Preliminary and Incomplete

THE TWIN DEFICITS OF THE GREEK ECONOMY AND THEIR ASSOCIATED DEBTS: More Evidence on the Insiders – Outsiders Society[1]

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Nov. 9, 2011

[1] To be presented at the workshop on "Financial Fragility: Sources and Consequences," European University Institute, Florence, 11 (GWT) 11-11-11.
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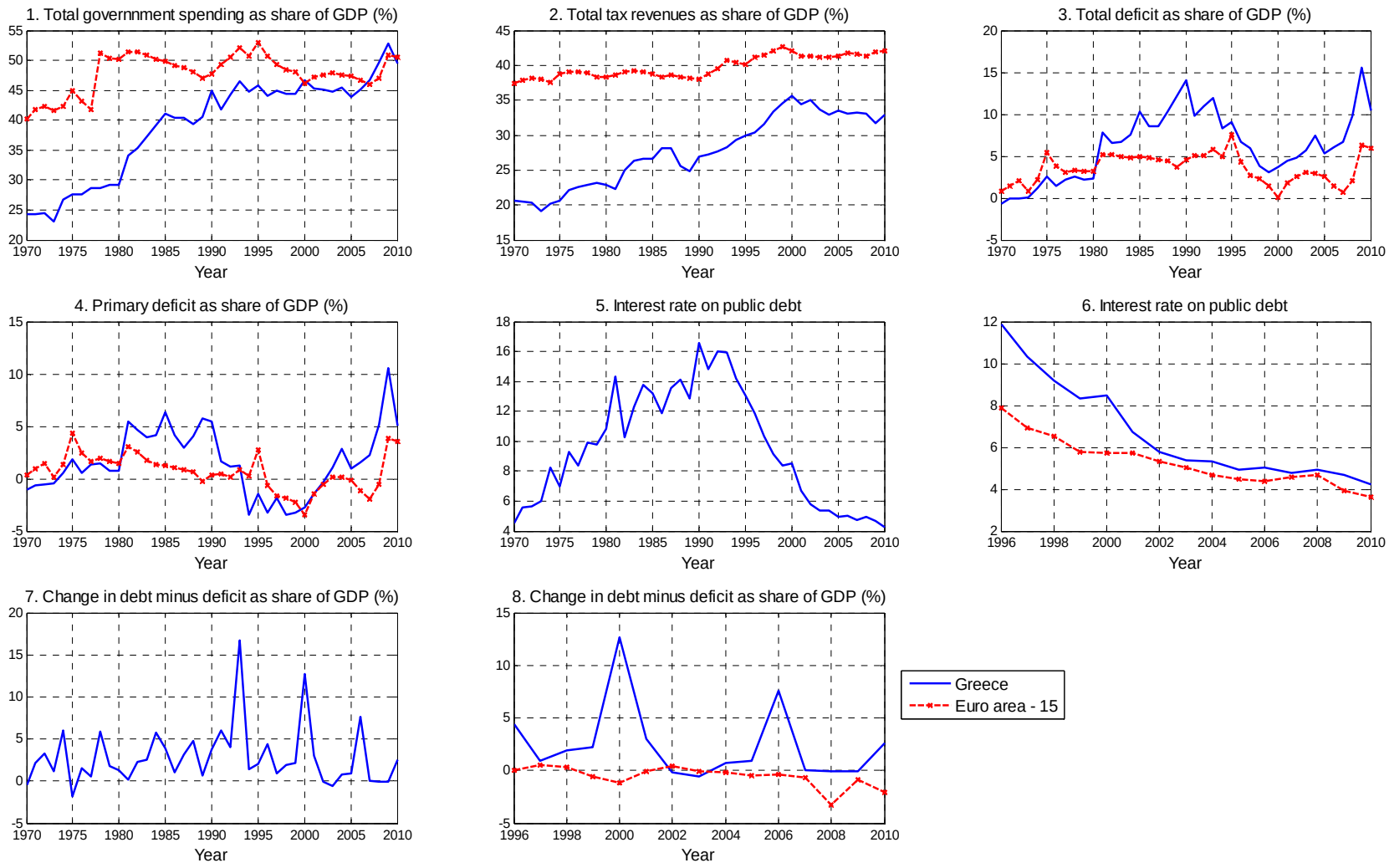


Figure 2: Total gross public debt as share of GDP (%)

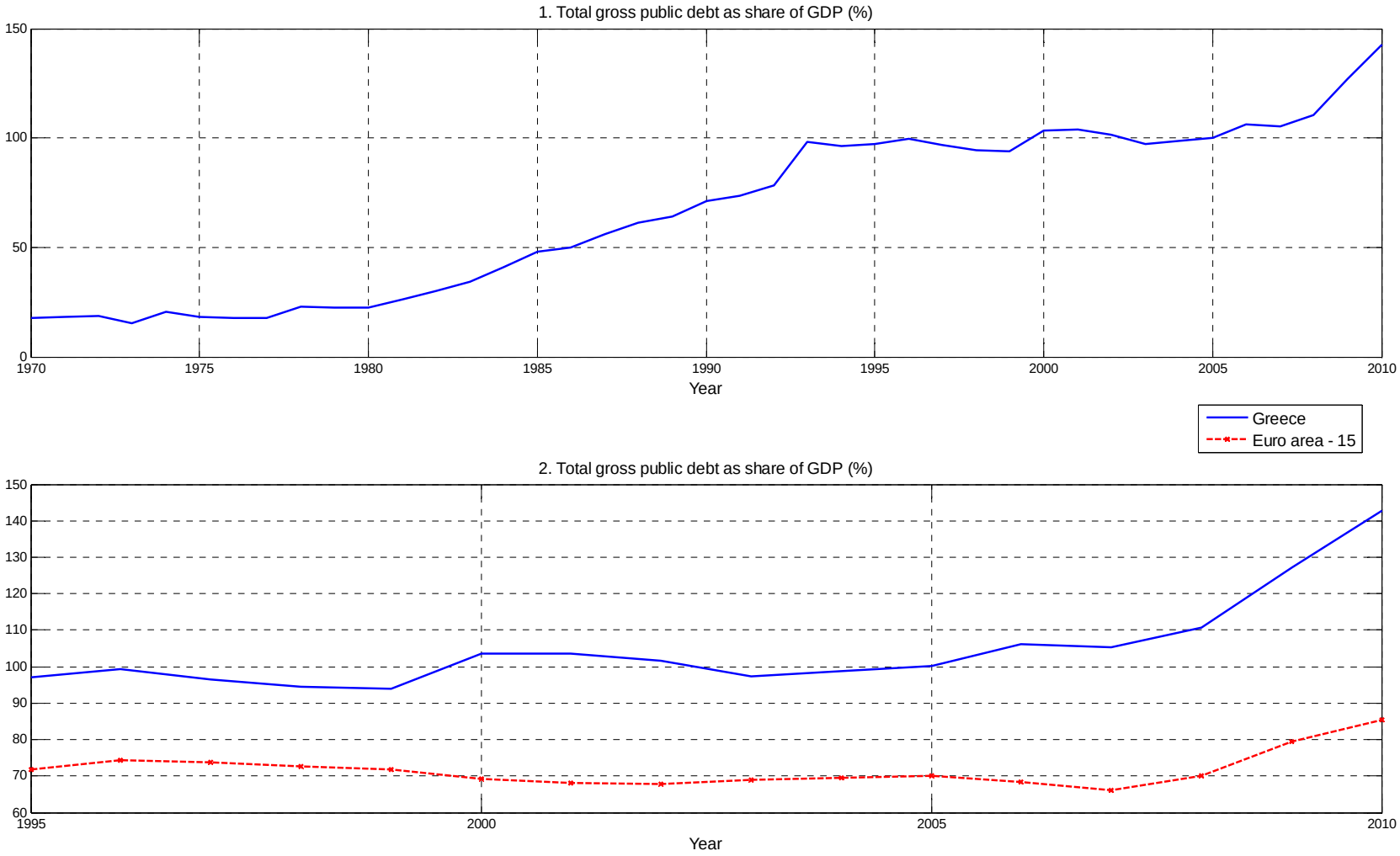


Table 1: Domestic and External Debt: A Cross Country Comparison

	Greece			Euro-area		USA		Japan	
	2009	**2010**	**2011q1**	**2009**	**2010**	**2009**	**2010**	**2009**	**2010**
Total Gross Public Debt / GDP	127.1	142.7	149.8	79.3	85.2	84.4	94.31	192.76	198.39
Gross External Public Debt / GDP	93.7	81.3	88.3	22	23.9	26.21	29.66	12.97	14.1
Gross Domestic Public Debt / GDP	33.3	61.4	61.5	57.3	61.3	58.18	64.65	179.79	184.29
Gross External Debt / GDP (other sectors)	80.4	96.3	91.4	94.1	93.9	69.09	67.55	27.23	30.56
Total Gross External Debt / GDP	174.1	177.6	179.7	116.1	117.8	95.3	97.21	40.2	44.65
Total Gross Debt / GDP (total economy)	428.09	463.25	-	444	-	368	-	466.76	-
of which									
Non- Financial Corporations	65.30	59.1		81.35		77.03		95	
Financial Corporations	183.31	201.42	-	221	-	110.45	-	110	-
Households	52.38	59.97		62.35		96.35		69	
General Government	127.1	142.7		79.3		84.4		192.76	
Net Foreign Asset Position / GDP (total economy)	-85.2	-95.3	-100	-16.4	-12.9	-19.4	-	57.1	52.4
Net Foreign Asset Position / GDP (other sectors)	8.51	-14	-12.6	5.6	11	6.81	-	70.07	66.49
Primary Deficit / GDP	-10.3	-4.9	-2.25	-3.5	-3.2	-10.9	-8.87	-6.04	-6.45
Total Deficit / GDP	-15.4	-10.5	-9.15	-6.3	-6	-12.66	-10.58	-7.09	-7.69
Current Account Balance /GDP	-10.98	-10.45	-14.4	-0.1	-0.8	-2.68	-3.20	2.8	3.44
Trade Balance / GDP	-10.73	-8.5	-7.5	1.3	1.3	-2.73	-3.67	0.3	1.25

Data source: Eurostat, ECB, World Bank Quarterly External Debt Statistics, OECD Economic Outlook, Federal Reserve Bank of St. Louis, Bank of Greece, Bank of Japan, McKinsey Global Institute.

Public Finances

- **Total government spending as a share of GDP has escalated from about 24% in the early seventies to about 50% - catching up with the Euro area average - in the last few years.**

- **Total tax revenues as a share of GDP has increased from about 20% in the early seventies to about 33% in the last few years, remaining more than 10 percentage points less than the Euro area average, for most of this period.**

- **A consequence of the above two characteristics is that total government deficits were an ever present feature of Greek public finances, throughout this period. Moreover, total government deficits in Greece exceeded those of the Euro area significantly, especially over the last thirty years.**

- **A consequence of the last characteristic is that total gross public debt as a share of GDP skyrocketed from 20% of GDP in the early seventies to more than 150% of GDP, presently. And, over the last fifteen years total gross public debt as a share of GDP in Greece has been more than 35-67% higher than that of the Euro area average.**

- **A remarkable feature of the increase in gross public debt as a share of GDP is that a substantial portion of it has come from sources that they were not included in the deficit (guarantee forfeitures, creative accounting).**

- **Unlike the Euro area and most other countries with high public debt to GDP ratios (e.g., USA, Japan),most of the Greek public debt (about 60% of it in 2011Q1) is held by foreigners.**

Figure 3: Composition of public expenditure

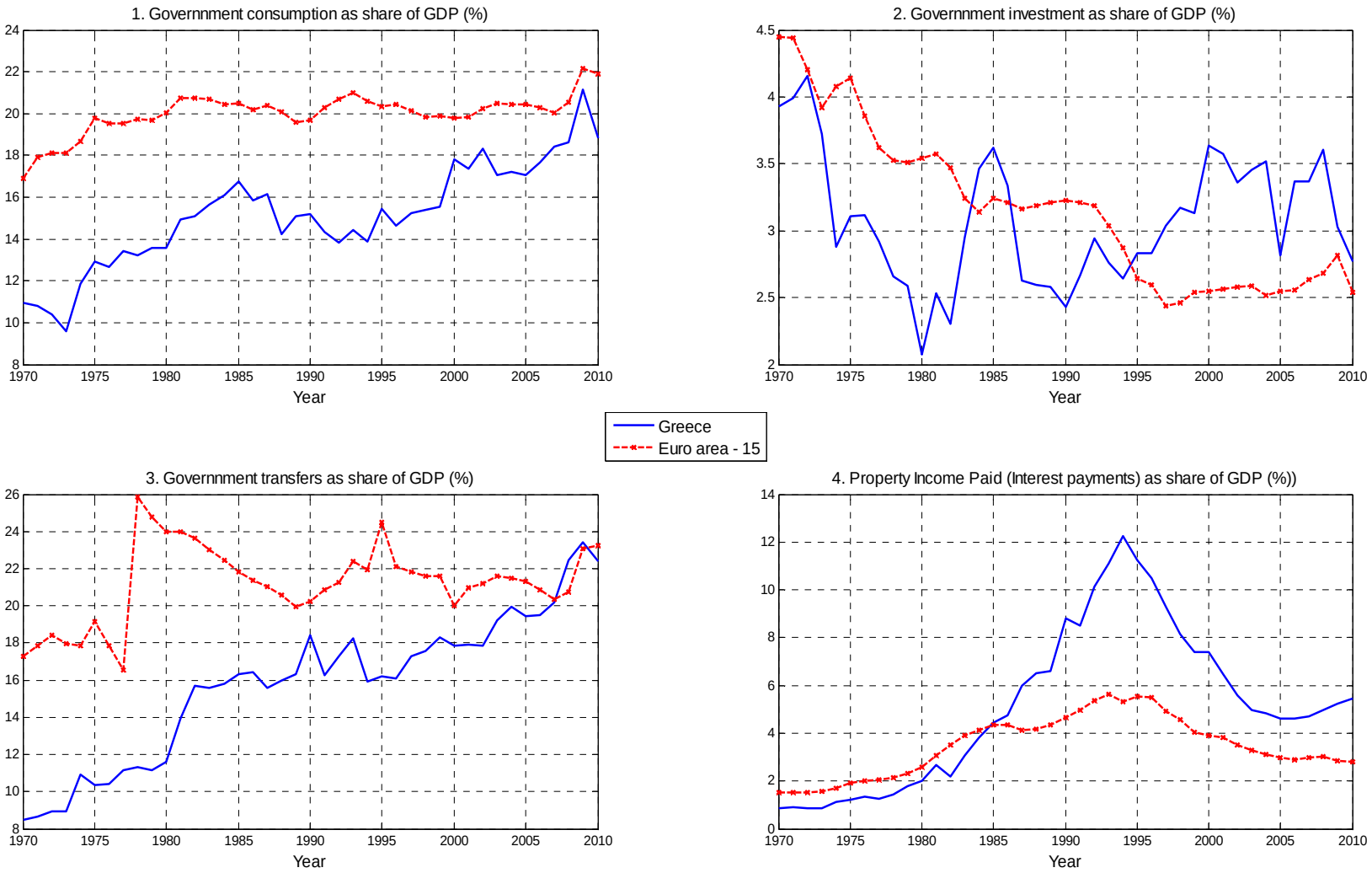
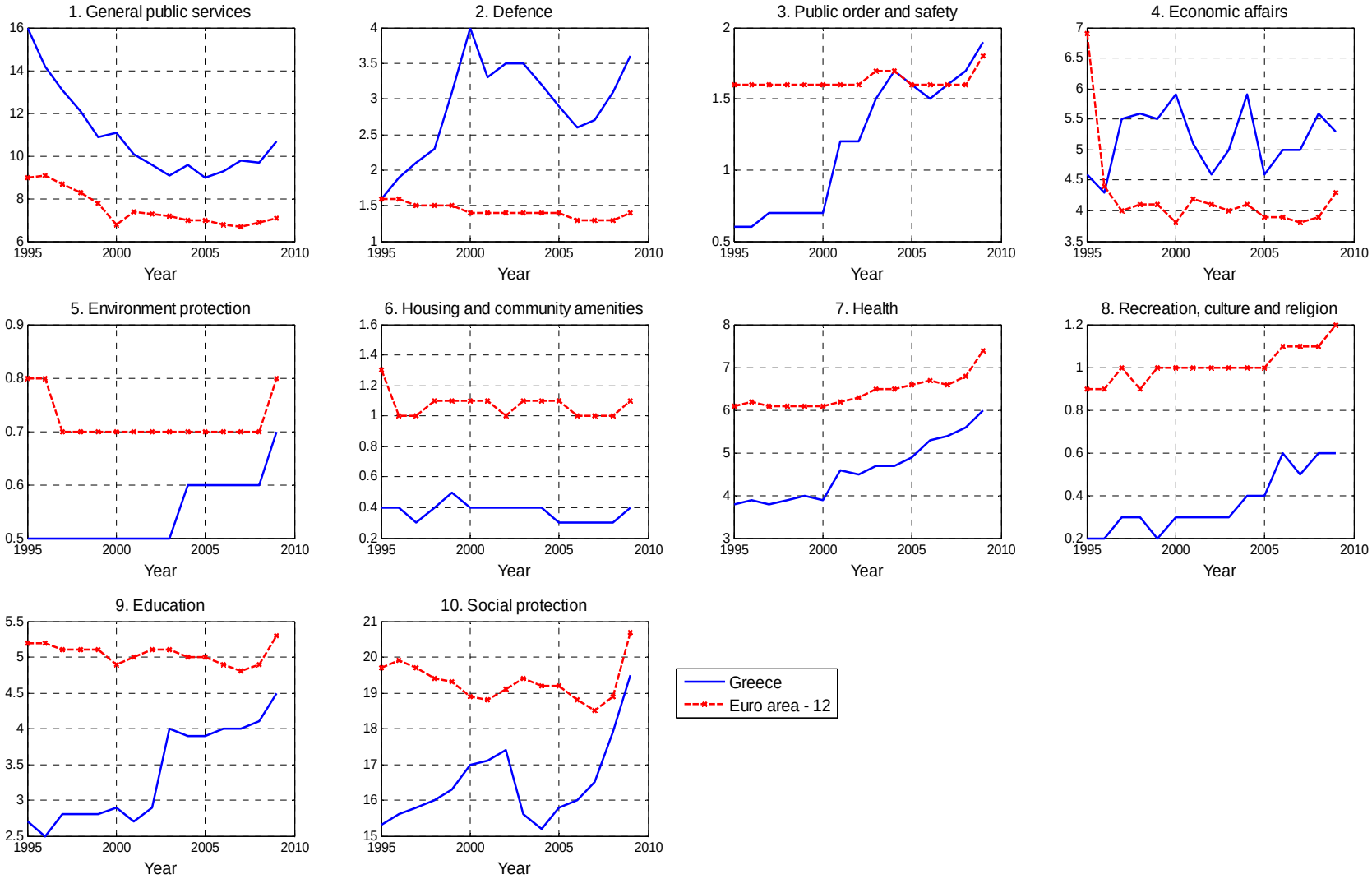


Figure 4: Government expenditure by function as share of GDP (%)

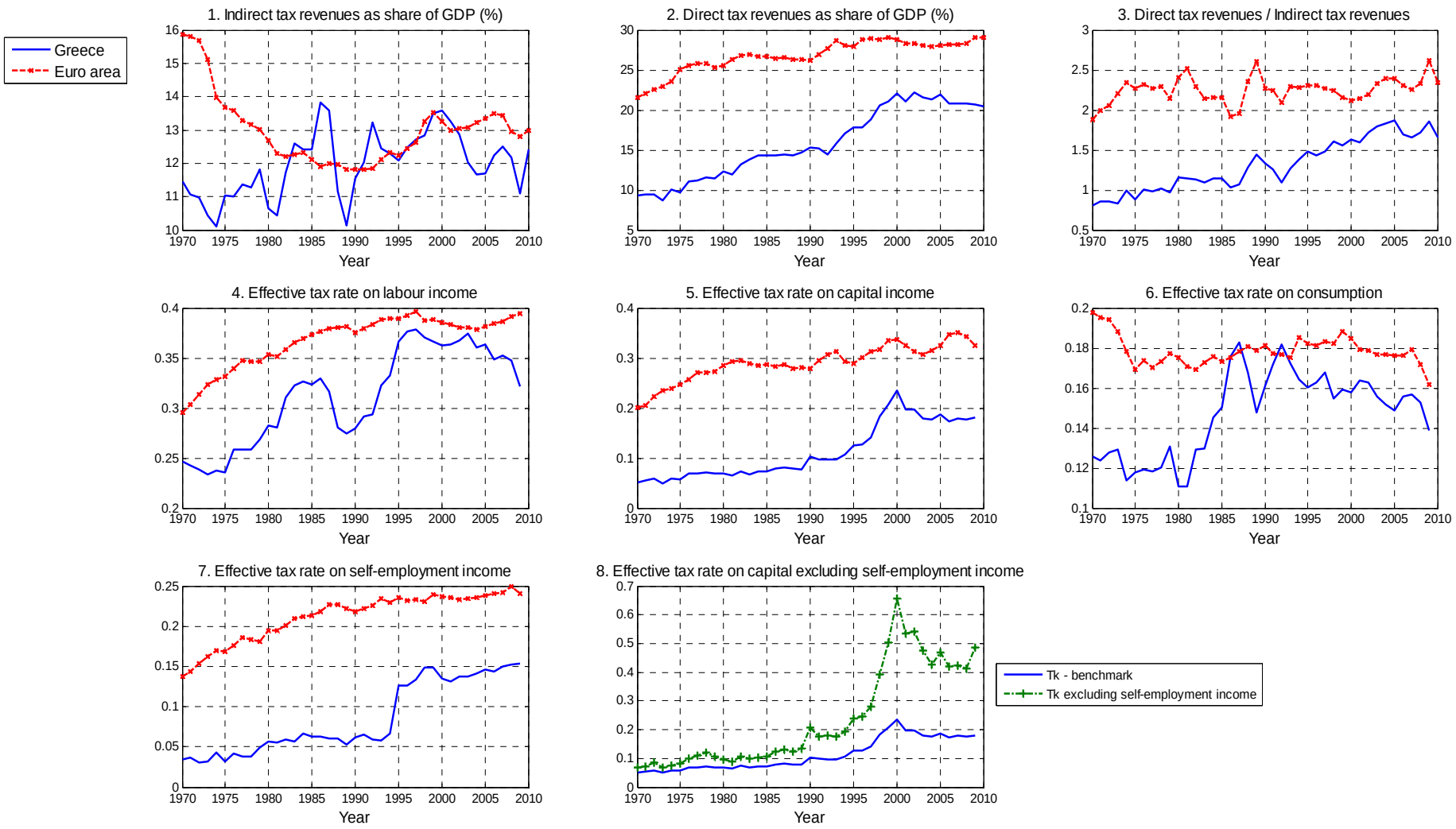


Composition of Public Spending

- **Government consumption and government transfers have driven the escalation in government spending and this despite the decline in government investment and, after the mid-nineties, in interest payments. This feature characterizes also the Euro area, but in a less dramatic way.**

- **There are significant differences in the composition of government spending by function category between Greece and the Euro area. Greece spends higher percentages of GDP, than the Euro area, for "general public services" (includes public administration and operation and interest payments), "national defence", and "economic affairs" (includes construction and maintenance of public infrastructure, subsidies and loans to farmers and fishermen, subsidies to the energy sector and the promotion of the tourist industry). And, spends lower percentages of GDP, than the Euro area, for "public order and safety", "environment protection", "housing and community amenities", "recreation, culture and religion", "education", and "health."**

Figure 5: Tax revenues and effective tax rates



Note: Effective tax rates for the Euro area are the GDP weighted averages of the effective tax rates of ten euro area countries: Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands and Spain.

Composition of Tax Revenues and Effective Tax Rates

- **The direct to indirect tax revenues ratio has increased to about 1.5 in Greece but remains much lower than the corresponding ratio in the Euro area, which fluctuates around 2.3.**

- **Indirect tax revenues have roughly converged to the Euro area average, although they are much more volatile, to about 13% of GDP.**

- **Direct tax revenues have increased from 10% of GDP in early seventies to about 20% of GDP in recent years, but they remain around 10 percentage points less than the Euro area average, for most of this period.**

- **The above difference is mostly due to the fact that the effective tax rate on self employed income, whose fraction in total employment is more than double in Greece than in the Euro area (44% vs 17% on the average, over the last 40 years), is about 10 percentage points lower in Greece than that of the Euro area. The latter explains, also, the difference in the effective tax rates on capital, since the income (taxes) of self employed is included in capital income (taxes).**

- **Effective tax rates (Mendoza, Razin, Tezar (1994)) consumption roughly converged with Euro area averages over the last forty years. Effective tax rates on labor roughly converged with Euro area averages until 2003, but they have been diverging thereafter.**

- **The behavior of effective tax rates on capital, crucially depends on the treatment of the income of the self-employed. If the income of the self employed is included in capital income, effective tax rates in Greece have remained about 10 percentage points less than the Euro area averages. However, as the effective tax rate on self employed in Greece is about 10 percentage points less than the Euro area average and the self employed in Greece are about 50% of total employment – the highest in the EU – the effective tax rate on capital in Greece quadruples, especially over the last fifteen years and should be much higher than that of the Euro area average.**

- **The great difference in the effective tax rates on the self employed in Greece and the Euro area is a strong indication for the inefficiency of the Greek tax collection system (Kollintzas, Papageorgiou, Vassilatos (2010))**

3. **Stylized Facts of Growth and Competitiveness in Greece**

Figure 6: Real per capita GDP and real per capita absorption

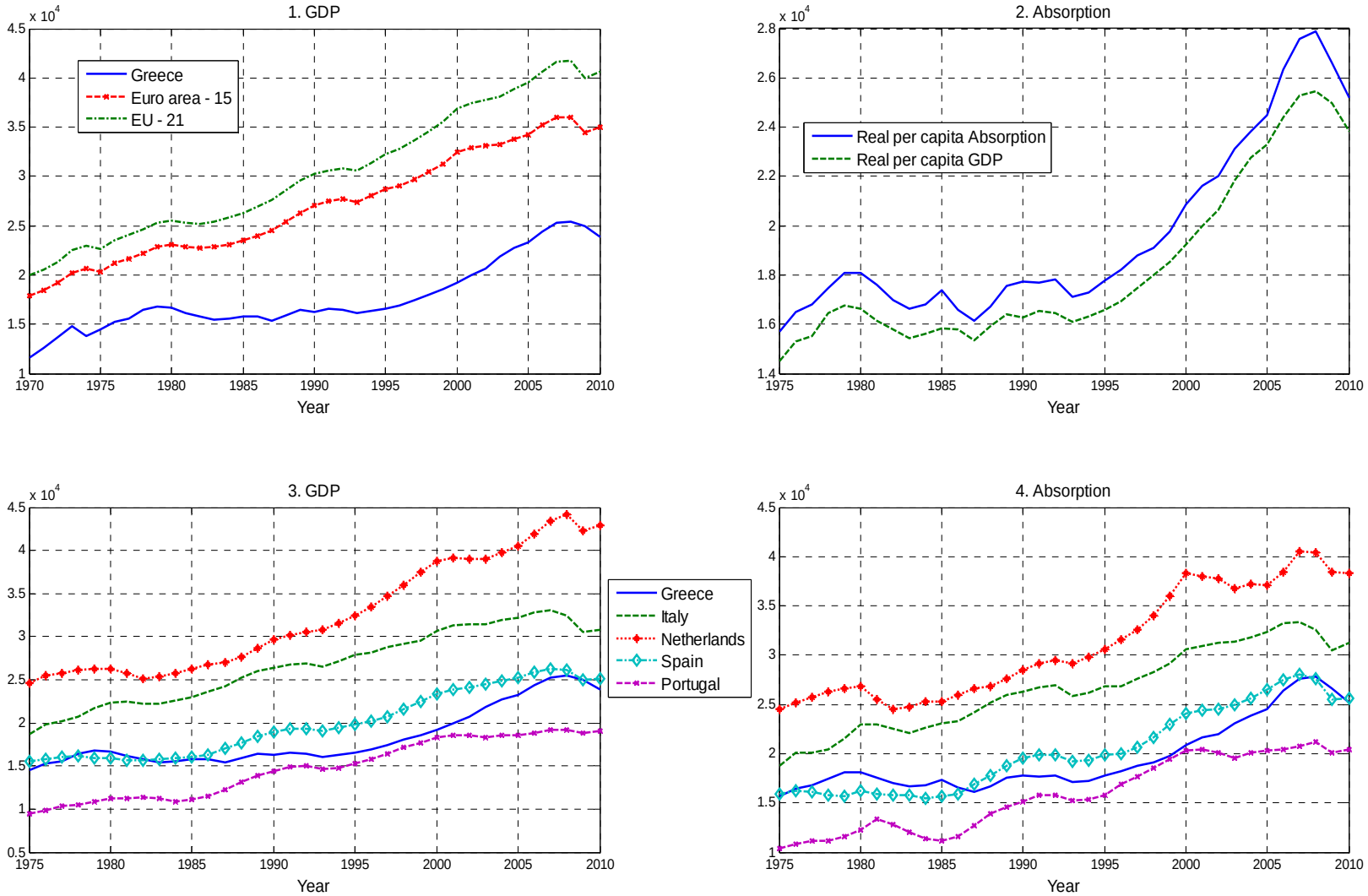


Figure 7a: Key macroeconomic variables I

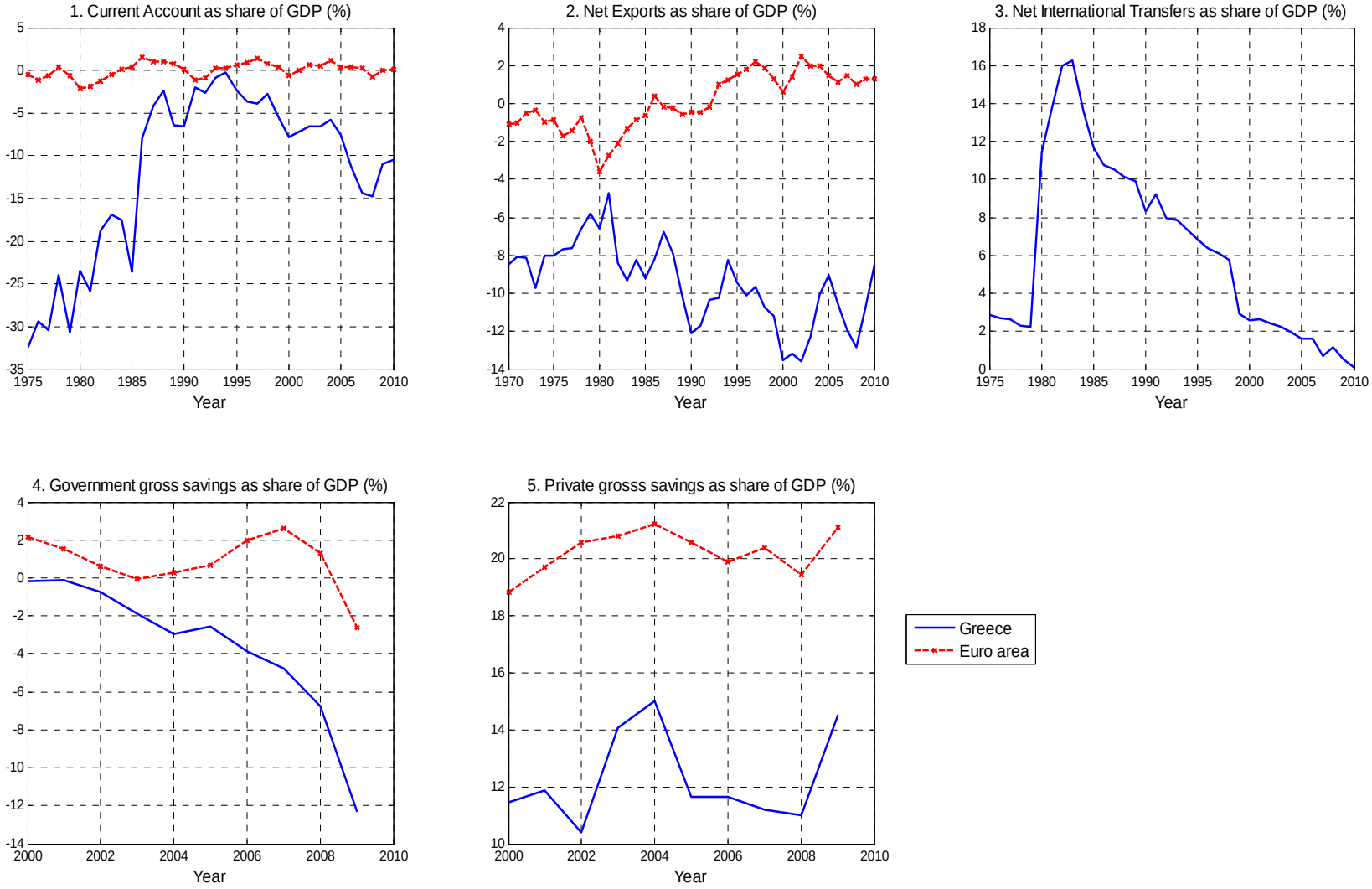


Figure 7b: Key macroeconomic variables II

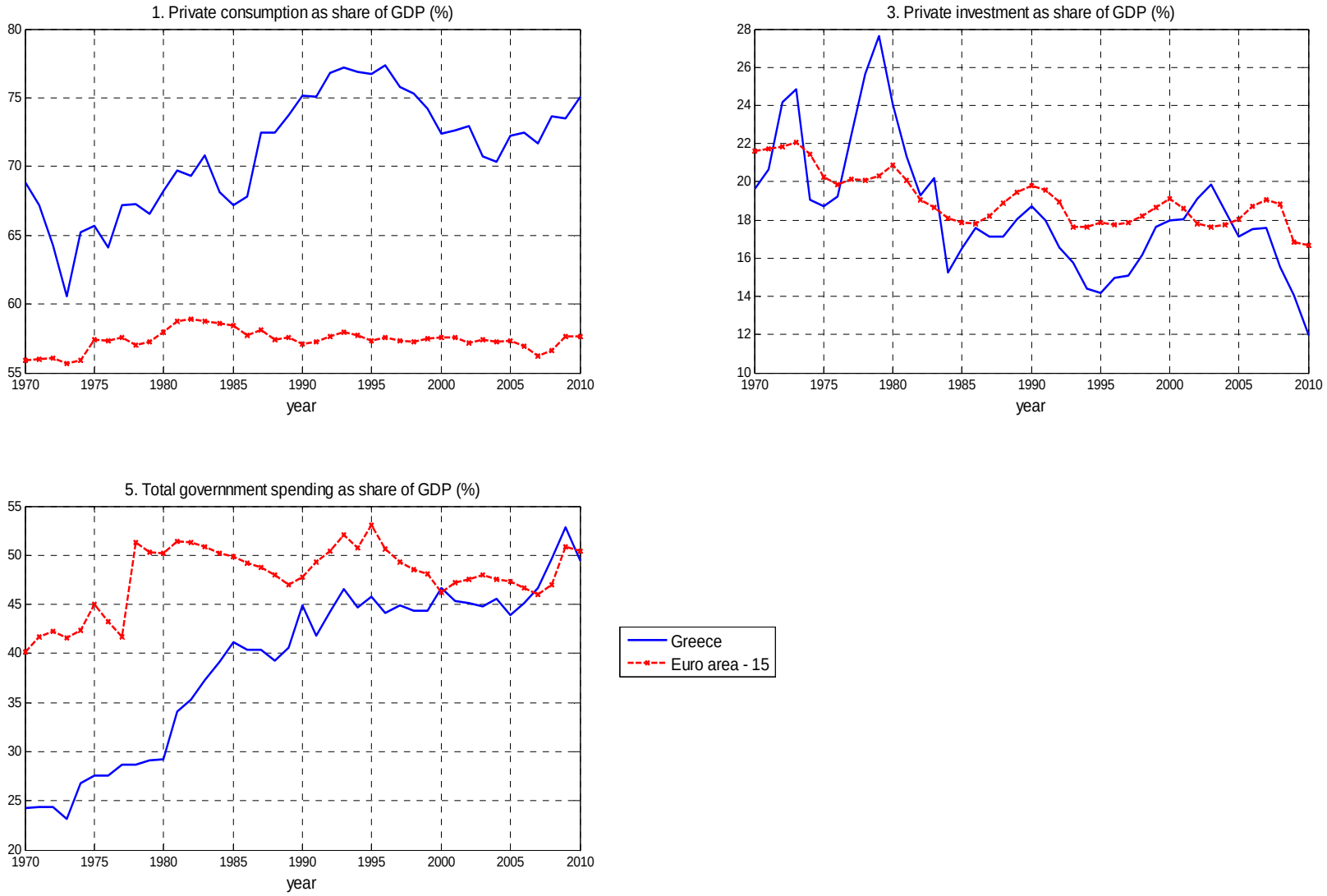


Table 2: Cross Correlations

(Y denotes real GDP and A denotes real absorption)

Cross Correlations with the difference $d_t = A_t - Y_t$, $\rho\left(d_t, x_{t+i}\right)$

	$i=-1$	$i=0$	$i=1$
$d_t = A_t - Y_t$	0.3587	1	0.3587
Private consumption as share of GDP	0.18	0.18	0.14
Private Investment as share of GDP	-0.14	-0.21	**-0.32**
Total government spending as share of GDP	**0.32**	**0.5**	**0.56**

Note: Bold numbers indicate statistical significance at the 5% level.

Figure 8: External gross debt

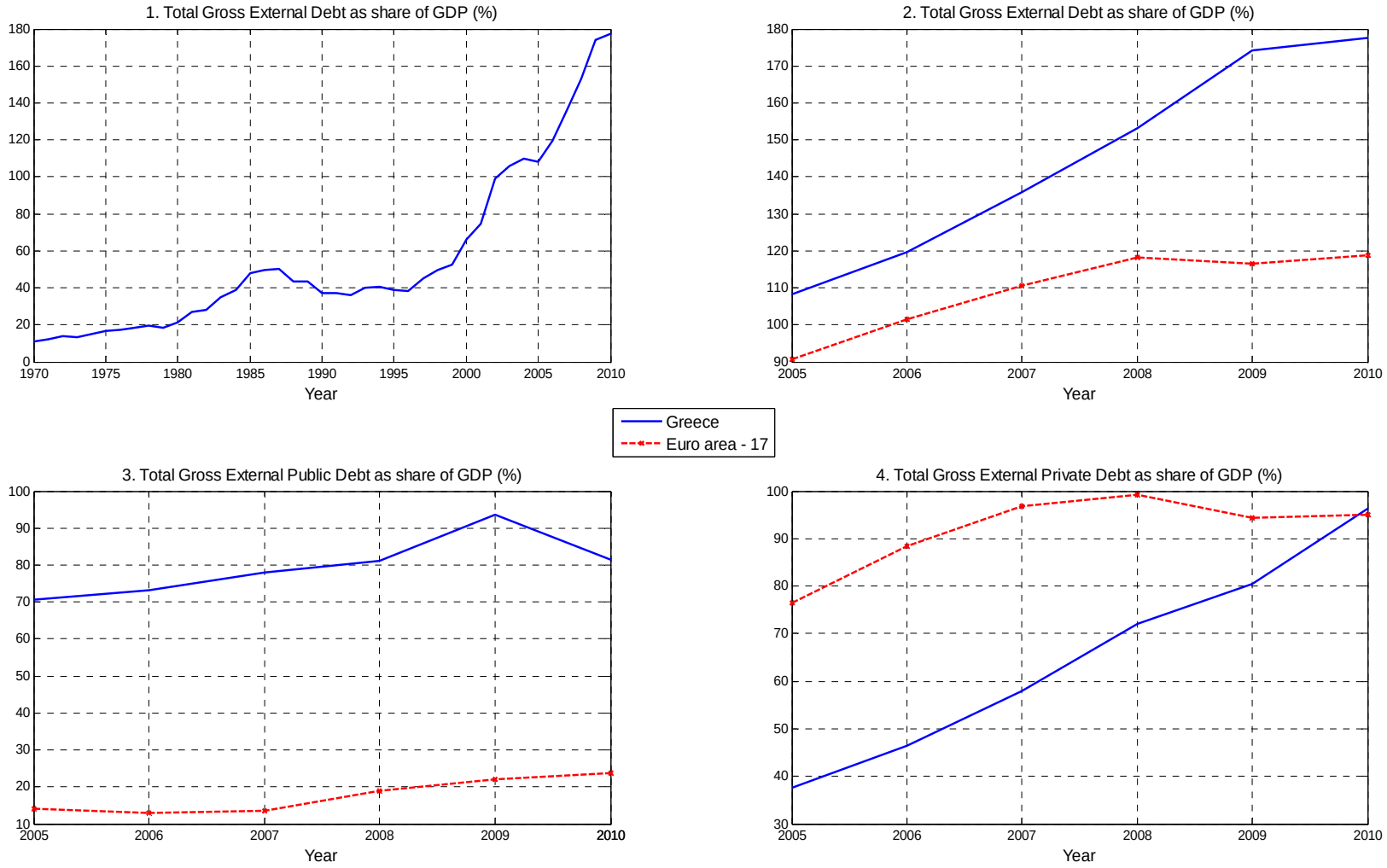
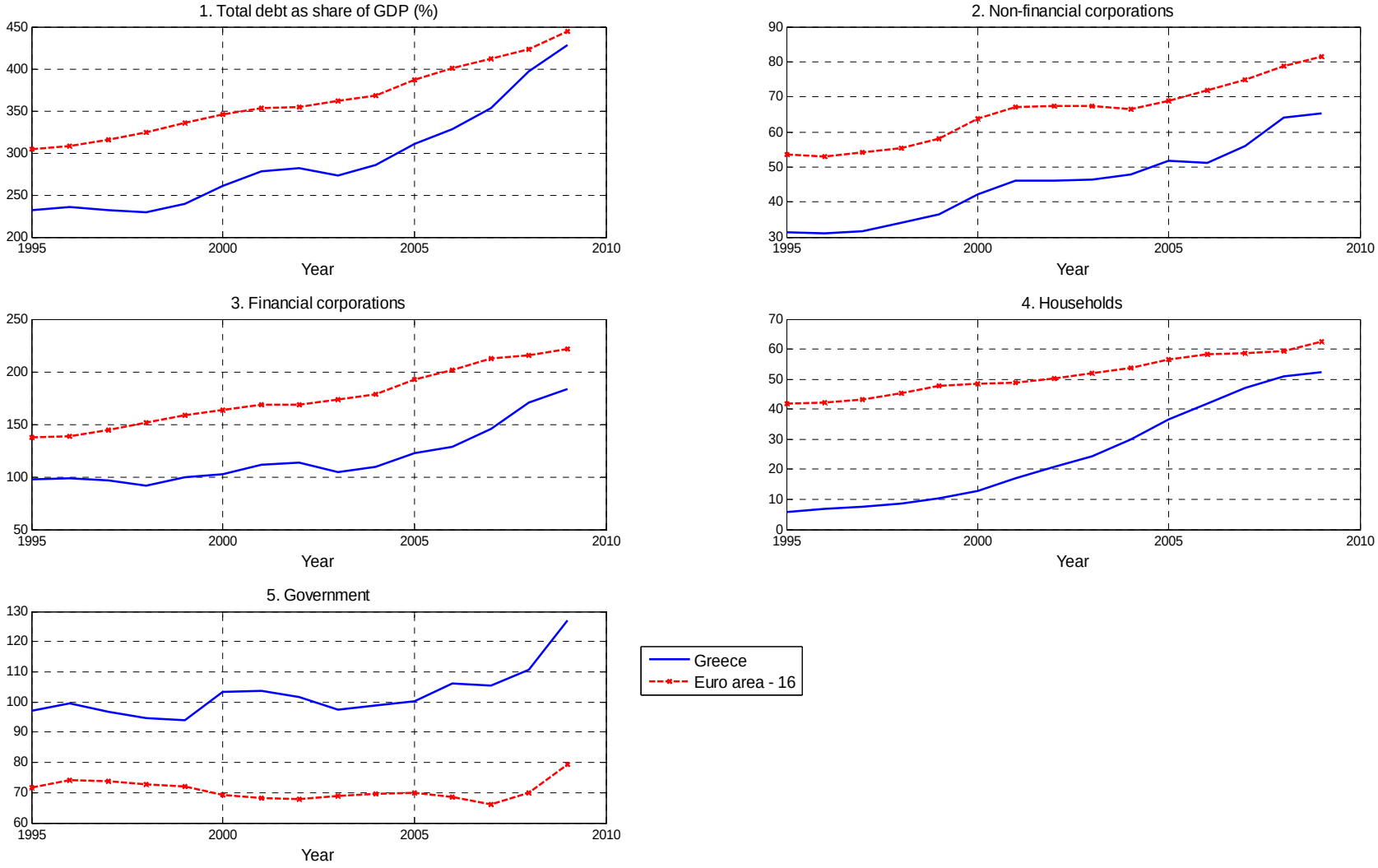


Figure 9: Debt by sector



GDP vs Absorption: The winner is external debt

- **GDP per capita in Greece a little more than doubled over the last forty years. This growth was no faster than that of the Euro area or the EU. So, there was no convergence (Neoclassical Growth Model) with the rest of the Euro area or the EU.**

- **Unlike the Euro area real absorption (GDP + NIFA + NFTR + CA) per capita was more than 10% higher than GDP per capita. For example, in 2010 Greece had a lower (higher) GDP per capita (real absorption per capita) than Spain.**

- **This Greek peculiarity is due to two factors: First, large current account deficits are an ever present feature of the Greek economy over the last thirty five years. And, in recent years the current account deficit fluctuates around 10% of GDP. On the contrary the Euro area exhibits a balanced current account, over the same period.**

- **Second, net factor transfers from abroad (includes transfers from the EU) have also contributed to the positive difference between absorption and GDP, over the last thirty five years, although in a diminishing way.**

- **In turn, the ever present current account deficit has its roots in: (a) the ever present net exports deficit, which fluctuates around 10% of GDP and (b) the ever decreasing government gross savings rate which does not seem to generate compensating changes in the opposite direction (Ricardian Equivalence) in the private gross savings rate.**

- **In fact a common driving force behind both stylized facts (a) and (b), above are obviously related to another Greek economy peculiarity: private consumption as a share of GDP is more than 20 points higher than the Euro area average and has a positive trend, since Greece's entry in the EU.**

- **Despite the GDP growth, private investment as a share of GDP fell from 24% of GDP in the middle seventies to 12% of GDP in 2010. In the same period EU area private investment as a share of GDP also declined, but this decline was modest by comparison (from around 22% to 18.5%). The public deficit (crowding out) and the high capital taxes must be primarily responsible for this fact.**

- **The importance of absorption as a driving force of discretionary government spending is highlighted by the fact that real absorption minus GDP leads procyclically Government Spending as a share of GDP. Also, it seems to lead countercyclically private investment as a share of GDP (crowding out). Further, real absorption minus GDP has a week procyclical relationship with consumption as a share of GDP.**

- **The accumulation of current account deficits has led total gross external debt as a share of GDP to skyrocket from 10% of GDP in the early seventies to 180% of GDP, at the end of last year. And, over the last five years total gross external debt as a share of GDP in Greece has been about t 50% higher than that of the Euro area average.**

- **The primary contributor to the last stylized fact is the gross external public debt as share of GDP being more than 100% higher than that of the Euro area, on average. Although, recently, the Greek external private debt as a share of GDP also exceeded that of the Euro area.**

- **Not surprisingly, as Greeks do not save as much as the people of the rest of the Euro area, with the exception of total (external and domestic) government debt, all other sectors of the Greek economy have lower total debt to GDP ratios than the Euro area. Thus, total debt as a share of GDP in Greece remains lower than that of the Euro area. (Greek banks were not a problem.)**

Table 3: Cross Correlations of GDP growth $\rho(y_t, x_{t+i})$ and public finance variables

	Greece			Euro area		
	$i=-1$	$i=0$	$i=1$	$i=-1$	$i=0$	$i=1$
Real GDP growth	0.3415	1	0.3415	0.3656	1	0.3656
Total Government spending as share of GDP	-0.2645	**-0.3938**	-0.3482	-0.2581	**-0.5415**	-0.4916
Government consumption as share of GDP	-0.2606	**-0.4013**	-0.3201	-0.3760	**-0.7462**	-0.7341
Government Investment as share of GDP	0.2870	**0.5780**	0.4186	0.3222	0.3442	**0.4354**
Government Transfers as share of GDP	-0.3425	**-0.4810**	-0.3747	-0.2428	**-0.4514**	-0.4203
Total Tax Revenues as share of GDP	-0.0587	-0.1770	-0.1611	-0.2374	-0.4102	**-0.4685**
Direct Taxes as share of GDP	-0.0710	-0.1711	-0.1300	-0.3593	-0.5387	**-0.5527**
Indirect Taxes as share of GDP	0.0175	-0.1390	-0.2391	0.3248	**0.4089**	0.3026
Total Deficit as share of GDP	-0.4783	**-0.5496**	-0.4919	-0.0325	**-0.5319**	-0.4531
Primary Deficit as share of GDP	**-0.4576**	-0.4250	-0.2846	0.1207	**-0.3400**	-0.2636
Effective tax rate on labour income	-0.1471	-0.2634	-0.2994	-0.3306	-0.4270	**-0.4291**
Effective tax rate on capital income	0.0823	-0.0042	0.0453	-0.4107	**-0.4612**	-0.3815
Effective tax rate on consumption	-0.1480	-0.1543	-0.2336	0.3867	**0.6265**	0.3257

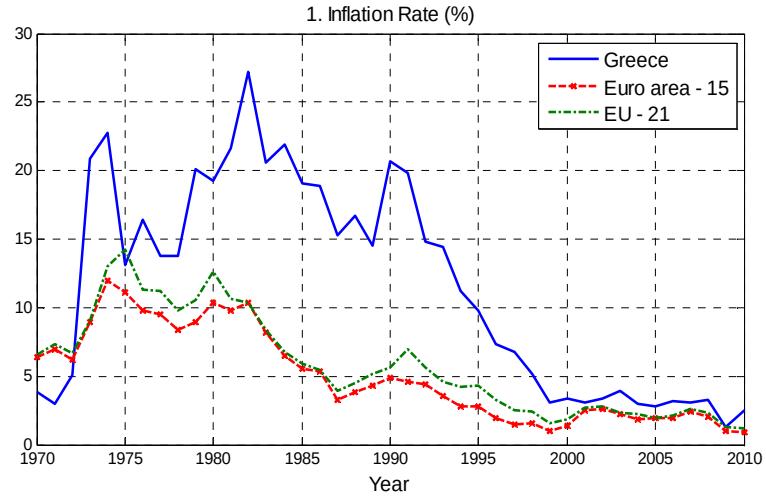
Notes: (i) Effective tax rates for the Euro area are the GDP weighted averages of the effective tax rates of ten euro area countries: Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands and Spain (ii) Given the number of observations in the sample, the value required to reject the null hypothesis that the population correlation is zero in a two sided test is 0.308 at the 5% level of significance.

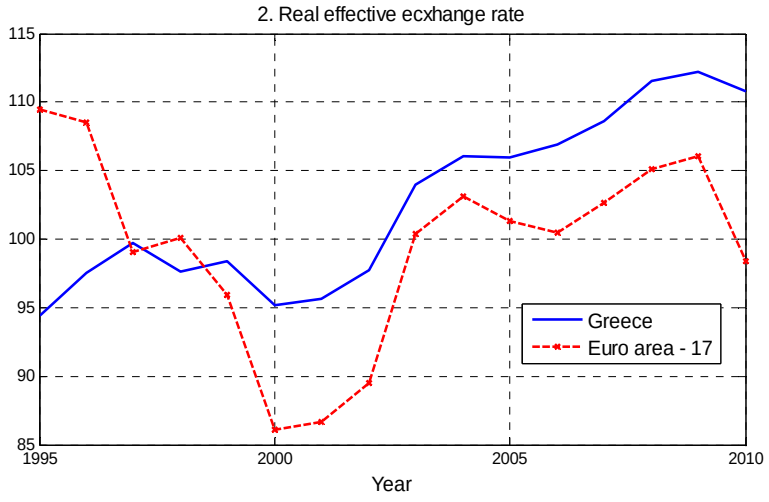
Growth and Fiscal Policy Variables

- **Total government spending, government consumption, government transfers, total deficit and primary deficit as a share of GDP correlate negatively, statistically significantly, with the growth rate in Greece and in the Euro area. Government investment as a share of GDP correlate positively, statistically significantly, with the growth rate in Greece and in the Euro area. But, total tax revenues and effective tax rates of the factors of production correlate negatively with the growth rate negatively in Greece and the Euro area but only in the Euro area this correlation is statistically significant (Daveri and Tabellini (2000)).**

- **The correlations among the effective tax rates and the GDP growth rate are considerably lower in Greece relative to the Eurozone. In some cases (e.g. the contemporaneous correlation between labour income) this correlation is actually zero. Qualitatively, they share the same characteristics, except for the consumption tax rates where they have opposite signs. An interpretation for these lower correlations could be sought in the actual levels of the tax rates which are considerably lower in Greece relative to the Eurozone (See figures....). Actually, the lower the level of the tax rate, the lower the correlations. One then could argue that this weaker correlation reflects a nonlinearity in the relation between tax rates and growth: Lower tax rate levels have a less distortionary effect on growth. The lower effective tax rates in Greece, in turn, reflect well known tax evasion / compliance and tax collection problems. Note, that, the effects of tackling tax evasion (i.e. increase in the tax base and tax revenues) on effective tax rates is not clear cut since this affects both the nominator (revenues) and denominator (tax base). Whether the effective tax rates will rise or fall depends on the progressivity of the tax rate sysytem and the idiosyncratic characteristics of evasion.**

Figure 10: Inflation rates and real effective exchange rate





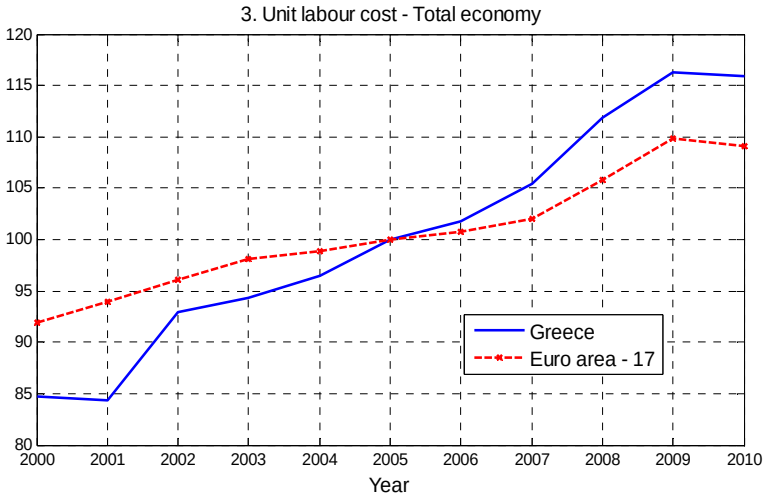


Figure 11: Unit labour costs in various sectors

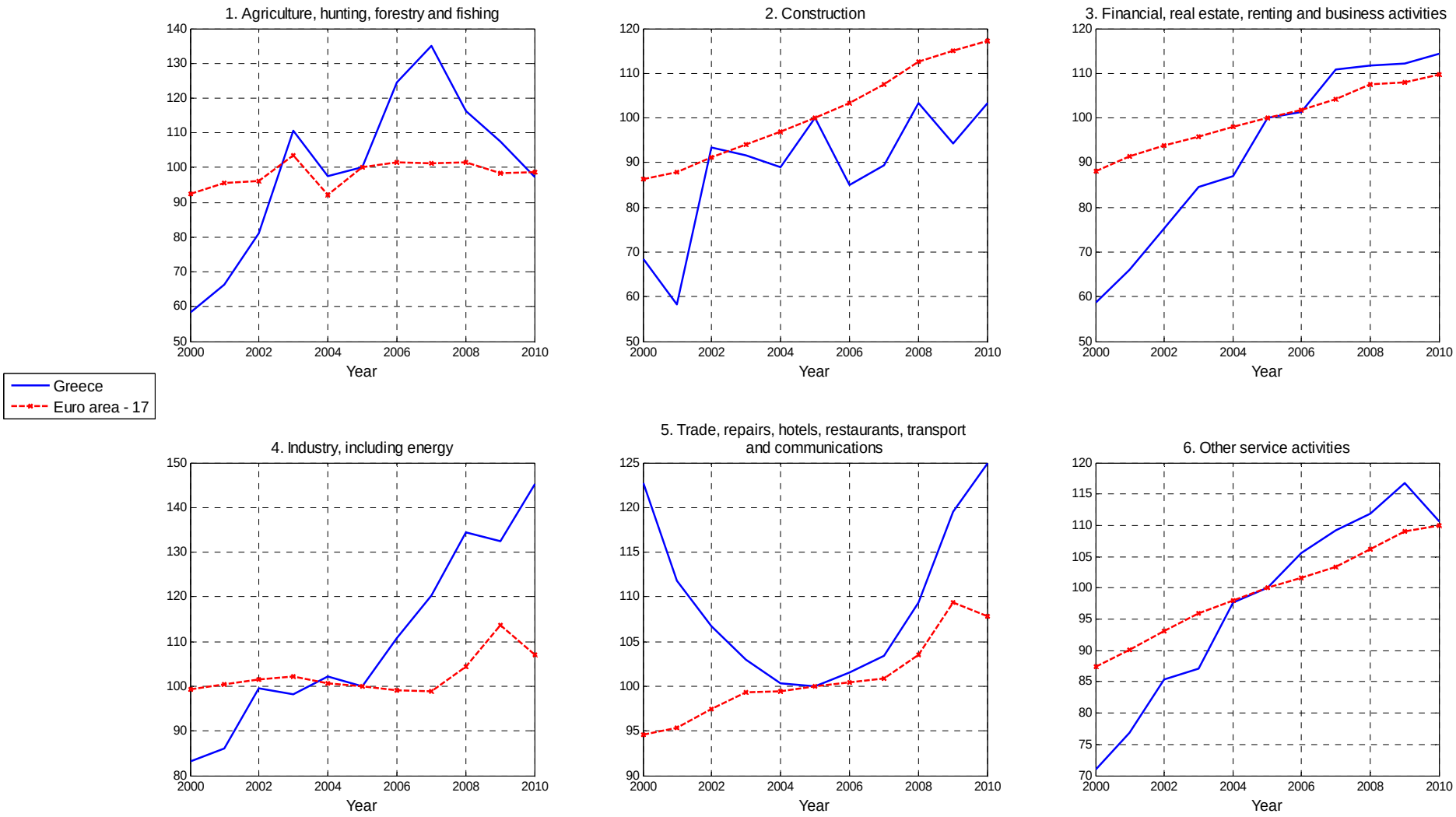


Table 4: Total factor productivity and unit labor cost

	$\Delta \ln(ULC)$
$\Delta \ln(TFP)$	**-0.3464*** (0.1178)**
$\bar{R} = 0.20$	

Notes: (i) * = 1% level of significance (ii) standard errors in parenthesis**

Growth and Competitivenes

- **Inflation rates continue to be higher in Greece than in the Euro area even after Greece's entry in the EMU.**

- **Real effective exchange rates have increased faster in Greece than in the Euro area and remain at higher levels in Greece than in the Euro area, over the last ten years.**

- **Likewise, unit labor costs have increased in Greece faster in Greece than in the Euro area and remain at higher levels in Greece than in the Euro area, over the last five years.**

- **In regressions, the unit labor cost has a very strong negative effect on total factor productivity.**

- **Unit labor costs in state controlled and heavily unionized industries (energy, transportation, utilities) are higher in Greece than in the Euro area.**

4. An Explanation of the Twin Deficits: The Insiders – Outsiders Society

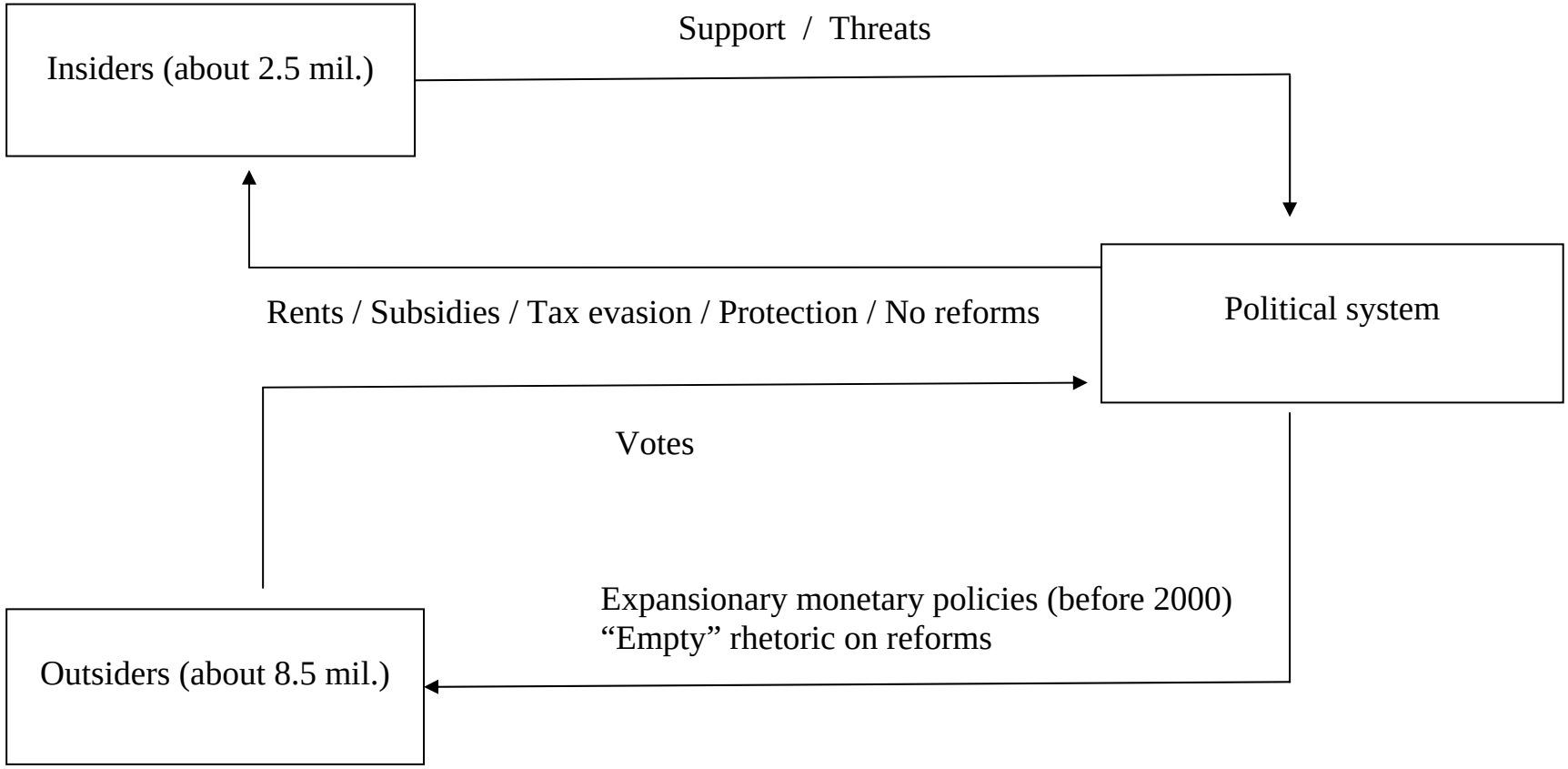
- **Linbeck and Snower (1989)**
- **Kollintzas (in press)**

- **<u>Structure</u>**

  Insiders (civil servants, employees of state controlled enterprises, unions, subsidized farmers, private sector companies engaged in public procurement, the media, "closed" professions, tax evading professionals and companies, etc.)

  Outsiders (employees and pensioners of the non protected private sector, new entrants to the labor force, unemployed and discouraged workers, immigrants, those needing the social protection net, exporters, companies that cannot tax evade, etc.)

- **Workings**


Insiders (about 2.5 mil.)
Support / Threats
Rents / Subsidies / Tax evasion / Protection / No reforms
Political system
Votes
Expansionary monetary policies (before 2000)
"Empty" rhetoric on reforms
Outsiders (about 8.5 mil.)

- **<u>Economic Consequences</u>**

Public Sector

Certain government spending categories are very high
Certain tax revenue categories are very low and capital taxes are high
Public deficits are very high (Creative accounting, Ineffective EU supervision)
Public Debt is extremely high
External public debt is extremely high (Absorption – GDP driven, Low risk assessment by creditors)
Crowding out
Low private savings to GDP and very high consumption to GDP

Competitiveness

Production costs are high
Prices are high
Low exports
Low growth (no catch-up despite the EU)
Current account deficit
External private debt is high (Internal private debt is low)

Total external debt is very high

- **<u>Policy</u>**

Current State:	**Brink of Bankruptcy**
Actual Policy Implemented:	**EU- IMF Bailout (no reforms, horizontal public finance measures and haircut)**
Recommended Policy:	**Dismantle the insiders-outsiders society**

5. Concluding Remarks and Further Research

References

Data Appendix

Data Appendix

Figures 1 and 2

Greece and Euro area-15 countries: Data are from the OECD Economic Outlook no. 88 and 89 and cover the period 1970-2010. Data on public debt for Euro area-15 is available over the period 1995-2010. The Euro area-15 consists of Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Italy, Ireland, Luxembourg, Malta, Netherlands, Portugal, Slovenia and Spain.

The imputed interest rate on public debt is computed as: $R_t^b = YPEPG_t / B_{t-1}$, where $YPEPG$ denotes property income paid by the government (includes mainly interest payments) and B_{t-1} denotes gross public debt.

Table1

Greece, Euro area-17 countries, USA and Japan. Data source: Eurostat, ECB (Statistical Data Warehouse), World Bank Quarterly External Debt Statistics, OECD Economic Outlook, Federal Reserve Bank of St. Louis, Bank of Greece, Bank of Japan, McKinsey Global Institute. Euro area-17 consists of Euro area-15 (see above) plus Slovakia and Estonia. Data for debt by sub-sector in Euro area is for Euro area-16 countries.

Debt of non-financial corporations, financial corporations and households for Greece and Euro area-16 is computed as the sum of the following series: i) currency and deposits ii) securities other than shares, excluding financial derivatives and iii) loans (see Eurostat, Annual Sector Accounts for details).
Definition of each sub-sector:

i) **Non-financial corporations**. The non-financial corporation sector comprises all private and public corporate enterprises that produce goods or provide non-financial services to the market.

ii) **Financial corporations**. The financial corporation sector comprises all private and public entities engaged in financial intermediation such as monetary financial institutions (broadly equivalent to banks), investment funds, insurance corporations and pension funds.

iii) **Households.** The household sector comprises all households and includes household firms. These cover proprietorships and most partnerships that do not have an independent legal status. Therefore, the household sector also generates output and entrepreneurial income. Note that non-profit institutions servicing households, such as charities and trade unions, are grouped with households. However, their economic weight is relatively limited.

Data for debt by sub-sector for USA and Japan are respectively from the Federal Reserve Bank of St. Louis and the McKinsey Global Institute.

Definitions of selected variables:

Gross external debt, at any given time, is the outstanding amount of those actual current, and not contingent liabilities that require payment(s) of principal and/or interest by the debtor at some point(s) in the future and are owned to non-residents by residents of an economy (see IMF 2003).

The net international investment (assets) position (the stock of external assets less the stock of external liabilities) shows the difference between what the economy owns in relation to what it owes. Hence, a negative sign means that the economy is a debtor (see IMF 2004). The net international investment position of private sector is computed residually as net international investment position of total economy plus gross external public debt. That is, we assume that gross and net external debt of the public sector is the same since the public sector has very small foreign assets.

Figure 3

Greece and Euro area-15 countries: Data are from the OECD Economic Outlook no. 88 and 89 and cover the period 1970-2010. Government transfers are computed residually as: $GTR = YPGT - GC - GI - YPEPG$, where $YPGT, GC, GI, YPEPG$ denote respectively total government expenditures, government consumption, government investment and property income paid by the government.

Figure 4

Greece and Euro area-12 countries. Data source: Eurostat. The Euro area-12 consists of Austria, Belgium, Finland, France, Germany, Greece, Italy, Ireland, Luxembourg, Netherlands, Portugal and Spain.

Figure 5

Greece and Euro area-15 countries: Data for total tax revenues, direct revenues and indirect revenues are from the OECD Economic Outlook no. 88 and 89 and cover the period 1970-2010. Total tax revenues are computed as the sum of direct and indirect tax revenues. Direct tax revenues include total social security contributions received by the government.

The effective tax rates for Greece have been constructed following the methodology of Mendoza et al. (1994) and cover the period 1970-2009. The effective tax rates for the Euro area are the GDP weighted averages of the effective tax rates of ten euro area countries: Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands and Spain. An analytical Appendix that describes the construction of the effective tax rates is available upon request.

Figure 6

Greece, Italy, Netherlands, Spain, Portugal, Euro area-15 and EU-21. Data are from the OECD Economic Outlook (no. 88 and 89) and OECD Aggregate National Accounts and cover the period 1970-2010. Absorption is computed as: $GNDY - CA$, where $GNDY$ is Gross National Disposable Income and CA is the Current Account Balance. $GNDY$ is defined *as Gross National Product + Net Primary Incomes from the rest of the world + Net Current Transfers from the rest of the world*. Real GDP and real absorption are expressed in 2000 prices.

Figure 7a
Greece and Euro area-15 countries (subplots 1-3): Data are from the OECD Economic Outlook no. 88 and 89 and cover the period 1970-2010.
Greece and Euro area-17 countries (subplots 4-5): Data for gross public and private savings as shares of GDP are from Eurostat and cover the period 2000-2009.

Figure 7b
Greece and Euro area-15 countries (subplots 1-3): Data are from the OECD Economic Outlook no. 88 and 89 and cover the period 1970-2010.

Figure 8
Greece and Euro area-17 countries.
Data source for Greece:
(a) Gross external total debt: Over 1970-2002 the data source is Reinhart, Camen M. and Kenneth S. Rogoff, "From Financial Crash to Debt Crisis," American Economic Review 101, 1676-1706. Over 2003-2010 the source is Bank of Greece (b) Gross external public and private debt: The source is Bank of Greece.

Data source for Euro area-17 countries: ECB, Statistical Data Warehouse.

Figure 9
Greece and Euro are-16 countries: Data are from Eurostat.

Debt of non-financial corporations, financial corporations and households for Greece and Euro area is computed as the sum of the following series: i) currency and deposits ii) securities other than shares, excluding financial derivatives and iii) loans (see Eurostat, Annual Sector Accounts for details).

Definition of each sub-sector:

i) **Non-financial corporations**. The non-financial corporation sector comprises all private and public corporate enterprises that produce goods or provide non-financial services to the market.

ii) **Financial corporations**. The financial corporation sector comprises all private and public entities engaged in financial intermediation such as monetary financial institutions (broadly equivalent to banks), investment funds, insurance corporations and pension funds.

iii) **Households.** The household sector comprises all households and includes household firms. These cover proprietorships and most partnerships that do not have an independent legal status. Therefore, the household sector also generates output and entrepreneurial income. Note that non-profit institutions servicing households, such as charities and trade unions, are grouped with households. However, their economic weight is relatively limited.

Figure 10

Greece, Euro area-15, EU-21 countries (subplot 1): Data are from the OECD Economic Outlook no. 88 and 89 and cover the period 1970-2010. Inflation rates have been computed from the GDP deflator.

Greece and Euro area-17 countries (subplots 2-3): Data for the Unit Labour Cost and the Real Effective Exchange Rate (EER) or Harmonised Competitiveness Indicator (HCI) are from ECB, Statistical Data Warehouse. The EER is available on quarterly basis. Each annual observation has been obtained as the arithmetic average of the corresponding four quarters.

The unit labour cost for the whole economy is defined as compensation per employee divided by real gross domestic product per employed person. As such, the ULC represents a link between productivity and the cost of labour in producing output. Compensation per employee in the whole economy is defined as wages and salaries plus the employers' social security contributions per person receiving compensation.

The **Real effective exchange rate** (EER) or Harmonised competitiveness indicator (HCI) measures price and cost competitiveness. The index for the Euro area-17 countries is based on extra-euro area trade only (vis-à-vis 20 trading partners). For Greece, the index is calculated vis-à-vis the same 20 trading partners plus the other euro area countries. It is calculated as the sum of the nominal exchange rate and a trade-weighted price or cost deflator. The index attempts to show the movement in the prices or costs of production of domestically produced goods relative to the prices or costs of goods produced by competitor countries, when expressed in a common currency. A positive change points to a decrease in price competitiveness.

Figure 11

Greece and Euro area-17 countries: Data are from ECB, Statistical Data Warehouse.