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The improvement in the Competitive Position of the Greek Economy and Prospects for an Export-led Growth Model[1]

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1. Introduction

This study analyses developments in the Greek economy's Current Account (CA), competitiveness and its relationship with export performance, focusing on the more general change of the growth model of the Greek economy away from one based on consumption towards export-led growth. The CA deficit has declined significantly since the beginning of the crisis, and especially during the first half of 2012. In total, the external deficit is expected to fall below 5% of GDP in 2012 from about 15% of GDP in 2008. Most impressive is the change in the trade deficit of goods excluding oil and ships, which has decreased by 50% over the last three years and has turned into a surplus since 2011.

However, we show that the reduction in the trade deficit in the past three years is primarily related to the decrease in imports of goods and secondarily to the recovery of exports. Furthermore, the decrease of imports itself is to a great extent due to the decline in fixed capital formation and not just due to the fall in private consumption. On the positive side, the restructuring of the Greek public debt has led to a significant reduction in the burden of interest payments on the CA. The new interest rate cut in the country's loans from the official sector incurred by the decisions of the EU Summit of the 26th November 2012 is expected to lead to a further reduction in the CA deficit. Combining this with the smoothing out of ships purchases, the gradual reduction in the oil dependency of the country and a beneficial impact of competitiveness gains on exports, the CA is expected to balance out by 2015 at the latest.

The underperformance of Greek exports in recent years is usually attributed to the loss of competitiveness incurred by excessive wage increases of the past decade. We show that, while wages increased quickly, productivity of the Greek economy also grew rapidly so that increases in the Greek Unit Labour Cost were actually smaller than the EU27 average. Furthermore, we show that the deterioration in the ULC since the mid-1990s was not due to an aggressive redistribution of GDP in favor of labor (and at the expense of capital) brought about by excessive increases in real wages as a fraction of GDP.

In our view, the deterioration in the competitiveness of the Greek economy is primarily related to the increase in relative labor costs and prices of non-tradable goods and services relative to tradables, and secondarily to the increase in unit labor costs in the export sector. This development has harmed price competitiveness by drawing resources (human and material capital) away from the tradables' sectors, thereby reducing the export sectors' productive capacity in favor of the non-tradables' sectors and increasing the general price level. It follows that economic adjustment requires a reduction in wages and prices of non-tradable goods and services relative to tradables, implying a change in relative prices within the country and not an equiproportionate reduction in wages and prices in all sectors of the economy. Irrespectively of the main cause of the phenomenon, the loss of competitiveness of the Greek economy has negatively affected exports, as evident in the decline of Greek exports' shares in target markets.

[1] *The authors would like to thank Gikas Hardouvelis and Nikos Karamouzis for useful comments and Elly Stamou for excellent research assistance.*

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However, over the past three years, the Greek economy has reclaimed almost all its prior loss of competitiveness in terms of labor costs (ca 20% out of 22% loss against 35 main trading partners since euro adoption) via steep nominal wage cuts, and despite declining productivity, as a result of the recession. This is an important advancement which is often overlooked by official lenders and economic analysts. Overall, we expect full restoration of cost competitiveness of the Greek economy to 1995 levels in 2013 and Greek nominal ULCs relative to 35 main trading partners to decline by a total of 30% over the period 2009-2020 via the effects of the economic crisis and the liberalization in the labor market, as well as via increasing labor productivity when the economy rebounds from 2014 onwards.

In the medium term, however, the strategy of internal devaluation, apart from being an inherently painful economic and political process, is further complicated by the fact that the Greek export sector is very small as a percentage of GDP and consumption very large. This means that compensating for the rapid decline in domestic demand would require unsusually high growth rates of exports in the medium term. It prevails that, the deepening and protraction of the recession could have been avoided if the Programme was designed from the beginning to entail a more long-term, i.e. more gradual and more structural adjustment.

In the longer term though, export growth rates required in order for the Greek economy to converge to a potential growth rate of 3% are considered achievable by domestic and international comparisons. Given the current outlook for the global economy and the effect of an overall increase in competitiveness of the Greek economy by 30%, our estimates suggest that Greek real exports are likely to grow on average by nearly 8% per annum over the next eight years, relative to world export growth of 5% p.a, if the recent gains in the competitive position of the country translate into export growth. This would be sufficient for the export-to-GDP ratio to reach 39% by 2020, from 25% currently, bringing it at par with EU17 peers and constituting a true structural reform towards an export-led model of growth. In this scenario, exports would contribute on average 2.5% and net exports 1% of real GDP growth per annum, compared to a contribution of net exports of 0.2% on average in the EU17. In our view, that increase in net exports will be sufficient to compensate for the decline in the contribution of domestic demand to GDP growth from a historical average of 4.5% p.a. to the EU17 average of 2%, allowing the Greek economy to converge to a balanced growth path of 3% per annum.

In our view, the way to achieve this is not via further wage cuts but via productivity increases. Our estimates using a large international data set suggest that a rate of productivity growth which is 1% higher than productivity growth of trading partners is related to an average decline in relative ULCs (ie an increase in competitiveness) by 2%. The Greek economy has achieved such rates of productivity growth in the past and can repeat it if helped by appropriate structural reforms. Allowing nominal wages to increase in line with inflation, our estimates suggest that in the future competitiveness can improve by 1% p.a. due to productivity gains, provided that the Greek economy reverts to a balanced growth path with rates of productivity growth similar to its long-term historical average.

However, we show that the destruction of sectors which serve the domestic market has not up to date been accommodated by an increase in the productive capacity of export sectors so far. Hence, a sustainable transition to an exports-led growth model necessitates structural economic policies to prop up the export sector, with first priority being the support of exporting firms' liquidity.

In addition, we show that a shift towards exporting sectors of goods and services of higher technological content has not been achieved. Wage cuts incurred by the Programme and recession motivate the survival of labour-intensive low technology specialisations. Further reductions in wages would force the Greek economy to compete with low-wage countries in low and medium tech products; this is not a viable strategy for a developed country in the long run. Hence, in order for the Greek economy to grow in the future in a sustainable manner, i.e. without accumulating external deficits, it needs to invest in equipment and knowledge, thereby improving its quality competitiveness and facilitating the shift towards export sectors with higher technological content and sectors that produce substitutes for imports.

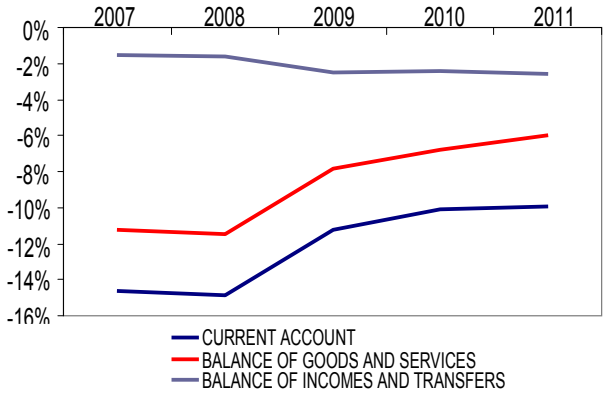
2. Trends in the Current Account

The combination of the economic recession in Greece and the recovery of the global economy over the past three years has led to a gradual reduction of the current account deficit from 14.9% of GDP in 2008 to 10.1% of GDP in 2010 and 9.7% of GDP in 2011 (Graph 1, Table 1). The figures for the first ten months of 2012 show that the correction of the external imbalance accelerated significantly as the CA deficit was limited to €34.1bn, from €16.2bn euros in the same period of 2011. The reduction is impressive (by 74.4%) and is due to (in order of importance): (a) The reduction in interest payments (by €4.9bn) as a result of the restructuring (haircut) of the Greek public debt; (b) The continuing decline in imports of goods, excluding oil and ships, by €3.1bn as a result of the sharp decline of domestic demand; (c) The increase in net transfers from the EU (€1bn); (d) An anaemic growth (€0.3bn) of exports of goods excluding oil and ships. In contrast, exports of services fell by €1.1bn, since both tourism and shipping recorded a decline compared to the same period in 2011 due to softer foreign demand.

By end 2011, the external deficit had declined by 40% compared to the 2008 high. More specifically, the Trade Balance (TB) deficit decreased in the same period by 38%. Leaving aside oil and ships, the respective deficit has been

reduced by 53%. As a percentage of GDP, the trade deficit in goods fell from 11.6% in 2008 to 6.7% in 2010 and 5.8% in 2011 (Graph 1).

Graph 1
The Greek Current Account, 2007-2011



Source: Bank of Greece

Table 1

EXTERNAL ACCOUNTS BALANCE (€ bn, Durrent Prices)						CHANGE	CHANGE
						€ bn	%
	2007	2008	2009	2010	2011	2008-11	2008-11
CURRENT ACCOUNT	**-32,6**	**-34,8**	**-25,8**	**-23,0**	**-21,1**	**13,7**	**-39,5**
TRADE BALANCE	**-41,5**	**-44,0**	**-30,8**	**-28,3**	**-27,2**	**16,8**	**-38,1**
Balance of Fuels	-9,2	-12,2	-7,6	-8,6	-11,1	1,1	-8,9
TRADE BALANCE , except Fuels	-32,3	-31,9	-23,2	-19,7	-16,1	15,8	-49,5
Balance of Ships	-5,5	-4,7	-3,4	-3,6	-3,3	1,4	-30,6
TRADE BALANCE, except Ships and Fuels	-26,8	-27,2	-19,8	-16,0	-12,8	14,4	-52,8
Exports of Goods	17,4	19,8	15,3	17,1	20,2	0,4	2,2
Fuels	3,0	4,3	3,1	5,0	6,2	1,9	43,9
Ships (Sales)	2,3	1,6	0,8	0,8	0,8	-0,8	-52,9
Other Goods	12,1	14,0	11,5	11,3	13,3	-0,7	-5,1
Imports of Goods	58,9	63,9	46,1	45,4	47,5	-16,4	-25,7
Fuel	12,3	16,4	10,7	13,6	17,3	0,9	5,6
Ships (Purchases)	7,8	6,3	4,1	4,4	4,0	-2,3	-36,3
Other Goods	38,9	41,2	31,3	27,4	26,1	-15,1	-36,6
BALANCE OF SERVICES	16,6	17,1	12,6	13,2	14,6	-2,5	-14,4
Receipts	31,3	34,1	27,0	28,5	28,6	-5,5	-16,1
Travel	11,3	11,6	10,4	9,6	10,5	-1,1	-9,3
Transports	16,9	19,2	13,6	15,4	14,1	-5,1	-26,6
Other Services	3,1	3,2	3,0	3,4	4,0	0,8	25,3
Payments	14,7	16,9	14,3	15,2	14,0	-2,9	-17,2
Travel	2,5	2,7	2,4	2,2	2,3	-0,4	-15,8
Transports	7,8	9,3	7,1	8,2	7,2	-2,1	-22,3
Other Services	4,5	4,9	4,8	4,9	4,5	-0,4	-8,6
BALANCE OF INCOMES	**-9,3**	-10,6	-9,0	-8,1	-9,1	1,6	-14,8
BALANCE OF TRANSFERS	**1,6**	2,8	1,3	2,0	0,6	-2,2	-79,0
NOMINAL GDP	223	233	232	227	217	-16	-6,9

2.1 Outlook for end-2012 and 2013

The CA deficit by end-2012 is expected to decline below 5% of GDP. More specifically, the TB (goods & services) deficit in Jan-Oct 2012 was €3.5bn or 1.8% of GDP; interpolating and accounting for seasonality, the full year TB deficit is projected to shrink to ca €4.2bn or 2.2% of GDP.[2] The Transfers Account will record a full year surplus of ca €2bn or 1% of GDP. A substantial part of the improvement comes from the Incomes Account; according to Government calculations, interest payments on public debt for 2012 will be €11.7bn on a cash basis. Accounting for the fact that, after the PSI, ca 94% of public debt is held by foreign private and official lenders, and also that by October €4.4bn had been paid in interest abroad, the full year incomes deficit can shrink to below €7.8bn or 4% of GDP from €9.1bn or 4.2% of GDP in 2011, despite the increase in outstanding public debt.

In 2013, the adjustment of the Current Account will accelerate further. Subject to avoiding a sharp slowdown in the world economy, the trade deficit can move towards elimination, while the Transfers Account surplus will enlarge due to improved absorption of EU Structural Funds. The Incomes Account deficit can shrink further towards €5bn or 2.7% of GDP, given that interest on public debt for 2013 is expected to decline to €8.9bn on a cash basis.

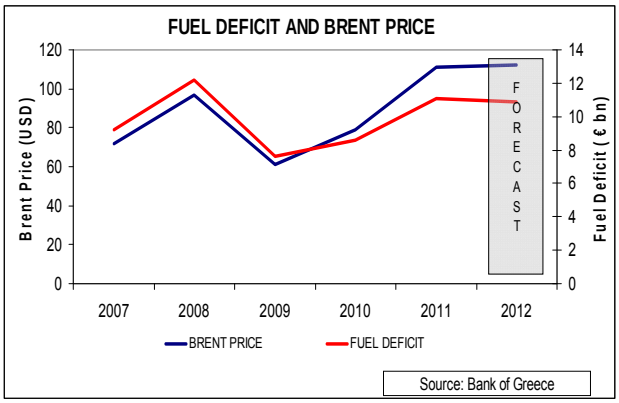
2.2 A large part of the CA deficit is inelastic due to the country's dependence on oil imports.

Over 52% of the CA deficit today is due to net oil imports.[3] In 2011, the country paid 5.3% of GDP for net oil imports. The oil deficit increased significantly in the last two years (especially in 2011) due to the increase in oil prices from the low of 2008. The high correlation between the oil deficit and the international price of oil is confirmed in Graph 2. Some divergence appearing in 2012 is due to the reduction in fuel consumption after the imposition of heavy taxes on fuels.

The dependence of the Greek economy on oil is high. In 2011, the country paid €17.3bn for oil imports, €5.4bn more than the interest payments to service public debt (€11.9bn)! Even after removing the petroleum products exports, the country paid in 2011 for net oil imports €11.1bn versus €9.1bn net payments for interest, dividends and profits to foreigners![4]

Removing the oil deficit, the TB deficit (goods & services) in 2011 would be just -0.7% of GDP (against a total TB deficit of 6%); if, in addition, purchases of ships were removed, the TB would have a surplus of 0.9% of GDP (Graph 3).

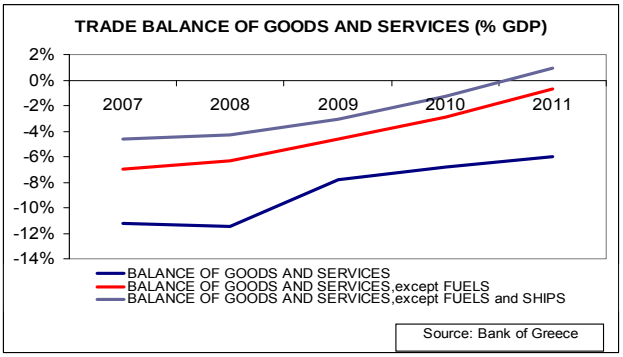
Graph 2



2.3 The reduction in the CA deficit in 2008-2011 is mainly due to the decrease in imports of goods and not the recovery in exports

The trade deficit declined during the three-year period 2008-2011 by €16.8bn due to an approximately equal decrease in imports of goods by €16.4bn (see Table 1). This decrease in imports of goods by €16.4bn in 2008-2011 is related to the decline in nominal GDP by €16bn during the same period and the corresponding reduction in disposable incomes.[5]

Graph 3



However, an analysis of import data in greater detail reveals that the entire decline in total imports over the period 2008-2011 occurred in just one year, 2009. The trade deficit decreased in 2009 by €13,3bn due to lower imports of goods by €17,8bn. Subsequently, while imports of non-oil goods continued to decline, the decline was offset by an increase in the value of oil imports so that total imports stabilized and even slightly increased in 2011. This can be explained if one

[2] *The Services Account surplus is usually higher in the second half of each year compared to that of the 1st half due to Tourist Revenue. However, in 2012 Tourism faced an unfavorable base effect as tourist arrivals fell in comparison to the record of 2011.*

[3] In January-October 2012, oil imports accounted for 43% of the total goods imports value.

[4] *There are reports that part of appearing exports of processed oil products are due to tax evasion; in reality oil cleared from customs is redirected to the domestic market in order to reap the VAT. To the extent this is true, net oil imports are larger.*

[5] *Of course, the decline in imports is recorded as a positive contribution to GDP; without this, the decline in GDP would have been double.*

takes into account that fuel consumption is a more inelastic expense and cannot be reduced equally aggressively as imported luxury consumer goods, which have a higher income elasticity, or with investment goods that are more sensitive to the changes in the level of economic activity.

Exports of goods and services rebounded in 2010 and 2011, following a sharp decline in 2009, due to the recovery of the global economy and international trade. Still, their level in 2011 was below that of 2008 by € 5bn. In fact, if oil exports are excluded, the level of exports of goods and services in 2011 is below that of 2008 by € 7bn. Therefore, it appears that exports have not sufficiently benefited from the increase in the economy's competitiveness due to the reduction in unit labour costs. The significant slowdown of the global economy in 2011 in response to the Eurozone debt crisis played an important role to this as it dampened international demand for Greek goods and services.

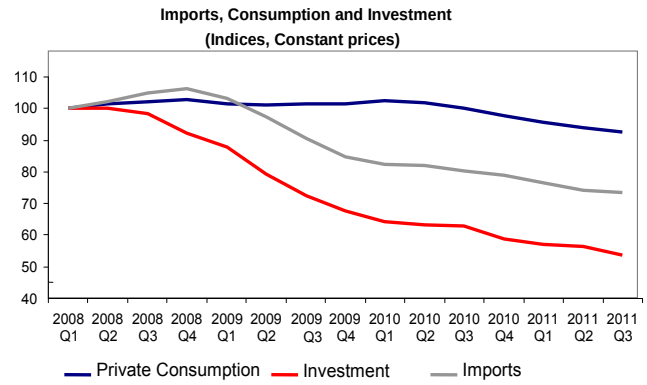
The balance of services also did not react as expected. The services surplus remained at the end of 2011 smaller by 2.5 bn compared to 2008 (see Table 1). This is due to two factors. Firstly, the revenue from shipping has decreased due to excess supply in the industry; receipts from transport, the bulk of which relates to shipping, in 2011 were 5.1 bn less in comparison to 2008. Secondly, receipts from tourism have not recovered to 2008 levels despite the recovery of the global economy (lagging by € 1,1 bn).

2.4 The decline of imports is to a large extent related to the collapse of investment

Given that the largest part of the adjustment so far has come from the imports side, it is important to see which parts of imports this comncerns. In the public debate it is often argued that the decline in imports is predominantly due to a reduction in private consumption. However, a closer look at the data reveals that the decline in imports coincides with the collapse of Gross Fixed Capital Formation in 2009 while private consumption fell mainly in 2010-11 (see Graph 4). More specifically, Gross Fixed Capital Formation declined in 2009 due to the economic downturn and the collapse of the construction activity by €13.2bn while imports fell in the same year by €13.7bn.

Gross Fixed Capital Formation declined cumulatively by 40% over the past three years in real terms, with half of the adjustment taking place in 2009. This indicates that a substantial part of imports were capital goods and not consumption. The fall in private consumption over the past three years led to a further reduction of imports but the collapse of investment remains the main cause of the decline in imports.[6]

Graph 4



Source: EL.STAT.

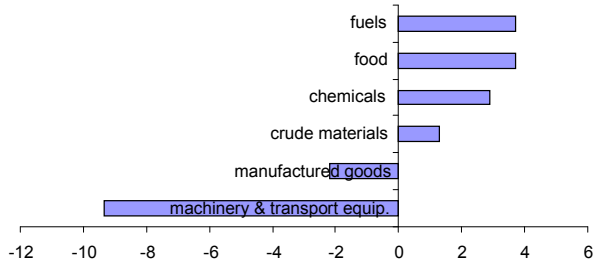
In order to illustrate this fact, Graph 5 shows the change in the structure of imports of goods during 2010-11 compared to the period 2007-09. It can be seen that the part of imports which recorded the largest drop was machinery and vehicles, whose share in total imports of goods decreased by 9.5 percentage points by the end of 2011. The second largest drop in imports was in industrial products, which declined by 2.2 percentage points of total goods imports. In contrast, the share of raw materials, chemicals, food and oil increased.

It is important to note that the recorded decline in imports of machinery and vehicles is not mainly due to lower private car imports. The disaggregated imports data show that, one third of the reduction in imports of goods by the end of 2011 concerned machinery (11ppts out of 35ppts overall decrease in imports of goods), one sixth ships and another one sixth private cars. Taking into account ships as well, 40% of the decrease in imports concerns investment goods.

The positive relationship found between the CA deficit and Gross Fixed Capital Formation has important implications for the future outlook of the CA, as well as for the growth model of the Greek economy. It is obvious that the decline of investment, despite its beneficial impact on the CA, adversely affects the potential growth rate of the Greek economy and must be reversed. When this happens, the trade deficit will rise again due to increased imports of investment goods even if personal consumption growth remains subdued. Hence, in order to enable the Greek economy to grow in the future without accumulating external deficits, capital formation needs to shift towards export sectors or sectors producing goods that compete with imports. Investment in sectors producing non-tradable consumer goods and services will fuel again the CA deficit.

[6] *This conclusion is consistent with results of previous empirical studies on the determinants of CA deficit in Greece and the eurozone (see Vasardani et all. 2010 a, b), which find a negative and strong correlation between CA deficit and private investment. This relationship appears to apply not only to Greece but - with few exceptions – also in the rest of Eurozone countries.*

Graph 5
Change in imports of goods
2011 relative to 2007-2009 average (in ppts of total goods imports)



Source: Bank of Greece

2.5 Long-term Structural Forces on the Current Account

1. The PSI, combined with the decisions of the EU Summit of the 26th November 2012, is expected to lead to a reduction in the burden of interest payments by about 3.5% of GDP, from €16.3 bn in 2011 to around €9 bn in 2013. In 2016, interest on the public debt is estimated to once again reach €13 bn. However, the long term average reduction in the burden of interest payments is expected to improve permanently the CA deficit by around 1% of GDP annually.
2. The excess supply of ships will lead to the gradual reduction in imports of ships of roughly 1% of GDP - to levels comparable to those before the renewal of the commercial fleet conducted by Greek tycoons in recent years. The adjustment has already begun, as payments for purchases of ships in the first ten months of 2012 decreased by approximately 57%, compared to the same period of 2011.
3. Investment in renewable energy sources could result in a reduction in the oil dependence of the economy, contributing to a long-term CA deficit reduction by 1% of GDP.[7]

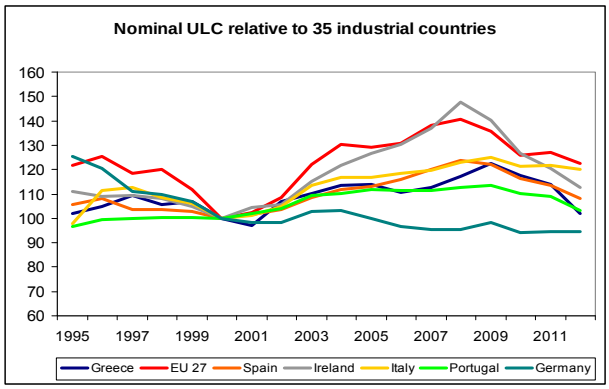
Overall, our estimates suggest that the CA deficit will gradually fall by a further 3 ppts of GDP on account of the above structural factors. These effects improve the external position of the country over and above the effect of the gains in competitiveness over the past three years.

3. Price Competitiveness of the Greek Economy: A Dual Problem

The described developments and outlook of the Greek CA must be seen in the broader context of the competitiveness problem of the Greek economy. As is widely accepted, one of the main causes of the widening of the Greek economy's external deficit during the period 2001-2009 was the deterioration in price competitiveness. We already showed that large parts of the CA deficit are idiosyncratic (oil dependence, interest on public debt) and are expected to shrink in the long term. Undeniably, private consumption also grew, partly due to the credit boom and optimistic expectations about future household income[8] and, in addition, a large part of imports was related to investment goods. However, the underperformance of exports has to be related to declining price competitiveness. High rates of inflation and wage increases during the decade preceding the recession overshot the increases in productivity, making Greek exports more expensive both in terms of prices and labor costs.

The deterioration of competitiveness after 2000 is not a purely Greek phenomenon. It occurred in most EU countries with few exceptions, notably Germany. The increase in unit labour costs (ULC) in relation to trading partners was not even particularly high in the case of Greece. Graph 6 shows that the increase of ULCs in Greece was less than the average of the EU 27. More specifically, ULCs in Greece relative to those of 35 trading partners rose by 22% in the period 2000-2009. This compares favourably to an average 36% increase for the EU 27 and a 30% increase for the EU17. The reason for the relatively better performance of Greek ULCs is that, while nominal wages in Greece grew quickly, productivity growth was also higher than the EU average.[9]

Graph 6
The deterioration of competitiveness after 2000 is not a purely Greek phenomenon



Source: Eurostat, Ameco database.

Given the findings on ULC, a question that arises naturally is whether there is any factor dampening competitiveness specific to the Greek economy, but not applying to other economies of the Eurozone or the EU, that led to such a large CA deficit. A possible explanation could be that the

[7] *Short term, however, investment in renewable energy will increase external deficits because of its high import content.*

[8] *See Anastasatos (2008).*

[9] *According to AMECO data, the labour share in total factor productivity in Greece rose between 2000-2007 by 10.5% against a 4.1% increase in EU17 and 5.5% in EU27.*

Text Box 1: The Role of Income Distribution and Inflation

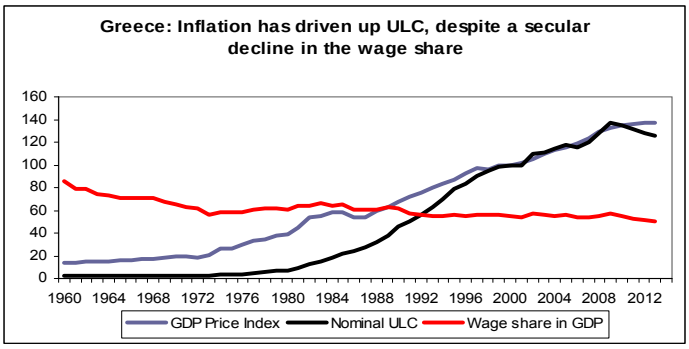
Nominal ULC can be broken down in its two components: the share of labour in GDP (wage-to-GDP ratio) and the GDP deflator:

ULC = (W / GDP) * P = (wage-to-GDP ratio) x (GDP deflator)

If a redistribution of GDP in favour of labour had taken place, one would expect the increase in the nominal ULC to go hand in hand with an increase in the share of labour in GDP (i.e. the wage-to-GDP ratio).

According to Graph 7, the increase in the ULC over the past fifty years was highly correlated with the increase in the GDP deflator. In contrast, the share of labor in GDP has declined during the 1960s and remained relatively stable since the 1970s up to the recent recession. Since the mid-1990s, nominal ULCs seem to increase more closely in line with the GDP deflator, implying that the deterioration in competitiveness of the Greek economy was the result of a vicious wage-price spiral which has led to both higher wages and prices at the expense of the external position of the country.

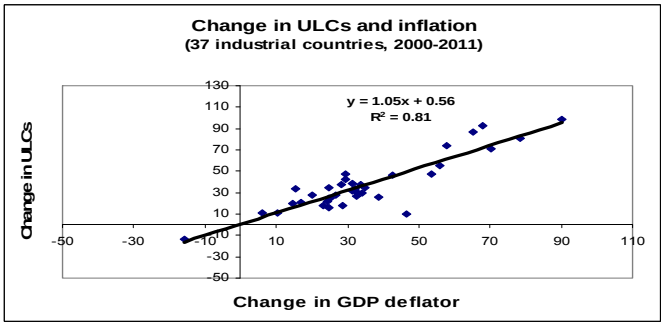
Graph 7



Source: Eurostat, Ameco database.

The intertemporal stability of the labour share in GDP is also observed in the average EU17 economy. In fact, it seems that the correlation between the ULC and the GDP deflator is stronger in the Eurozone than in Greece. Graph 8 verifies the positive correlation between inflation and ULC by international data. It shows the percentage change in a country's ULC compared to the rest of the countries between 2000 and 2011 on the vertical axis, and the cumulative inflation during the same period on the horizontal axis for 37 countries, including Greece (These are the countries of EU 27 plus the US, Japan, Canada, Australia, New Zealand, Mexico, Norway, Switzerland, Iceland and S. Korea). The data show that, on average, an increase in the inflation rate leads to an approximately equiproportional ULC increase. A possible interpretation is that firms fully pass increases in labor costs on prices. Then inflation feeds to wage increases, leading to even higher inflation as companies pass on the increased wage costs on prices to maintain their profit margins and so on. Consequently, the economy is driven into a negative spiral of inflation and loss of competitiveness with negative consequences for both workers and businesses.

Graph 8: Internationally there is a high correlation between unit labor costs and inflation



Source: Eurostat, Ameco database.

Nominal unit labour costs: total economy :- Performance relative to 35 countries: double export weights (EU-27, CH NR US CA JP AU MX NZ ICE KOR)

deterioration in price competitiveness of the Greek economy is due to an aggressive redistribution of GDP in favour of labour (and at the expense of capital) due to increases in real wages, which exceeded productivity growth in the long-run. This income redistribution at the expense of capital may have led to a decrease in investment activity of firms with adverse consequences on the overall productivity and competitiveness of the economy. Text Box 1 shows that this was not the case: nominal ULCs in Greece over the past fifty years increased in line with the GDP deflator while the share of labor in GDP has declined during the 1960s and remained relatively stable since the 1970s up to the recent recession. In other words, deterioration in Greek competitiveness is due to a wage-price spiral and not a redistribution of GDP in favor of labor. The intertemporal stability of the labour share in GDP is also observed in the average EU17 economy.

The process of ever-increasing inflation and wages, which lies behind the deterioration of the competitiveness of the Greek economy over the past decade, has had another cause. As we have showed in previous studies,[10] the loss in competitiveness of the Greek economy is primarily due to the increase in relative labor costs and prices of non-tradable goods and services relative to tradables, and secondarily due to the increase in unit labor costs in the export sector.

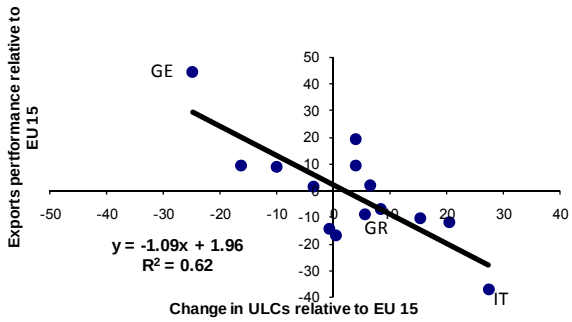
To understand this proposition, note that the real effective exchange rate of the overall economy (REER) is defined as the product of the relative price of tradable goods and services in international markets ("external exchange rate", $REER_T$) and the relative price of non-tradable goods and services ("internal exchange rate", $REER_{NT}$).[11] In economic terms, the increase in the relative price of non-tradeables harms price competitiveness as it draws resources (human and material capital) away from the tradeables' sector towards the non-tradeables' sector, thereby reducing the export sectors' productive capacity in favor of the non-tradables' sectors and increasing the general price level (Balassa-Samuelson effect).

Consequently, the price competitiveness problem in Greece is twofold and it is manifested in the increase of two relative prices. Firstly, the increase of price and wage costs of non-tradable goods and services relative to tradable ones and, secondly, the increase of price and wage costs of the tradable sector relative to the country's trading partners.[12] This fact has important implications for the type of adjustment the economy needs in order to reclaim competitiveness. To the extent that the loss of competitiveness is mainly due to an increase in the relative prices of non-tradable goods and services, the term "internal devaluation", to a large degree, concerns a required reduction in wages and prices of non-tradable goods and services relative to tradeables. This implies a change in relative prices within the country and not an equiproportionate (horizontal) reduction in wages and prices in all sectors of the economy as is incorrectly interpreted.

3.1 Competitiveness and export performance

Irrespective of the main cause of the phenomenon, the loss in competitiveness of the Greek economy has negatively affected exports, as mentioned above. Graph 9 shows that, among the EU15 countries, countries with higher ULCs have suffered a loss in export shares. On the two extremes, Italy has suffered the biggest loss in export shares relative to the EU15 average (-37%) whereas Germany has increased its export share relative to the EU15 by 44%. Greek exports have underperformed the EU15 by 9%, similar to Portugal and the Netherlands.

Graph 9
Change in ULCs and export performance
(EU 15 countries, 1995-2012)



Source: eurostat, Ameco database
Nominal unit labour costs: total economy: -Performance relative to 35 countries: double export weights EU-27, TR CH NR US CA JP AU MX NZ)

However, over the past three years, the Greek economy has made significant progress in regaining lost competitiveness. Nominal unit labor costs relative to 35 main trading partners has declined by 20 percentage points from their peak in 2009 and are currently close to the level of 1995, according to data from Eurostat (see Graph 10). This has been achieved mainly via steep nominal wage cuts due to the rise in unemployment but also due to the 2012 labor market reform, which replaced national and sectoral-level agreements by firm-level wage contracts. When the economy rebounds (from 2014 onwards), ULCs will likely continue to decline, though at a slower pace,

[10] *See Malliaropulos (2010), Malliaropulos and Anastasatos (2011).*

[11] *$REER = REER_T \times REER_{NT}$, where $REER = EP/P^*$, $REER_T = (EP_T/P^*_T)$, $REER_{NT} = (P/P_T)/(P^*/P^*_T)$, E is the nominal exchange rate, P the domestic price level, P* the price level of trade partners, subscript (T) indicates tradeables sector and subscript (NT) indicates non-tradeables sector.*

[12] *The enlargement of the non-tradeables sector in Greece is what made possible the separation of living standards from developments in the country's competitive position despite the inflation-wage-loss of competitiveness spiral. The entire process has been fuelled in the 2001-2009 period by the rapid credit expansion.*

Text Box 2

The Fact that the Greek Economy is relatively Closed Complicates Internal Devaluation

At the end of 2011, exports of goods & services as a percentage of Greek GDP were only 25%, whereas the average equivalent ratio in EU17 was 44.1%. In contrast, private consumption as a percentage of GDP in Greece stood at 74.6% in 2011, despite large decreases of the previous two years, against an EU17 average of 57.4%. Investment has also fallen to 15.1% of GDP in 2011 from 24.1% in 2007.

MoU1 predicted positive GDP growth rates even from 2012 on the grounds that a sharp contraction of private consumption would be substituted for by a positive contribution of the external sector or investment. The small size of the export sector rendered this assumption unrealistic. As an illustration, we have developed several scenaria to show what growth rates of exports of G&S would be necessary in order to achieve GDP growth rates of 0%, 1% and 3% respectively in 2013. *Calculations are conducted on the basis of the following assumptions: (a) growth rates of GDP and its components in 2012 evolve according to Consensus Forecasts of Focus Economics (-6.5%, Consensus of 18 Financial Institutions & think tanks, Focus Economics), (b) 2013 private and government consumption and investment evolve according to Medium Term Fiscal Framework (October 2012) projections (-7%, -7.2% and -3.7% changes respectively), (c) imports decline by an equal rate to private consumption, as was the case in 2011.*Our own latest analytical forecast considers that a decrease of private consumption in excess of 8% is likely in 2013 due to the impact on disposable incomes of fiscal measures as currently planned. However, to be conservative we adopted the MTFF projection (a -7% change). It can be seen in Table 3 that, even with this relatively mild assumption, export growth of 19.2%, 23.2% and 31.1% would be needed for achieving GDP growth rates of 0%, 1% and 3% respectively in 2013. These growth rates cannot be considered realistic by domestic and European comparison, even more if required to be sustained for a long period: in the years of rapid growth, 2000-2008, the average growth rate of Greek exports was 3.8%. Even if one argues that Greek export growth was hampered by price competitiveness losses, the growth rate of exports of EU27 countries, which did not face structural problems, averaged 6.4% in the same period.

Table 3
Required Growth Rates of Exports for Achieving GDP Growth of 0%, 1% and 3% in 2013 when ΔCpriv=-7%, ΔI=-3.7%

	Scenario A: Real GDP Growth Rate of 0% in 2013	Scenario B: Real GDP Growth Rate of 1% in 2013	Scenario C: Real GDP Growth Rate of 3% in 2013
Private final consumption	-7	-7	-7
gen gov consumption	-7,2	-7,2	-7,2
total consumption	-7,2	-7,2	-7,2
GFCF	-3,7	-3,7	-3,7
domestic demand	-6,9	-6,9	-6,9
Imports g&s	-7	-7	-7
Exports g&s	**19,2**	**23,2**	**31,1**
GDP	**0,0%**	**1,0%**	**3,0%**

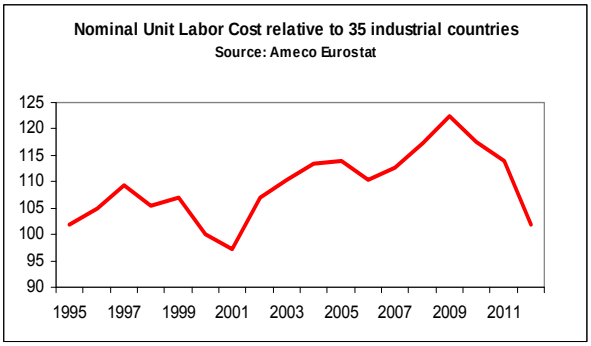
Text Box 2 (continued)

Several analysts point the delays of the Greek government in implementing structural reforms as the main cause of the inability of exports and investment to grow quickly enough to fend off the deep recession. Undoubtedly, this was harmful for longer-term prospects. However, it is well known from international experience that price competitiveness gains and, even more, structural reform require a period of 2-3 years at a minimum to yield their full benefit to potential GDP growth. Hence, this factor cannot explain the deep recession of the previous two years.

Export growth rates were predictably hampered also by Grexit expectations and related uncertainty which has led to severe liquidity constraints for exporting companies.

It is very likely that the deep recession of the past three years would have been avoided if the Programme was designed from the beginning to entail a more gradual adjustment. That would make the contractionary impact of fiscal consolidation less pronounced and structural reforms would have enough time to impact on the real economy. The bias of the adjustment programme towards a sharp internal devaluation was in our view the combined result of (a) the reluctance of official lenders to fund the fiscal gap that a more gradual adjustment would create and (b) the misjudgement of the adverse effect of fiscal contraction and internal devaluation on the real economy [see Olivier Blanchard and Daniel Leigh's text box 1.1 in IMF (2012), page 41.].

Graph 10: Elimination of competitiveness losses by the end of 2013



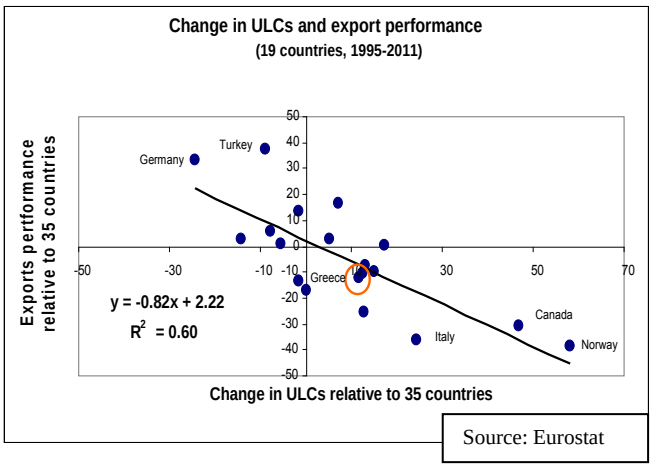
Source: Eurostat, Ameco database.

due to increasing labor productivity and subdued wage inflation. Overall, we expect Greek nominal ULC to decline by a total of 30% relative to trading partners over the period 2009-2020.

We showed above that the gains in competitiveness of the Greek economy over the past three years have not yet been translated in an impressive rebound of exports. However, even if they did, export growth could not have compensated for the sharp decline in domestic demand, given the small size of the export sector relative to domestic demand and, in particular, private and public consumption. Text Box 2 illustrates that compensating for the rapid decline in domestic demand would require unrealistic growth rates of exports in the short term.

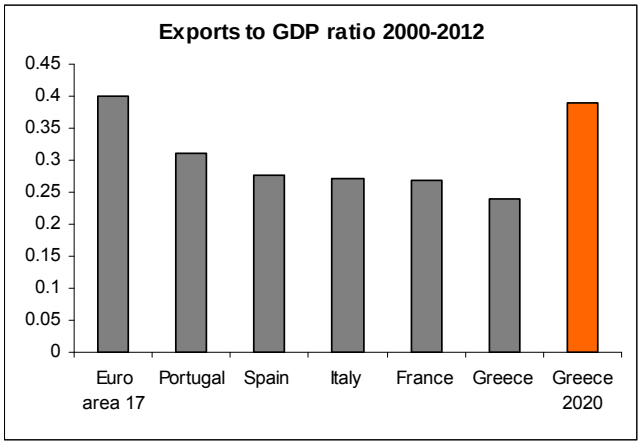
In the longer term, however, Greek exports have the potential for an impressive rebound. Graph 11 shows that over longer periods of time, countries with lower growth in relative ULCs increase their export share in global trade. In particular, for every 1% decline in relative ULCs, export shares increase by 0.82%. This implies that our expectation of a total of 30% Greek nominal ULC decline over the period 2009-2020 translates into an increase in the share of Greek exports of goods and services by 24%, similar to their 2000 level. In order to reach this target by 2020, Greek exports should increase 3% p.a. faster than exports of 35 industrial countries over the period 2013-2020 (24%: 8 years). Assuming that real exports of the 35 industrial countries in our sample increase by 5% p.a. over the next eight years (equal to their average annual growth in the period 2000-2008), Greek exports are expected to increase by 8% p.a. in order to reach the target by 2020. With real GDP declining by e.g. 5% in 2013, stagnating in 2014 and increasing by 2.5% p.a. after 2014, the export-to-GDP ratio is expected to increase from 25% currently to 39% by 2020, approaching the average export-to-GDP ratio of the EA 17 (40%), see Graph 12. This would constitute a true structural reform towards an export-led model of growth, given that the share of exports to GDP in Greece has never exceeded 26% post WW II.

Graph 11



Source: Eurostat

Graph 12



3.2 Exports and Longer-term Growth: The Transition to a New Growth Model

It is clear that the restoration of wage competitiveness is key for the success of the restructuring of the Greek economy towards an export-led growth model. The Adjustment Programme was built around the concept that improving competitiveness would enable the export sector to increase its contribution to GDP, thereby substituting for the decline in consumption incurred by falling disposable incomes. This, in turn, would transform the structure of the Greek economy, from one based on consumption to an investment- and export-led model of growth.

Will the Greek economy eventually make the transformation of its growth paradigm towards an export-led model of sustainable long-term growth? And how long will this eventually take? We now turn to these two issues.

With an increasing openness of the Greek economy, the contribution of exports to real GDP is expected to gradually increase from 0.94% p.a. during the period 2000-2008 to 2.5% on average over the period 2013-2020. However, with the economy rebounding from the recession, imports are also expected to increase, subtracting 1.5% from GDP growth p.a., compared to 1.7% in 2000-2008. As a result, net exports are expected to contribute on average 1% of real GDP growth p.a., compared to 0.2% on average in the EA17.

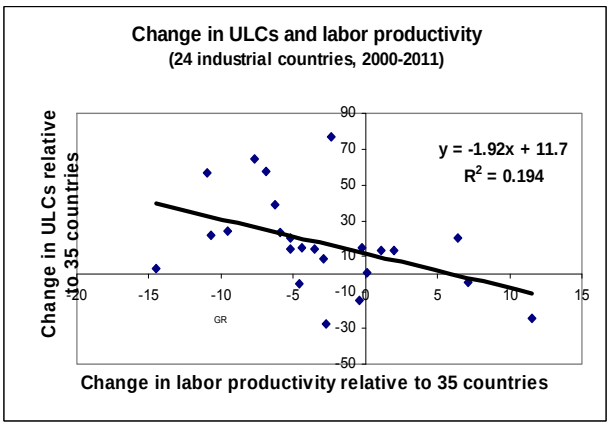
Is this increase in the contribution of net exports to real GDP growth sufficient to outweigh the decline in domestic demand due to the decrease in public and private consumption? Our short answer is probably yes. Note that the contribution of domestic demand to real GDP growth in Greece over the period 2000-2008 was very high at 4.4% p.a., compared with an average of 1.8% in the EA 17 (2% in EU 27). Assuming that the restructuring of the Greek economy towards the external sector leads to a decline in the contribution of domestic demand to the EA/EU average (1.8% to 2%) and an increase of the contribution of net exports to 1%, the Greek economy will likely converge to a balanced growth path of 2.8% to 3% p.a. in the longer term.

3.3. The Role of Productivity in Improving Competitiveness

The aforementioned export and GDP growth trajectories are calculated as a function of improving price competitiveness. We must emphasize though that the improvement of competitiveness does not necessarily require reducing wages, as was the implicit assumption in the Programme's design. Productivity growth can lead to improved competitiveness without wage reductions, as it increases the amount of products produced at a constant cost, thus reducing cost per unit of product. However, productivity declined during the recession as there has been a dramatic decline in fixed investment. In addition, companies were forced to under-utilize their capacity due to decreasing domestic demand, hence exacerbating productivity losses. It is clear that, when the economy rebounds, productivity increases will reduce the burden of adjustment which falls on wages up to now.

International data suggest that productivity affects competitiveness in a multiplicative way. Graph 13 shows that if a country has rates of productivity growth 1% higher than the rest of the countries, it exhibits an average decline of ULCs (ie an increase in competitiveness) by roughly 2%.

Graph 13



Source: Eurostat, Ameco database.

24 countries are EA-14, CH, UK, NR, SW, US, JP, CA, MX, AU, NZ.
Exports of goods and services at 2005 prices :- Performance relative to the rest of 35 industrial countries:
double export weights : EU-27, CH NR US CA JP AU MX NZ
Nominal unit labour costs: total economy :- Performance relative to the rest of the former EU-15: double export weights

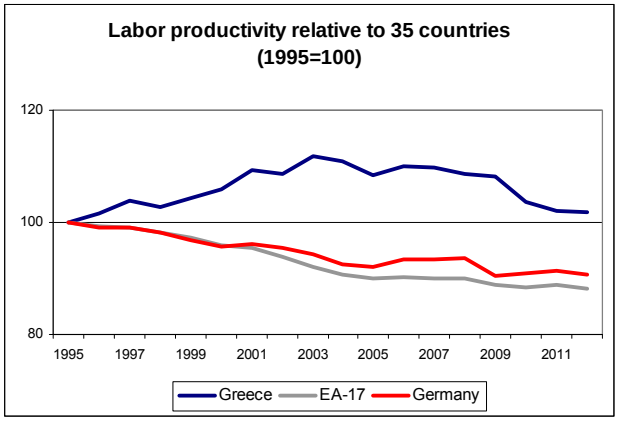
The high elasticity of competitiveness with respect to productivity is in our view due to the fact that productivity affects both the labor share in GDP (in other words the real ULC) and inflation. Given that,

$$\text{Nom. ULC} = (\text{real ULC}) \times (\text{Prices})$$

an increase in productivity leads to a fall in real ULC for a given real wage per employee. In addition, it leads to a reduction in inflation to the extent that the reduced cost per unit passes through to prices. We argue that the deeper determinant, i.e. the common factor underpinning both productivity and competitiveness improvement is technology. We shall come to this again below.

The Greek economy has recorded high rates of productivity growth in the past, mainly as a result of high growth rates of investment in machinery and equipment, combined with a relatively low capital intensity. Graph 14 shows that from 1995 to 2011, and despite three years of deep recession,, the Greek economy has recorded on average higher growth rates of productivity than 35 trading partners. The performance of the Greek economy in terms of productivity gains was better than the average Eurozone country and Germany itself, which is often cited as an example of a dynamic economy.

Graph 14



Source: Eurostat, Ameco database.

Arguably, this impressive performance is not only due to investment but, to a certain extent, also reflects a swift credit expansion, which fuelled both consumption and GDP growth. However, structural reform being implemented now has the potential to increase productivity in a sustainable manner. If the economy returns to productivity growth rates exhibited in the past (i.e. 0.6% higher p.a. compared to its 35 trading partners) and if wage increases remain at reasonable levels, our estimates suggests that competitiveness of the Greek economy can grow long-term by 1% per year as a result of increased productivity alone.

4. Transition to an exports-led model: Has it Progressed So Far?

We argued that the process of internal devaluation should be understood as a decline in costs and prices of non-tradables relative to tradables. This process, if implemented, would reduce the costs of the tradables' sectors, through the Balassa-Samuelson effect, and also free up resources to be channeled to exporting sectors. Hence, a precondition for a sustainable growth path without external imbalances, i.e. a transition from a growth model driven by domestic demand, and especially consumption, to an exports-led model, is a re-allocation of resources from shrinking non-tradeables sectors to exporting sectors. Has the Programme been successful in initiating such a transition? Our findings suggest that, up to the present time, this has not happened.

Graph 15 displays the shares in GDP of the sectors of goods and services of the Greek economy that can be classified as internationally tradables and non-tradables, along with the respective ones of the average EU17 economy.[13] Three observations are worth commenting:

1. While the size of exports as a percentage of GDP in Greece is almost half of that of the average EU17 economy (25% vs 44% respectively), the shares of tradeables and non-tradeables sectors in GDP are very similar. There are various explanations for that but they all lead to the same conclusion: sectors of the Greek economy that can conceivably export part of their production do not do so. This can be related to the high profit margins that these sectors enjoyed in the local market in the previous years, which acted as a disincentive for export activities. After the eruption of the crisis, when domestic demand collapsed, these sectors were prohibited from quickly switching to exports due to liquidity constraints of exporters, bureaucratic impediments to exporting, lack of price and quality competitiveness, marketing failures and perhaps a lack of an exporting culture.

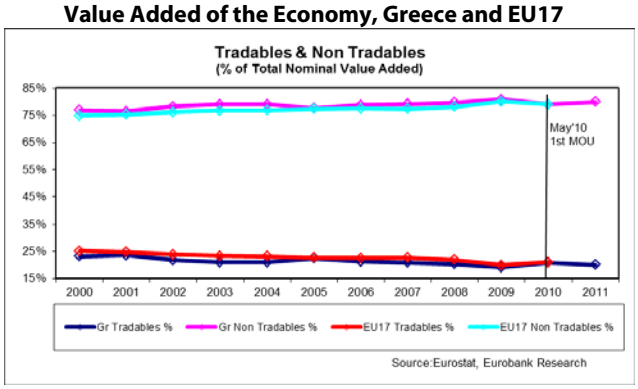
2. With the eruption of the crisis in 2009, non-tradables initially increased their share in GDP somehow, helped by the expansionary fiscal policy of that year, whereas tradables suffered from the international recession and a continued slippage of competitiveness. After the implementation of the Adjustment Programme in 2010, the tradables' sector initially recorded a slight increase in its share due to the quicker destruction of non-tradables sectors. However, in 2011 the trend was partly reversed again.

[13] *Data were taken from Eurostat's database following NACE Rev. 2 - Statistical classification of economic activities. The classification was conducted as following: Tradables sectors: Agriculture, forestry and fishing; Mining and quarrying; Manufacturing (19 sectors); Water and Air transport; Publishing; Motion picture, video; Programming and broadcasting activities; Scientific research and development; Travel activities; libraries, museums and other cultural activities; classification codes (A, B, C, H50, H51, J58-60, M72, N79,R90-92). Non-Tradables sectors: Energy; Water supply, sewerage and waste management; Construction; Wholesale and retail trade; Land transport; Post and Telecommunications; information services; Financial and insurance activities; Real estate activities; Legal, accounting and consultancy activities; Architectural and engineering activities; Advertising and market* research; Administrative and Employment activities; Public administration and defense; social security; *Education; Human health and social work; Arts, entertainment and recreation; Sports, and recreation activities; classification codes (D,E,F,G, H49, H52, H53, I, J61-63, K, L,M except M72, N except N79, O,P,Q,R93, S,T,U).*

3. Even this small change in 2010 in Greece cannot be attributed to the Adjustment Programme as a change of comparable magnitude happened in the EU17 economy at the same year; hence, this is primarily attributable to the recovery of the global economy from the 2009 recession.

The overall conclusion is that a trend signifying structural change of the Greek economy is not established yet; any year-to-year changes are attributed to the economic conjecture, the Great Recession of 2009 and the recovery of the global economy in the following years. Main findings proved robust to different classifications of tradeables and non-tradeables sectors: while shares in GDP varied, the main trends remained as described above.

Graph 15
Tradeables and Non-Tradeables Sectors, Shares in Total Value Added of the Economy, Greece and EU17

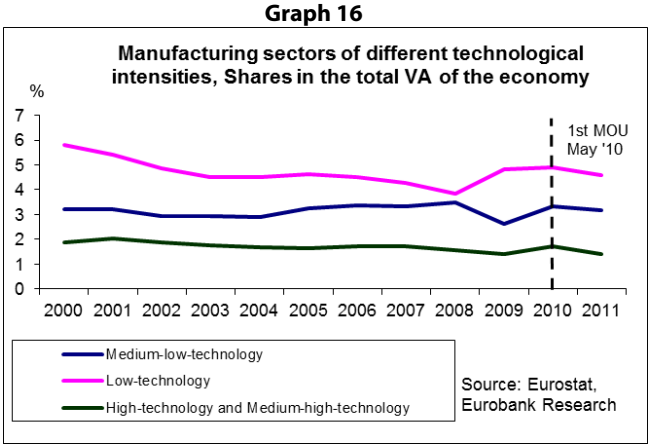


5. Shift towards exporting sectors of higher technological content: Has it Progressed So Far?

Another important question regarding the long-term sustainability of the Greek CA concerns the technological content of exports. A developed country cannot be competitive in the long-run, following a growth paradigm based on labor-intensive activities as it is bound to face fierce competition by low cost countries.[14] The Greek economy, even before the crisis, was suffering from low technological content of its production specialisations and exports. Our analysis shows that economic policies during the past three years, not only did not help in reversing this phenomenon, but have rather aggravated it.

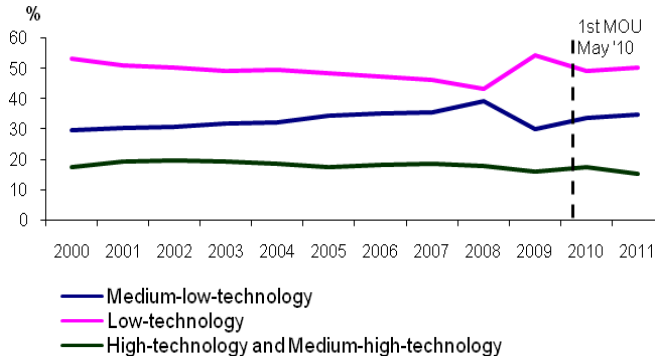
Graph 16 presents the shares of sectors of manufacturing with different technological intensities in total value added of the economy.[15] It can be seen that the share of manufacturing in the economy was already low pre-crisis (around 9.5% in the previous decade from 15.4% in 1980-1994) due to chronic structural problems. When the crisis erupted, manufacturing as a whole declined even more but this was due to the collapse of high- and medium-technology sectors, while low-tech sectors benefited. Manufacturing as a whole picked up a bit in 2010 with the recovery of foreign demand but declined again in 2011 as a result of contracting domestic demand.

Graph 16



Still, the recession has hit sectors of high and medium high technology most. Graph 17 shows the shares of different sectors on the value added of manufacturing alone; the separation in trends against high and medium-high technology sectors in 2012 is evident.

Graph 17
Shares of sectors of different technological intensity in manufacturing



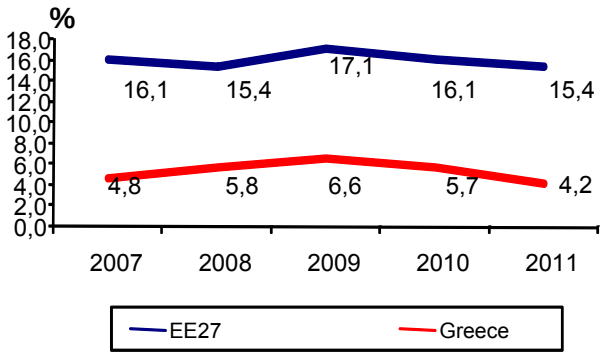
Source: Eurostat, Eurobank Researc

[14] *For more detailed analysis see Anastasatos and Karamouzis (2011).*

[15] *Again, data were taken from Eurostat's database following NACE Rev. 2 at a 2-digit level with the native classification of economic activities per technological activity as following: High-technology: Pharmaceuticals; computers, electronic and optical products. Medium-high-technology: chemicals; electrical equipment; machinery and equipment; motor vehicles and other transport equipment. Medium-low-technology: coke and refined petroleum products; rubber and plastic products; non-metallic minerals; basic metals; Repair and installation of machinery and equipment; Low-technology: food products, beverages and, tobacco products; textiles, wearing apparel, leather and related products; products of wood; paper products; printing and reproduction of recorded media; furniture.*

A similar, if not worse, picture emerges if one considers actual exports. Graph 18 shows that, although the share of high-technology products in total exports in Greece was one third of the equivalent EU27 average pre-crisis, this share fell even more aggresively during the recession.

Graph 18
High technology exports as a percentage of total exports, Greece and EU27



Source: Eurostat

It has to be concluded that wage cuts instigated by the Adjustment Programme and economic crisis motivated undertaking of labour-intensive activities. At the same time, cost cutting by both the public and private sectors further constrained R&D expenditure, which was already one of the lowest in EU17 as a percentage of GDP (ca 0,6% of GDP against 1,9% of GDP in EU17 in the previous decade, according to Eurostat data). These trends lead to a specialization paradigm that is not viable in the long-term and have to be reversed.

9. Conclusion and Policy Suggestions

The economic recession of the past five years and the Adjustment Programme have instigated a considerable improvement of the CA, from a peak of 15% of GDP to below 5% this year and balancing by 2015 at the latest. However, the adjustment primarily comes from the imports side, as a result of declining disposable incomes and the collapse of investment; the latter has negative repercussions on the growth potential of the economy. Exports have not recovered as aggressively as one would expect given the size of the improvement in price competitiveness that the Greek economy has achieved in the past three years, notably a decline of ULC in excess of 20%. This is the combined effect of subdued external demand, uncertainty regarding prospects of the country within the Euro, liquidity constraints facing exporters and insufficient progress in structural reforms that would improve the entrepreneurial environment. However, in the longer term, exports have the potential for a dynamic recovery, carrying along with them the transition of the Greek economy to an export-led sustainable growth model.

Improving the competitiveness of the Greek economy is a necessary condition for enabling the external sector to create new jobs in order to replace those that will be eliminated by the downsizing of the public sector and also to contribute to the repayment of part of the foreign debt. However, the country's effort to regain its lost competitiveness has been focused so far on nominal wage cuts, the so-called "internal devaluation". In our view, however, not enough attention has been paid to the fact that the problem of competitiveness is twofold and involves primarily the transfer of resources from sectors producing non-tradable services to export-oriented sectors and sectors that produce import-substituting goods. Furthermore, horizontal wage cuts motivate the survival of labour-intensive, low technology sectors, thereby moving the specialisation paradigm of the country away from high value-added activities.

In the short-term, support of the liquidity of healthy, export-oriented businesses is a priority. In the longer-term, considerations of quality competitiveness should take center stage. We showed that productivity growth has multiplicative effects on competitiveness. Hence, productivity growth should be the main tool to improve competitiveness in the long run. In this sense, investments in mechanical equipment and technology are instrumental in reinstating the growth potential of the Greek economy that has been badly hit by the recession and the drainage of human resources. The privatization programme can be the locomotive in reinvigorating investment to the extent that it progresses fast and with pro-growth considerations defining its design instead of efforts to maximize the immediate cash revenues for the state. Finally, productivity will greatly benefit from structural reform in public administration and the business environment. Without structural reform, the improvement in the CA runs the danger to prove temporary.

Provided structural reform proceeds, our analysis suggests that in the longer run, the recent gains in competitiveness will likely translate in an impressive rebound of Greek exports over the next decade, increasing the contribution of the external sector to GDP growth and compensating for the secular decline in domestic private and public consumption. Furthermore, the structural change of the Greek economy towards an export-led growth model will enable in the long term the transition to a high sustainable path of economic growth.

References

Anastasatos, T.G. (2008), The Deterioration of the Greek Current Account: Causes, Implications and Adjustment Scenaria, Economy & Markets, Eurobank Research, June 2008.

Anastasatos, T.G. and N. Karamouzis, (2011), The Growth of the Greek Economy: Sources, Prospects and the Role of Exports and Investment, Economy & Markets, Eurobank Research, October 2011.

IMF (2012), World Economic Outlook, October.

Malliaropulos, D. (2010): How much did competitiveness of the Greek economy decline since EMU entry? In: Economy and Markets, Eurobank Research, July 2010.

Malliaropulos, D. and T.G. Anastasatos, (2011), Competitiveness, External Deficit and External Debt of the Greek Economy, Economy & Markets, Eurobank research, April 2011.

Vasardani, M., S. Brisimis, C. Papazoglou, N. Tsaveas and G. Hondroyiannis (2010a), Determinants and Sustainability of the Current Account in Periods of Structural Change, in The Greek Current Account: Causes of Imbalances and Policy Suggestions, G. Economou, I. Sampethai and G. Symigiannis (editors), Bank of Greece, July 2010.

Vasardani, M., S. Brisimis, C. Papazoglou, N. Tsaveas and G. Hondroyiannis (2010b), Determinants of Imbalances of the Current Account in the Eurozone: Estimation with panel data, in The Greek Current Account: Causes of Imbalances and Policy Suggestions, G. Economou, I. Sampethai and G. Symigiannis (editors), Bank of Greece, July 2010.

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