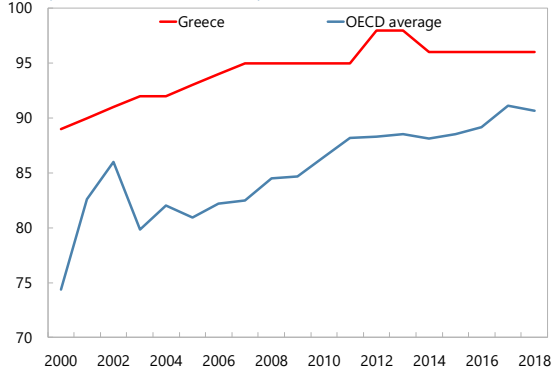
Curative Care Occupancy Rate

(Percent of available bed)



Immunization Rate of Hepatitis B

(Percent of children immunized)



Source: OECD.

Table 9. Healthcare Resources per Thousand Inhabitants

	2000	2005	2010	2015	2017
Physicians					
Greece	4.4	5.1	5.8	5.9	6.1
OECD average	3.6	4.0	4.3	4.7	4.9
Austria	n.a.	n.a.	n.a.	n.a.	n.a.
Luxembourg	2.5	3.2	4.2	4.4	4.2
Czech Republic	4.3	4.3	4.1	4.0	4.1
Japan	n.a.	n.a.	n.a.	n.a.	n.a.
Korea	1.8	2.1	2.4	2.7	2.8
Nurses					
Greece	2.8	3.3	3.5	3.2	3.3
OECD average	7.1	8.0	8.5	8.8	8.7
Austria	5.6	6.0	6.5	6.8	6.9
Luxembourg	7.4	11.0	11.1	11.9	11.7
Czech Republic	7.6	8.1	8.1	8.0	8.1
Japan	n.a.	n.a.	10.1	n.a.	n.a.
Korea	3.0	3.8	4.6	5.9	6.9
Pharmacists					
Greece	n.a.	0.9	1.0	1.0	1.1
OECD average	0.7	0.7	0.8	0.9	0.9
Austria	0.6	0.6	0.7	0.7	0.7
Luxembourg	n.a.	0.8	0.9	0.9	0.9
Czech Republic	0.5	0.6	0.6	0.7	0.7
Japan	1.1	n.a.	1.5	n.a.	n.a.
Korea	n.a.	0.6	0.7	0.7	0.7
Hospital beds					
Greece	4.8	4.8	4.5	4.3	4.2
OECD average	5.9	5.4	5.0	4.7	4.7
Austria	8.0	7.7	7.7	7.5	7.4
Luxembourg	n.a.	5.8	5.4	4.9	4.7
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.
Japan	14.7	14.1	13.5	13.2	13.1
Korea	4.7	5.9	8.7	11.6	12.3

Source: OECD.

V. CONCLUSION

44. Since 2010 Greece underwent a broad-based and comprehensive healthcare sector reform. The health insurance system has been centralized through the establishment of EOPYY which has been a major step forward, although operational issues remain to be resolved. The reorganization of primary care entities and hospitals proved much more challenging. The reforms also included budget caps and price controls to contain excessive spending in specific areas where Greece was an outlier, as well as various structural reforms (contracting providers, e-prescription, promotion of generic drugs, among others) which faced different degrees of resistance and success. Going forward, blunt spending containment measures - such as budget caps - will need to be replaced by accelerating outstanding structural reforms to effectively address induced demand.

45. Various analyses suggest that the overall efficiency of the Greek healthcare system has improved. Appendix II Figure 1 compares Greece’s health spending efficiency using different input coverages (public spending or total spending either as a share of GDP or in PPP terms) and life expectancy as the outcome measure. All the charts suggest that Greece has moved closer to the efficiency frontier over 2010–18, even if some other countries are also gradually improving. A Data Envelopment Analysis (DEA) for cross-sectional data has been conducted separately for 2010 and 2018, and the results summarized in Appendix II Table 1 also suggest improvements in Greece’s efficiency rankings among OECD countries. DEA applications to measure healthcare system efficiency have proliferated in the last two decades, but opinions on their suitability vary (Hernandez and San Sebastian, 2014; and Stefko et al, 2018). Hollingsworth (2016) points to the significant conceptual and statistical limitations of the approach.¹⁵

46. Despite the apparent improvement in efficiency, public healthcare spending has now been compressed to unsustainable levels, unmet needs remain high, and widening inequalities are a concern. Health spending has been compressed to one of the lowest levels in the Eurozone. During 2010–17, health spending declined by 1.8 percent of GDP, which disproportionately affected the poor (see also IMF (2018)), as evidenced by the rising share of out-of-pocket payments and unmet needs among the poor. During this period, intermediate consumption in health declined by half relative to the average level in Europe.

47. The key priority going forward is to undo spending compression by rebalancing fiscal policy to protect the poor more effectively and ensure truly universal access. Rebalancing the fiscal policy mix would free up resources for more targeted social protections, including in the healthcare sector (IMF, 2019). A quantitative benchmarking exercise revealed that priority areas would include further strengthening the public primary healthcare network and reducing out-of-pocket health payments through improved service provision both in primary and secondary care, including by delivering truly universal access. Health spending de-compression should move in tandem with continued efforts to address remaining institutional inefficiencies.

48. Finally, data about objective health status, public service utilization and the uninsured should be collected and monitored closely going forward. This information may provide evidence and insights to inform future reforms for enhancing the protection offered by the health safety net, especially for the most vulnerable groups in the population.

¹⁵ Recognizing these limitations, the DEA analysis has been included for completeness in this paper without drawing strong conclusions from the results.

Appendix I. Background Tables and Charts

	Public Hospitals		Public Health Centers	
	2009	2017	2009	2018
Total	142 (38,115)	125 (29,495)	191 (1,004)	204 (901)
	Breakdown by type			
General	114 (30,152)	107 (25,659)		
Specialized	28 (7,963)	17 (3,841)		
	Breakdown by location			
In Athens	42 (15,173)	35 (11,649)	0 (0)	17 (58)
In rest of Greece	100 (22,942)	90 (17,872)	191 (1,004)	187 (843)

Source: ELSTAT.
Note: Number of institutions (number of beds); latest ELSTAT survey on hospitals took place in 2017 and for health centers in 2018.

Year before Health Reform in Greece	Greece	OECD average	Austria	Luxembourg	Czech Republic	Japan	Korea
	2010	2010	2010	2010	2010	2010	2010
Total expenditure	31	27	25	15	17	18	39
Medical goods	23	47	40	22	40	33	48
Inpatient care	19	11	13	9	4	8	37
Outpatient care	64	33	30	18	16	18	46
Day care	n.a.	10	1	4	n.a.	10	32
Long-term care	8	18	22	17	n.a.	15	30
Home-based care	n.a.	14	n.a.	18	n.a.	17	23
Ancillary services	45	21	36	4	n.a.	n.a.	56
Preventive care	1	22	28	3	13	36	16
Financing and administration	24	26	43	30	0	18	14
Year during or after Health Reform in Greece	Greece	OECD average	Austria	Luxembourg	Czech Republic	Japan	Korea
	2018	2018	2018	2018	2018	2018	2018
Total expenditure	40	26	25	15	18	16	40
Medical goods	42	48	40	34	44	31	51
Inpatient care	34	11	13	6	5	7	34
Outpatient care	54	33	29	20	18	17	48
Day care	n.a.	10	28	6	n.a.	11	22
Long-term care	4	18	28	12	n.a.	9	31
Home-based care	n.a.	19	n.a.	9	n.a.	15	27
Ancillary services	44	23	33	3	n.a.	n.a.	38
Preventive care	12	18	28	30	17	30	15
Financing and administration	23	34	43	n.a.	0	19	24

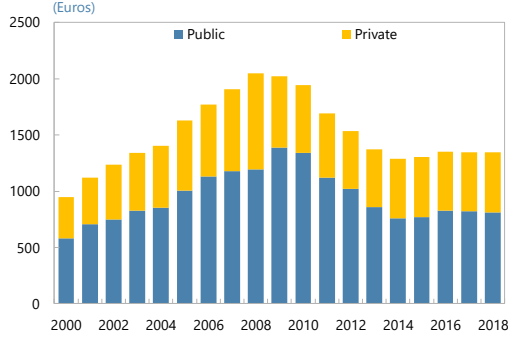
Source: OECD health statistics.
Note: Total private expenditure data available for 2018, breakdown available for 2018 or nearest year.

	All	Q1	Q2	Q3	Q4	Q5	Q1/Q5
2009	2.1	2.3	2.2	2.1	2.0	1.9	1.2
2014	2.1	2.2	2.1	2.1	1.9	1.7	1.3

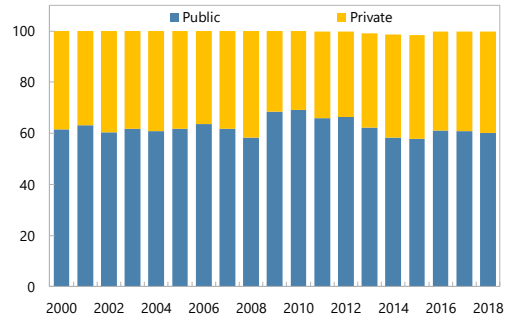
Source: ELSTAT, National Health Survey; and IMF staff calculations.
Note: (1) Q1 represents the households in the poorest quintile, and Q5 represents the richest.
(2) 1 corresponds to excellent health, 5 to very bad health (from 5-scale self-reported health indicator).
(3) Quintile means are standardized, controlling for gender and age.

Appendix I Figure 1. Health Expenditure Per Capita

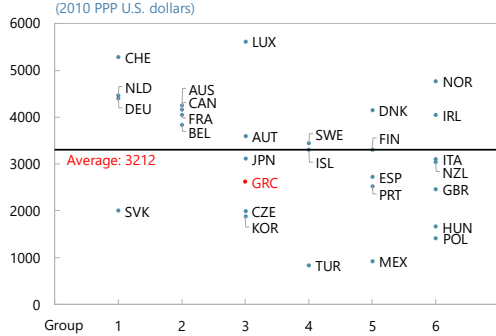
Greece: Public and Private Expenditure on Health per Capita 1/
(Euros)



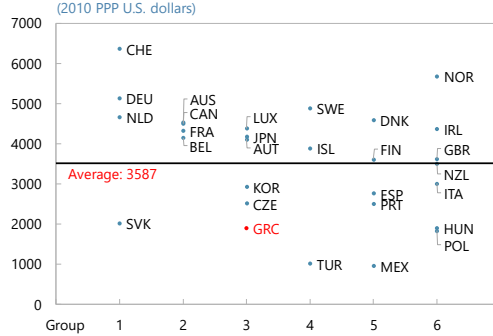
Greece: Public and Private Expenditure on Health per Capita 1/
(Percent of total health expenditure per capita)



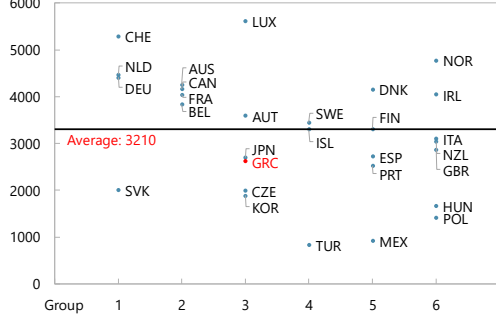
OECD Countries by Group: Total Health Expenditure per Capita, 2010
(2010 PPP U.S. dollars)



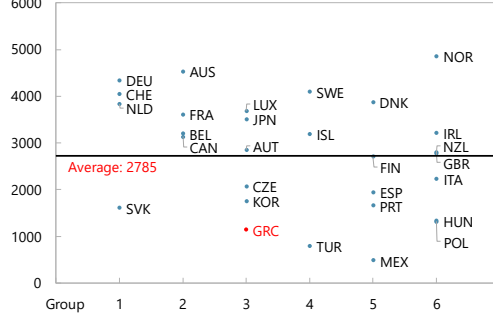
OECD Countries by Group: Total Health Expenditure per Capita, 2018
(2010 PPP U.S. dollars)



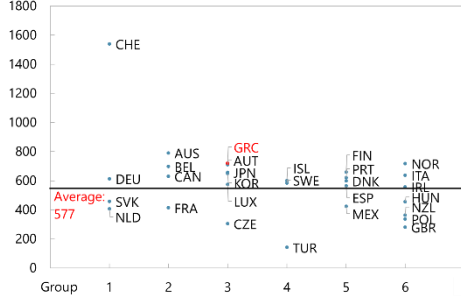
OECD Countries by Group: Government Health Expenditure per Capita, 2010
(2010 PPP U.S. dollars)



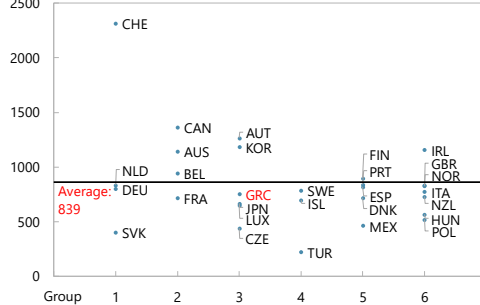
OECD Countries by Group: Government Health Expenditure per Capita, 2018
(2010 PPP U.S. dollars)



OECD Countries by Group: Private Health Expenditure per Capita in 2010
(2010 PPP U.S. dollars)



OECD Countries by Group: Private Health Expenditure per Capita, 2018
(2010 PPP U.S. dollars)

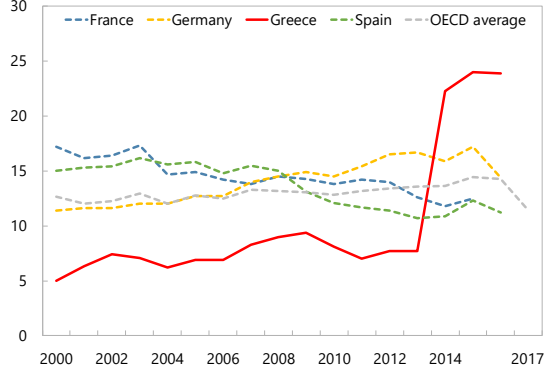


Source: OECD.
Note: 1/ Methodology break in 2008–2009.

Appendix I Figure 2. Selected Physical and Mental Health Outcome Indicators

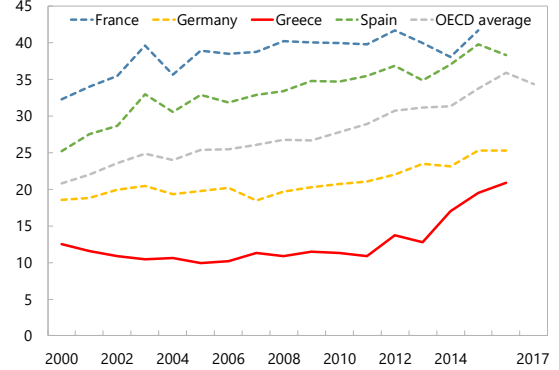
Infectious and Parasitic Diseases

(Standardized rate of deaths per 100,000 population)



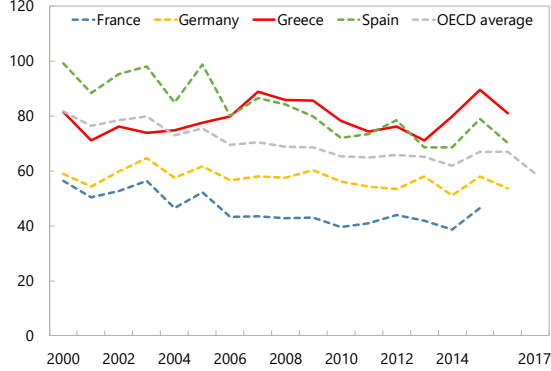
Diseases of the Nervous System

(Standardized rate of deaths per 100,000 population)



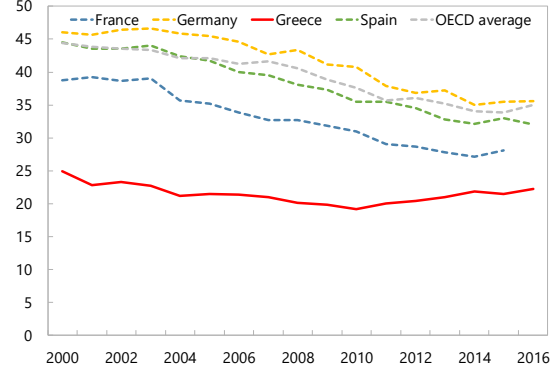
Diseases of the Respiratory System

(Standardized rate of deaths per 100,000 population)



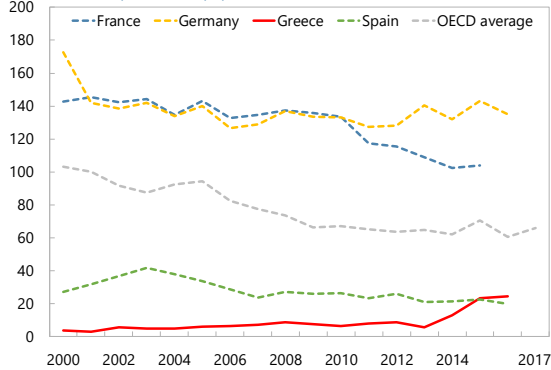
Diseases of the Digestive System

(Standardized rate of deaths per 100,000 population)



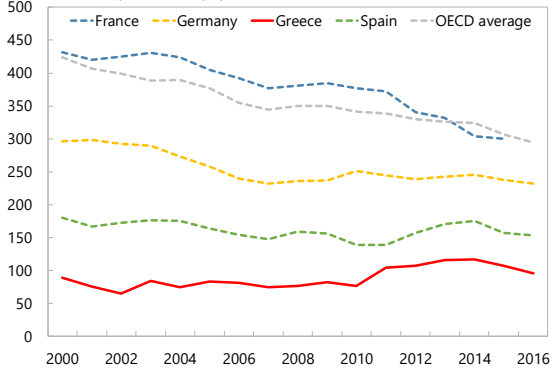
Mental and Behavioral Disorders

(Years lost per 100,000 population)



Intentional Self-Harm

(Years lost per 100,000 population)



Source: OECD.

Appendix II. DEA Analysis and Efficiency Rankings

		Ranking	
		2010	2018
Public spending only	input-oriented DEA	11	10
	output-oriented DEA	13	11
Public and private spending combined	input-oriented DEA	12	10
	output-oriented DEA	14	10

Source: IMF staff calculation.
 Note: The table summarizes Greece's ranking among the 35 OECD countries. Smaller numbers represent higher efficiency compared to other countries.

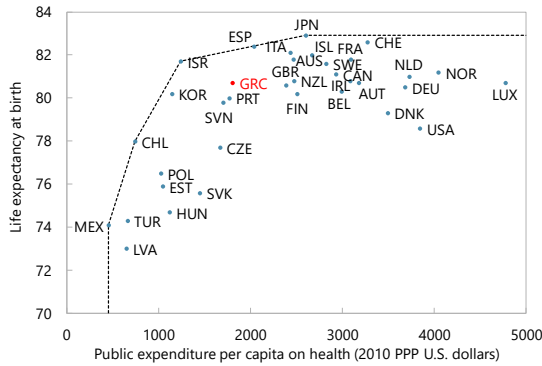
In this Annex, results from a Data Envelopment Analysis (DEA) are presented. DEA (also referred to as frontier analysis) is a performance measurement technique which is used to evaluate relative spending efficiency in various sectors, including health. A higher efficiency is defined as achieving better outcomes with the same level of inputs (output-oriented) or achieving the same level of outcomes using a lower level of inputs (input-oriented).

The input variables used for the calculation of the rankings in Table 1 include health spending in PPP terms, GDP per capita in PPP terms, and PISA score¹⁶. The last two variables are used as proxies of the socioeconomic environment. The output variable is life expectancy at birth. The set of variables used for this exercise are a simplified version of those used in Joumard et al (OECD, 2010). The input variables in that study include (1) healthcare spending per capita (converted with a GDP PPP exchange rate); (2) the socio-economic environment including GDP per capita and educational attainment (e.g. PISA score as a proxy); and (3) lifestyle factors including air pollution, consumption of fruits and vegetables, lagged consumption of alcohol and tobacco. The output variable in OECD 2010 is also life expectancy at birth. Results presented above do not include lifestyle factors. Efficiency rank improvements were observed across different inputs-output specifications. The limitations of the approach are discussed earlier in the paper.

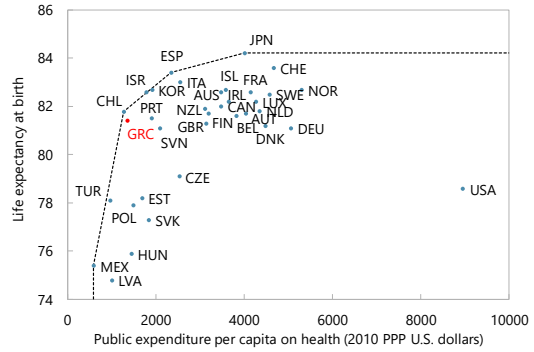
¹⁶ The Program for International Student Assessment (PISA) is a worldwide survey developed by the Organisation for Economic Cooperation and Development (OECD) in both member and non-member countries. The survey mainly aims to evaluate educational systems through the measurement of 15-year-old students' cognitive performance in mathematics, science and reading, with cognitive performance variables recorded and disseminated in the form of scores.

Appendix II Figure 1. Various Measures of Health Spending Efficiency

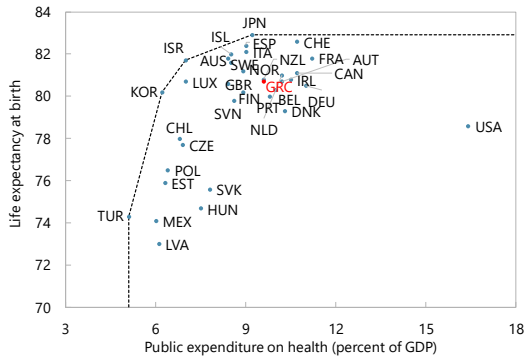
Efficiency of Public Expenditure on Health, 2010



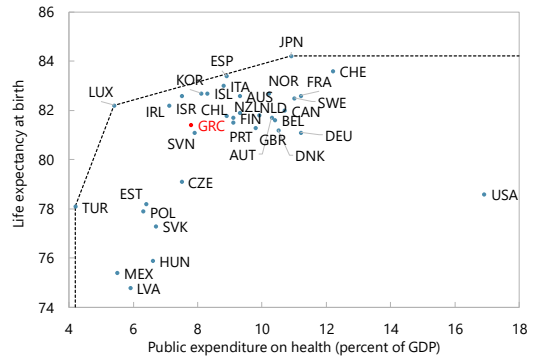
Efficiency of Public Expenditure on Health, 2018



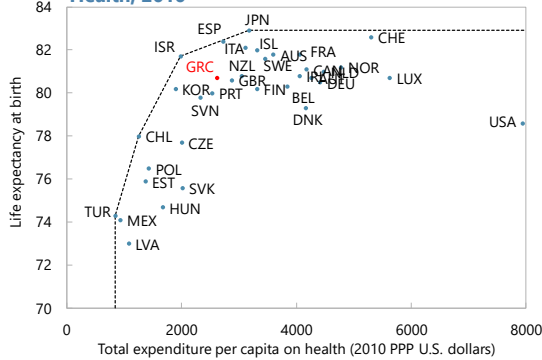
Efficiency of Public Expenditure on Health, 2010



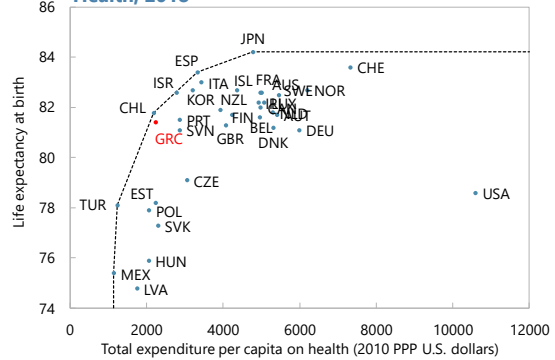
Efficiency of Public Expenditure on Health, 2018



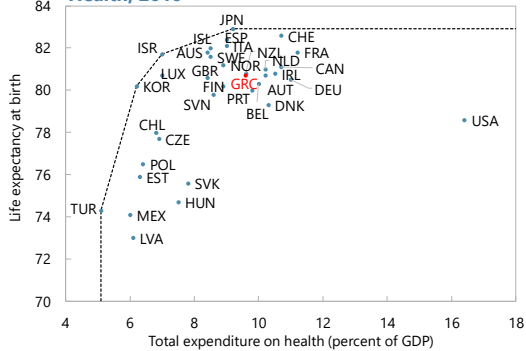
Efficiency of Public Expenditure and Private on Health, 2010



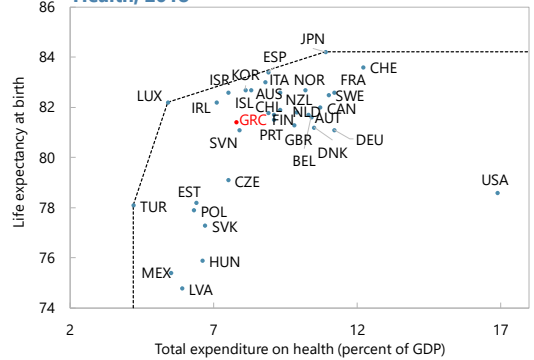
Efficiency of Public Expenditure and Private on Health, 2018



Efficiency of Public Expenditure and Private on Health, 2010



Efficiency of Public Expenditure and Private on Health, 2018



Sources: OECD; World Bank; and IMF staff calculations.

Note: All data are as of 2010 versus 2018 except for life expectancy 2010 versus 2017.

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