

Measuring Ireland's Price and Labour Cost Competitiveness

by Derry O'Brien¹

Abstract

This article describes recent trends in the price and labour cost aspects of Ireland's competitiveness. The competitiveness of the Irish economy is especially important given the economy's dependence on international trade and foreign direct investment. The Central Bank's competitiveness indicators, including new indicators on labour cost competitiveness, are explained and their respective merits are discussed. According to a range of the Bank's economy-wide competitiveness indicators, the Irish economy has experienced substantial losses in price and labour cost competitiveness during the past decade. In the early part of this decade, the appreciation in the real exchange rate could be explained by the unsustainability of a 'super-competitive' starting point. Further into the decade, the strong personal consumption growth and the housing construction boom may have temporarily counter-balanced the consequences of the significant deterioration in competitiveness on the economy's growth rate. Recent prices and labour costs in levels are also described relative to those of important trading partners. The downwards adjustment of prices and labour costs last year should provide a timely boost for export competitiveness, made all the more necessary by the sharp depreciation of sterling against the euro during the past two years. The competitiveness gap looks set to close further during this year, although much will depend on the projected rebound in productivity growth and labour market developments.

¹ derry.obrien@centralbank.ie. The views expressed in this article are the personal responsibility of the author and are not necessarily those held by the Central Bank of Ireland. The author would like to thank John Flynn, Maurice McGuire, Terry Quinn, Shane Enright, Adrian Devitt and Eoghan O'Briain for helpful comments.

1. Introduction

Competitiveness indicators are not universally endorsed. This can be partly attributed to their weak conceptual basis while the vast array of definitions of competitiveness can sometimes lead to confusion as to the purpose and relevance of competitiveness indicators.

Definitions of competitiveness with a longer term perspective incorporate notions of relative productivity whereas narrower definitions of competitiveness may correspond to real effective exchange rates or price and labour cost competitiveness indicators. The latter tend to be used in the context of conjunctural assessments and short-term forecasting exercises but the relationship between these indicators and economic performance is not without ambiguity. Indeed, an appreciation in a real effective exchange rate may not necessarily imply that the ability of a country to compete internationally has been compromised but may reflect positive developments in non-price dimensions or a convergence process. In this respect, it is important to acknowledge that an assessment of the overall international competitiveness position can be quite complex and the use of real effective exchange rates or price and labour cost competitiveness indicators should only form one element of the analysis.

The competitiveness of Ireland is especially important given the economy's dependence on international trade and foreign direct investment. Among euro area countries, Ireland is particularly vulnerable as it has the largest share of trade outside the euro area such that fluctuations in the euro exchange rate have a disproportionate impact on the volatility in the Irish real exchange rate. With devaluation no longer an option, greater emphasis is placed on price and wage adjustments to generate improvements in competitiveness. Monitoring developments in indicators of price and labour cost competitiveness can however be quite challenging as the idiosyncrasies of the Irish economy tend to distort these indicators. Taken together, Irish competitiveness measures can sometimes present a diverse picture and make it difficult to discern developments in the overall

competitiveness position. With no optimal indicator emerging on purely conceptual grounds, an appreciation of the merits and drawbacks of these indicators in an Irish context and their suitability for the issue in question is important. This article presents a detailed assessment of the price and labour cost competitiveness indicators developed by the Bank in order to enhance the understanding and uses of these indicators. Notwithstanding some strong caveats, these indicators can convey useful information on the state of the economy. The trends in the indicators are evaluated and the culmination of these trends is examined using recent deflator levels data. According to a range of economy-wide indicators, the Irish economy has experienced significant losses in price and labour cost competitiveness. In the context of subdued world demand and the prospect of a muted recovery in important trading partners, regaining price and labour competitiveness needs to be a key priority in order to sustain an export-led recovery in the economy.

The article is structured as follows. Section 2 recalls definitions of competitiveness arriving at a narrow definition of competitiveness corresponding to real effective exchange rates. The section then elaborates on how these price and cost competitiveness indicators are generally used. Section 3 explains how the Bank's competitiveness indicators for the Irish economy are constructed and their respective shortcomings. New indicators of price and labour cost competitiveness are also explained with the article intended as a comprehensive guide to these competitiveness indicators, which are available on the Bank's website. The trends in these indicators since the mid-1990s are reviewed in Section 4. These indicators only give the relative trends in competitiveness with reference to an arbitrarily chosen base year and do not describe the competitiveness position relative to trading partners at any given point in time. In order to address this, the latest price and cost competitiveness position is illustrated in Section 5 by examining the components of the competitiveness indicators.

The final section then summarises the findings and indicates avenues for further research.

1. A Narrow Definition of Competitiveness

The concept of national competitiveness has been subject to some strong criticism. In a provocative assault, Krugman (2004) stated that "competitiveness is a meaningless word when applied to national economies. And the obsession with competitiveness is both wrong and dangerous". However, the arguments presented against the practical relevance of national competitiveness relate in the main to large economies such as the US and Japan. Krugman is more qualified further on and noted that "while competitive problems could arise in principle, as a practical empirical matter the major nations of the world are not to any significant degree in economic competition with each other". In the case of small open economies such as Ireland, international competitiveness is relevant and important, particularly in the context of Ireland striving to maintain its attractiveness as a destination for foreign direct investment. Still, it is important to clarify what is meant precisely by the concept of national competitiveness.

There are many definitions of national competitiveness with the broader definitions generally adopting a longer term view where productivity performance is what matters in terms of setting the sustainable standard of living of a country. The ECB's broad definition of competitiveness includes a notion of relative productivity where the most competitive economy is the one with the best prospects for generating highly productive firms. In a similar vein, the Global Competitiveness Report defines competitiveness as "the set of institutions, policies and factors that determine the level of productivity of a country". With a narrower focus on certain aspects of competitiveness, Lane (2004) defines "price and wage competitiveness to be a state in which medium-term full employment is achieved and the return on capital matches the global risk-adjusted cost of capital". Other definitions tend to put explicit emphasis on trade performance giving rise to a sustainable and improving standard of living. For example,

the National Competitiveness Council (NCC) defines competitiveness as all those factors affecting the ability of Irish firms to sell goods and services in international markets. Finally, the ECB also defines competitiveness, but in a narrower sense, to be international price competitiveness as measured by various measures of effective exchange rates. Such price measures tend to have much intuitive appeal although their conceptual foundations can be weak. Ultimately, as emphasised by Neary (2006), the appropriate measure of competitiveness depends on the question that needs to be answered.

If the purpose of the analysis is more related to the short to medium term such as in a conjunctural analysis or a forecasting exercise, then price and cost competitiveness indicators can have a role to play. Indeed, Ca'Zorzi *et al.* (2007) show that price and cost competitiveness indicators can be useful for predicting trade flows as the pressures on firms' performance via relative trends in input prices or costs may influence short-term developments in export flows or trade balances. A fall in domestic prices relative to prices in our main trading partners will enhance the price competitiveness of domestic firms. Similarly, a relatively low cost base, adjusted for productivity, makes firms based in Ireland more competitive in international markets and more robust to volatility in exchange rates. It also makes Ireland more attractive as an export base for multinational firms. As a result, firms based in Ireland may be better positioned to capture a greater share of the domestic and trading partners' markets. Price and cost competitiveness indicators may also signal emerging imbalances and vulnerabilities of an economy, which may enable more timely policy adjustments. Monitoring relative price and cost developments is of heightened importance in a currency union. As devaluation is no longer an option, there is greater emphasis for price and wage adjustments to generate improvements in competitiveness.

The movements in price and cost competitiveness indicators are monitored closely but there is not always clarity as to what these movements reflect and what the

implications are. Indeed, there is no one real exchange rate that answers all questions and it can be quite challenging for policymakers and forecasters when the various indicators do not present a uniform picture. Aside from the timeliness and data quality criteria, the usefulness of these indicators can sometimes vary according to whether the assessment is focused on (i) economy-wide or sectoral performance; (ii) the short-term prospects for export performance and market shares; (iii) the trade balance and current account; or (iv) employment and welfare implications. The next section will attempt to explain the respective merits and relevance of the Bank's competitiveness indicators in order to illuminate the appropriate indicator depending on the issue in question. Finally, firm level data and wage share data can also provide an alternative view of competitiveness but come with their own limitations and distortions. Price and cost competitiveness indicators are superior in terms of timeliness and data quality, and for these reasons, price and cost competitiveness are commonly used at central banks and international organisations in conjunctural assessments and short-term forecasting.

This paper takes a rather narrow view of competitiveness and the use of price and labour cost competitiveness indicators should only be one element of the analysis. Trade specialisation and market effects can also be important determinants of a country's ability to compete in the short-run. The NCC's Annual Competitiveness Report publishes a comprehensive range of competitiveness indicators including other non-labour cost indicators while Cassidy and O'Brien (2007) also presents a wide-ranging assessment of competitiveness that incorporates non-price indicators relating to structural and technological factors. Price and cost competitiveness indicators are not intended to predict long-run export performance or sustainable growth in living standards — that depends on productivity growth, which in turn can be influenced by structural policies that affect wage flexibility and competition in sheltered sectors.

3. Price and Labour Cost Competitiveness Indicators for the Irish Economy

The Central Bank has developed a set of price and cost harmonised competitiveness indicators (HCIs) for the Irish economy as part of a collaborative project between the ECB and the national central banks of the euro area. Some of the indicators will appear for the first time in the current edition of the Bank's Quarterly Bulletin and will be published on the Bank's website. The Bank has also developed some absolute measures for Irish manufacturing competitiveness that adjust for the undue influence on competitiveness indicators of the high output but low employment chemicals sector. The purpose of this section is to explain these competitiveness measures in detail, highlighting the merits of each, in order to provide guidance on what information these measures can provide in an assessment of Ireland's international competitiveness. Some alternative measures of price and cost competitiveness, such as export prices, will also be reviewed.

The HCIs, which are conceptually equivalent to effective exchange rates, track the movements in nominal exchange rates and may also take into account movements in a chosen national deflator relative to the corresponding deflators of a large group of trading partners. Firstly, there are important considerations in the methodology behind these harmonised effective exchange rates, some of which are particularly relevant to the case of Ireland:

- (i) While an effective exchange rate should in theory take into account all trading partners, the set of trading partners is often in practice constrained by data availability and comparability. The significant broadening in Ireland's geographical trade diversification has called for an expansion of the set of trading partners beyond the important traditional trading partners such as the UK, major EU economies and the US. The set of trading partners used for the HCIs is quite large at 37 or 57 trading partners, depending on the deflator chosen;

(ii) The choice of weighting scheme is also important. As is standard practice, the weights for the HCIs are based on bilateral manufacturing trade flows (excluding agriculture, raw material and energy products). While services exports in Ireland have grown considerably this decade and accounted for about 46.3 per cent of total exports from Ireland in 2008, there are data constraints with services transactions and prices which would not allow the weights to adequately incorporate services trade. A double weighting scheme is used for the HCIs in order to capture the effect of competition in third markets². Note that, in the case of Ireland, while the simple export weight for the UK was about 14 per cent on average during 2004 to 2006, the double weighting for the UK was about 18.3 per cent for the same period, reflecting the fact that the UK is an important competitor for Irish firms supplying the domestic market and for Irish exporters in international markets. The weights for the HCIs are based on trade flows from 1995-1997, 1998-2000, 2001-2003 and 2004-2006.

(iii) The base period chosen for HCIs is the beginning of 1999, which corresponds to the year of the introduction of the euro. It is important to note though that the choice of 1999 as the base year is arbitrary and does not reflect any sense of an 'equilibrium' reference value. The Irish economy was considered to be super-competitive during the end of the 1990s. In view of this, it could be argued that the selection of this base period puts Ireland in an exaggeratedly poor light in an assessment based purely on relative price and cost dynamics. Indeed, a portion of the subsequent increase in relative prices and costs could be conceived as reflecting an appropriate adjustment towards a more sustainable long-run output and employment growth rate i.e.

² For a description of how double weights are calculated, see Kelly and Golden (2001), 'Trade Weighted Competitiveness Indicators for Ireland', Quarterly Bulletin, Winter 2001.

characterised by a 'catching-up' process.

The individual HCIs, along with their respective merits, are now explained in turn. The *Nominal HCI*, which is a double-weighted average of bilateral exchange rates with trading partners, isolates the impact of exchange rate developments on competitiveness and can be interpreted as a nominal effective exchange rate. The nominal HCI for Ireland, with $N = 57$ main trading partners, is calculated as follows

$$\text{nominal HCI} = \prod_{i=1}^N (e_i)^{w_i}$$

Or, alternatively expressed as

$$\% \text{change in nominal HCI} = \sum_{i=1}^N (w_i * \% \text{change in } e_i)$$

where e_i is the nominal exchange rate of currency of country i vis-à-vis the euro (with domestic currency as the numeraire) and w_i is the trade weight of country i . A higher e_i , meaning a depreciation of the currency of trading partner i against the euro, implies, *ceteris paribus*, a higher nominal HCI and a deterioration in competitiveness. If the weight of the trading partner is relatively large, such as in the case of the UK, then this will be reflected in a proportionately large increase in the HCI. The nominal HCI for Ireland is published at a monthly frequency by the Bank and the ECB.

The *Real HCIs* take into account price or cost movements, along with exchange rate developments, relative to our main trading partners, and can be interpreted as real effective exchange rates. The real HCIs for Ireland are calculated as follows

$$\text{real HCI} = \prod_{i=1}^N \left(\frac{d_{IRL}}{d_i} e_i \right)^{w_i}$$

where e_i is again the nominal exchange rate of the currency of country i vis-à-vis the euro, d_{IRL} is the price or cost deflator index for Ireland, d_i is the corresponding price or cost deflator index for country i , w_i is the trade weight of country i , and N is equal to either 37 or 57 main trading partners depending on the

deflator chosen. Alternatively, the above could be reformulated as

$$\begin{aligned} \% \text{change in real HCI} = & \sum_{i=1}^N w_i (\% \text{change in } d_{i,IRL} - \% \text{change in } d_i) \\ & + \% \text{change in nominal HCI} \end{aligned}$$

Thus, a larger percentage increase in the Irish deflator index compared with the corresponding deflator of a trading partner will give, *ceteris paribus*, an increase in the real HCI and implies a deterioration in Ireland's price competitiveness. The deflators used are consumer prices, producer prices, unit labour costs for the whole economy and unit labour costs for the manufacturing sector, and four of these real HCIs are published at a monthly or quarterly frequency by the Bank and the ECB³.

The *consumer price deflated HCI* is a commonly used real HCI. Such a price deflated measure will convey information on how firms change prices to maintain domestic and foreign market shares in response to nominal exchange rate changes. However, choosing consumer prices as the deflator may give an incomplete picture of price competitiveness for a number of reasons: (i) given that consumer prices are based on final prices, they do not directly take into account intermediate goods prices, which are quite relevant in the context of the increasing international segmentation of production processes; (ii) the prices of capital goods are not included, which can also influence competitiveness considerations; (iii) indirect taxes and price controls in consumer prices may give rise to a distorted picture of true underlying cost competitiveness; and (iv) finally, it can be argued that since consumer prices include a large number of non-traded goods and services, it does not provide a very good indication of international competitiveness. Notwithstanding these limitations, the consumer price deflated HCI can provide a useful and timely first approximation to underlying cost competitiveness changes given that many

inputs into production, including labour, may tend to be priced in line with consumer prices.

An alternative would be to use *relative export prices* for manufacturing goods since they cover only internationally traded products. While a deflator based on export prices has intuitive appeal, export prices suffer from other drawbacks, which are particularly relevant for Ireland. As a small open economy, Irish export prices are generally set in international markets and, effectively, "given" for Irish exporters. Over the short to medium term, therefore, export prices may not be sensitive to domestic cost factors. Moreover, given that multinational firms in Ireland tend to price their exports in dollars including those exports destined for the euro area, volatility in the euro/dollar exchange rate can be the principal driver of short-run export euro price movements. The exports of multinationals in Ireland can often have high import content and these imports also tend to be priced in dollars, such that a rise in the dollar euro exchange rate can be more easily absorbed. Changes in competitiveness manifest themselves through changes in profitability (export prices less the cost of producing exports) rather than changes in prices. Finally, export price based competitiveness indicators also suffer from longer release lags, revisions, lack of comparability and, when measured using export unit values, are not robust to significant shifts in the composition of exports. Partly for these reasons, the ratio of domestically produced export prices to foreign produced import prices, or the external terms of trade, is also not considered a reliable indicator of competitiveness trends.

While export prices take into account only prices for those goods that were actually traded, producer prices cover a broader range of industrial goods. By encompassing non-traded industrial goods, the *producer price*

³ The unit labour cost deflated HCI for the manufacturing sector will not be published until certain data issues are resolved. In the meantime, the Bank will continue to publish a relative unit labour cost based common currency measure for the manufacturing sector using simple trade weights for the 10 most important trading partners.

deflated HCI takes into account goods that could potentially be traded if the relative price were to become more favourable, thus giving a more accurate reflection of the economy-wide implications of developments in competitiveness. However, on the debit side, producer prices do not have nearly the same degree of comparability across countries as consumer prices and more importantly do not include services prices. Furthermore, the producer prices are based on gross value of output (i.e. also reflect prices of inputs such as imported goods along with non-traded goods) and in the highly specialised Irish economy, a high proportion of intermediate inputs are imports. This may explain why the impact of nominal effective exchange rate changes on price competitiveness can sometimes be quite muted.

While the economy's price competitiveness position relates to the ability of firms based in Ireland to sell goods or services at a lower price than firms in competitor countries, the economy's cost competitiveness position relates to the ability of firms here to produce goods and services at a lower cost than firms based abroad. Given that firms in Ireland are generally price takers, cost competitiveness developments have important implications for the profitability and viability of firms in the exporting sector. While over the shorter term firms may respond to nominal effective changes by lowering prices, this may be at the expense of a significant and prolonged squeeze on profits unless over time offsetting adjustments can be made to the cost base. In this sense, cost competitiveness indicators generally give a more accurate reflection of the underlying competitiveness pressures.

The largest costs incurred by firms are typically labour costs and the labour cost of producing one unit of value added may be calculated as follows

$$\text{Unit labour cost} = \frac{\frac{\text{Compensation of employees}}{\text{Number of employees}}}{\frac{\text{Value added}}{\text{Employment}}}$$

Compensation costs comprise pay, employers' social security contributions and other labour

taxes. The compensation level is a more relevant measure in an assessment of international labour costs than wage levels alone as employers' social security contributions can make up a significant proportion of total labour costs, and these contributions as a percentage of overall compensation can vary significantly across countries. Broader definitions of employer labour costs could take account of the cost of recruitment, employee-training, and on-site services such as cafeterias etc, but these items generally only account for a relatively small proportion (less than 5 per cent) of overall labour costs. The number of hours worked can vary considerably across countries due to factors such as differences in the proportion of part-time workers, average working week for full-time workers, minimum statutory annual leave and total numbers of national holidays across countries. Compensation per hour levels rather than compensation per worker levels may offer more informative comparative measures of international labour costs. However, there are stronger data limitations associated with constructed per hour basis series and for this reason, the series underlying the unit labour costs deflated HCIs are constructed using a per employee or worker basis.

Relative unit labour cost measures for the predominantly internationally traded Irish manufacturing, expressed in common currency, provide a useful assessment of cost competitiveness *vis-à-vis* our main trading partners, and such a measure is published by the Bank but is not based on the HCI methodology. A *unit labour cost deflated HCI for the manufacturing sector* is produced but is not published regularly as yet. Two of the difficulties relating to this measure are that competitiveness gains may be overstated due to capital labour substitution within sectors or by shifts in sectoral composition to sectors with lower labour shares. Developments in the chemicals sector, in particular, have tended to drive up measures of productivity growth and push down unit wage costs to such an extent as to reduce the relevance of output-weighted measures given the relatively small weight of the chemicals sector in manufacturing

employment. In order to overcome this drawback, alternative absolute and relative measures attempt to limit the influence of the chemicals sector by (i) excluding it altogether; (ii) weighting by wage shares; or (iii) weighting by employment shares to give a more direct link to fundamental concern with employment risks. Measures (i) and (ii) are published in the Bank's Quarterly Bulletin, along with a series on average wage rates in manufacturing relative to those in 10 major trading partners. The latter series have some appeal as the potentially large distortions introduced by productivity adjustments in the case of unit labour cost based measures are avoided.

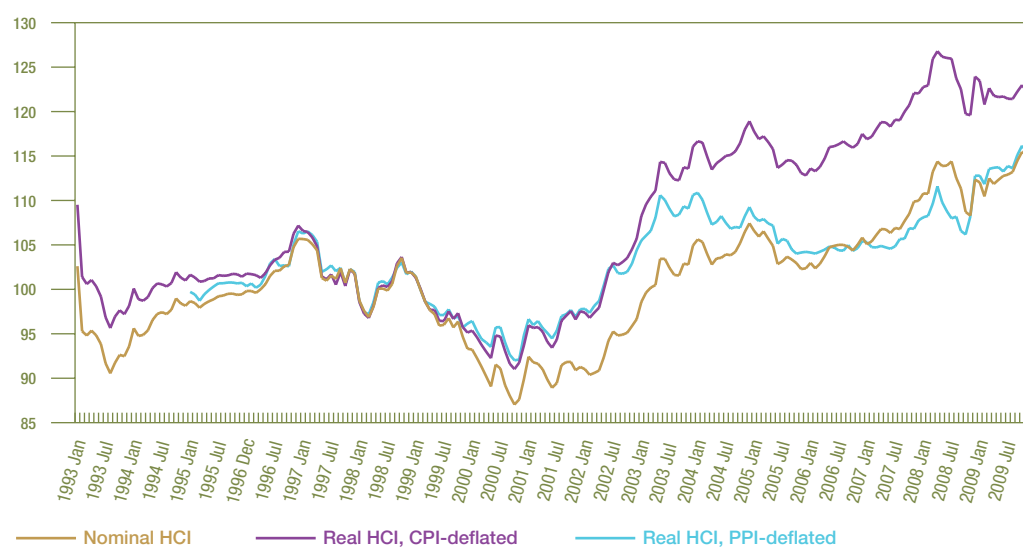
The services sector has often been neglected in analyses of competitiveness, owing largely to data constraints and also the perception that services are non-traded. However, with the expansion of financial and IT related services as well as tourism, services are growing in importance in the overall tradable sector. Even non-traded services are often an input in the production process of the traded sector and hence are an important factor in export competitiveness. For this reason, a *unit labour cost deflated HCI for the whole economy* should also form part of the analysis. The issue of extremely high value added and overstated productivity in the multinational sector remains, and, as a result, economy-wide relative unit wage costs using GNP-based measures of productivity are preferable to GDP-based measures. It is perhaps worth mentioning that although GNP may largely abstract from factor incomes of multinational firms, the GNP-based measure may still be distorted by developments in net interest payments on government debt. Finally, in order to more closely approximate the total cost of production, value added deflators are also used to proxy for relative costs and the broadest measure of cost competitiveness is the *GDP-deflated HCI*. This measure can suffer from distortions due to taxes and subsidies, may not be fully comparable across countries and may be too heavily weighted on non-tradable goods and services.

In conclusion, there are a number of important considerations concerning the usefulness and

appropriateness of the price and labour cost competitiveness indicators:

- There is no single ideal measure of price or labour cost competitiveness as each indicator is subject to different caveats. In view of this, conjunctural assessments of price and cost competitiveness developments should only be reached on the basis of an analysis of a broad set of measures and should be cognisant of the limitations inherent in each measure;
- While the price deflated HCIs give timely indications of the direction the economy is taking in terms of competitiveness and can isolate important factors affecting competitiveness, labour cost measures can be more informative about medium run competitiveness developments but are only available at a substantial lag. In this respect, the preferences for different indicators may tend to be partly influenced by the horizon of the analysis and the timeliness of the data;
- An assessment based on a combination of indicators can be informative. For example, an increase in the ULC-deflated HCI for the whole Irish economy relative to the ULC-deflated HCI for the mainly internationally traded manufacturing sector may indicate heightened inflationary pressures in the sheltered sectors of the economy;
- Certain competitiveness indicators may not be suitable depending on the purpose of the analysis. For example, it may be argued that the ULC-deflated HCI for the Irish manufacturing sector is overly influenced by the high-output but relatively low employment chemicals sector. Consequently, developments in the ULC-deflated HCI may have a tenuous link with employment and welfare consequences. In this regard, competitiveness measures that adjust for this undue influence may be more appropriate for the Irish manufacturing sector; and

Chart 1: Monthly Harmonised Competitiveness Indicators for the Irish Economy, 1999 Q1=100



- Finally, as mentioned earlier, the usefulness of these indicators can depend on whether the assessment is focused on (i) economy-wide or sectoral performance; (ii) the short-term prospects for export performance and market shares; (iii) the trade balance and current account; or (iv) employment and welfare implications. It is outside the scope of this paper to assess econometrically the performance of these indicators in short-term forecasting exercises but further research will perform these tests and develop more sector specific competitiveness indicators.

4. Trends in Ireland's Price and Labour Cost Competitiveness

The appreciation of Ireland's nominal effective exchange rate since the introduction of the euro was quite significant, at close to 17 per cent (see Chart 1). Given that a disproportionately high share of Ireland's exports are destined for non-euro area countries (just over 60 per cent in 2008), the euro exchange rate appreciation weighed more heavily on the economy's price competitiveness relative to all other euro area countries. The consumer price deflated HCI indicates an

additional 9.2 percentage points deterioration in competitiveness due to relative price developments, the largest deterioration among all euro area countries. While trends in the PPI-deflated HCI and the nominal HCI have diverged during the past decade, relative producer prices on a common currency basis were comparable in recent years to the corresponding relative prices at the introduction of the euro. This would suggest that the deterioration in manufacturing price competitiveness was due, almost exclusively, to exchange rate movements. The culmination of all of these developments, in terms of the current competitiveness position, will be examined in the next section while the short-term competitiveness outlook is discussed in the Domestic Economy Chapter of the Quarterly Bulletin.

Turning to labour cost competitiveness, developments in manufacturing and the total economy have been markedly different over the past decade (see Chart 2). Indeed, the period since the mid-1990s can be decomposed into three distinctive phases in terms of the evolution in competitiveness (see Table 1). During the mid- to late 1990s, competitiveness improvements in manufacturing were quite dramatic but these improvements were not reflected in the whole economy where gains in

Table 1: Quarterly HCI, annual average percentage increases

	HCI GDP deflated	HCI ULC deflated Manufacturing	HCI ULC deflated Total Economy (GDP-based)	HCI ULC deflated Total Economy (GNP-based*)
	%	%	%	%
1996-1998	2.5	-7.7	-1.1	-0.7
1999-2003	2.7	-3.9	0.6	1.2
2004-2008	1.4	2.3	4.5	4.4

*GNP-based ULC for Ireland and GDP-based for trading partners.

competitiveness were on a much more modest scale. Within manufacturing, the chemicals and ICT sectors were the main driving forces behind strong productivity improvements in the modern sector, with this sector significantly outperforming the more traditional sectors. Due to a combination of modest wage increases and strong productivity gains during the mid- to late 1990s, the Irish economy was generally considered to have been "super-competitive" at the beginning of this decade. During 1999 to about 2003, however, trends in cost competitiveness altered such that the competitiveness levels in the manufacturing sector continued to improve, albeit at a more moderate pace, but the total economy began to experience a modest deterioration in competitiveness. Thereafter, the broader economy recorded significant declines in competitiveness.

It is worth considering the driving factors behind the movements in the HCIs during the two most recent phases. It is possible that the unfavourable dynamics in competitiveness since 1999 may reflect to some extent relatively lower initial price or cost levels or relatively high cumulative income increases. However, the 'super-competitive' starting point factor and the 'catching-up' or convergence effect are likely to have run their course during the early part of this decade. Focusing on a euro area comparison allows abstracting from the sometimes volatile exchange rate movements and can help to isolate the impact of compensation and productivity trends. As can clearly be observed from Table 2, compensation growth in Ireland remained persistently high relative to that in the euro area after 2003 (in fact, the differential widened by

Chart 2: Harmonised Competitiveness Indicators for the Irish Economy, 1999 Q1 = 100

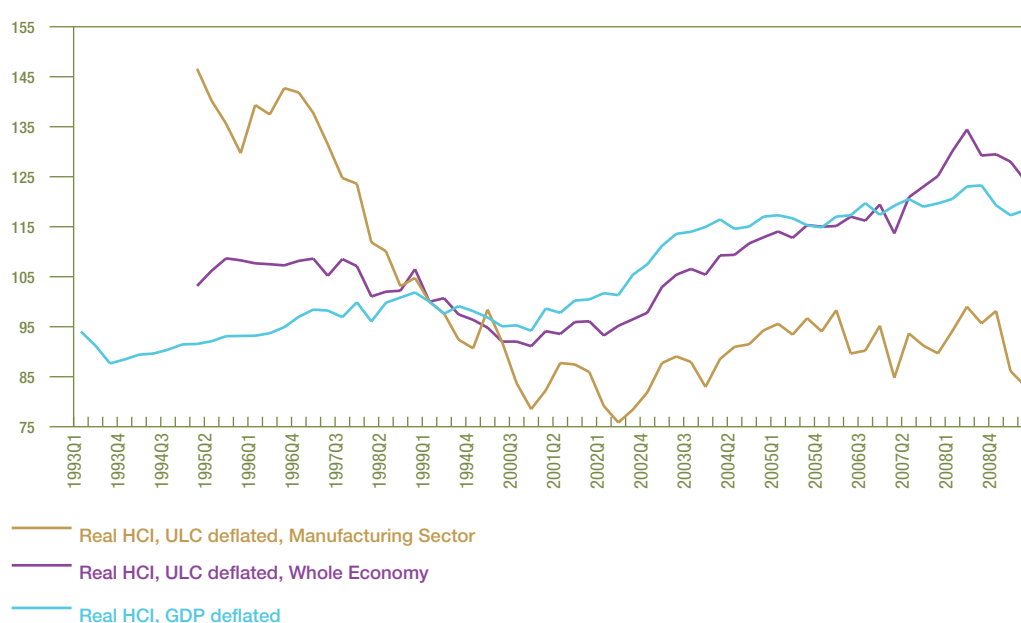


Table 2: Compensation per employee increases and value added per worker growth, differentials between Ireland and euro area (12 country composition)

	Total Economy		Industry***	
	1999-2003	2004-2008	1999-2003	2004-2008
Compensation per employee increases	3.8	2.5	3.1	2.6
Productivity growth*	3.1	-0.1	6.4	3.2
Unit labour cost growth**	0.1	2.7	-3.1	-0.5

*Total economy productivity is GNP-based for Ireland; **Unit labour cost growth can serve as a rough proxy for intra euro area ULC-deflated HCl; ***Industry including energy, taken as a proxy for manufacturing. Sources: CB calculations and ECB.

almost 2 percentage points), despite a significant fall-off in productivity growth. In more recent years, the Irish economy showed signs of overheating and the higher cumulative inflation in Ireland compared with the euro area average stemmed partly from positive output gap differentials. Indeed, the composition of growth changed during this decade from export-led to domestic demand driven growth. The strong personal consumption growth and the unsustainable housing construction boom only temporarily counter-balanced the adverse consequences of the significant deterioration in competitiveness on the economy's growth rate.

5. Ireland's Current Price and Labour Cost Competitiveness Position

The HCIs can illustrate the relative *trends* in competitiveness with reference to an arbitrarily chosen base year, but do not describe the competitiveness *level* or position relative to trading partners at any given point in time. In this respect, it is also helpful to assess how the price and cost deflators compare in levels.

Price and Cost Components of HCIs in Levels

The price level in Ireland was much higher than in important trading partners in 2008.

Consumer good prices were the third highest and 14.5 per cent higher than the average in the euro area, while consumer services were the second highest and 28.5 per cent higher than the average. As can be observed from the comparative breakdown of consumer prices in Chart 3, the price levels are particularly high in areas such as housing and utilities (water, electricity and gas), communications, and restaurant and hotels. Prices are also especially high for alcoholic beverages and tobacco but the competitiveness implications of these items are less obvious. Although the gap in consumer prices has narrowed somewhat in the meantime, with annual average HICP inflation in Ireland 2.0 percentage points lower than in the euro area during 2009, the price level remains relatively high⁴. The resulting common currency price ratio in the consumer price deflated HCl level is significantly greater than one, which would indicate that the Irish economy is in a weaker competitiveness position with respect to its main trading partners. Similarly, the price level for total goods and total services, and the price level for all goods and services, are significantly higher than in main trading partners, bar the UK in the case of capital goods.

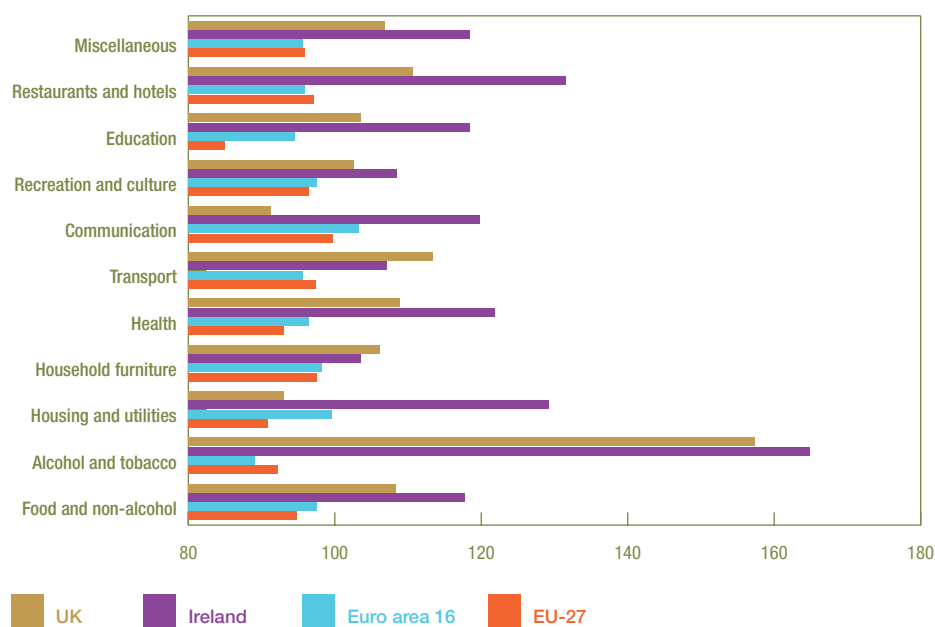
⁴ The competitiveness implications of relatively high consumer prices are discussed in detail in Cassidy and O'Brien (2007), "Ireland's Competitiveness Performance", Central Bank Quarterly Bulletin 2007, 2.

Table 3: Comparative Price Level Indices in 2008, EU15=100

	Goods			Services		GDP
	Consumer goods prices	Capital goods prices*	Total goods prices*	Consumer services prices	Total services prices*	
Ireland	114.6	104.3	108.5	127.6	120.4	113.9
Euro area	100.1	95.9	96.8	99.3	96.7	99.2
EU27	97.6	97.5	97.3	94.2	92.7	95.4
UK	95.0	117.5	110.3	95.7	104.8	96.2

*Data for 2007. Source: Eurostat. Note: Total goods include consumer goods that are classified as part of household final consumption expenditure (HFCE), and capital goods belonging to gross fixed capital formation (GFCF). Consumer goods include only goods from HFCE, while capital goods are all classified under GFCF. Total services include services classified under HFCE in addition to government services (individual and collective).

Chart 3: Consumer Goods and Services Component Price Levels, EU15 = 100, 2007



Irish labour costs in levels, on a common currency basis, for the whole economy and manufacturing are presented in an international perspective in Table 4 below. It should be noted that such comparisons come with a number of important caveats. In particular, the compensation levels are not adjusted for differences across countries in age, educational attainment and sectoral composition. In view of this, the following comparisons should be seen as rather crude and treated with caution. Labour costs on a per employee basis across the Irish economy are about 20 per cent higher than the euro area average in 2008. A somewhat different picture emerges for the mainly internationally traded industrial sector. Although compensation per employee was 18 per cent higher than the euro area average, the compensation per hour in Ireland was lower than the corresponding euro area average. This would suggest that

compensation levels in the more sheltered sectors of the Irish economy are likely to be significantly higher than those in the main trading partners.

Comparison of cross-country labour costs have sometimes been presented in purchasing power parity (PPP) terms and it is important to point out that this is not appropriate in an assessment of international labour cost competitiveness. If multinational firms were to make foreign investment decisions purely on a labour cost basis, they would make those decisions on the basis of labour costs in common currency terms and not in PPP terms. Given that Ireland has relatively high price levels, compensating workers for higher local prices would clearly put firms based here at a significant competitive disadvantage compared with firms exporting from countries with lower price levels. In fact, only relatively higher productivity levels could be used to justify

Table 4: Compensation levels in euro in Ireland and trading partners, 2008

	Total Economy		Industry*	
	Per employee	Per hour	Per employee	Per hour
Ireland	45,980	26.63	47,743	22.34
Euro area	35,700	23.61	40,426	25.79

*Data for 2007. Industry including energy, taken as a proxy for manufacturing for Ireland and Euro area (12 country composition). Sources: CB calculations, EC AMECO, EU KLEMS, OECD Taxing Wages and US Bureau of Labour Statistics.

Table 5: Productivity levels (value added per worker) in euro, 2008

	Total Economy	Industry*
Ireland (GDP-based)	70,650	162,470
Ireland (GNP-based)	63,120	—
Euro area	49,670	60,070

*Data for 2007, Value added in 2000 prices, Euro area (12 country composition), Industry including energy, taken as a proxy for manufacturing. Source: CB calculations, CSO and ECB.

higher labour costs as in this case labour costs per unit produced may be contained, with little impact on the competitiveness position. A study of compensation levels on a PPP-basis is more relevant when assessing living standards i.e. this takes into account what workers can purchase in a given country according to their average compensation level.

Turning to productivity levels, GNP per worker in Ireland is higher than GDP per worker in the euro area (see Table 5). While the aggregate industrial sector appears to remain in a healthy competitiveness position, this largely reflects the performance of a small number of high-technology multinational firms that have very high productivity levels. The latter may be partly attributable to returns to intangible factors such as R&D and marketing activities, which are often undertaken outside Ireland, and so productivity levels in Irish manufacturing are overstated. Unfortunately, only a gross value added series is available and no GNP-type adjustment is feasible. Meanwhile, the competitiveness position of many indigenous firms in more traditional sectors is much less favourable, with the weaker sterling, in particular, weighing heavily on the competitiveness of many of these firms.

Unit labour costs in Ireland were close to the euro area average on a GDP basis in 2008 but, on a GNP basis, unit labour costs are higher

than the euro area (see Table 6). This would indicate that the overall labour cost competitiveness position in Ireland is comparatively weak, even when adjusting for productivity. In contrast, in the industrial sector, the unit labour costs are dramatically lower and are boosted both by the relatively lower labour costs and particularly by the markedly higher productivity levels. However, as above, the relatively low unit labour costs for this sector should be interpreted with caution as they are not broad-based and include significant returns to intangible activities undertaken elsewhere.

HCIs and information on the relative levels of their respective price and cost deflators still cannot reveal whether the real exchange rate is overvalued or not. A model of the long run real exchange rate is necessary in order to properly distinguish relative price changes that represent movements towards an appreciating equilibrium exchange rate from relative price changes due to overheating in the economy. It is important to note that model-based estimates of the equilibrium exchange rate level are surrounded by a high degree of uncertainty. While the findings from a range of approaches that have been applied recently to Ireland, should only be taken as indicative, there appears to be broad evidence suggesting that the real exchange rate was overvalued in 2008⁵.

⁵ See, for example, IMF 2009 Article IV Ireland Consultation and also the European Commission Quarterly Report on the Euro Area Volume 8, No. 1 2009.

Table 6: Unit Labour Cost Levels, Euro area = 100, 2008

	Whole Economy	Industry*
Ireland (GDP)	93	40
Ireland (GNP)	104	—
Euro area	100	100

*Data for 2007, Industry including energy, taken as a proxy for manufacturing, Euro area 12 country composition. Sources: CB calculations, CSO and ECB.

6. Conclusions

This article describes recent trends and the current levels of the price and labour cost aspects of Ireland's competitiveness. The competitiveness of the Irish economy is especially important given the economy's dependence on international trade and foreign direct investment. As devaluation is no longer a policy option, even greater emphasis is placed on price and wage adjustments to generate improvements in competitiveness.

Notwithstanding the focus on a narrow meaning of competitiveness, price and labour cost competitiveness indicators generally can play a role in short-term forecasting and may also be helpful in signalling emerging imbalances and vulnerabilities of the economy. This may enable more timely policy adjustments but it is important to understand the underlying nature of the competitiveness trends and imbalances in the economy as different policy responses may be required. In this regard, price and labour cost competitiveness indicators should only form one element of the assessment of the competitiveness position.

The challenges of measuring price and labour cost competitiveness for the Irish economy are discussed in detail in this article. The approach to the compilation of harmonised competitiveness indicators, which were jointly developed by the Bank, other national central banks and the ECB, has been explained. Aside from their harmonised nature, these indicators have important properties such as the large set of trading partners to allow for the growing geographical diversification of trade and the use of a double weighting scheme to account for third market effects. Still, the respective indicators have merits and drawbacks and particularly when applied to Ireland. There is also some discussion of alternative competitiveness indicators developed by the Bank, which attempt to limit the undue influence of some distinctive features of Irish economy. The merits of the various indicators were highlighted with a view to clarifying the suitability of different sets of indicators to particular analyses. However, certain indicators suffer from potentially large distortions and avenues for addressing these issues via, for

example, the development of more sector-specific indicators, will be explored in future research. Furthermore, it would also be helpful to econometrically test the usefulness of these competitiveness indicators for forecasting at the whole economy and sectoral levels.

According to a range of the Bank's economy-wide competitiveness indicators, the Irish economy has experienced substantial losses in price and labour cost competitiveness during the past decade. In the early part of this decade, the appreciation in the real exchange rate could be explained by the unsustainability of a 'super-competitive' starting point and perhaps the final throes of a 'catching-up' process. Further into the decade, the strong personal consumption growth and the housing construction boom may have temporarily counter-balanced the consequences of the significant deterioration in competitiveness on the economy's growth rate. When the domestic demand boom came to an end, the consequences for an Irish economy characterised by uncompetitive price and labour costs, became more apparent and particularly acute in the context of a sharp contraction in world demand. This has weighed especially heavily on the more indigenous and labour intensive exporting sectors, with adverse sterling exchange rate movements exacerbating these vulnerabilities. With the prospect of a muted recovery in demand in important trading partners, regaining price and labour competitiveness needs to be a key priority in order to make Irish firms more robust to adverse shocks and to sustain an export-led recovery in the economy.

References

- Cassidy, M. and D. O'Brien, (2007), "Ireland's Competitiveness Performance", *Central Bank Quarterly Bulletin* 2007 2.
- Ca'Zorzi, M. and B. Schnatz. (2007), "Explaining and Forecasting Euro Area Exports: Which Competitiveness Indicators Performs Best?", ECB Working Paper No. 833.
- Cerra, V., J. Soikkeli and S. Saxena, (2002), "How Competitive is Irish Manufacturing?",

The Economic and Social Review, Vol. 34,
No.2 Summer/Autumn, pp173-193.

Krugman, P. (1994), "Competitiveness: A
Dangerous Obsession", *Foreign Affairs* 73
no.2, March/April.

Honohan, P. and B. Walsh, (2002), "Catching
up with the Leaders: The Irish Hare",
Brookings Papers on Economic Activity,
1:2002.

Lane, P. (2004), "Assessing Ireland's Price and
Wage Competitiveness", *National
Competitiveness Council Discussion Paper*,
July.

McAleese, D. (2005), "Policy Objectives and
Competitiveness for a Regional Economy",
in *The Economy of Ireland, National and*

Sectoral Policy Issues, Eds. O'Hagan, J. and
C. Newman.

National Competitiveness Council, Annual
Competitiveness Report, various editions.

Neary, J.P. (2006), "Measuring
Competitiveness", *The Economic and Social
Review*, Vol. 37, no. 2 Summer/Autumn,
pp.197-213.

Ottaviano, G., D. Taglioni, and F. di Mauro
(2009), "The Euro and Competitiveness of
European Firms", *Economic Policy*, Vol. 24,
Issue 57, pp. 5-53.

Turner, P. and J. Van't Dack (1993),
"Measuring International Price and Cost
Competitiveness", *BIS Economic Papers*,
no. 39.

