

■ **EXPLAINING INFLATION DIFFERENTIALS WITHIN EMU:
THE CASE OF GREECE AND PORTUGAL**

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Abstract

Recent inflation experience in the EU shows that peripheral countries such as Greece, Portugal or Ireland exhibit persistent positive inflation differentials with the rest of the Euro zone. For Greece and Portugal in particular, the situation calls for immediate attention for two reasons. First, both countries have a relative short record of price stability: they achieved inflation convergence during the second half of the 1990s, after following a successful exchange rate-based stabilization programme. Second, both countries face large current account deficits during a period when inflation differ-

entials further erode competitiveness. The purpose of this paper is to evaluate the relevance competing explanations of the inflation differentials of Greece and Portugal which are provided by the recent literature. Particular emphasis is given to the analysis of the inflationary impact of structural asymmetries, which are present in these countries. In this context the importance of the Balassa-Samuelson effect on inflation is evaluated. Finally, the paper discusses the results of the analysis and the policy implications of the conclusions reached.

1. Introduction

To date, Economic and Monetary Union, has not shown the inflationary bias that many of its critics have predicted. Overall inflation performance in the Euro area has been satisfactory; inflation has remained close to the 2 per cent level – the level which is compatible with the European Central Bank's definition of price stability- despite the inflationary impact of the introduction of the Euro in its physical form. However, inflation divergence within the Euro area has been substantial, especially for certain peripheral countries. For example, during the 2001-2003 period, consumer price inflation was on average, as low as 1% in Germany and as high as 4,5% in Ireland and close to 4% in Portugal and Greece.

Inflation disparities within a monetary union are not necessarily harmful. On the contrary, they could reflect necessary price adjustments that have to take place when asymmetric shocks affect economic activity in various regions of the union. The higher inflation rate in Ireland, for example, is not surprising if someone considers the fact that the Irish economy was growing three to four times faster compared to the rest of the Euro area in the 2000-2002 period. On the other hand, persistent inflation differential could be problematic if it erodes the competitive position of a country member of the monetary union. This is because regaining previous levels of competitiveness could be costly, since it requires a (painful) downward adjustment of wages.

For such a reason, there is a growing concern about the recent inflation performance of Greece and Portugal (e.g. Bank of Greece (2003), OECD (2003), Ardy, et. al (2002)). The aim of this paper is to investigate the sources of inflation in these two peripheral countries of the EU and to discuss the policy implications that emanate from such an investigation. The analysis of the inflationary performance of Portugal and Greece is quite interesting for the following reasons: first, the two countries have a short history of price stability since they met the inflation convergence criteria during the second half of the 1990s. Second, both countries show significant structural weaknesses relative to the rest of the Euro area. Their economy is characterized by a low de-

gree of openness, low level of relative productivity and thus weak trade competitiveness. With such economic structure, these countries face a different balance of cost and benefits of the monetary unification compared the rest of the EU area. Third, both countries currently face large current account deficits; in Portugal the current account deficit peaked at 10% of GDP in 2000 and still remains high (about 8% in 2002), while in Greece it remained above the 6% level since 2000. It is interesting, therefore, to examine to what extent inflation differentials with the rest of EU represent a threat to their international competitiveness. Finally, the analysis of the inflation experience of the two countries during the first years of their EMU participation could provide useful policy conclusions for other member countries of the enlarged European Union with similar economic structure and inflation record, which will eventually apply for full EMU membership.

2. Inflation differentials within EMU: is there an explanation?

Literature provides two distinct approaches to explaining inflation divergence in the EMU periphery. Explanations that fall into the first approach view inflation divergence as a temporary phenomenon which owes its existence either to necessary relative price adjustments or to specific economic policies adopted in relation to EMU participation. According to this line of explanation, high inflation in the EU peripheral countries is mainly due to one or more of the following: a) the Balassa-Samuelson effect, b) the tendency of authorities in small countries to opt for entry at a monetary union at undervalued exchange rate, and c) the monetary easing that could follow the restrictive policies adopted during the convergence process.

The second approach to explaining inflation divergence emphasises the role of structural weaknesses and inefficiencies related to the functioning of specific markets in peripheral countries (i.e. labour markets and other key goods and services markets).

As mentioned earlier, inflation divergence is expected within a monetary union because of the need to allow for relative price changes between the European countries. Balassa (1964) and Samuelson (1964) provided an attractive theoretical framework to explain inflation divergence and real exchange rate movements between advanced and less advanced economies. They suggest that relatively less advanced countries experience large productivity differential between the tradable and the non-tradable goods sectors of the economy. The tradable goods sector shows significantly higher productivity growth compared to the non tradable goods sector; this is because the former is exposed to international competition while for the latter productivity growth is constrained by a low degree of competition and market inefficiencies domestically. In addition, the Balassa-Samuelson model rests on two key assumptions: a) labour markets are competitive and labour mobility ensures that wages in the traded and non traded goods sectors are equal; and b) the prices of tradable goods follow the Purchasing Power Parity condition.

Under the assumption of wage equalisation in all sectors, prices are expected to grow faster in the non-tradable goods sector (compared to tradable goods) because of its slower productivity growth. This leads into an increase in the relative price of non-traded goods and also to a higher CPI inflation for less advanced countries relative to the inflation of more advanced countries. In short, the so called Balassa-Samuelson effect suggests that less advanced economies will face higher inflation rates because they show large differential in sectoral productivity growth.

The higher levels of inflation, in turn, result into appreciation of the consumer price based real exchange rate when these economies participate in a monetary union (i.e. when they fix the nominal exchange rate).

If the Balassa-Samuelson (BS) effect is at work, then the appreciation of a country's real exchange rate in a monetary union may be compatible with the maintenance of its trade competitiveness. The inflation differences that are linked to productivity growth differentials are characterised as equilibrating adjustments within a monetary union (Furstenberg,

2003), which fade out eventually; policy makers should not worry or take specific measures to reduce inflation differences.

A second explanation for inflation differentials within a monetary union is based on the fact that some countries choose to have an undervalued currency when they proceed into some kind of exchange rate pegging with other currencies. For example, Furstenberg (2003) suggests that the increase in inflation in Ireland at the beginning of the current decade can be partly attributed to its choice of policy to enter the EMU at an undervalued exchange rate. Such policy was adopted in order to strengthen Ireland's ongoing economic growth and help the modernisation of its industry. Its inflationary impact is regarded as transitory since it is expected to fade out when higher inflation rates lead to a higher (equilibrium) real exchange rate.

Furthermore, IMF (1999) suggests that the tight monetary and exchange rate policies adopted by some peripheral countries in order to achieve the Maastricht inflation convergence criteria were followed by monetary easing when interest rates converged to EU levels. Such monetary easing would have significant inflationary effects, especially for Greece, which witnessed a sharp decline in interest rates within a short period (i.e. the short term interest rate fell from 14% in 1998 to 4.3 in 2001). The IMF, using a structural vector autoregression (VAR) model estimated that a possible monetary easing in Greece could contribute up to 1,5 percentage points to average inflation. It is suggested that fiscal tightness is necessary to counterbalance the inflationary effects of monetary easing.

Unlike the above views, those who explain inflation on the basis of the structural weaknesses of the peripheral countries suggest that the disinflationary effort should rely on necessary structural reforms that increase productivity growth. Such reforms should aim at enhancing competition resulting into lower prices in specific markets or industries and thus to lower inflation rate during the adjustment period. For example the Bank of Greece (2003) stresses the importance of the deregulation and liberalisation of the energy goods markets and other key services markets (e.g. trans-

portation, telecommunications). In labour markets, reform should aim at increasing the level of wage flexibility, since wage moderation is an important part of the adjustment process within a monetary union (EU Commission, 2002).

3. Explaining Inflation differentials in Portugal and Greece

Figure 1 shows the evolution of the inflation differentials in Greece and Portugal with respect to the Euro area, during the 1990s. The disinflation process in the two countries shares some common features. Both countries showed double digit inflation rates in the early 1990s. Anti-inflation policies adopted during the 1990s were in the context of the EMU related convergence effort. Exchange rate pegging was a crucial part of the stabilisation policies adopted in both countries: in Portugal currency pegging was formal because of its EMS participation (since 1992), while Greece followed the so called hard drachma policy, according to which the currency was allowed to depreciate relative to ECU by less than inflation differentials. The inflation convergence period was somehow shorter for Portugal relative to Greece. Portugal met the Maastricht inflation convergence criteria during 1995-96, while Greece during 1999. However, the two countries experienced widening inflation differentials during the 2000-2002 period. Table 1 shows the evolution of HICP inflation in the two countries since 1997. Due to persistent inflation differentials, price levels in Greece and Portugal have grown about 8% more relative to the EU area, since 1998 (figure 2).

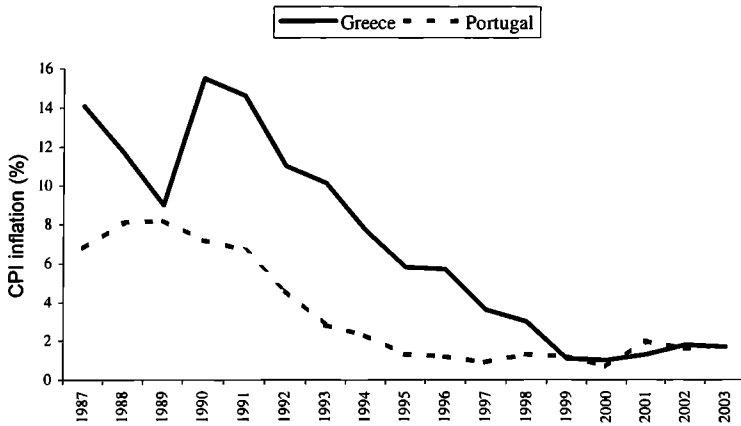


Figure 1. Inflation differentials with Euro Area for Greece and Portugal.

Source. EU Commission, European Economy, Statistical Annex.

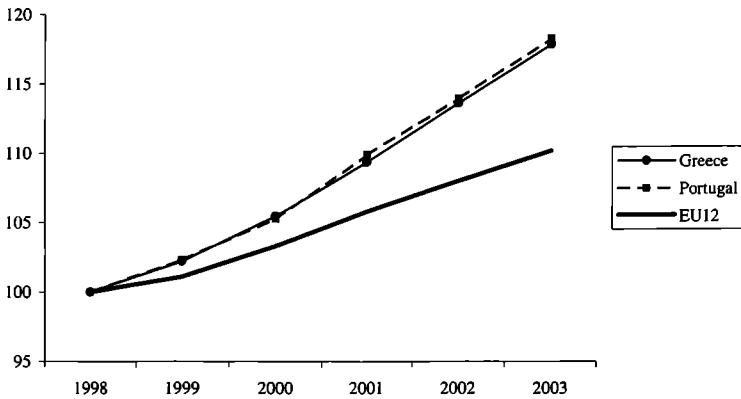


Figure 2. The evolution of the CPI in Euro Area, Greece and Portugal.

Source. EU Commission, European Economy, Statistical Annex.

Table 1. Price inflation indices for Greece, Portugal and the Euro area.

	1997	1998	1999	2000	2001	2002	2003
(Annual change, %)							
Greece							
Harmonized ICP	5.5	4.1	2.1	2.9	3.7	3.9	3.4
Goods (61%)	3.7	3.9	1.7	3.4	3.2	3.5	3.0
Food (19%)	4.1	4.4	2.4	1.9	5.1	5.3	4.8
Unprocessed food	11.0	7.0	2.4	1.7	6.7	6.9	6.4
Industrial goods (42%)	3.5	3.3	0.5	3.6	2.0	1.8	1.9
Services (39%)	8.4	6.2	4.0	2.8	3.7	4.5	4.1
Wholesale price Index	3.5	3.8	1.8	6.6	2.3	2.4	2.1
Imported final goods	2.3	5.4	0.6	6.4	1.9	0.4	1.1
Portugal							
Harmonized ICP	1.9	2.4	2.2	2.8	4.4	3.7	3.3
Goods (69%)	1.1	1.9	1.7	2.2	4.2	2.4	2.7
Food (26%)	0.4	4.0	2.7	1.9	6.1	1.9	2.9
Unprocessed food	-0.7	6.1	2.7	2.5	8.8	0.3	2.6
Industrial goods (43%)	1.6	0.6	1.0	2.4	3.1	2.7	2.6
Services (31%)	4.0	3.7	3.3	4.2	4.8	6.0	4.5
Producer price index	2.3	0.9	1.0	3.2	1.9	2.0	n.a.
Imported final goods	-0.5	1.1	0.3	1.8	2.8	-0.9	-1.4
Euro area							
Harmonized ICP	1.6	1.1	1.1	2.1	2.4	2.2	2.1
Goods	1.2	0.6	0.8	2.5	2.3	1.6	1.8
Food	1.4	1.6	0.6	1.4	4.4	3.1	2.8
Unprocessed food	1.4	2.0	0.0	1.8	7.0	3.1	2.2
Industrial goods	1.1	0.1	1.0	3.4	1.5	1.0	1.2
Services	2.3	1.9	1.6	1.7	2.7	3.1	2.5

Sources. Bank of Greece, Banco de Portugal and ECB.

Inflation and the real exchange rate.

The exchange rate based stabilisation policies followed by Greece and Portugal resulted into a real appreciation of the domestic currency. In Portugal, real appreciation was particularly strong during the early 1990s. The escudo remained overvalued in real terms, despite its 1992-93 devaluations in the EMS (Detragiache and Hamann, 1997). Similarly, the 1998 corrective devaluation of the drachma was not enough to offset the real appreciation caused by the 'hard drachma' policy in the preceding period (IMF, (2003c)).

Table 2 shows the evolution of the real effective exchange rate of Greece, Portugal and Ireland vis a vis a) the major industrialised countries, and b) the Euro area. The real effective exchange rate is measured on the basis of consumer prices and unit labour costs in total economy and in manufacturing. All the measurements of the real effective exchange rate in table 2 suggest that the escudo was rather overvalued in real terms at the time that EMU was launched. The degree of its real appreciation in the 1990-98 period was in the range of 15-30%, depending on the measurement used. In addition, the real effective exchange rate has followed a moderate appreciating trend since 1999. Similarly, the real effective exchange rate of Greece vis a vis the Euro area has appreciated by 5 to 10%, depending on the measurement, since the mid 1990s. The strong dollar of the 1999-2001 period, however, prevented the appreciation of Greece's overall real effective exchange rate.

On the contrary, Ireland experienced a considerable real exchange rate devaluation especially when the real exchange rate is measured on the basis of relative unit labour costs vis a vis the Euro area. Thus, inflation in Ireland can be largely attributed to the improvement of the price competitiveness and increased export demand. However, the real exchange rate developments in Greece and Portugal worked as deflationary force in their economies. They contributed to the deterioration of the relative competitive position of each country leading to lower export demand and to the widening of the current account deficit (IMF, 2003b).

Table 2. Competitiveness indicators (real effective exchange rate index, 1995=100).

	1990	1996	1997	1998	1999	2000	2001	2002
Greece								
vs. rest of 24 industrialized countries								
consumer prices	90.2	103.9	104.5	101.0	101.4	95.7	96.7	99.0
ULC, total economy	95.0	102.3	107.7	106.7	105.2	98.2	97.5	99.1
ULC, manufacturing	100.9	101.3	108.6	101.6	108.2	101.3	100.3	101.2
vs. the rest of the Euro area								
consumer prices	91.5	103.9	107.8	104.4	106.5	104.0	103.3	104.6
ULC, total economy	97.1	102.5	112.1	111.7	112.8	109.4	106.6	107.0
ULC, manufacturing	102.3	101.1	113.0	106.8	115.1	112.3	109.4	110.0
Portugal								
vs. rest of 24 industrialized countries								
consumer prices	87.5	101.8	100.0	100.1	99.7	97.6	100.0	102.4
ULC, total economy	80.9	103.3	103.3	103.0	108.4	107.8	110.5	114.7
ULC, manufacturing	78.6	98.7	95.6	94.7	94.1	93.4	94.3	97.7
vs. the rest of the Euro area								
consumer prices	89.1	102.0	103.6	104.0	105.0	105.6	107.3	108.7
ULC, total economy	83.2	103.7	107.8	108.4	115.9	119.2	121.6	124.9
ULC, manufacturing	80.5	98.8	99.7	99.8	99.9	102.4	103.0	105.8
Ireland								
vs. rest of 24 industrialized countries								
consumer prices	107.0	102.8	105.2	102.5	101.2	97.5	100.7	105.7
ULC, total economy	106.4	100.3	100.1	98.1	93.8	89.8	93.9	96.0
ULC, manufacturing	137.1	100.6	97.0	86.9	82.3	75.5	73.7	74.6
vs. the rest of the Euro area								
consumer prices	111.1	103.1	112.5	110.0	111.3	113.4	115.4	118.2
ULC, total economy	111.4	100.7	108.0	107.4	105.7	108.1	111.9	111.5
ULC, manufacturing	143.2	100.6	104.6	95.3	91.4	89.3	86.4	85.4

Source: EU Commission, Price and Cost competitiveness, 2nd quarter, 2003, ECFIN/161.

Inflation and the Balassa Samuelson effect

The key question that arises at this point is to what extent the BS effect is responsible for the higher inflation rates at the EMU periphery. The answer can give valuable insights on the policy response to higher inflation. If inflation differences are due to such an effect, there is no need for corrective action in Ireland, Portugal or Greece. Empirical studies on the validity of the model have provided mixed results. Rogoff (1996) supports that there is strong evidence in favour of the BS hypothesis especially in explaining inflation differentials between very poor and very rich countries. Sinn and Reuter (2001) find considerable BS effects in the Euro area and suggest that the European Central Bank has to allow for a higher inflation rate target to accommodate inflation differentials if deflation for countries such as Germany is to be avoided. Canzoneri et. al (1996) test the empirical validity of the two key assumptions of the BS hypothesis, i.e. that a) relative prices of traded goods domestically depend on relative productivities, and b) PPP holds for the traded goods internationally. Their findings give support to the validity of the first assumption, and they strongly reject the validity of the second one. In particular, they found large and long-lived deviations from PPP in traded goods when they examined the US dollar exchange rates vis a vis other major currencies.

Canzoneri et al (1998), however, provide evidence in favour of the BS hypothesis by showing that real exchange rate changes within a group of EU countries¹ are mainly attributed to differences in the growth rates of the relative prices of non-traded goods rather than deviations from PPP in the traded goods sector. They claim that "... rapid increases in relative prices of home goods in southern European countries and Belgium are largely due to productivity gains in their traded sectors, and fundamentally should not be a cause for concern". On the other hand, studies by Strauss (1998) and Faria and Leon-Ledesma (2000) reject the BS hypothesis when they examine time series data for major industrialized countries.

1. The EU countries are Austria, Belgium, Denmark, G. Britain, Finland, France, Germany, Italy, Sweden, and Spain.

An IMF (2002) report identifies some problems regarding the methodology employed in the empirical studies of the BS model. It is stressed that these studies overestimate the impact of the BS effect on inflation differentials because of three reasons: a) productivity in the traded goods sector may grow faster because of rising capital-labour ratios. Thus, it is not surprising that labour productivity increases and unit labour costs fall sharply in the sector. However, total costs per unit and therefore prices may diverge less compared to other sectors than unit labour costs alone would suggest. b) The domestic non traded goods sectors provide substantial inputs to the tradables sector. Thus the value added deflator in the tradables sector, used by many studies, may not be a valid measure of the price level of tradables. c) Different sector productivity could be due to differences in the composition of labour. For example, services, which are included in the non tradables, may use more of low-skill or part-time employment and this might reflect to lower wages relative to other sectors. Then low productivity might not be translated into higher unit labour costs and changes in relative prices.

The contribution of the BS effect towards explaining the inflation differential of Greece and Portugal from the EU average is questionable. Empirical studies give different estimates on the size of the effect. Sinn and Reuter (2001), using data from the 1987-95 period, estimate that a 3% annual inflation rate differential can be attributed to the BS effect for Greece; in the case of Portugal, however, they do not show a significant impact of the BS effect on inflation. IMF (1999), using data from the 1960-96 period, estimated that the contribution of the BS effect on inflation amounts to 1% level for Greece and 2,5% for Portugal.

However, as already mentioned, such studies tend to overestimate the inflationary impact of the BS effect. IMF (2002) gave a different estimate of the effect when used the HICP proxy as a basis for measurement and data from the 1995-2001 period: the BS effect was found responsible for an inflation rate of 0.7% in both countries. The HICP proxy was calculated by assuming that the trend differential between industrial goods (representing tradables) and ser-

vices (representing non tradables) in each country's HICP remains constant going forward. This measurement relies directly on the observed inflation differential and seems to be immune to the problems discussed above, which appear when productivity differentials and value added deflators are used.

However, even such moderate estimates of the BS effect could be an overestimation of the true effect for two reasons mainly. First, as convergence in peripheral countries moves on sectoral productivity differentials diminish. Thus, using past period data to estimate the BS effect lead to an overestimation of such effect. Table 3 shows recent developments in labour productivity and unit labour costs in various sectors of the economy of Greece and Portugal. In Greece, labour productivity growth in manufacturing (a tradable goods sector) was lower compared to that in the whole business sector for each year since 1997, with the exception of 1998. During the same period, the growth of unit labour costs in manufacturing and in total economy followed similar path for both Greece and Portugal. These data do not support the hypothesis of higher productivity growth in the tradable goods sector for recent years.

Second, due to lack of data, empirical studies use data from the manufacturing sector as proxy for measuring conditions in the tradables sector, and services sector data as proxy for the non tradables sector. Such classification, however, is crude and subjective. Treating services as non tradables can be misleading, especially for countries such as Greece and Portugal. The value of services exports for Greece is double the value of commodity exports in recent years. In Portugal, services exports are almost 40% of commodity exports. Where tourism and immigration are significant, a large proportion of GDP is actually tradable goods and services.² Furthermore, market liberalisation, deregulation and IT increase the proportion of tradables over time.

2. It should be noted that tradable goods and services are different from traded ones. Tradables are goods and services that are either internationally traded or '... could be traded at some plausible range of variation in relative prices...' (Goldstein and Officer 1979, p.415)

Table 3. Labour statistics (annual percentage changes).

	1997	1998	1999	2000	2001	2002	2003
Greece							
Labour productivity ¹							
business sector	4.8	-0.9	4.0	4.9	4.9	3.7	2.0
manufacturing, product per hour worked	4.4	4.4	1.9	3.2	2.5	1.6	2.2
Wages ¹							
total economy, nominal	10.5	6.3	4.5	6.5	5.2	7.2	5.5
total economy, real	4.7	1.4	1.9	3.2	1.7	3.5	1.9
business sector ³	11.3	4.7	4.2	5.5	5.2	6.8	5.7
Manufacturing (hourly wages)	8.9	4.7	4.4	5.5	5.5	6.4	5.9
Public sector	13.5	9.2	3.5	7.1	5.5	7.3	5.8
Public enterprises	11.0	5.7	5.1	13.7	8.2	11.2	7.0
Unit Labour cost ¹							
total economy	6.9	4.2	2.8	3.4	3.6	4.7	3.3
business sector	5.6	3.3	2.7	3.1	4.2	4.0	3.4
Manufacturing	4.4	0.2	3.8	3.7	2.9	4.2	3.6
Portugal							
Labour productivity							
total economy ²	2.3	2.1	1.9	1.9	0.3	0.4	-0.5
business sector ³	2.4	2.4	2.2	2.1	0.1	-0.4	-0.7
Wages							
total economy, nominal ²	5.6	5.3	5.4	6.6	5.5	5.6	3.0
total economy, real ²	3.6	2.6	3.2	3.0	1.6	1.7	-0.3
corporate sector, nominal ²	5.4	5.0	4.5	5.3	6.3	5.6	3.4
corporate sector, real ²	3.4	2.3	2.3	2.2	1.7	1.7	-0.4
Manufacturing ⁴	4.8	4.8	4.5	5.1	5.4	4.6	n.a.
Unit Labour cost							
total economy ²	3.2	4.2	3.3	4.0	5.5	5.2	3.5
Manufacturing ⁴	2.1	2.8	3.9	2.3	4.3	4.3	n.a.
Euro area							
Labour productivity							
total economy ⁵	1.5	1.1	1.0	1.4	0.2	1.1	0.4
business sector ³	1.7	0.9	0.7	1.3	-0.1	0.4	0.4
Wages							
total economy, nominal ⁵	2.0	1.4	2.1	2.4	2.7	2.9	2.6
total economy, real ⁵	0.0	-0.1	1.0	0.3	0.4	0.8	0.6
business sector, nominal ⁵	1.7	0.8	1.2	2.3	2.6	2.7	n.a.
corporate sector, real ²	0.1	-0.3	1.0	0.8	0.3	0.7	n.a.
Unit Labour cost							
total economy ⁵	0.5	0.2	1.1	1.0	2.4	1.8	1.9
business sector ³	0.7	0.8	1.2	1.3	2.7	2.3	1.3

Sources. 1. Bank of Greece, Annual Report of the Governor, 2004. 2. Banco de Portugal, Economic Bulletin. 3. OECD, Economic Outlook, 2003. 4. IMF Country Reports for Greece and Portugal. 5. EU Commission.

Thus an increasing proportion of financial services, business services, transportation, and wholesale and retail services can be characterised as tradables. McDonald and Ricci (2001), for example, examine the impact of productivity of the distribution sector (which is usually included in the non tradables sector), on relative prices and the real exchange rate. They find that an increase in distribution sector productivity at home relative to the foreign countries leads to an appreciation of the real exchange rate, similarly to what an increase in the productivity of domestic tradables does. They suggest that a possible explanation for such a result may be related to the fact that the tradable sector uses extensively services from the distribution sector.

In short, studies which regard services as non tradables overestimate the share of non tradables in total value added and thus result into an overestimation of the inflationary impact of the BS effect. Hence, given the recent empirical work and considering the above discussion, one can conclude that the contribution of the BS effect to recent inflation in Greece and Portugal is very small if not negligible.

Inflation and monetary conditions.

The combination of interest rate convergence with higher inflation rates relative to the EU area has resulted into low real interest rates in Greece and Portugal. Low real interest rates and financial liberalisation have resulted to a rapid expansion of the bank credit provided to the private sector, and especially to households. Table 4 provides a description of the monetary conditions in both countries during the 1997-2002 period. In Greece, real short term interest rates fell from an average of 7% in 1999 to 1.1% in 2001. Low interest rates and the liberalisation of consumer credit resulted in significant credit expansion in the 2000-02 period. In Portugal, real interest rates have been particularly low since 1998. Total credit to private sector grew at an annual rate which exceeded the 20% level in the 1997-2000 period. Fast credit expansion boosted consumer and investment demand intensifying inflationary pressures in the economy. The evolution of the output gap (table 4) confirms the increased pressure from aggregate demand during the

Table 4. Monetary conditions in Greece and Portugal.

	1997	1998	1999	2000	2001	2002	2003
Greece							
Contribution to euro area M3* ¹	7.8	9.8	5.6	17.1	7.4	-1.8	n.a.
Domestic credit to the private sector* ¹	11.0	9.7	12.2	27.6	24.8	16.9	17.0
Real short term interest rate (%) ²	6.0	8.2	7.1	4.3	1.1	0.1	-1.3
Real long term interest rate (%) ²	n.a.	3.1	3.4	3.0	3.0	2.8	0.7
Output gap ³	-2.1	-2.9	-2.3	-1.1	0.1	0.4	0.9
Portugal							
Contribution to euro area M3* ¹	6.3	7.8	9.8	6.9	5.8	3.3	n.a.
Domestic credit to the private sector* ¹	20.7	25.0	26.2	23.9	12.2	7.3	n.a.
Real short term interest rate (%) ²	2.7	0.4	-0.3	1.4	-0.5	0.2	-0.1
Real long term interest rate (%) ²	2.5	1.1	1.4	2.5	0.4	1.8	1.8
Output gap ³	0.7	2.0	2.4	2.6	1.1	-1.3	-3.6
Euro Area							
M3* ²	4.0	5.1	5.6	4.3	7.7	6.8	7.0
Real short term interest rate (%) ²	3.1	2.8	2.1	3.3	2.1	1.4	0.3
Real long term interest rate (%) ²	4.2	2.9	3.2	3.9	2.5	2.9	2.0
Output gap ³	-1.9	-1.2	-0.6	0.7	0.0	-1.3	-2.0

*Annual percentage changes.

Notes and Sources: 1. IMF Country Reports 2. EU Commission, European Economy, Statistical Annex. (Real rates are calculated with GDP deflator) 3. OECD definition; OECD Economic Outlook.

2000-02 period in Greece, and during the 1998-2000 period in Portugal. Therefore, low interest rates have increased inflationary pressure for given periods in the two countries. However, since 2001, money supply growth in both countries has significantly slowed down relative to the rest of the Euro area. Monetary authorities suggested that money supply restrain and the considerable real exchange rate appreciation that took place during the same period largely offset the inflationary pressures emanating from rapid credit expansion.³ In addition, in Portugal, there has been a considerable easing of aggregate demand pressure since 2000. Therefore, one can conclude that monetary conditions during the last two years cannot explain the sizeable inflation differentials in the two countries.

3. See, for example, Bank of Greece (2003), p. 153 and IMF (2003a) p. 9.

Table 5. Labour and product market comparison: Greece, Portugal and the EU (2002).

	Greece	Portugal	EU-15
Labour productivity ¹	84.6	65.1	100
Employment rate*	55.4	68.8	64.0
Unemployment rate	9.9	4.6	7.6
Relative price levels ²	81.0	74.0	100
Total trade to GDP* ³	16.5	28.1	45.6
FDI share (% GDP)*	1.3	5.4	4.5
Cross border M&A share* ⁴	0.6	0.9	100
R&D expenditure (% GDP)** ⁵	0.67	0.76	1.93
Internet access at home (%)	9.2	30.8	40.4
Patent applications* ⁵	7.7	5.5	161.1
Telecom prices (cost of national call) ⁶	0.77	1.15	0.82
Market share fixed telecom	100%	100%	-
Electricity prices for households ⁷	5.80	12.23	10.33

*2001. ** 2000.

Source: EU Commission, 'Report on the implementation of the 2002 broad economic policy guidelines.'

Notes: 1. Per person, in PPP, EU15=100. 2. EU15=100, private final consumption. 3. (Exports + Imports) / (2 *GDP). 4. Percentage of EU total. 5. Per million inhabitants. 6. Price in Euro of a 10 minute call at 11.00 on a weekday (incl. VAT). 7. Price in Euro per kWh.

Inflation and economic structure

Table 5 presents key indicators of labour and product markets for Greece and Portugal relative to the EU. An examination of the data shows that the labour productivity is quite low, especially in Portugal (65% of the EU average). On the other hand, Portugal shows a high employment rate while Greece has the lowest employment rate in EU. Both countries have experienced fast economic growth in recent years.⁴ However, unlike the case of Ireland, there has been little progress towards gaining productivity and competitiveness. In Portugal, growth has relied on the increasing use of capital and labour. IMF (2003) indicates the small contribution of technological progress in the Portuguese economy. In Greece, recent growth was caused by consid-

4. In Portugal economic growth was high during 1996-2000 period while slowed down afterwards; Greece has experienced high growth rates since 1997.

erable inward immigration and increased consumption and investment (mainly in the form of construction) due to low interest rates (Bank of Greece, 2003). As in Portugal, innovation and technological progress has been limited. Table 5 gives an indication of the technological deficit of the two countries: R&D expenditures as percentage of GDP in both countries is a fraction of the EU average; innovation as indicated by the amount of patent applications is also limited; finally, IT use and IT related skills are below the EU average. Furthermore, the small size of inward FDI and limited cross border M&A activity (see table 5) do not make a significant contribution to technological progress. Given the low level of technology, domestic production is dominated by low skill, labour intensive activities. In such a production environment, costs and product prices are heavily driven by wage developments.

Indeed, as table 3 shows, recent inflation in the two countries is related to significant wage inflation and the consequent growth of the unit labour costs. Low labour market flexibility and labour mobility⁵ result into poor job matching and therefore to efficiency and productivity loss (IMF, 2002 and 2003a). Given that money wages in the two countries are the lowest in EU there is pressure from labour unions for the faster convergence of domestic wages to the EU average. Indeed, where union power is strong, wage growth has been fast. In Greece, for example, wages in the public sector and in public enterprises during the 1997-2002 period grew at an average annual rate of 7.7% and 9.2% respectively; at the same time the annual wage growth rate in the business sector was 6.1% on average (table 3). Wages in the two countries are largely determined by collective bargaining, with the bargaining process showing a moderate degree of coordination. Thus, trade unions have significant bargain power but no strong incentive to take the macroeconomic effect of wage increases into account (Ardy et al., 2002). In such wage setting environment, the emergence of social contracts, binding wage developments to maintaining high levels of employment and competitiveness, is quite unlikely.

5. Poor labour market conditions are largely determined by employment protection laws.

Furthermore, there is an increasing amount of evidence suggesting that inflation in the two countries is largely affected by the poor functioning of key markets for goods and services. Oligopolistic structure in many markets leads to price fixing behaviour and other practices which violate competition laws. On the other hand, weak institutional arrangements do not allow the implementation of an effective competition policy. Thus, in markets where oligopolistic power is strong increasing profit margins may result into increasing prices. In Greece, for example, the rapid growth of processed food prices (see table 1) since 2001, has been fuelled by rising profit margins in the food sector as well as in the retail sector (see Bank of Greece, 2003).

According to table 1, the CPI inflation for services in both countries has been higher compared to the goods inflation in recent years, pushing overall inflation rate upwards. The monetary authorities in the two countries suggest that higher inflation rates in services, such as restaurant, hotel, repair and maintenance services etc. are due to the limited degree of market competition. Banco de Portugal insists that '... inflation in services, on one hand, reflects the high growth of wage costs in Portugal, on the other hand, indicates the existence of market structures not very competitive in some subsectors of services, which has permitted the widening of profit margins, in spite of a context of marked economic deceleration' (Banco de Portugal, 2003, p. 36). Bank of Greece (2003) suggests that, although a large number of firms operate in such markets, competition is limited by insufficient flow of information to consumers.

Another factor which explains poor competition in key markets is the limited progress achieved by the two countries in the areas of the privatisation of public enterprises and the deregulation and liberalisation of key markets for goods and services. For example, the process of the liberalisation of the fixed telecommunication and electricity sectors, which initiated during 2001-02, has been slower relative to other EU countries. Also, the transportation sector is still heavily regulated and protected, especially domestic land and ferry transportation (EU Commission, 2003). In such market environment there is no pressure for rationalizing production and increasing cost efficiency. Table 5, for

example, shows that the telecom and electricity prices in Portugal are particularly high compared to the EU average (given that the country's relative price level is only 74% of the EU), reflecting the considerable market power of producers. This situation can be contrasted with the effects of recent liberalisation of the telecom market in Greece: the prices of telecom services fell by 2% in 2001 and 7.2% in 2002 due to intensified market competition⁶.

4. Conclusion

The evaluation of competing explanations of inflation divergence in Greece and Portugal has shown that market structure in the two countries constitutes the main source of inflation. Low labour market flexibility preserves wage inflation leading to higher unit labour costs and thus to price inflation. In addition, weak competition in a number of markets for goods and services allows oligopolistic pricing and prevents the moderation of inflation. On the other hand, the Balassa – Samuelson hypothesis cannot provide a convincing answer to the observed persistent inflation differentials. The prevailing monetary and exchange rate conditions can not either. Thus, the view which relates inflation divergence either to relative price adjustments or to EMU related policies is not supported by the analysis presented here. In order to ensure inflation convergence, Greece and Portugal have to adopt policies capable of increasing labour market flexibility and improving market structure domestically.

6. See Bank of Greece, (2003), p. 152.

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