ECFIN COUNTRY FOCUS

Highlights in this issue:

Persistent differentials, although historically low, may threaten competitiveness

- **Balassa-Samuelson effects and positive output gaps are not the explanation**

- **Poor productivity growth and market rigidities are the main causes**

The Spanish inflation differential: a never-ending story

*By Joaquim Ayuso, Francisco de Castro and Óscar Gómez**

Summary

Persistent inflation differentials in a monetary union, unless associated with Balassa-Samuelson effects, may end up affecting competitiveness in the tradable sector in the medium term and jeopardising real convergence. This could be the case in Spain, which still records inflation rates above the euro area average, despite having made significant progress in the last decade.

Apart from differences in the cyclical position and in the monetary stance, inflation differentials are explained to a large extent by malfunctioning goods and labour markets and, in particular, by an insufficient degree of competition in some sheltered sectors. Mark-ups in the non-tradable sector play a prominent role in explaining higher inflation rates in Spain compared to the euro area.

Spain registers persistently higher inflation than the euro area…

The facts

Although since the late 1980s, when Spain joined the ERM, tighter monetary policy has led inflation rates to converge to those in the EU, significant inflation differentials vis-à-vis the euro area still persist (see Figure 1). While the annual average inflation rate in the euro area between 1998 and 2003 was 1.8%, the rate registered in Spain amounted to 3.0%. This might threaten competitiveness and real convergence in the medium term, especially in a country like Spain, involved in a catching up process with per capita income slightly above 85% of the EU-15 average.

Figure 1: Inflation rate vis-à-vis the euro area
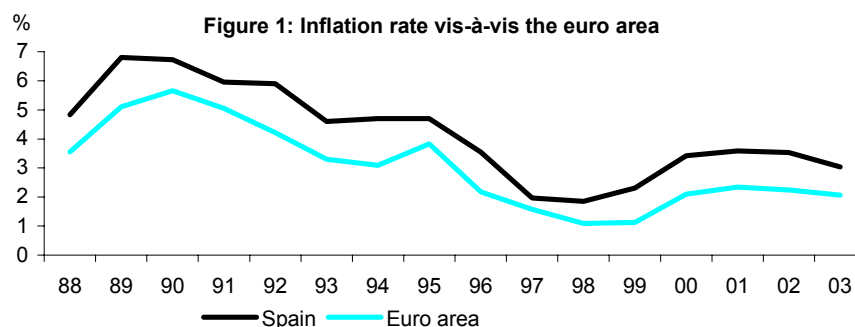
Source: INE, AMECO and New Cronos

* **Directorate for the Economies of the Member States**.

This Country Focus analyses the factors behind the persistence of the inflation differential in Spain. To that end, the next section explores the determinants of inflation and the causes behind inflation differentials across countries, distinguishing cyclical and structural factors. Then the impact of cyclical factors on Spanish inflation and the differential with the euro area is analysed on empirical grounds. Where structural factors are concerned, the focus is on the functioning of labour and product markets and on productivity performance.

Explaining the inflation differential: A conceptual framework

A number of different factors can give rise to inflation differentials in a monetary union. Depending on their nature, inflation differentials can be considered as "benign" or "malign". The first category comprises: i) cyclical divergences, which can be considered benign since inflation differentials help restore equilibrium after an asymmetric shock; ii) Balassa-Samuelson effects, in which inflation differentials reflect equilibrium-restoring phenomena stemming from different productivity growth between the tradables and non-tradable sectors; and iii) price level convergence. "Malign" differentials entailing competitiveness losses could be due to structural and institutional features, such as the wage setting process and the functioning of product markets (mark-ups). The "benign" channels may interact with "malign" ones, giving rise to perverse outcomes.

Cyclical factors

The effects of the cycle are transitory …

Inflation rates are affected by the cyclical position of the country. Positive output gaps would imply higher inflation on a temporary basis. However, inflation persistence is determined by country-specific factors of structural nature. Such factors would affect inflation expectations as well as the sensitivity of inflation to the cycle.

Although the cyclical position of an economy is a major element behind inflation developments, to the extent that EMU promotes a higher synchronization of business cycles, the importance of this factor in explaining inflation differentials across Member States will diminish over time (Egert et al, 2004).

Balassa-Samuelson effects

… while Balassa-Samuelson effects…

According to the well-known Balassa-Samuelson effect, lower productivity growth in sheltered activities, combined with productivity in the open sector growing faster than in the rest of the world, would result, ceteris paribus, in higher inflation rates accompanying catch-up in income levels. Under the assumption of a certain degree of wage equalisation across sectors, faster productivity growth in tradables pushes wages up for the whole economy, which in turn leads to higher inflation in non-tradables, where productivity growth cannot keep pace with nominal wages. Within this framework, dual inflation between tradable and non-tradable sectors would be a natural consequence. This is the case of catching-up countries, where real economic convergence goes hand in hand with positive inflation differentials. Such inflation differentials stemming from faster productivity growth in tradables should be considered as "benign". Honohan and Lane (2003) find evidence of a weak Balassa-Samuelson effect in EMU. Lommatzsch and Tober (2003) also find weak effects in Greece, Portugal and Spain.

Price level convergence

…price level convergence…

In catching-up countries, real convergence would lead to a redistribution of consumption towards goods and services with a higher income elasticity. This would push inflation up, in particular in the services sector. Thus, income convergence would entail price level convergence. In addition, trade liberalization, the completion of the single market and the adoption of the euro should also boost price convergence through a higher inflation rate in those countries with lower price level (Rogers, 2001 and 2002). These elements can be especially relevant for Spain, which records a per capita income slightly above 85% of the EU-15 average and a general price level among the lowest.

Structural factors

Canzoneri et. al. (2002) identify three main determinants of structural inflation, namely wage setting, productivity growth and mark-up behaviour. A similar framework has been applied by Ortega (2003) to the Spanish economy. In particular, if one distinguishes the open and the sheltered sector of the economy, inflation in the latter will be higher the higher the difference in unit labour costs between both sectors and the lower the mark-up in the open sector. Therefore, persistent inflation differentials are closely associated with the functioning of the labour market, the degree of competition in product markets and productivity performance. Persistent differences in these elements across countries will entail different relative price tendencies.

Such structural factors, namely labour and product market rigidities, interact with Balassa-Samuelson effects and price level convergence, exacerbating inflation differentials across countries. In such a case, inflation would not come from higher productivity growth in the open sector and may threaten convergence and competitiveness in the medium term (Alberola and Tyrväinen, 1998).

Cyclical factors and Spanish inflation: Empirical evidence

According to the standard Phillips curve, the inflation rate of a country depends in the short run on the cyclical position, which can be represented by the output gap, while in the medium to long term, it depends on a number of structural factors determining persistence over time and inflation expectations. This is basically the model estimated for Spain and the euro area in box 1, which shows that in the Spanish case, long-run factors determining inflation expectations are particularly relevant. Where Spain-euro area inflation differentials are concerned, differences in cyclical positions are only one element among many others, including differences in structural factors. Moreover, in the recent past the output gaps have been similar in Spain and in the euro area. For instance, in 2002 the output gap in Spain was 0.5% of trend GDP, which compares with 0.6% in the euro area. Therefore, differences in the cyclical position may only give an incomplete explanation of the higher inflation rate in Spain.

It is also worth noting that in the recent past relatively low nominal interest rates in the euro area may have fuelled domestic demand in Spain. While during the previous slowdown in 1993 nominal rates were at around 15% in Spain, at present they record values close to 2%. Similarly, real rates were around 10% at that time and have recorded negative values since the second half of 2002. This has boosted credit growth, especially for mortgages, underpinning demand for housing and putting further pressure on prices.

Other countries have also enjoyed relatively loose monetary conditions (see Figure 2) since 1998, although to a lesser extent, without recording high inflation differentials. Different responses to a common monetary policy can only be due to the presence of idiosyncratic elements, which condition the monetary policy stance. Therefore, differences in either the monetary stance or the cyclical position do not seem to account for the whole observed inflation differential in Spain. Higher inflation expectations linked to the structural and institutional features of the Spanish economy seem to be behind persistent inflation.

Figure 2: Short-term interbank real interest rates
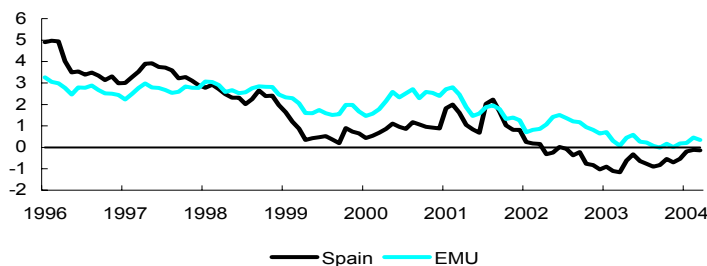
Source: Bank of Spain

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Box 1: A Phillips curve for Spain and the euro area

The first two columns of Table 1 present the results of estimating a Phillips curve for Spain and the euro area as follows:

$$\pi_t = \theta\,\pi_{t-1} + \pi_{trend} + \varepsilon\,y_t^{GAP} \tag{1}$$

where π is GDP deflator inflation, π_{trend} is trend inflation intended to capture the effect of inflation expectations and y^{GAP} is the output gap. The third column provides the results of estimating the following ad-hoc model for the inflation differentials between Spain and the euro area:

$$\pi_t^{dif} = \theta\,\pi_{t-1}^{dif} + Dif\pi_t^{trend} + \varepsilon\,Dify_t^{GAP} \tag{2}$$

where "dif" variables have been obtained as percentage differences between Spanish and euro area variables. These models have been estimated by instrumental variables because contemporaneous correlation between the output gap and the error term is likely to hold. For instance, demand shocks are expected to affect both variables. All the variables have the expected signs and are in line with Ledo et al. (2002).

Table 1: Phillips curve Spain versus the Euro area

	Spain	**Euro area**	**Differential model (3)**
Dependent Var.	GDP deflator inflation	GDP deflator inflation	GDP deflator inflation differential
π_{trend}	0.37*	0.32	0.58**
π_{t-1}	0.62***	0.66***	0.47**
Y^{GAP}	0.44***	0.48**	0.49**
R^2	0.89	0.87	0.7
DW	2.22	2.06	1.62

The asterisks ***, ** and * indicate that the coefficient is significant at the 1%, 5% and 10% significance levels, respectively.

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Structural determinants of Spanish inflation

Wage behaviour

Wage and ULC growth have moderated substantially since the mid-nineties

One notable feature of the Spanish economy in the last twenty years has been the continuous drop in inflationary expectations and the slow but gradual accommodation of agents' behaviour to the new economic setting. Despite this, nominal unit labour costs (ULCs) have continued to record higher growth rates in Spain than in the euro area. A new wage growth pattern has emerged since the mid-1990s, which was further underpinned by the stable macroeconomic framework of EMU. As a result, the wage increase differential with the EMU has narrowed significantly (Figure 3) and, in parallel, relative wage inflation between tradables and non-tradables has converged in the last years (Figure 4). Therefore, the still remaining gap in labour costs has to be found in labour productivity developments rather than in insufficient wage moderation. Productivity is assessed below, but before that it is fair to say that, although wage moderation has prevailed in Spain, some labour market institutions may still be a source of inflation tensions.

Figure 3: Unit labour costs (annual average growth rate)

Source: AMECO

This seems to be the case for wage indexation. In Spain, indexation clauses are still applied to almost half of all workers. Backward-looking wage indexation introduces distortions in the functioning of the labour market and is therefore regarded as undesirable since it contributes to inflation persistence. In this respect, the substitution of indexation by other bargaining mechanisms including a closer link between wage increases and productivity growth would lead to more efficient results. However, such pervasive effects of indexation may have been more important in the past than at present. While indexation was largely responsible for the episodes of high inflation in Spain during the two oil price shocks, its current impact on inflation developments is likely to be much milder[i].

%

**Figure 4: Relative compensation per employee
(non-tradables vs tradables)**
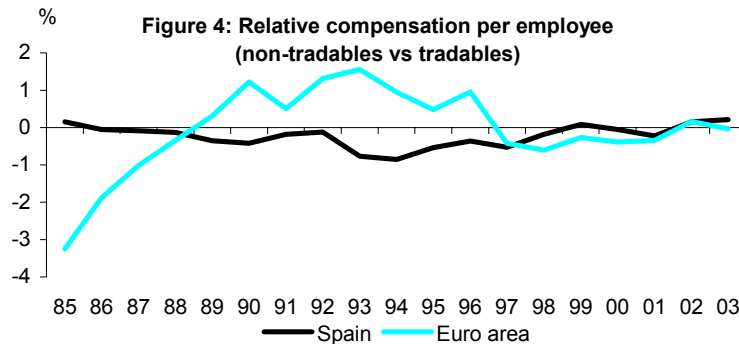
Source: AMECO

Labour productivity

Labour productivity growth is lower in Spain than in the euro area (Figure 3). The differential has remained fairly constant at around -0.5% on average since the late eighties, which has apparently contributed to the persistently higher inflation in Spain. In addition, average labour productivity growth in manufacturing in the period 1996-2003 was lower in Spain than in the euro area (0.9% compared with 2.0%, respectively). Hence, Balassa-Samuelson effects do not seem to hold in the Spanish case (see box 2).

Box 2: Balassa-Samuelson estimates for Spain in the literature

As shown in the table below, the recent literature suggests that Balassa-Samuelson effects on Spanish inflation have become less important over time (sample period getting closer to EMU). For instance, Canzoneri et al. (2002) find that around 1.5 percentage points of the Spanish inflation rate were due to such effects in the period 1973-1991/97. In contrast, more recently Lommatzsch and Tober (2003) estimate a more modest Balassa-Samuelson effect since 1995 (less than 0.5 percentage points).

	Inflation due to B-S effect	Average Inflation
Alberola and Tyrväinen (1998)		
1975-1993	3.1	11.6
1985-1993	3.5	6.4
Sinn and Reutter (2001)		
1987-1995	1.5	5.5
Canzoneri et al. (2002)		
1973-1991	1.5	12.5
1973-1997	1.4	10.5
Lommatzsch and Tober (2003)		
1995-2002	0.4	3.1

Andrés et al. (2003) show the importance of productivity growth as a key determinant of inflation differentials within a monetary union and present empirical evidence for Spain. They come to the conclusion that low productivity growth in tradables, particularly when coupled with distortions in goods and services markets

that lead producers to discriminate prices, contributes to inflation stickiness. Persistently higher inflation in Spain is apparently due to faster growth of mark-ups in services coupled with a poor productivity growth in the open sector, thus constituting a systematic deviation from the Balassa-Samuelson paradigm. The reasons behind high mark-up growth are to be found mainly in the functioning of product markets.

The role of relative mark-ups

Market rigidities and malfunctioning can be behind the behaviour of mark-ups

Sectors exposed to competition are expected to register more moderate price increases than sheltered ones, which have a wider margin of manoeuvre to set prices. Estrada and López-Salido (2004) offer empirical evidence identifying the different evolution of relative mark-ups between the services and manufacturing sectors as the key factor generating dual inflation in Spain and revealing the lack of competition in sheltered sectors.

Álvarez et al. (2003) provide further evidence on the effects of competitive conditions on inflation. Since 1995 mark-ups in services have been increasing in contrast with moderate growth of unit labour costs, putting pressure on prices of services. In parallel, the income convergence process has led to a demand shift towards the service activities with higher income elasticities, pushing prices further up in these branches. In the same vein, Ortega (2003) finds that, in Spain, mark-ups are the most relevant element to explain the evolution of relative prices of non-tradables.

Degree of energy dependence

Spain has greater energy dependence than other EU economies…

Recent data show that the inflation differential between Spain and the euro area is widening again in response to the increase in oil prices. In this regard, it is important to note that Spain has a higher energy dependence than the EU on average. In particular, as far as crude oil is concerned, its share in total energy demand in Spain represents more than 50%, compared to, for instance, around 40% in Germany and 35% in France,.

Moreover, since the early seventies an increase in total energy per unit of output has been observed in Spain. This growing demand for energy is linked to the relative importance of some activities, such as transport and tourism, and to socio-economic changes resulting in higher energy consumption by households (see La Caixa, 2003).

…and a lower degree of competition in this sector

In addition, the energy sector in Spain shows a lower degree of competition than in other EU economies, of which petrol distribution is a revealing example. Such malfunctioning of energy markets might amplify the impact of an oil price shock and make it larger than in the euro area.

Conclusions

Income convergence, lower productivity growth and market rigidities are the main factors behind the inflation differential

Although cyclical and monetary conditions play a non-negligible role, the persistence of the inflation differential between Spain and the euro area seems to be explained mainly by structural elements. Income convergence, higher wage growth, coupled with lower productivity growth than in the euro area, and the presence of non-competitive behaviour and market rigidities in some sectors seem to be the key elements behind persistently higher inflation in Spain. In particular, firms' relatively high degree of market power and ability to set prices above marginal costs is one of the major factors contributing to the inflation differential between Spain and the euro area. This is the case of a number of sheltered sectors, bringing about a well-known dual inflation phenomenon.

Since the differential is not due to a Balassa-Samuelson effect…

Moreover, the Balassa-Samuelson effect does not appear to be a significant factor in explaining the inflation differential. Thus, the cumulative effect of inflation differentials might eventually jeopardise Spanish competitiveness by an appreciation of the real effective exchange rate and eroding mark-ups in the tradable sector. In this regard, liberalisation initiatives undertaken by the Spanish authorities in the recent past may alleviate inflation pressures. However, they need to be

complemented by measures aiming at increasing effective competition through a deeper process of market deregulation.

…it is paramount to increase productivity growth

The lack of competition can discourage investment in research and development and thus slow down innovation, which negatively affects productivity growth. Therefore, in order to provide a sound basis for narrowing the inflation differential, effective measures to increase both competition and productivity growth are necessary.

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[i] In fact, wage increases agreed through collective bargaining are lower when indexation clauses are present. Izquierdo et. al. (2003) provide evidence on this statement.