Economic Adjustment Within EMU: Ireland's Experience

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Abstract: This paper examines the contribution of Balassa-Samuelson (B-S) type effects to inflationary pressures in Ireland. Irish productivity measures are exaggerated by foreign multinationals engaged in high value-added activities. These measures suggest that high productivity in the traded sectors explain most of the inflation differential. Using adjusted measures to account for the multinational effect, shorter-term demand side factors become more significant in explaining the inflation differential. Domestic fiscal and incomes policies are therefore an important source of adjustment for the Irish economy within a monetary union.

I INTRODUCTION

The start of *Economic and Monetary Union* (EMU), as expected, has revealed differing growth and inflation patterns between the participating countries. Without monetary or exchange policy, adjustment to either excessive or depressed demand pressures through real exchange rate adjustment needs to come through other macroeconomic channels. The Irish economy provides an interesting test case on how an economy in a growth transition can cope with excess demand pressures in the context of the "one size fits all" monetary policy.

Economies, like Ireland, that experience strong output growth would expect some real appreciation of the exchange rate. In a currency union, nominal appreciation cannot be relied upon so that real exchange rate appreciation comes about through higher wage growth and inflation than in competitor countries. Higher productivity in the traded sector of the economy

is likely to push up prices in the non-traded sectors by allowing real wages to increase through the well-known Balassa-Samuelson "productivity hypothesis" (Obstfeld and Rogoff, 1996).

This paper tries to determine the role of the Balassa-Samuelson effect in the Irish economy in order to quantify its possible magnitude. This would allow focus to be placed on the necessary adjustment mechanisms that are required to ensure that long-run competitiveness is not eroded as real incomes rise. As a small open regional economy, Irish living standards are ultimately determined by its ability to be an effective export base for which competitiveness as captured by the real exchange rate is crucial.

The next section of the paper presents the macroeconomic performance of the Irish economy within EMU thus far. In Section III a simple model to capture the effect of productivity changes on price trends in Ireland is presented and empirically tested to determine the size of the Balassa-Samuelson effect. Section IV looks at adjustment mechanisms available within the Irish economy that draw upon domestic fiscal and incomes policies. Section V concludes.

## II IRISH MACROECONOMIC PERFORMANCE IN EMU

The Irish economy has begun life within EMU on the extremes. The exceptional growth performance over the period 1994-2001, with average real GDP growth of 8.9 per cent per annum, was magnified in the first three years of monetary union. As real GDP growth equalled 10.8 per cent and 11.5 per cent in 1999 and 2000 (see Figure 1) severe capacity constraints were inherent in the economy. The overheating pressures arising from the excess demand induced by a weak exchange rate and historically low interest rates focused attention on how an economy like Ireland can adjust to its trend growth rate.

Although the Irish economy slowed severely in the latter half of 2001, trend real GDP growth is estimated to be around 5 per cent (Duffy *et al.,* 2001). This is based on the prospects for employment and productivity growth. Over the medium term the Irish economy is still likely to outpace the other European economies so that overheating pressures remain a concern.

The use of the GDP measure in the Irish case can be potentially misleading given the extent to which the industrial base of the economy reflects the large presence of foreign owned multinational corporations (MNCs). The high profitability of foreign MNCs in Ireland strongly affects GDP but not so the GNP measure where profits and other capital income to non-residents in particular are factored out. As Figure 1 outlines although the growth rates of real GNP in recent times have not been as strong as those of

GDP, Ireland has still experienced a significant economic expansion by any standard. The level of GNP accounted for almost 84 per cent of GDP in money terms in 2001, indicating the extent of profit repatriation out of Ireland.

Figure 1: *Real GDP and GNP Growth in Ireland 1987–2001*
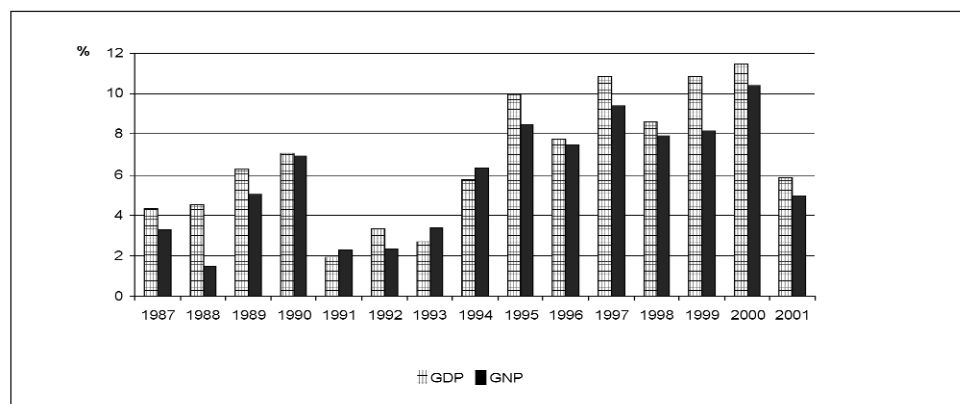
The large growth rates either in GDP or GNP terms are by far the highest among the member states within the euro area. The growth in Irish output over the last few years has been reasonably well balanced between domestic and foreign demand factors. By 2000, the combination of loose monetary conditions and significant wage growth boosted by large cuts in personal taxation meant that domestic factors accounted for over 70 per cent of the record increase in output.

Irish consumer price inflation remained surprisingly subdued during 1999, averaging 2.5 per cent on the EU Harmonised Index of Consumer Prices (HICP) measure, before pushing to the top of the euro-zone inflation league during 2000. The inflation rate peaked at 6 per cent in October 2000. Although waning slightly in 2001 price pressures have been sustained with the HICP inflation rate moving above 5 per cent in 2002, see Figure 2. Given the persistence of price pressures it is more likely domestic demand rather than temporary external factors that has driven the high HICP inflation rates observed that over the period 1999-2002.

The price trends as captured by the Irish Consumer Price Index (CPI) are probably an inappropriate indicator of domestic overheating pressures for a small, open economy like Ireland. The small scale of the economy can be judged by the fact that Irish output forms only about 1 per cent of the total euro area output. The extreme openness can be captured by the share of exports and imports in GDP, which was over 176 per cent in 2001.

Figure 2: *Annual HICP Inflation Rate for Ireland 1999m1–2002m5*
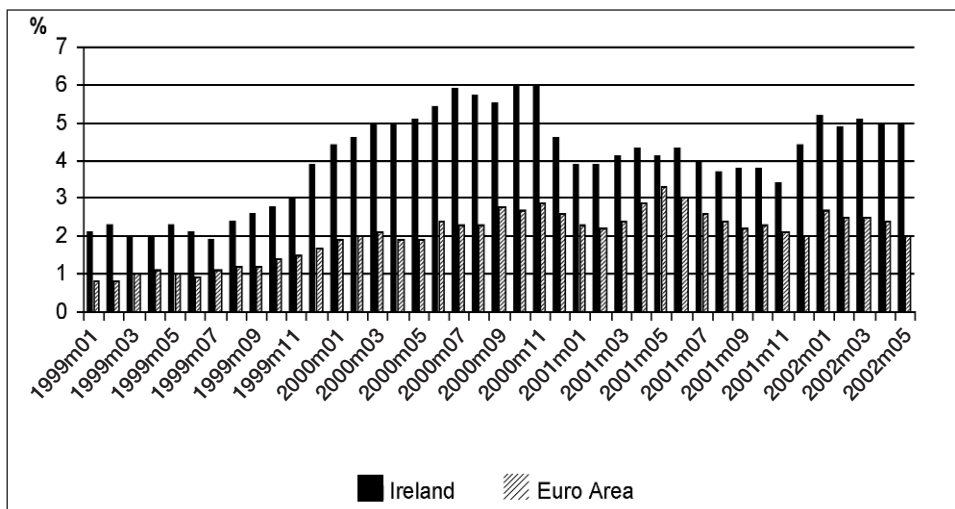
Other broader measures of price movements in the economy show that prices have been increasing significantly during the rapid growth phase in the economy in the latter half of the 1990s. The deflators on personal consumption and GDP averaged 3.5 per cent and 4.1 per cent respectively during the period 1995-2000 while the CPI was much more muted at 2.6 per cent over the same time frame.

Figure 3: *Traded and Non Traded Goods Price Inflation 1999–2001*
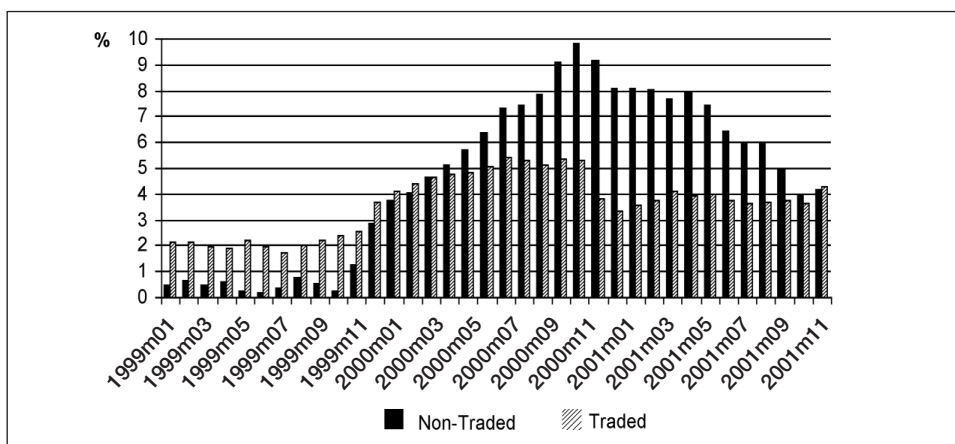
The change in the aggregate price level masks a striking differential between traded and non-traded price growth in the last few years.

Decomposing the consumption bundle into traded and non-traded commodities, the strong growth in non-traded goods prices in Ireland is clearly evident as in Figure 3.

The same pattern emerges using a decomposition in terms of valued added in output which classifies the agriculture and industrial sectors as traded and the remaining sectors, mainly services, as non-traded. Inflation in consumer goods prices have consistently been found to be externally determined in the Irish case, see Quinn *et al*. (1999) for a summary of the evidence, though the price of non-tradables, like domestically produced services and house prices, are significantly determined by wages.

Although traded and non-traded goods price inflation converged in the later half of 2001 this was in large part due to lower mortgage payments as interest rates fell. In contrast inflationary pressures in the services sector remained high throughout 2001 and into 2002, further substantiating the prominent role of domestic factors in the inflationary process.

Employment having grown by over 50 per cent in a decade has meant that the Irish economy is close to full employment. On entering EMU, the unemployment rate was just above 6 per cent and continued to drop to 3.6 per cent in 2001 before rising above 4.5 per cent during 2002. These rates are at levels consistent with close to full employment conditions. This performance is all the more impressive against the backdrop of high labour force growth during this period resulting from significant net migration and the large natural increase as the 1970s "baby boom" entered the work force.

The tight labour market meant that nominal wage growth increased sharply in contrast to the pay trends over the previous decade. The system of social partnership in place in Ireland since 1987 has meant that centralised wage agreements between labour, business and government had delivered moderate nominal wage growth in return for income tax cuts. This has led to the share of labour in value added declining steadily over a fourteen year period, as highlighted in Lane (1998). While wage growth has started to rise significantly since 1999 towards rates around 10 per cent, strong productivity increases have meant that relative unit labour costs were still extremely competitive, see Figure 4.

Despite the European Central Bank (ECB) interest rate rises, monetary conditions remained very easy in the first few years of EMU as the sustained depreciation of the euro ensured Ireland remained competitive against the dollar and sterling zones which together still account for nearly 51 per cent of Irish imports. The nominal effective exchange rate continued its downward trajectory since the start of EMU, with the impact on Ireland being more pronounced than other countries given its larger exposure to non-euro area regions, see Figure 5.

Figure 4: *Relative Irish Unit Labour Cost Index, (1991=100)*
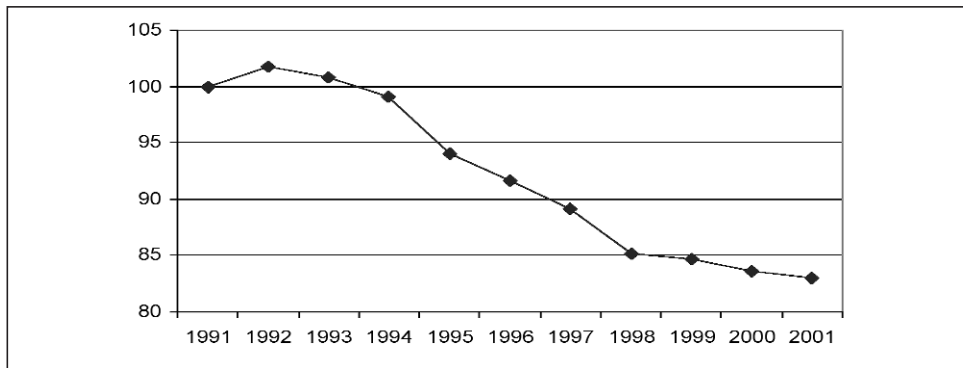
Figure 5: *Nominal Effective Exchange Rate Indices 1999–2001*
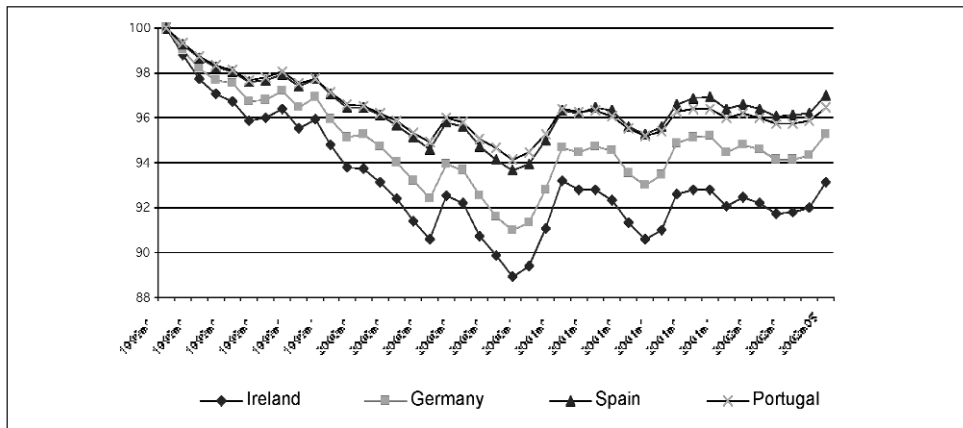
The current account of the Balance of Payments went into deficit for the first time in eight years in 2000 reflecting the emergence of overheating pressures in the domestic economy. There has been a very significant rise in net factor income outflows from Ireland since 1998. This has increased significantly the already large divergence between GDP and GNP measures in Ireland.

III ESTIMATING THE BALASSA-SAMUELSON EFFECT

The economies with inflation rates above the euro area average tend to be clustered among those in the periphery that are in the process of convergence

or undergoing a transition. It is argued that higher relative inflation in these cases is part of an equilibrium phenomenon reflecting the adjustment of relative prices rather than an indication that output growth exceeds potential growth. In this interpretation, rising prices and wages should be of little concern.

To determine whether such a sanguine view of the Irish case should be taken it is important to estimate the magnitude of the Balassa-Samuelson effect. In the Balassa-Samuelson framework productivity growth in the traded sector raises the demand for labour pushing up wage costs in all sectors. Since the non-traded sectors tend to have lower productivity growth, an increase in their relative prices is required to maintain equilibrium in the labour market. In the case of higher productivity growth in the tradable sector, a real exchange rate appreciation is required.

The extent of real appreciation depends upon relative productivity in the tradable and non-tradable sectors but also upon the response of the capital-labour ratio to productivity gains. In the case of perfect capital mobility, real appreciation is determined entirely by supply side conditions. When capital is less than perfectly mobile, as in the short term, business cycle impacts through demand side factors are often important.

In the Irish case Kenny and McGettigan (1999) and Wright (1994) have looked at the short-term dynamics of the real exchange rates using PPP as a long-run error correction mechanism. Lane and Milesi-Ferretti (2001) argue that PPP may be a rather weak model for long-run exchange rates movements in Ireland. They find that the long-run exchange rate is time varying and model it on relative output levels, terms of trade and net foreign asset positions. They find a strong association between real exchange rates and relative output but little evidence to support terms of trade movements as an important determinant. The net foreign assets position seems to have a strong impact but goes contrary to theoretical expectations.

In this paper our focus is to determine the supply side explanation of inflation differentials through the Balassa-Samuelson effect, so we abstract from the business cycle and short-run demand factors by focusing on relative output differentials as captured by relative productivity terms.

The inflation differential depends upon the relative productivity between the traded and non-traded sectors in Ireland compared to the euro area. The usual productivity terms relate to total factor productivity (TFP). The contributions of labour and capital to Irish growth and TFP are outlined in Table 1 (Fitz Gerald and Kearney, 2000). As indicated above it is important to distinguish between GDP and GNP in the Irish case due to profit repatriations by foreign multinationals operating in high technology sectors, such as computers and pharmaceuticals (Honohan, 2001).

Table 1: *Contributions to Growth and Total Factor Productivity*

	1960– 65	1965– 70	1970– 75	1975– 80	1980– 85	1985– 90	1990– 95	1995– 00
Labour	0.19	−0.11	0.34	0.89	−0.87	0.59	1.12	2.65
Capital	0.46	1.46	1.54	1.91	1.23	0.72	0.83	2.33
TFP – GDP	3.13	2.78	2.26	1.79	1.13	2.58	2.70	4.30
TFP – GNP	3.20	2.70	2.03	1.26	−0.03	1.97	2.51	3.10
Education					0.96	0.59	0.54	0.43
Adjusted for education:								
TFP – GDP					0.17	1.99	2.15	3.87
TFP – GNP					−0.99	1.38	1.97	2.66

Source: Fitz Gerald and Kearney (2000).

When allowance is made for the investment in human capital and for foreign direct investment by using the GNP measure, the growth in TFP in the period 1995-2000 is 2.5 per cent rather than the 4.3 per cent as the unadjusted GDP measure would suggest. Productivity growth in Ireland is high but it is flattered by the very high value added in a number of small sectors predominated by the foreign multinationals.

The IMF (1999) used TFP measures to estimate the likely size of the Balassa-Samuelson effect for Ireland adjusting for this exaggerated multinational productivity impact. Their approach was to exclude those sectors where returns, defined as value added minus wages and salaries, were deemed to be excessive with respect to some arbitrary benchmark. This had the effect of excluding those firms with extremely high value added where high measured labour productivity reflects the intangible assets of the firm. Such assets may include the global operations of multinationals such as R&D, product development and other "hidden" costs, which do not appear in the balance sheets of subsidiary operations in Ireland.

As noted by Honohan (1998) the multinational sector is characterised by a low share of wages in value added, suggesting that high measured labour productivity reflect the intangible assets of firms. The IMF estimate that labour productivity in manufacturing averaged 8.2 per cent over the period 1991-1996 using unadjusted data but equalled 4.1 per cent when key sectors were removed. The excluded sectors are "homogenised food preparations" and "other food products" including cola concentrates, "reproduction of recorded media" including software, "other organic basic chemicals" representing mainly pharmaceutical products, "pharmaceutical preparations" and "office machinery and computers".

The IMF estimated that the inflation differential from the Balassa-

Samuelson effect over the period 1991-1996 was 1.25 percentage points over the euro area average in contrast to the three percentage points that would prevail using unadjusted data. Likewise, Alesina *et al.* (2001) estimated the impact to be of the order of 1.5 percentage points for Ireland. They split the 4.3 per cent TFP for the whole economy into 8 per cent for tradables and 2 per cent for non-tradables while assuming no difference in euro area productivity growth.

Viewing output growth as the combination of productivity plus employment growth, the Irish story has been as much about spectacular employment creation as much as high productivity increases. Given the difficulties using TFP measures for Ireland we follow the Sinn and Reutters (2001) approach by focusing on labour productivity within the euro area. Using data between 1987-1995, Sinn and Reutters estimate that the Balassa-Samuelson effect results in a differential of 2.3 per cent for Ireland over the euro area average. We extend this analysis into the first years of EMU for 11 of the Euro-12 economies, paying particular attention to the Irish case.

To illustrate these effects some measures of labour productivity and price inflation are required in terms of traded and non-traded components. To construct such measures, however, requires some rather subjective assumptions with regard to which sectors comprise traded and non-traded output and employment. Table 2 attempts to illustrate the effects of productivity differentials on prices. Productivity and price differentials are calculated over the period 1984-1999.

In columns (1) and (2) labour productivity is calculated, equating the growth of marginal and average labour productivities. It is found that labour productivity has grown significantly faster on average in the traded sector in all countries. In Ireland's case the productivity differential is the largest at 5.6 per cent as reported in column (5). In contrast the productivity differential is smallest in Germany at 0.2 per cent. These results are not surprising given the contrast between the openness of the Irish economy and the large share of Germany within the overall European economy.

As reported in columns (3) and (4) the growth rates of traded and non-traded prices sit equally well in terms of the productivity hypothesis. In all countries the prices of non-traded goods grew faster on average than traded goods. The difference between traded and non-traded inflation is calculated in column (6). Again Germany is an outlier with the inflation differential only a half per cent, as would be expected from the similarly small productivity differential. Those countries where the productivity differential between the traded and non-traded sectors is largest, Ireland and Finland, also register the biggest differentials between traded and non-traded goods price inflation.

Table 2: *Growth Rates of Labour Productivity and Value Added Prices 1984-1999*

Country	Labour Productivity		Value Added Prices		Difference	
	(1)	(2)	(3)	(4)	(5)	(6)
	Traded	Non Traded	Traded	Non Traded	Productivity*	Prices**
Austria	3.8	0.6	1.0	3.0	3.2	2.0
Belgium	3.8	1.0	0.9	3.4	2.8	2.5
Finland	5.9	1.7	1.3	4.4	4.3	3.1
France	3.7	0.8	1.3	3.5	2.9	2.2
Germany	1.2	0.0	1.7	2.2	1.2	0.5
Greece	2.8	–0.1	10.9	13.1	2.9	2.2
Ireland	6.6	1.0	2.3	5.6	5.6	3.3
Adjusted	(3.9)	(1.3)			(2.6)	
Italy	3.6	0.8	3.9	6.1	2.8	2.2
Netherlands	1.7	–0.5	0.0	1.9	2.1	1.9
Portugal	4.4	1.4	9.1	10.5	3.0	1.4
Spain	3.0	0.2	3.9	6.5	2.8	2.5

*Traded minus non-traded.
**Non-Traded minus traded.

Notes: In terms of value added the sector of traded goods comprises Agriculture and Industry, the sector of non-traded goods the remainder. Labour productivity is defined as value added divided by employment. Due to a lack of data traded and non-traded employment was taken to comprise Agriculture and Industry and services respectively. The numbers are arithmetic means of the annual growth rates for the period 1984-1999 with the exception of Ireland and France. In the case of France the numbers are derived from the period 1984 to 1998. With respect to Ireland the numbers without parentheses refer to the period 1984 to 2000 where productivity is defined in the same terms as the other euro area countries. The numbers in parentheses refer to the period 1991-1999. These adjusted productivity figures are derived from the Census of Industrial Production excluding certain key sectors as described below. Employment, Nominal Value Added and Real Value Added are taken from the OECD National Accounts and Annual Labour Force Statistics. In the case of Ireland data was also taken from the Central Statistics Office Database and Census of Industrial Production 1999.

However, as discussed earlier productivity in Ireland's traded sector is likely to have been flattered by the presence of a small number of multinationals with extremely high value added. Using data from the Census of Industrial Production (CIP) 1999, we follow the IMF approach by excluding certain sectors from measured labour productivity. The results of this exercise are reported in parentheses in Table 2. As noted by the IMF (1999) this procedure though arbitrary excludes those sectors where large productivity growth reflects intangible assets such as global R&D or advertising. The small share of output that goes to labour in these sectors substantiates this view.

Figure 6: *Difference in Productivity and Prices 1984-2000 EU-12*
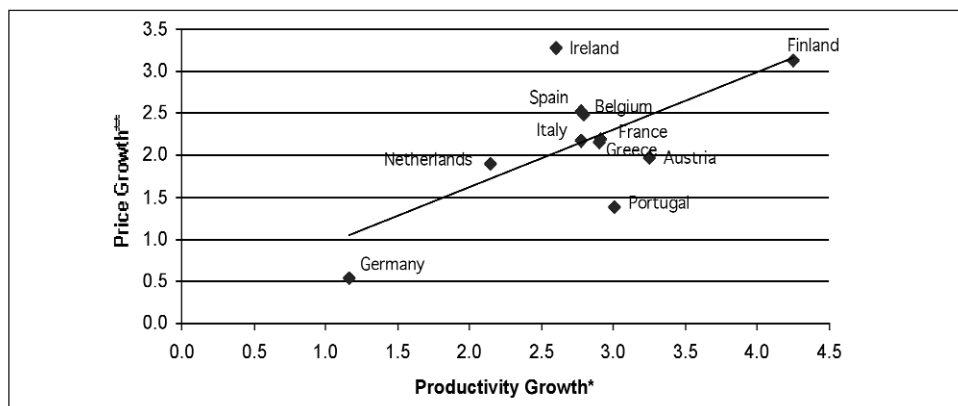
To summarise, Figure 6 plots column (5) against column (6) of Table 2 using the adjusted figures for Ireland. In the context of the currency union with fixed exchange rates between the member countries the data from Table 2 can be used to get an estimate of the differential in price growth between the domestic traded and domestic non-traded sectors ($\Delta\Pi$) due to the productivity differentials (Δprod) between Ireland and the euro area.

The estimated equation for the euro area using ordinary least squares is set out below (standard errors in parenthesis).

$$\Delta\Pi = 0.69 \; \Delta \, prod \quad + \quad 0.25 \tag{1}$$
$$ (0.25) (0.73)$$
$$R^2 = .45$$

Using Equation (1) would suggest that for Ireland the estimated 2.6 per cent productivity differential would be consistent with a 2.1 per cent price growth differential, in contrast to the 3.3 per cent observed. This suggests that Balassa-Samuelson effects arising from a convergence process or structural change within the Irish economy can explain a substantial portion of the adjustment of non-traded prices but not fully. This result suggests a more prominent role of domestic factors in the inflationary process.

It is important to note that the value added price deflator for the traded sector is unlikely to equate to the traded goods component of the Irish consumer price index (CPI). While the traded goods component in the CPI is significantly determined by import prices, the value-added traded price deflators depend substantially upon export price movements. The difference between the inflation in domestically produced tradables and the tradable

component of the CPI in the first two years of EMU has not been substantial. The inflation rate in the domestically produced tradables, as defined in this paper, was 2.8 and 4.4 per cent in 1999 and 2002 respectively, the equivalent inflation rate in the tradable component within the CPI was 2.2 and 4.8 per cent in the same period.

In Ireland, export prices reflect a relatively small sample of goods given the predominance of the multinational sector. The short product life cycle in many of the exporting sectors that predominant in the Irish economy can result in heavy discounting of export prices. The extent of declining export prices could also make the terms of trade effect quite a significant consideration, but we do not capture this impact in our estimation.

IV ADJUSTMENT MECHANISMS WITHIN EMU

The estimate of the Balassa-Samuelson effect when no account is taken of the role of high value added foreign multinationals would seem to indicate that domestic short-term factors have a limited role to play in the Irish inflationary process. When adjustment is made to account for the exaggeration in productivity, the sanguine view of the broader price and wage developments within the Irish economy would be altered. Given the small open regional nature of the economy, the prospect of a significant and rapid turnaround in the exchange rate could severely hit competitiveness. In addition, the importance of trade for Irish growth prospects and ultimately living standards, means that abrupt erosion of competitiveness should be guarded against when possible.

While the Irish economy is undoubtedly slowing towards its potential growth rate, overheating pressures still remain. One option is to allow the economy experience higher inflation leading to a real appreciation in the exchange rate. This inflation option would restore the economy to a slower growth rate by eroding competitiveness. The correct choice of option depends on the source of overheating. The textbook response is that when the source of the overheating pressure is internally generated by domestic factors, then a fiscal contraction is required to reduce domestic price pressures. When the source is external demand then an increase in inflation to restore relative prices would be appropriate. As the economy loses competitiveness external demand for exports declines bringing the economy to trend growth, Alesina *et al.* (2001).

At the present juncture there are reasonably balanced contributions to output growth from both domestic and foreign sources in Ireland. The standard prescription would suggest that a combination of wage growth and

fiscal contraction be used to slow the economy to sustainable levels (O'Rourke and Thom, 2000). The difficulty with this prescription is that while Ireland may be nearing the end of its convergence transition, it is not yet completed. Wage growth remains significant as it has been since the start of EMU. The difficulty is in gauging the extent of wage growth that is necessary to cool down the economy without wages overshooting with significant losses in competitiveness (Duffy and Fitz Gerald, 2000).

Domestic policy tools need to be configured to consolidate the gains achieved during the transition and to alleviate the inevitable bottlenecks that can emerge in a period of rapid growth. In this sense the EU Stability and Growth Pact (SGP) may be a constraint, particularly for economies in transition. The main deficiency with the SGP lies in its inability to distinguish between high and low indebted countries and those with widely different potential growth rates. Economies in transition may need to reduce infrastructural deficits so as to alleviate domestic price pressures and enhance the productive capacity of the economy. Such economies with high potential growth may be able to build up sizeable deficits while maintaining constant debt to GDP ratios. Recent proposals call for a "Debt Sustainability Pact" to work alongside the SGP to allow large deficits when debt levels are below a sufficient level (Pisani-Ferry, 2002). The implementation of such proposals would allow transition economies to implement required capital investments if these entail temporary large budgetary deficits.

In the current context for Ireland, notwithstanding the slowing of economic growth, restraining domestic demand whilst increasing the supply capacity are imperative. The onus on managing domestic demand falls on budgetary and incomes policy, while specific interventions are required to boost the economy's supply capacity.

V CONCLUSIONS

Given its successful convergence and arrival at a point of inflexion in terms of its economic growth, Ireland is in a unique position to reflect on the nature and suitability of the current economic governance within the European Union, especially for economies in transition. Economies in transition can expect to have real exchange rate appreciation (De Bruoeck and Torsten, 2001), significantly coming through productivity lead wage growth and consumer price inflation. This Balassa-Samuelson effect can be quite significant but should not lead to complacency in ignoring the role of domestic policy responses (Fitz Gerald, 2001).

Designing appropriate adjustment mechanisms to deal with sharp

currency fluctuations is important for economies like Ireland to ensure that wage growth does not overshoot competitive levels. Wage contracts that include flexibility mechanisms are one important element (Geary, 1996). Ireland's social partnership model may offer the opportunity to provide the necessary flexibility if elements of deferred compensation mechanisms are included, see McHale (2001). It is clear from the high output growth in Ireland in the first three years of EMU that stabilising a small open economy within a currency union is a difficult task.

The constraints imposed by the Stability and Growth Pact do not sufficiently cater for economies like Ireland. The emphasis on the deficit rather than the debt in the SGP fails to account for the long-term sustainability issue by focusing on short term constraints. This ignores the important issues for any country's public finances such as the age demographics and the economy's stage of development. The requirement that economies attempt to keep close to balance or in surplus may require that infeasibly large safety margins are required for economies that can expect high output volatility.

As a small, open regional economy, the safety margin in the Irish case allows for little room in order to run prudent government deficits to facilitate public capital investment given the relatively low debt ratio. While the conditions of the SGP have not been a binding constraint in the first years of EMU for Ireland, this is unlikely to be the case in coming years. The time to revisit the conditions of the SGP has come, particularly in the case of economies in transition, as Ireland continues to be and the imminent enlargement of the EU will bring forth many more (MacCoille and McCoy, 2002).

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