Greek Debt Crisis: A Complete Story[*]

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Abstract

The Greek debt crisis stands out as a compelling case study of a severe financial crisis in a developed country within a currency zone. Despite the abundance of literature on the subject, the significance of debt accumulation in the 1980s is often overlooked, and details are frequently omitted. Through an analysis of data gathered from Greek government's public finance statistical yearbooks spanning from 1962 to 2008, it is observed that the Greek government utilized both domestic and foreign loans to fund investment programs starting in 1957. Additionally, loans were employed to finance a significant increase in current expenditure from 1981 onward. Both the cointegration test and fiscal reaction function test not only confirm that the Greek government debt deviates from the ad hoc sustainability requirement between 1957 and 2008 but also indicate that this deviation was evident since 1974.

Keywords: debt sustainability, primary deficit, cointegration test, fiscal policy
JEL Codes: E20, E58, E60

1 Introduction

The initial two decades of the twenty-first century have posed significant challenges to public finance. Governments faced a daunting task of stabilizing economies during the 2007-08 financial crisis, resulting in historically high levels of government debt. Even before a full recovery from this crisis, the global economy was challenged once again by the COVID-19 pandemic. In certain countries, the substantial stock of government debt presents formidable challenges to financial strength and economic stability. This situation leaves minimal space for future fiscal and monetary policies, not to mention the looming possibility of a debt crisis. To examine the pertinent issue of government debt crises, delving into historical cases becomes imperative. This paper intends to revisit a crisis that remains vivid in the memories of many: the Greek debt crisis.

Figure 1: Real GDP growth for Greece, Ireland, Italy, Portugal, and Spain

The Greek debt crisis emerged subsequent to the 2007-08 financial turmoil when the newly elected Prime Minister George Papandreou disclosed that Greece's budget deficit far surpassed previous estimates. The Greek debt crisis stands out as an interesting case study for several reasons:
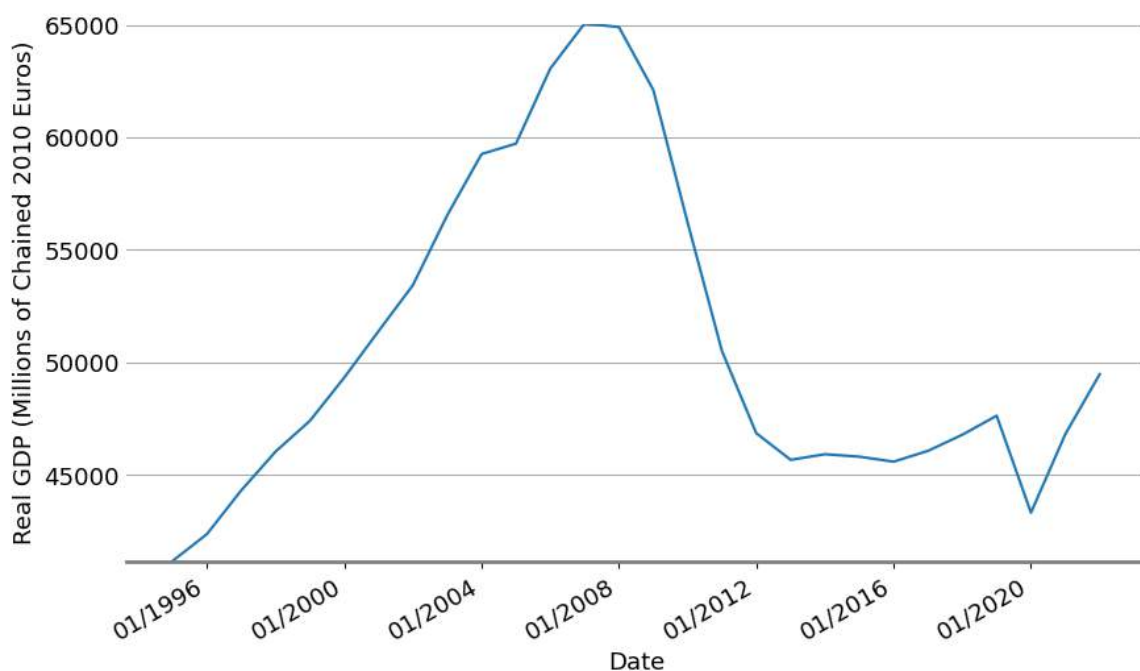
Figure 2: Greece's real GDP

Debt crisis in a developed country: Most previous sovereign debt crises have happened in developing countries. When Greek debt was on the edge of default in 2010, many economists still believed that default in advanced economies was unlikely (**?**).

Financial contagion: The Greek debt crisis had a contagion effect, spreading to other financially vulnerable countries in the euro zone, such as Portugal, Ireland, Italy, and Spain.

Severe economic impact: Greece's debt crisis was one of the most severe economic crises in the EU's history, leading to a deep recession, high unemployment, and a significant decline in Greece's GDP. Figure 1 shows that among the euro area member states that experienced debt crises, Greek economy suffered the deepest and longest recession. Greece's real GDP plunged from the peak of 65 billion (2010 euro) before 2008 to 45 billion (2010 euro) in 2013 (Figure 2).

Complex euro zone dynamics : The crisis exposed structural issues within the euro zone, as a single currency was used by countries with vastly different economic strengths and weaknesses. The inability to devalue its currency, a tool often used by countries facing economic difficulties, further complicated the Greek economy's recovery.

Austerity measures: To secure bailout packages from international institutions like the International Monetary Fund (IMF) and the European Central Bank (ECB), Greece had to implement harsh austerity measures, including tax hikes, spending cuts, and structural reforms. These measures had severe social and political consequences and sparked widespread protests and political unrest.

The Greek debt crisis, along with the broader euro area debt crisis, has garnered considerable attention from the outset, leading to a substantial body of literature that approaches the Greek debt crisis from various perspectives. Noteworthy contributions include Alogoskoufis [2012b], Arghyrou and Tsoukalas [2011], Nelson et al. [2010], Rady [2012], which delve into the root causes and propose rescue plans for addressing the Greek debt crisis. Mink and De Haan [2013] focus on scrutinizing the contagion effects, while Featherstone [2011] and Featherstone [2015] direct their attention to exploring Greece's relationship with the EU and the potential for political reform. Zettelmeyer et al. [2013] provide a comprehensive insight into Greek debt restructuring, and Hawkesworth et al. [2009] investigate the budgeting reform efforts initiated in Greece in 2008. Collectively, these works contribute to a nuanced understanding of the multifaceted issues surrounding the Greek debt crisis.

Despite the abundance of literature on the Greek debt crisis, several lingering questions remain without detailed answers. Notably, Figure 3 illustrates that Greece's debt/GNI ratio was mere 25 percent in 1981 but skyrocketed to 100 percent by 1993. The factors contributing to such a dramatic increase in government debt as a percentage of GNI during that period are not clearly elucidated. Alogoskoufis [2012b], Alogoskoufis [2021] posit that the surge in government spending played a pivotal role in the accumulation of Greece's government debt throughout the 1980s. However, a more in-depth analysis supported by detailed data would undoubtedly enhance our understanding of this historical period.

Moreover, empirical test methods for evaluating the sustainability of government debt have emerged since the late 1980s. Despite the European Union's rigorous convergence criteria for nations aspiring to embrace the euro and the fiscal oversight applied to countries within the euro area, there is a notable scarcity of research employing these empirical test methods on Greek data[1]. Can these testing approaches ascertain the sustainability of Greece's government

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[1]Makrydakis et al. [1999] applied unit roots tests to Greek government debt. The details are in the literature
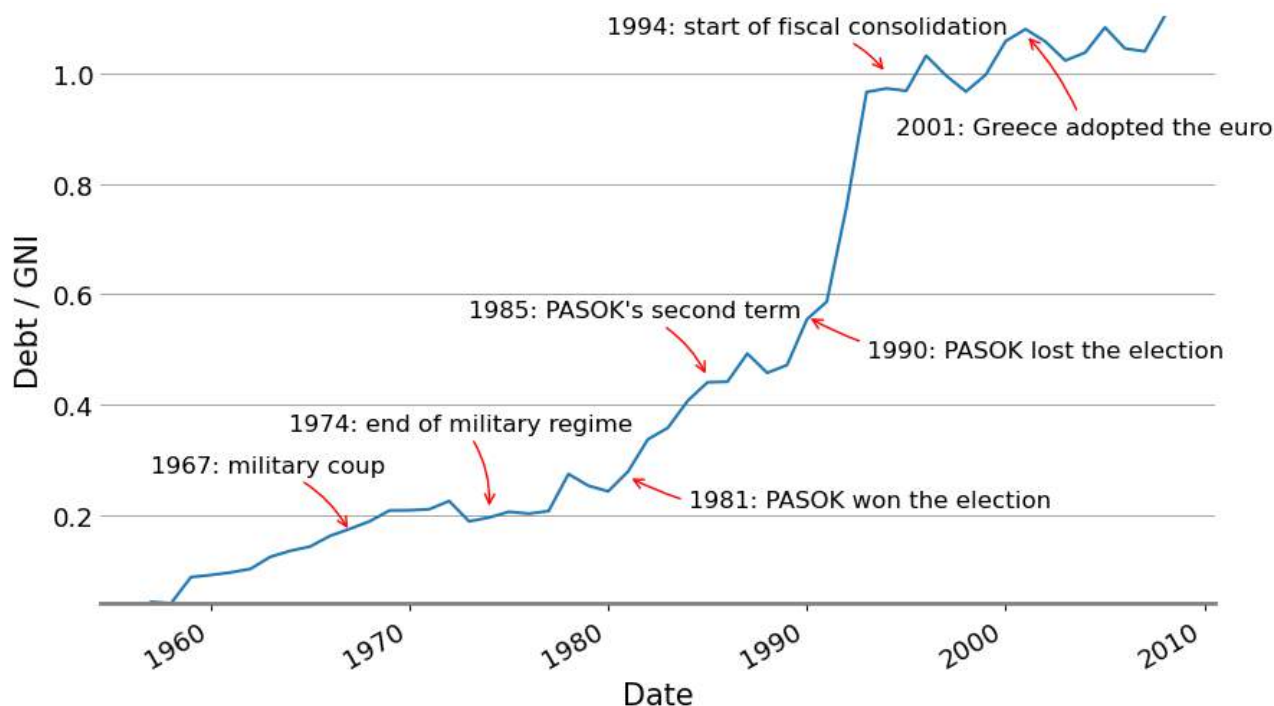
Figure 3: Greece's debt/GNI ratio

debt? If applied to Greece's public finance data, could they have offered adequate early warning signals of the impending crisis? These pivotal inquiries necessitate exploration to gauge the efficacy of existing empirical test methods in predicting and averting crises of this nature.

This paper aims to address two pivotal questions regarding the Greek government debt. Firstly, in order to understand the factors contributing to the rapid accumulation of Greek government debt during the 1980s and 1990s, a meticulous examination of Greece's historical public finance data is essential. Through a detailed analysis of Greece's statistical yearbooks of public finance spanning from 1962 to 2008[2], I have constructed data series encompassing government revenue, expenditure, and debt.

Secondly, I employ two commonly utilized empirical tests to assess government debt sustainability using Greece's public finance data. Specifically, I apply Trehan and Walsh's (Trehan and Walsh [1991]) cointegration test in conjunction with Bohn's (Bohn [2007]) fiscal reaction function test. These tests are employed to scrutinize and evaluate the sustainability of Greece's government debt across different time periods, providing insights into its long-term fiscal via-

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review section.

[2]These statistical yearbooks of Greece's public finance are available in the Hellenic Statistical Authority Digital Library.

bility.

This paper presents several intriguing findings. Firstly, an examination of Greece's historical public finance data reveals that the Greek government has been relying on loans to fund its investments since 1958, while domestic revenues were initially sufficient to cover current expenditures. However, a significant surge in current expenditure since 1981 necessitated loans to finance a substantial portion of current expenditures.

Secondly, a noteworthy discovery emerges regarding the substantial inclusion of loans as revenue in Greece's budget tables from 1981 onwards[3]. This accounting practice significantly understated the official deficit figures. Importantly, this misleading financial approach persisted even after Greece became a member of the euro-zone. If these loans are excluded from the revenue calculations, the corresponding budget deficits appear considerably larger than the deficit figures reported by various other official sources, including the revised data reported by OECD[4].

Thirdly, both employed empirical testing methods affirm the violation of the ad hoc sustainability condition for the period spanning from 1958 to 2008. Furthermore, analyses of sub-sample periods indicate that Greece's public finance data consistently falls short of meeting the ad hoc sustainability condition[5], even within the time frame of 1958 to 1974. While the failure to meet this condition doesn't necessarily imply an imminent risk of a debt crisis, it underscores an unhealthy public finance policy that could potentially sow the seeds for future crises if not rectified, as proven by recent Greek debt crisis. Despite the fiscal consolidation measures implemented from 1994 to 2000, resulting in an enhancement of Greece's public finance status, the test results suggest that these measures alone are insufficient to satisfy the requirements of the ad hoc sustainability condition.

This paper contributes to the existing literature from various perspectives. Firstly, it serves as evidence that establishing a robust and transparent system for managing public finance data is not only the initial but also a crucial step in ensuring the sustainability of a government's budget. The crisis in Greece was exacerbated by a lack of transparency and accountability in the budgetary processes.

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[3]See Table 6.

[4]See Figure 6.

[5]The definition is introduced in the methodology section.

Secondly, this paper delves into the roots of Greece's debt crisis, tracing it back as early as the 1970s. Through a detailed examination of Greece's public finance data, it becomes evident that a lack of budgetary discipline and excessive spending, particularly during the period from 1981 to 1993, played a significant role in contributing to the crisis.

Thirdly, the paper highlights the effectiveness of empirical test methods in assessing debt sustainability. While these methods can only offer indicative results, their insights prove invaluable for the monitoring of fiscal policies and effective budget management.

The paper unfolds as follows: Section 2 provides a concise review of the literature pertaining to government debt sustainability, followed by a comprehensive exploration of empirical tests applied in evaluating the sustainability of government debt. Additionally, a summary of prior research on the Greek debt crisis is presented. Section 3 delves into an examination of Greece's political landscape and fiscal policies post-World War II. Section 4 analyzes data related to various government spending categories and revenue streams, elucidating the trajectory of Greek government budget deficits. Methodological details will be expounded upon in Section 5. Section 6 shows the results obtained from empirical tests conducted. Subsequently, Section 7 provides an in-depth discussion of the policy implications derived from the findings. Section 8 will conclude.

2 Literature Review

In this section we summarize the literature on the Greek debt crisis, then we give a review of empirical tests of government debt sustainability.

2.1 Literature on the Greek debt crisis

The Greek debt crisis, which began to unfold in the late 2000s, stands as a pivotal case study in modern economics and finance. The crisis raised critical questions about Greece's fiscal sustainability, budget transparency and accountability, the euro zone's effective fiscal surveillance and oversight, and the implications of austerity measures. This subsection summarize the literature on key aspects of the Greek debt crisis.

On the causes of the crisis, a consensus in the literature attributes the immediate cause

of Greece's debt crisis to the "sudden stop" of capital inflows due to the 2008 financial crisis. Merler and Pisani-Ferry [2012], Gourinchas et al. [2017], Bordo and James [2014], Lane [2012] all explored the impact of the global financial crisis of 2008 as a catalyst for the escalation of the Greek crisis. The economic downturn created unfavorable conditions, exposing vulnerabilities in Greece's financial system and exacerbating pre-existing issues. However, numerous studies highlight Greece's fiscal mismanagement and structural weaknesses such as a bloated public sector, a rigid labor market, and inefficient state-owned enterprises, as primary contributors to the crisis. The literature consistently points to the accumulation of public debt as a central element in the crisis. Unsustainable borrowing practices, often masked by creative accounting methods, led to an explosion of government debt, reaching levels that were ultimately unsustainable (Kouretas and Vlamis [2010], Alogoskoufis [2012a], Nelson et al. [2010]). Some economists argue that the euro crisis was not just a fiscal crisis, but also a balance-of-payments crisis (Merler and Pisani-Ferry [2012], Tornell and Westermann [2012], Febrero et al. [2018], Micossi [2016]).

As the largest sovereign debt restructuring in history and the first one in the euro area, Greece's debt restructuring is a complex and multifaceted topic that has garnered significant attention from scholars, economists, policymakers, and international organizations. The restructuring, primarily occurring in 2012, aimed to address the country's unsustainable debt levels and stabilize its economy. Zettelmeyer et al. [2013] provide a thorough account of the context, process and outcome of Greek debt restructuring.

After the break out of the debt crisis, austerity measures were introduced in Greece as part of the conditions attached to the financial assistance packages provided by international institutions, including the International Monetary Fund (IMF), the European Central Bank (ECB), and the European Commission (EC). The overarching goal was to address Greece's fiscal imbalances, stabilize its economy, and restore investor confidence. While these measures aimed to address fiscal imbalances, their social and economic consequences have been a subject of ongoing debate and analysis (Ifanti et al. [2013], Granados and Rodriguez [2015], Monastiriotis et al. [2013]).

2.2 Literature on government debt sustainability

Governments, akin to households, face two borrowing constraints: the short run budget constraint and the long-run budget constraint. The short run budget constraint can be expressed as:

$$T_t + D_t = G_t + (1 + i_t) * D_{t-1} \tag{1}$$

where T_t represents the nominal tax revenue collected during time period t; D_t is the nominal value of government debt at the end of period t; G_t denotes government spending excluding interest payment; and i_t is the interest rate for one-period government debt issued in period $t - 1$. It is assumed that the government exclusively issues one-period bonds for simplicity.

The short-run budget constraint stipulates that, in order to prevent government default, the sum of tax revenue and newly issued debt must be sufficient to meet both current government expenditures and the repayment obligations of existing debt.

Equation (1) can be rearranged as

$$D_{t-1} = \frac{T_t - G_t}{1 + i_t} + \frac{D_t}{1 + i_t} = \frac{PB_t}{1 + i_t} + \frac{D_t}{1 + i_t}. \tag{2}$$

where PB_t denotes government's primary balance in period t. If PB_t is positive, government runs surplus in period t. If it is negative, government runs deficit.

By iterating equation (2) forward, we can get

$$D_{t-1} = \sum_{j=0}^{\infty} \frac{PB_{t+j}}{\prod_{k=0}^{j}(1 + i_{t+k})} + \lim_{j \to \infty} \frac{D_{t+j}}{\prod_{k=0}^{j}(1 + i_{t+k})} \tag{3}$$

If we assume the government can't run Ponzi game, which means the growth rate of government debt can't exceed the interest rate, then we have

$$\lim_{j \to \infty} \frac{D_{t+j}}{\prod_{k=0}^{j}(1 + i_{t+k})} = 0 \tag{4}$$

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Assuming Equation (4) holds, equation (3) becomes the following government's long run

budget constraint

$$D_{t-1} = \sum_{j=0}^{\infty} \frac{PB_{t+j}}{\prod_{k=0}^{j}(1 + i_{t+k})} \tag{5}$$

In theory, for government debt to be sustainable, the present value of the projected future balances should be considered. However, providing an operational interpretation for this straightforward theoretical definition proves to be challenging[6].

Given these challenges, the literature explores various approaches to empirically assess the sustainability of government debt. Each approach focuses on specific constraints mentioned earlier or employs different economic tools. The first category explores the government's debt ceiling, which signifies its borrowing limit. Research within this category aims to ascertain the optimal debt policy for the government, taking into account the potential risk of a debt crisis and navigating the delicate trade-off between defaulting and avoiding default.

Eaton and Gersovitz [1981] contribute to this discourse by demonstrating that, under the assumption that government borrowers facing default would be permanently excluded from capital markets, there exists a credit ceiling set by lenders. The determination of this credit ceiling hinges on lenders' assessment of the disutility faced by borrowers due to exclusion from capital markets. Cole and Kehoe [2000] emphasize the pivotal role of lenders' confidence in the government. Should lenders lose confidence, they may cease to purchase new government debt, leading to a liquidity shortage for the government. Consequently, the government might breach the short run budget constraint and default, even if the fundamental economic indicators still align with the long run budget constraint.

The second category of literature shifts its focus towards the implications of the government's long-run budget constraint, assuming the adherence to the long run constraint. D'Erasmo et al. [2016] provide a comprehensive review of research within this category, which is centered on examining the sustainability of government debt. Within this literature, two distinct approaches emerge.

In the first approach, researchers conduct empirical tests of government debt sustainability using time series econometrics tools. These tools analyze whether equations (4) and (5) hold, considering the series of government debt, primary deficit, or other public finance data related

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[6]Mendoza and Oviedo [2009].

to the government. The methodologies employed in this paper fall within the scope of these empirical tools, and a more detailed literature review will be provided later in my discussion.

The second approach utilizes dynamic stochastic general equilibrium (DSGE) models, providing researchers with a tool to examine the trade-offs associated with implementing diverse measures aimed at restoring fiscal solvency. The DSGE approach serves as a dynamic framework, facilitating the exploration of intricate interactions and consequences arising from different policy measures on the government's long-term fiscal health. Given that this paper does not center around the DSGE approach, specific details regarding this methodology will not be expounded upon in this context.

2.3 Literature on empirical tests of government debt sustainability

During the 1980s, as the U.S. federal government consistently ran budget deficits, economists began to scrutinize the sustainability of U.S. debt. Advances in time series econometrics offered tools for empirically testing government debt sustainability. Hamilton and Flavin [1986] conducted the pioneering empirical test on the sustainability of U.S. government debt. They employed the Dickey-Fuller unit root test to examine the stationarity of U.S. federal debt and primary surplus between 1960 and 1984. Their results rejected the null hypothesis of nonstationarity, leading to the conclusion that the postwar U.S. public finance data aligns with the government's long run budget constraint.

In contrast to Hamilton and Flavin [1986]'s findings, Wilcox [1989] identified a structural shift in fiscal policy after 1974. For the period from 1960 to 1974, the test results indicated satisfaction of the long-run budget constraint. However, for the period following 1974, the results differed, leading Wilcox to conclude that the U.S. fiscal policy after 1974 was deemed unsustainable. This divergence in findings highlights the complexity of assessing the sustainability of government debt over time and the potential impact of significant policy shifts on fiscal dynamics.

The initial phase of research concerning the empirical testing of government debt sustainability concluded with Trehan and Walsh's (Trehan and Walsh [1988], Trehan and Walsh [1991]) cointegration test. Specific details of this test methodology will be elucidated in the forthcoming methodology section. Their findings revealed that the levels of both the surplus and govern-

ment debt between 1960Q1 and 1987Q4 were non-stationary; however, the first difference of these two variables exhibited stationarity. The cointegration test provided evidence that the surplus and government debt are cointegrated, signifying compliance with the long run budget constraint. This marked a significant contribution to the understanding of the sustainability of government debt by employing advanced statistical techniques to assess the long term dynamics of fiscal variables.

Bohn [2007] initiated the second wave of research by challenging the notion that stationarity or cointegration is imperative for the transversality condition (equation (4)) to be met. He demonstrated that if a debt series is integrated of arbitrarily finite order, the transversality condition (equation (4)) holds. This doesn't invalidate Trehan and Walsh's cointegration test, as it assumes the prerequisite that the level or first difference of government primary surplus is stationary. In other words, Trehan and Walsh's cointegration test remains valid only when the linear combination of these variables is stationary. Since it's uncommon for macroeconomic variables to be integrated of order two or higher, Trehan and Walsh's cointegration test remains relevant for the majority of cases.

Bohn [2007] proposed a more comprehensive test method for government debt sustainability known as the fiscal reaction function test. Details of this test will be expounded upon in the methodology section. D'Erasmo et al. [2016] applied the fiscal reaction function test to estimate the fiscal reaction function for the U.S. using data spanning from 1791 to 2014. Their findings revealed a positive conditional response of the primary balance to government debt, providing evidence in favor of fiscal solvency. However, their predicted primary balances based on the estimated fiscal reaction function for the period from 2008 to 2014 significantly exceeded the actual values. This discrepancy serves as evidence of a structural shift in fiscal policy following the 2008 financial crisis.

The previously discussed literature primarily focuses on the sustainability of U.S. government debt. Shifting the focus to research on other countries, De Mello [2008] undertakes an analysis of fiscal reaction functions for various levels of the Brazilian government using monthly data spanning from 1995 to 2004. His findings indicate a robust positive response of the primary budget surplus to changes in indebtedness across all levels of the Brazilian government. Jooste et al. [2011] extend this line of inquiry to South Africa, estimating the fiscal reaction

function. Their results suggest that South Africa's fiscal policies have been sustainable since 1946. In contrast, Makrydakis et al. [1999] examine the sustainability of Greece's fiscal policy using data from 1958 to 1995. Their findings present strong evidence against the sustainability of Greek government debt. However, they also note that fiscal consolidation policies initiated in 1992 began to steer Greece toward fiscal solvency, showcasing the potential impact of policy interventions on the trajectory of a country's fiscal health.

3 A Summary of Greek Politics, Fiscal Policies and Economic Performances From 1950 to 2008

In this section, we delve into the politico-economic context that played a pivotal role in shaping the trajectory of sovereign debt in Greece from 1950 to 2008. We identify five distinct phases, each characterized by key political events, fiscal policies, and economic outcomes.

The first phase spans from 1950, the conclusion of Greece's civil war, to 1974, marking the country's return to democracy. Despite the prohibition of communist or socialist parties during this period, intense competition among right-wing parties led to frequent elections and government changes. With eight general elections and over twenty cabinets organized, this era witnessed political instability, including a military coup in 1967 that lasted until the Cyprus crisis in 1974. Despite the political turbulence, Greece experienced two decades of rapid economic growth, low inflation, and substantial investment, leading to a notable convergence with advanced EU countries. The Greek economic miracle came to an end in 1974 due to factors such as high oil prices and the Cyprus crisis.

The second phase, spanning from 1974 to 1981, is characterized by the democratic transition and a shift in economic regimes. The Prime Minister Konstantinos Karamanlis played a significant role during this period, succeeded by Georgios Rallis. The removal of the ban on socialist parties in 1974 marked a turning point, with the Panhellenic Socialist Movement (PASOK) emerging as a key player in Greek politics. Economic recovery followed the oil shocks and the Cyprus crisis, with GDP per capita reaching over 80 percent of the EU15 average by the end of the 1970s.

The third phase, from 1981 to 1993, saw PASOK leading Greece in the first half, succeeded

by other democratic parties in the second half. Andreas Papandreou, son of former Prime Minister Georgios Papandreou, served two consecutive terms as the Prime Minister. The PASOK government initially focused on nationalization, income distribution, and social welfare, achieving improvements in social justice and national reconciliation. However, these policies led to severe damage to the Greek economy, resulting in increased deficits and stagnation[7]. Konstantinos Mitsotakis, leading the New Democracy, won the 1990 elections and undertook efforts to reduce budget deficits and bolster the economy, though structural adjustments such as privatization and liberalization were only partially successful.

The fourth phase, spanning from 1993 to 2000, was characterized by Greece's fiscal consolidation efforts to meet the convergence criteria for joining the eurozone. After PASOK won the 1993 elections, the Papandreou government returned, with Konstantinos Simitis succeeding Andreas Papandreou due to health issues. The European Council's decision to form an Economic and Monetary Union (EMU) in December 1991 set the stage for Greece's pursuit of meeting convergence criteria, including inflation, government deficits, exchange rates, and long-term interest rates. Facing significant adjustment challenges compared to other EU members, Greece had to address high inflation, a large budget deficit, and substantial public debt.

The first phase of the convergence policy (1994 to 1997) proved unsuccessful, prompting a shift in the goal to join the EMU in 2001. During the second phase, marked by improvements in monetary and fiscal policies, Greece made considerable progress. By 1999, inflation was at 2 percent, the long-term interest rate dropped to 6.4 percent, the fiscal deficit was 1.6 percent of GDP, and the public debt stood at 104.4 percent of GDP.

The fifth phase, from 2000 to 2008, began with enthusiasm and hope stemming from the adoption of the euro, accompanied by increased demand due to lower interest rates. However, this phase encountered with the onset of the financial crisis. Konstantinos Simitis led PASOK to victory in the 2000 elections, starting his second term. Greece officially became a member of the euro area on January 1, 2001. The New Democracy party won the 2004 and 2007 elections, with Konstantinos Karamanlis serving as Prime Minister.

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[7]In this timeframe, the autonomy of the Bank of Greece was questionable. Psalidopoulos (p. 273) noted that the Governor of the Bank of Greece concurrently served as the Minister of National Economy. This dual role raised concerns about potential conflicts of interest and could compromise the Bank of Greece's effectiveness in regulating credit and managing inflation.

Despite initial consolidation policies in the late 1990s, there was a reversal after joining the eurozone. In 2004, primary expenditures of the ordinary budget, including central government employee compensation, pensions, and grants, increased significantly, leading to a rise in the budget deficit to 6.1 percent. Instead of using international credit to support productive investments and enhance economic competitiveness, the Greek government borrowed to finance budget deficits. Concurrently, the current account deteriorated, with trade deficits escalating from 7 percent in 2001 to around 15 percent in 2008. Then this phase encountered with the onset of the financial crisis.

4 The Evolution of Greece's Public Finance

In the preceding section, we provided a comprehensive overview of Greece's political landscape, fiscal policies, and economic performance across five distinct phases spanning from 1950 to 2008. In this section, our focus shifts to a detailed examination of Greece's public finance data, shedding light on the evolution of government spending, revenue, deficits, and debt.

To initiate this analysis, we present a summary table encapsulating Greece's government expenditures and revenues from the years 1968 to 1971, drawing from the Greek Statistical Yearbook of Public Finance. The Hellenic Statistical Authority Digital Library (ELSTAT) serves as the source for the digital statistical yearbook covering the period from 1960 to 2008. Table 1[8] replicates the data from the table "Cash Transaction of the State Fiscal Years 1966 through 1971", with certain simplifications and adjustments applied.

On the expenditure side, the Greek central government's spending is categorized into three primary segments: the ordinary budget, investment budget, and NATO expenditures. Notably, NATO expenditure is relatively negligible compared to the other two categories and is thus deemed inconsequential for our analysis. Within the ordinary budget, further classification reveals two subcategories: current expenditure and investment expenditure.

On the revenue side, the funding of the ordinary budget hinges on taxes, other current revenue[9], and special investment revenue. Concerning investments, financing is derived from both domestic and foreign sources. Domestic sources encompass special investment revenue, state

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[8]Refer to Appendix A.1 for the original table.
[9]Refer to Appendix A.2 for detailed items of other current revenue.

Table 1: Greek government expenditures from 1968 to 1971 (Million drachmae)

	1968	1969	1970	1971
Total expenditures	52,109	65,544	65,126	73,875
1. Ordinary budget	43,201	55,208	52,843	60,654
a) Current expenditures	42,228	54,023	51,578	58,212
b) Investment expenditures	974	1,185	1,265	2,442
2. Investment budget	8,669	10,144	12,101	13,035
3. NATO expenditures	239	193	182	187

Table 2: Financing of ordinary budget from 1968 to 1971 (Million drachmae)

	1968	1969	1970	1971
Ordinary budget	43,201	55,208	52,843	60,654
Revenue for ordinary budget	45,196	50,716	56,160	61,862
a) Direct taxes	8,248	9,523	10,847	13,222
b) Indirect taxes	31,767	35,711	39,292	42,807
c) Revenue from state invest.	842	796	881	636
d) Other current revenue	4,340	4,686	5,140	5,197

loans, and contributions from the ordinary state budget. Table 3 highlights that investments heavily rely on both domestic and foreign loans, a characteristic trait evident in Greece's public finance during the pre-1974 regime. Notably, the ordinary budget is sustained by domestic revenues, while investment is predominantly funded through loans.

Transitioning to the post-1974 regime, Table 4[10] presents Greece's government expenditures under the state budget from 1979 to 1982, mirroring the categories outlined in Table 1. The primary components remain the ordinary budget and the investment budget. Notably, the data reveals a substantial surge in total expenditure from 1980 to 1981, primarily attributable to a marked increase in current expenditure. Examining Table 6, which outlines the financing sources for the ordinary budget from 1979 to 1982, two new items emerge from 1981 onwards: credit revenue and transfers from the European Economic Community (EEC). In this period, tax revenues experienced only a mild increase compared to the upswing in total expenditure.

Credit revenue, constituting loans from the Bank of Greece, became a pivotal instrument

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[10]Refer to Appendix A.4 for the original table.

Table 3: Financing of State investments 1968 to 1971 (Million drachmae)

	1968	1969	1970	1971
I. Expenditures	9,264	10,837	12,939	14,995
II. Financing	9,264	10,837	12,939	14,995
A. Domestic sources	7,349	8,661	10,181	12,266
1. Special investment revenue	842	796	881	636
2. State loans	4,300	5,000	5,600	7,325
3. Contribution of ordinary Sate budget	2,207	2,866	3,700	4, 305
B. Foreign sources	1,915	2,176	2,759	2,730
a) Aid	32	39	30	26
b) Loans	1,883	2,137	2,729	2,703

for the government in bridging the substantial gap between total expenditure and tax revenues, particularly from 1980 to 1981. The recourse to loans from both domestic and foreign banks to finance significant government deficits has been a noteworthy characteristic in Greece's public finance since 1981, resulting in a pronounced escalation of Greece's sovereign debt.

Table 4: Greek government expenditures from 1979 to 1982 (million drachmae)

	1979	1980	1981	1982
Total expenditure	376,746	423,115	733,076	794,295
1. Ordinary budget	326,775	372,784	668,014	708,747
a) Current expenditure	310,896	357,879	633,778	673,583
b) Investment expenditures	15,879	14,925	34,236	35,164
2. Investment budget	49,682	50,285	63,689	83,726
3. NATO expenditure	289	45	1,373	1,822

Figure 4 provides a visual representation of various government expenditure categories and financing sources relative to Greek gross national income. During the period from 1957 to 1974, key observations include a mild increase in the ratio of current expenditures to gross national income, a stable ratio of investment to gross national income, and the adequacy of domestic revenue to cover current expenditures. Notably, investments during this period were financed through borrowing, foreign aid, and domestic revenue.

Moving into the period from 1974 to 1980, both current expenditures and investments re-

Table 5: Financing of ordinary budget, 1979 to 1982 (million drachmae)

	1979	1980	1981	1982
Total revenue	376,810	423,117	733,078	722,734
Revenue for ordinary budget	312,360	358,216	633,634	601,804
a) Direct taxes	80,684	104,439	123,692	175,001
b) Indirect taxes	206,504	220,797	257,223	362,080
c) Credit revenue	-	-	211,092	12,656
d) Other revenue	25,174	32,980	32,137	36,655
e) Transfer from EEC	-	-	9,490	15,411

Table 6: Financing of investment, 1979 to 1982 (million drachmae)

	1979	1980	1981	1982
Revenue for investment budget	64,086	64,306	97,080	117,855
a) Revenue from state investment	2,096	862	2,304	1,299
b) EEC receipts	-	-	5,823	4,529
c) Foreign aid	79	91	98	86
d) Loans	61,911	63,354	89,955	111,942
Domestic	41,450	37,276	47,010	64,299
Foreign	20,461	26,078	42,945	47,643

mained stable, resembling the pre-1974 era. However, a significant shift occurred in 1981, marked by a pronounced and dramatic increase in current expenditures. This surge was attributed to the redistributive policies implemented by the PASOK government. Importantly, even after PASOK lost power in 1989, the rapid escalation of current expenditure persisted until 1994. It was only in 1994 that a decline in current expenditure began, coinciding with the initiation of reforms by the Greek government to meet convergence criteria.

The pressing question of how the Greek government financed the substantial increase in current expenditure finds its answer in loans from the Bank of Greece. Figure 4 graphically illustrates the rapid escalation of borrowing parallel to the increase in current expenditure. Notably, prior to 1974, borrowing was primarily utilized for financing investments. However, starting in 1981, substantial amounts of loans from the Bank of Greece were redirected to fund current expenditures, marking a significant departure from historical fiscal practices.

In Figure 5, Greece's budget deficit and primary deficit are illustrated in relation to gross
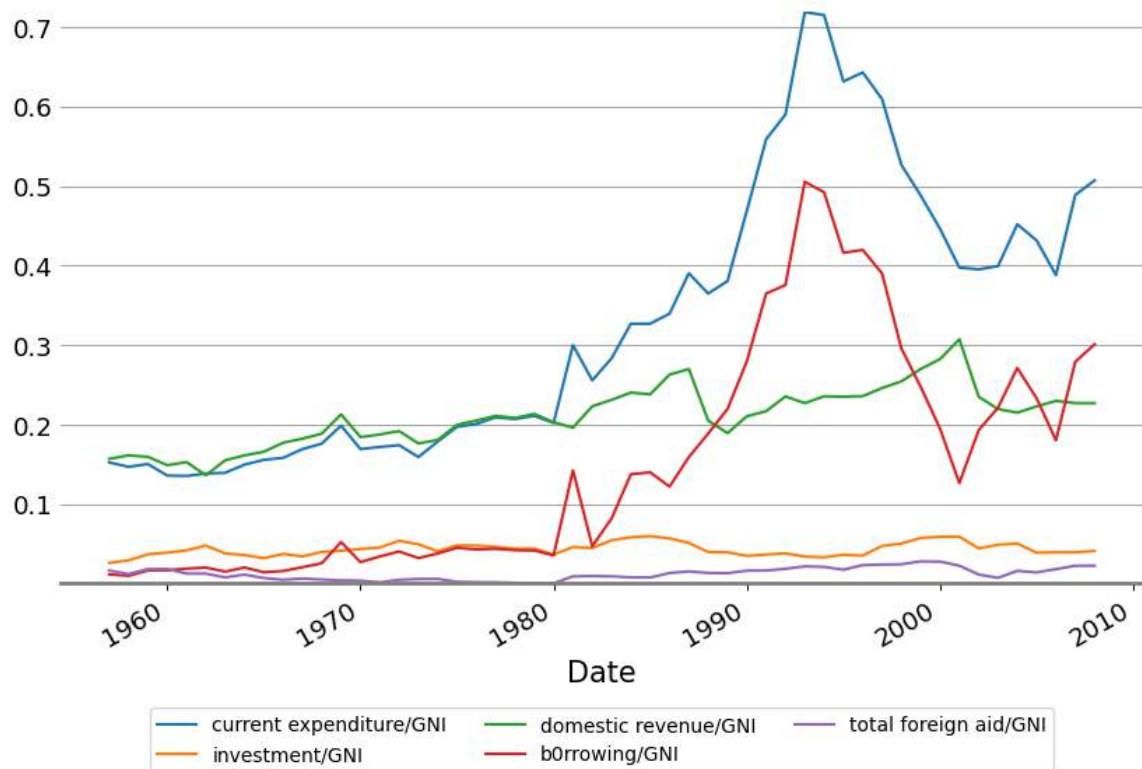
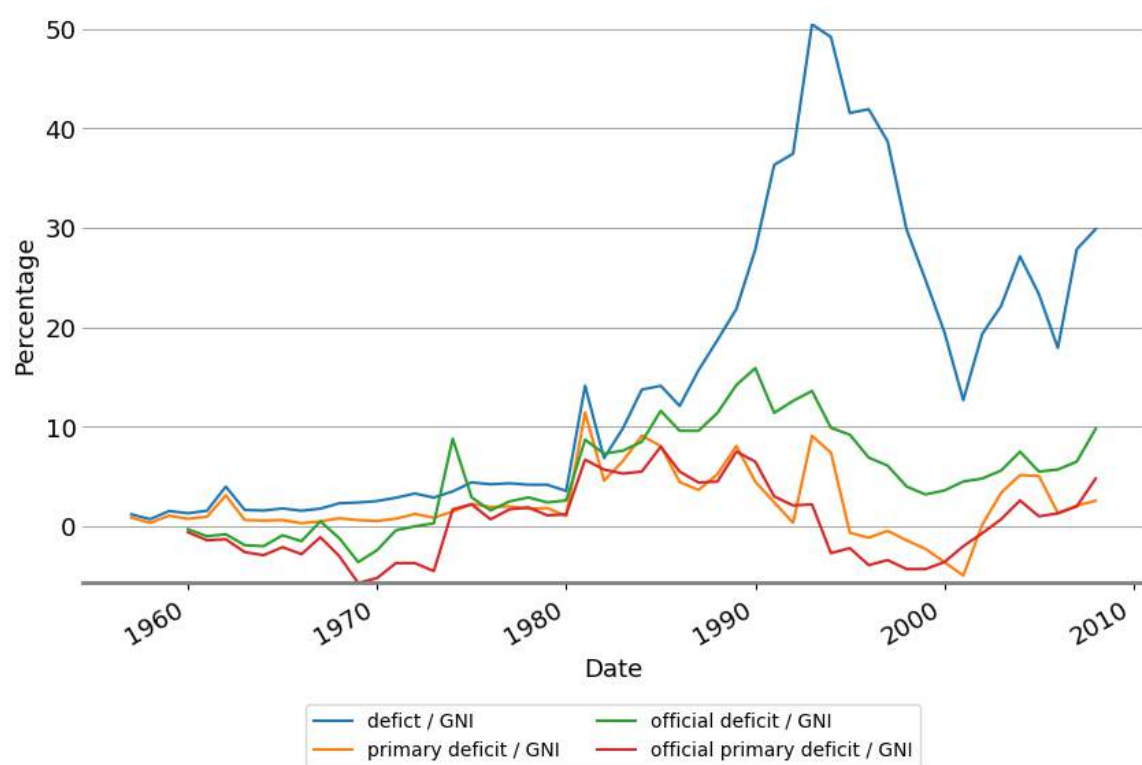Figure 4: Greek government's expenditures and revenues

Figure 5: Greek government's deficit and primary deficit

national income over the period from 1957 to 2008. The primary deficit represents the variance between government expenditures, excluding interest payments, and revenue. To determine government expenditures, I utilize the total expenditure figures from Table 1 and Table 4, encompassing the sum of ordinary budget, investment budget, and NATO expenditures. However, it's important to note that the Greek government has relied on loans to finance investments since 1957 and began utilizing loans to fund the ordinary budget from 1981. In order to more accurately portray the Greek government's revenue-raising capacity, I exclude loan figures, both domestic and foreign, from revenue calculations. However, all forms of foreign aids and transfers are considered as revenue. Therefore, the calculated total revenue includes direct taxes, indirect taxes, other current revenue, revenue from state investment programs, and all types of foreign aid and transfers. For interest rate payments,it refers to the public debt-related payments figure from the public finance statistics yearbook. This figure encompasses interest payments, public debt amortizations, public debt expenses, and payments related to state guarantees in favor of third parties.

Figure 5 compares the government deficit and primary deficit figures reported by Bank of Greece (Psalidopoulos) with the figures calculated in this paper after excluding bank loans from the revenue. It is evident that upon excluding bank loans from the revenue, the deficits figures are much larger than the reported official figures.

5   Methodology

In this paper, I will employ two empirical methods to assess the sustainability of Greek government's debt: the cointegration test (Trehan and Walsh [1991]) and the fiscal reaction function test (Bohn [2007]).

BohnBohn [2007] defines ad hoc sustainability as follows:

Ad hoc sustainability: Fiscal policy satisfies ad hoc sustainability if it follows a trajectory where the present value of expected future primary surpluses equals the initial debt.

According to the given definition, equation (3) indicates that ad hoc sustainability holds only if the present value of future debt converges to zero, as shown in equation (4). Equation (4) effectively rules out the possibility of Ponzi schemes, where the government continuously
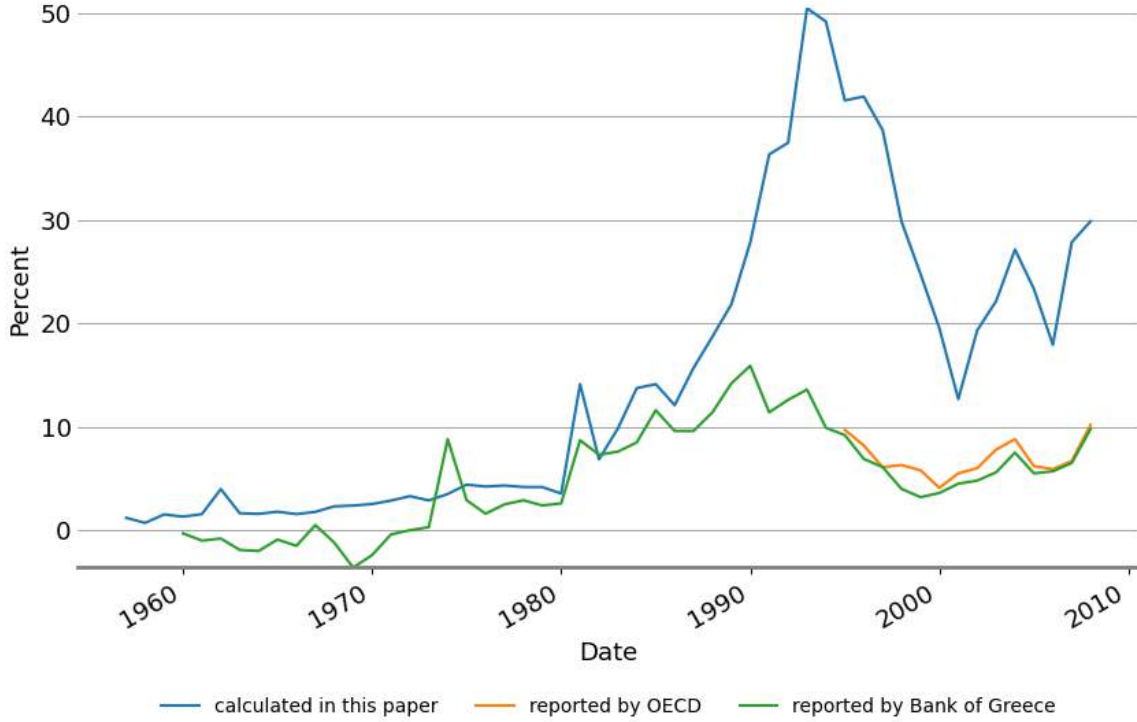
Figure 6: Greek government's deficit/GNI ratio from different sources

rolls over public debt. Without adherence to this condition, the government could potentially increase current expenditure while keeping current taxes constant, thereby leaving future taxes and expenditures unchanged.

5.1 Trehan and Walsh's cointegration test

Trehan and Walsh's cointegration Test: If the evolution of D_t is given by equation (1) with $E(i_{t+j}) = i$[11] for all $j \geq 0$, and $(1 - \lambda L)PB_t$ is a mean zero stationary stochastic process with $0 \leq \lambda < 1 + i$, then equation (4) holds if and only if there exists a linear combination of D_{t-1} and PB_t, $D_{t-1} + \mu PB_t$, which is stationary with $\mu < 0$.

The method proposed by Trehan and Walsh [1991] generalizes some special cases discussed previously. One such case arises when $\lambda = 0$, as discussed by Hamilton and Flavin [1986]. Here, when $\lambda = 0$, it implies that the primary balance process is stationary. Consequently, according to the long run budget constraint, the government debt series should also be stationary. An

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[11]This assumption may be deemed questionable if we consider nominal interest rates; however, it holds more validity when utilizing real interest rates. To mitigate this concern, government debt and the primary balance are divided by gross national income. Another rationale for this adjustment is to circumvent confusion arising from varying currencies, particularly since Greece adopted the euro in 2001.

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example under this circumstance is as follows: assume debt stock at period 0, D_0, is equal to $\bar{D}$ and $PB_t = i * \bar{D}$ for $t = 1, 2, 3, ...$ This implies $D_t = \bar{D}$ for $t = 1, 2, 3, ...$ Equation (4) can be expressed as

$$\lim_{t \to \infty} \frac{\bar{D}}{(1+i)^t} = 0. \tag{6}$$

Thus, the present value of future debt converges to zero when time approaches infinity. Additionally, the cointegration relationship between D_{t-1} and PB_t is given by $D_{t-1} - \frac{1}{i} * PB_t = 0$. In essence, the government debt behaves like a perpetual bond.

Another interesting scenario arises when the primary budget deficit can cover only a portion of the debt interest payment. Wilcox [1989] examines a stochastic version of this, but I will present a simpler example here. Let's suppose that the balance covers only half of the debt interest payment, leading to $PB_t = \frac{1}{2}i * D_{t-1}$. In this case, we have

$$D_t = (1+i)D_{t-1} - \frac{1}{2}i * D_{t-1} = (1 + \frac{1}{2}i)D_{t-1}.$$

Given the initial government debt D_0, D_t can be expressed as

$$D_t = (1 + \tfrac{1}{2}i)^t D_0.$$

The present value of D_t when t approaches infinity is

$$\lim_{t \to \infty} \frac{D_t}{(1+i)^t} = \lim_{t \to \infty} (1+i)^{-t}(1 + 1/2i)^t D_0 = 0. \tag{7}$$

We can generalize this case further: suppose the government primary balance can only cover a fraction α of the debt interest payment, where $0 < \alpha < 1$. Then we have

$$PB_t = \alpha * i * D_{t-1},$$
$$D_t = (1+i)D_{t-1} - \alpha * i * D_{t-1} = (1 + i - \alpha * i)D_{t-1} = (1 + i - \alpha * i)^t D_0.$$

The present value of D_t when time approaches infinity is

$$\lim_{t \to \infty} \frac{D_t}{(1+i)^t} = \lim_{t \to \infty} \frac{(1 + i - \alpha * i)^t D_0}{(1+i)^t} = \lim_{t \to \infty} \left(\frac{1 + i - \alpha * i}{1 + i}\right)^t D_0 = 0. \tag{8}$$

5.2 Fiscal reaction function test

Bohn [2007] demonstrates that if D_t is integrated of finite order m for any $m > 0$, then equation (4) is fulfilled, and the long run budget constraint (5) remains valid. This is because if D_t is integrated of finite order m, $E(D_{t+j})$ amounts to at most a polynomial of order m. Consequently, when $E(D_{t+j})$ is discounted by $(1 + i)^j$, the exponential growth of the discount factor supersedes the polynomial growth of $E(D_{t+j})$ (D'Erasmo et al. [2016]).

Bohn's fiscal reaction function test: If the primary balance PB_t follows an increasing linear function of D_{t-1},

$$PB_t = \mu_t + \rho D_{t-1} + \epsilon_t \tag{9}$$

for all t, where $\rho > 0$, μ_t is a composite of other determinants, and ϵ_t is independently and identically distributed, then the government's long run budget constraint is satisfied.

The cointegration test, in fact, can be regarded as a special case of the fiscal reaction function test. When the primary balance is stationary or first-difference stationary, it necessitates cointegration between government debt and the primary balance, indicating parallel trends between the two variables. Consequently, the debt series must also exhibit stationarity or first-difference stationarity, respectively. Conversely, if the government debt and primary balance are integrated of higher orders, the primary balance must exhibit a positive average response to government debt to ensure debt sustainability.

In my empirical test, I will not concentrate on the absolute levels of economic variables but rather their ratios to nominal GNI[12]. Dividing both sides of equation (8) by GNI_{t-1}, the nominal GNI of period $t - 1$, yields:

$$\frac{D_{t-1}}{GNI_{t-1}} = \frac{1}{1 + i_t} \left(\frac{PB_t}{GNI_t} * \frac{GNI_t}{GNI_{t-1}} + \frac{D_t}{GNI_t} * \frac{GNI_t}{GNI_{t-1}} \right). \tag{10}$$

This equation can be rewritten as:

$$d_{t-1} = \frac{1 + g_t}{1 + i_t} (pb_t + d_t) \tag{11}$$

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[12]he Greek government's public finance statistical yearbooks solely present the value of Gross National Income (GNI). I cross-referenced this data with GDP values obtained from alternative sources and found minimal discrepancies between the two.

where d_t is the ratio of D_t to GNI_t, pb_t is the ratio of PB_t to GNI_t, and g_t is the growth rate of nominal GNI.

6 Empirical Test Results

In this section, I will utilize empirical test methods to evaluate the sustainability of Greek government debt across five distinct time periods: 1957 to 1974, 1957 to 1981, 1957 to 1993, 1957 to 2000, and 1957 to 2008. It is crucial to highlight that the test results should refute debt sustainability for the period spanning from 1957 to 2008; otherwise, the credibility of these assessments would be compromised. Moreover, my objective is to pinpoint the moment when Greek government debt became unsustainable. To achieve this goal, I have selected 1981, 1993, and 2000 as pivotal points due to significant shifts in fiscal policies resulting from changes in government administrations or the adoption of the euro.

The period from 1957 to 1974 warrants attention due to surprising test results, prompting a deeper examination of Greece's public finance issues back to an earlier period than initially presumed. Several reasons support the selection of 1974 as a separating point. Firstly, there was a notable change in fiscal policy regimes in 1974, as indicated by Alogoskoufis [1995], transitioning from the pre-1974 regime to the post-1974 regime. Additionally, Greece returned to democracy in 1974, and this political shift could have influenced Greek public finance dynamics.

The year 1981 serves as a pivotal moment because the communist party PASOK won the elections, initiating numerous welfare-oriented programs emblematic of the post-1974 fiscal policy regime. Furthermore, Greece's accession to the EEC in 1981 had profound effects, notably on tariffs collected, the current account, and possibly on Greek government public finance due to abundant subsidies and transfers received from the EEC.

The year 1993 marked a critical juncture for Greece as a new government assumed office and introduced a convergence program for the period 1994 to 1999, initiating fiscal consolidation procedures. Finally, 2000 stands as a significant milestone for Greece with its entry into the euro zone.

6.1 Empirical test results for period from 1957 to 2008

I begin by applying the cointegration test method to the period from 1957 to 2008. To conduct the cointegration test, it is imperative to ensure that the series of primary balance or its first difference is mean-zero stationary. To assess stationarity, I utilize the augmented Dickey-Fuller (ADF) test. The regression equation for an ADF test is:

$$\Delta Y_t = \beta_0 + \gamma Y_{t-1} + \sum_{i=1}^{k} c_i \Delta Y_{t-i} + \epsilon_t \tag{12}$$

The null hypothesis is $\gamma = 0$, indicating the presence of unit root in the Y_t series. If the statistics is negative enough to reject the null hypothesis, it indicates the Y_t series is stationary. The Akaike and Schwartz Information Criteria (AIC) is employed to determine the number of lags k.

Table 7 presents the results, indicating a significantly negative estimate of γ, suggesting that the level of primary balance for the sample period from 1957 to 2008 is stationary. However, the estimate of constant β_0 is -0.010 and significant, indicating that, on average, the Greek government ran a primary deficit equivalent to one percent of GDP. As the level of primary balance is not mean-zero stationary, further testing is required to assess the stationarity of the first difference of the primary balance.

Table 8 illustrates that the estimate of γ is significantly negative, and the constant is zero and significant. Therefore, the first difference of the primary balance for the sample period from 1957 to 2008 is stationary, with a mean of zero. The prerequisite for applying the cointegration test is satisfied.

Table 7: Unit root test of primary balance for period from 1957 to 2008

Sample period	constant	P-value	γ	P-value	Number of lags
1957 to 2008	-0.010	0.042	-0.409	0.007	0

The regression equation for the cointegration test between the Greek government debt D_{t-1} and primary balance PB_t is

$$D_{t-1} = \mu * PB_t + \epsilon_t \tag{13}$$

Table 8: Unit root test of the first difference of primary balance for period from 1957 to 2008

Sample period	constant	P-value	γ	P-value	Number of lags
1957 to 2008	-0.001	0.863	-1.915	0.000	2

If μ is significantly positive and the residual ϵ_t is stationary, D_{t-1} and PB_t are said to be cointegrated and the Greek government debt satisfies ad hoc sustainability.

Table 9: Cointegration test results for the period from 1957 to 2008

Sample period	μ	P-value	Stationarity of ϵ_t
1957 - 2008	-6.383	0.003	Non-stationary

The cointegration test results for the time period 1957 to 2008 are presented in Table 9. The residuals ϵ_t are found to be non-stationary, indicating that the Greek government debt D_{t-1} and primary balance PB_t are not cointegrated. In addition, the estimate of μ is negative and significant. This means the government debt and primary balance don't exhibit parallel trends, thereby violating the assumption of the cointegration test.

To visually represent the relationship between government debt and the primary balance, Figure 7 displays both variables. It is obvious from Figure 7 that the government debt exhibits a positive trend on average from 1957 to 2008, whereas the primary balance fluctuates mostly below zero. This discrepancy indicates the absence of a parallel trend between government debt and the primary balance over the entire sample period from 1957 to 2008.

Having completed the cointegration test, I now shift our focus to the fiscal reaction function test. This test is comparatively simpler and more direct than the cointegration test. The regression equation for the fiscal reaction function test is expressed as:

$$PB_t = \alpha + \beta * D_{t-1} + \epsilon_t \tag{14}$$

If the coefficient β is positive and significant, it means the primary balance responds positively to the change of government debt, suggesting that the government debt is sustainable.

The results of the fiscal reaction function test for the time period from 1957 to 2008 are presented in Table 10. The estimate of β is negative, indicating that, on average, the govern-
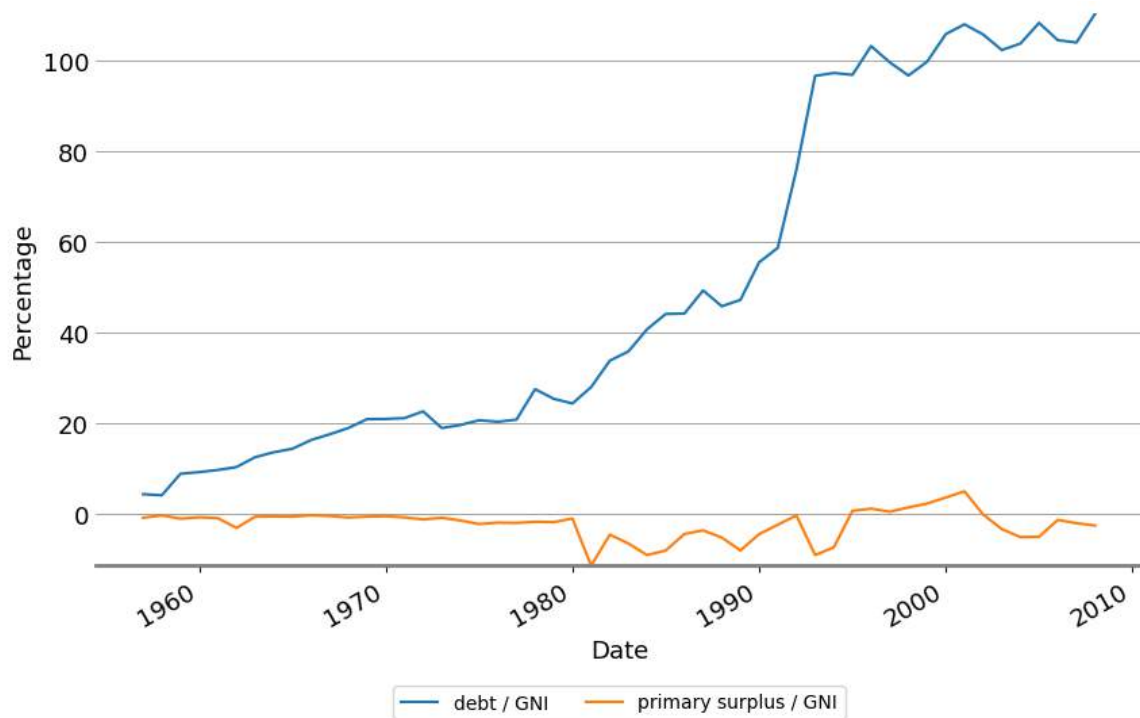
Figure 7: Greek government debt and primary balance

ment did not implement effective measures to increase the primary balance in response to the increasing government debt. The lack of responsiveness in government budget policies violates the requirement necessary for debt sustainability.

Table 10: Fiscal reaction function test result for the period from 1957 to 2008

Sample period	α	P-value	β	P-value
1957 - 2008	-0.026	0.000	-0.009	0.493

6.2 Empirical test results for sub-sample periods

In the last subsection, I apply the cointegration test and fiscal reaction test to the entire sample period from 1957 to 2008. Both of these tests confirm that the Greek government debt was not sustainable during this period. An immediate question arises: when did the Greek government debt become unsustainable?

One approach to answering this question is to exclude the year 2008 from the data and apply the two tests to the period from 1957 to 2007. Subsequently, I can repeat this process for the periods from 1957 to 2006. However, this method is cumbersome and does not offer

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significant economic insights into how the pattern of debt sustainability was influenced by fiscal and political regimes. Therefore, I opt for a more nuanced approach by dividing the sample period into four sub-periods: 1957 to 1974, 1957 to 1981, 1957 to 1993, and 1957 to 2000. I then apply the two test methods to each of these sub-samples.

Table 11: Unit root test of primary balance for sub-sample periods

Sample period	constant	P-value	γ	P-value	Number of lags
1957 to 1974	-0.009	0.007	-0.981	0.004	0
1957 to 1981	-0.007	0.525	-0.160	0.937	1
1957 to 1993	-0.009	0.201	-0.214	0.720	3
1957 to 2000	-0.009	0.101	-0.404	0.032	0

I start by applying the cointegration test to the four sub-sample periods. Similar to before, I need to ensure that the series of primary deficit or its first difference is mean-zero stationary. Table 11 displays the unit root test results for the level of primary balance for the four sub-sample periods. It is observed that only the primary balance for the period from 1957 to 2000 is marginally mean zero stationary, with a P-value for the constant of 0.101. The primary balance for the period from 1957 to 1974 is stationary but not mean zero. Conversely, the primary balances for the periods from 1957 to 1981 and from 1957 to 1993 are neither stationary nor mean zero.

Table 12 shows that the first difference of the primary balances for the all sub-sample are stationary, with a mean of zero. The prerequisite for applying the cointegration test is satisfied.

The cointegration test results for the four sub-sample periods are presented in Table 13. The estimates of μ for all the four sub-samples are negative and significant, contradicting the requirement that μ must be positive. This constitutes clear evidence that the Greek government

Table 12: Unit root test of the first difference of primary balance for sub-sample periods

Sample period	constant	P-value	γ	P-value	Number of lags
1957 to 1974	-0.001	0.740	-1.468	0.000	0
1957 to 1981	-0.005	0.301	-1.987	0.012	0
1957 to 1993	-0.003	0.490	-2.689	0.000	2
1957 to 2000	0.002	0.686	-2.231	0.000	2

debt violates the ad hoc sustainability even for the period from 1957 to 1974. This finding is surprising, as it challenges our initial assumption that Greek public finance issues began to surface only in the 1980s.

Table 13: Cointegration test results for sub-sample periods

Sample period	μ	P-value	Stationarity of ϵ_t
1957 - 1974	-10.506	0.001	Non-stationary
1957 - 1981	-4.254	0.001	Non-stationary
1957 - 1993	-6.111	0.000	Stationary
1957 - 2000	-5.112	0.004	Non-stationary

To corroborate our findings from the cointegration test, I apply the fiscal function test to the four sub-samples. The results are presented in table 14. It shows that the estimates of μ for all four sub-samples are not significantly positive, providing evidence that Greek government debt violates the ad hoc sustainability for all four time periods.

Upon further examination of the results for each time period, additional insights emerge. For the period from 1957 to 1974, although the estimate of μ is positive, even though not significant. This suggests that while the Greek government debt violated the ad hoc sustainability during this period, the positive sign of the estimate of μ indicates that it was not overly challenging for the Greek government to steer their public finance towards a sustainable path.

Conversely, for the periods from 1957 to 1981 and from 1957 to 1993, the estimates of μ are both negative. These findings provide evidence that fiscal policies implemented in the late 1970s and 1980s exacerbated Greece's public finance situation.

Interestingly, the estimate of μ becomes positive again for the period from 1957 to 2000, although it remains statistically insignificant. This implies that the fiscal consolidation measures undertaken to meet the convergence criteria were moving Greece's public finance in the right direction, albeit insufficiently.

7   Policy Implications

The Greek debt crisis, initially perceived as improbable by many (Cottarelli et al. [2010]), inflicted an unprecedented recession on the Greek economy. It was only halted through the

Table 14: Fiscal reaction function test results for sub-sample periods

Sample period	α	P-value	β	P-value
1957 - 1974	0.010	0.033	0.009	0.748
1957 - 1981	-0.002	0.865	-0.106	0.144
1957 - 1993	0.001	0.874	-0.103	0.000
1957 - 2000	0.029	0.002	0.009	0.610

implementation of stringent austerity measures and multiple rounds of international bailout packages. This crisis serves as a stark warning regarding the importance of fiscal monitoring and the independence of central banks.

First, the Greek debt crisis underscores the significant repercussions of public finance data manipulation, concealment, and negligence. Drawing parallels to Heinrich's Law[13](Heinrich et al. [1941]) regarding industrial accident prevention, it can be argued that for every major debt crisis, there are numerous missed opportunities that could have prevented or mitigated the ensuing damages. Had the manipulation of public finance data been exposed prior to Greece's accession to the eurozone, the crisis might have been averted. Similarly, had fiscal consolidation measures been sustained after Greece's adoption of the euro, the trajectory of Greek public finance could have been steered towards a healthier path. Furthermore, if the eurozone had conducted a more thorough investigation into Greece's 2004 public finance auditing scandal or treated the issue with greater seriousness, the crisis could have been defused before reaching the magnitude of a financial catastrophe.

Secondly, the banking sector played a pivotal role in the accumulation of Greek government debt, with particular emphasis on the Bank of Greece. It is important to highlight the significant role played by the Currency Committee in maintaining the independence of the Bank of Greece. Established in 1946, the Currency Committee operated as an autonomous entity within the Bank of Greece (Psalidopoulos, p.34). Comprising two government members, the Governor of the Bank of Greece, and two foreign experts, this committee served as the supreme authority responsible for making decisions regarding monetary and credit policies. However, its dissolution in 1982 marked a significant shift, leading to the widespread availability of credit

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[13]It says in a workplace, for every accident that causes a major injury, there are 29 accidents that cause minor injuries and 300 accidents that cause no injuries.

to the Greek government. Despite the establishment of the Bank of Greece's independence following Greece's accession to the eurozone, the Greek government continued to have access to credit from other commercial banks.

8   Conclusion

The challenge of accessing reliable public finance data has been a hurdle for research on Greek sovereign debt sustainability. However, we have gathered detailed data from the statistical yearbooks of public finance spanning 1962 to 2008, accessible on the Hellenic Statistical Authority website. While we cannot independently verify the data's accuracy, we consider it more credible compared to other sources available. Our hand-collected data reveals Greece's consistent use of domestic and foreign loans to fund investment programs since 1957. Notably, after the election victory of PASOK in 1981, a significant surge in current expenditures occurred, predominantly financed through loans.

Employing the cointegration test and fiscal reaction function test on the collected dataset, both methods reinforce the conclusion that Greek government debt was unsustainable between 1957 and 2008. Surprisingly, even as early as 1974, the government debt exhibited signs of unsustainability. Our findings underscore that fiscal policies in the late 1970s and 1980s exacerbated the situation, while the fiscal consolidation efforts in the 1990s yielded positive yet insufficient outcomes for Greece's public finance.

Our study unequivocally establishes that mismanagement of government spending stands as the primary driver behind the Greek debt crisis. Furthermore, we aim to rekindle economists' interest in empirical testing of government debt sustainability. Despite the simplicity of the two test methods we employed, they emerge as crucial tools in scrutinizing government public finance conditions and comprehending how specific fiscal policies can impact sovereign debt sustainability..

A Appendix

A.1 Cash transaction of the State. Fiscal years 1966 through 1971.

II : 3. Ἀποτελέσματα δημοσιονομικῆς διαχειρίσεως. Οἰκον. ἔτη 1966 μέχρι καὶ 1971
Cash transaction of the State. Fiscal years 1966 through 1971

Εἰς ἐκατομμύρια δραχμῶν — Million drachmae

	1966	1967	1968	1969	1970	1971	
I. Ἔσοδα ἐξ ἐγχωρίων πόρων (πλὴν δανείων)	34.945	40.219	45.196	50.716	56.160	61.862	I. Revenue from domestic sources (excl. loans)
α) Ἄμεσοι φόροι	5.666	6.729	8.248	9.523	10.847	13.222	a) Direct taxes
β) Ἔμμεσοι φόροι	24.682	28.250	31.767	35.711	39.292	42.807	b) Indirect taxes
γ) Ἔσοδα κρατικῶν ἐπενδύσεων	874	1.591	842	796	881	636	c) Revenue from state invest.
δ) Λοιπὰ ἔσοδα	3.723	3.649	4.340	4.686	5.140	5.197	d) Other revenue
II. Δαπάναι	39.039	45.630	52.109	65.544	65.126	73.875	II. Expenditures
1. Τακτικὸς προϋπολογισμός	31.777	38.083	43.201	55.208	52.843	60.654	1. Ordinary budget
α) Τρέχουσαι δαπάναι	31.199	37.341	42.228	54.023	51.578	58.212	a) Current expenditures
β) Δαπάναι ἐπενδύσεων μὴ ἐνταγμέναι εἰς τὸ πρόγραμμα οἰκονομικῆς ἀναπτύξεως (8.100)	326	407	381	491	399	455	b) Investment expenditures not included in the economic development program (8.100)
γ) Δαπάναι ἐπενδύσεων ἐνταγμέναι εἰς τὸ πρόγραμμα οἰκονομικῆς ἀναπτύξεως (1) (8.200)	252	335	593	694	866	1.987	c) Investment expenditures included in the economic development program(1) (8.200)
2. Προϋπολογισμὸς ἐπενδύσεων	6.831	6.882	8.669	10.144	12.101	13.035	2. Investment budget
3. Δαπάναι NATO	431	666	239	193	182	187	3. NATO expenditures
III. Ἀποτελέσματα I-II	-4.094	-5.411	-6.913	-14.828	-8.966	-12.013	III. Results I-II
Κάλυμμα	4.114	5.411	6.916	14.904	8.970	12.013	Financing
1. Μεταβιβάσεις ἐκ τοῦ ἐξωτερικοῦ	538	763	683	622	628	350	1. Foreign sources
α) Ἀμερικανικὴ βοήθεια (δωρεά)	51	16	14	7	—	—	a) American aid (grants)
β) Εἰσφορὰ κρατῶν-μελῶν NATO	431	666	238	193	182	187	b) Contribution of NATO member-countries
γ) Εἰδικὴ συμβολὴ NATO, διὰ δαπάνας ἀμύνης	—	—	—	17	1	—	c) Special NATO contribution for defence expenditures
δ) Ἐπανορθώσεις	1	—	—	—	—	—	d) Reparations
ε) Λοιπαὶ (2)	55	82	431	405	445	163	e) Other (2)
2. Δάνεια	3.201	4.648	6.232	14.282	8.343	11.662	2. Loans
α) Ἐσωτερικοῦ	2.111	4.413	4.349	12.145	5.614	8.959	a) Domestic
Ἔντοκα γραμμάτια	1.200	2.600	2.500	3.000	3.400	4.400	Interest bearing treasury bills
Δάνεια οἰκονομικῆς ἀναπτύξεως	900	(4) 1.800	1.800	2.000	2.200	2.350	Economic development loans
Λοιπὰ (3)	11	13	49	(5) 7.145	14	(6) 2.209	Other (3)
β) Ἐξωτερικοῦ	1.090	235	1.883	2.137	2.729	2.703	b) Foreign
Ἀμερικανικὴ βοήθεια (δάνεια)	147	—	27	15	28	—	American aid (loans)
Λοιπὰ δάνεια	943	235	1.856	2.122	2.701	2.703	Other
3. Εἰδικαὶ προκαταβολαὶ Τραπέζης τῆς Ἑλλάδος ἔναντι συναφθησομένων δανείων ἐσωτερικοῦ - ἐξωτερικοῦ	375	—	—	—	—	—	3. Special advances of the Bank of Greece against domestic-foreign loans

(1) ΣΥΚΕΑ, ὀρεινὴ οἰκονομία κλπ.
(2) Βοήθεια Ὑπάτης Ἁρμοστείας ΟΗΕ διὰ τοὺς πρόσφυγας. Βοήθεια NATO δι' ἀποστολὴν Ἑλλήνων ὑποτρόφων εἰς ἐξωτερικὸν πρὸς μετεκπαίδευσιν, ὡς καὶ ἀπολήψεις παρὰ κρατῶν - μελῶν NATO ἔναντι παρεχομένων ὑπηρεσιῶν κλπ.
(3) Χρεολύσια δανείων ἐσωτερικοῦ καὶ προϊὸν ὁμολογιακοῦ δανείου δι' ἀποζημίωσιν πρὸς ἀποκαταστασιν ἀκτημόνων.
(4) Ἐξ ὧν, 300 ἑκατ. δρχ. δανεισμὸς Δημοσίου παρὰ τῆς Τραπέζης τῆς Ἑλλάδος πρὸς μερικὴν ἀποκατάστασιν βραχυχρονίου τραπεζικῆς χρηματοδοτήσεως πρὸς ἐργολήπτας ἔργων Δημοσίων ἐπενδύσεων.
(5) Περιλαμβάνεται ποσὸν 7.049 ἑκατ. δρχ. ἐκ δανεισμοῦ τοῦ Δημοσίου παρὰ τῆς Τραπέζης Ἑλλάδος πρὸς κάλυψιν δαπανῶν διαγραφῆς ἀγροτικῶν χρεῶν (Α.Ν. 454/68).
(6) Δανεισμὸς τοῦ Δημοσίου παρὰ τῆς Τραπέζης τῆς Ἑλλάδος : α) ἐξ 1.630 ἑκατ. δρχ. πρὸς ἐξόφλησιν ὀφειλῶν πρὸς τὴν Ἀγροτικὴν Τράπεζαν τῆς Ἑλλάδος (Ν.Δ. 865/71) καὶ β) ἐκ 575 ἑκατ. δρχ. πρὸς κάλυψιν δαπανῶν τοῦ Προγράμματος Δημοσίων Ἐπενδύσεων.

(1) SYKEA works, mountainous economy etc.
(2) Assistance granted by the UNO High Commissioner for the refugees. NATO assistance for fellowships awarded to Greeks to be trained abroad, receipts from member-countries for services offered etc.
(3) Amortization of domestic loans and proceeds of economic development State loans for restoring persons possessing no property.
(4) Thereof 300 m. drs. represent State loan from the Bank of Greece for partial settlement of short-term bank financing towards contractors of State investments works.
(5) Amount of 7.049 m. drs., representing the Government's borrowing from the Bank of Greece for writing off the farmer's debts, is also included (E.L. 454/68).
(6) The Government's borrowing from the Bank of Greece: a) 1.630 m. drs. for paying off debt to the Agricultural Bank of Greece (L.D. 865/71) and b) 575 m. drs. for covering expenditures of State Investments program.

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A.2 Analysis of the State budget revenue, by sources of origin. Fiscal years 1966 through 1971.

III : 4. Ἀνάλυσις ἐσόδων κρατικοῦ προϋπολογισμοῦ, κατὰ πηγὰς προελεύσεως αὐτῶν.
Οἰκον. ἔτη 1966 μέχρι καὶ 1971

Analysis of the State budget revenue, by sources of origin. Fiscal years 1966 through 1971

Εἰς ἐκατομμύρια δραχμῶν   *Million drachmae*

Κύριαι πηγαί προελεύσεως ἐσόδων	1966	1967	1968	1969	1970	1971	Principal sources of revenue
Γενικὸν σύνολον ἐσόδων	38.685	45.631	52.112	65.620	65.130	73.875	Grand total of revenue
Ι. ΕΣΟΔΑ ΤΑΚΤΙΚΟΥ ΠΡΟ·Υ·ΠΟ-ΛΟΓΙΣΜΟΥ	34.081	38.641	44.416	57.066	55.293	62.860	I. ORDINARY BUDGET
Α΄ Ἐξ ἐγχωρίων πόρων	34.081	38.641	44.403	57.066	55.293	62.860	A. From domestic sources
1. Ἄμεσοι φόροι..................	5.666	6.729	8.248	9.523	10.847	13.222	1. Direct taxes
α) Φόρος ἐπὶ τοῦ εἰσοδήματος	3.876	4.705	5.370	6.071	7.325	8.935	a) Income tax
Φόρος εἰσοδήματος φυσικῶν προσώπων........	2.914	3.602	4.175	4.893	5.890	7.267	Income tax of individuals
Φόρος εἰσοδήματος νομικῶν προσώπων........	637	738	740	720	983	1.178	Income tax of legal entities
Εἰδικαὶ κατηγορίαι φόρων εἰσοδήματος καὶ ἄλλων προσόδων. (1)	325	366	455	458	452	490	Special categories of income taxes and other earnings (1)
β) Φόροι ἐπὶ τῆς περιουσίας......	629	798	1.062	1.275	1.409	1.697	b) Property tax
γ) Ἄμεσοι φόροι παρελθόντων ἐτῶν	627	620	1.119	1.329	1.198	1.467	c) Back taxes and arrears due
δ) Ἄμεσοι φόροι ὑπὲρ τρίτων (ΟΓΑ) (2)	393	486	525	620	689	866	d) Taxes in favour of third parties (FSIO) (2)
ε) Λοιποὶ ἄμεσοι φόροι(3)	141	120	172	228	226	256	e) Other direct taxes(3)
2. Ἔμμεσοι φόροι	24.682	28.250	31.767	35.711	39.292	42.807	2. Indirect taxes
α) Τελωνειακὰ ἔσοδα	11.043	11.814	12.687	14.136	15.164	16.230	a) Revenue from Custom Offices
Φόροι καὶ τέλη ἐπὶ τῶν εἰσαγωγῶν	4.228	4.485	4.496	5.089	5.174	5.395	Import taxes and dues
Εἰδικαὶ εἰσφοραὶ ἐπὶ τῶν εἰσαγομένων (4)	98	121	98	100	113	139	Special contributions on imported goods(4)
Φόροι καταναλώσεως ἐπὶ τῶν εἰσαγομένων..	6.710	7.196	8.068	8.929	9.861	10.677	Consumption taxes on imported goods
Λοιποὶ φόροι εἰσαγωγῆς (τέλη ἐξαγωγῆς)	6	12	25	18	17	19	Other import taxes (export dues)
β) Φόροι ἐπὶ τῆς καταναλώσεως...	7.732	8.858	9.541	10.392	11.314	12.249	b) Consumption taxes
Φόροι κύκλου ἐργασιῶν	1.846	2.053	2.242	2.499	2.830	3.127	Business turnover tax
Φόροι καπνοῦ (5)	3.212	3.701	3.943	4.191	4.491	4.730	Tobacco tax (5)
Φόροι οἰνοπνεύματος καὶ οἰνοπνευματωδῶν ποτῶν	558	610	600	588	612	622	Tax on alcohol and alcoholic drinks
Φόροι ψυχαγωγίας καὶ πολυτελείας	517	552	559	565	565	570	Entertainment and luxury taxes
Τέλη μεταφορῶν.......................	1.387	1.685	1.873	2.164	2.450	2.796	Transport dues
Λοιποὶ φόροι καταναλώσεως (6)	212	257	324	386	367	404	Other consumption taxes (6)
γ) Φόροι ἐπὶ τῶν συναλλαγῶν.....	4.052	5.484	7.028	8.332	9.808	11.144	c) Transaction taxes
Μεταβίβασις κεφαλαίων (7)	1.088	968	1.006	1.281	1.691	2.103	Transfer of capital (7)
Χαρτόσημον...........................	2.949	4.495	5.987	7.027	8.093	9.014	Stamp
Λοιποὶ φόροι συναλλαγῶν	15	21	35	24	23	27	Other transaction taxes
δ) Ἔμμεσοι φόροι παρελθόντων ἐτῶν	550	666	1.030	1.206	1.192	1.185	d) Back taxes and arrears due
ε) Φόροι ὑπὲρ τρίτων(8)..........	1.306	1.428	1.481	1.645	1.813	1.999	e) Taxes in favour of third parties (8)
Ὑπὲρ ΟΓΑ	870	946	984	1.080	1.165	1.272	In favour of FSIO
Ὑπὲρ ΤΑΕ—ΤΕΒΕ (9)	275	317	335	386	421	471	In favour of TAE—TEBE (9)
Ὑπὲρ λοιπῶν τρίτων	162	165	162	179	227	256	Other third parties
3. Λοιπὰ Ἔσοδα μὴ προερχόμενα ἐκ φορολογίας	3.733	3.662	4.388	11.832	5.154	6.831	3. Other revenue excluding taxation
α) Προσαυξήσεις, πρόστιμα, χρηματικαὶ ποιναί, παράβολα	644	741	703	916	1.088	1.388	a) Supplements, fines, money penalties, extra dues
β) Ἔσοδα ἐκ προσφορᾶς ταχυδρομικῶν ὑπηρεσιῶν	531	508	544	592	218	2	b) Receipts from post services offered
γ) Ἔσοδα ἐκ πωλήσεως μονοπωλιακῶν εἰδῶν	653	683	670	655	632	645	c) Receipts from sales of state monopoly items
δ) Ἔσοδα ἐξ ὀργανισμῶν καὶ ἐπιχειρήσεων	137	142	197	330	383	446	d) Receipts from organizations and enterprises
ε) Ἀπολήψεις ἔναντι γενομένων ἐξόδων	281	246	343	307	440	298	e) Receipts against expenses effected
στ) Ἐπιστροφαὶ χρημάτων.........	184	312	398	412	656	511	f) Money returns
ζ) Ἔσοδα ὑπὲρ τρίτων...........	78	124	320	441	447	454	g) Receipts in favour of third parties
η) Ἕτερα λοιπὰ ἔσοδα (10)	1.225	906	1.214	8.179	1.290	3.087	h) Receipts from other sources (10)
Β΄ Ἐκ πηγῶν ἀλλοδαπῆς	—	—	13	—	—	—	B. From foreign sources
Ἐξωτερικὴ βοήθεια διὰ καταναλωτικοὺς σκοποὺς	—	—	13	—	—	—	Foreign aid for consumption purposes
Δάνεια ἐξωτερικοῦ διὰ καταναλωτικοὺς σκοποὺς	—	—	—	—	—	—	Foreign loans for consumption purposes

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A.3 Analysis of the State budget revenue, by sources of origin. Fiscal years 1966 through 1971 (Continued).

III:4. Ἀνάλυσις ἐσόδων κρατικοῦ προϋπολογισμοῦ, κατά πηγάς προελεύσεως αὐτῶν.
Οἰκον. ἔτη 1966 μέχρι καὶ 1971 (συνέχεια)

Analysis of the State budget revenue, by sources of origin. Fiscal years 1966 through 1971 (continued)

Εἰς ἑκατομμύρια δραχμῶν — Million drachmae

Κύριαι πηγαὶ προελεύσεως ἐσόδων	1966	1967	1968	1969	1970	1971	Principal sources of revenue
II. ΕΣΟΔΑ ΠΡΟΓΡΑΜΜΑΤΟΣ ΚΡΑΤΙΚΩΝ ΕΠΕΝΔΥΣΕΩΝ	4.126	6.251	7.057	7.972	9.239	10.690	II. REVENUE FROM STATE INVESTMENT PROGRAM
Α' Ἐξ ἐγχωρίων πόρων	2.974	5.991	5.142	5.796	6.481	7.961	A. From domestic sources
Εἰδικά ἔσοδα	874	1.591	842	796	881	636	Special revenue
α) Ἔσοδα Διυλιστηρίου Πετρελαίου	310	310	350	300	400	200	a) Revenue from Greek Oil Refinery
β) Λοιπά εἰδικά ἔσοδα	564	1.281	492	496	481	436	b) Other special revenue
Δάνεια	2.100	4.400	4.300	5.000	5.600	7.325	Loans
α) Ἔντοκα γραμμάτια	1.200	2.600	2.500	3.000	3.400	4.400	a) Interest bearing treasury bills
β) Δάνειον οἰκονομικῆς ἀναπτύξεως	900	(11)1.800	1.800	2.000	2.200	2.350	b) Economic development loan
γ) Παρά τῆς Τραπέζης τῆς Ἑλλάδος πρός κάλυψιν δαπανῶν Προγράμματος Δημοσίων Ἐπενδύσεων	—	—	—	—	—	575	c) From the Bank of Greece for covering expenditures of State Investments Program
Β' Ἐκ πηγῶν ἀλλοδαπῆς	1.151	260	1.915	2.176	2.759	2.729	B. From foreign sources
Ἐξωτερική βοήθεια	60	25	32	39	29	26	Foreign aid
Δάνεια ἐξωτερικοῦ	1.090	235	1.883	2.137	2.729	2.703	Foreign loans
Ἐπανορθώσεις	1	—	—	—	—	—	Reparations
III. ΕΙΔΙΚΑ ΕΣΟΔΑ ΕΚ ΝΑΤΟ	478	738	639	582	598	325	III. NATO SPECIAL REVENUE
α) Ἔσοδα παρά κρατῶν-μελῶν δι' ἔργα κοινοῦ ἐνδιαφέροντος	431	666	238	193	182	187	a) Contribution of member-countries for the construction of works of common interest
β) Ἀπολήψεις παρά κρατῶν-μελῶν ἔναντι παρεχομένων ὑπηρεσιῶν κλπ.	47	72	400	373	416	138	b) Receipts from member-countries for services offered
γ) Ἔσοδα ἐκ δωρεάν συμβολῆς κρατῶν-μελῶν ΝΑΤΟ εἰς ἀμυντικάς δαπάνας στρατοῦ	—	—	—	16	—	—	c) Receipts from NATO members' contribution to defence expenditures

(1) Ἤτοι: φόρος καὶ πάγιον τέλος ἐπιχειρήσεων τύπου (ΝΔ 3787/1957), φόρος ἐπὶ τῶν ὑπὸ τῶν βιομηχανικῶν καὶ βιοτεχνικῶν ἐπιχειρήσεων καταβαλλομένων ἀποδοχῶν ὑπαλλήλων καὶ ἐργατῶν, περιερχόμενος εἰς τὸ Δημόσιον κατὰ 62,40% (ΑΝ 843/1948, ὡς ἐτροποποιήθη καὶ συνεπληρώθη), εἰδικὸν τέλος 3% ἐπὶ τοῦ εἰσοδήματος ἐξ οἰκοδομῶν Περιφερείας Πρωτευούσης, ὑπὲρ ἐκτελέσεως νέων ἔργων ὑδρεύσεως ἐξ Ὑλίκης καὶ ἀποχετεύσεως Πρωτευούσης κλπ.
(2) Πρόσθετον ποσοστὸν ἐπὶ τοῦ φόρου εἰσοδήματος φυσικῶν καὶ νομικῶν προσώπων ὑπὲρ τοῦ ΟΓΑ.
(3) Ἔκτακτοι φόροι ἐπὶ τοῦ εἰσοδήματος καὶ ἔσοδα ἐκ τοῦ ΚΗ' ψηφίσματος.
(4) Εἰδικὴ εἰσφορὰ ἐπὶ τῶν ἐκ τῆς ἀλλοδαπῆς εἰσαγομένων εἰδῶν, εἰσφορὰ ἐπὶ τῶν ἐκ τῆς ἀλλοδαπῆς εἰσαγομένων ἐμπορευμάτων, εἰσφορὰ ἐπὶ τῶν ἐκπροθέσμως ἐκτελωνιζομένων καὶ εἰσφορὰ ἐπὶ τῶν κινηματογραφικῶν ταινιῶν, τῶν εἰσαγομένων ἐκ τῆς ἀλλοδαπῆς.
(5) Ἤτοι: φόρος ἐπὶ τῆς καταναλώσεως καὶ ἐπὶ τοῦ παραγομένου καπνοῦ.
(6) Ἤτοι: φόρος ἐπὶ τοῦ καταναλισκομένου ἀκαθάρτου πετρελαίου ὑπὸ αὐτοκινήτων ΔΧ περιοχῆς τέως Δ/σεως Πρωτευούσης, φόρος ἐπὶ τῆς καταναλώσεως ἀμυλοσιροπίου καὶ εἰδικὸς φόρος καταναλώσεως (ΝΔ 3829/58). Εἰσφορὰ ἐπιβαλλομένη ἐπὶ τῆς τιμῆς πωλήσεως βενζίνης (ΑΝ 2375/402, ὑπ' ἀριθ. 73/49 ἀγορανομικῆς διατάξεως καὶ ΝΔ 4256/62).
(7) Φόρος ἐπὶ τῆς μεταβιβάσεως ἀκινήτων, πλοίων, λεωφορείων κλπ.
(8) 1. Ὑπὲρ ΟΓΑ πρόσθετον ποσοστὸν ἐπὶ τῶν τελῶν χαρτοσήμου, εἰδικὴ εἰσφορὰ: α) ἐπὶ τῶν σιγαρέττων, β) ἐπὶ εἰδῶν εἰσαγομένων ἐκ τῆς ἀλλοδαπῆς (ἄρθρ. 11, παρ. 1, ἐδάφ. ε' καὶ ζ' Ν 4169/1961), γ) ἐπὶ τῶν ἐν τῇ ἡμεδαπῇ παραγομένων εἰδῶν (ἄρθρ. 11, παρ. 1, ἐδάφ. ε' καὶ ζ' Ν 4169/1961) καὶ δ) εἰδικὴ εἰσφορὰ ἐπὶ τοῦ ζύθου.
2. Ὑπὲρ ἐνισχύσεως Τουρισμοῦ, Ἀθλητισμοῦ καὶ λοιπῶν τρίτων.

(1) I.e.: Tax and fixed dues of press enterprises (LD 3787/1957), tax on ships (Law 1880/1951), tax on receipts of employees and workers in industrial and handicraft enterprises the 62,40% of this tax being transferred to the State (EL 843/1948 duly amended), 3% special dues on leases from buildings within Greater Athens, for the execution of Iliki water supply works, drainage works of Athens etc.
(2) Supplement on the income tax of physical persons and legal entities in favour of FSIO.
(3) Extraordinary income tax and receipts according to KH' Decree.
(4) Special contribution on imported articles, contributions on imported commodities, on goods not cleared in time and on imported motion-pictures.
(5) I.e.: Tax on tobacco production and consumption.
(6) I.e.: Tax on crude oil consumed by motor vehicles of public use within Greater Athens, tax on starch sirup consumed and special consumption tax (DL 3829/58). Contribution on selling price of petrol (EL 2375/402), and marketing Decree No 78/49.
(7) Tax on transfers of ships, buses, and real estate.
(8) 1. Supplement on stamp dues in favour of FSIO, special contribution on: a) cigarettes, b) imported goods (article 11, paragr. 1, passage ε' and ζ' L 4169/1961), c) goods locally produced (article 11, paragr. 1, passage ε' and ζ' L 4169/1961) and d) special contribution on beer.
2. In favour of Tourism, Athletics and other third parties.

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A.4 Cash transaction of the State. Fiscal years 1979 through 1983.

II : 3. Ἀποτελέσματα δημοσιονομικῆς διαχειρίσεως. Οἰκον. ἔτη 1979 μέχρι καὶ 1983
Cash transaction of the State. Fiscal years 1979 through 1983

Εἰς ἐκατομμύρια δραχμῶν — *Million drachmae*

	1979	1980	1981	1982	1983	
I. Ἔσοδα ἐξ ἐγχωρίων πόρων (πλὴν δανείων)	314.456	359.077	634.838	603.102	830.979	I. Revenue from domestic sources (excl. loans)
α) Ἄμεσοι φόροι	80.684	104.439	123.692	175.001	200.949	a) Direct taxes
β) Ἔμμεσοι φόροι	206.504	220.797	257.223	362.080	464.958	b) Indirect taxes
γ) Ἔσοδα κρατικῶν ἐπενδύσεων	2.096	861	1.204	1.299	2.510	c) Revenue from state invest.
δ) Λοιπὰ ἔσοδα	25.172	32.980	(1)252.719	(1)64.722	(1)162.562	d) Other revenue
II. Δαπάναι	376.746	423.115	733.076	794.295	1.055.219	II. Expenditures
1. Τακτικὸς προϋπολογισμός	326.775	372.784	668.014	708.747	923.187	1. Ordinary budget
α) Τρέχουσαι δαπάναι	310.896	357.859	633.778	673.583	881.678	a) Current expenditures
β) Δαπάναι ἐπενδύσεων μὴ ἐνταγμένα εἰς τὸ πρόγραμμα οἰκονομικῆς ἀναπτύξεως (8.100)	569	—	—	—	—	b) Investment expenditures not included in the economic development program (8.100)
γ) Δαπάναι ἐπενδύσεων ἐνταγμέναι εἰς τὸ πρόγραμμα οἰκονομικῆς ἀναπτύξεως (2) (8.200)	15.310	14.925	34.236	35.164	41.509	c) Investment expenditures included in the economic development program (2) (8.200)
2. Προϋπολογισμὸς ἐπενδύσεων	49.682	50.285	63.689	83.726	129.185	2. Investment budget
3. Δαπάναι NATO	289	45	1.373	1.822	2.847	3. NATO expenditures
III. Ἀποτελέσματα I-II	−62.290	−64.038	−98.238	−191.193	−224.240	III. Results I-II
Κάλυψις	62.353	64.039	98.240	119.633	170.411	Financing
1. Μεταβιβάσεις ἐκ τοῦ ἐξωτερικοῦ	443	685	8.285	7.691	9.390	1. Foreign sources
α) Ἐξωτερικὴ βοήθεια (δωρεά)	79	91	98	86	100	a) Foreign aid (grants)
β) Εἰδικά ἔσοδα ἐκ NATO	364	595	2.364	3.076	3.709	b) Specia NATO contribution
γ) Ἔσοδα ἐξ Εὐρωπαϊκῶν Κοινοτήτων	—	—	5.823	4.529	5.581	c) EEC receipts
δ) Λοιπαί (3)	—	—	—	—	—	d) Other (3)
2. Δάνεια	61.911	63.354	89.955	111.942	161.021	2. Loans
α) Ἐσωτερικοῦ	41.450	37.276	47.010	64.299	83.126	a) Domestic
Ἔντοκα γραμμάτια	41.407	37.276	47.010	64.299	83.126	Interest bearing treasury bills
Δάνεια οἰκονομικῆς ἀναπτύξεως	—	—	—	—	—	Economic development loans
Λοιπά (4)	—	43	—	—	—	Other (4)
β) Ἐξωτερικοῦ	20.461	26.078	42.945	47.643	77.894	b) Foreign
Ἀμερικανικὴ βοήθεια (δάνεια)	—	—	—	—	—	American aid (loans)
Λοιπὰ δάνεια (5)	20.461	26.078	42.945	47.643	77.894	Other (5)
3. Εἰδικαὶ προκαταβολαὶ Τραπέζης τῆς Ἑλλάδος ἔναντι συναφθησομένων δανείων ἐσωτερικοῦ - ἐξωτερικοῦ	—	—	—	—	—	3. Special advances of the Bank of Greece against domestic-foreing loans

(1) Συμπεριλαμβάνεται: α) δανεισμὸς ἀπὸ τὴν Τράπεζαν Ἑλλάδος καὶ β) μεταβιβάσεις ἀπὸ τὰς Εὐρωπαϊκὰς Κοινότητας.
(2) ΣΤΚΕΑ, ὀρεινὴ οἰκονομία κλπ.
(3) Βοήθεια Ὑπάτης Ἁρμοστείας ΟΗΕ διὰ τοὺς πρόσφυγας. Βοήθεια NATO δι' ἀποστολὴν Ἑλλήνων ὑποτρόφων εἰς ἐξωτερικὸν πρὸς μετεκπαίδευσιν, ἀπολήψεις παρὰ κρατῶν - μελῶν NATO ἔναντι παρεχομένων ὑπηρεσιῶν ὡς καὶ ἀπολήψεις ἀπὸ Κοινοτικὰ Ταμεῖα κλπ.
(4) Χρεολύσια δανείων ἐσωτερικοῦ καὶ προϊὸν ὁμολογιακοῦ δανείου δι' ἀποζημίωσιν πρὸς ἀποκατάστασιν ἀκτημόνων.
(5) Προϊὸν κάθε εἴδους ἀπὸ πηγὰς ἐξωτερικοῦ διὰ τὴν χρηματοδότησιν τοῦ Προγράμματος Δημοσίων ἐπενδύσεων, ἀπὸ τὴν ΕΟΚ καὶ ἀπὸ τὴν Διεθνῆ Τράπεζαν Ἀνασυγκροτήσεως καὶ Ἀναπτύξεως.

(1) Included : a) loans of the Bank of Greece b) transfers from EEC.
(2) SYKEA works, mountainous economy etc.
(3) Assistance granted by the UNO High Commissioner for the refuges. NATO assistance for fellowships awarded to Greeks to be trained abroad, receipts from member-countries for services rendered, receipts from EEC Funds etc.
(4) Amortization of domestic loans and proceeds of economic development State loans for restoring persons possessing no property.
(5) Any kind of loan from foreign sources for financing the public investments project from the EEC and the International Rehabilitation and Development Bank.

A.5 Analysis of the State budget revenue, by sources of origin. Fiscal years 1979 through 1983.

III : 4. Ἀνάλυσις ἐσόδων κρατικοῦ προϋπολογισμοῦ, κατὰ πηγὰς προελεύσεως αὐτῶν.
Οἰκον. ἔτη 1979 μέχρι καὶ 1983

Analysis of the State budget revenue, by sources of origin. Fiscal years 1979 through 1983

Εἰς ἑκατομμύρια δραχμῶν   Million drachmae

Κύριαι πηγαὶ προελεύσεως ἐσόδων	1979	1980	1981	1982	1983	Principal sources of revenue
Γενικὸν σύνολον ἐσόδων	376.810	423.117	733.078	722.734	1.001.387	Grand total of revenue
I. ΕΣΟΔΑ ΤΑΚΤΙΚΟΥ ΠΡΟΥΠΟΛΟΓΙΣΜΟΥ	312.360	358.216	633.634	601.804	828.468	I. ORDINARY BUDGET
A′ Ἐξ ἐγχωρίων πόρων	312.360	358.216	633.634	601.804	828.468	A. From domestic sources
1. Ἄμεσοι φόροι	80.684	104.439	123.692	175.001	200.949	1. Direct taxes
α) Φόρος ἐπὶ τοῦ εἰσοδήματος	55.355	73.829	87.144	122.358	140.707	a) Income tax
Φόρος εἰσοδήματος φυσικῶν προσώπων	42.960	57.751	67.472	94.538	118.619	Income tax of individuals
Φόρος εἰσοδήματος νομικῶν προσώπων	10.936	14.342	17.615	25.627	18.779	Income tax of legal entities
Εἰδικαὶ κατηγορίαι φόρων εἰσοδήματος καὶ ἄλλων προσόδων (1)	1.459	1.736	2.057	2.192	3.309	Special categories of income taxes and other earnings (1)
β) Φόροι ἐπὶ τῆς περιουσίας	5.928	6.695	7.611	9.487	11.663	b) Property tax
γ) Ἄμεσοι φόροι παρελθόντων ἐτῶν	7.595	11.769	15.785	18.895	23.639	c) Back taxes and arrears due
δ) Ἄμεσοι φόροι ὑπὲρ τρίτων (ΟΓΑ) (2)	7.582	10.048	10.727	11.483	13.918	d) Taxes in favour of third parties (OGA) (2)
ε) Λοιποὶ ἄμεσοι φόροι (3)	4.224	2.098	2.425	12.778	11.022	e) Other direct taxes (3)
2. Ἔμμεσοι φόροι	206.502	220.797	257.223	362.080	464.957	2. Indirect taxes
α) Τελωνειακὰ ἔσοδα	55.469	51.006	66.633	88.158	100.448	a) Revenue from Custom Offices
Φόροι καὶ τέλη ἐπὶ τῶν εἰσαγωγῶν	17.686	15.816	10.317	10.367	9.735	Import taxes and dues
Εἰδικαὶ εἰσφοραὶ ἐπὶ τῶν εἰσαγομένων (4)	4.361	3.290	1.143	818	1.108	Special contributions on imported goods (4)
Φόροι καταναλώσεως ἐπὶ τῶν εἰσαγομένων	33.405	31.892	55.154	76.966	89.593	Consumption taxes on imported goods
Λοιποὶ φόροι εἰσαγωγῆς (τέλη ἐξαγωγῆς)	17	8	19	7	12	Other import taxes (export dues)
β) Φόροι ἐπὶ τῆς καταναλώσεως	75.949	86.249	92.856	136.828	191.798	b) Consumption taxes
Φόρος κύκλου ἐργασιῶν	18.522	23.419	28.490	42.365	56.648	Business turnover tax
Φόροι καπνοῦ (5)	12.912	14.895	17.889	25.078	31.278	Tobacco tax (5)
Φόροι οἰνοπνεύματος καὶ οἰνοπνευματωδῶν ποτῶν	2.000	2.034	2.278	3.704	4.534	Tax on alcohol and alcoholic drinks
Φόροι ψυχαγωγίας καὶ πολυτελείας	1.371	1.667	1.758	2.098	2.804	Entertainment and luxury taxes
Τέλη μεταφορῶν	13.986	6.101	6.374	6.840	18.974	Transport dues
Λοιποὶ φόροι καταναλώσεως (6)	27.158	38.133	36.067	56.743	77.560	Other consumption taxes (6)
γ) Φόροι ἐπὶ τῶν συναλλαγῶν	65.713	72.575	85.782	120.977	153.841	c) Transaction taxes
Μεταβίβασις κεφαλαίων (7)	9.673	9.042	8.805	9.490	11.118	Transfer of capital (7)
Χαρτόσημον	55.988	63.494	76.952	111.487	142.695	Stamp
Λοιποὶ φόροι συναλλαγῶν	52	39	—	—	27	Other transaction taxes
δ) Ἔμμεσοι φόροι παρελθόντων ἐτῶν	4.388	5.003	5.453	7.653	9.518	d) Back taxes and arrears due
ε) Φόροι ὑπὲρ τρίτων (8)	4.332	5.047	5.409	6.992	7.674	e) Taxes in favour of third parties (8)
Ὑπὲρ ΟΓΑ	2.700	2.609	3.012	4.306	4.707	In favour of OGA
Ὑπὲρ ΤΑΕ—ΤΕΒΕ (9)	—	—	—	—	—	In favour of TAE—TEBE (9)
Ὑπὲρ λοιπῶν τρίτων	1.632	2.438	2.397	2.686	2.967	Other third parties
στ) Λοιποὶ ἔμμεσοι φόροι	651	916	1.090	1.473	1.678	f) Other indirect taxes

A.6 Analysis of the State budget revenue, by sources of origin. Fiscal years 1979 through 1983 (continued).

III : 4. Ἀνάλυσις ἐσόδων κρατικοῦ προϋπολογισμοῦ, κατὰ πηγὰς προελεύσεως αὐτῶν. Οἰκον. ἔτη 1979 μέχρι καὶ 1983 (συνέχεια)

Analysis of the State budget revenue, by sources of origin. Fiscal years 1979 through 1983 (continued)

Εἰς ἑκατομμύρια δραχμῶν — Million drachmae

Κύριαι πηγαὶ προελεύσεως ἐσόδων	1979	1980	1981	1982	1983	Principal sources of revenue
3. Λοιπὰ ἔσοδα μὴ προερχόμενα ἐκ φορολογίας	25.174	32.980	243.229	49.311	146.012	3. Other revenue excluding taxation
α) Προσαυξήσεις, πρόστιμα, χρηματικαὶ ποιναί, παράβολα	3.238	4.483	5.270	6.224	8.022	a) Supplements, fines, money penalties, extra dues
β) Ἔσοδα ἐκ προσφορᾶς ὑπηρεσιῶν	3.513	4.669	5.342	7.610	8.554	b) Receipts from services rendered
γ) Ἔσοδα ἐκ πωλήσεως μονοπωλιακῶν εἰδῶν	1.486	1.875	1.943	1.925	2.071	c) Receipts from sales of state monopoly items
δ) Ἔσοδα ἐξ ὀργανισμῶν καὶ ἐπιχειρήσεων	8.277	10.225	12.291	10.451	15.211	d) Receipts from organizations and enterprises
ε) Ἀπολήψεις	557	577	999	1.238	2.807	e) Receipts against expenses effected
στ) Ἐπιστροφαὶ χρημάτων	2.656	2.597	2.730	3.684	5.705	f) Money returns
ζ) Ἔσοδα ὑπὲρ τρίτων	199	236	232	238	292	g) Receipts in favour of third parties
η) Ἕτερα λοιπὰ ἔσοδα (10)	5.248	8.318	8.330	5.285	8.279	h) Receipts from other sources (10)
θ) Δανεισμὸς τοῦ Δημοσίου παρὰ τῆς Τραπέζης τῆς Ἑλλάδος	—	—	211.092	12.656	95.071	i) State loans from the Bank of Greece
4. Μεταβιβάσεις ἀπὸ τὰς Εὐρωπαϊκὰς Κοινότητας	—	—	9.490	15.411	16.550	4. Transfers from EEC
II. ΕΣΟΔΑ ΠΡΟΓΡΑΜΜΑΤΟΣ ΚΡΑΤΙΚΩΝ ΕΠΕΝΔΥΣΕΩΝ	64.086	64.306	97.080	117.855	169.211	II. REVENUE FROM STATE INVESTMENT PROGRAM
Α΄ Ἐξ ἐγχωρίων πόρων	43.546	38.137	48.214	65.598	85.636	A. From domestic sources
Εἰδικὰ ἔσοδα ἐπενδύσεων	2.096	862	2.304	1.299	2.510	Special investments revenue
Δάνεια	41.450	37.276	47.010	64.299	83.126	Loans
α) Ἔντοκα γραμμάτια	41.407	37.276	47.010	64.299	83.126	a) Interest bearing treasury bills
β) Δάνειον οἰκονομικῆς ἀναπτύξεως	—	—	—	—	—	b) Economic development loan
γ) Παρὰ τῆς Τραπέζης τῆς Ἑλλάδος πρὸς κάλυψιν δαπανῶν Προγράμματος Δημοσίων Ἐπενδύσεων	43	—	—	—	—	c) From the Bank of Greece for covering expenditures of State Investments Program
Β΄ Ἐκ πηγῶν ἀλλοδαπῆς	20.540	26.169	48.866	47.728	77.994	B. From foreign sources
Ἐξωτερικὴ βοήθεια	79	91	98	86	100	Foreign aid
Δάνεια ἐξωτερικοῦ	20.461	26.078	42.945	47.642	77.894	Foreign loans
Γ΄ Ἔσοδα ἀπὸ τὰς Εὐρωπαϊκὰς Κοινότητας	—	—	5.823	4.529	5.581	C. Receipts from EEC
III. ΕΙΔΙΚΑ ΕΣΟΔΑ ΕΚ ΝΑΤΟ	364	595	2.364	3.076	3.708	III. NATO SPECIAL REVENUE
α) Ἔσοδα παρὰ κρατῶν-μελῶν δι' ἔργα κοινοῦ ἐνδιαφέροντος	172	46	1.373	1.822	2.847	a) Contribution of member-countries for the construction of works of common interest
β) Ἀπολήψεις παρὰ κρατῶν-μελῶν ἔναντι παρεχομένων ὑπηρεσιῶν κλπ.	192	549	991	1.254	861	b) Receipts from member-countries for services offered
γ) Ἔσοδα ἐκ δωρεὰν συμβολῆς κρατῶν-μελῶν ΝΑΤΟ εἰς ἀμυντικὰς δαπάνας στρατοῦ	—	—	—	—	—	c) Receipts from NATO members' contribution to defence expenditures

(1) Ἤτοι : φόρος καὶ πάγιον τέλος ἐπιχειρήσεων Τύπου (ΝΔ 3787/1957), φόρος πλοίων (Ν 1880/1951), φόρος ἐπὶ τῶν ὑπὸ τῶν βιομηχανικῶν καὶ βιοτεχνικῶν ἐπιχειρήσεων καταβαλλομένων ἀποδοχῶν ὑπαλλήλων καὶ ἐργατῶν, περιερχόμενος εἰς τὸ Δημόσιον κατὰ 62,40% (ΑΝ 843/1948, ὡς ἐτροποποιήθη

(1) I.e.: Tax and fixed dues of press enterprises (LD 3787/1957), tax on ships (Law 1880/1951), tax on receipts of employees and workers in industrial and handicraft enterprises the 62,40% of this tax being transferred to the State (EL 843/1948 duly amended), 3% special dues on

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καὶ συνεπληρώθη), εἰδικὸν τέλος 3% ἐπὶ τοῦ εἰσοδήματος ἐξ οἰκοδομῶν Περιφερείας Πρωτευούσης, ὑπὲρ ἐκτελέσεως νέων ἔργων ὑδρεύσεως ἐξ Ὑλίκης καὶ ἀποχετεύσεως Πρωτευούσης κλπ.

(2) Πρόσθετον ποσοστὸν ἐπὶ τοῦ φόρου εἰσοδήματος φυσικῶν καὶ νομικῶν προσώπων ὑπὲρ τοῦ ΟΓΑ.

(3) Ἔκτακτοι φόροι ἐπὶ τοῦ εἰσοδήματος καὶ ἔσοδα ἐκ τοῦ ΚΗ′ Ψηφίσματος.

4) Εἰδικὴ εἰσφορὰ ἐπὶ τῶν ἐκ τῆς ἀλλοδαπῆς εἰσαγομένων εἰδῶν, εἰσφορὰ ἐπὶ τῶν ἐκ τῆς ἀλλοδαπῆς εἰσαγομένων ἐμπορευμάτων, εἰσφορὰ ἐπὶ τῶν ἐκπροθέσμως ἐκτελωνιζομένων, εἰσφορὰ ἐπὶ τῶν κινηματογραφικῶν ταινιῶν, τῶν εἰσαγομένων ἐκ τῆς ἀλλοδαπῆς, καὶ εἰσφορὰ ἐπὶ ὑγρῶν καυσίμων.

(5) Ἤτοι: φόρος ἐπὶ τῆς καταναλώσεως καπνοῦ.

(6) Ἤτοι: φόρος ἐπὶ τοῦ καταναλισκομένου ἀκαθάρτου πετρελαίου ὑπὸ αὐτοκινήτων Δ Χ περιοχῆς τέως Δ/σεως Πρωτευούσης, φόρος ἐπὶ τῆς καταναλώσεως ἀμυλοσιροπίου καὶ εἰδικὸς φόρος καταναλώσεως (ΝΔ 3829/58). Εἰσφορὰ ἐπιβαλλομένη ἐπὶ τῆς τιμῆς πωλήσεως βενζίνης (ΝΔ 4256/62) καὶ φόρος καταναλώσεως ἐπὶ τῶν ἀπορρυπαντικῶν (ΠΥΣ 248/65, ΑΝ 156/67).

(7) Φόρος ἐπὶ τῆς μεταβιβάσεως ἀκινήτων, πλοίων, λεωφορείωνκλπ.

(8) 1. Ὑπὲρ ΟΓΑ πρόσθετον ποσοστὸν ἐπὶ τῶν τελῶν χαρτοσήμου, εἰδικὴ εἰσφορὰ: α) ἐπὶ τῶν σιγαρέττων, β) ἐπὶ εἰδῶν εἰσαγομένων ἐκ τῆς ἀλλοδαπῆς (ἄρθρ. 11, παρ. 1, ἐδάφ. ε′ καὶ ζ′ Ν 4169/1961), γ) ἐπὶ τῶν ἐν τῇ ἡμεδαπῇ παραγομένων εἰδῶν (ἄρθρ. 11, παρ. 1, ἐδάφ. ε′ καὶ ζ′ Ν 4169/1961) καὶ 8) εἰδικὴ εἰσφορὰ ἐπὶ τοῦ ζύθου.

2. Ὑπὲρ ἐνισχύσεως Τουρισμοῦ, Ἀθλητισμοῦ καὶ λοιπῶν τρίτων

(9) Ἀπὸ τοῦ ἔτους 1964 τὸ πρόσθετον ποσοστὸν ἐπὶ τοῦ χαρτοσήμου ηὐξήθη ἀπὸ 10% εἰς 20% ἐκ τῶν ὁποίων τὸ ἥμισυ διατίθεται ὑπὲρ ΤΑΕ-ΤΕΒΕ.

(10) α) Ἔσοδα ἐκ τῆς ἐπιχειρηματικῆς δράσεως τοῦ Κράτους (τακτικὰ καὶ ἔκτακτα), ἤτοι ἐκ τῆς προσφορᾶς διαφόρων ὑπηρεσιῶν, ἐκ τῆς πωλήσεως ἐντύπων, ἐκ τῆς ἐκποιήσεως ἀκινήτου καὶ κινητῆς περιουσίας τοῦ Κράτους ἐκ μισθωμάτων, ἐκ προσόδου κεφαλαίων τοῦ Δημοσίου.
β) Ἔσοδα ἐκ συνεισφορᾶς δημοσίων λειτουργῶν καὶ συνταξιούχων, διὰ τὴν ἰατροφαρμακευτικὴν περίθαλψιν αὐτῶν.
γ) Χρεολύσια δανείων ἐσωτερικοῦ καὶ προϊὸν ὁμολογιακοῦ δανείου, δι' ἀποζημίωσιν πρὸς ἀποκατάστασιν ἀκτημόνων καὶ δανεισμὸς Δημοσίου παρὰ τῆς Τραπέζης τῆς Ἑλλάδος πρὸς κάλυψιν δαπανῶν διαγραφῆς ἀγροτικῶν χρεῶν κλπ.

leases from buildings within Greater Athens, for the execution of Iliki water supply works, drainage works of Athens etc.

(2) Supplement on the income tax of physical persons and legal entities in favour of the National Agricultural Insurance Institute — OGA.

(3) Extraordinary income tax and receipts according to KH′ Decree.

(4) Special contribution on imported articles, contribution on imported commodities, on goods not cleared in time, on imported motion-pictures and contribution of liquid fuels.

(5) I.e.: Tax on tobacco consumption.

(6) I.e.: Tax on crude oil consumed by motor vehicles of public use within Greater Athens, tax on starch sirup consumed and special consumption tax (LD 3829/58). Contribution on selling price of petrol (LD 4256/62) and tax on the consumption of detergents (PYS 248/65, HEL 156/67).

(7) Tax on transfers of ships, buses, and real estate.

(8) 1. Supplement on stamp dues in favour of OGA, special contribution on: a) cigarettes, b) imported goods (article 11, paragr. 1, passage ε′ and ζ′ L 4169/1961), c) goods locally produced (article 11, paragr. 1, passage ε′ and ζ′ L 4169/1961) and d) special contribution on beer.

2. In favour of Tourism, Athletics and other third parties.

(9) From 1964 the additional charge on tax increased from 10% to 20%, the one second of which is disposed in favour of TAE and TEBE.

(10) a) Ordinary and extraordinary receipts from State business activity, namely: miscellaneous services, sales of printed matter, sales of movable and immovable property of State, leases, State funds.
b) Receipts from contribution of civil servants and pensioners for medical security.

c) Amortization of domestic loans and proceeds of economic development state loans for restoring persons possessing no property and State loan of the Bank of Greece for cancelling farmers' debts, etc.

References

G. Alogoskoufis. The two faces of janus: institutions, policy regimes and macroeconomic performance in greece. *Economic policy*, 10(20):147–192, 1995.

G. Alogoskoufis. Greece's sovereign debt crisis : Retrospect and prospect. *Hellenic Observatory*, 2012a.

G. Alogoskoufis. Greece's sovereign debt crisis: retrospect and prospect. 2012b.

G. Alogoskoufis. Historical cycles of the economy of modern greece from 1821 to the present. *Department of Economics Athens University of Economics and Business, Working Paper*, (01-2021), 2021.

M. G. Arghyrou and J. D. Tsoukalas. The greek debt crisis: Likely causes, mechanics and outcomes. *The World Economy*, 34(2):173–191, 2011.

H. Bohn. Are stationarity and cointegration restrictions really necessary for the intertemporal budget constraint? *Journal of Monetary Economics*, 54, 2007. ISSN 03043932. doi: 10.1016/j.jmoneco.2006.12.012.

M. Bordo and H. James. The european crisis in the context of the history of previous financial crises. *Journal of macroeconomics*, 39:275–284, 2014.

H. L. Cole and T. J. Kehoe. Self-fulfilling debt crises. *The Review of Economic Studies*, 67(1):91–116, 2000.

C. Cottarelli, P. Mauro, L. Forni, and J. Gottschalk. Default in today's advanced economies: unnecessary, undesirable, and unlikely. *IMF Staff Position Notes*, 2010(012), 2010.

L. De Mello. Estimating a fiscal reaction function: the case of debt sustainability in brazil. *Applied Economics*, 40(3):271–284, 2008.

P. D'Erasmo, E. G. Mendoza, and J. Zhang. What is a sustainable public debt? In *Handbook of macroeconomics*, volume 2, pages 2493–2597. Elsevier, 2016.

J. Eaton and M. Gersovitz. Debt with potential repudiation: Theoretical and empirical analysis. *The Review of Economic Studies*, 48(2):289–309, 1981.

K. Featherstone. The jcms annual lecture: The greek sovereign debt crisis and emu: A failing state in a skewed regime. *Journal of Common Market Studies*, 49(2):193–217, 2011.

K. Featherstone. External conditionality and the debt crisis: the 'troika'and public administration reform in greece. *Journal of European Public Policy*, 22(3):295–314, 2015.

E. Febrero, J. Uxó, and F. Bermejo. The financial crisis in the eurozone: a balance-of-payments crisis with a single currency? *Review of Keynesian Economics*, 6(2):221–239, 2018.

P.-O. Gourinchas, T. Philippon, and D. Vayanos. The analytics of the greek crisis. *NBER macroeconomics Annual*, 31(1):1–81, 2017.

J. A. T. Granados and J. M. Rodriguez. Health, economic crisis, and austerity: A comparison of greece, finland and iceland. *Health Policy*, 119(7):941–953, 2015.

J. D. Hamilton and M. A. Flavin. On the limitations of government borrowing: A framework for empirical testing. *The American Economic Review*, 76(4):808–819, 1986.

I. Hawkesworth, D. Bergvall, R. Emery, and J. Wehner. Budgeting in greece. *OECD journal on budgeting*, 8(3):1–50, 2009.

H. W. Heinrich et al. Industrial accident prevention. a scientific approach. *Industrial Accident Prevention. A Scientific Approach.*, (Second Edition), 1941.

A. A. Ifanti, A. A. Argyriou, F. H. Kalofonou, and H. P. Kalofonos. Financial crisis and austerity measures in greece: their impact on health promotion policies and public health care. *Health policy*, 113(1-2):8–12, 2013.

C. Jooste, A. Cuevas, I. C. Stuart, and P. Burger. *Fiscal sustainability and the fiscal reaction function for South Africa*. International Monetary Fund, 2011.

G. P. Kouretas and P. Vlamis. The greek crisis: Causes and implications. *Panoeconomicus*, 57 (4):391–404, 2010.

P. R. Lane. The european sovereign debt crisis. *Journal of economic perspectives*, 26(3):49–68, 2012.

S. Makrydakis, E. Tzavalis, and A. Balfoussias. Policy regime changes and the long-run sustainability of fiscal policy: an application to greece. *Economic Modelling*, 16(1):71–86, 1999.

E. G. Mendoza and P. M. Oviedo. Public debt, fiscal solvency and macroeconomic uncertainty in latin america: the cases of brazil, colombia, costa rica and mexico. *Economía mexicana. Nueva época*, 18(2):133–173, 2009.

S. Merler and J. Pisani-Ferry. Sudden stops in the euro area. Technical report, Bruegel policy contribution, 2012.

S. Micossi. Balance-of-payments adjustment in the eurozone. *CEPS Policy Brief*, 2016.

M. Mink and J. De Haan. Contagion during the greek sovereign debt crisis. *Journal of International Money and Finance*, 34:102–113, 2013.

V. Monastiriotis, N. Hardiman, A. Regan, C. Goretti, L. Landi, J. Ignacio Conde-Ruiz, C. Marín, and R. Cabral. Austerity measures in crisis countries—results and impact on mid-term development. *Intereconomics*, 48:4–32, 2013.

R. M. Nelson, P. Belkin, and D. E. Mix. Greece's debt crisis: Overview, policy responses, and implications. Library of Congress Washington DC Congressional Research Service, 2010.

M. Psalidopoulos. History of the bank of greece, 1928–2008 (athens: The bank of greece, 2014).

D. A. M. Rady. Greece debt crisis: Causes, implications and policy options. *Academy of Accounting and Financial Studies Journal*, 16:87, 2012.

A. Tornell and F. Westermann. Greece: The sudden stop that wasn't. In *CESifo Forum*, volume 13, pages 102–103. München: ifo Institut-Leibniz-Institut für Wirtschaftsforschung an der ..., 2012.

B. Trehan and C. Walsh. Common trends, the government's budget constraint, and revenue smoothing. *Journal of Economic Dynamics and Control*, 12(2-3):425–444, 1988.

B. Trehan and C. E. Walsh. Testing intertemporal budget constraints: Theory and applications to u. s. federal budget and current account deficits. *Journal of Money, Credit and Banking*, 23, 1991. ISSN 00222879. doi: 10.2307/1992777.

D. W. Wilcox. The sustainability of government deficits: Implications of the present-value borrowing constraint. *Journal of Money, Credit and Banking*, 21(3):291–306, 1989.

J. Zettelmeyer, C. Trebesch, and M. Gulati. The greek debt restructuring: an autopsy. *Economic Policy*, 28(75):513–563, 2013.