Economic crisis in the European periphery: An Assessment of EMU Membership and home Policy Effects Based on the Greek Experience

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Abstract

Our objective in this paper is threefold. First, to identify the major common shocks that hit these countries upon entry into the EMU. Second, taking Greece as our case study, to construct a simple macroeconomic model of the policies Greek governments pursued in the presence of these shocks, and to employ its solution so as to highlight the outcomes that were expected to result. From this endeavor, we find that the policies which were put in place led unavoidably to a severe economic crisis and eventual bankruptcy. Finally, in view of these findings and what happened in 2009,we raise and attempt to answer questions like, for example: How can we explain the policies that were adopted in the advent of monetary union shocks? Could they have been anticipated? And if so, why did they escape the attention of the designers of the Maastricht Treaty? The answer to which we are led by the analysis is that the shocks in all these countries were perceived by their governments as opportunities to hold on to their entrenched positions. That this happened, we conclude, reflects a failure in the mechanisms of economic convergence that were embedded in the Maastricht Treaty as well as in the effectiveness of European Union (EU) institutions that were empowered with their enforcement.

JEL Classification: E3, F15 F16, F32, F36, H62, H63 L16

Key Words: Economic crises, economic integration, balance-of payments deficits, budget deficits and in-debtedness, structural imbalances.

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1. Introduction

When the economic crisis erupted in Greece in 2009, the view that prevailed was that its causes were idiosyncratic in the sense that they had to do with the structure of the Greek economy and the economic policies of Greek governments, at least since the country's entry into the European Monetary Union (EMU) in 2002. On account of the available evidence, this view was quite convincing and Greece became the black sheep of the world, because of the risk its imminent bankruptcy represented for the stability of the Euro, and hence, the wider international financial system. But shortly afterwards, the economic crisis engulfed Ireland, Portugal, Spain and Italy, i.e. countries of the European periphery with much stronger fundamentals than Greece,[1] and experts started to suspect that some more systematic forces were amiss. So they turned their attention to the study of the shocks these countries experienced from ascending to the Eurozone and, of the economic policies they had adopted to deal with them or because of them.

The debate that ensued about the timing, the severity and the speed and pattern of diffusion of the economic crisis has evolved along three strands of thinking. The first of them centers on the perception that some of these countries succumbed to the crisis because of the ill-advised economic policies their governments put in place. The prime example in this regard is Greece, the governments of which mismanaged public finances to such an extent that, when Darvas, et al. (2011) visited the data, they arrived at the verdict which is quoted in the following excerpt.

> "The key indicator for assessing solvency is the size of the primary budget surplus that needs to be maintained over a period of years to achieve, in the medium term, a gradual return of the public debt to safe levels. Here the numbers for Greece stand apart from those for other countries. Even under the optimistic scenario, the primary surplus required to reduce the debt ratio to 60 per cent of GDP in twenty years would be 8.4 per cent of GDP…Over the last 50 years, no country in the OECD (except Norway, thanks to oil surpluses) has ever sustained a primary surplus above 6 per cent of GDP. Even less ambitious targets would require politically unrealistic surpluses."

Apparently, by 2009 government excesses in Greece had resulted in the amassing of an unsustainable amount of public debt and, whether Gartner, Griesback, Jung (2011) and others[2] are right or wrong about

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[1] From among the countries that were affected, Greece was hit first and hardest. It almost went bankrupt in 2009 and it was spared from this misfortune only by accepting harsh austerity measures in 2010, which have reduced GDP per capita by 25% and raised unemployment to nearly 30%. By contrast, the economic crisis in the other countries turned out milder and at no time exposed any of them to the risk of bankruptcy.

[2] In addition to criticizing rating agencies, Nielsen (2011), Giollamoir (2011) and other researchers blame official government statistics for not providing a true picture. In particular, the point they stress is that when the new Greek government came to power in 2009, it had to revise the budget deficit forecast of the previous government from 6- 8 percent of GDP to 15.4 percent. However, this criticism should be tempered in the light of more recent findings by Bitros (2013).

the role that global credit rating agencies played, sooner than later international financial markets would have closed on Greece, pushing it into an open bankruptcy.

Referring to the second strand of thinking, this places the brunt of the blame on the way these countries dealt with the shocks from their participation in the EMU. One distinguished proponent who advocates it is Hellwig (2011).While taking exception of the fiscal excesses in Greece, which certainly would please the adherents to the bad internal policies-generated view of the economic crisis, this researcher maintains that government excesses themselves could have been due to EMU membership via the mechanism known as "*Dutch Disease"*.[3] For, if upon accession to the monetary union these countries attracted massive capital inflows, in the forms of foreign direct investment, financial assistance or even loans on un-expectedly easy terms, what we would expect to observe would be developments similar to those that transpired in Holland after the discovery of natural gas and in Great Britain after the discovery of North Sea oil.[4]

Finally, the third strand of thinking places the liability on certain policies in the core countries of the European Union (EU). Giollamoir (2011), for example, argues that the economic crisis in the countries of the European periphery was provoked and continues to be fuelled by the export-led policies that governments in the core European countries apply. Due to its size and economic robustness, this charge is addressed usually to Germany. By keeping the growth of wage costs relatively low, they argue, Germany increased its competitive advantage vis-à-vis the countries of the European periphery, thereby reaping large balance-of-payments surpluses at their expense. This happened, they surmise, because the core EU countries have been spared from the competitive depreciations, which would have been undertaken had the countries of the European periphery retained their domestic currencies. Quite likely, German exports to these countries would have been more subdued with a stronger Deutsche mark than they have been within the EMU. Also, current account surpluses in the core nations would not have been mirrored as strongly as they have done in the capital account deficits of the peripheral nations; relatively less of these capital flows would have returned as loans to finance the deleterious expansion of non-tradable activities like construction, especially in Ireland and Spain - instead of flowing as direct investments into their

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[3] The literature on the Dutch economic crisis is of rather old vintage. A well-known article is one by Corden and Neary (1982). Other contributions on this topic include those by Fender and Nandakumar (1985), Eastwood and Venables (1982), Forsyth and Kay (1980), Neary and Wijnbergen (1984) and Wijnbergen (1984).

[4] More specifically, in the case of Holland heavy income transfers from abroad due to the sale of gas or oil increased domestic spending. This, in turn, drove up the prices of the non-traded goods and services, for which the price levels are formed in the home market. Finally, as the higher prices of non-tradables translated into wage increases via inflation indexation, collective bargaining or other processes, manufacturing, the competitive product prices of which cannot deviate from world market prices, lost competitiveness and contracted substantially. In the case of Great Britain, which had a flexible exchange rate system, exchange rate appreciation due to the oil revenue inflows had the same effect, i.e. a major contraction of the manufacturing sector. This explains why the term "*Dutch Disease"* is sometimes referred to as *de-industrialization*.

productive, competitive sectors. But given that export-led policies are intended to keep EU competitive relative to the rest of the world, rather than to hurt the countries in the periphery, it is hard to understand how abandoning the emphasis on competitiveness by the core European countries would serve the best long-term interests of those in the periphery.

By virtue of the last delimitation and our understanding that what happened in Greece can be analyzed more fruitfully by following Hellwig (2011), our plan here is threefold. First, to identify the critical integration and EMU shocks that hit the countries in question. Second, focusing on Greece, to construct a simple macroeconomic model of the policies Greek governments pursued in the presence of these shocks, and, thirdly, exploiting the model's solution properties, to highlight certain questions of more general interest like: How can we explain the policies that were adopted at the advent of integration and monetary union shocks? Could they have been anticipated? If so, why did they escape the attention of the designers of the Maastricht Treaty? The organization of the paper follows the same layout as above.

2. Critical integration and EMU shocks in the peripheral EU countries

According to the plans laid down by the visionaries who embarked in the 1950s on the monumental experiment for the unification of Europe, the process of economic integration was envisioned to evolve in three stages. In the first stage, the member states would join in a *customs union*. This, in the second stage, would accede its place to an *economic union*, at which stage which market functions and market institutions would be unified across all member states; and, finally, in the third stage, the member states would abolish their national currencies and join in a *monetary union*. Throughout these stages EU policies would be negotiated well in advance and every country that joined would commit itself to adjust its domestic policies accordingly. For example, when Greece became associate member of the European Economic Community (EEC) in 1961, it undertook to abide by the Treaty Rome,[5] which mandated that it would introduce policies to strengthen competition in the labour and product markets, privatize state enterprises or at least expose them to competition, eliminate government subsidies to businesses, etc. However, from the nature of the austerity measures that Greece and the other countries in question were forced to adopt more recently, we understand that their governments dragged their feet, or even invented ways to postpone adjustment in the direction envisioned by the treaties that were enacted. Greece, in particular, not only procrastinated systematically at introducing the required structural reforms, but as documented by Bitros (2014), it introduced policies that rendered the structure of its economy in the 2000s even worse than it was back in the 1960s. Therefore, although we shall concentrate on Greece, it may not be the only country of the European periph-

[5] The Treaty of Rome was signed in 1957 by the six founding member states of the EEC.

ery that failed to confront the shocks of integration and EMU.

2.1 Shocks from openness and the big moral hazard of financial assistance

Greece became full member of the EU in 1981. To cope with the shocks from the elimination of the tariffs and the opening up of its economy to European competition, it received net assistance during the period 1981-2010; sees Table 1. From the figures shown it turns out that by any comparison the assistance was extremely generous as it averaged 2.7% of GDP per annum. The question that arises is: Did Greece

Table 1: Net[1] inflows of financial aid from the European Union as a percentage of GDP

1981	0.003	1991	0.046	2001	0.031
1982	0.012	1992	0.039	2002	0.027
1983	0.016	1993	0.044	2003	0.020
1984	0.016	1994	0.041	2004	0.022
1985	0.017	1995	0.035	2005	0.016
1986	0.024	1996	0.048	2006	0.021
1987	0.029	1997	0.039	2007	0.018
1988	0.025	1998	0.039	2008	0.020
1989	0.029	1999	0.043	2009	0.009
1990	0.032	2000	0.043	2010	0.013

Sources: 1. Ministry of Finance, Introductory Report of the Budget, Athens, various issues.
2. GDP from the AMECO data base.

Notes: 1. This term implies that the amounts of funds used to compute the percentages in this table are net of the annual contributions of Greece to the EU budget

use this assistance to close its competitive gap relative to the other member-states of the EU? Table 3, derived from the data in Table 2, leaves no doubt that it didn't. Over the period 1981-2009, while Greece made no productivity gains in the sectors of Industry, Construction and Services, in the agricultural sector productivity declined precipitously. In fact, given that the bulk of the EU aid was directed to agriculture, one may argue that these resources were used for everything else except for restructuring agriculture to increase productivity, and hence competitiveness. As a result, the stagnation in productivity, in conjunction with the significant increase in the incomes of farmers and other social classes, destabilized the foreign trade account. To what extent Greek products and services lost competiveness and shed shares in domestic and international markets is depicted in Table 4. It is amazing that in the **1990s, and especially in the last decade, the balance of the accounts for both goods and services declined** even below the low levels that were observed in the 1970s and 1980s. From this evidence one cannot

Table 2: Productivity per employed in Greece and in EU, thousands of Euros, constant prices of 2000

	1959		1981		2001		2009	
	Greece[1]	EU[2]	Greece	EU[3]	Greece	EU[3]	Greece	EU[4]
Agriculture	2,79	8,24	14,54	10,61	11,68	22.36	13,68	29,66
Industry	3,38	9,75	17,98	31,71	30,01	53.38	32,98	56,88
Construction	18,57	18,11[5]	20,71	32,71	34,42	34.45	23,67	34,08
Services	3,79	8,58	33,60	41,91	32,86	47.94	37,43	49,31

Notes:

1. Estimates based on AMECO data for 1960 and the proportions reported in Higgins (1968).
2. EU of 6 countries: Belgium, France, Western Germany, Italy, Luxemburg, and Holland.
3. EU of 11 countries: Belgium, Denmark, France, Greece, Holland, Italy, Luxemburg, Portugal, Spain, United Kingdom, and Western Germany. For Ireland there existed no data. The averages were computed using as weights the number of employed in nonmilitary positions. However, the estimates turned out to be quite robust to using various other weights.
4. EU 12 χωρών:. Belgium, Denmark, France, Greece, Holland, Ireland, Italy, Luxemburg, Portugal, Spain, United Kingdom, and Western Germany.
5. The estimate for 1959 was based on the simple average of Gross Value Added per employed in France, Western Germany, and Italy for 1960.

Table 3: Comparison of productivity per employed worker in the four main sectors in Greece and in EU

	1959	1981	2001	2009
Agriculture	0,34	1,37	0,52	0,46
Industry	0,35	0,56	0,56	0,58
Construction	1,03	0,62	1,00	0,69
Services	0,44	0,77	0,68	0,76

Table 4: Developments in the foreign trade account, billons of Euros, constant prices of 2000 prices.

	1961-70	1971-80	1981-90	1991-00	2001-10
1. Imports of goods	4,21	9,82	16,08	28,53	46,59
2. Exports of goods	1,33	4,83	9,08	11,80	16,00
(2):(1)	**0,32**	**0,47**	**0,56**	**0,41**	**0,34**
1. Imports of Services	0,54	1,36	2,44	5,26	11,21
2. Exports of services	1,19	3,71	5,43	10,53	21,20
(2):(1)	**2,20**	**2,73**	**2,23**	**2,00**	**1,89**
1. Imports of goods and services	4,75	11,18	18,52	33,79	57,81
2. Exports of goods and services	2,53	8,54	14,51	22,33	37,20
(2):(1)	**0,52**	**0,76**	**0,78**	**0,66**	**0,64**

help ssurmising that from 2001 on, in the absence of a national currency to mitigate competitiveness through repeated devaluations, as well as due to the foreign exchange shock from the increasing value of

the Euro against all foreign currencies, the deficits in the trade account became explosive.[6]

Unfortunately, the truly generous and well-intended financial assistance Greece got form EU for the purpose of confronting the shocks from opening up its economy to European competition proved deleterious. Because of weak political and economic institutions in Greece, as well as lax enforcement mechanisms and failures from the supervising EU agencies, the assistance created a major moral hazard problem. It may not be an exaggeration to say that it adversely influenced the character of the Greek people. Corruption among civil servants in the narrow and the wider public sectors swelled to unprecedented proportions. Governments employed EU assistance to get re-elected. Rent-seeking individuals and organized minorities misconstrued this as an opportunity to get sumptuous free lunches; and, last but not the least, progressing in one's life through hard work, risk-taking and entrepreneurship were socially downplayed, as if they were human traits of old vintage that did not matter any longer. Hence, it should not come as a surprise that the shocks of openness were magnified through complacency and irrational collective thinking, while at the same time the assistance helped disguise the gaping hole that the losses in competitiveness opened up in the county's balance-of-payments.

2.2 Interest rate shocks and excessive indebtedness

From Solow (1960), Denison (1962), Kuznets (1966) and many other renowned economists, we have learned that economic growth in the industrialized economies evolved as a slow switching from a capital-short, high-real rate-of interest, steady-state-equilibrium to a capital-abundant, low-real rate-of interest, steady-state equilibrium. Drawing on this knowledge, we can think of the situation in EU during the economic integration stage as consisting of two groups of countries, i.e. the developed ones in the core, which had abundant capital and low real rates of interest, and the developing ones in the periphery, which had less abundant capital and higher real rates of interest. As long as the countries retained their national currencies, the nominal interest rates would preserve this difference in the real interest rates, because the process of integration required capital to accumulate faster in the latter than in the former group of countries. What happened in Greece? Figures 1a and 1b highlight the course of the nominal and real interest rates in Greece (GR), the United Kingdom (UK) and Germany (GER) over the period 1992-2013. Observe that, as we could have expected from the difference in the levels of their economic development,

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[6] There is now a large group of economists in Greece who argue in favor of returning to the national currency for the purpose of defending the competitiveness of the country's gsoods and services through devaluation. However, various studies like, for example, the ones by Brissimis, Leventakis (1989) and Paleologos (1993), have confirmed that the devaluations of the national currency in the 1980s did not improve the balance of payments. Devaluations had some small positive effects in the short-run, but over the long haul the competitiveness of the Greek product and services returned to the pre-devaluation level.

Figure 1a: Nominal interest rates in Greece, United Kingdom and Germany, 1992-2013

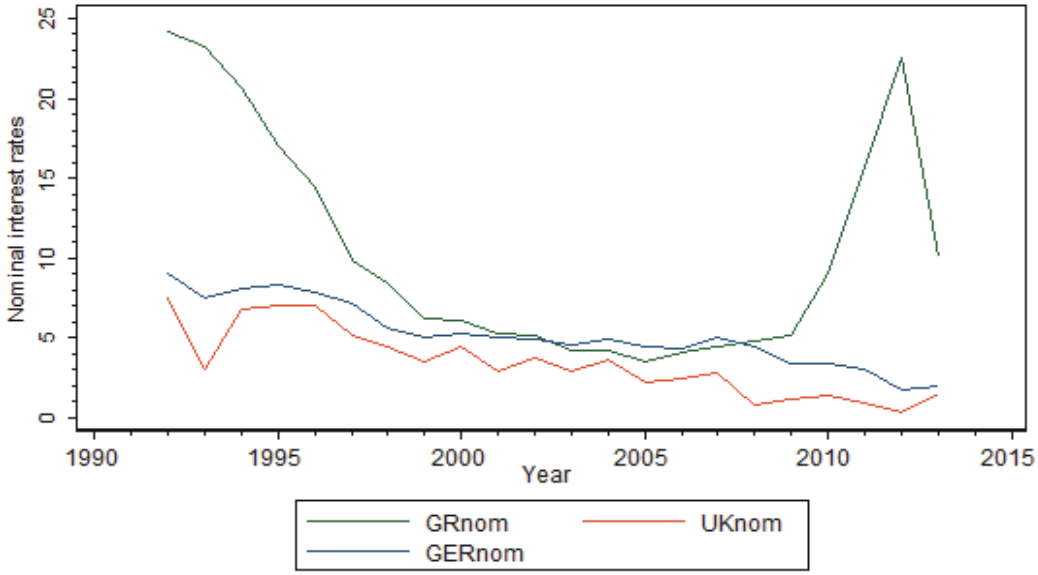
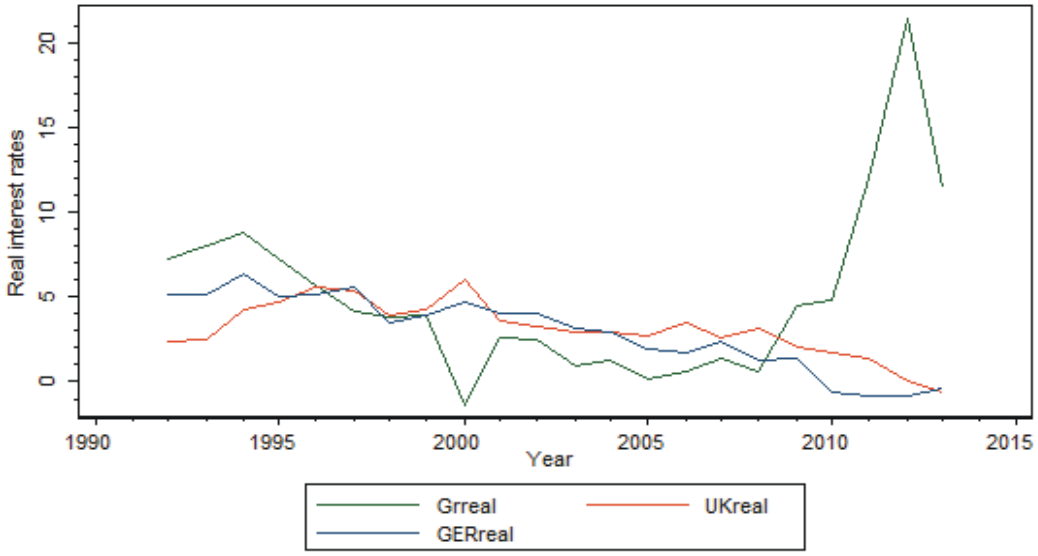


Figure 1b: Real interest rates in Greece, United Kingdom and Germany, 1992-2013



nominal and real interest rates were higher in Greece in the 1990s than in the United Kingdom and Germany. But then from 1999 to 2008 the nominal interest rates in Greece converged to those in Germany and the real interest rates fell significantly below those in the United Kingdom and Germany. This sharp decline in the nominal and real interest rates, which was followed by a sharper increase after 2009, proved a

grave anomaly, and as such it hurt investment and economic growth and accelerated the advent of the economic crisis.

To highlight the sequence of events, Figure 2 displays the main components of gross fixed investment before and after Greece's entry into the EMU in 2001. From this we observe that, with the exception of the period 1994-2003, which coincides with the efforts of Greek governments to meet the

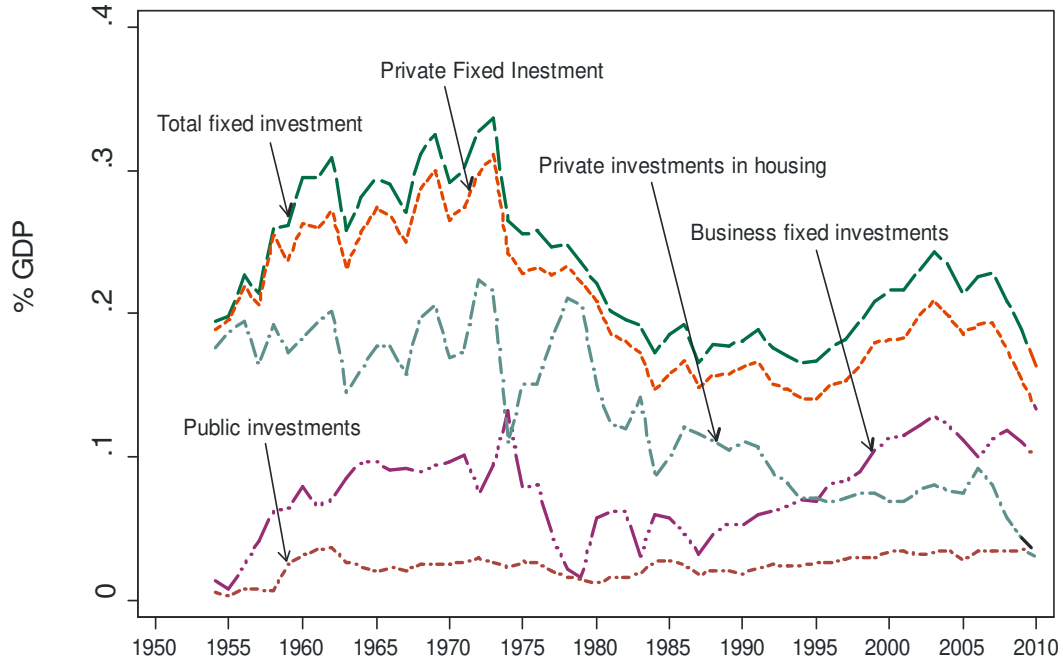


Figure 2: Components of gross fixed investment

Maastricht criteria and to carry out the 2004 Olympic Games, total fixed private investment as a percentage of GDP declined ever since the mid-1970s, but particularly sharply after 2003. This implies that Greece not only did not benefit from the decline in the nominal interest rates due to the EMU, but she got hurt, and the question is why? Our view is that, even though the decline of private fixed investment before entry into the EMU was due to the negative business climate that prevailed (primarily because of political reasons), the policies of Greek governments after entry further reduced the certainty- equivalent of net real return on capital, which is inversely related to investment. In addition to the observed decline of the real interest rates below those in the United Kingdom and Germany, we offer two pieces of supportive evidence. Figure 3 shows the accumulation of debt by the General Government, the State-Owned Enterprises and the Private Sector. Observe that public debt started increasing rapidly from the middle of the 1970s and its fast upward trend never reversed, with the exception of a brief downward blip in the middle of the 1990s. Naturally, this development was perceived by potential investors as huge future taxes, so that all along

they took a bleak view of the expected profitability of capital and refrained from investing. But after 2001, it became obvious that the endogenously increasing outflows for the servicing of the public debt would destabilize the balance-of-payments. As a result, the risk of Greece's default increased by the day, thus reducing further the certainty-equivalent of the net real rate of return on capital, and casting investment to the sharp downturn that we see in Figure 2.

The validity of this analysis is reinforced strongly if we look at what happened to the debt of the private sector. As corroborated by the corresponding line in Figure 3, for almost 50 years, the debt of enterprises and households to banks varied narrowly around 25% of the GDP. But beginning from 2001, it started to increase so fast that in the course of the following 7 years it climbed to 125% of

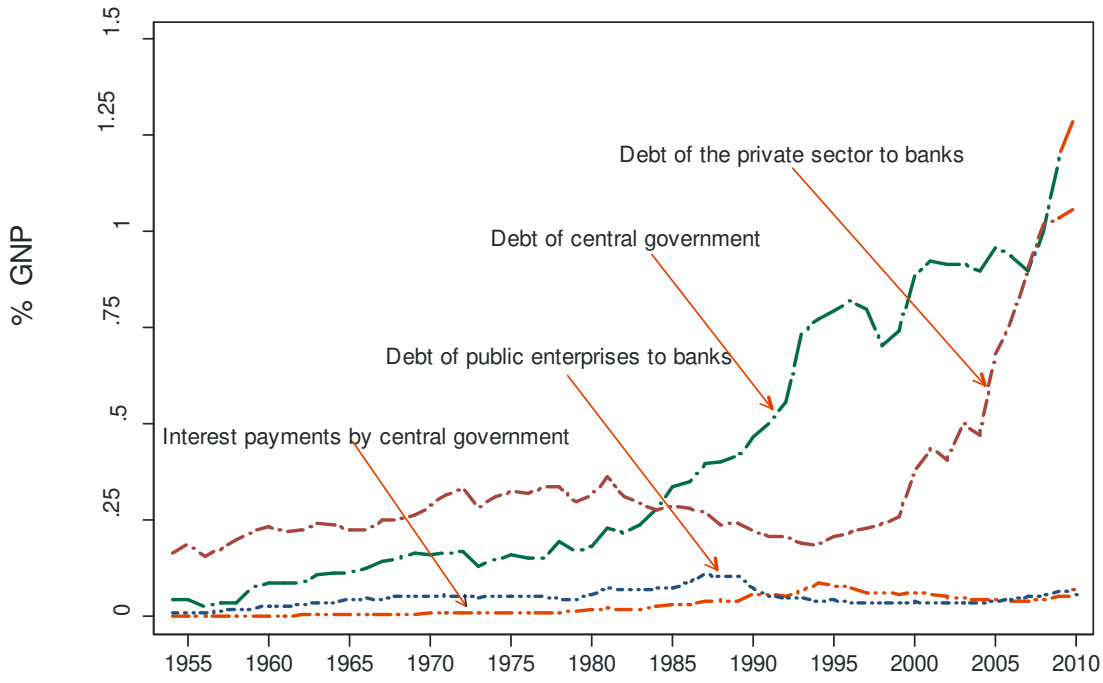


Figure 3: Debt components of the public and private sectors

GDP. That is, no sooner than the nominal interest rates had come down and the credit controls relaxed because of the EMU, had private borrowing skyrocketed. At the time, and under the drumbeat of the Bank of Greece, i.e. the central bank, one heard reassuring arguments to the effect that this extremely fast private borrowing was not that risky, because it was mostly domestic, and fully collateralized by the value of the real assets it financed. However, while to every expert - cognizant of the situation - it was obvious that the day of reckoning was approaching fast, the people at the helms of the responsible political and economic institutions looked the other way - until the tsunami from the economic crisis that erupted in the U.S in 2008 reached the shores of Greece in 2009.

2.3 Foreign exchange shocks and losses in competitiveness

Figure 4 shows how the import and export of goods, the imports and exports of services, and the inflows and outflows of incomes and other transfer payments, determined the deficit in the balance of payments, which had to be covered by borrowing abroad. In conjunction with the remarks made earlier, in reference to the changes in the composition of output, productivity and competitiveness, we observe the following:

- The balance of the trade account has been negative throughout the post war period. But while, due to the rising productivity and competitiveness of Greek products, the deficits until 1981were maintained down to 4% of GNP on average per annum, the deficit went on increasing since then, reaching 14.4% in 2010.

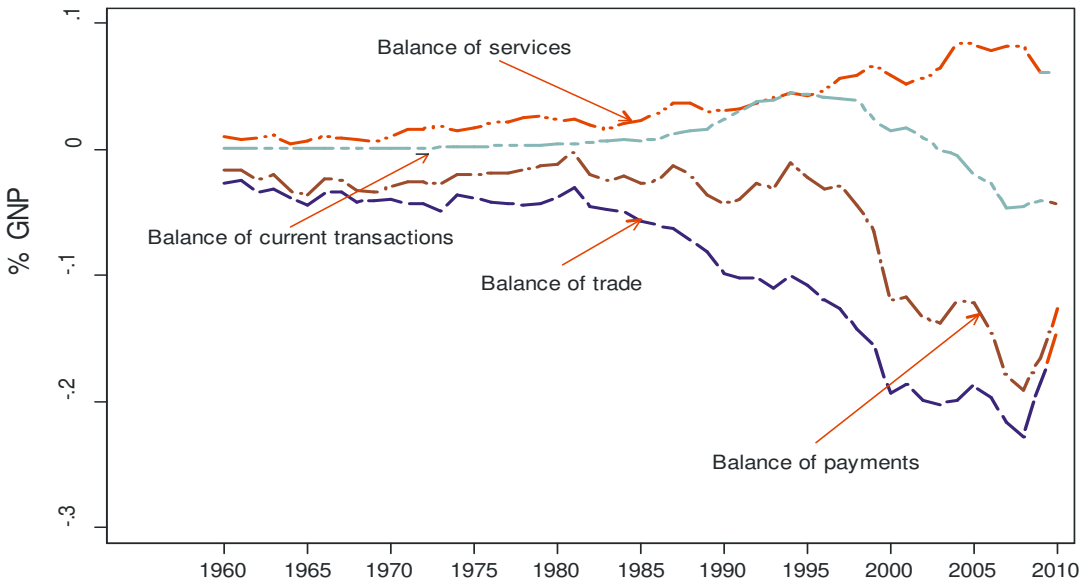


Figure 4: Balance of payments

- The balance in the account of services has been consistently positive. In particular, by virtue of the increased productivity and competitiveness that the sector of services achieved before 1981, the surpluses from this account contributed increasingly to meet the expanding trade deficits.
- After 2005, the surpluses from the services account started to show signs of fatigue because: (a) Greece lost the ability to offset the losses in competitiveness through currency devaluations; (b) the losses of competitiveness in the tourist industry was accelerated by the increasing value of the Euro[1] and the dynamic entry into this sector of neighbouring countries, and (c) the recession had start-

[1] The euro was introduced to world financial markets as an accounting currency on January 1, 1999, replacing the former European Currency Unit (ECU) at a ratio of 1:1 (US$1.1743). Euro coins and banknotes entered circulation on

ed to plague the world economy in general, and the shipping industry in particular.

- The net balance from income transfers and other current transactions with foreign countries, which was positive and increasing until 1995, initially slowed down and eventually turned negative. At a time when Greece was receiving significant aid from EU, this development suggests that the outflows mainly for the payment of interest on the growing foreign debt began to contribute significantly to the balance of payments deficit and to add to its continuous enlargement. We are fairly certain that this is what had happened, because, as recent research has shown, the need for interest payments on foreign debt in the order of 5% of GNP rendered the imbalances in the balance of payments unsustainable.

In turn, the last point implies that the deficit in the balance of payments after 1981 did not become unsustainable exclusively because of the structural losses in competitiveness of the Greek economy. It became unsustainable also because of the bloated, excessive fiscal policies that were followed - which led to the accumulation of an unsustainable amount of public debt, particularly foreign - and the shocks that Greece absorbed from the increasing value of the Euro.

2.4 Institutional shocks and discredited public governance

Underlying in the treaties that were enacted over the years was always the presumption that, aside from the determination of the political leaders who signed them, the participating member-states had in place the required institutional structures to implement them. For the core EU member-states, this presumption was well documented. But for some of the EU peripheral countries, this was a very optimistic assumption. In particular, for reasons that would take us far afield to explain, Greece has been short of effective institutions at all levels of public governance. This is not to say that Greece lacks the public institutions one finds in the more advanced democracies of the West. No; formally there is separation of powers and the governments and the public administration are obliged by the constitution to apply the laws, to respect personal freedoms, and to protect property rights. But in substance, because there is lack of meritocracy, transparency, accountability, etc., the institutions of public governance are very weak, not to mention that at times they act autonomously.

Under these circumstances it doesn't take much thinking to surmise that Greece's institutions were shocked gravely upon entry into the EMU. For example, not a single year passed since 2001 without the prime minister of the country stressing the readiness of his government to introduce the deep structural

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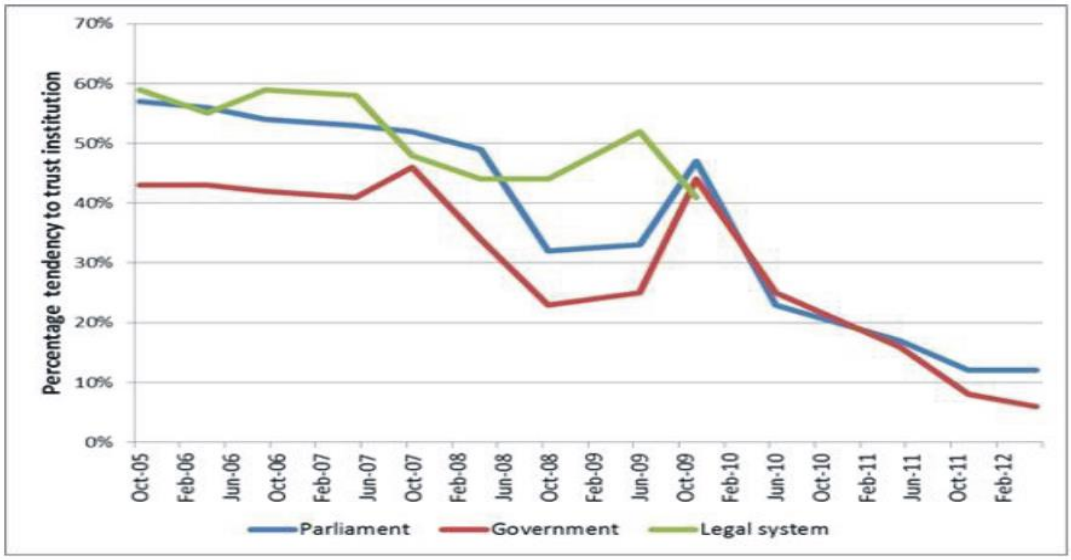
January 1, 2002. In the following two years the euro dropped to US$0.825 (October 26, 2000). But since the end of 2002 it has traded above the U.S. dollar, peaking at US$1.604 on July 18, 2008. Since late 2009, the euro has been immersed in the European sovereign-debt crisis which has led to the creation of the European Financial Stability Facility as well as other reforms aimed at stabilizing the currency. In July 2012, the euro fell below US$1.21 for the first time in two years, following concerns raised over Greek debt and Spain's troubled banking sector. As of March 2014, the euro dollar exchange rate stands at ~ US$1.38.

reforms that everybody knew were imperative for avoiding domestic deflation at some point in the near future (see, for instance, Bitros, Korres (2002). The government of the center-right, which came to power in 2004 after 10 years in the opposition, talked much about reinventing government and overhauling the public administration, but nothing happened because all centers of state power seemed paralyzed to take action. In turn, as shown in Figure 5, this procrastination eroded the trust of the people to the political parties and the institutions, and rendered reforms much harder to implement. Unfortunately, reversing this trend is not as simple as many people suggest. Trust cannot be rebuilt just by replacing failed and self-serving politicians or by doing away with bureaucracies and organized minorities. Ancient

Figure 5: Public trust in Greek institutions, 2005-2012



Source: Eurobarometer

Athenians knew better, and that is why they established *direct* democracy. In the prevailing setup of *indirect* or *representative democracy,* where the principal-agent problem is ever present, once the trust in the fundamental institutions of pubic governance is lost, it takes generations to restore it, because changes in the character of people and their leaders are effected through education when people are young, requiring shifts in the prevailing cultural paradigm as well. For these reasons, if Greece is going to stay the course in the Eurozone, it will need more than debt- rescheduling and technical assistance from the EU. It will need time to restore the trust of the Greek people in the institutions of public governance in Greece - and even more.[1]

[1] Drawing on the data and the analysis that Bitros (2014) presented recently, EU leaders and institutions failed to foresee the unintended consequences of their actions in the case of Greece. For several possible reasons, they underestimated the risks that were involved in admitting Greece as a full member of the EEC in 1981 and in the

2.5 Summing up

In the years following the threshold year of 1981, Greece got hit by two powerful waves of shocks from its membership in the EU. One originated in the elimination of tariffs and the opening of its economy to European competition, whereas the other emanated from the further weakening of its institutions of public governance. Both had been anticipated by EU leaders and the expectation was that Greece would be able to mitigate them with sufficient amount of financial assistance. Indeed, in the course of the following three decades, Greece received very generous aid from the European structural funds and other sources. But in 1997, when arrangements for the EMU were laid in place, Greece was found unprepared for admission. This eventually happened a few years later, Greece entering the EMU in 2001. Soon after, she got hit by two major shocks in the form of low nominal interest rates and the rapidly appreciating value of the Euro, which rendered Greek products and services less competitive in the rest of the world. But instead of using low interest rates as an opportunity, Greek governments found a new incentive to continue their past practices of excessive borrowing, mostly for consumption purposes and to a lesser extent for investing in infrastructure, albeit with a new twist. That is, instead of borrowing from domestic sources, they turned to borrowing from abroad. As a result, most of the public debt became foreign in source, and the increasing interest rate payments destabilized the balance of payments, thus increasing the risk of the country's default and pushing downwards the certainty-equivalent net real return of capital - and hence investment. By borrowing abroad to finance the extraordinary expansion of loans to households - primarily for investing in housing - and inward - looking enterprises (mostly at the margin of bare survival), the banks contributed also mightily to the same effect. So, the looming bankruptcy became inescapable; in fact, it would have occurred in 2009 if the International Monetary Fund and the European Union had not intervened.

3. Modelling the forces and the processes of the economic crisis in Greece

We consider an economy over the span of a single period. The economy enters into a monetary union at the beginning of the period and after a while it goes bankrupt. From a structural point of view, the economy is very simple as it features the following general characteristics:

- There are two sectors, one producing a homogeneous internationally traded good and another producing a homogeneous non-traded or locally used good. We call the former sector private and denote it by p, and the latter sector public or government and denote it by g.
- All nontraded goods are supplied only by the government, whereas all goods supplied by the private sector are potentially tradable. This dichotomy is reasonable, given that e.g. even haircuts have

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EMU in 2001.

become an export commodity, purchased by tourists from across national borders.

- Importing and exporting takes place with the other member states of the monetary union, as well as the rest of the world.
- Foreign borrowing and lending activities are undertaken exclusively by the government.
- In addition to imposing taxes and undertaking public expenditures, the government receives and distributes financial aid from abroad, and particularly EU.

The issue at hand is to construct a model of this economy for the purpose of using it to discriminate between the effects Greece absorbed from participating in the monetary union and those that emanated from domestic economic policies.

3.1 The model

Since the economy under consideration has two sectors, real national income Y in terms of nontraded goods prices may be expressed as:

$$Y = \frac{P_p}{\bar{P}_g} S_p\left(\frac{W_p}{P_p}\right) + S_g\left(\frac{W_g}{\bar{P}_g}\right), \tag{1}$$

where the remaining symbols are defined as follows:

S_p, S_g = Supply of traded and nontraded goods

W_p, W_g = Nominal wage rates in the traded and nontraded sectors of the economy

$P_p, \bar{P}_g$ = Price indices of goods and services in the two sectors, a bar over a variable indicating that it is determined administratively, i.e. by non-market processes;

Moreover, by invoking Walras's Law, we can express general equilibrium solely in terms of the equilibrium conditions that must hold in either of the two sectors. Here we have elected to focus on the equilibrium conditions in the government sector. So we postulate the following equation:

$$S_g\left(\frac{W_g}{\bar{P}_g}\right) = C_g\left[(1-t)Y, \frac{P_p}{\bar{P}_g}, r\right] - I_g(r, \bar{A}), \tag{2}$$

in which the new symbols have the following meanings:

C_g = Economy wide consumption of nontraded goods[2]

[2] By using the term "nontraded goods" henceforth we shall imply the goods and services produced only in the government sector and consumed locally.

I_g = Investment in the production of nontraded goods

r, t = Nominal interest rate and average tax rate, respectively, with the latter being determined exogenously by political processes

$\bar{A}$ = Foreign aid, determined exogenously by donors;

Using the properties of homogenous consumer demand functions, the consumption of nontraded goods is expected to depend positively on the after tax real national income and the relative goods prices. The consumption of such goods may be also affected by the interest rate, although the sign of this effect cannot be stated unambiguously. Including our sign expectations for the other functions involved in (2), *ceteris paribus*, we hold that:

$$\frac{\partial S_g}{\partial(W_g / \bar{P}_g)} < 0, \ \frac{\partial C_g}{\partial Y} > 0, \ \frac{\partial C_g}{\partial(P_p / \bar{P}_g)} > 0, \ \frac{\partial C_g}{\partial r} = ?, \ \frac{\partial I_g}{\partial r} < 0, \ \frac{\partial I_g}{\partial \bar{A}} > 0.$$

Equilibrium in the government budget requires that tax revenues plus revenues from bonds minus interest payments are equal to public expenditures. However, countries like Greece have been infamously out of step in this regard, so that it is the expression for the government budget that is of relevance, and given below:

$$BD = (1+\mu)W_g L_g[\frac{W_g}{\bar{P}_g}] + rB_0^d + r^f B_0^f - tY\bar{P}_g, \tag{3}$$

where the new symbols have the following meanings:

BD = Government budget deficit covered by issuing perpetual bonds

L_g = Employment in the government sector

B_0^d, B_0^f = Values of outstanding perpetual bonds held by domestic and foreign creditors, respectively, at the time of entry into EMU

r^f = Rate of interest determined in international financial markets

μ = Rate of excess public employment, determined exogenously by political processes.

Next, we consider the formation of wages and prices. Turning to wages, we note that when Greece entered in the monetary union there were already in place three discernible trends. That is, first, Greek governments increased the wages in the public sector above the rate of inflation. Second, the productivity gap between the government and the private sector widened continuously against the former; and, thirdly, because of the better employment conditions in the government sector relative to those in the private sector, there was always excessive demand for jobs in the government sector. To simplify the analysis, we assume

that the nominal wages in the respective sectors right before entry, say, W_g^0, W_p^0, were equal and normalize them to 1 by setting $W_p^0 = W_g^0 = 1$. Hence, to capture the effects of this wage policy after entry, we set:

$$W_g = 1 + \beta\hat{P}, \text{ for } \beta \geq 1, \tag{4}$$

where $\hat{P}$ is the rate of inflation in the economy. Moreover, in view of the better employment conditions in the government sector, to attract and retain good employees, the employers in the private sector were pressured to offer wage increases commensurate with those in the public sector, but doing so by limiting their losses in competitiveness. Achieving this balance implies that wage increases in the private sector were kept below those in the public sector. So, to express this policy in the private sector, we set:

$$W_p = 1 + \lambda\hat{P}, \text{ for } \lambda < \beta. \tag{5}$$

From (4) and (5) it follows that, as was the case in Greece, wage inflation run faster in the government than in the private sector.

Regarding the prices, we assume that those of tradables are determined by world demand and supply conditions, which implies that domestic suppliers of such goods and services take P_p as given. Since the private sector is open to foreign competition, this assumption is perfectly warranted. As for the prices of nontradables, we assume that they are determined by the government and to indicate this we write $\overline{P}_g$. Thus, if α is the share of tradables in the consumption basket of the economy, we may approximate the general price index by $P = P_p^{\alpha}\overline{P}_g^{1-\alpha}$, from which we compute the rate of inflation as:

$$\hat{P} = \alpha\hat{P}_p + (1-\alpha)\hat{\overline{P}}_g. \tag{6}$$

To further simplify the analysis, and without loss in generality, we assume that $\hat{P}_p = 0$ and rewrite (6) as:

$$\hat{P} = (1-\alpha)\hat{\overline{P}}_g, \tag{6a}$$

and equations (4) and (5) as:

$$W_g = 1 + \beta(1-\alpha)\hat{\overline{P}}_g. \tag{4a}$$

$$W_p = 1 + \lambda(1-\alpha)\hat{\overline{P}}_g. \tag{5a}$$

Reflecting on the above, we note that as inflation is driven exclusively by the prices that the government sets for the nontraded goods, inflation in the economy is always lower than inflation in the

government sector. By implication, since nominal wages are indexed to the general inflation, and wage raises in the private sector are held below those in the government sector, real wages in the former sector increase slower than in the latter sector, causing a fundamental distortion in the economy by redistributing labor from the more productive to the less productive sector of the economy,[3] thus slowing down the growth rate of the economy. In our view, this is exactly what happened in Greece and that is why we maintain that the austerity programs ought to have been designed to shrink quickly the government sector.

Moreover, the above mentioned distortion hurt gravely the competitiveness of tradables in both domestic and foreign markets and contributed significantly to the destabilization of the balance of payments. To trace these effects, equation (7) describes the development of the country's balance of payments with EU member states and the rest of the world:

$$BOP = X(\frac{Y^f}{P^f}, \frac{P_p}{\overline{P}_g} e, \frac{W_p}{P_p}, \frac{\overline{P}_g}{P} Y) + r^f B_0^f + \overline{A} + F(r). \tag{7}$$

In this equation the new symbols are defined as follows:

BOP = balance of payments

X = Net exports of goods and services

Y^f = Nominal foreign income

P^f = Foreign general price index

e = Foreign exchange rate of Euro

F = Net flows of short-term funds;

And for the functions involved, *ceteris paribus*, we hold the following expectations:

$$\frac{\partial X}{\partial (Y^f / P^f)} > 0, \quad \frac{\partial X}{\partial e} < 0, \quad \frac{\partial X}{\partial (P_p / \overline{P}_g)} < 0, \quad \frac{\partial X}{\partial (W_p / P_p)} < 0, \quad \frac{\partial X}{\partial (\overline{P}_g Y / P)} < 0.$$

Net exports are shown in (7) to depend positively on real incomes abroad and negatively on the exchange rate of the Euro and the relative prices. The first three determinants relate to the demand side of net exports, while the real wage impacts the supply. It will be assumed later, in the actual solution of the

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[3] Studies upon studies have shown that throughout the post war period public employment in Greece was in excess of what it was warranted. Simply politicians used public employment as a means to win elections. This excess in public employment is capture in (1) through the value of the parameter *m*, which influences the level of government expenditures, but it does not enter in the supply of government goods function S_g .

model that, for a small open economy facing world demand, it is the supply side that plays the key role in determining net exports. With P_p fixed in world markets, a rise in W_p reduces profits in the tradables sector, translating into a loss of export competitiveness, with a cut-back in the supply of exports. The remaining terms in (7) add up to the capital account of the balance of payments.

Now we turn to the equilibrium condition in the financial sector of the economy. This is represented by the following equation:

$$PL(Y,r) = \bar{H} + BOP, \tag{8}$$

where L stands for demand for money, $\bar{H}$ denotes the domestic component of the supply of money, and BOP represents the foreign component of the supply of money, which is determined by the processes that shape up the deficit in the balance of payments, and hence the foreign borrowing or lending by the government. Finally, the expressions below present our expectations regarding the relationship of the demand for money to its determinants:

$$\frac{\partial L}{\partial Y} > 0, \quad \frac{\partial L}{\partial r} < 0.$$

To conclude this section, from Tables 1 and 4 and Figure 3 it follows that, before and after its entry into the EMU, Greece covered the deficit in its trade account partly through EU aid and partly through borrowing abroad. This implies that the country's balance of payments has been always in disequilibrium. Before entry into the EMU, the deficit was confronted by intermittent devaluations of the national currency and other means. However, after entry, having lost the ability to devaluate and unwilling to raise taxes, cut down public expenditures or crowed out domestic borrowers, Greek governments resorted increasingly to borrowing from abroad.

The effects of these changes can be captured with the assistance of the three equations model shown in (9), which consists of equations (1), (2) and (8), after substituting into the latter equation (6). In this model, general equilibrium is represented by equilibrium in the markets of the nontraded sector (equation 9.1) and in the money markets (equation 9.3). Equation (9.2) expresses real income at home in terms of the prices of the nontraded goods. The markets in the competitive traded sector are always in equilibrium. Domestic supply for exports always meets export demand at the prices fixed abroad. The bond market is in equilibrium by Walras Law. Finally, it should be noted that the bar on the variable H has been added to indicate that the domestic component of the money supply is controlled by the European Central Bank (ECB):

$$S_g(\frac{W_g}{\bar{P}_g}) = C_g[(1-t)Y, \frac{P_p}{\bar{P}_g}, r] - I_g(r, \bar{A}) \qquad (1)$$

$$Y = \frac{P_p}{\bar{P}_g} S_p(\frac{W_p}{P_p}) + S_g(\frac{W_g}{\bar{P}_g}) \qquad (2) \qquad (9)$$

$$PL(Y, r) = \bar{H} + X(\frac{Y^f}{P^f}, \frac{P_p}{\bar{P}_g} \underset{\cdot}{e}, \frac{W_p}{P_p}) + r^f B_0^f + \bar{A} + F(r). \qquad (3)$$

System (9) can be solved for the endogenous variables and further solutions for other variables, such as outputs and the budget deficit, may be obtained in a recursive fashion.

3.1 Results and interpretations

As specified in (9), our model of the Greek economy involves three endogenous variables, i.e., Y, $\bar{P}_g$, r, seven exogenous variables, i.e. P_p, $\bar{A}$, B_0^f, Y^f, P^f, r^f, e, $\bar{H}$, and five parameters, i.e., α, β, λ, μ, t. What we wish to do now is to characterise the effects that changes in selected exogenous variables and parameters exercise on the endogenous variables. The present section is devoted to this task.

Effects of a change in EMU transfers $\bar{A}$

Substituting equations (4a) and (5a) for the wage rates, and totally differentiating (9), yields the following matrix system of solutions:

$$\begin{bmatrix} \Psi_1 & \Phi_1 & \Omega_1 \\ \Psi_2 & Y & 0 \\ \Psi_3 & \Phi_3 & \Omega_3 \end{bmatrix} * \begin{bmatrix} d\bar{P}_g \\ dY \\ dr \end{bmatrix} = \begin{bmatrix} I_g E(I_g, \bar{A}) \\ 0 \\ \bar{A} \end{bmatrix} * d\bar{A}. \qquad (10)$$

In this equation $E(j,k)$ denotes the elasticity of variable j with respect to a change in variable k and the Greek capital letters stand for the following expressions:

$\Psi_1 = S_g E(S_g, W_g / P_g)[\beta(1-\alpha) - 1] + C_g E(C_g, P_p / \bar{P}_g) > 0;$

$\Psi_2 = -\{S_g E(S_g, W_g / P_g)[\beta(1-\alpha) - 1] - S_p P_p / \bar{P}_g + (P_p / \bar{P}_g) S_p E(S_p, W_p / P_p)[\lambda(1-\alpha)]\} > 0;$

$\Psi_3 = [L(1-\alpha) + PLE(L, YP_g / P)\alpha - P_p XE(X, YP_g / P)\alpha - P_p XE(X, W_p / P_p)(1-\alpha) + P_p E(X, P_p e / \bar{P}_g)] > 0;$

$\Phi_1 = -C_g E(C_g, Y)(1-t) < 0;$

$\Phi_3 = \{PLE(L, YP_g / p) - P_p XE(X, YP_g / P) > 0;$

$\Omega_1 = -[C_g E(C_g, r) + I_g E(I_g, r)] > 0;$

$\Omega_3 = [LE(L, r) - FE(F, r)] < 0.$

In the above, Ψ_2 is signed as positive, assuming that the supply elasticity $E(S_p, W_p/P_p)$ in the traded sector is greater than the corresponding elasticity in the government sector. Additionally, the term $S_p P_p/\bar{P}_g$ is present to strengthen this signing of Ψ_2. In signing Ψ_3, we have assumed that exports in small open economies like Greece's, facing world demand at international prices, are determined by supply side conditions of profitability in production, as manifested in the product wage rate faced by producers.

The determinant of the matrix system (10) is signed as $\Delta = \Psi_1 Y \Omega_3 - \Phi_1 \Psi_2 \Omega_3 + \Omega_1(\Psi_2 \Phi_3 - \Psi_3 Y) < 0$. On account of this finding, solutions for the endogenous variables may be obtained by applying Cramer's rule. Of special interest are the solutions for the changes in the prices of the nontraded goods $\bar{P}_g$ and the interest rate r, since their influence on all other variables can be obtained in a recursive fashion. The impact on $\bar{P}_g$ and r of an increase in $\bar{A}$ is given, respectively, by expressions (11) and (12).

$$d\bar{P}_g / d\bar{A} = (1/\Delta)[I_g E(I_g, \bar{A}) Y \Omega_3 - \Omega_1 \Psi_3 Y] > 0 \tag{11}$$

$$dr/d\bar{A} = (1/\Delta)[-I_g E(I_g, \bar{A}) \Psi_2 \Phi_3 + I_g E(I_g, \bar{A})(\Psi_2 \Phi_3 - \Psi_3 Y] < 0. \tag{12}$$

Hence, ***an increase in the EMU transfers pushes up the prices of nontraded goods while at the same time lowering the interest rate***. Looking at Table 1, in conjunction with Figures 1a and 1b, we observe that what the model predicts regarding interest rates is exactly what actually happened. In particular, the jump in the EMU transfers in the 1990s sent the nominal and the real interest rates into a persistent downward trend.[4]

The effects of the EMU transfers on the outputs of the two goods, as well as on net exports, may be also obtained. Turning first to the changes in the outputs of the two goods, these are given by the expressions:

$$dS_g / d\bar{A} = (1/S_g \Delta) E(S_g, W_g/\bar{P}_g)[\beta(1-\alpha) - 1] d\bar{P}_g > 0, \tag{13}$$

$$dS_p / d\bar{A} = (1/S_p \Delta) E(S_p, W_p/P_p)[\lambda(1-\alpha)] d\bar{P}_g < 0. \tag{14}$$

From them it follows that ***the output of nontraded goods rises, while the output of traded goods declines***. Does this hurt net exports? Yes, it does, because according to the following sequence of events ***net exports decline***. Since the price of tradables P_p is fixed abroad, the rise in the wage rate W_p raises the prod-

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[4] This trend in the interest rates was reinforced also by the perception in the international money and capital markets that participation in the EMU implied that, if weaker countries like Greece became insolvent, they would be bailed out by stronger member-states like Germany.

uct real wage rate W_p / P_p. In turn, given that the latter increases slower than the general price level P, the increase in the EMU transfers induces three effects. First, real wages in the traded sector lose ground in comparison to the real wages in the government sector, thus reallocating jobs from the latter sector to the former. Second, the squeeze on profits forces exporting firms which operate at the margin of profitability to shut down; and, thirdly, as tradables lose competitiveness, foreign demand for exports declines, whereas domestic demand for imports increases. In our view, the data pertaining to the course of net exports in Greece, which are reported in Table 4 and exhibited also in Figure 3, ascertain beyond reasonable doubt the validity of the model's predictions.

What about the government budget deficit? The rise in the wage rate W_g will worsen the deficit, as will the fall in the tax revenue due to the contraction of the traded goods sector. On the contrary, the increase in the output of the nontraded sector, providing more tax revenue, will work to improve the budget balance. The change in government employment will also affect the budget balance, and this will depend on the way the wage rate moves relative to the price of the nontraded good. A change in the interest rate affects the payment on debt, and hence the budget balance. ***The net effect depends on the sign of the following expression for the change in the budget deficit, a reduced form obtained from (3), in terms of the changes in the price of the nontraded good and the interest rate occurring as a result of increased transfers 'A'***:

$$dBD = (1+\mu)W_g L_g \{\beta(1-\alpha) + E(L_g, W_g / \bar{P}_g)[\beta(1-\alpha)-1]\} d\bar{P}_g + rB_0^d dr - tY(1-\Psi_2) d\bar{P}_g \qquad (15)$$

This is ambiguous. But what can be observed is that a large relative size of the traded sector, manifested in a large value for α, will work to improve the budget balance. ***Thus, any increase in the budget deficit will be less for more open economies. It is also seen that a large size of the government sector, represented by a large value for $W_g L_g$ or wage bill, will increase the deficit.***

Effects of excessive public employment

The effects of excess employment in the government sector can be captured by assuming an exogenous rise in the parameter μ and differentiating totally system (9). This operation yields:

$$\begin{bmatrix} \Psi_1 & \Phi_1 & \Omega_1 \\ \Psi_2 & Y & 0 \\ \Psi_3 & \Phi_3 & \Omega_3 \end{bmatrix} * \begin{bmatrix} d\bar{P}_g \\ dY \\ dr \end{bmatrix} = \begin{bmatrix} -\Phi_1 \\ W_g L_g \mu \\ -\Phi_3 \end{bmatrix} * d\mu . \qquad (16)$$

Excess public employment is non-productive. It is conceived as a kind of disguised unemployment, like

when extra labor is put into short or long government sector training programs. While solving out system (9), this amount of extra employment earns an additional income $W_g L_g \mu$, which is added to the income expression (9.2), but adds nothing to the output of the nontraded sector.

The effects of excessive public employment on the prices of the nontraded goods and on the interest rate are given by expressions (17) and (18):

$$d\bar{P}_g / d\mu = (1/\Delta)(Y - W_g L_g \mu)(-\Phi_1 \Omega_3 - \Phi_3 \Omega_1) > 0, \tag{17}$$

$$dr / d\mu = (1/\Delta)(Y - W_g L_g \mu)(-\Phi_1 \Psi_3 - \Psi_1 \Phi_3) > 0. \tag{18}$$

These imply that ***a policy of excess employment creation by the government raises both the prices of the nontraded goods and the interest rate***. Consequently, while regarding the prices of nontraded goods this policy acts in the same way as with the increased transfers from the EMU, its effects on the interest rate differ sharply. In particular, while excess public employment creation increases the interest rate, above we found that with higher EMU transfers the interest rate declines. This difference is significant because, ***the higher domestic interest rate encourages the government to borrow relatively more abroad, adding to the external debt burden***.

However, in the case of Greece, it is worth noting the following. Throughout the post war period, Greek governments adopted policies of excess public employment creation of one form or another and applied them in various degrees of intensity. In the early post war years the excuse was to keep high unemployment and immigration in check, whereas more recently the profound objective of governments has been to perpetuate themselves in power by distributing to organized citizen-clients the benefits that accompany the exercise of government authority. Thus, when after 1981 EU financial assistance started to fall on Greece like "manna" fell on Jews in the desert from heavens, the interest rate reducing effect of these transfers coincided with the interest rate increasing effect of the excess public employment policies. Figure 1a shows that during the pre-Eurozone period the nominal interest rate declined, implying that the EMU transfers effect dominated. As a result, the cost of borrowing declined and Greek governments were encouraged to finance the expanding budget deficits by piling up public debt. If there is any consolation to this ruinous course of events, this is that in the pre-Eurozone period, most of the accumulated public debt was domestic, and hence, it exposed neither the public finances nor the economy to the risks that are associated with the borrowing from the international financial markets.

Effects of increased government wages

The effects of government wage policy can be represented by a shift in β. Having normalized the initial

$\bar{P}_g$ to one, these effects may be computed from the following solution matrix:

$$\begin{bmatrix} \Psi_1 & \Phi_1 & \Omega_1 \\ \Psi_2 & Y & 0 \\ \Psi_3 & \Phi_3 & \Omega_3 \end{bmatrix} * \begin{bmatrix} d\bar{P}_g \\ dY \\ dr \end{bmatrix} = \begin{bmatrix} -S_g E(S_g, W_g / \bar{P}_g)[\beta(1-\alpha)] \\ S_g E(S_g, W_g / \bar{P}_g)[\beta(1-\alpha)] \\ 0 \end{bmatrix} * d\beta . \tag{19}$$

Remembering that the determinant 'Δ' of this matrix has been signed already to be negative, the impact of the policy change on the prices of the nontraded goods, given by the expression (20), is positive. As a

$$d\bar{P}_g / d\beta = (1/\Delta)\{-S_g E(S_g, W_g / \bar{P}_g)[\beta(1-\alpha)]\Omega_3 - \Phi_1\Psi_2\Omega_1 + \Omega_1 S_g E(S_g, W_g / \bar{P}_g)[\beta(1-\alpha)]\Phi_3\} > 0 . \tag{20}$$

a result, due to the postulated process of wage indexation (see equation 5a), wages in the traded goods sector rise as well, leading to a contraction of its output and a concomitant fall in exports, since the prices of traded goods are determined abroad and the country loses competitiveness.

On the other hand, according to the expression (21), the impact of the shift in the parameter β on the interest rate is uncertain:

$$\begin{aligned} dr / d\beta = (1/\Delta)\{&-\Psi_1\Phi_3 S_g E(S_g, W_g / \bar{P}_g)[\beta(1-\alpha)] + \Phi_1\Psi_3\Omega_1 + \Omega_1 S_g E(S_g, W_g / \bar{P}_g)[\beta(1-\alpha) \\ &- S_g E(S_g, W_g / \bar{P}_g)[\beta(1-\alpha)(\Psi_2\Phi_3 - \Psi_3 Y)\} \end{aligned} . \tag{21}$$

To highlight the reasons for the ambiguousness, observe from expression (22) that real income declines:

$$\begin{aligned} dY / d\beta = (1/\Delta)\{&\Psi_1 S_g E(S_g, W_g / \bar{P}_g)\beta(1-\alpha)\Omega_3 + S_g E(S_g, W_g / \bar{P}_g)\beta(1-\alpha)\Psi_2\Omega_3 \\ &- \Omega_1 S_g E(S_g, W_g / \bar{P}_g)\beta(1-\alpha)\Psi_3\} < 0 \end{aligned} . \tag{22}$$

In turn, as production in both sectors contracts, real money demand would be expected to increase, exercising a downward influence on the interest rate. But at the same time, due to the increase in the general price level, the real money supply declines, exercising an upward influence on the interest rate. Hence, what might happen to the interest rate depends on the relative strength of these two opposing effects.

Regarding Greece, there is ample evidence to show that, under pressure from the unions, the government has frequently raised the parameter for wage-price indexation, i.e. β. This change increased real wages in the public sector and, in due course, exercised two secondary effects. On the one hand, it increased the demand for public jobs and eventually led to the expansion of the public sector by forcing the government to increase the parameter μ of excess employment as well, and, on the other, it induced employers in the private sector to increase real wages, thus driving marginal enterprises out of business and rendering the rest

less competitive in domestic and export markets. Hence, in line with the predictions of the model, it is not surprising that during the period under consideration the nontraded sector expanded, the traded sector contracted, net exports declined, and the domestic interest rate was pressured constantly upwards, leading to more government borrowing abroad. Moreover, these effects are in line with those reported in the literature. An example being Soderstrom and Viotti (1977) who found that, when nominal wages rise under a system of centralized wage bargaining that equates wages across sectors, the traded goods sector contracts while the government sector, acting as the employer of last resort, expands to absorb the laid-off workers.

3.2 Summary of findings

To our mind there is no doubt that, the generous financial assistance Greece received from EU upon acceding to full membership was well- intended. However, in actuality it proved deleterious because under the pricing and wage policies that Greek governments applied in the public sector, the assistance worsened the structural imbalances of its economy. In particular, as prices and real wages in the nontraded goods sector increased relative to those in the traded goods sector, net exports fell gradually to all-time lows, because: (a) the former sector expanded while the latter contracted, thus reducing the country's export capability, and (b) the mounting losses in export competitiveness shifted foreign demand for Greek products and services to other countries. This experience resembles the developments that took place in some South East Asian countries during the financial turmoil in the 1990s, when 'real' changes in their economies, in the form of losses in export competitiveness, preceded the emergence of the financial crisis.

On the other hand, as documented by Figures 1a and 1b, the increased EMU transfers, which expanded the domestic money supply, and the near elimination of the country risk in view of Greece's accession to the Eurozone, reduced domestic nominal and real interest rates to very low levels that were inconsistent with the country's phase of economic development. In principle, this development ought to have encouraged Greek governments to cover public deficits by substituting domestic for foreign borrowing. But giving in: (a) to rising demand for public employment, and (b) to pressures from labour unions in the public sector for above inflation wage adjustments, and furthermore, remaining unwilling to raise taxes, cut down public expenditures or crowed out domestic borrowers, Greek governments embarked on a path of unsustainable foreign borrowing which came to an abrupt stop in 2009, when, as shown in Figure 1a, the nominal interest rate suddenly skyrocketed and international financial markets closed down on Greece.

Finally, one issue for further research may be mentioned: With the probable exception of Italy, where in a way similar to Greece the root causes of the economic turmoil have been identified with the management of public finances, in the other countries of the European South and Ireland the crisis has been viewed as having emanated from the breakdown in their banking systems. The difference is crucial because, while in the former case the crisis came from the failure of governments in the respective countries, in the latter case

it was provoked by failures of the ECB as the regulator of the European banking system. If this diagnosis is correct, how should we generalize the above model to allow for such institutional failures? For then, by doing so, we may obtain a unified analytical framework to explain the crisis across all countries of the European periphery.

4. Concluding remarks

Aside from highlighting the fundamental causes and processes that drove Greece to bankruptcy, the analysis presented above raises several questions in the realm of political economy. Two among them are: (a) It is utterly unlikely that Greek politicians did not see the obvious, namely that under their populist policies and practices after 1974, the day of reckoning would come and the country would be held accountable by its foreign creditors. Why did they behave as if Greece deserved this fate? (b) From European Commission reports we know that EU leaders were well aware of the abuses of financial assistance and the lack of commitment by Greek elites to the obligations that emanated from the European Treaties. Why did they close their eyes as if what was happening in Greece was of no consequence? Our objective in this last section is not to dwell on these and other related questions in any detail. Rather what we wish to do is to offer a few brief remarks which may shed some light on why well-intended European policies went wrong in Greece, and quite possibly in the other countries of the European periphery.

The success in the European unification experiment, which started back in the 1950s, was based on at least three presumptions derived from rational choice. The first of them was that European peoples would never forget the horrors of the last war. The second was that, as the benefits of peace and common destiny would become apparent gradually, nationalist sentiments would retreat and European peoples would embrace the vision that Winston Churchill set out in a speech on September 19, 1946 at the University of Zurich:

> "We must recreate the European Family, or as much of it as we can, and to provide it with a structure under which it can dwell in peace, in safety and in freedom. We must build a kind of United States of Europe. In this way only will hundreds of millions of toilers be able to regain the simple joys and hopes which make life worth living "(Humes, 1994, 34).

Finally, the third presumption was that European elites would honor commitments, since attaining the objective of unification over the long haul was based on wilful participation and negotiation. Initially there were smaller and larger crises, but due to the will of the leading powers of Europe the process of integration progressed remarkably fast, and within five decades the EU transformed from a six country customs union to a monetary union comprising the overwhelming part of Europe.

However, now the experiment of unification faces strong headwinds. After sixty years of peace and the passing of the generations who experienced the horrors of the Second World War, the importance of

unification in the minds of the European peoples seems to be fading. Wrongly underestimating the lessons of history, younger generations take peace for granted. The benefits from the enlargement and the free mobility of labor and capital are discounted. The French and the British, whose peoples ought to know better of their critical roles in the success of the European experiment, appear to be losing faith; and, in general, national interests combined with a lack of understanding and conviction in the principle of subsidiarity shroud Churchill's vision of - eventually - transforming the European Union into a United States of Europe in clouds of uncertainty.

Further, the economic crisis that erupted in the countries under consideration revealed that their economic and political elites habitually negotiated and committed themselves to common European policies in questionable faith, since, as a rule, their main objective was to remain in power and enjoy its fruits with the support of privileged minorities the benefits associated with it. Again, Greece offers the best example in this regard. **W**e have stressed earlier that Greek governments not only procrastinated systematically at introducing the reforms that were mandated by European treaties, but also that they adopted policies which worsened the structure of the Greek economy. For convincing evidence to this effect one does not have to look further than the OECD recommendations, the so-called OECD toolkit, that Greek governments are forced to adopt now as a precondition for the assistance creditors extend to Greece to avoid an open bankruptcy. In particular, abolishing barriers to entry and infusing competition across all product and services markets, tearing down the institutions that rendered labor markets inflexible, privatizing state assets to encourage the return of foreign investors, reinventing all branches of government to invigorate administrative efficiency, etc., are reforms which ought to have been undertaken long ago, not under duress, but as a matter of wilful fulfilment of Greece's obligations. Now, one may ask, why did Greek elites behave this way and why did EU leaders closed their eyes until it was too late?

In our view the answers are more general and go deeper than the idiosyncratic ones cited by Bitros (1994). We believe that they lie in the evidence to the effect that, both at the country and the union levels, entrenched elites have estranged average citizens by enlarging bureaucracies and continuously imposing policies that cater to their own short-term interests, as well as to those of select organized minorities. Certainly, these developments are not unique to the European Union; Gilens and Page (2014) identify similar trends in the leading democracy in the other side of the Atlantic. But, given that the unification process has depended all along on the support of average citizens, it is no surprise that Eurosceptics and other adversaries of the project for a United States of Europe make significant inroads into their ranks. By implication, these ominous trends have to be reversed through reforms to win back the hearts and minds of the hundreds of millions of toilers who constitute the backbone and the future of a United States of Europe. As emphasized by Bitros, Karayiannis (2013,173-177), such reforms must address the existing democratic deficit,

which implies that they must be initiated by the peoples of Europe themselves and not be imposed from above by the central European bureaucracy.

5. References

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