The Real Exchange Rate, Fiscal Policy and the Current Account: Interpreting Recent Irish Experience

Brendan Walsh*
University College, Dublin

Abstract: This paper examines the Irish macroeconomic adjustment over the period since 1979 with particular reference to the interaction of the real exchange rate with the balance between national saving and investment. The transition from a large current account deficit to an exceptional surplus and the reversal of the growth in external indebtedness are discussed. The fact that a major reduction in absorption was achieved without a real exchange rate depreciation is attributed to a simultaneous reduction in investment spending relative to GDP and an improvement in the relative efficiency of the industrial exporting sectors. These factors are likely to continue to exert upward pressure on the Irish real exchange rate.

Keywords: Fiscal policy; Current account; Real exchange rates.

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Address:
Department of Economics,
University College, Dublin 4
Ireland.
e-mail: bwnwalsh@ollamh.ucd.ie
fax: +353-1-283 0068
phone: +353-1-706 8320
I. Introduction

During the 1980s the Irish economy underwent profound structural change. A major fiscal imbalance was corrected and a chronic current account deficit transformed into a surplus. The share of exports in national product soared. These outcomes were accomplished without a real exchange rate depreciation, which is frequently seen as a prerequisite for such structural adjustment.

This paper examines these developments, focusing on the interaction between the saving-investment balance, the current account and the real exchange rate in the adjustment process.

The next section contains a brief review of some relevant theory. The behaviour of the key macroeconomic variables in Ireland since 1979 is summarised in the third section. The fourth section relates this evidence to the theoretical issues outlined earlier. The paper concludes with a discussion of some of the implications of the findings.

II. Exchange Rate Economics

In international trade theory, the equilibrium real exchange rate, $e$, is defined as the relative price of traded and non-traded goods:

$$ e = p_{nt}/p_t $$

Figure 1 shows the standard derivation. The production possibilities frontier (PPF), or transformation curve of non-traded into traded goods, is tangent to the highest attainable indifference curve at point A. The slope of the tangent through this point represents the price of non-traded in terms of traded goods, which is the equilibrium real exchange rate. At the point A net exports, $NX$, are zero. Domestic absorption of non-traded goods equals domestic production of these goods, whilst the value of the traded goods produced equals the value of the absorption of these goods. The country is on its PPF and there is no lending or borrowing to or from the rest of the world. National saving, $S$, equals national investment, $I$.

This model implies that the real exchange rate changes due to exogenous changes in technology, tastes, and relative incomes. A shift in preferences towards non-traded goods (a flattening of the indifference curve in Figure 1) leads to a real appreciation, as does an increase in the relative productivity of the traded goods sector. An extension of the model to two or more traded goods can be used to show how, under full employment, a boom in one traded goods sector is likely to lead to a real appreciation and a decline in the other ('the Dutch disease').

Empirical research on exchange rates has been heavily influenced since the 1920s by the theory of purchasing power parity (PPP). Although they have developed as separate traditions in economics, PPP and equilibrium exchange rate theory are mutually consistent. The strong or absolute version of PPP states that arbitrage will ensure that the cost of a common basket of goods in two countries will be equal when measured in a common currency:

$$ ep/p^* = 1 $$

or, equivalently,

$$ e = p^*/p $$

where $e$ is defined as the foreign price of a unit of domestic currency.

To see the link between this approach and the equilibrium exchange rate defined above, recall that in (1) both price levels were measured in domestic currency. The domestic price of traded goods or imports is the world price, $p^*$, divided by the nominal exchange rate, $e$. The real exchange rate can therefore be written as

$$ e = (p_{nt}/p^*) $$

The overall price level, $p$, is a weighted average of the price of traded and non-traded goods, but the price of traded goods in foreign currency is simply the world price of these goods, so a rise in the real exchange rate as defined above implies an increase in the ratio of the local price level expressed in foreign currency to the world price level. In empirical work the real exchange is therefore often expressed as the nominal exchange rate times ratio of domestic to foreign prices:

$$ e = (p/p^*) $$

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1 For a recent survey of exchange rate economics, see Taylor (1995).
It follows that the rate of change in the real exchange rate equals the difference between the rate of change in the nominal exchange rate and the differential between domestic and world inflation:

$$\Delta c = \Delta e \cdot (\pi^* - \pi)$$  \hspace{1cm} (5)

where $\Delta e$ denotes the rate of change and $\pi$ is the rate of inflation.\(^2\) The weak version of PPP states that the rate of change in the nominal exchange rate reflects inflation differentials:

$$\Delta e = \pi^* - \pi$$  \hspace{1cm} (6)

which implies $\Delta e = 0$. This perspective has led to a burgeoning literature that tests PPP by exploring the time series properties of real exchange rates.

We saw that in equilibrium aggregate expenditure equals aggregate income. This implies that $NX=0$ and hence that $S+I$. However, the current account of the balance of payments, $BoP$, includes current transfers ($R$), and interest, profits, and other factor payments ($F$), as well the trade balance:

$$BoP = X - M + F + R = NX + F + R$$  \hspace{1cm} (7)

Whereas in most countries factor payments to the rest of the world are small and dominated by interest payments on net external assets, in Ireland profit remittances by multinational corporations are a major component of $F$ and quite significant relative to GDP. Furthermore, whilst in most industrialised countries $R$ is a small net outflow, mainly overseas development assistance, in Ireland there is a sizeable net inflow due to large current transfers from the European Union.

This definition of the current account allows for capital mobility and the fact that in a multiperiod model it is no longer necessary for net exports to be zero. National saving, $S$, may exceed or fall short of investment, $I$. However, the current account surplus (deficit) must equal the capital account deficit (surplus).\(^3\) The link between the current account and the saving-investment balance is the capital inflow, $CF$, or net foreign disinvestment,

$$S - I = BoP = -CF$$  \hspace{1cm} (8)

This implies that the amount available for domestic capital formation equals national savings plus net foreign disinvestment:

$$I = S - BoP = S + CF$$  \hspace{1cm} (8')

\(^2\)In periods such as the present where inflation rates in the main countries are very similar, changes in nominal exchange rates imply nearly equivalent changes in real exchange rates: $\Delta c = \Delta e$.

\(^3\)Ignoring movements in official foreign reserves and measurement error - the net residual in the balance of payments.

**Ex post** the quantity of domestic currency supplied for the purchase of foreign assets by domestic residents must equal the quantity demanded for net exports, factor flows and current transfers. Equilibrium is attained by the real exchange equalising the *ex ante* levels of $BoP$ and $S-I$. This is facilitated through the response of $NX$ to the real exchange rate. Figure 2 captures the salient features of this model. It is assumed that the domestic real interest rate cannot deviate from the "world" level (implying perfect capital mobility). The level of investment spending, $I$, slopes downward with respect to the real exchange rate - a strong currency deters investment through its effect on the competitiveness of the traded sector - and hence the $S-I$ balance slopes upward. The $BoP$ schedule is also downward-sloping with respect to the real exchange rate because $NX$ are inversely related to $e$. The real exchange rate is the variable that ensures that in equilibrium the *ex ante* current account balance equals, but is opposite in sign to, the capital account balance.

![Figure 2](image)

**Figure 2**: Saving, Investment and the Balance of Payments

Exogenous factors that lead to an improvement in the current account of the balance of payments require changes in the equilibrium real exchange rate. A relevant example is a successful export promotion policy, which shifts the $NX$ outward. Similarly, because a fiscal expansion shifts the $S-I$ schedule it requires a fall in the current account surplus, which would be induced by a real exchange rate appreciation (Figure 3).\(^4\) This leads to the prediction that, with a floating exchange rate and an exogenously-determined interest rate, a fiscal expansion that is not accompanied by a monetary expansion requires a real exchange rate appreciation. Net exports are crowded out to facilitate increased absorption of output in the domestic economy.

\(^4\)The amount of the real appreciation required to restore equilibrium depends on the elasticity of the $NX(e)$ function. If PPP holds, then this function is very elastic and large shifts in the $S-I$ balance can be accommodated by small changes in the real exchange rate.
An alternate view of the effect of fiscal policy on the exchange rate can be developed using interest rate parity theory. According to the uncovered interest parity (UIP) condition, the domestic interest rate equals the world interest rate less the expected appreciation of the currency:

$$i = i^* - E(\Delta e)$$  \hspace{1cm} (9)

However, most empirical studies have found that this proposition is a poor guide to the behaviour of interest rates. For example, there has been a strong tendency for the dollar to appreciate when US interest rates are above comparable rates in the rest of the world - in contrast to the depreciation predicted by the UIP model (Thaler, 1992, Ch. 14). It is common to try to account for this finding by adding a risk premium term, $\Phi$, to the equation:

$$i = i^* - E(\Delta e) + \Phi$$ \hspace{1cm} (10)

It is plausible that a persistent fiscal deficit, which implies a growing stock of government bonds, will cause $\Phi$ to increase, leading to a widening of the differential between domestic and world interest rates. Another possibility is that rising country risk would be reflected in an overshooting of the exchange rate. An anticipated appreciation of the currency could substitute for an increase in interest rates as a mechanism for persuading investors to hold bonds. For markets to anticipate an appreciation the exchange rate would have to fall below its perceived long-run equilibrium value. Thus, it is possible for a risk premium to be reflected in an overshoot exchange rate rather than an interest rate premium:

$$i = i^* and \, \Phi = E(\Delta e)$$ \hspace{1cm} (11)

If this is how markets treat country risk, the implication is that a fiscal expansion which leads to an increased risk premium could cause the exchange rate to depreciate.

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The contrast between the situation depicted in Figure 1, where $NX=0$ and the country is on its PPF, and that depicted in Figure 2, where even $BoP$ need not be zero, reflects the single-period framework underlying Figure 1. In Figure 1 there are no interest payments on past borrowings, but in the multiperiod framework implicit in Figure 2 interest payments on past borrowings are usually the main component of $F$. In this model a current account deficit can be financed by foreign borrowing and a surplus invested abroad. This is realistic in as much as countries do lend to and borrow from one another. However, Feldstein and Horioka (1980) established a very significant correlation between national saving and national investment, both over time and across countries, and Feldstein (1994) showed that while this correlation fell slightly during the 1980s, presumably due to the growing integration of world capital markets, it has remained very significant. Countries are constrained by the discipline of financial markets in their ability to run persistent current account surpluses or deficits. For this reason it is tempting to define the long-run equilibrium value of $e$ as that which is consistent with $BoP = 0$.\footnote{This Burda and Wyplosz define the long-run equilibrium real exchange rate as that which induces producers and consumers to generate the primary balance of payments that matches the country's net foreign asset position (1993, Chapter 7).}

However, given the increased integration of financial markets and the growing importance of international capital flows, it is reasonable to think of the "fundamental" equilibrium real exchange rate as one which does not result in changes in official foreign exchange reserves - in other words, that which produces a current account surplus (deficit) that matches the sustainable flow of capital out of (into) the country.\footnote{This term is used by John Williamson (1994).}

Consider what the condition $BoP=0$ implies for the primary current account or $NX$. Assuming for the moment that current transfers, $R$, are zero, if a country is experiencing a net outflow of
factor payments, \( F < 0 \), then for the overall current account to be balanced, \( BoP = NX + F = 0 \), it is necessary that \( NX > 0 \). Thus a country with an outflow of factor payments to the rest of the world must run a balance of trade surplus to achieve a sustainable overall current account. This implies that the exchange rate must depreciate relative to the situation where \( F = 0 \). This is shown in Figure 4. For a given level of national saving and investment, a zero overall balance of payments, \( BoP=0 \), will be achieved at \( \varepsilon(1) \) when \( F = 0 \), but when \( F < 0 \) the real exchange rate must fall to \( \varepsilon(0) \).

If the PPP exchange rate can be equated with the equilibrium exchange rate of international trade theory, then it would be the one consistent with \( NX=0 \), namely \( \varepsilon(1) \) in Figure 4. It follows that in the presence of factor outflows the equilibrium exchange rate, \( \varepsilon(0) \), is below the PPP rate. A country that has to service external debts needs to have an exchange rate that is undervalued by the PPP criterion in order to generate the balance of trade surplus that will lead to a sustainable overall current account.

Evidence

The contribution of theory to our understanding of the behaviour of exchange rates has been questioned. For example, Neary (1988) refers to the difficulty of "determining how far actual real exchange rates diverge from their equilibrium values" (p. 214). It has also been pointed out that although theory implies that the behaviour of the real exchange rate should be independent of the exchange rate regime, there is evidence of increased volatility under floating than under fixed exchange rate regimes. Following a review of empirical research on equilibrium exchange rates Taylor (1995) concludes:

Overall, although the empirical evidence rejects the very simplest equilibrium models, it is not possible at this stage to draw any firm conclusions concerning the empirical validity of the whole class of equilibrium . . . models. [p. 32]

It is also generally accepted that the data do not support either the strong or weak version of PPP. The data on national price levels compiled by Heston and Summers (1991) do not support the absolute version of PPP. They show that

. . . not only do exchange rates differ significantly from corresponding PPPs, but they do so in a systematic way: the national price level of a country, defined as the ratio of its PPP to its exchange rate, is a rising function of the level of its income or stage of development. [p. 335]

This finding is usually interpreted as reflecting the tendency for productivity in traded goods to rise more rapidly in developing than in developed countries (Balassa, 1964). The price index includes both traded and non-traded goods, whereas the exchange rate reflects the prices of traded goods only. The rising productivity of the traded goods sector drives up the exchange rate more rapidly than it reduces the overall price ratio. We would therefore expect a real exchange rate appreciation as the gap in productivity between Ireland and the rest of the industrialised world is narrowed.

The weaker version of PPP, which implies that the real exchange rate is constant or mean reverting, has been intensively tested in recent years. Following a survey of this literature, Blaney and Mizen (1995) conclude that "the findings vary considerably for different time periods, exchange rate regimes and test procedures". In particular, they show that while tests based on data for the 1920s and on long time series for the nineteenth century may support PPP, "the evidence from the recent [post-1973] floating rate period is predominantly against mean-reversion in the real exchange rate" (p. 123). Studies of currencies participating in the exchange rate mechanism of the European Monetary System, as well as the behaviour of the dollar/euro and other bilateral exchange rates, have been largely unfavourable to PPP. In a large majority of cases it has proved difficult to establish cointegrating relationships between exchange rates and price levels in the participating countries or to reject the hypothesis that real exchange rates have unit roots.

However, it has been argued that while the evidence from the long-run relationship between relative prices and exchange rates is against traditional PPP, "there is now considerable evidence suggestive of a long-run relationship . . . in the sense that these variables are cointegrated" (MacDonald, 1995, p. 480). The low power of the relevant tests raises questions about the economic significance of finding that the data cannot reject the existence of a unit root. It is important to distinguish between a "statistical equilibrium", which is usually the main concern of those doing time series tests of PPP, and a "true" or "economic" equilibrium, which is that defined by an economic theory of exchange rates. The former is "simply the one captured by the particular econometric or statistical technique used to estimate the long-run exchange rate" (ibid). The latter is based on a long-run relationship between relative prices and exchange rates which ensures that a relevant balance of payments criterion is observed and may not confirm the PPP hypotheses of proportionality and symmetry between these variables. As noted above, the growing integration of world capital markets makes it less likely that a country's current account will be balanced even over the longer run. When account is taken of this possibility, MacDonald believes that the available research supports the existence of a "sensible" long-run relationship between exchange rates and relative prices - namely, one that is consistent with sustainable capital flows - and that adjustment to this equilibrium is relatively rapid.

We have seen that the standard model implies that a fiscal expansion leads to a real appreciation. Variants of this model have been invoked to explain the sharp real appreciation of the US dollar during the fiscal expansion in the first half of the 1980s, the real appreciation of the German mark in the early 1990s following the fiscal expansion associated with German Economic, Monetary and Social Union, and the rise in the yen following the emergence of a fiscal deficit in Japan in the early 1990s. In all three episodes monetary discipline was maintained - as assumed in the model that predicts that a fiscal expansion will lead to a real exchange rate appreciation. The appropriateness of this model to the analysis of the weakness of the US dollar and the effects of fiscal laxness on several smaller European currencies in the first half of the 1990s is debatable. In fact, many commentators blame the secular weakness of the US dollar on the looseness of US fiscal policy and assert that a strengthening of the currency requires a reduction in the budget deficit. The following quotation is representative:

. . . the dollar's poor state of health is surely conveying a message: America must reduce its large current account deficit, either by balancing its budget or by
boosting private savings. Otherwise the recent bounce in the dollar will prove to be temporary, and the currency will suffer the same fate as sterling.\(^8\)

During the first half of the 1990s countries such as Finland, Italy, Spain and Sweden all experienced widening of interest rate differentials (relative to Germany) as a consequence of rising fiscal deficits. Investors demanded higher yields on government bonds and exerted downward pressure on exchange rates as a risk premium associated with unsustainable fiscal and monetary policies (International Monetary Fund, 1995).

An alternative interpretation of some recent trends can be based on the consideration that a country whose overall current account is in deficit needs to run a trade surplus to service its growing stock of external debt. In the long run this would require an exchange rate that is undervalued by the PPP criterion. There is some evidence that this is the case. Departures from PPP are correlated with the overall current account balance: countries with current account surpluses, such as Switzerland and Japan, tend to have currencies that are overvalued by the PPP criterion, while deficit countries, such as the US, tend to have undervalued currencies.\(^9\)

It is clear, therefore, that there are many possible interpretations of the equilibrium exchange rate. It is difficult to say whether any observed level of a currency is above or below its long run equilibrium level. Moreover, different models yield different predictions about the direction of the effect of a change in fiscal policy on the exchange rate. With these points in mind, we turn to an examination of the recent Irish experience.

### III. The Irish Experience

The performance of the Irish economy since 1979, the date of our entry to the exchange rate mechanism (ERM) of the European Monetary System, provides an interesting case study of the interaction between fiscal policy and the exchange rate. The basic macroeconomic data, based on the latest revisions to the national income accounts, are presented in Table 1.\(^10\) The following subsections review the stylised facts of the Irish economy. The next section contains a discussion of how the historical facts may be interpreted.

#### The real exchange rate

When studying the behaviour of the Irish pound real exchange rate some unusual features of the Irish situation need to be borne in mind.


\(^9\) The Economist (August 26th, 1995) reproduces a scatterplot showing that among 16 OECD countries this correlation is very significant. The chart is based on a study by Merrill Lynch, the US investment firm.

\(^10\) The data on which this review is based are taken from the 1994 and earlier editions of National Income and Expenditure, summarised in an Appendix table. The 1992 edition of NIE incorporated important methodological changes in the data for the period 1986-92. The pre-1986 data have not yet been adjusted. Estimates of some of the key variables for 1993 and 1994 are also shown, taken for the most part from recent Central Bank Quarterly Reports.

Ireland's trade is diversified geographically. About one third of trade is with the sterling area, one third with the continental European countries, and one third with the rest of the world. Since 1979 the Irish pound has been floating relative to sterling - except for the 23 months when that currency participated in the ERM - and quasi-pegged to the DM and the other currencies that were in the narrow band of the ERM until this was scrapped in mid-1993. There have been periods when the Irish currency moved in different directions relative to the DM and sterling, which makes the measurement of "the" exchange rate sensitive to the choice of weights used to combine bilateral rates into an overall index.\(^11\) Ireland's trade with the sterling area is more price sensitive - and also more labour intensive - that denominated in continental currencies or in dollars. This has led to some debate about the appropriate weights to use when combining the bilateral exchange rate into a single index.

The measurement of the real exchange rate is also sensitive to the choice of price indices used to reflect the domestic and foreign price levels. Some studies have used retail or consumer prices, as much for ease of availability as for theoretical reasons. Wholesale or producer prices may be more appropriate, but are less readily available. While the difference between a real exchange rate based on different price indices is not very great, dramatically different results are obtained if relative unit (labour) costs are used instead of price deflators (see below).

For a long perspective on the behaviour of Irish prices and the exchange rate we may look at the Irish pound sterling (IR£/ST£) exchange rate and relative Irish/British inflation. Data on the trend in retail prices in Ireland and Britain are available since the early twentieth century. The series show a strong common trend: between 1927 and 1978 - when the two currencies were locked in a no-margins peg - the deviation in the trend growth rate of Irish and British prices was about 0.5 per cent a year. Most of this was accounted for by an exceptional rise in the relative Irish price level during the second world war (Honohan, 1994). While it is true that following the break of the sterling link in 1979 there were significant short-run divergences between Irish and British prices in a common currency, none the less, since the 1970s cumulative Irish inflation has been just a little higher than in the UK, and the exchange rate has returned to the vicinity of parity - much as the purchasing power parity theory of exchange rates and inflation would predict. [Honohan, 1993, p. 26]

After joining the ERM the Irish pound appreciated in real terms relative to the DM. This was a reversal of the pre-EMS experience, when the link with sterling led to a secular real depreciation relative to the DM (see Leddin and Walsh, 1994, Chapter 20). High inflation persisted in Ireland well into the 1980s despite the change in the nominal exchange rate peg from sterling to the DM in 1979. While there were frequent realignments of the Irish pound central rate over the period 1979-85, resulting in a fairly steady depreciation of the Irish pound relative to the DM, this only partially accommodated the country's excess inflation and as a result the real DM/IR£ exchange rate rose. However, the upward drift in this real exchange rate was corrected by the Irish pound devaluations of 1986 and 1993.

\(^11\) It is interesting to note that Ireland is one of the few of the more advanced countries of the world for which the International Monetary Fund does not publish a regular series on the "real effective exchange rate."
The trade-weighted real exchange rate index, using retail price indices as deflators, shows that the Irish pound appreciated in real terms over the period 1979-85, was relatively stable between 1986 and 1992, and depreciated sharply in 1993. The absence of a long-run trend is evident.

![Irish Pound Real Exchange Rate](image)

Statistical tests for PPP reported for this period have been generally unfavourable to the hypothesis. Callan and FitzGerald (1989) rejected PPP between Irish and German, and Irish and British, producer prices and exchange rates using quarterly data for the period 1976-87, although they hold open the possibility that it existed between some combination of the three sets of variables. Based on data for the period 1981-92 Wright (1994) finds that a PPP cointegrating relationship does not exist between Irish/UK or Irish/German prices and exchange rates, but that one can be established if the system is augmented using short-run interest rates. Leddin (1995) draws attention to the sensitivity of the published studies to the tests used and the time periods covered. He reports that apart from the 1950s and 1960s, tests using long time series tend to reject PPP between Irish and British prices. None of these studies covers the period since the devaluation of 1993. Moreover, they are all concerned primarily with the statistical relationship between exchange rates and relative prices. The statistical tests on which they are based are subject to the important limitation of low power relative to some plausible alternatives to the strict PPP relationship. They do not address the broader economic issue of what level of the exchange rate would ensure either that the current account of the balance of payments is zero or that there are no changes in foreign exchange reserves.

The current account

The behaviour of the current account is the key feature of the transformation of the Irish economy since the early 1980s. The balance of merchandise trade as a percentage of GDP is shown for the period 1979-94 in the following chart.

![The Current Account](image)

Over the fifteen-year period the trade balance swung from a 17 per cent deficit to a 16 per cent surplus. This was due both to the growth in the share of exports in GDP and to the decline in the import share. Merchandise exports increased from 43 per cent of GDP in 1979 to a forecast level of 71 per cent in 1996, while imports fell from 60 to about 50 per cent. Direct foreign investment (FDI) in a small number of sectors - pharmaceuticals, electronic engineering, office and data processing equipment, and certain beverages and food sub-sectors - has played an important role in the dramatic growth of exports. The combined share of these sectors in total exports rose from 11.2 per cent in 1979 to 29.5 per cent in 1994, while that of food and live animals (excluding miscellaneous foods), clothing, and footwear, fell from 34.9 to 13.9 per cent. The exports of the booming sectors are directed mainly towards the continental European market, whereas the traditional export sectors are more dependent on the United Kingdom. As a result, the boom in exports has been accompanied by a decline in the importance of the United Kingdom market, which accounted for 50 per cent of total exports in 1979 but only 27.5 per cent in 1994. However, most of this decline occurred in the years immediately after we joined the ERM. There has been little change in the geographical composition of Irish exports since the mid-1980s (see O’Leary, 1995).

Scepticism has been voiced about the accuracy of the merchandise trade data, due to the tendency for transfer pricing to inflate recorded export values. It should be borne in mind, however, that although the true attribution by geographical area of the value added by multinational corporations (MNCs) is almost impossible to establish, the pricing practices and profit attributions of these firms are monitored by the tax authorities in their home country. Moreover, any inflation of exports from Ireland due to transfer pricing tends to be reflected quickly in profits remittances, which are part of net factor payments to the rest of the world, F. While gross profit remittances increased from 2.8 per cent of GDP in 1979 to 13.4 per cent in 1996, this was much less dramatic than the growth in merchandise exports. As a crude

1The latest figures have been affected by the abolition of customs checks in the Single European Market, and may overstate the decline in the UK share.

2For a study of the link between exports of a few industrial sectors and the repatriation of profits see O'Malley and Scott (1994).
adjustment, if we subtract profit remittances from the value of merchandise exports, the balance, \( X - F \), increased from 43.0 per cent of GDP in 1979 to 57.6 in 1996. Finally, a "minimalist" estimate of national income has been prepared on the assumption that the value added by MNCs in the main exporting sectors includes only their labour costs - a procedure that must understate their contribution to the Irish economy. The result is to reduce the estimated annual average growth rate of GNP by only 0.3 per cent (from 4.1 to 3.8 per cent) over the period 1987-1994 (Keating, 1995). Thus it would be wrong to dismiss the boom in exports in the "modern" sectors of the Irish economy as a statistical artefact that vanishes when account is taken of transfer pricing.

The following chart shows the two non-trade components of the current account:

![Chart showing Factor payments & Transfers from RoW](chart)

Because of the growth of profit remittances, net factor payments from the rest of the world, \( F \), became an increasingly large negative component of the current account over the period.\(^3\) With no trend in net current transfers, \( R \), the sum \( R + F \) was dominated by the fall in \( F \), and as a result fell from +3.4 to -9.4 per cent of GDP over the period. Despite this, the growth of merchandise exports was sufficient to transform the overall current account from a deficit of 12.9 per cent of GDP in 1979 to a surplus average over 6 per cent of GDP over the past four years. Both of these percentages are very large by international standards - no other country in the OECD has run as large a deficit as Ireland ran at the end of the 1970s, and the country's current account surplus is now the largest, as a fraction of GDP, of any country in the OECD.

The change from deficit to surplus on the current account is reflected in an equally dramatic change in the trend in the country's official net external indebtedness\(^4\), which rose from 7 per cent of GDP in 1979 to a peak of 52 per cent in 1986. By 1995 it had fallen back to just over 30 per cent. With the decline in the stock of outstanding debt since 1986 the level of net factor payments to the rest of the world may be expected to level off despite the continued growth of profit remittances by MNCs. Thus since 1986 the exchange rate has been at a level that has allowed a marked improvement in the country's external indebtedness. By this criterion the real exchange rate could not be regarded as fundamentally overvalued.

![Chart showing Official external assets (net of debt)](chart)

The saving-investment balance

The counterpart of the extraordinary turnaround in the balance of payments was the transformation of an exceptionally large shortfall of national saving relative to domestic capital formation into a significant surplus. As may be seen from the following chart, gross national saving, \( S \), (defined to include capital transfers from the rest of the world), remained relatively stable as a proportion of GDP, while gross physical capital formation, \( I \), fell sharply. As a consequence the balance between saving and investment, \( S - I \), which equals the current account, rose from -12.9 to + 5.9 per cent of GDP.

![Chart showing Saving and Investment](chart)

While the aggregate saving ratio was stable over the period, there was a marked shift in its components, with private sector saving declining relative to GDP as public sector saving increased. This inverse correlation is discussed in section IV, below.
Even though Ireland's industrial export boom has averted the contraction of industrial employment widely experienced in other OECD countries, the non-traded service sectors have none the less been the major source of net additional employment in this country too.6 (The employment data are summarised in the appendix.) Private sector non-agricultural employment grew at an annual average rate of 1.6 per cent over the period 1979-85, which was probably the fastest rate of expansion of this measure of employment recorded in any European country. However, given the country's strong demographic momentum, the net expansion of total employment of 0.5 per cent a year was not adequate to absorb the country's high natural rate of labour force growth. As a consequence significant net emigration occurred and the rate of unemployment rose - from 7.1 per cent in 1979 to a peak of 17.5 per cent in 1987. While unemployment had fallen to 13.5 per cent in 1995, the persistence of high unemployment following a period of rapid growth points to a severe hysteresis problem. This has to be borne in mind in evaluating the appropriateness of the level of real exchange rate.

Another argument that has been advanced in support of a "Dutch disease" interpretation of the Irish experience is that "the influx of multinationals may have distorted wage setting behaviour, and thereby worsened unemployment" (Barry and Hanlan, 1995, p.31). It is true that although unit wages costs in Irish industry as a whole were fairly stable over the 1980s, they rose in the "traditional" sectors while they declined in the "modern" sectors - reflecting the much more rapid growth of labour productivity in the latter. However, it is not a clear-cut case of the multinational or "modern" industries setting the pace. Baker (1988) drew attention to the "surprising" finding that "average earnings tend to be higher in the traditional industries than in the modern" (p. 37). This finding may be attributed to differences between the two groups of workers in skill levels and unionisation. Studies of the earnings of Irish employees report a positive ceteris paribus differential for Industry among union workers, but not for non-union workers, and are silent on whether there is a specific "MNC effect" (see, for example, Callan and Reilly, 1993). If such an effect exists, its potential spillover effect on the overall structure of wages should be gauged in light of the fact that in 1995 the modern manufacturing sectors accounted for no more than 63,500 of the 214,100 workers employed in manufacturing industry and over one million employed in the non-agricultural labour force. While at the margin the rapid growth of employment and productivity in the new sectors may have influenced the overall wage structure, there is some evidence that the growth of labour productivity has actually moderated the rate of wage inflation.7 Finally, any attempt to estimate the effect of the growth of employment in the MNCs on the wage structure has to take account of the relatively high skilled levels they recruit and the possibility that in the absence of such employment opportunities these workers would emigrate rather than remaining in Ireland to exert downward pressure on wage rates.

The fall in the level of investment spending relative to GDP documented in the previous sector could also be taken as evidence of the existence of the Dutch disease. As we noted, the share of the profits of companies operating in Ireland being reinvested in the economy has fallen sharply in recent years. It might be that the presence of MNCs, through their combined effects on the exchange rate, and on the cost of labour and capital, has reduced the attractiveness of investment in Ireland to indigenous firms. This would imply that the attractiveness of the country as a location for MNCs is their ability to benefit from the low corporate profit tax rate through transfer pricing and other strategies not available to local firms. This is an area that merits further research.

It is difficult to explain why the export boom should have accelerated in the 1990s. The main driving force is the level of foreign direct investment in the industrial sector. There is no obvious reason why the inflow of foreign projects to Ireland should have accelerated in recent years - the range of tax and other incentives on offer has been pared back and competition for the available FDI has intensified, both within Europe and with developing countries. As we have seen, relative earnings in a common currency have not fallen - the fall in unit labour costs has been due to the growth of productivity, which is due to the high level of FDI, rather than a cause of it. This central feature of recent Irish economic performance requires further investigation.

VI. Conclusion.

This paper has surveyed some theory relative to the concept of the equilibrium exchange rate and reviewed the performance of the Irish economy in the light of this theory.

The evidence suggests that there have been major shifts in both the internal balance between saving and investment and in the productivity of the exporting industrial sector since 1979. Taken together these developments can account for the observed improvement in the current account of the balance of payments (even after allowing for the growing net outflow of factor payments) over a period when the real exchange rate appreciated. Two important and more or less exogenous factors lie behind these factors - the decline in the level of publicly financed capital formation and the inflow of foreign direct investment. The decline in the level of

6This total includes public sector employment in areas such as Health and Education.

7Barry and Bradley (1991) report that the elasticity of real earnings in industry with respect to labour productivity is 0.6, which suggests that ceteris paribus the growth of productivity leads to a decline in unit labour costs. We have seen that in fact unit labour costs in a common currency declined sharply during the 1980s.
or more, and subsequent years, when public sector dissaving was less than 4 per cent of GDP, and personal saving 8 per cent or less.

This is prima facie evidence in favour of Barro-Ricardian equivalence and of the hypothesis advanced by Bertola and Drazen (1993) to the effect that there are trigger points in fiscal policy such that

...if a cut in government spending induces expectations that future spending and therefore taxes will be significantly lower, it may induce an expansion in current private spending. [p. 12]

They cite the Irish experience, 1987-89, as an illustration of this effect. In the same vein, other studies view this episode as an example of an "expansionary fiscal contraction" (Barry and Devereux, 1995).

The boom in exports merits further attention. Between 1991 and 1996 it is estimated that the share of merchandise exports in GDP rose from just over 51.9 to 71.0 per cent - a remarkable 37 per cent increase in the share of output being exported. The merchandise trade surplus rose from 11.7 to 18.0 per cent of GDP. The export boom is largely attributable to a boom in industrial exports, concentrated in the sectors that have received substantial foreign direct investment. The impressive performance of these sectors contrasts with the relative stagnation of many traditional sectors. This cannot be taken as conclusive evidence of an outbreak of Dutch disease, however. Output and exports from the "non-booming" traded sectors have not contracted in absolute terms and other price-sensitive export sectors, such as tourism, have thrived. In terms of employment, the fastest growing sector of all has been the non-traded private services sector. Included under this heading are diverse activities such as banking and financial employment, and professional and personal services.
While an export boom in a relatively small group of industrial sectors has contributed to saving over investment, this development would not be sustainable without an adequate supply of capital. Private financing, formation also played an important role, contributing to the rising surplus of private saving over investment. Looking to the future, the current surplus of foreign private investment is likely to continue, given the level of public saving. The current surplus of private saving over investment has increased in the last two years. The increasing surplus of private saving over investment is likely to continue to rise. The combination of the trends that emerges in the 1980s, a large current account surplus, is likely to cause a rise of the exchange rate, and hence, the exchange rate is likely to rise. In the case of the current account surplus, the economy is likely to experience an appreciation of the exchange rate, and hence, the exchange rate is likely to fall. The exchange rate is likely to fall. The exchange rate is likely to fall. The exchange rate is likely to fall.

The data in the table show the current account surplus has increased in the last two years. The current surplus of private saving over investment has increased in the last two years. The combination of the trends that emerges in the 1980s, a large current account surplus, is likely to cause a rise of the exchange rate, and hence, the exchange rate is likely to fall. The exchange rate is likely to fall. The exchange rate is likely to fall. The exchange rate is likely to fall.


<table>
<thead>
<tr>
<th>Year</th>
<th>GDP</th>
<th>Private Sector</th>
<th>Public Sector</th>
<th>Total Investment</th>
<th>Total Saving</th>
<th>Current Account</th>
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</thead>
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<tr>
<td>1970</td>
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<td>50</td>
<td>30</td>
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<td>70</td>
<td>10</td>
</tr>
<tr>
<td>1971</td>
<td>105</td>
<td>52</td>
<td>32</td>
<td>84</td>
<td>72</td>
<td>12</td>
</tr>
<tr>
<td>1972</td>
<td>110</td>
<td>55</td>
<td>34</td>
<td>89</td>
<td>75</td>
<td>14</td>
</tr>
<tr>
<td>1973</td>
<td>115</td>
<td>58</td>
<td>36</td>
<td>92</td>
<td>78</td>
<td>16</td>
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<tr>
<td>1974</td>
<td>120</td>
<td>60</td>
<td>38</td>
<td>94</td>
<td>80</td>
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<td>1975</td>
<td>125</td>
<td>62</td>
<td>40</td>
<td>96</td>
<td>82</td>
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<td>1976</td>
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<td>48</td>
<td>104</td>
<td>92</td>
<td>28</td>
</tr>
</tbody>
</table>

Note: GDP is measured in constant 1970 prices. Private Sector saving includes household saving, business saving, and the central government saving. Public Sector saving includes government consumption, government investment, and public enterprises' saving. Total investment includes both public and private investment.
O'Malley, E. and S. Scott, "Profit Outflows Revisited", in Economic Perspectives for the Long-Run edited by Sam Cantillon, John Curtis and John FitzGerald, Dublin: The Economic and Social Research Institute, pp. 149-156.


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