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**Democracy, redistribution, and economic growth:  
Some evidence from post-1974 Greece**

**George C. Bitros**

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**Democracy, redistribution, and economic growth:  
Some evidence from post-1974 Greece**



George C. Bitros<sup>1</sup>  
Emeritus Professor of Political Economy  
Athens University of Economics and Business  
[bitros@aueb.gr](mailto:bitros@aueb.gr)

**Summary**

In the post war period Greece experienced two phases of economic growth. Over the years 1954-1974 the average annual growth rate was close to 7%, whereas from 1975 to 2022 the same growth rate fell to nearly 1%. This paper explains what went wrong. Using annual data from well-known international databanks for the period 1995-2023, the estimated dynamic ARDL model shows at no uncertain terms that responsible for the downward trend of economic growth during the post-1974 period was the multitude of redistribution policies that were introduced for the “expressed” purpose of reducing inequality. These policies by themselves would have discouraged saving, shrunk investment, suppress risk taking and entrepreneurship, and incentivize businesses and professionals to move abroad. This is exactly what happened. But while reducing inequality was the pretext for gaining the support of the people and maintaining political stability, the key objective of the political order under the 1975 Constitution was the expansion of the state which, based on the general government expenditure grew from 24.1% of the GDP in 1974 to 52.3% in 2023. And this, because in order to achieve the intended huge redistribution, governments killed economic growth by increasing incessantly taxes on income and wealth, burdening the economy with heavy value-added taxes, and expanding employment in the public sector, seemingly in a redistributive fashion to keep unemployment from exploding. Hence, to bring back economic growth and at the same time right democracy, my recommendation is to go back to the provisions and institutional arrangements of the 1952 Constitution or, even better, adopt the new constitution that six eminent Greeks proposed recently.

**Keywords:** Democracy, inequality, economic growth, redistribution, public employment, income, wealth and value-added taxes, public borrowing

**JEL Codes:** E02, L38, O47, O43, P2, P26

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## 1. Introduction

Inequality is of key concern in Western type democracies. The reasons abound. It cannot be abolished without destroying personal freedoms. It cannot be allowed to explode without tearing society apart and ultimately encroaching on the free way of life. And not the least, even though if controlled within moderate bounds it may yield significant social and economic advantages to democratic nations, the design and application of effective policies to that effect is elusive. This we know already from the first ever democracy in the world, i.e. that of Athens in classical times. For, as documented in Bitros, Karayiannis (2008, 2010), while ancient Athenians viewed the inequality that derived from inherited wealth as *sterile* and punished it because it led to conspicuous consumption, at the same time they believed that there was a positive correlation between economic progress and *creative inequality* that stemmed from entrepreneurial and other productivity enhancing activities, and on this ground they accepted it in some measure for the good of their city-state.

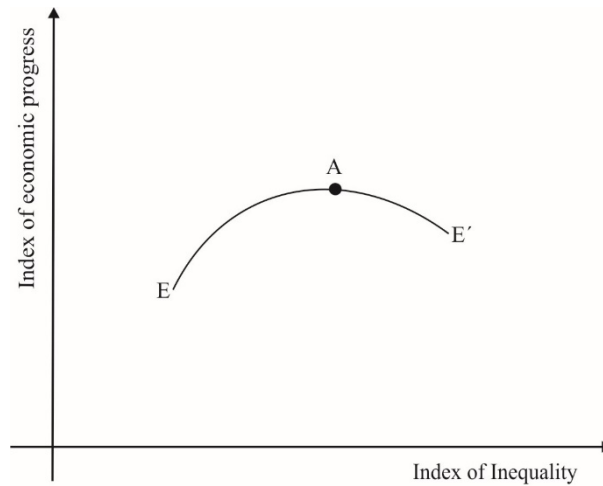
In particular, ancient Greek texts show that their beliefs regarding the relationship of inequality and economic progress<sup>2</sup> are in line with the curve EE' in Figure 1. Up to point A, inequality was tolerated because it increased private wealth, and hence the resources of citizens for paying *taxes* and undertaking *liturgies* (plural)<sup>3</sup> on which the might and the financial robustness of the Athenian democracy stood at the time. But from point A on, inequality was considered *economically counterproductive and politically repugnant* because it undermined social cohesiveness by promoting envy, community conflicts, and civil wars. Thus, to prevent it from rising beyond a politically set threshold, the *Ecclesia of Demos*<sup>4</sup> had established and enforced structural and outright redistributive arrangements. For example, while the institu-

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<sup>2</sup> In classical Athens, “economic progress” and “inequality” at the city-state and household levels were associated with the holding of “wealth”. Over the centuries these terms have been defined and measured differently. For example, in the postwar literature, “economic progress” has been indexed and measured by the growth rates of economic efficiency, Gross Domestic Product (GDP), and at times Total Factor Productivity (TFP).

<sup>3</sup> *Liturgy* (singular) was a subtle form of taxation over and above the taxes levied through the formal taxation system. It provided for citizens deemed wealthy by the general public to finance the provision of a public good or service. This institution functioned in conjunction with another called *Antidosis*. The latter allowed a citizen obliged to perform a *liturgy* to avoid it by nominating another one who supposedly was richer, and hence more qualified to perform it than himself. In case of disagreement, the matter was submitted to the *Courts* for resolution, and at times the latter’s decision might go as far as forcing the exchange of properties among the two citizens.

<sup>4</sup> The *Ecclesia of Demos*, in which participated all adult male Athenian citizens, exercised the top legislative and supervisory responsibilities. It functioned *directly* in the sense that there were no political parties as we understand them today. It convened four times during each *Prytaneia*, which lasted from 36 to 39 days, and at least forty times per year in total. It was in session when more than 6,000 citizens were present. One of the four meetings of each *Prytaneia* was devoted to discussion and decision-making on issues of governance, defense, foreign policy, provisioning of food and other supplies, including welfare, while the other three dealt with various issues.



**Figure 1:** Relationship of inequality and economic progress based on the ancient Athenian conceptualizations

tion of *liturgies* mentioned above fell in the latter category, one in the former assumed the form of processes by which Athenians molded into the character of citizens from early childhood healthy doses of self-improving but socially mindful individualism.<sup>5</sup>

Since then, and particularly since the 1950s, when strong research interest in this relationship was rekindled, one would have thought that governments in Western type democracies would have been able to put together and apply appropriate policies on a more solid evidential basis. However, despite the immense improvement in data availability, estimating methods, and computing powers, this is hardly the case. For as it emerges from the surveys of the relevant literature by [Ferreira, Gisselquist, Tarp. \(2022\)](#), [Bitros Karayiannis \(2013,189-192\)](#), [Zweimüller, J., \(2000\)](#) and others, what we know is modest, and certainly not of sufficient empirical precision for policy design and implementation. To wit, while on the theoretical plane we have several plausible hypotheses about the possible shape of the reduced form of this relationship and the possible structural channels linking inequality and economic growth, on the empirical plane the evidence shows that, if a relationship exists at all, it is rather negative.<sup>6</sup> Therefore something is amiss either with the pillars of the general equilibrium model from which the estimated reduced form equations derive or with the data and the techniques used in the estimations.

<sup>5</sup> As explained in [Bitros, Karayiannis \(2010\)](#), children went through the process of *agoge*, which aimed at shaping their ethical character, knowledge in the arts and sciences, and practical skills, so as to become worthy of the Athenian citizenship. Moreover, children were induced, mainly by moral incentives, to become competitive in life through the little known process of *amilla*. The *Olympic Games* that were founded in that period is a testament to this process.

<sup>6</sup> In ancient Athenian terms, a negative relationship would imply that inequality has increased beyond levels for democracy to survive and that its relationship with economic growth has entered into the region AE' of the curve EAE' in Figure 1.

Let me explain what I have in mind. [Persson, Tabellini \(1994\)](#) were the first to derive formally the relationship sought. They did so by embedding in a unified analytical framework two strands of literature, namely the endogenous theory of economic growth and the endogenous theory of policy.<sup>7</sup> Upon controlling for the types of governance that prevailed in the sample countries, they found that for democracy<sup>8</sup> the estimated relationship was negative, and to rationalize it they suggested that: high inequality in pretax incomes leads the majority of people to vote for redistribution; the political system responds by providing the extent of redistribution demanded by the median voter; this in turn distorts the incentives that mobilize productive investments; and eventually the deceleration of the latter hurts economic growth. But the empirical evidence discovered ever since supports neither their “fiscal channel,” nor other channels like the possibility that inequality may stir political instability, which might discourage investment.<sup>9</sup> One among several possibilities for this impasse is that democracies may have grown dysfunctional, the endogenous theory of policy has become irrelevant, and thereby the estimated models are misspecified.<sup>10</sup> Another is that the democracies included in the cross-sections may be institutionally and functionally very different, and hence rightly so the results come out agnostic. And yet a third possibility is that measurement errors in the variables may be so convoluted that estimating techniques, irrespective of sophistication, are unable to unscramble their effects on the rate of economic growth.

By comparison to past endeavors, the objective here is narrower. It aspires to shed some light on this evasive relationship by drawing on the laboratory-like circumstances that transpired in Greece since the end of WWII. To motivate this undertaking, consider the question that we shall address. Figure 2 displays the course of GDP growth in Greece over the period 1954-2022. The top left-hand corner of the graph shows that in the twenty years from 1954 to 1974 the average rate of growth was approximately 7% per annum.<sup>11</sup> The same calculation for the years 1975-2022 yields a growth rate of approximately 1% per annum. What the sharp contrast between these two figures attests to is that in the decades after 1974 Greece experienced a spectacular collapse in economic growth. On reflection, an observer from outer space might assume that possibly a natural disaster, like Noa’s flood or Pompeii’s earthquake, or

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<sup>7</sup> The theory of endogenous policy builds on the conceptualization that policy variables are codetermined with economic variables within an integrated political-economic structure.

<sup>8</sup> In contrast to the Athenian democracy, which was *direct* in the sense that it was citizens themselves who ruled, democracy in more recent centuries is *indirect* in the sense that governance is carried out by citizens grouped in political parties elected to authority every so many years. In the sequel, the latter type of democracy will be referred to as *representative party* democracy or just democracy.

<sup>9</sup> See [Perotti \(1996\)](#), [Alesina, Perotti \(1996\)](#).

<sup>10</sup> I will say much more about the weaknesses of endogenous growth theory later on.

<sup>11</sup> Some economists have declared this as a miracle achievement.

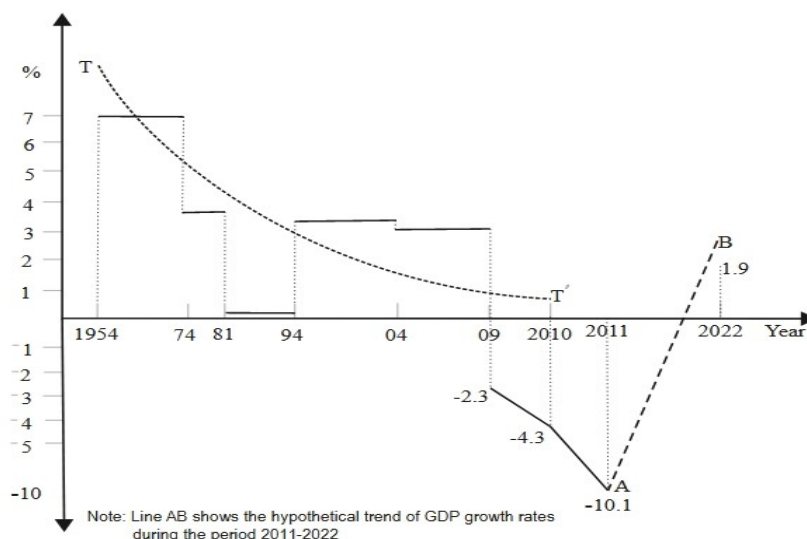


Figure 2: Structure of GDP growth rates in postwar Greece

some dreadful pandemic disease had befallen on Greece, which sucked all its economic growth dynamism. But we know that nothing of this sort happened, at least not of some irreversible magnitude. Rather on the contrary, from the events that followed Greece's bankruptcy in 2009, we have every reason to believe that the causes for this protracted lack of meaningful economic growth are rooted in the institutional and structural policies that were initiated from 1975 for the purpose of achieving various social tenets through redistribution of income and wealth, including the reduction of inequality. Can this hunch be confirmed beyond reasonable doubt, and if in the affirmative, to what extent may redistribution be held responsible for this unparalleled downturn? The focus in the sequel is on the conceptual and econometric challenges posed by this question.

Section 2 explains the nature of the redistribution mechanism that was introduced in Greece in the aftermath of the switch from military dictatorship to democracy in 1974. Its documentation starts off with the rudiments of the constitutional theory that was advanced to justify the changes in the "social" and "property" rights" first embedded in the Constitution of 1975. In the following years, these changes gave impetus to piles and piles of laws, ministerial ordinances, and byzantine administrative regulations; and hence, the result was to be expected. State employment at all levels of governance expanded, and so did bureaucracy. Entitlements and unilateral budget transfers widened. Entrepreneurial initiatives and Foreign Direct Investment (FDI) were discouraged; Etc, etc, with afore-mentioned devastating consequences for economic growth. Section 3 disposes of two tasks. The first centers on the computation of alternative time series that may be employed to index the evolution of redistribution that took place under the said constitutional provisions. As for the second task, this deals

with the estimation of the relationship between redistribution and economic growth over the period 1974-2024. Section 4 explains the results of the estimations and their possible policy implications. And lastly, Section 5 concludes with a summary of the main findings and some suggestions regarding the direction of further research endeavors in this critical area for Western type democracies.

## 2. The mechanism of redistribution

The transition in Greece from military dictatorship to democracy on July 24, 1974, was accompanied by some important constitutional changes. Two of them were the abolition of the previous regime of a reigning republic, with a Referendum held on December 8, 1974, and six months later, the establishment of a presidential parliamentary democracy, with the authorization of a new constitution on June 8, 1975.

Even a cursory comparison of this constitution with the one that it replaced would suffice to reveal the radical reforms that its authors sought to bring about. Among others, central to their objectives was a thorough change of “social” and “property” rights away from the standards of Western type democracies and towards an advanced regime of socialism. But the respective articles were impossible to write and explain to the Greek people in the short period from December 1974 to June 1975. Hence, most likely, those who served in the Constitutional Committee under the instructions of Constantinos Tsatsos, later President of the Hellenic Republic, must have drafted and agreed upon them much earlier. This issue occupied me for some time and eventually I summarized my findings in the section of a book published in Greek to which I gave the title "Why we went bankrupt". In short, my conclusion was that with the said articles New Democracy (ND) returned to power in July 1974 under Prime Minister Constantinos Caramanlis determined in essence to *transform Greek democracy from representative into one where the state would have sovereign rights over and above those of the Greek people.*

Whatever doubts I had at the time about this conclusion were dispelled a few years later. Then, while conducting a routine internet search, I happened to stumble on an article written several years earlier by [Katrougalos \(2010\)](#),<sup>12</sup> Professor of Constitutional Law in the University of Thrace and several times minister during the 2015-2019 government of the Coalition of the Radical Left – Progressive Alliance under Prime Minister Alexis Tsipras. To be on the

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<sup>12</sup> This paper has appeared only in Greek. By implication, the quotation that appears shortly below constitutes a careful translation in English using mechanical translation as well as human cross-checking. It is worth studying because it provides an eye-opening interpretation of the political agenda of the constitutionalists, and not only, who participated in the Tsatsos Committee that drafted the 1975 Constitution.



safe side, the quotation below in English translation from page 4 of his paper reveals very precisely which were the key objectives of the said articles in the 1975 Constitution:

In the European *social states* - in contrast to the Anglo-Saxon model - and in the context of a combination of the *liberal* and the *social principle*, the common legislator is free to determine the economic policy within the limits of the free market system, *but with respect to the social priorities which derive from the principle of the social state*. ... The crucial provisions for the determination of the Greek Economic Constitution are on the one hand those of articles 5 § 1 and 17 (protection of economic freedom and property), in terms of the establishment of the traditional capitalist market economy and the freedoms associated with it, and on the other hand the new provisions of articles 21, 22, 25 § 1, 2 and 4, 106 and 17 § 1 of the Constitution. With these last regulations, on the one hand, *the rights of property and economic freedom were given a functional character*, and the interventionist, regulatory role of the state was recognized, with the explicit establishment of *the principle of the social state*. On the other hand, economic development was elevated to constitutional objective - but subordinated to the service of human value - social justice and solidarity, as well as fundamental social rights. In the context of the balance between the above countervailing principles, *economic freedom and property no longer occupy the center of the rights protection system*. (Italics are the author's).

That is, in the republic of the constitutionalists who introduced these articles in the 1975 Constitution, if the nebulous *principle of the welfare state* required it, the ownership of citizens on their income and wealth, and together their human and economic freedoms, might be legitimately transformed by governments into “fig leaves”.

To no surprise, this is exactly what happened. Freedoms declined severely due to cumulative heavy-handed state interventions concealed behind the veils of “social justice”, “national interest”, “social peace” and other pious but indeterminate terms. Based on standard metrics, Table 1 gives a snapshot of where Greece stood in this regard relative to a small sample of select countries in 2020. Human freedom was 6, 11 and 14 times lower than Australia, Ire-

<a href="#"><u>Table 1</u></a>
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land and Denmark, economic freedom lagged 14, 8.5 and 17 times, respectively, and as a result on both indices Greece ranked much nearer to communist China. Moreover, during the same period, with the exception of the 1990-1993 ND government under Prime Minister Constantinos Mitsotakis, which tried unsuccessfully to stem it, the course towards bankruptcy was intermittent. In the 35 years from 1974 to 2009, the "Socialmania" of ND governments, in comparison to the "Socialism of the Third Way" pursued by Panhellenic Socialist Movement (PASOK) governments under Prime Ministers Andreas Papandreou and Constantinos Simitis,

fell short only in name. As a result, the rampant increase of state debt, particularly by governments borrowing abroad and indeed over and above the inflows of abundant aid from the European Union (EU), mortgaged private savings and wealth like never before.

But under the improving standards of incomes and consumption that the excessive public spending instigated, few had reasons to complain<sup>13</sup> and even less noticed the losses in human and economic freedoms. Thus, having being empowered by the above-mentioned constitutional provisions and certainly bent on reelection, governments felt unhinged at pursuing two objectives: Primarily to transfer sovereignty and economic power from the people to the state, and secondarily to shrink the perceived extent of inequality. To pursue them, governments enacted over the decades thousands and thousands of redistribution policies through fiscal and non-fiscal channels like:

1. Condensing the steps and steepening the rates of the personal income tax scale.
2. Expanding social programs for the purpose of widening and deepening the range of welfare state.
3. Introducing far reaching administrative interventions in input and output markets that shifted the balance of bargaining power among the so-called “social partners” in favor of the “state” and “labor” and against “capital”.
4. Turning public administration into a fiefdom of governing parties, with all drawbacks that this entails regarding excessive and misallocated public employment, low morale and incentives for productive efficiency, etc.
5. Rendering of labor unions in the public and private sectors, as well as mass media communication, into instruments of party politics.

The following three subsections are devoted to the presentation and assessment of the results that were achieved.

## **2.1 Imperium of the social state over economic freedom and private property**

According to the earlier quotation from [Katrougalos \(2010\)](#), after the authorization of the 1975 Constitution, economic freedom and private property stopped from being in the core of inalienable citizen rights. They became bendable to any extent and to any direction, depending on the whims of governments representing even small minorities of the electorate. [Table 1](#) documented what happened to human and economic freedoms. They were bent to degrees that one may reasonably wonder now whether Greece is a functioning democracy anymore.

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<sup>13</sup> Among those few were the affiliates in Greece of foreign multinational companies; because, starting already from the 1970s, they began to leave and with their flight to signal to other possible foreign investors to skip Greece, and to domestic investors to look for business opportunities elsewhere.

In this subsection, the focus is on the costs that post-1974 governments imposed on Greek citizens to implement their antiquated neo-socialist objectives.

Drawing on OECD's economic surveys for Greece and other sources, Table 2 provides data on two key metrics: Namely, the current budget imbalances and the accumulation of debt

<a href="#"><u>Table 2</u></a>
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at the level of the general government. Looking at the figures for the current budget, observe that: a) the scale or size of the public sector in Greece from less than 24% of GDP in 1974 expanded to 57% in 2021, thus recording a whopping jump of 139%  $[(57.1/23.9)-1]$ , whereas during the same period the size of the public sector in the average OECD country increased only 25.6%  $[(47.1/37.5)-1]$ ; <sup>14</sup> b) although in 1974 the scale of the public sector in Greece was 63.7%  $(23.9/37.5)$  of the OECD average, by 2021 it had grown over the latter and stood at 121.2%  $(57.1/47.1)$ ; and c) shortly after 1974, the fiscal imbalances in Greece turned negative and, by rising incessantly over the following years, in 2021 they had climbed to a level well above that of the OECD average. On account of these observations, it is safe to conclude that post-1974 governments in Greece resorted by design to an unprecedented redistribution of the economy's resources from the private to the public sector. Their constitutionally-backed objective was to expand the sovereignty of the state and no-doubt they achieved it by expanding public property partly through taxes, partly through debt, and partly through inflation and other channels like the state controlled banks and public enterprises and organizations.

That taxes and debt were select instruments in this gigantic redistribution scheme follows readily from the figures in the second row of the table. From them it turns out that the general government revenue in Greece during this period increased 88.3%  $[(49.7/26.4)-1]$  and that the burden of taxes far exceeded that in the average OECD country where taxes increased 7.9%  $[(39.4/37.5)-1]$ . In turn, the difference in these percentages reveals both the intent and the determination of post-1974 governments to restructure the free way of life in Greece towards central planning. This is exactly what the first paragraph of article 106 of the Constitution called for, and raising taxes was handy for promoting the political agenda by those who drafted it in 1975. But for populist political parties to remain relevant and perpetuate their

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<sup>14</sup> I am certainly aware of the position that [Kuznets \(1971\)](#) took in his Nobel speech regarding the ability of the nation state to contribute to economic growth by imposing rules and regulations, as well as providing infrastructural capital including law and order. But in Western type democracies this authority springs from the people, not from elected minorities which have used the power of the law to control 40-60% of economic activities. If maintaining general and economic freedoms is costly in terms of output growth, this is choice for the people to make, not "sovereign" elected officials.

hold on power, it is well known that taxing is second best to borrowing. Hence it is not surprising that, allowing for the slight uncertainty that surrounds the level of debt in 1974, in the years to 2021 Greek governments pushed the net-debt-to-GDP ratio to the level of 168.6%, which was 107.9%  $[(168.4/81.0)-1]$  higher than the OECD average and grew to it from around -70 %  $[(16.2/55)-1]$  in 1974.<sup>15</sup> Nor is it surprising that since 1974 governments have employed inflation, more during the drachma regime before 2001 and less afterwards under the euro, as a means to expand the state's property and sovereignty by eroding the purchasing power of citizens' savings and other near-money assets.

In sum, post-1974 governments pursued and secured unilaterally through direct and indirect policy channels controlling ownership over the property and wealth of Greek citizens. Most likely this development in conjunction with the entry of Greece into the European Union raised the stakes for the actors in the public domain and enhanced the stability of the political system. But at the same time, while the data in [Table 1](#) and 2 ascertain beyond any doubt that post-1974 governments established imperium of the social state over freedoms and private property in Greece, the question whether these far reaching structural changes contributed or not to the decline of economic growth depicted in Figure 1 remains open. That is, until it is subjected to empirical tests further below.

## 2.2 Jawboning of markets to serve the imperium of the social state

The numerous labor-related rights that were embedded in the 1975 Constitution promoted the proclamations of the then seemingly conservative government about being pro-labor, pro-equality, pro-social justice, and other populist yet abstract and hardly measurable claims. In essence though, as per the above quotation from [Katrougalos \(2010\)](#), their aim was to establish the imperium of the social state, to enforce it by micro-managing the economy from 50 or so least coordinable ministerial decision-centers, and indeed to do so from within an institutional framework which, through a cataclysmic flow of laws and ministerial ordinances, became over time increasingly inconsistent with national priorities. For, while in the 1970s the country petitioned and gained full membership in the European Economic Community (EEC), thus declaring its determination to open up its economy to European and world competition, at the same time one government after another, heeding to the constitutional profligacy of unscrupulous labor rights and wealth creating constraints, expanded unstainably the public sector and jawboned private markets to distribute income that was not produced but fell on the economy like manna in the form either of European aid or borrowing.

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<sup>15</sup> The ugliness of these comparisons was even worse at the time of Greece's bankruptcy in 2009.

The result was easy to foresee and several Greek economists are on record about what was to be expected. As the losses in competitiveness translated into increasing unemployment and dearth of domestic and foreign investment, governments pushed by the visible hand of the social state resorted expeditiously to taxing and borrowing particularly from abroad. This was the game in Athens and the only unknown was when international financial markets would close on Greece, access to foreign borrowing would stop, servicing of the huge foreign debt would become impossible, and the country would declare bankruptcy. This possibility became apparent when the housing market in the USA begun in 2007 to shake severely the international markets for derivatives and other related forms of modern financial assets. But by then it was too late for the impervious Greek leaderships to do anything. Just to recall, shortly in the aftermath of the country's bankruptcy in 2009, OECD economists took a look at the structure of the Greek economy and, among other primarily fiscal initiatives to stem budget deficits and bring debt under control, they stressed the urgency of introducing several hundred structural reforms in the labour and products markets for the purpose of "enhancing competitiveness and raising welfare and incomes".<sup>16</sup>

Quite likely OECD economists thought of the Greek economy as being roughly similar to those of western type democracies. So in their recommendations they did not allow for the institutional foundations on which the social state has been erected. To be sure, some of their less demanding reforms were patched and the return to moderate economic growth since then may have something to do with these small-time changes. But having suppressed for too long competition in domestic markets through direct and indirect administrative means, while the economy has been open to the competitive forces of the European and international markets, even if Greek governments wished in earnest to go all the way with the recommended transformative reforms, the task would prove impossible because, less by economics and more by values, character, and education, Greeks were not prepared to own them and the political stability as well as Greece's membership in the European Union would come into question.

Hence, given that the shock of the 2009 bankruptcy proved inadequate to force a clean break from the institutions of the failed social state, looking forward over the long haul, the lack of competitiveness in the Greek economy should continue to be a serious drag on economic growth. The best guess in this regard is that its magnitude will be close to that in the

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<sup>16</sup> Their suggestions took the form of the so-called Toolkits I, II and III and were consistent with their earlier findings in [OECD \(2011\)](#).

post-1974 period. For this reason, in the empirical part of the paper later on, the effect of changes in the market structure will be accounted for by various proxy variables.

### 2.3 Redistribution and inequality

During the period 1954-1974 economic growth in Greece was exceedingly robust and trended upwards. As such, it was a good case study for researchers who were interested in finding how inequality was impacted. But because of the lack of appropriate data, there are only a few noteworthy studies. For an example, consider [Livada \(1991\)](#). After several warnings about the shortcomings of the data sample in hand, this study subjects the grouped time series of family incomes before taxation covering the period 1959-1986 to a barrage of econometric tests, the results of which are interpreted as tentative, if not inconclusive. Still, looking closer at the reported shares of the top 1% and 5% of the income distribution, one may reach less uncertain and more reliable inferences about the trend of inequality in this period. To explain the grounds for this assessment, it suffices to mention that currently the World Inequality Database (WID) offers as preferred measures of inequality the shares of the top 1% and 10% on the rationale that the households which fall in these income cohorts are much less prone to tax evasion and other equivalent practices.

Drawing on this understanding, [Table 3](#) displays the course of shares for the top 5% and 1% of income earners during the sub-periods 1959-1974 and 1975-1986.<sup>17</sup> In the years prior to 1975 inequality decreased consistently. Perhaps it was not as fast as governments would

<a href="#">Table 3</a>
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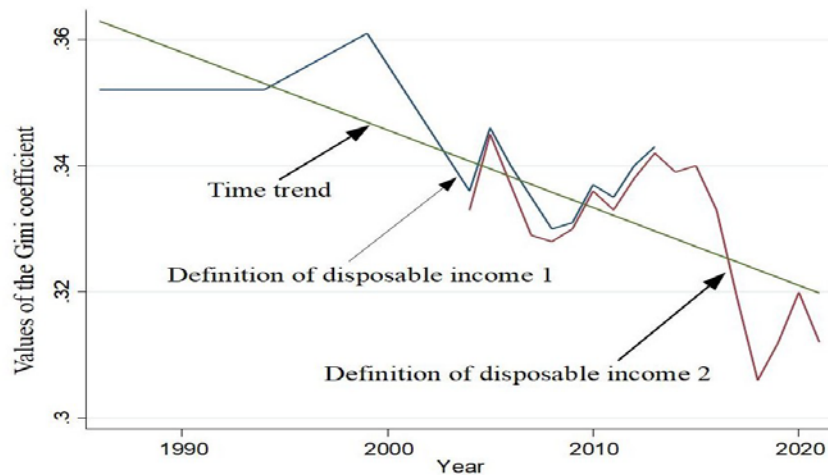
have liked. But robust economic growth pulled down inequality in line with the AE' segment of the EE' curve in Figure 1. Turning next to the period after 1974, we see that inequality continued to decline, and indeed at a much faster rate, due mainly to policies inspired by the provisions of the 1975 Constitution. But while according to Figure 2 the rate of economic growth almost halved in the years to 1980, from then on to 1986 economic growth collapsed. Presumably, administratively accelerated reduction of inequality correlated negatively with economic growth, thus shifting the experience in the AE segment of the EE' curve in Figure 1.<sup>18</sup>

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<sup>17</sup> Given that the series for both shares within the two sub-periods always declined with no reversals, for the sake of simplicity, instead of considering the trends in the two sub-periods, the comparisons are based on the values of the shares in the initial and ending years of each sub-period.

<sup>18</sup> Referring to the literature that accumulated in this area in the 1980s and 1990s, [Andriopoulou, Karakitsios, Tsakloglou \(2018, 24\)](#) conclude that "In regard to inequality, the main findings of these studies were that in Greece, unlike many other developed countries in recent decades, inequality was gradually but not continu-

Aside from the indices of choice mentioned above, the WID database provides times series on the evolution of inequality in Greece since 1980 based on the Gini coefficient and several other flexible percentage share configurations. However, all the indices reported are calculated using pre-tax income data, whereas in order to allow in our estimations for the impact of changes in the progressive tax scale, we found it imperative to measure inequality on the disposable income. For this reason, we switched to the Gini coefficient time series which is published by OECD and is displayed in Figure 3.<sup>19</sup>



**Figure 3:** Trend of inequality based on the Gini coefficient using two definitions of the disposable income

Apparently, despite intermediate periods of up and down, the trend of inequality based on this index of disposable income has been declining ever since 1986. If instead the computations had been carried out using the pre-tax time series for the top 1% and 10% shares from the WID database, the trends would be also declining but at a slower rate. In turn this evidence confirms that since 1974: a) inequality has been declining; b) as intended, the redistribution policies pursued through revisions in the tax scale contributed to the acceleration of the inequality decline; and c) since the trend in the rate of economic growth during the same period was negative (see Figure 1), the long-term reduction in inequality must have been the outcome of administrative rather than market forces.

Based on the last presumption in the estimations we would expect the trend of inequality to be positively related to the trend economic growth. But whether the drag of inequality on economic growth will prove statistically significant or not remains open until further inquiry in the following section.

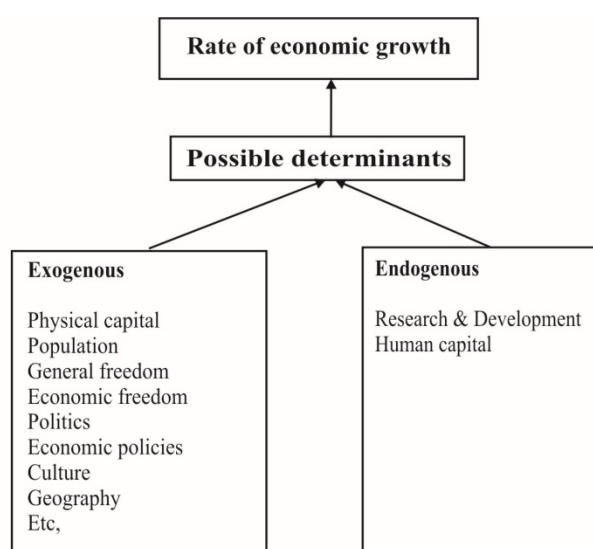
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ously declining since the mid-1970s.” The indices presented in Table 3 suggest that the decline of inequality started much earlier, even though it evolved at a slower rate.

<sup>19</sup> See [OECD Data Explorer • Income distribution database](#).

### 3. The effects of redistribution on economic growth

Before delving into the empirics, some methodological clarifications are in order. Let us go back to [Table 1](#). On observation it turns out that the indices for human and economic freedom place Greece in a rank that raises serious doubts whether it belongs to the Western type democracies. These doubts are further affirmed by *The Economist's* democracy index which from 2006 to 2022 ranks Greece consistently among the “flawed democracies”. Thus, at least in this case, the endogenous theory of policy invoked by [Persson, Tabellini \(1994\)](#) and others does not apply, and whatever equality promoting policy variable(s) are employed to capture the growth effects of redistribution should be conceived and treated as exogenous. This conceptualization necessitates in turn that the underlying theory of growth must allow for such variables to have sustainable growth effects because otherwise the specification of the estimated model might be inconsistent. For this reason, in the case of Greece where Research & Development is almost non-existent and higher education is a state produced excludable



**Figure 4:** Exogenous and endogenous determinants of economic growth

good,<sup>20</sup> the model to be estimated is perceived to derive from a theoretical framework of growth that accommodates a mixture of variables cited in the left-hand list in Figure 4.<sup>21</sup>

<sup>20</sup> Since the university system in Greece is public and caters to students who enter after passing a national entrance examination, it is hardly surprising that [Asteriou, Agiomirgianakis \(2001\)](#) found that growth promotes the demand for higher education. Besides, the state monopoly on higher education that was established by article 16 of the 1975 Constitution is a prime source of inequality and social injustice. But for this unintended consequence of this arrangement the defenders of the state's imperium keep conspicuous silent.

<sup>21</sup> In the relevant literature there is a long controversy regarding the factor(s) that raise the growth rate of a country on a permanent basis. The controversy lingers around two different viewpoints. The older one originates from [Solow \(1956\)](#) and holds that sustained economic growth springs from the exogenous or unexplained process of technological change, which boosts Total Factor Productivity (TFP). [Mankiw, Romer, Weil \(1992\)](#) elucidated further this view by adding to the growth propagating forces the processes of human and physical



One may arrive to the same conclusion through another line of thinking. Greece is a small country with limited Research and Development (R&D) and hence meagre technological advances in applied science and technology. In the period 1954-1974 it experienced relatively large inflows of Foreign Direct Investment (FDI), whereas in the period 1975-2022 FDI run dry and many foreign companies withdrew their productive facilities. Referring to these two opposite waves of FDI, it is commonly accepted that the rate of absorption of technological change from abroad had something to do with the high (low) growth rates in the first (second) period. But the point here is not to stress the importance of this relationship. The point is that technological change in Greece has been always exogenous, flowing in either through the channel of FDI or through imports of equipment and knowledge in association with the process of domestic investment. So, aside of the questionable quality of democracy, there are also other reasons for presuming that the appropriate model of growth for Greece is a Solow type expanded in the direction mentioned above.

Drawing on these clarifications, this section focuses on three tasks: Namely, first, the specification of the empirical model, second, the description of the available data, and lastly the presentation of the estimates. To them are devoted the three sub-sections that follow.

### 3.1 Specification of the empirical model

Subject to testing, assume that all variables in the model to be estimated are I(1) in the levels and I(0) in their first differences. Furthermore, just for simplicity, assume that  $X$  stands for a vector of endogenous and exogenous variables that have permanent effects on growth. The augmented Solow model with constant returns to capital and labour but with constant or increasing returns to the growth affecting determinants in  $X$  would be:

$$Y_t = A_0 e^{gt} X_{it}^{\gamma_i} L_t^\alpha K_t^{1-\alpha}, \quad \gamma_i \geq 1, \text{ for } i = 1, 2, \dots, n, \quad 0 < \alpha < 1, \quad (1)$$

where  $Y$  = output,  $X_i$  = Data determined and permanently growth affecting variable,  $L$  = labor,  $K$  = Capital,  $A_0$  = Constant,  $g$  = Rate of exogenous technological change, and  $t$  = time. Next, dividing both sides of (1) by  $L_t$  and taking logs gives:

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capital accumulation. The more recent viewpoint originates from [Romer \(1990\)](#). This claims that the source of sustained economic growth is the advancement of science and technology through the process of Research and Development (R&D). Readers interested in the empirical implications of the debate, may consult [Rao \(2007\)](#).

$$y_t = \ln A_0 + gt + \sum_{i=1}^n \gamma_i x_{it} + (1-\alpha)k_t, \quad (2)$$

where  $y_t = \text{Log of output per worker}$ , and  $k_t = \text{log of capital per worker}$ , and  $x_{it} = \text{log of variable } x_{it}$ . Lastly, denoting the long term equilibrium values of variables by a star and taking the first differences, (2) yields:

$$\Delta y_t^* = g + \sum_{i=1}^n \gamma_i \Delta x_{it}^*, \text{ since } (1-\alpha)\Delta k_t^* \rightarrow 0. \quad (3)$$

From this expression it turns out that, while under the original Solow model the growth rate of output per worker would grow permanently at the rate of  $g$ , now under the expanded form of the model the growth rate may be higher or lower depending on the effects of the variables  $x_{it}^*$  that may test significant. In the case of Greece as a country with unique institutions, market structures, values, culture, geography, history, etc., this conceptualization offers a convenient empirical framework to search for the factor(s) that may have been responsible for the spectacular decline of economic growth since 1974.

Perhaps, as we expect, the main culprit for this awful experience will turn out to be the 1975 constitutional provisions that empowered the redistribution policies on record. But we will not be surprised if another populist policy process like the shrinking of economic freedom emerges as key factor. Our plan is to test all policies that are suspect for the protracted decline of investment, foreign and domestic, and let the data lead us to the significant determinants by purely statistical criteria.

### 3.2 Data, variables and pre-estimation tests

Our primary data consist of time series extracted from various databases maintained by widely known international organizations. In particular, most come from the databanks of the European Commission (AMECO), the World Bank (WB), and the Organization for Economic Cooperation and Development (OECD). For each variable we sought to employ the longest available time series. [Table 4](#) indicates their symbols, the periods they cover, the units in which they are measured, and the sources from where we obtained them.

<a href="#">Table 4</a>
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According to [Engle, Granger \(1987\)](#), if, say, two time series  $Q(t)$  and  $W(t)$  are  $I(1)$  in the levels and the residuals from a regression between  $Q(t)$  and  $W(t)$  are  $I(0)$ , these two time series are said to be cointegrated. The implication of this anomaly is that their relationship lacks

stationarity and the classical regression estimating techniques may lead to spurious inferences. In this event, the difficulties that arise can be confronted by switching to the so-called Autoregressive Distributed Lag (ARDL) estimation method. But in the meantime econometricians proposed several alternative approaches to ARDL. One was firstly introduced by [Pesaran, Shin \(1999\)](#) and further extended by [Pesaran et al. \(2001\)](#). This allows the researcher to include in the estimation a mix of  $I(1)$  and  $I(0)$  regressors, provided that the dependent variable is  $I(1)$  and no regressor in the right hand side of the equation is integrated of order greater than 1.<sup>22</sup> Hence, insuring that these conditions hold in our case necessitates that we run unit root tests in the levels and the differences of the variables.

Relevant to this task are Tables 5, 6 and 7. [Table 5](#) reports the standard descriptive statistics of the variables. Looking from top to bottom in the extreme left min-max columns there emerges no indication of a sharp break in any of the time series. If this were not the case, we would have an early indication about the existence of structural breaks in the data. But one

<a href="#">Table 5</a>
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needs to exercise caution because descriptive statistics are useful for getting a preliminary glimpse into the structure of the data but cannot serve as substitute for the implementation of formal pre- and post-estimation tests.

[Table 6](#) displays the results from four classic unit root tests in the levels and in the first differences of the variables. From the results of the ADF and PP test it turns out that in their overwhelming majority the variables are  $I(1)$  in the levels and  $I(0)$  in the first differences,

<a href="#">Table 6</a>
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thus meeting the conditions for adopting the [Pesaran et al. \(2001\)](#) approach to the ARDL estimation.<sup>23</sup> Yet, from the results of the KPSS test we see that  $y_t$ , as well as a few of the regressors are not trend stationary. Hence, in the estimation stage, it will be necessary to allow for the possible instability that this source of variability, primarily in dependent variable, may introduce on the parameter estimates of the model.

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<sup>22</sup> Additionally, the ARDL estimating technique provides the great advantage that it permits researchers to incorporate different number of lags in different variables, thus rendering it very flexible.

<sup>23</sup> Regarding the series of inequality it should be noted that the stationarity and specification tests of the model meet the criticisms which have been addressed by [Parker \(2000\)](#).

Lastly, and before switching to estimation, let us look into the thorny econometric issue of possible structural break(s) in the data. All unit root tests, including those presented in [Table 6](#), are known to be biased towards rejecting the null hypothesis in the presence of structural break(s). Therefore, to ascertain that either there are no structural break(s) in the variables or to control for them in case there are, we run the so-called Zivot-Andrews test, the results of which are displayed in [Table 7](#). Looking closer at them, observe that certain time series suffer from structural breaks in the years indicated in the second row. By implication, to control

<a href="#">Table 7</a>
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for the possible influence of this finding on the estimates, we shall follow the conventional approach of introducing dummy variables.

### 3.3 Estimation and post-estimation tests

The estimates to be presented derive from the form of ARDL that [Kripfganz, Schneider \(2018\)](#) introduced in the following error correction form:

$$\Delta y_t = \alpha_0 + \beta_1 t - \gamma(y_{t-1} - \delta' \mathbf{x}_{t-1}) + \sum_{i=1}^{p-1} \psi_{yi} \Delta y_{t-i} + \sum_{j=1}^{q-1} \psi'_{xj} \Delta \mathbf{x}_{t-i} + e_t, \quad (4)$$

where  $\mathbf{x}_t$  is a vector of control variables,  $\delta$  is a vector of the long-run coefficients,  $\gamma$  is defined as the speed-of-adjustment coefficient,  $p$  and  $q$  are the optimal lag length operators selected by the Akaike information criterion, which can be different for each control variable,  $\psi_{yi}$  and  $\psi_{xj}$  are vectors of coefficients showing the short-run effects, and  $e_t$  stands for the residuals at time  $t$ .

Turning to the estimation of equation (4), recall from [Tables 6 and 7](#) that, regarding the dependent variable  $y_t$ , the null hypotheses that it has neither structural breaks nor a unit root with structural breaks were both rejected; So, to allow for the time trend and structural breaks in 2003 and 2011 we experimented with  $t$  and appropriate dummy variables. After exhaustive trials, we concluded that the empirical specification of equation (4) presented in [Table 8](#) is first best because, from among several other specifications that explained a high percentage

<a href="#">Table 8</a>
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of the variability of the dependent variable and displayed certain other desirable features, it is the only one that passed all post-estimation diagnostic tests.

To reinforce this assessment, consider the following alternative specification of the estimated equation. Based on the statistical significance of its coefficients, the degree to which it explains the variability in the dependent variable, and its consistency with economic theory, this specification is superior to the one we selected as first best. For one of its comparative

**Alternative specification of equation (4)**

$$\begin{aligned} \Delta y_t = & -8.39 + .007t - .938y_{t-1} + 1.166gn_t - .376tiw_t + .241eps_t + .724hf_t - .358tb_t \\ & (-1.34) \quad (2.19) \quad (-9.95) \quad (4.71) \quad (-3.30) \quad (5.45) \quad (2.25) \quad (-2.20) \\ & - .979\Delta gn_t - .935\Delta gn_{t-1} + .265\Delta tiw_t + .227\Delta tiw_{t-1} - .117\Delta eps_t - .087\Delta eps_{t-1} \\ & (-5.73) \quad (-5.37) \quad (4.25) \quad (4.85) \quad (-2.66) \quad (-2.20) \end{aligned}$$

$$\begin{aligned} R-squared = 0.981 \quad Adjusted \bar{R}^2 = 0.941 \quad Root \text{ MSE} = 0.009 \quad Log \text{ likelihood} = 78.114 \\ Durbalt=10.799 \quad Breusch - Godfrey - LM = 13.671 \quad LM \text{ test for ARCH} = 1.149 \end{aligned}$$

advantages, observe that present in this specification with a positive sign is the variable of human freedoms  $hf_t$ . We believe that enhancing economic and human freedoms is conducive to economic growth, and hence we would be happy to select it. But looking further down it turns out that this specification fails all tests for serial correlation or autocorrelation, and this renders it unreliable for drawing conclusions and policy implications.

After this brief digression, let us now return to the selected specification. To highlight the demanding statistical tests it passed, the first was to establish that the long-run relationship that it traces does exist, of course in the statistical sense that most likely it is this that generates the data. Appropriate for this task is the so-called PPS bounds test, the initials of which come for the researchers [Pesaran et al. \(2001\)](#) who proposed it. The results are exhibited in [Table 9](#). From them it emerges that the null hypothesis of no relationship is rejected with a comfortable degree of confidence. Next, having confirmed the existence of the long term re-

[Table 9](#)

lationship between  $y_t$  and its determinants, the second step was to assess the stability and in general the robustness of the estimated coefficients, even though we knew already from [Table 8](#) that most are statistically significant at high levels of confidence. To this end, we implemented a barrage of tests, the results of which are shown in [Table 10](#). Row 2 displays the

[Table 10](#)

results for detecting heteroskedasticity.<sup>24</sup> The p-value is such that one fails to reject the null hypothesis that the residuals are homoscedastic. Rows 3, 4 and 5 show the test results for serial correlation or autocorrelation, following [Durbin's \(1970\)](#) alternative test, [Breusch's \(1978\)](#) and [Godfrey's \(1978\)](#) test for high-order serial correlation, and [Engle's \(1982\)](#) Lagrange multiplier test for the presence of autoregressive conditional heteroscedasticity. Again, on the basis of the results we failed to reject the null hypothesis of no serial correlation or autocorrelation. Next, [Ramsey's \(1969\)](#) RESET test was computed to examine the possibility of omitted variables in the specification of the selected equation. Under this test, the null hypothesis is that the estimated equation has no omitted variables. As the results in line 6 of the table attest to, the null hypothesis cannot be rejected, thus implying that the equation is correctly specified. The tests in rows 7 and 8 assess the normality of the residuals. The first test, suggested by [D'Agostino, Balanger, D'Agostino \(1990\)](#), examines the skewness and the kurtosis in the residuals, whereas the second is the popular [Jarque-Bera \(1987\)](#) asymptotic test for normality. On the basis of the results, the null hypothesis of normal distribution cannot be rejected. Finally, to test the stability of the parameters of the estimated equation, row 9 presents the cumulative test of recursive residuals, firstly introduced by [Brown, Durbin, Evans \(1975\)](#) and further enhanced by [Ploberge, Kramer \(1992\)](#). Supportive of these results from this test are also Figures 5 and 6 in the next page.

In conclusion, since the null hypothesis cannot be rejected, the stability of estimated parameters is affirmed, and hence all post-estimation diagnostic tests indicate that the ARDL estimates of the chosen equation are reliable and robust. On this basis then, we can turn to the implications of the selected equation for government policies with confidence.

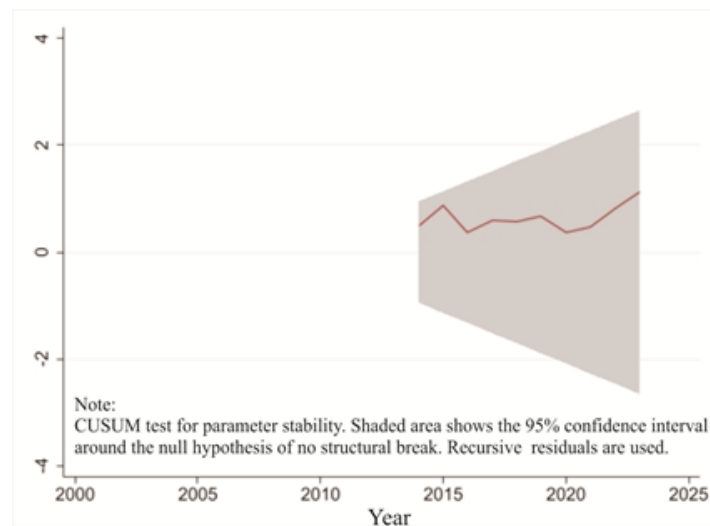
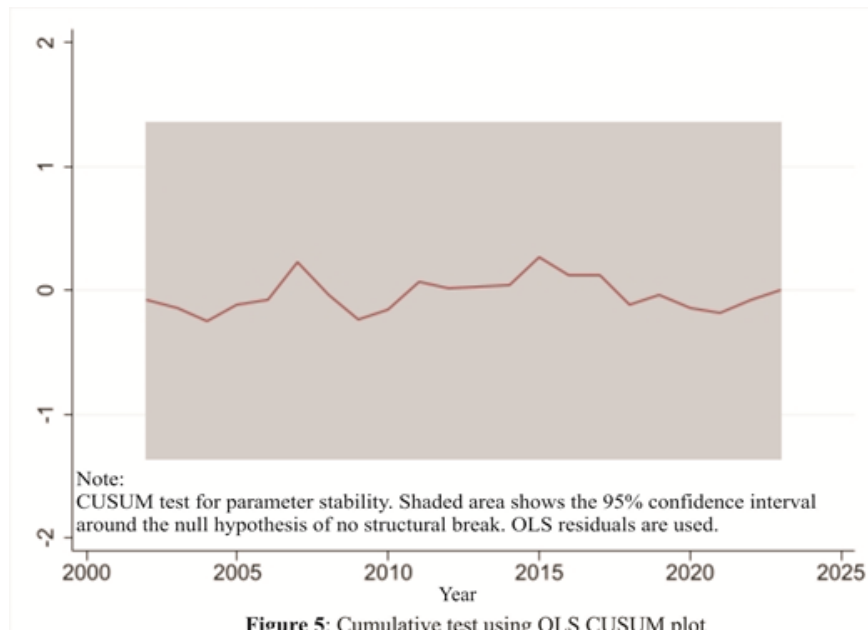
#### **4. Social state, redistribution and the decline of long-term growth**

As could have been expected, after the authorization of the 1975 Constitution, one Greek government after another embarked on transforming the previous regime of citizen-based democracy into a social state, in which the government enjoys an advanced degree of sovereignty and has come to control more than 50% of the GDP's production. The main levers governments used to achieve this objective were: a) the populist allure of reducing inequality through explicit and implicit policy initiatives; b) the instrumentalization of public sector employment for the purpose of catering to organized minorities disposed friendly towards the political parties that alternate in government; c) on the one hand, increasing incessantly the

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<sup>24</sup> All tests presented in [Table 10](#) were computed using Stata.

## ARDL plots relating to the CUSUM coefficient stability test



taxes on income and wealth to defray the costs of the clientelist public sector, and on the other, turning citizens into needy subjects directly through advances of large amounts of subsidies, and indirectly through the provision of low quality public services; d) increasing the total burden on the economy by raising and/or keeping the value-added tax rates among the highest in the European Union and the world; and not the least e) resorting to public borrowing, particularly from abroad, without concern for the burden this practice places on to future generations, and this even though not a single day passes by without some politicians declaring their commitment to promoting “social justice.”

Even a cursory look at [Table 4](#) suffices to reveal that the empirical part of this paper has been designed to capture the impact on economic growth of the social and economic policies that were enacted in the above five fronts since 1974. Therefore, now that we have a sound empirical model to work with, the moment has come to put it to good use. That is, to find out why the rate of economic growth has trended downwards throughout the current phase of democracy. However, before delving into this task, for the reasons that will become clear

<a href="#">Table 11</a>
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shortly, we put the selected model equation through one final test. We re-estimated it by applying the novel dynamic ARDL simulations procedure, which has been proposed by [Jordan, Philips \(2018\)](#). The results are presented in [Table 11](#). Again, the maximum number of lags was restricted to 2, their optimal number was selected by the dynamic ARDL itself using the Akaike information criterion, and the values of  $F$ - and  $t$ -statistics from the PSS bounds test ascertained the existence of the estimated equation in the particular configuration shown in the long term section of this table. Moreover, since this particular specification is somewhat superior to the one in [Table 8](#) and the dynamic ARDL simulations procedure offers several advantages for the analysis of the policy implications involved, it is this to which we shall refer from now on.

Drawing on the results from [Table 11](#), equation (5) depicts the relationship of  $y_t$  to its determinants ( $gn_t, tiw_t, epss_t, tb_t$ ) in the very long run. In other words, assuming a policy associated shock in one of the latter variables, holding the remaining fixed, the equation shows where the level of  $y_t$  will be after all its short- and medium-term adjustments have subsided.

$$y_t = 6.946 + 0.527 gn_t - 0.221 tiw_t + 0.279 epss_t - 0.367 tb_t \quad (5)$$

For an example, suppose that a policy is introduced aiming at reducing the mean of the Gini index by 1%. Given that  $gn_t$  is related positively to  $y_t$ , implying that Greece is in the upward sloping section of Figure 1 or otherwise in the Kuznets phase of economic development, the reduction in inequality by administrative means will be accompanied by a loss in economic growth. How big the latter might turn out to be eventually, we get an indication from the elasticity, which is 0.527%. Quite likely though, this estimate may prove conservative. For, if the government follows the established practice of redistribution, that is to finance the cost of the policy by raising taxes on income and wealth ( $tiw_t$ ) or the total tax burden ( $tb_t$ ) on the econo-



my, the losses in terms of foregone economic growth may be much higher since both these determinants are related negatively to  $y_t$ .

Thinking along the above lines, one should be able by reference to equation (5) to confirm the validity of the following propositions:

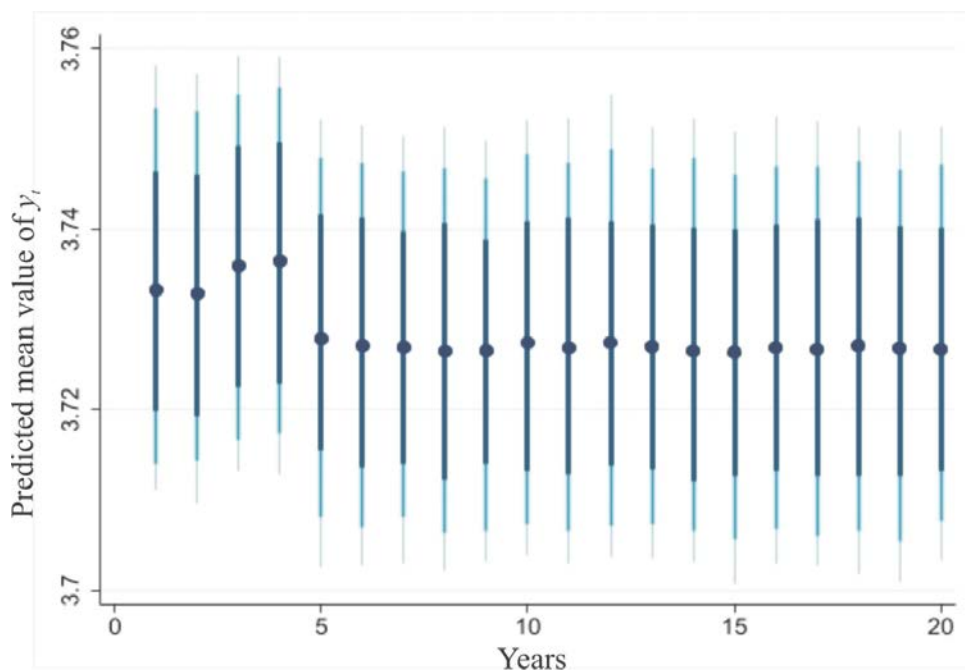
- The innumerable explicit and implicit institutional arrangements through which Greek governments reduced inequality ( $gn_t$ ) since 1974 by redistributing income and wealth under the 1975 Constitution, are predominantly responsible for the long term decline of Greek economic growth.
- Also responsible for their dampening effect on long term economic growth have been the taxes on income and wealth ( $(tiw_t)$ ) and the total tax burden ( $(tb_t)$ ) imposed on the economy by having raised and kept the rates of value added taxes and other charges exorbitantly high.
- By contrast, the excess employment in the public sector ( $(epss_t)$ ) has acted all along as a stabilizer by slowing down the decline of long-term economic growth due to the above policies. But as transfers of employment from the private to the public sector hurt Total Factor Productivity (TFP), this practice of the political system compensated only to a small extent for the negative effects of the other three policies.

However, since they hold in the very long run, an observer with shorter horizon concerns will ask: a) how might we expect the policy to impact  $y_t$  during the transition phase in the short- and medium-run? Can the analysis shed some light on the shape of the adjustment process? c) Since the policies that governments introduce are usually interconnected, how can we visualize what would happen to  $y_t$  if the government enacts at the same time policies through more than one of the independent variables? The rest of this section is devoted to answering these questions.

[Table 11](#) shows that the assumed reduction in  $gn_t$  would boost economic growth, and indeed very robustly in the few years following the policy change, because the coefficients of  $gn_t$ -related differenced variables are very high. But mind you. While this experience may have misled Greek politicians to insist on redistribution policies to reduce inequality, over the long haul such policy initiatives have had negative impact on economic growth. Regarding this interpretation of the evidence, we can obtain a far better understanding by looking at the short- and medium-term dynamics that the ARDL simulations procedure makes possible.

To identify the pattern of the policy's effects on  $y_t$ , consider a reduction of 1% in the mean of  $gn_t$ , holding  $(tiw_t, epss_t, tb_t)$  fixed at the level of their respective means. Upon introduction of the policy, the mean of  $y_t$  would experience a sequence of cumulative changes for some shorter or longer period before it converges eventually to its new long term equilibrium. Critical to the speed of convergence, and hence to the length of the transition period, is the coefficient of the Error Correction Term (ADJ). From [Table 11](#) we observe that it is  $-0.8707$ . As such, it is important for at least two reasons. The first is that it has the expected negative sign, which provides extra assurance that the cumulative changes of  $y_t$  will converge by evolving over time monotonically or cyclically around a new lower or higher mean. As for the second reason, this stems from its relative size. In particular, by being so close to 1, this coefficient suggests that the bulk of the convergence will take place within 2-3 years following the introduction of the policy.

The plot in Figure 7 shows the cumulative response of  $y_t$ , assuming that in the two years prior to the year the policy is introduced at  $t = 3$  it was adjusting due to the implementation of a similar policy in the past. Looking closer, the patterns of importance to emphasize are fourfold. First, observe that in the year that the policy is introduced and the following one the

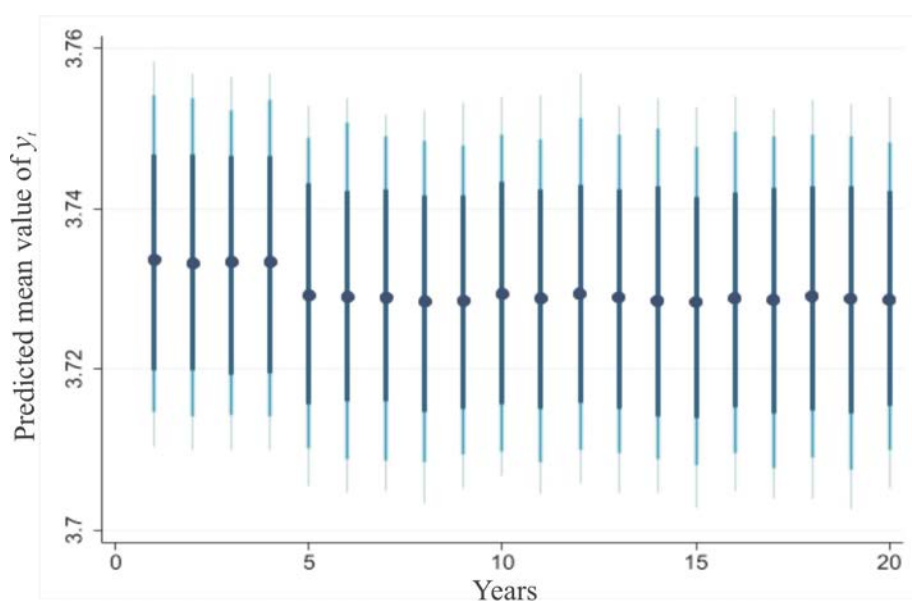


Note: This figure shows the cumulative response in the mean value of  $y_t$  to a -1% shock in the mean value of the Gini index  $gn_t$ . Black circles show the cumulative changes that occur every year in the rate of economic growth, whereas the spikes from the darkest blue to the light blue show the 75%, 90%, and 95% confidence intervals, respectively. We apply 5,000 simulations and assume the shock takes place at time  $t=3$ .

**Figure 7:** 1% reduction in the mean value of the Gini index  $gn_t$

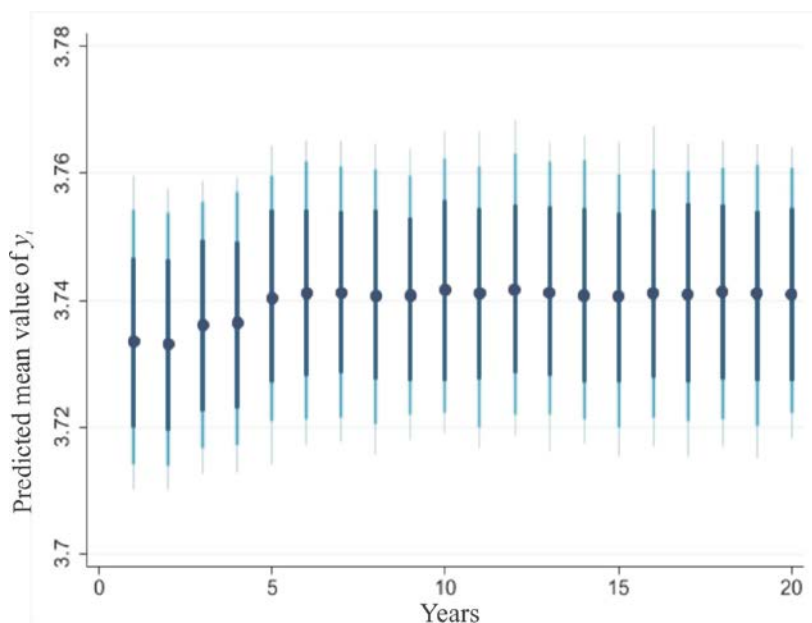
dedline in inequality increases  $y_t$ . This finding ascertains the validity of the preceding comment that most likely it is this positive economic growth effect that explains the insistence of Greek politicians to stake the stability of the political system on this very costly policy; Second, right after the two years,  $y_t$  declines to a new mean, lower than before the policy was introduced; Third, prior to convergence to the new lower mean, in the last three years of the 20 year period considered,  $y_t$  cycles narrowly around it, thus suggesting that inequality is an unstable social process to tinker with on an ad hoc administrative basis; Lastly, and perhaps more importantly, as Greek governments pressed constantly on the pedal of redistribution, and inequality followed the pattern exhibited in Figure 3, the downward trend of  $y_t$  was the only possible outcome. For, it is easy to see that, under a sequence of such policy shocks over the years; the curve traced by the bullets in Figure 7 would shift persistently downwards; so  $y_t$  would slide on a trend line like that in Figure 2.

No doubt, the above *ceteris paribus* analysis is illuminating. But Greek governments did not remain focused exclusively on inequality; nor could they, since such policies cost money and must be financed by raising taxes or borrowing. In line with this conceptualization, the estimated equation suggests that governments acted also on the policy fronts indexed by the variables ( $tiw_t$ ,  $epss_t$ ,  $tb_t$ ). Therefore, the questions about what the model has to say for the course of  $y_t$  in the actual environment of multiple simultaneous policy changes remains open. Figures 8, 9 and 10 have been derived on the assumption that isolated policy changes shifts one of these variables at a time, holding the remaining fixed. From figures 8 and 9 it follows that raising taxes ( $tiw_t$ ,  $tb_t$ ) would reinforce the negative effects on economic growth of inequality policies. By contrast, Figure 10 shows that the expansion of excess employment in Greece's public sector ( $epss_t$ ) would contribute positively. In other words, in a hypothetical case that the government enacted equiproportional policies on all four fronts, the policies through the channels ( $gn_t$ ,  $tiw_t$ ,  $tb_t$ ) would depress economic growth and only that through ( $epss_t$ ) would boost it, and indeed at a modest clip.



Note: This figure shows the cumulative response in the mean value of  $y_t$  to a +1% shock in the mean value of  $tiw_t$ . For the rest, see note at the bottom of Figure 7.

**Figure 8:** 1% increase in the taxes on income and wealth,  $tiw_t$



Note: This figure shows the cumulative response in the mean value of  $y_t$  to a +1% shock in the mean value of  $epss_t$ . For the rest, see note at the bottom of Figure 7.

**Figure 10:** 1% increase in the mean value of excess public employment,  $epss_t$

In short, while combating inequality through top-down policies and expanding of excess employment in the public sector appear to stimulate economic growth in the short run, over the medium and the long-run such policies definitely erode it. This undesirable outcome worsened even further in the post-1974 period because, to cover costs involved, Greek governments turned it into permanent practice to raise taxes and or, in order to avoid breaking the electoral cycle, to borrow like there was no tomorrow. This explains how Greece hit the wall of first post war bankruptcy in 2009.

## 5. Summary, recommendations and the need for further research

The success of democracy in classical Athens was based, among several others, on three fundamental principles. These were, first, the adamant protection of private property; second, the pairing of moderate inequality with the major advantages of a socially tolerant individualism; and thirdly, that the citizens in the *Ecclesia of Demos* who governed the city-state took ownership of the consequences of their decisions. While Greeks knew the powerful combination of these principles, and tested it with wonderful results in the period 1954-1974, upon returning to democracy from seven years of military dictatorship in 1974, a year later they “decided” to change course.<sup>25</sup> In particular, by adopting the 1975 Constitution, according to the au-

<sup>25</sup> I inserted quotation marks in the word “decided” because in several papers and books published in Greek either by myself alone or jointly with other authors we have documented that the 1975 Constitution was author-

thoritative interpretation by Professor [Katrougalos \(2010\)](#) of the articles that were newly added to it, Greeks welcomed a regime that was destined to become a social state in which the institutions of governance hold dominant sway over the sovereignty of the people.

On the theoretical plane, this paper focused on the evolution of economic growth during this period; the main factors that most likely shaped its downward trend; and the model in the framework of which these factors combined to bring about the observed results. From the analysis it emerged that the redistribution mechanism, which has been purposely embedded in the 1975 Constitution, is driven by the appeal of social programs for the reduction of inequality among the voting public, the excess demand that perennially exists for employment in the public sector, the coverage of the costs involved by increasing taxes and public borrowing, and the expansion of the state's sovereign domain by imposing innumerable restrictions on human and economic freedoms. On the empirical plane, the task was clear cut, but difficult to implement due mainly to the realization that, despite our efforts, several crucial time series could not be extended to years earlier than 1995. Yet, the estimated model passed the entire set of demanding tests that we put it through, and the experiments we performed with it turned out to be exceedingly enlightening.

We found that responsible for the downward trend of economic growth during the post-1974 period is the multitude of redistribution policies that were introduced for the expressed purpose of reducing inequality ( $gn_t$ ). There is no doubt that these policies by themselves would have discouraged saving, shrunk investment, suppress risk taking and entrepreneurship, and incentivize businesses and professionals to move abroad. However, while reducing inequality was the pretext for gaining the support of the people and maintaining political stability, the key objective of the political order under the 1975 Constitution was the expansion of the social state which, based on the general government expenditure from 24.1% of the GDP in 1974 grew to over 52,3% in 2023.<sup>26,27</sup> And of course, as clearly validated by our estimated model, in order to achieve this huge redistribution,<sup>28</sup> governments killed economic growth by increasing incessantly taxes on income and wealth ( $tiw_t$ ), burdening the economy

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ized in a period of anomalous political circumstances and under the influence of a narrow circle of politicians, academics, entrepreneurs, etc., who held ideas considerably alien to Western type democracy.

<sup>26</sup> See OECD ([1975](#), [2023](#))

<sup>27</sup> In the Fraser Institute index of Economic Freedom for 2021, which was just published, as well as that of the CATO institute cited in the text, Greece ranks in the second quartile among the rather illiberal countries. What is of importance in this regard is that Greece's ranking is due mostly to the large size of its public sector.

<sup>28</sup> It is the mechanism for this huge redistribution that was embedded in the 1975 Constitution that [Alogoskoufis \(1995, 2024\)](#) failed to identify as the main cause for the two faces of economic growth in postwar Greece.

with heavy value-added taxes ( $tb_t$ ), and expanding employment in the public sector ( $epss_t$ ) in a redistributive fashion<sup>29</sup> or to keep unemployment from exploding.<sup>30</sup>

In light of the evidence then, the questions that come naturally to one's mind are: what should be done, what can be done, and what are the odds for reversing the ominous trends that confront Greece looking forward. Judging from the available literature, which deals with the reasons why reforms fail in Greece, I am skeptical whether any of the necessary fundamental structural reforms can be implemented. Having demonstrated in this paper at what immense social cost we hang on past practices, my hope is that some fellow citizens may side with the only recommendation I can make, which is to go back to the provisions and the institutional arrangements of the 1952 Constitution. Or, if to some readers my view appears old-fashioned, let us consider adopting the proposal for a new innovative constitution which was submitted recently by [Alivizatos et al \(2016\)](#). If six highly distinguished Greek citizens devoted time to think, write and lay down their wisdom about the need for a new constitution, their ideas deserve to be communicated, discussed widely in public, and implemented.

Finally, there is an aspect in this paper that needs further research. It relates to the rejection by the data of our expectation that the indices of human and economic freedoms ( $hf_t$ ,  $ef_t$ ) would turn up with a statistically significant coefficient. Hopefully, as researchers take notice of the key role that these freedoms play in allowing competitive markets to alleviate social problems, the linkage between them and  $y_t$  will become clearer,<sup>31</sup>

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<sup>29</sup> From Alesina et al. (1998, 2001) we know of the tendency of politicians in Western type democracies to use public employment as a mechanism of redistribution, and particularly in the context of the electoral cycle.

<sup>30</sup> The tragedy, if not sheer mockery, of it all is that the ideologues and promoters of the social state in all political parties in Greece attribute this transformation to “neoliberal” policies.

<sup>31</sup> In Greece, [Tsitouras, Papanagos \(2023\)](#) have been the first to take notice of the importance of these freedoms by focusing on their linkage to inequality.

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## 7. Annex: Tables

**Table 1:** Ranking of certain key countries based on indices of human and economic freedom<sup>1</sup>

Countries	Human freedom <sup>2</sup>	Economic freedom
Australia	11	6
Ireland	5	10
Denmark	4	5
USA	23	7
Greece	57	85
China	152	139

**Notes:**  
1. Based on the [Human Freedom Index: 2022 | Cato Institute](#). The data refer to the year 2020  
2. The index of Human Freedom is computed by taking the average of the indices of Personal Freedom and Economic Freedom.

**Table 2:** Cumulative effects of redistribution policies on the finances of Greece's general government over the period 1975-2021<sup>1</sup>

1974				2021 <sup>2</sup>						
	Current <sup>3</sup>		Debt		Current		Debt <sup>6</sup>			
Expenditure	23.9	(37.5)	16.2 <sup>4</sup>	(≈55) <sup>5</sup>	Expenditure	57.1	(47.1)	Gross	225.7	(129.8)
Revenue	26.4	(36.5)			Revenue	49.7	(39.4)	Net	168.4	(81.0)

**Notes:**  
1. The figures in the parentheses are simple or unweighted OECD country averages. If not stated expressly otherwise, all figures are reported as % of the Gross Domestic Product (GDP)  
2. All figures for 2021 come from [OECD \(2023, 8\)](#).  
3. The figures for 1974 were computed as simple averages of those for 1973 and 1975 by drawing on [Saunders \(1985, 5\)](#). For Greece and OECD this source reports general government expenditure and revenue as shown below:

		1973	1975
Greece	Expenditure	21.1	26.7
	Revenue	25.4	27.4
OECD	Expenditure	34.4	40.5
	Revenue	35.3	37.6

By contrast, the 1974 figures reported for Greece in [OECD \(1975, Table: Basic Statistics of Greece\)](#) as a percentage of GNP, were: expenditure: 24.1%, revenue: 22.6%. Since for Greece GNP>GDP, the differences in the reported percentages between the two sources should be narrower. However, observe that while by the first source 1974 was for Greece a surplus year, by the figures of OECD it was a deficit one. From 1975 to 1981 both sources show that the budget deficit widened.

4. How much debt democratic governments inherited from the military regime in 1974 is a much contested issue. [Sarafidis, Panagiotelis, Panagiotidis \(2017, 6\)](#) claim that in 1974 the debt to GDP ratio was 21.2% and that it remained fairly stable for the rest of the decade, climbing in 1980 only to 22.8%. Several years earlier, [Alogoskoufis \(2013, 48\)](#) found that the ratio climbed from a bit less than 20% in 1975 to a bit more in 1980, whereas [Bitros, Karayiannis \(2013, 208\)](#), using AMECO base data, found that the debt-to-GDP ratio was 16.2% and that it trended upwards in the remaining years of the decade. Furthermore, as the responsibility for the accumulation of unsustainable public debt continues to be central to party politics, it is interesting to note that the Greek printed and electronic media are full of heated debates as to what went wrong and who is the prime minister of which party that did the most harm by letting the accumulation of public debt get out of control.

5. The figure in the parenthesis is a conservative guess arrived at as follows. Using data for the years 1967-1969 from [OECD \(1974, Table 10\)](#) gave a debt-to-GNP ratio of 45%. The countries included in the computation of this simple unweighted average were Ireland, United Kingdom, France, Germany, Italy, Netherlands, United States, Canada and Japan. But this figure does not include debt payable in foreign currency and refers not to the general but to the central government. Hence, given that in Greece local and regional authorities rarely, if ever, borrow, whereas in most of the above mentioned countries they do, the average OECD debt in 1974 must have been higher because, the trend for this ratio over the period 1968-1974 was positive, the general government debt is normally higher than that of central government, and holding 20-25% of a country's debt in foreign exchange seemed to be the norm at the time.

6. Net debt is Gross debt less any reserves the country may have in cash-like and other highly liquid assets.

<b>Table 3:</b> Evolution of inequality over the period 1959-1986 <sup>1</sup>		
Years	Shares	
	Top 5%	Top 1%
1959	0.222	0.095
1974	0.205	0.079
Decline	<b>9.9%</b>	<b>16.8%</b>
1975	0.193	0.069
1986	0.167	0.053
Decline	<b>16.6%</b>	<b>30.2%</b>

Notes:  
1. See [Livada \(1991,79\)](#).

**Table 4:** Details about the data and the variables

Symbols <sup>1</sup>	Description	Period	Units	Source
$y_t$	GDP per employed worker	1960-2023	1000 €at 2015 prices	AMECO
$k_t$	Net fixed capital stock per employed worker	1960-2023	1000 €at 2015 prices	AMECO
$gn_t$	Gini coefficient	1995-2021	Percentage	OECD
$pse_t$	Public sector employment	1987-2023	Percentage	NSSG <sup>2</sup>
$psei_t$	Public sector employment in Italy	1995-2023	Percentage	NSSI <sup>3</sup>
$pses_t$	Public sector employment in Spain	2000-2023	Percentage	ILO <sup>4</sup>
$tb_t$	Tax burden on total economy	1995-2023	% of GDP	AMECO
$tiw_t$	Taxes on income and wealth	1995-2023	% of GDP	AMECO
$dt_t$	General government consolidated gross debt	1995-2023	% of GDP	AMECO
$ef_t$	Economic freedom <sup>5</sup>	2000-2021	Index	CATO
$hf_t$	Human freedom <sup>6</sup>	2000-2021	Index	CATO-FRAZER <sup>7</sup>

Notes:

- All variables are in logs.
- National Statistical Service of Greece.
- National Statistical Service of Italy.
- International Labor Organization.
- This index accounts for the size of the government, the legal system, the property rights, sound money, freedom to trade internationally, and regulation.
- See note 2 in [Table 1](#). The index of Personal Freedom used in computing the average of the index of Human Freedom accounts for the rule of law, security and safety, the freedoms of movement, religion, association, assembly, etc., and published by the Fraser Institute, Canada.
- I am much indebted to Mr. Constantinos Saravakos of the Center of Liberal Studies who spotted an inconsistency in the sources of these data and helped me clarify it.

**Table 5.** Summary of descriptive statistics<sup>1,2</sup>

Variables	Obs.	Mean	Std. Dev.	Min	Max.
$y_t$	29	3.738	0.094	3.584	3.912
$k_t$	29	5.027	0.072	4.908	5.168
$gn_t$	29	-1.098	0.063	-1.273	-1.019
$pse_t$	29	-1.519	0.029	-1.556	-1.444
$epsi_t$	29	-2.862	0.313	-3.540	-2.465
$epss_t$	24	-2.870	0.156	-3.079	-2.538
$tb_t$	29	2.187	0.133	1.857	2.396
$tiw_t$	27	1.959	0.029	1.892	1.995
$dt_t$	22	2.063	0.027	2.014	2.092
$ef_t$	29	4.902	0.278	4.579	5.333
$hf_t$	29	3.583	0.124	3.380	3.764

**Notes:**  
1. All variables are in logs.  
2. The variables  $epsi_t$  and  $epss_t$  stand for excess employment in the public sector in Greece and have been defined as  $(pse_t - pse_{i_t})$  and  $(pse_t - pses_t)$ , respectively.

**Table 6:** Unit root tests<sup>1</sup>

	$y_t$	$k_t$	$gn_t$	$pse_t$	$epsi_t$	$epss_t$	$dt_t$	$tb_t$	$tiw_t$	$ef_t$	$hf_t$
<b>Panel A: Levels</b>											
ADF-test	-1.44	-1.29	-0;17	-2.56	-2.15	-2.15	-1.07	-1.28	-3.04**	-1.54	-0.19
ADF+trend	-2.08	-0.22	-2.33	-2.62	-1.02	-2.53	-1.63	-1.79	-3.67**	-2.64	-2.75
PP-test	-1.73	-1.57	-0.65	-2.79***	-2.54	-1.84	-1.04	-1.22	-2.32	-2.02	-0.21
PP +trend	-2.11	-0.33	-1.67	-2.78	-1.24	-2.59	-1.54	-2.04	-2.76	-3.08	-2.46
KPSS-test	0,18**	0.19**	0.13*	0.09	0.20**	0.08	0.10	0.09	0.07	0.12*	0.12*
<b>Panel B: First Differences</b>											
ADF-test	-4.01***	-3.85***	-4.76***	-5.59***	-5.66***	-4.82***	-3.91***	-5.18***	-4.97***	-6.25***	-4.73***
PP-test	-4.05***	-3.92***	-4.73***	-5.60***	-5.65***	-4.82***	-3.94***	-3.20***	-4.98***	-6.93***	-4.77***
KPSS-test	0.16**	0.10	0.08	0.06	0.05	0.08	0.14**	0.09	0.07	0.09	0.08

Notes:

- The null hypothesis for ADF and PP unit root tests is that the time series is non-stationary.  $Z(t)$ -statistics are presented for both tests. The null hypothesis for KPSS unit root test is that the time series is trend stationary. The  $LM$ -statistics are reported. The *maximum lag* for KPSS is 3 and has been chosen by Schwarz criterion.
- \*\*\*, \*\*, \* declares the rejection of null hypothesis for  $\alpha=1, 5,$  and  $10\%$ , respectively.

**Table 7:** Unit root results with structural break

	$y_t$	$k_t$	$gn_t$	$pse_t$	$epsi_t$	$epss_t$	$dt_t$	$tb_t$	$tiw_t$	$ef_t$	$hf_t$
ZA	-2.817	-5.206**	-3.693	-3.830	-4.821*	-5.328**	-2.698	-3.163	-6.160***	-5.376**	-3.530
Break	2003	2011	2012	2015	2004	2009	2009	2011	2012	2015	2013
Notes: 1, The abbreviation ZA stands for the Zivot-Andrews test. The null hypothesis is that the series has a unit root with structural break against the alternative hypothesis that they are stationary with break. The optimal lag is chosen by <i>Schwarz information criterion</i> . ***, **, * declares the rejection of null hypothesis for $\alpha=1, 5,$ and $10\%$ , respectively.											

**Table 8:** ARDL estimates of equation (4)

Effects	<b>Table 8:</b> Estimates of equation (4) <sup>1,2</sup>				
	Variables	Coefficients	t-ratios	P> t	95% CI
Short-term	$\Delta gn_t$	-.7312***	-6.42	0.000	[-.9850 -.4774]
	$\Delta gn_{t-1}$	-.7723***	-5.59	0.000	[-1.080 -.4647]
	$\Delta tiw_t$	.1922**	2.91	0.016	[.0931 .3267]
	$\Delta tiw_{t-1}$	.2099***	4.00	0.003	[-.2408 -.0560]
	$\Delta epss_t$	-.1484***	-3.58	0.005	[-.2408 -.0560]
	$\Delta epss_{t-1}$	-.1309***	-4.26	0.002	[-.1994 -.0624]
Long-run	$gn_t$	.5188***	4.11	0.002	[.2378 .7998]
	$tiw_t$	-.2082*	-1.93	0.082	[-.4480 .0316]
	$epss_t$	.2808***	6.74	0.000	[.1879 .3736]
ADJ	$y_{t-1}$	-.8748***	-9.22	0.000	[-1.086 -.6634]
Exogenous	$tb_t$	-.3295***	-3.37	0.007	[-.5476 -.1114]
	Constant	6.077***	9.52	0.000	[4.654 7.500]
ARDL(1,2,2,2)	Observations	22			
	R-squared	0.9542			
	Adjusted $\bar{R}^2$	0.9037			
	Root MSE	0.0111			
	Log likelihood	76.432			
<b>Notes:</b>					
1. Due to the limited number of available observations in the data, the maximum lag was restricted to 2. The optimal number of lags was selected by the Akaike information criterion. The values of <i>F</i> - and <i>t</i> -statistics from the PSS bounds test, both of which ascertain the stability of the estimated coefficients, are shown in <a href="#">Table 9</a> .					
2. ***, **, * denote the rejection of null hypothesis for $\alpha=1, 5$ , and 10%, respectively.					



**Table 9:** ARDL PSS bounds test for equation (4) of Table 8

H0: no level relationship		F = 21.904						
Case 3		t = -9.223						
Asymptotic (3 variables)								
<a href="#">Kripfganz and Schneider (2020)</a> critical values and approximate p-values								
	10%		5%		1%		p-value	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
F	2.727	3.745	3.223	4.318	4.290	5.526	0.000	0.000
t	-2.569	-3.426	-2.864	-3.743	-3.434	-4.340	0.000	0.000
do not reject H0 if								
either F or t are closer to zero than critical values for I(0) variables								
(if either p-value > desired level for I(0) variables)								
reject H0 if								
both F and t are more extreme than critical values for I(1) variables								
(if both p-values < desired level for I(1) variables)								
decision: no rejection (.a), inconclusive (.), or rejection (.r) at levels:								
		10%	5%	1%				
decision		.r	.r	.r				

**Table 10:** Post-estimation diagnostic tests

Tests	Specification	Test statistics	Critical values	P-values
Heteroskedasticity	Breusch–Pagan/Cook–Weisberg <sup>1</sup>	chi2(1) = 0.75		Prob > chi2 = 0.387
Serial Correlation/ Autocorrelation	Durbin's alternative <sup>2</sup>	0.240		0.6244
	Breusch–Godfrey- LM <sup>2</sup>	0.571		0.4499
	LM test for ARCH <sup>2</sup>	chi2 = 0.279		Prob > chi2 = 0.460
Misspecification	Ramsey RESET <sup>3</sup>	F(3, 3) = 0.97		Prob > F = 0.762
Normality	Skewness/kurtosis <sup>4</sup>	Adj chi2(2) = 0.59		Prob > chi2 = 0.8571
	Jarque-Bera <sup>5</sup>	chi2(2) = 0.3085		Prob > chi2 = 0.8571
Cusum-test for parameter stability	Recursive residuals <sup>6</sup>	0.6188	[1%-5%-10%] [1.1430- 0.9479-0.8499]	
<u>Notes:</u> 1. Null hypothesis: Normal error terms or errors are homoskedastic. 2. Null hypothesis: No serial correlation. 3. Null hypothesis: no ARCH effects. 4. Null hypothesis: Model has no omitted variables. 5. Null Hypothesis: The data follows a normal distribution. 6. Null hypothesis: No structural breaks.				

**Table 11:** Dynamic ARDL estimates of equation (4)<sup>1</sup>

Effects	Parameter estimates and test statistics				
	Variables	Coefficients	t-ratios	P> t	95% CI
Short-term	$\Delta gn_t$	-.2701**	-2.68	0.021	[-.4915 -.8487]
	$\Delta gn_{t-1}$	-.7787***	-6.22	0.000	[-1.054 -.5030]
	$\Delta tiw_{t-1}$	.2127***	4.54	0.001	[.1096 .3157]
	$\Delta eps_{t-1}$	.0967***	4.03	0.002	[-.0439 -.1496]
	$\Delta eps_{t-1}$	-.1293***	-4.70	0.001	[-.1898 -.0687]
Long-run	$gn_{t-1}$	.4585***	4.06	0.002	[.2102 .7069]
	$tiw_{t-1}$	-.1925***	-3.05	0.011	[-.3314 .0537]
	$eps_{t-1}$	.2434***	6.29	0.000	[.1582 .3286]
ADJ	$y_{t-1}$	-.8707***	-10.0	0.000	[-1.061 -.6798]
Exogenous	$tb_t$	-.3197***	-4.55	0.000	[-.4742 -.1652]
	Constant	6.048***	10.4	0.000	[4.768 7.328]
ARDL(1,2,2,2)	Observations	22			
	F(10, 11)	22.84			
	R-squared	0.9540			
	Adjusted $\bar{R}^2$	0.9123			
	Root MSE	0.0106			
<b>Notes:</b>					
1, See notes in <a href="#">Table 8</a>					



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