

How much did competitiveness of the Greek economy decline since EMU entry?

Written by:

Professor Dimitris Malliaropoulos

Economic Research Advisor

- We construct sectoral indices of price and wage competitiveness of the Greek economy and combine them into two aggregate indices of Real Effective Exchange Rates (REERs).
- Our results suggest that competitiveness of the Greek economy has declined by 10% since 2000, both in terms of relative prices and unit labor costs, half than what common REER indices suggest on average.
- We find that most of the deterioration in competitiveness took place in the agricultural and industrial sector, not in the service sector, which represents about 80% of the private economy.
- Common indicators overstate the loss in competitiveness of the Greek economy because they estimate competitiveness of the service sector relative to Greece's main trading partners in manufacturing exports, which are different from Greece's competitors in tourism.
- Our findings suggest that the need for "internal devaluation" is not as large as markets currently seem to discount. Relative wage costs will most likely decline due to the ongoing recession in Greece, which, combined with higher labor market flexibility and a weaker euro, will help to restore competitiveness over the next few years.
- Hence, the export sector, having witnessed a boost in competitiveness, may become one of the main driving forces of growth for the Greek economy in the future.
- Economic policy must focus on structural reforms in product markets which enhance price competitiveness, innovation and productivity.

1. Introduction

It is a common view among economists and analysts that competitiveness of the Greek economy has deteriorated significantly since EMU entry due to high wage and price inflation and the inability of Greece to devalue its currency after joining the euro. Estimates of this deterioration between 2000 and 2009, however, vary widely. Based on relative unit labor costs, they range between 9% (IMF) and 27% (Bank of Greece, see Table 1). Based on relative prices, competitiveness of the Greek economy seems to have deteriorated since 2000 by between 18% (ECB, Bank of Greece) and 21% (IMF). As a result, along with the painful process of fiscal consolidation, Greece faces the need for a substantial “internal devaluation”, i.e. an outright decline in wages and prices in order to restore competitiveness and rebalance its economy towards external demand. Because such a process of deflation will most likely deepen the recession and lead to a further increase of the debt-to-GDP ratio – as a result of the “snowball” effect --, markets doubt that Greece will be able to eventually stabilize its debt without some kind of restructuring or even an outright default and exit from the euro area. These negative expectations are obviously discounted in current market valuations of Greek Government Bonds and bank shares.

Table 1: Loss in competitiveness of Greek economy 2000-2009

REER index	Relative wages	Relative prices
OECD	19	20
IMF	9	21
EC, Eurostat	19	--
ECB	21	18
Bank of Greece	27	18
Average	19	19

Source: OECD, IMF, EC- Ameco, ECB, BoG.

How much did competitiveness of the Greek economy decline since EMU entry? Which sectors of the economy were mostly affected? Should wages and prices fall, and to what extent, in order to restore competitiveness? These are some of the issues we address in the current note. Deviating from standard methodologies, we construct sectoral indices of price and wage competitiveness and combine them into two aggregate indices of Real Effective Exchange Rates (REERs). Our results suggest that competitiveness of the Greek economy has declined by 10% since 2000, both in terms of relative prices and in terms of relative unit labor costs, considerably less than most common REER indices suggest.

The main difference between our competitiveness indices and common REER indices is that we measure competitiveness of the Greek service sector against a different set of countries than for goods exports, reflecting the fact that Greece’s competitors in tourism are different from Greece’s trading partners in manufacturing. In contrast, common indicators compute competitiveness of both goods and services against the same set of countries. Since Greece’s main competitors in tourism are periphery countries (such as Italy and Spain), or emerging countries (such as Turkey),

which suffered themselves from relatively high price and wage inflation over the past decade, common indicators overstate the loss in competitiveness of the Greek economy.

We find that most of the deterioration in competitiveness took place in the agricultural and the industrial sector. Interestingly, price competitiveness of the service sector (which makes up nearly 80% for the private sector in terms of gross value added) has not been affected, whereas wage competitiveness has deteriorated by about 5% since 2000.

Our findings have important implications both for the outlook of the Greek economy and for economic policy.

First, the current discussion around Greece focuses on internal devaluation as one of the most important means of regaining the loss in competitiveness of the Greek economy. This is in fact one of the main objectives around which the EU/IMF program has been built. Our findings suggest that the need for internal devaluation is not as large as common measures of competitiveness suggest. Relative wage costs will most likely decline due to the ongoing recession in Greece, which, combined with higher labor market flexibility and a weaker Euro, will help restore competitiveness over the next few years.

Second, since price competitiveness is shown not to have deteriorated in the service sector, which is by far the largest sector in the economy, competitiveness of the Greek economy can be restored without the need for a general “internal devaluation”, which would trigger a negative feedback loop of deflation and economic contraction.

Third, if the Greek economy has not lost as much competitiveness as common indicators seem to suggest, the export sector, having witnessed a boost in competitiveness over the next two years, may become one of the main driving forces of growth for the Greek economy in the future.

Fourth, agriculture, which is one of the most protected sectors of the Greek economy, has witnessed the sharpest loss in competitiveness since 2000, because EU subsidies have acted as a disincentive to increase productivity in the sector. Policymakers ought to focus on policies which improve innovation and productivity in the sector rather than policies which guarantee prices or incomes.

Fifth, over the past decade, Greek industries seem to have raised domestic prices excessively relative to the increase in wage costs, both in absolute terms as well as relative to trading partners. This has led to increased import substitution (i.e. increased imports at the cost of domestic production), as domestic producers became less competitive relative to foreign producers, and contributed to a worsening of the trade deficit. Economic policy must address this issue via structural reforms in product markets which weaken the pricing power of oligopolies and enhance price competitiveness.

2. What should a competitiveness index measure?

Measuring competitiveness is an inherently difficult issue, both for economists and statisticians. Estimates can differ, depending on whether competitiveness is measured on the basis of relative prices or relative unit labor costs, on whether one uses nominal or real unit labor costs, on which countries one compares Greece with and, finally, on the relative weight of each country in the index. In our view, an optimal index of competitiveness should reflect two principles:

1. It should measure competitiveness of the export sector, i.e. tradeable goods and services, not the whole economy, since a large part of goods and services produced in the economy are non tradeables. This is particularly important for Greece, where the government sector is quite large.

2. It should take into account that exporters of goods often face different competitors than exporters of services such as the tourist industry. For example, Germany is one of the biggest export markets of Greek goods and Greek exporters of industrial goods face fierce competition from German producers. However, Germany is not a competitor for Greece's tourist industry because it offers winter tourism, whereas Greece offers summer vacations. As a result, in measuring competitiveness of Greek exports of industrial goods, Germany should have a large weight, while in measuring competitiveness of Greek services, Germany should have a low (in fact zero) weight. The opposite holds for Spain, Turkey or Croatia, which have a low weight in Greece's manufacturing exports but are at the same time some of Greece's major competitors in tourist services. Greece is one of the major European tourist destinations and the tourist sector is Greece's biggest export industry. Hence, measuring competitiveness of the Greek service sector against a set of countries which are Greece's real competitors is important both for quantifying the competitiveness deficit as well as identify optimal policy measures to unwind this deficit in the future.

These two principles are in our view not fulfilled by common measures of competitiveness. Standard REER indices typically use aggregate price or cost indices of the economy such as the Consumer Price Index or the total economy unit labor cost (ULC)¹. As a result, they do not measure competitiveness of the export sector, since a large part of the economy produces nontradeable goods or services (the government sector, the construction sector, etc). Furthermore, they usually compute competitiveness of both goods and services against the same set of countries, with the same relative weights. However, as explained above, the Greek tourist industry faces very different competitors than Greek exporters of industrial goods.

¹ The ECB and the Bank of Greece use CPI or GDP deflators and total economy ULCs. The IMF uses CPI deflators and ULCs, the European Commission uses total economy ULCs. The OECD uses CPI deflators for its price competitiveness indices but ULCs in the manufacturing sector for its wage competitiveness indices.

3. Types of indices

There are two main types of competitiveness indices. Indices which compare prices and indices which compare unit labor costs (both translated in a common currency). Which one is more appropriate depends on (a) what we want to measure and (b) the nature of markets. If we want to measure competitiveness of exporters of industrial goods, ULC based indices are in our view more appropriate than price based indices because of the nature of international markets. This is because in international goods markets, Greek exporters usually cannot set prices, as these prices are given by international competition. Hence, exporters of goods are competitive if they can produce at a lower cost than the international price (i.e. have a positive gross profit margin). Competitiveness in these markets depends on production costs, for example the nominal wage cost per unit of output (the so-called “nominal Unit Labor Cost”, ULC). Hence, Greek exporters of goods become more competitive if their ULC increases at a lower rate than the ULC of their competitor countries, translated in a common currency.

In contrast to the goods exporters, competitiveness of exporters of services such as tourism may depend more on prices of services in Greece relative to competitor countries than on relative ULCs. A tourist in Greece does not care so much about how much personnel is paid in a Greek hotel but he definitely cares about how much one week of his stay in Greece will cost him relative to one week in a similar tourist resort in Spain or Italy.

4. Wage competitiveness of the Greek economy deteriorated since 2000. But by less than others

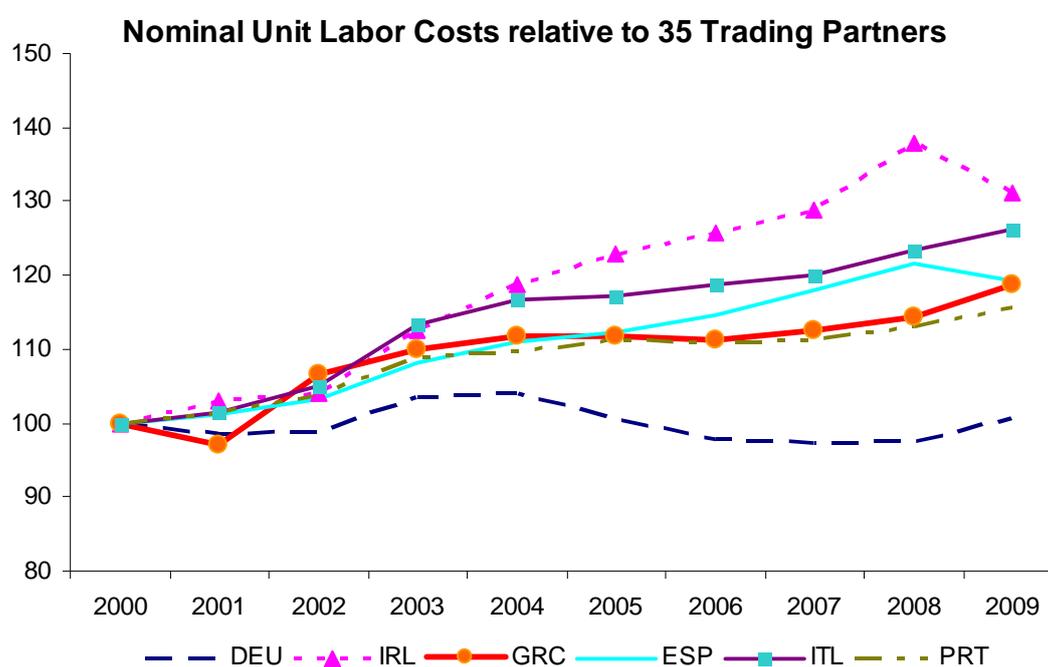
Wage inflation over the past decade was a characteristic of all EMU periphery countries. This was mainly due to the decline in interest rates in the run-up to EMU and the resulting boost in consumption but also due to the natural need of these economies to catch up with the European North (the so-called “Balasa-Samuelson” effect). In fact, nominal wages in Greece have increased faster than productivity (as opposed to real wages, which increased by a total of 4% above productivity since 2000²). As a result, nominal unit labor costs relative to 35 trading partners have increased by 20% since 2000 (see Figure 1). Spain and Portugal have witnessed a similar deterioration in their competitive position. Italy and Ireland did even worse. Looking over a longer time span, only Germany has improved its competitive position since 1996 by posting a decline in ULCs against its trading partners. Greece, Ireland and Portugal witnessed a deterioration in competitiveness of roughly 1.2% per annum (Table 2). Spain did slightly better (0.9% p.a.), whereas Italy did worse (2.6% p.a.).

² According to Eurostat data, labor productivity in Greece increased by a total of 22% between 2000 and 2009, whereas real wages per employee increased by a total of 26%, see Ameco database, series codes RWGDE, RWCDC.

Table 2: Relative Nominal ULC growth (average y-o-y)

Country	Average 1996-2009	Average 2001-2009
Germany	-1.47	0.12
Ireland	1.34	3.13
Greece	1.16	1.98
Spain	0.88	1.99
Italy	1.95	2.65
Portugal	1.38	1.64

Source: European Commission, Ameco database. Series code: PLCDQ.

Figure 1:**Unit Labor Cost relative to 35 main trading partners**

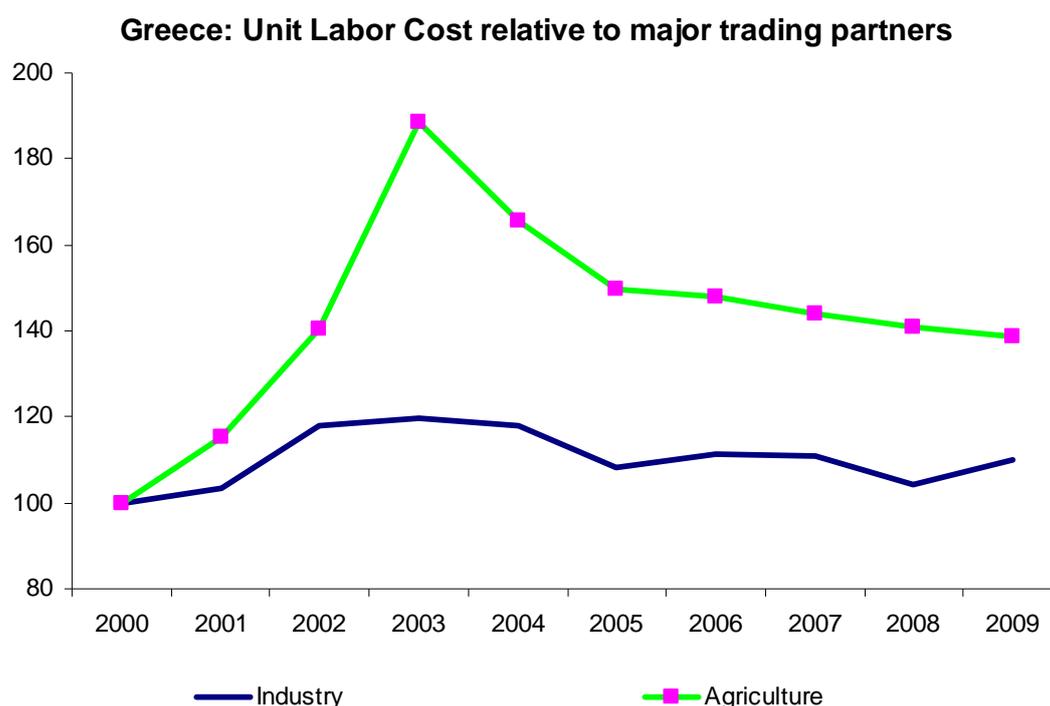
Source: Eurostat, Ameco database, series code PLCDQ.

5. Sectoral indices of competitiveness

Aggregate indices of competitiveness suffer from the shortcoming that a large part of the economy consists of nontradeable goods and services, such as public goods, construction etc. Measured on value added, the non-tradable sector seems to be at least 35% of the Greek economy (30% of public sector and 5% construction)³. The main export sectors of the Greek economy are the service sector, which makes up for 78% of gross value added of the private sector, industry, which accounts for 12% of value added of the private sector, and agriculture, which accounts for 3.6% of the private sector. The relative importance of these sectors in the economy is also reflected in exports. Services account for 65% of Greek exports, whereas industry and agriculture account for 26% and 9% of total exports, respectively.

In order to measure wage and price competitiveness of the Greek export sector, we construct sectoral competitiveness indicators, which (a) allow to exclude nontradable sectors such as the public sector and construction and (b) allow for a different weighting of trading partners across sectors, which, in our view, is particularly important for the service sector and, in particular, tourism. We use annual Eurostat data on ULCs and prices from the Ameco database which are comparable across countries and sectors.⁴

Figure 2:



Source: Eurostat, Ameco database and Eurobank EFG calculations.

³ Note that a large part of the service sector also provides nontradeable services (for example, large parts of retail trade), but it is difficult to disaggregate the sector further due to lack of comparable price and wage data across countries.

⁴ Note that for a few countries, sectoral data on ULCs were not available for 2009 (and partly for 2008): Turkey, Romania, Cyprus, FYROM. We updated the series for these countries using economy-wide growth rates of ULCs.

We measure competitiveness in exports of goods and services separately. In measuring competitiveness, we usually compare the development of prices or unit labor costs (ULCs) in the domestic economy with the development of prices or ULCs in our trading partners, translated in a common currency (euros). The relative weight of each trading partner is determined by her share in Greek exports. We measure wage competitiveness of Greek exports of goods by comparing ULCs in each sector with ULCs in the twelve major export markets for Greek goods, weighted by their share in Greek exports in 2000.⁵ Hence, an increase in the relative wages per unit output in Greece indicates a decrease in Greece's competitiveness. Figure 2 plots relative ULCs for industry and agriculture. The Figure suggests that since 2000, competitiveness has deteriorated most in the agricultural sector, where ULCs have increased by 39% relative to trading partners. In contrast, for industrials, wage competitiveness has deteriorated by only 10% due to much higher productivity gains in the sector.

6. Standard indicators of competitiveness in the service sector grossly overestimate the loss in competitiveness

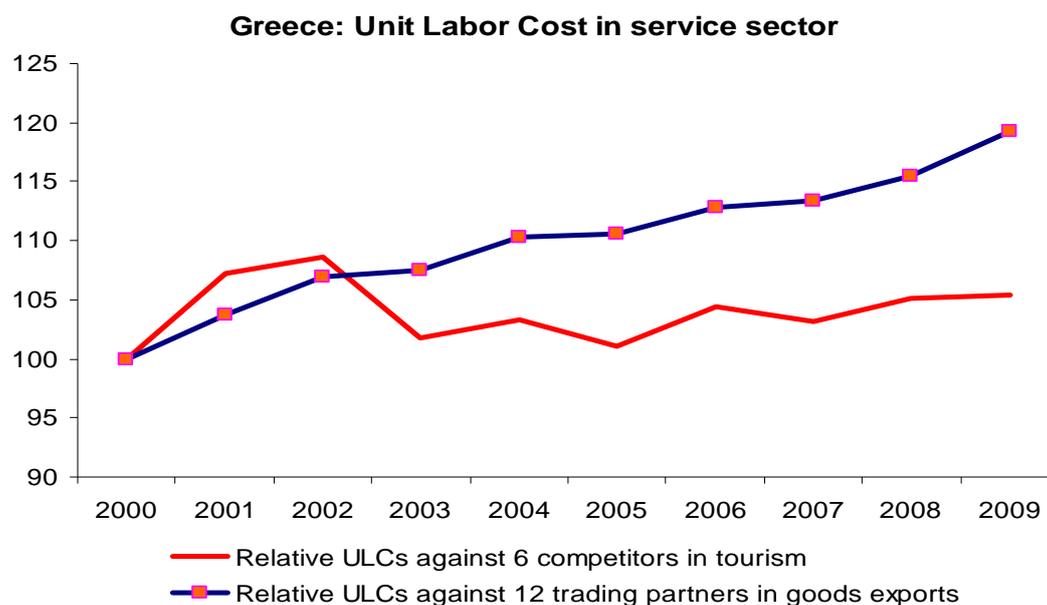
Exports of services is the major strength of the Greek economy due to the large share of the tourist and shipping sectors. Standard REER indicators implicitly measure competitiveness in the service sector by comparing ULCs or prices in the Greek service sector with ULCs or prices in the same trading partners for exports of goods with the same weights. These measures of competitiveness suggest that competitiveness of the Greek service sector has deteriorated by around 18% since 2000 (see below).

In our view, common REER indicators may be severely biased because Greece's competitors in services such as tourism are different from Greece's competitors in exports of manufacturing goods. For example, Germany is the Nr 1 destination of Greek exports of goods with a share of 20% in total goods exports. But Germany does not compete with Greece as a tourist destination. So, why should we compare service prices in Greece with service prices in Germany? In contrast, Spain has a share of Greek exports of only 4% but is one of Greece's major competitors in tourist services. The same applies to Turkey, Portugal and Croatia. Hence, the error of standard competitiveness indicators may be significant due to the large share of the service sector (in particular tourism) in Greek exports.

We propose a new indicator of competitiveness in the service industry which compares Greece with its six major competitors in tourism, such as Italy, Spain, Turkey, Cyprus, Croatia and Portugal. Measured against its major competitors (equal weighted), our estimates suggest that wage competitiveness in Greece's service sector seems to have declined by 5% since 2000 (Figure 3). In contrast, a standard measure of competitiveness of the service sector against the twelve major trading partners in manufacturing goods suggest a deterioration of 19% over the same period. We conclude that standard REER indices may overestimate the deterioration of competitiveness in the service sector since 2000 by up to 15%.

⁵ The twelve major trading partners in terms of Greek exports in 2000 are: Germany, Italy, UK, US, Cyprus, France, Spain, Bulgaria, Turkey, FYROM, Romania, Netherlands.

Figure 3:



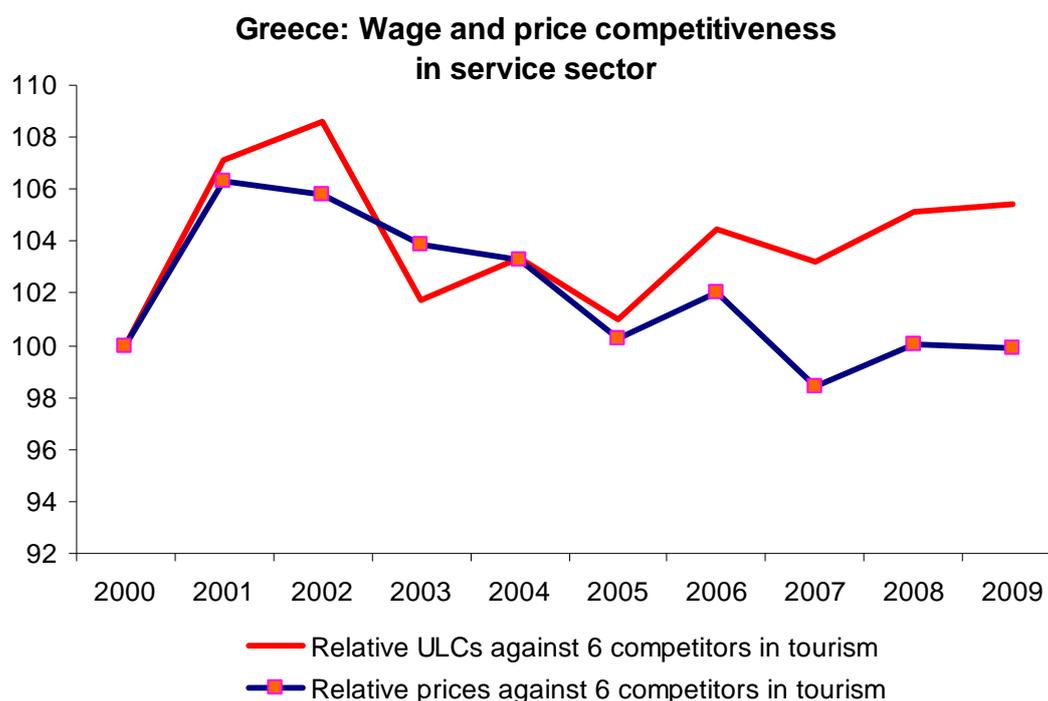
Source: Eurostat, Ameco database and Eurobank EFG calculations.

7. Using relative prices, competitiveness in the service sector seems to have returned to 2000 levels

There are several reasons why competitiveness in the service sector (in particular in tourism) may be better proxied by relative prices than by relative ULCs: (1) Tourist services are consumed within the country, so domestic price inflation in the broader service sector is important; (2) Tourists do not care how much hotel personnel is paid but how much their vacation will cost them relative to similar destinations; (3) Price data are updated quicker than data on sectoral ULCs, which for some countries, such as Turkey and Croatia, are published with a lag of one year or more.

Figure 4 plots two measures of competitiveness of the Greek service industry based on relative prices and relative ULCs, respectively. The blue line represents the ratio of service prices in Greece relative to an equal-weighted average of service prices in Italy, Spain, Portugal, Cyprus, Turkey and Croatia. The red line represents the ratio of ULCs in the service sector in Greece relative to an equal-weighted average of ULCs in the service sectors of the same countries. The Figure suggests that when we measure competitiveness of the Greek service sector using relative prices for services against six major competitors, competitiveness in 2009 seems to have returned back to the level of 2000.

Figure 4:

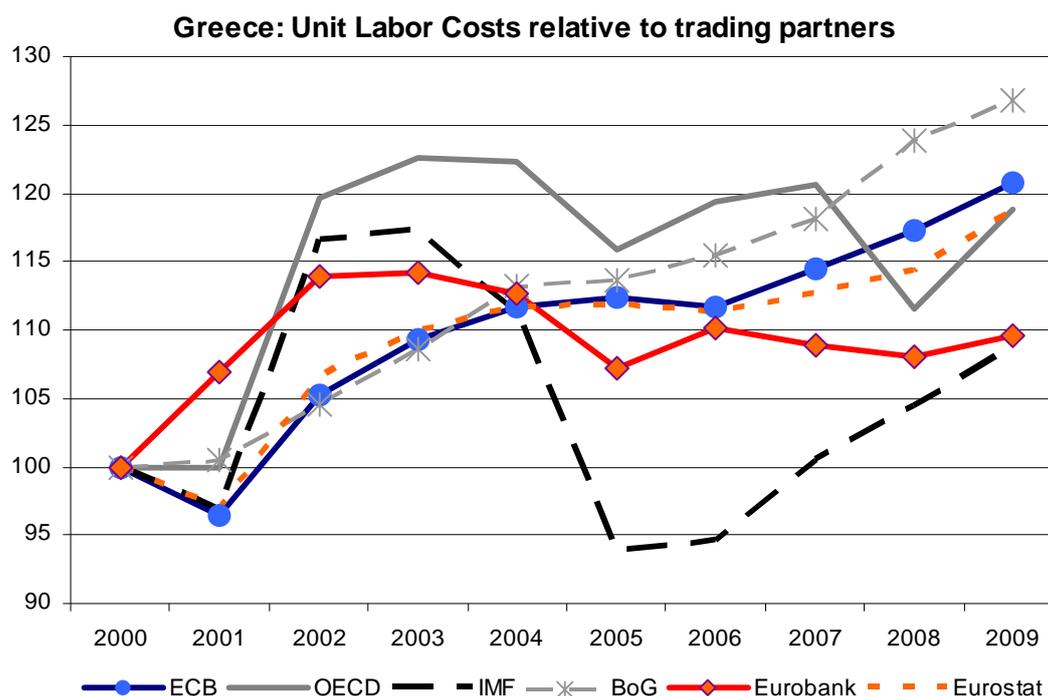


Source: Eurostat, Ameco database and Eurobank EFG calculations.

8. Our overall ULC based index suggests that competitiveness of the Greek economy has deteriorated by 10% since 2000

We combine the three indicators of competitiveness of the industrial, the agricultural and the service sector in one single index of wage competitiveness of the Greek economy. This index is a proxy of competitiveness of tradable goods and services against the major competitors of Greek exporters. We weight each sector with its share in Greek exports in 2000. Figure 5 plots the evolution of our index since 2000, along with five standard indices of ULC based competitiveness compiled by international organizations and central banks such as the IMF, OECD, Eurostat, ECB and Bank of Greece. Our index (labeled “Eurobank”) suggests that competitiveness of Greek exports has only deteriorated by 10% since 2000 (similar to the IMF index), compared to an 18-26% loss suggested by other indices. In particular, it appears that ULCs in Greece have increased strongly relative to trading partners during the first two years of EMU participation (2001-2002) and have been on a declining trend since 2003. It seems to us reasonable to assume that the deceleration of ULCs over the next few years will be even faster due to the deepening recession of the Greek economy and the effect of labor market reforms.

Figure 5:



Source: ECB, OECD, IMF, Bank of Greece, Eurostat and Eurobank EFG calculations.

9. Relative prices have increased in Greece for industrial and agricultural products, not for services

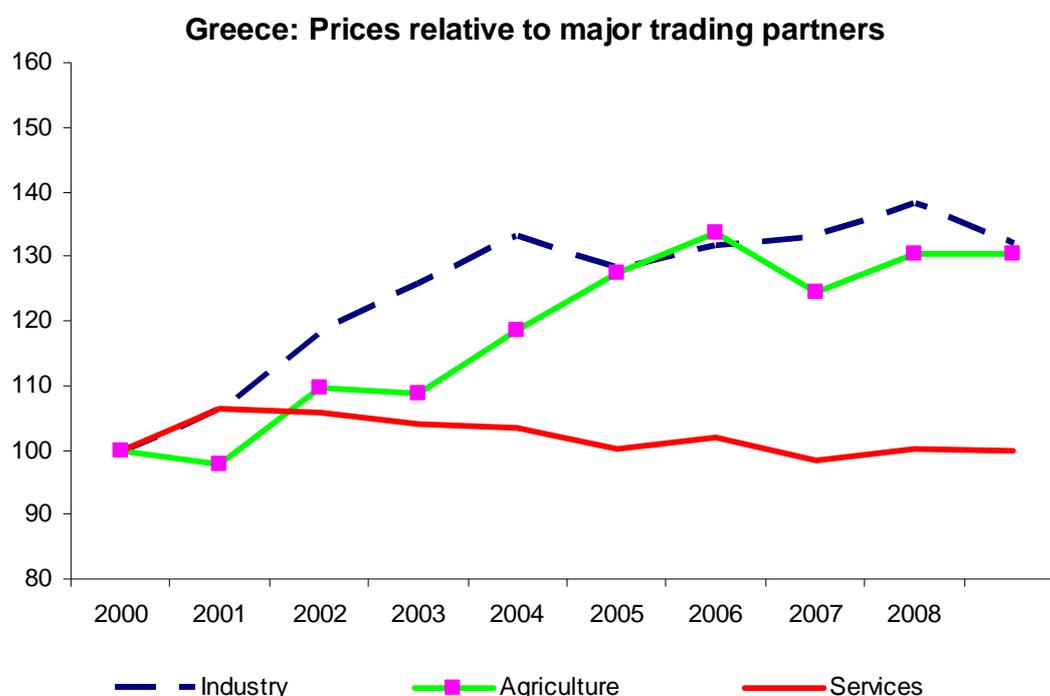
We argued in Section 2 that wage and price competitiveness are two different concepts. Relative wages are in our view a better proxy of competitiveness in markets such as manufacturing and industrial goods, where prices are fixed by international competition. In markets such as agriculture and services, however, relative prices may be a better proxy of competitiveness, compared to relative wages. This is most evident in the case of agriculture, where wage costs do not reflect true production costs, but, to a large extent, EU subsidies to farmers. These subsidies are reported in official statistics as wage costs in agriculture because farmers who receive them are mostly self-employed. But they are in essence transfers from taxpayers, not wage costs for producers. Hence, the sharp increase in relative wage costs in the agricultural sector, documented in Figure 2, occurred not because costs of farmers have increased but because of the increase in EU transfers to farmers. Consequently, it would be misleading to interpret the sharp increase in ULCs relative to trading partners as a deterioration in cost competitiveness of the agricultural sector.

Figure 6 plots relative prices of the three main sectors of tradable goods and services against major trading partners⁶. The Figure suggests that prices for industrial and agricultural products have

⁶ Sectoral price indices are from the production account (see Ameco database and Table 8.2 Account I, Eurostat for details). Prices are computed as the ratio of gross value added of each sector at current prices and gross value added at constant prices. Output of each sector is valued at basic prices.

increased 30% relative to the twelve major trading partners since 2000. Hence, price competitiveness of industrials and agricultural goods has deteriorated by 30% over the past decade. In contrast to industry and agriculture, relative prices in the service sector (measured against the six major competitor countries in tourist services) have remained stable, suggesting that price competitiveness of the largest sector of the Greek economy has not deteriorated during the past decade.

Figure 6:



Source: Eurostat, Ameco database and Eurobank EFG calculations.

One direct implication of our analysis is that the need for “internal devaluation” relates mainly to the industry and agricultural sectors of the Greek economy, i.e. to roughly 15% of the private sector in terms of value added. Hence, the Greek economy is likely to avoid a process of generalized deflation in order to eventually close the competitiveness gap with its main trading partners. This certainly increases the odds that Greece will be able to eventually revive its economy without abandoning the Euro and without the need for a restructuring of its debt.

10. Greek industries have increased prices excessively relative to wage costs

Our analysis of sectoral price and wage developments so far suggests that in the industrial sector, prices have increased faster than wages per unit output since 2000. This implies that profit margins of Greek industries have increased relative to trading partners over the past decade. Recall that profit margins are the difference between prices and production costs. A relatively good proxy of the evolution of profit margins is the difference between prices and ULCs. Comparing the evolution of prices and ULCs in the industrial sector suggests that prices of industrial goods in Greece have increased 24% since 2000 whereas nominal wages per unit output have increased 20% over the same period. This implies that profit margins of Greek industries have increased by 4% since 2000. During the same period, prices of industrial goods in

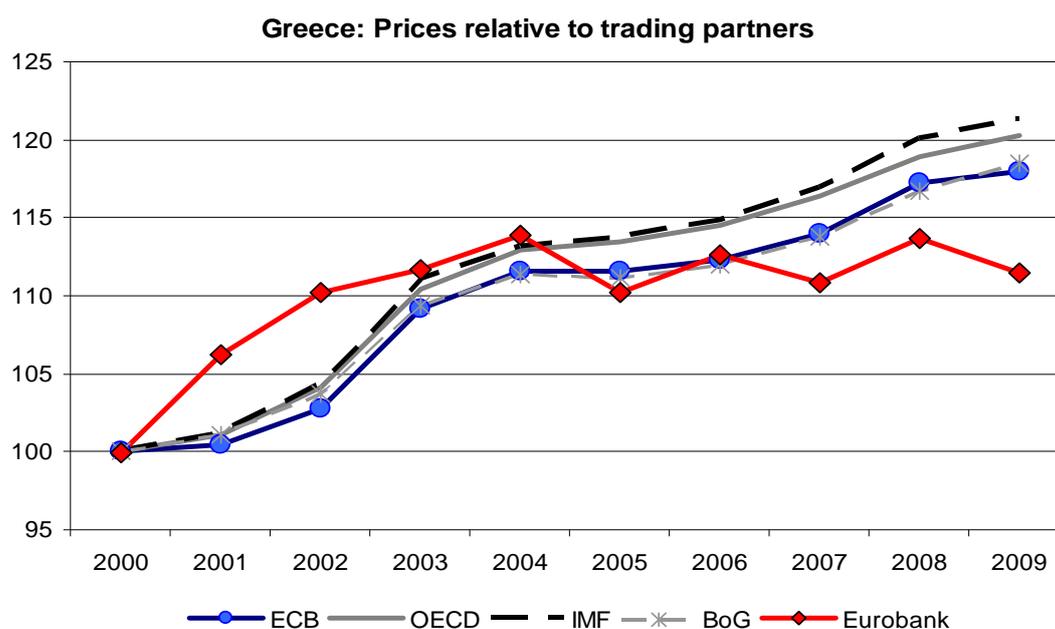
Greece's trading partners (weighted by their relative share in Greek exports) have declined by 6%, whereas wages per unit output have increased by 10%, suggesting that industrial profit margins of Greece's trading partners have declined by 16% over the same period. In other words, Greek industries have increased their profit margins by a total of 20% relative to trading partners (4%+16%). Greek industries seem to have increased prices excessively relative to the increase in ULCs since 2000. This has led to import substitution as domestic producers became less competitive relative to foreign producers, leading to increased imports at the cost of domestic production. Economic policy must address this issue via structural reforms in product markets which weaken the power of oligopolies and enhance competition.

11. Comparing relative prices suggests that competitiveness of the Greek economy has deteriorated by 11% since 2000

We weight each sectoral index of relative prices with the share of the sector in Greek exports to obtain an overall index of prices of Greek exporters relative to their major trading partners. Figure 7 plots our index along with four standard indices of price competitiveness, compiled by major international institutions and central banks. Our overall price index suggests that competitiveness of Greek exports has only deteriorated by 11% since 2000 (roughly similar to our ULC based index), compared to a 18-21% loss suggested by other indices.

Furthermore, the Figure suggests that the loss in competitiveness is not linear over time. Price inflation in Greece has been particularly high during the first four years of EMU participation, leading to a deterioration in price competitiveness during the first half of the decade. After this initial shock, however, prices have increased on average in line with major trading partners, leaving competitiveness relatively unchanged after 2004.

Figure 7:



Source: ECB, OECD, IMF, Bank of Greece and Eurobank EFG calculations.

12. Is it feasible for Greece to regain its lost competitiveness?

The current discussion focuses on internal devaluation as one of the most important means of regaining lost competitiveness of the Greek economy. Estimates of common competitiveness indices suggest that the magnitude of such an internal devaluation is large, with prices and wages declining by as much as 20-30% in order for Greece to regain its loss in competitiveness since EMU entry. This, in turn increases market uncertainty as to whether the Greek economy will be able to return to economic growth without restructuring its debt or even defaulting and abandoning the euro area. One important implication of our analysis is that the loss in competitiveness of the Greek economy since EMU entry is less than commonly thought. As a result, the so-called "internal devaluation" process needed in order for Greece to regain competitiveness is not as dramatic as often presented by economists and analysts. Given that over 50% of Greek exports are outside the euro area (58% of goods exports and 50% of tourism), the depreciation of the euro so far has already improved competitiveness of Greek exporters by roughly 5% in 2010, according to our estimates. If the euro remains weak over the next few years, this improvement is likely to be of more permanent nature. Hence, the need for internal devaluation in Greece is for wages and prices to decline by roughly 5% over the next few years relative to trading partners. This is in our view a perfectly feasible target, given that wages in the public sector have already declined by 15% in 2010 and are expected to remain flat over the next three years and wages in the private sector are expected to increase by 1% per annum at best over the next three years. Higher unemployment and increased labor market flexibility are likely to push wages even lower. Hence, with flat wages in the private sector, productivity increases will naturally lead ULCs lower relative to trading partners, contributing to an improvement in wage competitiveness of Greek companies. The Greek economy has experienced productivity increases of 2.4% per annum on average over the past decade, compared with 0.8% per annum in the EU-16. If productivity continues to increase at comparable rates in the future, ULCs of Greek exporters will likely decline to their level of 2000 within the next two years without the need for radical wage cuts.

Data Sources

- OECD: REER based on relative consumer prices. Ecowin series code: oe:grc_cpidra
- OECD: REER based on unit labor costs of the manufacturing sector. Ecowin series code: oe:grc_ulcmdra
- IMF-IFS: REER based on relative consumer prices. Ecowin series code: ifs:s17400reczfy
- IMF-IFS: REER based on unit labor costs. Ecowin series code: ifs:s17400relzfa
- ECB: Harmonized Competitiveness Indicator, GDP deflator deflated. Series name: Real Harmonized Competitiveness Indicator, GDP deflator deflated.
- ECB: Harmonized Competitiveness Indicator, unit labor costs in total economy deflated. Series name: Real Harmonized Competitiveness Indicator, unit labor costs in total economy deflated.
- Bank of Greece: REER based on relative consumer prices. Eurobank EFG calculations based on 2009 Governor's Annual Report.
- Bank of Greece: REER based on relative unit labor costs in total economy. Eurobank EFG calculations based on 2009 Governor's Annual Report.

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Eurobank EFG, 20 Amalias Ave & 5 Souri Str, 10557 Athens, tel: +30.210.333.7365, Fax: +30.210.333.7687,
web: <http://www.eurobank.gr/research>, Contact email: Research@eurobank.gr

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