1 Introduction

This module will give students the tools to understand and interpret economic data about the Irish economy today. The Irish economy can be understood using the tools of Macroeconomics, the study of the overall aspects and workings of a national economy, such as income, output, and expenditure at national and international levels. Students will be exposed to simple methods of data analysis and nontechnical readings designed to give a brief but thorough overview of the Irish economy today and its evolution through successive antecedent eras of economic decline and advance over the decades since the formation of the State.

1.1 Lecture times and Contact Details

There are 8 contact hours. Classes will meet on the 8th of November, 5th and 18th of December. Attendance is compulsory. Notes and presentation materials will be available before the lectures at http://www.stephenkinsella.net. Feel free to contact me by email to arrange an appointment.

2 Readings and Lecture Outlines

There are two main books for the course, both of which are available in the library, their call numbers are given. Alternatively, students can click on the links on to buy the books online. Extra readings will be available to download from the course website at stephenkinsella.net.


Lecture One  Historical background to the present Irish economic environment. A statistical overview of Public finances since the formation of the State. Definition of key macroeconomic variables, models, data sources, and identification of key macroeconomic data sources. Ireland and the EU, the development of the Celtic Tiger.

Readings: O’Gráda, Chapter 2, O’Hagan, Chapters, 2 and 3.

Lecture Two  Capital movement in the 1990’s, inequality in Ireland over time, international migration since the formation of the State.

Readings: O’Gráda, Chapter 4, O’Hagan, Chapter 6.

Lecture Three  Labour movements in the EU, property prices in Ireland and inflation since the 1980’s to the present day.


3  Assignment

Directions  Please answer both questions, and email your answer as a word document to stephen.kinsella@ul.ie by the deadline, which we will decide during lectures. (Please note, each question should be answered within a 1500 word limit.)

Question 1  Please allocate an equal amount of your essay to each part of the question.

• Outline and discuss the factors accounting for the Celtic Tiger period in Ireland from 1994 to 2000.
• What factors might explain the slow-down in 2002?
• Comment on the prospects for continued high levels of economic growth in 2004 and beyond.

Question 2  Ireland faces three main challenges in the present era of globalization and financial market integration—tighter economic integration with Europe and the United States vying with ever greater competition from Eurasia, increasing flows of international migration, and increasing costs of economic fundamentals like oil, gas, and rising house prices driving up inflation.

• Define what you mean by ‘globalization’.
• Explain three policies and the policy variables (such as increased taxation, etc) a proactive government might use to meet these three challenges.
• Make sure to structure your answer to include all three challenges, defining technical terms as you go.
Is the Celtic Tiger a Paper Tiger?

Cormac Ó Gráda, University College Dublin

WP02/02

January 2002
IS THE CELTIC TIGER A PAPER TIGER?

by

Cormac Ó Gráda
Department of Economics
University College
Dublin 4
cormac.ograda@ucd.ie

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IS THE CELTIC TIGER A PAPER TIGER?

Cormac Ó Gráda

Last year Ireland’s GDP grew faster than anywhere else in the world. In 2001 Ireland remains at the top of the OECD growth league (Economist Intelligence Unit, 2001: 10-11; OECD, 2001: vi). Nonetheless, though the Irish economy continues to attract the headlines, gone is the euphoric tone of even a year or two ago. Now attention focuses more on plant closures by (mainly U.S.) multinationals and the downward revision of growth forecasts. Economists debate the prospects of a ‘soft landing’ and the sustainability of growth rates half or less those experienced in the 1990s. Nonetheless the achievements of the last decade or so have been indeed notable. For reasons noted below, they are better captured by GNP per head than by GDP per head. Not only has GNP per head in the Republic moved far ahead of Northern Ireland’s in the 1990s, but it has reached that of the UK as a whole. Living standards have risen too, if not quite in tandem. Who would have believed all this possible even a decade ago?

Just as there was no hint that a Celtic Tiger was about to roar in the economic commentary of the early 1990s, there was little sense that the experience might prove temporary in the commentary of the late 1990s (e.g. Gray, 1997; Sweeney, 1998; Tansey, 1999; Barry, 1999). Accounts of the Irish economic miracle tended to be very present-centred. Reading them just a few years later, they seemed to imply that Ireland had switched definitively to a new, higher, steady state growth regime. So much so that for a few years policy makers from far and near sought the key to achieving rapid sustained economic growth from Ireland.1 It became the turn of IDA personnel and Irish economists to travel abroad offering rather seeking advice.

A longer-term, more historical perspective suggests a less dramatic spin. Measuring the performance of the Irish economy against that of the OECD convergence club (shorthand for the pattern reflected in Figures 1(a) and 1(b) below) between mid-century and the mid-1980s implies serious under-achievement. In this period only the 1960s offered a ray of hope. The 1950s were a ‘lost decade’ of virtual stagnation and mass emigration, while between 1973 and the mid-1980s the record was one of initial growth fuelled by reckless fiscal deficits and a bloated public sector, followed by a painful fiscal correction. However, applying the same simple convergence framework to the 1950-1998 period as a unit suggests that Ireland was
‘on track’, in the sense that it grew as fast as an economy with its 1950 income level might be expected to grow (Ó Gráda and O’Rourke, 1996; 2000). The difference is clear from Figures 1(a) and 1(b). This, and signs that the economy is now returning to more modest growth rates, suggest that the Celtic Tiger’s main achievement was catching up with the rest. Seen from this perspective, the signs that growth is slackening are nothing to be concerned about. Press commentary evokes a sense of disappointment, however, and public policy, with its focus on the need for yet more and more imported capital and imported labour seems hell-bent on the pursuit of continued rapid growth.

Figure 1(a). Initial income and subsequent growth: OECD 1950-87

Figure 1(b). Initial income and subsequent growth: OECD 1950-98
The current slow-down suggests the following interpretation of the half century. Before the late 1980s decades of protectionism followed by wrong-headed fiscal policy widened the gap between Ireland and almost every other economy in western Europe except Britain. At the same time the Republic had developed some of the prerequisites for faster economic growth: an underemployed labour force; a stock of emigrants willing to return, given better job prospects; ample energy supplies; an underutilised transport network; a competent and honest public service. An attractive tax package for U.S. multinationals attracted by the prospect of the single European market, and the conviction that Irish policymakers had learned from the mistakes of the late 1970s and early 1980s, did the rest. There followed the hectic Celtic Tiger interlude, and by the end of the 1990s Ireland had made up the ground it had lost.

This record is summarised by the fact that Ireland, where GDP per head was the same as in Italy in 1950, fell far behind in the following three decades or so, and then more than made up all the lost ground from the mid-1980s on (in 1998 Ireland’s GDP per head was eight per cent higher than Italy’s). So is the bottom line that Ireland had caught up and that its new growth trajectory would sweep it past not just Italy but everybody else? Not so. The present value of Irish GDP per head, discounted back to 1950, would have been 28.9 per cent higher had it experienced Italian growth rates over the period as a whole, with the slightly lower Italian average growth over the period, but concentrated at the beginning rather than at the end (Ó Gráda and O’Rourke, 1997; 2000; see Figure 2). Moreover, the spectacular output growth rates of recent years tend to make us forget that productivity performance was not so spectacular relative to the record before 1987. The growth in output per worker between 1971 and 1987 was almost as fast as that in the decade that followed. Whence Brendan Walsh’s comment that ‘if attention had been focused on output per worker rather than total output the phrase ‘Celtic Tiger’ would never have become popular’ (Walsh, 1999: 3).
So what produced the Tiger? One of Ireland’s leading macroeconomists has argued that several factors played a role, and that ‘we cannot establish the relative importance of each’ (Walsh, 2000: 671). Still, it is hardly surprising that a recent acclaimed account by an ex-politician and an ex-head of the Industrial Development Authority would give pride of place to politicians ‘who took a long-term strategic view on a number of specific issues’, and the ‘rifle-shot, rather than the scatter-gun, approach’ to seeking out multinationals adopted by the IDA since the 1980s (McSharry and White, 2000: 363-4, 368, and *passim*). Other factors often highlighted in the literature include fiscal restraint, generous tax incentives to multinationals, EU largesse, plentiful human capital, a pliable labour force, and social partnership. It is the contention of this paper that some elements in this package of factors have been oversold, and that others were geared to delivering catch-up, but not limitless growth at the rates achieved in the 1990s.

**Human Capital:**

Government spokesmen and the IDA frequently stress the part played by Ireland’s human capital. The argument has been overdone, for two reasons. The first hinges on the distinction between the social and the private return on education, too often neglected in this context. Indeed in the 1970s and 1980s analysis focused on the gap between the two, due the emigration of so many of those with third-level qualifications (e.g. NESC, 1991). In the circumstances, investing more instead in infrastructure such as roads and telecommunications might have yielded a better return. The claim that schooling has boosted growth tends to rest...
on a growth accounting approach to human capital’s contribution, which in effect assumes that it had no opportunity cost (Durkan, Harmon, and Fitzgerald, 1999; Tansey, 1998: 250). Ireland’s investment in education is now undoubtedly producing high private and social returns, quite apart from ‘new growth theory’ gains, but who is to say that less investment in schooling at times in the past would have been the more sensible option?

The second reason why the case for investment in human capital has been oversold is that, for all the hype about Ireland’s highly educated workforce, recent international comparisons show it in a less than stellar light. Ireland passes muster when measured by the Third International Mathematics and Science Study (TIMMS), which tested samples of schoolchildren in their early teens in 39 countries in 1995: in these tests Irish schoolchildren came fourth out of the thirteen EU countries included. However, the much-cited International Adult Literacy Test (IALS), which focuses on those old enough to be in the labour force, is more relevant. IALS, which measured adult literacy skills across OECD member-states in 1995, returns a less impressive verdict. By this measure Ireland came ahead of only Portugal of the ten EU economies included (see Table 1).

Table 1: HUMAN CAPITAL LEAGUE TABLES

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>TIMMS/</th>
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<td>Norway</td>
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<td>UK</td>
<td>8</td>
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Note: for a full explanation of scores see Barro and Lee (2001).
True, Irish educational standards have improved significantly in recent decades, especially due to the introduction of free second-level education in 1967, but correcting for cohort effects does not make much difference (Barro and Lee, 2001; Steedman and McIntosh, 2001). This suggests that commentary in the 1990s exaggerated the quality of the Irish labour force. Perhaps fluent English meant more to U.S. multinationals than high IALS scores. That, however, is hardly a function of policy, nor specific to the 1980s or 1990s.

**Fiscal Policy:**

Ireland’s efforts at setting its public finances right in the 1980s attracted a good deal of attention abroad. In 1989 Rudiger Dornbusch scorned at a ‘failed stabilization’, which a few years later would spawn the concept of an expansionary fiscal contraction (EFC). An EFC occurs when the deflationary effects of budgetary surpluses on aggregate demand are outweighed by their positive impacts on private expectations, investment and consumption. For a time the role of EFC in jump-starting Irish recovery was the subject of much debate. The latest consensus is against it. Of course, this does not rule out a role for stabilisation policy. McSharry and White deem fiscal stabilisation ‘the main precondition for a sustained economic recovery’, and the case is more formally stated by Patrick Honohan (1999). Unquestionably without the dramatic, unequally-borne fiscal corrections of the 1982-7 period, DFI would gone elsewhere and the Tiger would not have roared. However, had the economy not almost self-destructed from the late 1970s the corrections would have not been necessary in the first place. In other words fiscal stabilization was about making up lost ground, not achieving a new steady state.

The transfer of about IR£9 billion at 1994 prices to the Irish exchequer between 1989 and 1999 through the EU’s Community Support Frameworks (Delors I and Delors II) arguably eased the challenge of fiscal stabilization, as Marshall Aid did for other European economies in an earlier generation. But macroeconomic simulations suggest that in accounting for the Celtic Tiger the transfer was an ‘also ran’. Frank Barry, John Bradley, and Aoife Hannan (1999; see too Honohan, 1997) found that without it GDP would have been 3 to 4 percentage points less in the late 1990s. This must be set against the doubling of real GDP between 1990 and 2001.

Since 1987, when the Tiger was born, and today the ratio of government revenue to GDP has dropped from 40.3 to 33.2 per cent, and the ratio of public expenditure to GDP from
48.5 to 27.7 per cent. The Irish public sector is now the smallest in the EU in relative terms. Over the same period the ratio of national debt to GDP has fallen from over 100 per cent in 1987 to 38 per cent by the end of 2000. The timing suggests that Ireland’s current status as a low tax, low public debt economy is a product of the Celtic Tiger, however, not its cause.

*Social Partnership.*

A similar argument can be made about social partnership, introduced in 1987. Irish economists were initially very sceptical of it (e.g. Durkan, 1992), but the scepticism soon gave way to a conviction that social partnership was a distinctively Irish contribution to economic success. Some now even argue for social partnership as a recipe for long-run growth in a full employment context. Here too history has something to say. This ‘Irish solution to an Irish problem’ bears a close resemblance to the tripartite contract between labour, capital and the state developed in many other European economies in the early 1950s. In those cases organised labour made a commitment to wage moderation in return for a capitalist commitment to re-invest profits and the state’s commitment to the welfare state. The particularly Irish feature of social partnership in the 1980s and 1990s, in an era when the welfare state was under threat in any case, was the state’s undertaking to reduce personal taxation instead.

Social partnership worked well in the mess left behind by governments in the late 1970s and early 1980s. The commitment to wage moderation made sense when unemployment was high, and contributed to the share of wages and salaries in GDP plunging from 57.5 percent in 1987 to 46.3 per cent twelve years later. Wage moderation in the heavily unionised public sector was a boon to the public finances. Social partnership also kept down the number of industrial disputes and workdays lost. The system has persisted, its most recent embodiment being the Programme for Competitiveness and Fairness. However, in an economy like Ireland’s in 2001, where unemployment is three per cent, the scope for social partnership 1980s and 1990s-style is less compelling. Wage moderation simply leads to excess demand for labour and loss of credibility for the trade union movement. Ironically, key features of social partnership — centralised bargaining, wage moderation, low wage dispersion — were identified by some labour economists as reasons for the poor performance of some European economies in the 1980s (e.g. Calmfors and Driffil, 1988; Freeman, 1989). For social partnership to continue working it needs to re-invent itself.
‘Free Trade’:

In the 1960s Ireland scrapped much of the protectionist apparatus built up since the
1930s. Tariffs were reduced unilaterally, and the Industrial Development Authority, originally
an arm of protectionist policy, was transformed into an agency to attract foreign capital. But
what emerged was hardly free trade. Instead Ireland shifted from one form of trade distortion
to another: export-subsidizing industrialization (ESI) replaced import-substituting
industrialisation (ISI). A trade sector bloated by DFI replaced one shrunk by ISI. However,
while ISI resulted in small and mainly indigenous factories, short production runs, and high
costs, ESI relied on foreign capital and a global (though mainly European) market, and so was
more likely to involve firms and industries subject to increasing returns to scale; it was also
more likely to generate productivity enhancing agglomeration effects. There is some evidence
to support this (Barry et al. 2001).

Perhaps it is too soon to ask whether this new, more sophisticated form of
protectionism has produced any grown-up infants. Can subsidies to export-oriented
multinationals generate dynamic gains that ISI-oriented protection cannot deliver? The first
generation of multinationals, those introduced in the 1960s and 1970s, certainly failed to
deliver on this score. Some researchers, like NUI Galway’s Roy Green, are more optimistic
about the current generation: according to Green, the policy of concentrating on high
technology sectors and forging linkages with the local economy ‘has proved to be a winning
formula in the development and sustainability of Ireland’s extraordinary economic
metamorphosis’ (Green, 2000).

It bears noting, however, that public policy has led to Ireland being one of the only
countries in the OECD in which manufacturing’s share in output has continued to rise. The
rest of western Europe has been experiencing de-industrialization since the 1970s. While
manufacturing’s share in the Republic’s GDP has risen from barely one-fifth in the 1950s to
35.4 per cent in 1970 and 38.4 per cent today (1999), its share in the UK has plummeted from
35 per cent in 1979 to 23.9 per cent in 1999. Some of the rise in the Republic is the product
of DFI-induced transfer pricing, but employment data corroborate Irish distinctiveness in this
respect. The proportion of total civilian employment accounted for by industry has fallen
throughout Europe in recent decades, but in Ireland it has held its own (Figure 3). It is
striking that the shift in Ireland’s occupational structure is so different to that of the rest of
northwestern Europe. Is it because Ireland has bucked the European de-industrialization trend
that it has done so well? Is this a reflection of Ireland’s true comparative advantage, or is it merely a distortion produced by the corporate tax regime? One argument on the side of optimism might be that the ‘rust-belt’ de-industrialisation responsible for the decline in the industrial labour force elsewhere (as in Northern Ireland) is the product of an earlier industrial phase that largely passed the Republic by.

*Figure 3*

*Corporation Tax:*

For a long time Ireland paid a high price for how it exercised its economic sovereignty. Today it is reaping the benefits of independence. While the gaps between poor and wealthy regions of the United Kingdom are slow to narrow, and in some cases are widening, Ireland has overtaken the UK in terms of output, if not quite in living standards.\(^4\) The main economic benefit of sovereignty has been control of fiscal policy. Ireland can get away with its low corporate tax regime because it is a small economy, producing about one percent of EU GDP, and because it was the first to offer foreign investors such tax concessions. Size matters: if Germany or France decided unilaterally to reduce its corporate taxation level to the 12.5 per cent across the board rate being introduced by Ireland in 2003, it would risk breaking up the EU. Being first matters: Ireland’s position in this near-to-zero sum game depends on others
or too many others – not following suit. Whether aspirant EU member states from Eastern Europe are likely to compete on this front remains to be seen. That certainly would not be in Ireland’s interest.

It has been argued that the taxation argument has been oversold, since in recent years Ireland’s share of US DFI in Europe has risen despite some narrowing in tax differentials. The findings of a recent paper by Rosanne Altshuler, Harry Grubert, and Scott Newton (1998) are interesting in this context. Altshuler and her colleagues have produced evidence of an increasing sensitivity of US DFI to tax rates, finding that the elasticity of real capital to after-tax rates of return doubled from 1.5 in 1984 to almost three in 1992. They attribute the rise to the increasing mobility of capital and globalization. Has the elasticity risen further since the early 1990s? If so, this could explain why Ireland has managed to increase its share, but also how vulnerable it would be to tax harmonisation (Altshuler et al., 1998; Grubert and Mutti, 2001). The issue is worth urgent attention. In a similar vein Reint Gropp and Kristina Kostial have simulated the effect tax harmonisation would have had on European economies in the 1990s. They find that it would have cost the Republic FDI worth over 1.3 per cent of GDP annually between 1990 and 1997 (Gropp and Kostial, 2001).

Some sense of the impact of the tax regime on industrial structure may be obtained from Table 2. There we first compare the share of wages and salaries to net output in a range of sectors in both Ireland the UK in the late 1990s. In Ireland most of the enterprises in the first four sectors are indigenous, whereas the second four are dominated by US multinationals. The UK data operate as rough controls. The most striking feature is the small share of net output going on wages and salaries in Ireland’s multinational sectors. Labour’s small share in Ireland’s NACE 21-22 is explained by the presence of a subsidiary of Microsoft in that sector. These differences, and the concentration of US multinationals in these sectors, underline the importance of transfer pricing for US DFI in Ireland (and the distortions in both Irish GDP and industrial production data). The same goes for much of Ireland’s internationally traded services sector, since 1987 also beneficiaries of low corporation profits tax. More systematic comparisons of sectoral data, embracing all NACE categories and perhaps a few more economies, might help reveal the ‘real’ size of Ireland’s industrial sector. Be that as it may, so far Ireland has not been a loser by its distorted, though perhaps also somewhat vulnerable, foreign trade regime.
Finally, referring back to our earlier remarks about infant firms growing up, Table 2 also compares the percentages of employees described as ‘operatives’ (Ireland) or ‘industrial workers’ (UK) in the same sectors. The high-tech sectors dominated by DFI are of particular interest, given the prevailing belief in Ireland that they attract highly skilled and highly educated workers. The strength of white collar occupations in these sectors in both countries is confirmed. Also worth noting, though, is how Ireland lags behind the UK in this respect in all cases (though US FDI also bulks large in the UK).


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<thead>
<tr>
<th>Sector</th>
<th>NACE</th>
<th>(W + S)NO (%)</th>
<th>Operatives/All Employees (%)</th>
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<tbody>
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<td>IRL</td>
<td>UK</td>
<td>IRL</td>
</tr>
<tr>
<td>Wood and Wood Products</td>
<td>20</td>
<td>40.8</td>
<td>46.4</td>
</tr>
<tr>
<td>Paper, Publishing, Printing</td>
<td>21-22</td>
<td>11.6</td>
<td>39.8</td>
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<tr>
<td>Textiles</td>
<td>17</td>
<td>49.9</td>
<td>48.8</td>
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<tr>
<td>Food Products</td>
<td>15-16</td>
<td>17.4</td>
<td>30</td>
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<tr>
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<td>Pharmaceuticals</td>
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<td>Elect/Optical</td>
<td>30-33</td>
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<tr>
<td>Computers</td>
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Conclusion:

In the mid-1980s, with massive reserves of unemployed labour and more to draw on abroad, a grave fiscal situation recently brought under control, a generous corporation tax regime, and the prospects of wage moderation, industrial peace, and a single European market, the conditions for an economic recovery in Ireland were right. The Tiger’s achievement was to capitalise on this situation. The Irish economy — now healthy, rich, and relatively well run — is no Paper Tiger.

Yet this is no time for smugness. Small open economies, no matter how successful, get buffeted by exogenous shocks. Ireland now faces the double threat of the US recession in short run and of competition from Eastern Europe diverting FDI in the longer run. It may grow faster than the OECD norm for a few more years, but to think that it can do so in the long run is wishful thinking. Most likely, soon the Tiger years will be remembered as the interlude when Ireland made up all the ground it had lost and became a ‘normal’ European economy.
REFERENCES:


ENDNOTES:

1. The seminar held in conjunction with the launch of Frank Barry’s *Understanding Ireland’s Economic Growth* in May 1999 attracted embassy officials from three continents (including those of Poland, Hungary, Denmark, Estonia, Israel, Mexico, and Finland). Even Silvio Berlusconi took a fleeting interest in *il tigre irlandese* (*Irish Times*, 24 October 1996; c. 3-6 June 2000).

2. The transfer was also tiny compared to that from Whitehall to Northern Ireland, estimated at about one quarter of personal expenditure in the 1990s. See Ó Gráda, 2000: 278, 282.

3. For comparability construction has been added to industry in the UK. Compare Ó Gráda, 1997: 122-124.

4. For example, since the 1960s Welsh domestic product per head has fallen behind that of the UK as a whole. In 1968 it was 86.1 per cent; in 1990 83.2 per cent, in 1998 it was just short of four-fifths.
The Celtic Tiger Era: Delayed Convergence or Regional Boom?

Frank Barry*
The Celtic Tiger Era: Delayed Convergence or Regional Boom?

Frank Barry

Cormac Ó Gráda, in his recent paper in the Quarterly Economic Commentary, sets out to debunk some myths about the performance of the Irish economy over the Celtic Tiger era. While he is on target with respect to the individual myths, his paper, like almost everything else written on the topic, unconsciously straddles two alternative perspectives on the spectacular growth of the last decade. Ó Gráda’s main argument is that this growth represented delayed convergence; it simply made up for several decades of Irish underperformance. This notion also underpins the analysis of Patrick Honohan and Brendan Walsh in their forthcoming article in Brooking Papers on Economic Activity. The alternative hypothesis, proposed by Krugman (1997), holds that the period of extraordinary growth should be more appropriately thought of as a regional boom.

My purpose in this note is to try to disentangle these alternative perspectives, primarily in an attempt to separate out their implications for the future. While Ó Gráda criticises the regional-boom perspective behind my 1999 work as overoptimistic, I will argue to the contrary that it is the delayed convergence hypothesis that is hubristic. It suggests that convergence once achieved cannot unwind as long as the same best-practice policies as adopted elsewhere are followed. Potential threats to the economic progress of the last decade loom larger in the alternative perspective.

There is a good deal of international evidence that income convergence occurs amongst economies that are similar in a number of crucial respects, including educational standards, access to technology, openness to trade and general macroeconomic stability. Thus OECD and EU countries have generally converged since the 1950s, with poorer countries growing faster than richer ones. The same has been found to be true of US states, Japanese prefectures and EU regions. Why might one expect this to be the case? The standard (Solow) economic growth model proposes that capital is scarcer and hence more productive in poorer...
economies. If the policy environment is appropriate so that investment rates are not depressed, investment will generate more rapid growth in poorer economies.

Ó Gráda shows that Ireland underperformed relative to other Western European countries in the convergence stakes up until the late 1980s, but that when economic performance over the Celtic Tiger era is factored in, growth per head over the entire period since 1950 was just as would have been predicted given the country’s low starting level of income per capita. What needs to be explained in this view then is not the strong performance of the last decade but the very weak performance of earlier decades. Ó Gráda and O’Rourke (1996) analyse this in detail. They find the main culprits to be the lingering effects of Ireland’s failure to drop its trade-protectionist stance and increase educational throughput until about a decade after the rest of Western Europe. Most of the decade of the 1980s in turn was written off by the struggle to rein in the national debt and re-establish control over the government finances.\(^2\)

To a macroeconomist this might all sound reasonable. To someone who works on international trade, however, the omission of any discussion of what precise goods an economy produces, or what precise markets the country exports into, might seem surprising. Surely these will affect the long-term income per capita of the economy? Surely Zambia’s income per head today is affected by the fact that all its export earnings traditionally came from copper, and that world copper prices collapsed some time ago? How are these points taken into account in convergence theory?

The answer is that these are adjustment issues, and that for developed economies adjustment issues are typically resolved over years rather than decades. Given the quality of infrastructure, education, trade linkages, governance etc. in Zambia, it would take many decades for non-traditional export sectors to emerge. Hence something like a terms of trade collapse is not just a short-term issue. In developed economies however the collapse of any one sector or group of sectors is unlikely to be as catastrophic; not just because such economies will be more diversified to begin with, but also because industries are more mobile in the developed world. A collapse of a large sector in a developed country will trigger automatic adjustment; the downward pressure exerted on wages combined with an adequate pre-existing infrastructure and a pool of educated labour will attract firms and industries from elsewhere. Hence the convergence hypothesis does not need to concern itself with such details as the precise basket of goods produced in the country. As educational levels are upgraded, for example, the quality of goods produced or of industries established in the region will rise automatically and the country will “climb the ladder of comparative advantage”.

The delayed convergence perspective suggests that simply getting the various policy dimensions right in the late 1980s allowed automatic convergence. The corollary is that such convergence could have been achieved in any earlier period if the policy environment had been similarly appropriate, as Honohan and Walsh argue. They do not address whether convergence would have been as rapid as was possible in the late 1980s/early 1990s, in my opinion, because of the ready availability of

\(^2\) This latter point is the main focus of the Honohan and Walsh paper cited above.
FDI. The logic of the standard growth/convergence model certainly does not require non-orthodox policies such as Ireland’s very low rate of corporation tax. Indeed, Ó Gráda terms this a “distortion”, writing that:

“What emerged (in the 1960s) was hardly free trade. Instead Ireland shifted from one form of trade distortion to another: export-subsidising industrialisation (ESI) replaced import-substituting industrialisation (ISI). A trade sector bloated by FDI replaced one shrunk by ISI”. ³

The most important implication of the “delayed convergence” hypothesis however is that the economic progress achieved thus far in bringing Irish income per head up to EU levels can be maintained into the future simply by following the same best-practice policies followed elsewhere in the EU.

3. The “Regional Boom” Hypothesis

A regional economy differs from a textbook “national economy” in that labour can flow more or less freely in and out of a region. This means that wages in the region are largely determined by rates available in the wider encompassing economy with which the region shares an open labour market. This seemingly innocuous distinction has major implications for how a region adjusts to shocks such as the terms of trade shock discussed above with respect to Zambia. If labour cannot flow out, wages will fall and new industries will ultimately arise.⁴ If labour can flow freely, wages will not be much affected, and labour will flow out rather than new industries flow in.

Krugman (1997) proposed that we think of Ireland as such a regional economy, where job numbers are determined by labour demand, rather than, as in a more typical national economy, by labour supply creating new jobs via wage pressure. Until the Celtic Tiger era, labour demand had almost never been high enough to mop up Ireland’s available labour supply and so emigration had resulted.

I will not repeat here Krugman’s fascinating discussion of the range of factors that allowed labour demand in Ireland to grow so strongly from the late 1980s. His regional perspective however focuses attention on the economy’s export base, as services employment - both public and private - arises largely to service that base. Although indigenous exports have been performing well over the Celtic Tiger era, the bulk of Ireland’s exports arises from the foreign-owned sector. Why have we seen such buoyancy in the foreign-owned sector over the boom period? EU membership is crucial of course, as is the low rate of corporation tax. Both had been in place long before the boom however. The development of the Single Market in the late 1980s triggered a strong increase in FDI flows into and around Europe [Dunning (1997a and b)], and the long US boom ensured an abundance of finance for US outflows. Ireland would not have attracted as much of these flows as it did had the fiscal crisis not been resolved at the time, and had a new era of industrial

³ Barro (1991) finds that investment distortions, whether positive or negative, reduce growth.
⁴ The extent to which wages will need to fall before new industries arise will be determined by the country’s infrastructure, etc. This can obviously lead to huge problems in poor economies.
peace not emerged. In the “regional boom” view, the most important impact of these factors is on the economy’s export base.\(^5\)

To oversimplify, let us view foreign-owned manufacturing as the Irish economy’s export base. Now consider a crisis similar to the copper-price collapse discussed earlier. Specifically, let’s say something happens that reduces Ireland’s attractiveness to foreign industry dramatically. How does the economy adjust? In the textbook national economy new industry will ultimately migrate inwards or arise endogenously given an abundant supply of cheap educated labour. On the basis of long historical experience we would have to guess that the Irish adjustment mechanism would be different: emigration will instead be likely to resume, with the presumptive abundant supply of educated labour showing up in London or Boston rather than in Dublin, and wages failing to fall enough to stimulate new industry.\(^6\)

The adjustment process works very differently in a regional economy than in a national one. A regional economy can grow more dramatically than a national one, with capital and labour inflows stimulating each other to generate “extensive growth” as well as the “intensive growth” in income-per-head terms which is the focus of convergence theory. The regional perspective is in fact quite similar to the model that Blanchard proposes in his comments on the Honohan and Walsh paper.\(^7\)

The problem with regional economies is that, just as they can grow more dramatically than national ones, so also can they decline more precipitously, as Krugman (1993) has warned (in drawing lessons on EMU from the Massachusetts experience).

There are a number of outstanding issues upon which the delayed convergence hypothesis appears to stumble. One is why Ireland did not converge at all over the course of the 1960s (not to mention the fact that income per head relative to the UK stood at the same level in 1960 as it had in 1913). The conventional answer has to do with the delay in adopting free trade and raising the educational quality of the workforce. If anything however, Ireland was ahead of the other current EU periphery countries, Greece, Spain and Portugal, in both these respects; yet these countries experienced relatively strong convergence over the course of that decade while Ireland did not. Barry (2002b) argues that this can be better understood within the regional perspective.

Another issue has to do with the rapidity of recent growth and convergence. Most will agree that poor policy inhibits convergence while

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4. **Contrasting the Two Perspectives**

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5 This is not the whole story of course. Improved cost competitiveness will have a strong impact on services employment, given its labour intensity. These and other effects are drawn together in my 1999 paper.

\(^6\) Ó Gráda, in earlier work, accepts this. Thus in (1997, page 217) he writes that easy access to the British labour market meant historically that “cheaper labour could do little to compensate for Ireland’s relative backwardness and isolation, or to generate the investment necessary for faster economic growth”.

7 He proposes that Ireland has behaved more like the so-called AK endogenous growth model (where output moves in line with capital accumulation, because employment is also rising consistently) than like the Solow model of convergence theory (where growth is less dramatic because capital accumulation runs into diminishing returns). Small improvements in competitiveness can have large effects on growth in such a framework. Though Blanchard does not focus on any particular improvements in competitiveness in the Irish case, he does mention the shift towards the production of more capital intensive goods, which has been associated with increased FDI inflows. See also Blanchard (1991).
correct policy facilitates it. There are few models that propose that inappropriate policies act merely as a dam behind which the thwarted convergence forces build up, however, so that when appropriate policies are eventually adopted the lost ground is made up for all the more rapidly. Yet this is the position that supporters of the delayed convergence hypothesis are forced into unless they accept that the abundance of FDI available from the late 1980s onwards facilitated the extremely rapid growth of the period. Had Ireland followed more appropriate fiscal policies in the 1970s and 1980s would the convergence have been as rapid? Honohan and Walsh appear to imply that it could have been.

This discussion of the importance of FDI leads to my final and perhaps most important point. The convergence perspective does not suggest any need for non-orthodox economic or industrial policies. The regional boom view on the other hand proposes that orthodox policies may be necessary but are unlikely to be sufficient to generate growth in regional economies.8

My 1999 paper argued that generating extensive growth in a regional economy requires becoming competitive in internationally-traded sectors other than agriculture since capital accumulation will simply lead to emigration in an agricultural economy. The key achievement of the low-corporation-tax strategy was to develop a non-agricultural export base around which other economic activities could agglomerate. The policies identified as crucial in the convergence story remain crucial, but the sine qua non here is the industrialisation strategy.

While Ó Gráda calls this strategy “a distortion”, several theorists have presented models in which peripheral regions can industrialise only by offering some such “distortion”; see e.g. Fumagalli (1999) and Barros and Cabral (2000).

Ó Gráda refers to the regional boom view as overoptimistic for suggesting that high growth rates could continue. Clearly very strong GDP growth cannot be maintained without continued labour inflows. Dascher (2000) and Barry (2002a) however, who develop theoretical “regional boom” models with Irish conditions in mind, show that labour inflows will dry up as housing and infrastructure become congested. If adequate stocks were maintained the boom could continue, in the absence of adverse shocks exogenous to the regional economy.9

Even if full employment is reached and labour immigration dries up because of the expense of accommodation, must the growth in income per head necessarily grind to a halt just because Ireland has reached the EU average? The regional boom view suggests not. If high-productivity foreign firms continue to migrate into Ireland they will still be able to find workers, given that they pay substantially higher wages than many existing firms. The fact that Ireland has converged does not necessarily remove this dynamic.

What can most definitely remove the growth dynamic are exogenous adverse shocks to the economy’s ability to attract FDI. Let me consider several possibilities in this regard. First is a drying up of US investments

8 Thus Markusen (1988) shows that a regional economy needs to subsidise the use rather than the training of skilled labour, which is one of the things low corporation taxes do. Subsidising training will effectively subsidise foreign economies via emigration.

9 Both papers also consider the question of the desirability of having the boom in GDP (as distinct from GDP per capita) continue.
in Western Europe, which could be caused by a prolonged US recession, by a change in US corporate strategy or by a refocusing on Central and Eastern Europe for example. Another possibility would be a harmonisation of tax rates across the EU. The delayed convergence perspective would view these as temporary shocks, as in no case has there been a departure from best practice. The regional boom perspective holds out the possibility that these could instead herald a return to the bad old days of unemployment and emigration, leading to an unravelling of the convergence achieved over the last decade. Hence I cannot agree that the “regional boom” perspective is necessarily the more optimistic one!

I have argued that while convergence is the automatic outcome of models based on conventional textbook growth theory, such models are not necessarily appropriate for Ireland. The historical difficulties that the Irish economy faced in its quest to industrialise suggests that it should be thought of instead as a peripheral regional economy. Conventional micro and macro policies cannot be guaranteed to generate convergence in such economies. Thus while Greece, Portugal and Spain all converged on general European living standards in the 1960s, though their policy environments appeared no more benign that Ireland’s, Ireland did not. Ireland might have been more appropriately thought of at the time as an economic region of the slowly growing UK rather than as a textbook national economy.

This perspective suggests that Ireland might not have converged had it not adopted the corporation-tax-driven industrialisation strategy that remains in place today. It strongly suggests that convergence would have been much less rapid in the 1970s or 1980s even if appropriate macro policies had been followed at the time, because there would have been much less FDI available than in the era of the Single Market and the burgeoning US boom.

These different perspectives also have different implications for the future. If the convergence view is correct, it suggests that we can now rest on our laurels: as long as we do not introduce inappropriate policies we are unlikely to fall behind average EU living standards. If the regional view is correct however, it suggests that external shocks to our ability to attract FDI might have serious long-term consequences for the economy. Foremost among these possible shocks would be a diminution of US FDI inflows to Europe, a continuation of the trend towards equalisation of corporation tax rates across the EU, or the emergence of some of the more advanced Central and Eastern European economies as serious competitors for the kind of FDI that Ireland has been so successful in attracting in recent decades.
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PATRICK HONO HAN
World Bank

BRENDAN WAL SH
University College, Dublin

Catching Up with the Leaders:
The Irish Hare

For many decades Ireland's output per capita ranked about twenty-fourth among the world's industrial nations. Suddenly, in the mid-1990s Ireland started to move up, from twenty-second in 1993 to eighteenth in 1997 and an amazing ninth in 1999. The many facets of Irish success over these years, from a disproportionate representation in popular music to the largest current account surplus in the industrial world, caught the public imagination at home and abroad. This paper examines the startling turnaround in Irish economic performance that began in the mid-1980s.

By comparison with Ireland's previous economic performance there is indeed a miracle to explain, but from a global perspective the question is surely why it took so long for Ireland to catch up with the rest of Europe.

Although most attention has focused on aggregate output growth rates—real GDP growth averaged 10 percent a year over the period 1995–2000—we will show that the salient feature of Ireland's catch-up has been an increase in the proportion of the population at work. This is partly a function of demographic trends and partly of a remarkable reduction in the rate of unemployment, neither of which can be repeated. When the data are correctly interpreted, there has been no productivity miracle, as some have claimed, and Ireland's ranking in terms of average living

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1. Official GDP per capita data for 2001 put Ireland ahead of all the other EU countries except Luxembourg.
standards has not been quite as good as implied by the conventional statistics quoted above—although the performance of the labor market during the 1990s was marvelous. Dissecting the sources of output growth and understanding the transformation of the labor market are the two central tasks of this paper. In addition, we describe how inappropriate fiscal and perhaps monetary policies held Ireland back in earlier years, with the result that convergence, when it occurred, was telescoped into a short period.\(^2\)

Catching up, and doing so rapidly, requires a favorable institutional, policy, and external environment. Several individual institutions and policy entities in Ireland are each quietly confident that it is the unique source of the turnaround. As our story unfolds, it will become evident that the credit must be widely shared, and that a much improved external environment also played its part.

**Background**

In a letter to David Ricardo in 1817, Robert Malthus said, “a population greatly in excess of the demand for labour” was “the predominant evil of Ireland.”\(^1\) This was a generation before the famines of the 1840s triggered large-scale emigration and a decline in the national population that continued until the 1960s. Irish adjustment during the nineteenth century has been cited as a good example of how globalization fostered convergence of living standards. The island was transformed from a poverty-stricken, peasant economy that had served as a source of cheap labor for booming cities in Britain and North America to an economy that, at the start of the twentieth century, boasted wages—in some sectors of the urban economy at least—close to those prevailing across the Irish Sea.\(^4\)

But the rural population and unskilled urban workers, who predominated, continued to lag behind, and in the course of the twentieth century

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2. We prefer Aesop’s hare, long-somnolent, dashing to catch up with the slow and steady tortoise, as a metaphor for the Irish economy’s recent performance over the more widely touted “Celtic tiger.” The latter is zoologically improbable, whereas the hare is one of the largest wild animals actually native to Ireland.


Ireland seemed—like Aesop’s hare—to take a breather. Feeding Britain through two world wars provided adequate export revenue for what was still primarily an agrarian economy, especially that part of the island that became the Republic of Ireland, which is the subject of this paper.

Economic historians characterize the third quarter of the twentieth century as the “Golden Age” of European growth. Most Western European economies, having recovered from wartime damage by around 1950, continued to grow more rapidly than before or since until the first oil shock in 1973. Ireland did not share in this happy experience—indeed, only the United Kingdom had a lower rate of per capita output growth over those years. In the 1950s Ireland stumbled badly, with a renewed surge of emigration, and it continued to exhibit the symptoms of a labor-surplus economy, not so much in the rate of unemployment as in emigration and a declining population, a low participation rate of women in paid employment, and continued dependence on a largely subsistence agriculture.

Conditions became more promising during the 1960s. Growth accelerated somewhat, and the overall policy stance looked increasingly benign in terms of macroeconomic management, human capital formation, and openness to the international economy. The exchange rate was pegged to the pound sterling, macroeconomic policy was characterized by a modest balance of payments deficit, and the fiscal stance was conservative, observing the “golden rule” of borrowing only to finance public capital investment. Taxation was relatively low, taking less than 30 percent of GNP, compared with an average of over 36 percent across all member countries of the Organization for Economic Cooperation and Development (OECD). Inward foreign direct investment (FDI) was encouraged by grant incentives, a profits tax exemption, and, from the 1970s onward, duty-free access to the rest of the European Economic Community (EEC), which Ireland joined in 1973. Educational attainment was rapidly increasing as a result of the belated introduction of universal free secondary education in 1967.

Although income per capita was low relative to that in the United Kingdom (by far Ireland’s largest trading and financial partner, the main destination for its emigrants, and at that stage still the dominant reference point

6. Although foreshadowed earlier, the shift to an outward-oriented policy is usually dated to a suite of policy changes launched in 1958. Another early milestone was the Anglo-Irish Free Trade Area Agreement (1965).
for economic policy), nonagricultural income per worker was already close to the U.K. level. Ireland's continued backwardness reflected, above all, the modest share of the population in higher-productivity nonagricultural activities. That GDP per capita was 27 percent lower than in the United Kingdom in 1973 (table 1) reflected, first, a labor force participation rate that was 19 percent lower, and second, the fact that almost a quarter of those at work in Ireland were engaged in agriculture, where income per capita was 40 percent below that in the United Kingdom. Average nonagricultural output per person engaged was virtually the same in both countries. These points illustrate the trap into which the uncritical discussion of convergence based on the broadest aggregates can lead.

Thus, in 1973, an optimist could—and some did—foresee a steady convergence in living standards to reach those of the United Kingdom and other advanced European economies within a generation, especially as rising participation by a better-educated work force in the modern, export-driven, nonagricultural sector lifted average income per capita.\(^7\) Indeed, the situation at the end of the twentieth century can be seen as the fulfillment of that prediction. The policy stance had by then reverted to the earlier one: once more there was a fixed exchange rate, and the current account and the fiscal accounts were both in surplus for most recent years. Tax revenue as a share of GNP was again in the lowest third of the OECD countries, and unemployment was at a historic low—and lower than in most other industrial countries. The nonagricultural work force now includes 40 percent of the population, compared with 28 percent in 1973 (figure 1). The dependency ratio peaked in 1986 at 224 dependents per 100 employed. By 2001 it was down to 124. As a result, GNP per capita is now close to the industrial-country average.\(^8\)

Ireland's convergence on the leaders in terms of output per capita in the last quarter of the century was thus essentially the result of employing a new generation—one with higher educational qualifications and, in the case of women, a higher propensity to labor force participation—in the modern sector and, notably, outside of traditional agriculture. At one level, therefore, Ireland's achievement does not seem all that special:

\(^7\) Higher incomes in agriculture were also in prospect, thanks to the stimulus of high EEC support prices.

\(^8\) Our characterization of Irish convergence here finds some U.S. echoes in Caselli and Coleman (2001).
Ireland has finally caught up with the early modernizers to take its place among the world’s most productive and prosperous countries.\(^9\) The challenge is to explain the belatedness and speed of the catch-up and especially the employment boom of the 1990s.

The two snapshots, as of 1973 and as of 2001, conceal the fact that the path between them was anything but stable. Thrown badly off course by the first oil crisis and the policy response to it, Ireland lacked the conditions for continued steady convergence for the first fifteen years or so of the intervening period. Lacking in particular were a stable fiscal environment and a wage formation process that would keep Irish labor competitive.

Instead, an attempt to force a quick recovery from the slump of the mid-1970s gave rise to wage pressures and fiscal imbalances that left Ireland ill prepared for the high global interest rates and weak foreign demand of the early 1980s, not least from Margaret Thatcher’s Britain. Thus the aggressive fiscal expansion in the late 1970s helped drive up real wages and crowd out sustainable growth of productive capacity. Subsequently, the spiraling debt, high tax rates, and high interest rates of the early 1980s perpetuated conditions hostile to sustained growth. High

\(^9\) Ó Gráda and O’Rourke (2000).
taxes placed upward pressure on the supply price of labor and, together
with the apparently inexorable rise in debt, sapped business confidence. In
addition, fiscal policy resulted in a sizable net withdrawal of demand as
the authorities struggled to limit deficits even as external debt service
grew rapidly. Thus, although inflation and the external deficit came down,
these were years of deep recession in Ireland, when the economy pre-
sented a very weak picture. The net result was that, by 1986, there was a
lot more catching up to do.\textsuperscript{10}

By this time everyone concerned realized that a more disciplined
demand management policy was required. But that realization was not in
test sufficient to ensure convergence. When fiscal and demand condi-
tions stabilized, real wage moderation took center stage in smoothing the
process of employment transition. We will argue that the institutional
arrangements for wage bargaining and the harsh realities of high unem-

\textsuperscript{10} “Poorest of the Rich” was the title used by \textit{The Economist} in January 1988 for its
survey of the Irish economy. When it revisited the topic in May 1997, the title was
“Europe’s Shining Light.”
ployment in Ireland and the United Kingdom were the factors that reduced real wage growth below the rates recorded in Ireland's trading partners and greatly facilitated employment growth. In contrast to the East Asian miracle economies, accumulation of physical capital, including public infrastructure, has not played an important driving role, although our measures may miss a crucial change in the quality of investment in the 1990s.

Although the rapid reduction in unemployment, the fiscal turnaround, and the very high recorded rates of output growth in the subsequent fifteen years reflect a strong improvement in competitiveness (measured as wage rates relative to those of Ireland's trading partners, expressed in a common currency), partly associated with a successful process of centralized wage bargaining, they also owe much to more favorable external conditions. The external impetus provided by FDI from the United States and other countries has had a multidimensional impact on economic performance. These have been the booster rockets that were needed to lift Ireland into the higher orbit in which it travels today.

The whole period since 1973 thus appears as a long business cycle, with a deep and prolonged trough in the first half of the 1980s and a climacteric around end-century, superimposed on a secular transition in the population structure and in the patterns of labor force participation and employment. Although we emphasize convergence, some distinctive features of the Irish economy at the start of the twenty-first century clamor for attention. It is among the most globalized economies in the world, with (for example) more than half of its manufacturing and financial sectors owned by foreigners. The total value of exports exceeds GNP and is just a little below GDP (a constant source of puzzlement to undergraduates).

An exceptional propensity to emigrate has long been an Irish characteristic, and during the boom this was replaced by a high immigration rate. This aspect of Ireland's openness to the rest of the world has undoubtedly contributed to the economy's ability to experience rapid employment growth: the roughly 50,000 jobs added annually in the 1990s are only a small fraction of overall employment in the industrial coun-

11. The business cycle was also partly driven by developments in the United Kingdom. The openness of the economy, including its openness to migration, and the pegged exchange rate regime in place for much of the time have always made defining, measuring, and explaining an Irish business cycle a nonstandard exercise.
tries. But the substantial presence of high-technology multinational corporations puts an unduly flattering gloss on some Irish economic statistics, notably measures of productivity, which, when correctly interpreted, appear solid rather than miraculous.

The remainder of the paper looks at these three key elements. It starts by focusing on demand management policy, explaining the failures and successes of fiscal and monetary policy that first delayed and then strongly assisted the economic convergence. (Box 1 discusses the political economy of this period.) The next section looks at how the labor market functioned. The fact that this market, long cleared through emigration, suddenly saw enough job creation to achieve both full employment and net immigration is the nub of the matter. We then analyze trends in the level and composition of output and of productivity, showing that the distinctive patterns of Ireland's productive structure and faster productivity growth played limited roles in the recent success. (An appendix explores the implications of the exceptional industries dominated by affiliates of U.S. corporations for measures of income and productivity.) Finally, we ask what lessons can be exported to other countries and, in particular, whether one can isolate any policy ingredient as being the determining factor in Ireland's success.

**Managing Demand: Fiscal and Monetary Policy**

Ireland is not alone in having experienced severe macroeconomic imbalances in the past quarter century, but their amplitude has been greater than in almost any other OECD country. The early 1980s saw the worst extremes. In 1981 inflation was 21 percent, the current account deficit was about 15 percent of GNP, and public sector borrowing was running at an even higher rate. The attempt to rein in the twin deficits caused taxation to jump by 10 percentage points of GNP in seven years, while overt unemployment soared to 16 percent of the labor force in 1986 and net emigration approached 1 percent of the population. Nevertheless, government debt continued to grow, on some measures reaching almost 130 percent of GNP in 1986.

Contrast those figures with the situation in 2001, when the unemployment rate fell as low as 3.8 percent, despite a dramatic rise in the labor force participation rate and substantial net immigration. Taxation had
Box 1. Why Did Governments Act As They Did? Interpreting Fiscal Policy in the 1970s and Early 1980s

How is one to explain the three contrasting approaches to fiscal policy in Ireland in the last quarter century: aggressively expansionary from 1977, tax-and-spend from 1981, and aggressively cost-cutting from 1987?! The explanation is to be found partly in the government’s pursuit of flawed economic models, partly in shifting external developments, and partly in parliamentary dynamics. But above all it can be interpreted in terms of shifting political cost-benefit calculations.

The strategy adopted by the incoming government in 1977 was prompted by the high levels that unemployment had reached, making its resolution seem the appropriate primary goal of policy, and by the low—indeed, sharply negative—real interest rates that had prevailed for the previous few years. Also influential was an ingrained skepticism about the likelihood that private enterprise would ever generate sufficient employment. Given this environment, borrowing to finance an expansion in employment seemed more attractive than ever before. But the policy was flawed on three fronts. First, the low real interest rates would prove, unsurprisingly, to be a temporary aberration. Second, the ability of a “buy Irish” campaign to neutralize the balance of payments consequences of the fiscal expansion (whether through spending or competitiveness effects or both) was largely illusory. Third, the responsiveness of the Irish unemployment rate to expansionary fiscal policy was much less than one for one with job creation. (As a rule of thumb, summarizing econometric evidence, for every two jobs created, one person was added to the work force in the short term, mainly through the return migration flow but also through rising participation.) Jobs were created, and unemployment did fall, but too many of the jobs were dependent either directly on government spending or indirectly on deficit finance, both of which would prove unsustainable.

In the event, external events worsened affairs even more than the government ought to have provided for. Global developments in 1979-80 heightened the realization that the fiscal path was unsustainable, and this was widely recognized by the time of the change of government in 1981. From then until...

(continued)

1. As shown by Lane (1998), fiscal policy was definitely procyclical in this period, and it may have continued to be so to the end of the century, although deciding this is bedeviled by the acute difficulty of measuring the output gap appropriately.
Box 1. Why Did Governments Act As They Did? Interpreting Fiscal Policy in the 1970s and Early 1980s (continued)

1987 there was a succession of insecure coalition or minority governments, whose fiscal policy replaced the defeat of unemployment with a new overriding objective of stabilizing the fiscal position subject to the constraint of maintaining adequate levels of public services and income support mechanisms. Continued support from the Labour Party required the latter, and it was a hallmark of the ensuing recession that rates of unemployment assistance and other income support payments were maintained in real terms.\(^3\) These dual goals implied a continued increase in spending, as interest rates and unemployment continued to rise, combined with spiraling tax rates, calculated in each budget more or less as a residual: what would be needed after the debt markets had been tapped to the maximum extent possible. This holding operation was barely sustainable; suspension of much of the public capital spending program helped reduce the primary deficit substantially, but rising debt service charges meant that the debt was still growing faster than GNP. Furthermore, with the high tax rates and massive borrowing certainly discouraging private sector initiative, and the deep recession in the United Kingdom inhibiting outmigration for several years, unemployment continued its inexorable rise.

A new political configuration from 1987 onward allowed a more single-minded approach to fiscal stabilization.\(^4\) By stealing the outgoing government's rhetoric, the new leaders made cutting government expenditure no longer a political taboo, and at last fiscal policy was addressed to an attainable objective function. Furthermore, external circumstances improved dramatically, with a worldwide fall in interest rates accompanied by a tightening of labor market conditions in the United Kingdom, which allowed emigration in the late 1980s to lower Irish unemployment and its associated fiscal costs. Stricter enforcement of the social welfare code became more politically tolerable as the numbers dependent on transfers began to decline.

2. By comparison with the continental European countries, however, income support payments have long been set at a relatively low percentage of average income.

3. Seidman (1987) showed that although the new government also relied on independent deputies, it was more secure, as measured in terms of Shapley value (a measure of the power of opposition groups to form winning coalitions), than any of the previous governments during the decade. Additionally, the leader of the opposition committed the main opposition party to supporting the government's fiscal stabilization (in the so-called Tallaght strategy).
been falling steadily as a percentage of GNP, but this did not prevent the fiscal surplus from exceeding 5 percent of GNP in 2000, bringing the government debt-to-GNP ratio down to 38 percent by the end of 2001. There was just a small deficit in the current account that year, and inflation, although above the European Central Bank’s target, fell to around 4.5 percent.

This compares trough with peak, however, and indeed from mid-2001 the economy began to slow, with unemployment rising slightly and the fiscal accounts deteriorating quite sharply. Nevertheless, the contrast over the two decades is startling, and to interpret it requires a narrative approach explaining what happened and why.

**Falling into the Debt Trap**

Happily, it is possible to abstract from higher-frequency fluctuations and concentrate on the big picture of a single long cycle in macroeconomic imbalances in Ireland during the last quarter of the twentieth century.\(^{12}\) Figure 2 shows this cyclical evolution of internal and external balance, with the former measured by unemployment and the latter by the current account deficit. Although the figure echoes developments in other countries for parts of the period, the amplitude and duration of this single cycle are unique among the industrial countries. And, given the fact that immigration was high when unemployment was low (and vice versa), the figure even understates the amplitude of the internal disequilibria.\(^{13}\) Recognizing the existence of this long cycle has methodological implications for our analysis. First, it means that we are not dealing only with growth theory—as have most previous attempts to understand the Irish miracle—but that an important part of the analysis needs to focus on stabilization policy: on the fiscal and monetary policy responses to external shocks and shifting state variables over the period. Second, to the extent that the whole period represents a single observation or cycle, it limits the kind of econometric work that can be done on the broad time-series characteristics: numerous slow-moving variables also display a single cycle over this

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12. Here and elsewhere in the paper, for data before 1995 we use the consistent historical series maintained by the Economic and Social Research Institute. We are very grateful to John FitzGerald for making this database available to us.

13. On the other hand, the coincidence of high inflation and nominal interest outflows means that the current account deficit is somewhat overstated at its height.
period; attempts to identify which were causal are almost inevitably inconclusive.\textsuperscript{1a}

The length and amplitude of this cycle must, however, be mainly attributed to some serious policy errors. Figure 3 traces several macroeconomic and budgetary aggregates over the period. In essence, the oil price crisis of 1973–74 triggered a sequence of short-termist demand management responses that kept the economy out of equilibrium and inhibited sustainable job creation for almost two decades. The initial decision to finance the oil crisis with borrowing paralleled decisions in the United Kingdom. Government debt and inflation surged, while unemployment rose in tandem with that in Britain. A fiscal correction was initiated by 1976, but it was the decision to respond to the lingering high

\textsuperscript{14} We chose the variables in Figure 2 in preference to plotting wage inflation against unemployment (such a plot would also generally move in a large loop, though with many eddies); that alternative is not easy to read as a shifting Phillips curve, not only because high international labor mobility has implied a significant medium-term influence of U.K. unemployment conditions on those in Ireland, but also because, especially before 1979, fluctuations in external inflation were rapidly imported through the fixed exchange rate.
unemployment with an aggressively expansionary fiscal policy beginning in 1977 that, by the end of the decade, had placed government finances on a dangerously unstable path.¹⁵ New spending programs, expansion of public sector employment, and higher rates of transfer payments all translated into a hard-to-finance ratcheting up of current government expenditure. The debt-to-GNP ratio was rising rapidly (top left panel of figure 3), with an increasing share of the debt being borrowed from abroad and denominated in foreign currency. This left the government with little room to maneuver in response to the next adverse shock, which came with the Iranian revolution in 1979 and the tightening of U.K. and global monetary policy.

By 1981 rising interest rates and weakening external demand conditions meant that the fiscal deficit was increasing rapidly (top right panel of figure 3) even though policy had turned contractionary.¹⁶ Thus the automatic stabilizers, especially income support payments, worked against the early attempts at fiscal correction, as unemployment soared as a result of the combined effect of the cutback in the primary deficit and adverse shocks from the deteriorating labor market conditions in the United Kingdom. The impact of these deflationary forces on employment and output was aggravated by the fact that the liberalized trading environment had weakened many of Ireland’s traditional, formerly heavily protected industries. Employment in these industries contracted by about 25 percent—or 30,000 jobs—in the first half of the 1980s. The rapid demise of these jobs was undoubtedly hastened by the contraction of demand, which it in turn intensified.

By the mid-1980s even paying for current spending programs was proving difficult. Every year from 1979 on, the share of taxes in GNP

¹⁵. An alternative, generational accounting approach to fiscal policy presents a very different picture for Ireland. Indeed, because of relatively favorable demographics (discussed below), Ireland has, from this alternative perspective, had one of the stronger fiscal positions among OECD countries throughout the period under review (McCarthy and Bonin, 1999; Cronin and McCoy, 2000). In a sense, then, the Irish fiscal crisis was one more of liquidity than of underlying long-term imbalance, but there is a limit to what one can borrow in the markets on the strength of a favorable generational account balance.

¹⁶. The last column of table 2 presents a model-based measure, due to Duffy and others (2000), of the discretionary change in fiscal policy in each year from the previous year. It shows that discretionary fiscal policy was progressively tightened in each of the four years 1981 to 1984. Further, and sharper, tightening occurred in each of the three years 1987 to 1989. Although cyclically adjusted budget figures are controversial, the Blanchard (1990) approach gives a broadly similar time path of the budgetary stance.
Figure 3. Macroeconomic and Budgetary Aggregates, 1970–2001

Government debt
Percent of GNP

Government surplus
Percent of GNP

Tax revenue and current expenditure

Public expenditure

Public sector wages and capital expenditure

Interest costs and transfer payments

rose, from 28 percent to almost 38 percent in 1984, as government scrambled to find additional revenue to meet the soaring spending (middle left panel of figure 3). Tax rates on alcohol and tobacco, as well as on television sets and other consumer durables, were so high that cross-border smuggling from Northern Ireland to the Republic became rampant. Some rates were above revenue-maximizing levels and were subsequently lowered, with an apparent gain in revenue. The spiraling tax take had put upward pressure on wage rate negotiations despite rising unemployment. Although the primary deficit began to fall as early as 1983, the debt ratio grew to perilous levels, sufficient to prompt suggestions that default would be an attractive option. By 1986 fiscal policy was at the crossroads.

*The Fiscal Recovery: An Expansionary Fiscal Contraction?*

The rapid turnaround in the fiscal accounts—for which the decisive date is 1987—took everybody by surprise. Not only was the marked tightening of policy by the incoming government unexpected (see the last column of table 2, and box 1), but the speed with which borrowing and the debt ratio responded was also unforeseen. However, the contribution of greatly improved external conditions (table 3) should not be underrated.

With the economy turning around, it is not surprising that some authors pointed to the dramatic fiscal correction as an important part of the explanation of Ireland’s altered fortunes, arguing that this was an example of an “expansionary fiscal contraction” (EFC). Subsequent work cast doubt on the mechanisms proposed. Indeed, a glance at the sequence of events (exports leading consumption, which in turn leads investment; see the first four data columns of table 2 for 1987–90) shows that the confidence story underlying the simplified version of the EFC hypothesis has an uphill struggle to find empirical support in Ireland.

Yet the fiscal correction was undoubtedly a necessary precondition for the subsequent improved performance. Spiraling tax rates and an apparently runaway debt-to-GNP ratio cannot have encouraged entrepreneurial

18. This view was espoused, for example, by Dornbusch (1989).
Table 2. Growth of Real GDP and Its Components and Alternative Aggregate Measures, 1973–2000

Percent

<table>
<thead>
<tr>
<th>Year</th>
<th>Private</th>
<th>Government</th>
<th>Investment*</th>
<th>Exports</th>
<th>Imports</th>
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<th>GNP</th>
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<td>0.6</td>
<td>1.7</td>
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</table>

Memorandum: 2000 levels expressed as a percent of 2000 GDP

| 50.8 | 12.0 | 20.8 | 103.9 | 87.3 | 100.0 | 83.9 | n.a. | n.a. | n.a. |


a. Gross fixed capital formation.
b. Adjusted for changes in terms of trade.
c. Real GDP scaled by nominal foreign profit outflows as a share of nominal GDP.
d. Change in the fiscal deficit resulting from discretionary policy changes, as estimated by Kearney and others (2000).
or investor confidence in Ireland.\textsuperscript{21} Even though taxation as a percentage of GNP had peaked in 1984 (apart from a spike in tax receipts under the amnesty of 1988; middle left panel of figure 3) and marginal rates had started to fall sharply (figure 4), only by 1988–89 was it clear that the debt situation had been brought under control, which was perhaps a precondition for the recovery of investment. Comparing 2001 with 1985, the top rate of income tax has come down from 65 percent to 42 percent; of standard corporate tax from 50 percent to 16 percent; of capital gains tax from 60 percent to 20 percent; and of capital acquisitions tax from 55 percent to 20 percent.

The specific fiscal steps taken in 1987 were quite orthodox: a temporary freeze on all public sector recruitment—implying a sharp fall in numbers employed, and thus in the public sector wage bill\textsuperscript{22}—combined with (further) cutbacks in public capital spending (bottom left panel of figure 3). The better external conditions helped turn the automatic stabilizers around (the bottom right panel of figure 3 shows that transfer payments fell), as first emigration and then a pickup in labor demand at home lowered unemployment. Falling interest rates also helped, and when the debt-to-GNP ratio started to fall in 1987, the positive feedback became cumulative.\textsuperscript{23}

\begin{table}[h]
\centering
\caption{External Conditions Facing Ireland in the 1980s}
\begin{tabular}{lcc}
\hline
\textbf{Item} & \textbf{1981–84} & \textbf{1986–89} \\
\hline
Average U.K. GDP growth & 1.6 & 4.1 \\
Average annual change in U.K. unemployment rate & 1.4 & -1.2 \\
Average U.S. short-term nominal interest rate\textsuperscript{a} & 10.7 & 6.7 \\
\hline
\end{tabular}
\footnotesize{a. Data for 1985 are omitted because it is a transition year.}
\footnotesize{b. U.S. inflation was about 1.2 percentage points higher in 1981–84 than in 1986–89. The dollar appreciated 40 percent over 1981–84 and depreciated 24 percent over 1986–89.}
\end{table}

\textsuperscript{21} Certainly it also put upward pressure on wage rates (see Curtis and FitzGerald, 1996; FitzGerald, 1999).

\textsuperscript{22} Already not all vacancies were being filled, putting an end to any expectation that government would act as an employer of last resort.

\textsuperscript{23} Actually, the decline in inflation during the early 1980s meant that the measured fiscal accounts flattered reality. Inflation-adjusted accounts show a less steep cyclical amplitude in both fiscal and international payments deficits; qualitatively, however, the story is unaffected by such an adjustment.
Abandonment of the link to sterling in 1979 in favor of membership in the new adjustable-peg regime of the European Monetary System (EMS) was an additional, and on the whole unhelpful, element of stabilization policy. The decision to join the EMS was made on strategic diplomatic and political grounds, with economic arguments playing only an incidental role. It certainly did not reflect any attempt to escape the discipline of Ireland’s quasi-currency board arrangement, which had been in place in one form or another for 150 years. If anything, policymakers expected the new regime to result in an appreciation of the Irish pound against sterling (which had been notably weak since the mid-1960s), and subsidies were granted from Europe to ease the burden of adjusting to what was believed would be a tougher regime.

In the event, realignments in the EMS were frequent, and, at least for the first decade, Ireland was not slow to avail itself of these opportunities to retain wage competitiveness. In seven of the eleven realignments in the
first decade of the EMS, the Irish pound was devalued against the
deutsche mark. With two exceptions, Ireland always pursued the modal
realignmentation. The exceptions were triggered by the two sharp real appreci-
atations that occurred as a result of a weakening sterling in 1983 and 1986.
And they imparted an additional cumulative 9 percent depreciation to the
Irish pound in the 1980s, making it weaker than all but the French franc
and the lira in that period. Rather than a “zone of monetary stability” or a
genuine hard currency peg, the EMS proved to be, for Ireland, a dragging
anchor. All in all, membership weakened anti-inflationary discipline and
increased uncertainty. Interest rates, adjusted for currency depreciation,
averaged about 250 basis points above those in Germany—and much
higher during several pre-realignment surges. This has been interpreted as
a “peso” premium, although domestic policy in the form not only of
high government borrowing, but also of technical deficiencies in mone-
ty policy implementation, added to the volatility and average level of
interest rates before 1988.

On the other hand, decoupling from sterling just as it was about to
appreciate in the early 1980s fortuitously protected Ireland from an addi-
tional severe competitiveness shock. Relative to those of Ireland’s main
trading partners, exchange rate-corrected wage rates increased on aver-
age by about 1 percent a year, in both the 1970s and into the 1980s, with
no evident acceleration after EMS membership. After 1986, however,
there does appear to have been a sharp improvement in the trend of wage
competitiveness (figure 5).

The devaluation of 1986, initiated as a defensive measure in light of
the loss of competitiveness associated with a rapid depreciation of ster-
ling, was especially timely in that sterling suddenly recovered, leaving
Ireland well placed in terms of wage competitiveness to benefit from the

26. The sharp appreciation of sterling against all EMS currencies during 1979–81
brought the Irish pound to as low as 74 U.K. pence—a nominal bilateral depreciatio-
of over 25 percent in just two years.
27. The competitiveness indicator shown in figure 5 represents a weighted average of
the hourly earnings in Ireland’s main trading partners divided by the same measure in Ire-
land (all expressed in a common currency, and relative to the projection of a linear trend
from 1975 to 1987). The series shown is that published by the Department of Finance in its
annual Economic Review and Outlook. (The series in the Central Bank of Ireland’s Bulletin
shows a stronger improvement in competitiveness during the 1990s, apparently because of
different country weights.)
accelerating economic boom in the United Kingdom and in other trading partners after 1987. As it happened, this was the first step in a sustained improvement in wage competitiveness.

The Turnaround in Wage Competitiveness

The data in figure 5, based on average hourly earnings in industry in Ireland compared with its main trading partners, need to be treated with caution: the series relates only to industry and is not adjusted for important shifts in age, skill, and sectoral composition. Nevertheless, partial

28. At the start of the boom, Irish wage rates were much below U.K., French, and German levels in both skilled and unskilled occupations, but especially in the latter. For example, labor costs in the textile industry were lower in Britain than in Ireland in 1988, but the differential was reversed in the computer sector (Duffy and others, 1997). The diminishing surplus of unskilled labor and higher social welfare benefits subsequently raised unskilled wage rates, while the higher educational levels of the large cohorts leaving the educational system and their lack of external employment opportunities may have exerted downward pressure on skilled wage rates. On the other hand, returning migrants earned a wage premium (Barrett and O'Connell, 2000).
indications for other sectors suggest that the overall trends shown do not mislead. The rapid increase in relative wages up to the mid-1980s was interrupted and may have been reversed.

For Ireland, wage rates are preferable as a measure of competitiveness either to consumer prices (which are affected by substantial increases in indirect taxes not immediately relevant to international competitiveness) or to unit labor costs (which are dramatically influenced by the shift in sectoral composition to sectors with low labor shares). In particular, some observers have mistakenly attempted to judge Irish labor competitiveness by comparing average unit labor costs across industries. Such measures are seriously misleading, exaggerating improvements in competitiveness, because the average is improved by the shifting sectoral composition from high- to low-labor-share technologies, even if marginal or average labor productivity does not change in any sector. Unit labor cost data in Ireland are further distorted by the special characteristics addressed later in this paper.

On the other hand, if the data could be adequately adjusted for these sectoral shifts and other problems, they would likely show some persistent differential productivity growth in Ireland’s favor. Indeed, the trend increase in relative Irish wages in the 1970s and early 1980s was usually interpreted as an equilibrium Balassa-Samuelson effect, that is, a reflection of the rise in relative wages and costs in the nontraded sector of an economy enjoying rapid productivity growth in the export sector (although this would not be the case for sharp runups such as that in 1976–80).

Figure 5 represents a compromise in which the differential change in wage rates is detrended by a constant, as if there had been a constant rate of differential marginal productivity growth. Provocatively juxtaposed with the employment data, the resulting wage competitiveness series suggests an important causal factor in the jobs performance of the 1990s. Later we consider the process of wage determination that gave rise to this competitiveness improvement.

_Fiscal and Exchange Rate Policy during the Boom_

Once economic activity started to pick up in the late 1980s, tax receipts began to flood in (not least the corporate tax, with the surging manufacturing profits taxed at 10 percent), allowing the government to lower tax
rates quite sharply without any significant decline in the share of GNP taken in taxation (after 1990) or any increase in the deficit. As we will see, the ability to lower tax rates gave the government an important bargaining chip in the centralized pay negotiations, potentially generating another virtuous circle, as credible multyear wage agreements halted the deterioration in wage competitiveness that had been a feature of the previous ten years.

With the fiscal stabilization in place and inflation staying low, maintaining confidence was the watchword, and attitudes toward realignments hardened. Thus, after the departure of sterling from the exchange rate mechanism (ERM) of the EMS in September 1992, the Irish government resisted market pressure to devalue for over four months despite the sudden severe loss of cross-channel competitiveness and soaring interest rates (figure 6). The Irish pound was eventually devalued, in February 1993, and not long thereafter the ERM effectively fell apart and members were allowed a wide margin of fluctuation. During the six years of loosely managed float that followed, real interest rates (and excess returns) were lower than they had been under the ERM.

The budget also benefited from the receipt of substantially expanded structural grants from the EU budget after 1988. This came at a crucial moment inasmuch as, using these funds, the government could begin to tackle the backlog of deferred infrastructure projects without threatening the initially fragile recovery in the public finances. Annual receipts from this source peaked at over 3 percent of GNP in 1993, a very substantial sum, although only a fraction of the fiscal turnaround. The wider impact of these funds on the economy is discussed later in the paper.

Although the major contribution to demand growth in the late 1980s and early 1990s came from net exports, attributable both to greater competitiveness and to capital formation in the export sector (as discussed below), by the mid-1990s increased prosperity and lower interest rates were inducing higher private investment in housing. Thus, although the fiscal accounts continued to strengthen until 2001, the current account, which had been in surplus since 1992, began to deteriorate in 1998 and moved into a small deficit by 2000.

By this stage the economy was displaying unmistakable signs of overheating, most conspicuously in property prices: house prices rose by some

29. The role of low taxation of corporation profits in boosting inward FDI is discussed later in the paper.
120 percent between 1996 and 2000. Consumer price inflation accelerated for a while, touching 7 percent in 2000 despite adoption of the euro as the national currency.\textsuperscript{30} This inflation spike was largely attributable to the appreciation of the dollar and sterling against the euro in its early months, but local demand pressure also contributed.

This is not the place to discuss the prospects for a successful management of the transition from boom to more normal growth rates, although such a transition was unmistakably under way by mid-2001. As the following sections will show, some of the institutional features that had worked so well in the upturn—the pay bargaining system and the role of

\textsuperscript{30} Political arguments similar to those that had driven the Irish pound into the EMS in 1979 applied again in the decision to adopt the single currency beginning in 1999. Most economists thought that the economic arguments for and against membership absent the United Kingdom were fairly evenly balanced. As the start of European Monetary Union neared, interest rates converged downward toward those in Germany, adding to the demand pressure in the Irish housing market. In March 1998, in order to dampen inflationary pressure, it was decided to raise the Irish pound’s entry rate by adjusting its EMS central rate. This was the only occasion in the twenty-year history of the EMS when a member currency was revalued against the deutsche mark.
inward FDI in high-technology industries—looked by 2001 as if they might be less benign in the downturn. Still, memories of the protracted fiscal crisis of the 1970s and 1980s and of the associated economic malaise were sufficiently fresh to ensure more prudent fiscal management this time around. And although the recent surge in current expenditure is disturbingly reminiscent of the mistakes of the late 1970s, in EMU at least there is now no scope for homegrown monetary policy mistakes.

Employment and the Labor Market

Although demand management failures and the consequences of the struggle to restore order to the public finances explain Ireland’s sluggish employment performance during most of the 1980s, and their correction could have been expected to result in some recovery, the rapid and sustained growth in employment especially after 1989 still needs discussion. The new jobs were sufficiently numerous not only to wipe out most of the unemployment, but also to absorb an unusually high rate of labor force growth. A sharp increase in labor force participation by women, and considerable net immigration that reversed the traditional outflow. (Figure 7 shows how these developments transformed the population structure in favor of productive workers.)

A high elasticity of international migration has long been a hallmark of the Irish labor market, and indeed, the rate of unemployment is loosely anchored to that in the United Kingdom. Net emigration has long seemed to place a ceiling on the gap between Irish and U.K. unemployment. Although Irish unemployment is today slightly below the U.K. rate, rather than well above as was the case for decades, U.K. labor market conditions still appear to be the major determinant of medium-term fluctuations in Irish unemployment. With complete freedom of movement between the two countries, and a tradition of high mobility, the U.K. labor market acts as a flywheel. When job creation was low in Ireland, net emigration eventually closed any wide gap between Irish and U.K. unemployment rates. (Although the gap jumped to almost 9 percentage points in 1989, this was transitory.) Assisted by the more rapid job creation of recent years, Irish unemployment has dipped close even to what have been historically low

\[31. \text{This in turn resulted from a baby bulge, which has now matured, the birth rate having declined precipitously after 1980.}\]
Figure 7. Characteristics of Population and Employment, 1961–2001

Population and Its Distribution

Distribution of Population Change

Thousands a year

(Source: <source>)
Figure 7. Characteristics of Population and Employment, 1961–2001 (continued)

Sources of Population Change*

Thousands a year

- Natural increase
- Net migration
- Total change

* Annual averages.

U.K. rates (figure 8). It was unlikely to fall much lower, even if the global downturn had not intervened.

Econometric analysis of these relations, although not conclusive, corroborates these general assertions (table 4). Even without the change in employment, or the wage variables as additional explanatory variables, an error correction model in which U.K. unemployment is the only driver provides quite a good fit, although the large positive autocorrelation coefficient clearly flags the omission of one or more slow-moving explanatory variables (regression equations 4.1 and 4.2). Omission of the change in employment makes it hard for the equation to match the actual amplitude of the major fluctuation.

32. Although lack of cointegration between U.K. and Irish unemployment rates cannot be rejected, when the percentage change in total Irish employment is included, a three-variable cointegrating relationship—Johansen’s test—is obtained. However, the coefficient on the employment change term is rather high, and we prefer to present the results based on using the change in employment as a transitory term as above.
Even if there had been no employment boom in Ireland, the fall in U.K. unemployment in the late 1990s would have exerted its traditional downward pressure on the Irish rate, but through the usual outflow of emigrants and the stagnation of nonagricultural employment. Instead, the effects of higher unemployment and centralized wage bargaining on wage inflation spurred job creation, which not only reduced Irish unemployment but also sucked in Irish emigrants from abroad, young workers from elsewhere in the European Union, and a modest, although much remarked upon, flow of economic migrants and asylum seekers from Eastern Europe and the developing world.

As argued above, wage restraint has been a hallmark of the recovery. This is partly attributable to the high levels of unemployment that had been reached in Ireland and the United Kingdom, partly to union restraint exercised in the process of centralized pay agreements (associated with tax reductions), and partly, perhaps, to reduced union power in much of the economy. This last topic deserves an explicit discussion, to which we now turn.
Table 4. Regressions Linking Irish and U.K. Unemployment Using an Error Correction Model

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>4-1</th>
<th>4-2</th>
<th>4-3</th>
<th>4-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>1.04</td>
<td>1.24</td>
<td>2.31</td>
<td>2.20</td>
</tr>
<tr>
<td></td>
<td>(6.6)</td>
<td>(6.3)</td>
<td>(2.3)</td>
<td>(1.6)</td>
</tr>
<tr>
<td>First difference of U.K. unemployment</td>
<td>0.50</td>
<td>0.47</td>
<td>0.59</td>
<td>0.63</td>
</tr>
<tr>
<td></td>
<td>(7.1)</td>
<td>(6.4)</td>
<td>(4.1)</td>
<td>(3.4)</td>
</tr>
<tr>
<td>First difference of Irish employment</td>
<td>-0.37</td>
<td>-0.37</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(11.7)</td>
<td>(11.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lagged difference between</td>
<td>-0.08</td>
<td>-0.10</td>
<td>-0.67</td>
<td>0.59</td>
</tr>
<tr>
<td>Irish and U.K. unemployment</td>
<td></td>
<td></td>
<td>(2.3)</td>
<td>(2.2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(2.8)</td>
<td>(3.6)</td>
</tr>
<tr>
<td>First-order autocorrelation</td>
<td>-0.26</td>
<td>-0.33</td>
<td>0.86</td>
<td>0.84</td>
</tr>
<tr>
<td>coefficient</td>
<td>(1.5)</td>
<td>(1.6)</td>
<td>(6.5)</td>
<td>(4.1)</td>
</tr>
</tbody>
</table>

Summary statistic

<table>
<thead>
<tr>
<th>R²</th>
<th>0.877</th>
<th>0.899</th>
<th>0.578</th>
<th>0.621</th>
</tr>
</thead>
<tbody>
<tr>
<td>Durbin-Watson</td>
<td>2.05</td>
<td>2.08</td>
<td>2.16</td>
<td>2.20</td>
</tr>
</tbody>
</table>

Source: Authors’ regressions based on data from the ESRI database.
* The dependent variable is the first difference of Irish unemployment. Variables for employment and unemployment are expressed as a percentage of the labor force. t-statistics are reported in parentheses.

The Role of Corporatism

One helpful way of thinking about Ireland’s distinctive industrial relations and wage bargaining arrangements is to recognize how sharply they have diverged in the past two decades from those in Britain. Both economies have recovered from severe and protracted episodes of mass unemployment, but they have chosen dramatically different routes out of their crises. In Britain the power of the trade and labor unions was undermined in the 1980s by confrontations with the government, such as that which crushed the miners’ strike in 1984, and subsequent legislative changes. But in Ireland there was no explicit government agenda to curb union power; on the contrary, the role of unions was greatly strengthened by the revival and deepening, beginning in 1987, of a centralized bargaining process that went beyond wages to cover taxation and other aspects of economic policy.

To be sure, the disastrous labor market trends of the 1980s had hit the Irish trade union movement very hard. Union membership, which had been growing rapidly since the 1960s, peaked in 1980 and declined steadily until the 1990s. Union density declined even more rapidly and did not recover (figure 9), as most of the new jobs created in the booming
economy were in union-free workplaces. It is easy to see why the unions would have been anxious to bolster their power through corporatist institutions: it is less easy to see why the authorities would have wanted to revert to this "partnership approach" to wage bargaining in the late 1980s, which had been abandoned as a failure just a few years before.

It was against a historical background of poor industrial relations that centralized wage bargaining had begun decades before, with an attempt to achieve a more "orderly" development of "wage rounds," that is, pay increases negotiated between employers and unions. Initially the central agreements were confined to the nitty-gritty of percentage pay increases, the treatment of lower-paid workers, cost-of-living adjustments, and mechanisms for resolving disputes, with the government participating mainly as an employer. But in 1976 the government, influenced by the successful experience of such countries as Austria, the Netherlands, Norway, and Sweden, sought an integrated pay agreement, linked to changes in social welfare benefits, and accepted some responsibility for job creation in return for pay moderation. Implicitly, the goal was to move fre-
land to the left, or centralized, end of the inverted U-shaped curve explaining excess wage inflation as a function of the degree of centralization in wage bargaining.\textsuperscript{33} In contrast, Mrs. Thatcher was soon to move Britain to the right.

But the 1979 National Understanding for Economic and Social Development, negotiated against a backdrop of disastrous industrial strife, embodied the government’s expansionist approach and provided significant wage concessions. Although this agreement achieved a reduction in the level of strikes, a second agreement collapsed in 1982, and there followed a five-year period of decentralized collective bargaining.\textsuperscript{14}

It was not until 1987, at the depth of the crisis, that a new centralized agreement was negotiated. This came about in very altered circumstances, with much-weakened unions and a widespread consensus that generalized belt tightening was needed to reverse the economic decline. This agreement was followed by four others, negotiated over successive three- to four-year horizons extending from 1988 to 2003, each exceeding the previous one in its ambition and scope. The range of objectives now extended far beyond the basic goal of promoting industrial peace and keeping the economy competitive to objectives such as “bringing about a fairer and more inclusive Ireland” and “promoting an entrepreneurial culture.”

\textit{Impact of Centralized Agreements}

Admirers of the partnership approach, with its use of a broad, tax-based incomes policy, give it much credit for contributing to the exceptional growth in employment by almost eliminating industrial disputes and moderating real wage growth.

\textbf{STRIKES.} A comparison of the Irish and British records on industrial disputes is instructive (figure 10). The Irish strike rate was similar to the British rate in the 1970s. There was a dramatic spike in 1979 related to a national postal strike. This concentrated minds on the need to promote industrial peace. The strike rate fell to a much lower level after the new wage bargaining system was launched in 1987, and during the 1990s strikes ceased to be a general problem. The U.K. experience was broadly

\textsuperscript{33} Calmfors and Driffill (1988).
\textsuperscript{34} Durkan (1992); Hardiman (2000).
similar, with a dramatic fall in strike activity after the 1984 miners' strike and a rate of virtually zero in the 1990s. Thus the Irish and British records might be viewed as separate paths to the same destination.

Employers welcomed the outbreak of industrial peace and the saving of time and energy at the level of the firm achieved by the centralization and coordination of wage bargaining. It is interesting to note that the affiliates of U.S. firms in Ireland thrived in a setting of centralized pay bargaining completely alien to their domestic industrial relations environment. Many now managed to combine the corporatist approach at the national level with a union-free workplace. Up until the early 1980s, most multinational corporations (MNCs) had accepted the presence of unions as a matter of course; that this stopped being the convention is another reflection of the weakness of unions, and of the unemployment situation, in the mid-1980s.

Of course, the centralized route relies on continuous effort to maintain the consensus. Memories of the bad times fade, and there is already some indication in the last few years of an uptick in Irish trade union militancy.
Starting in 1999 there have been several disruptive strikes, mostly in the public sector or state-owned industries. This underscores the fact that the less confrontational Irish approach to the industrial strife of the 1970s and 1980s did not dislodge the trade union movement from a central role in pay bargaining or reduce its legal prerogatives. Meanwhile the drive to privatize the state-owned industries, where unions continue to exercise considerable insider power, has been half-hearted, compared with what has been done in Britain.

REAL WAGES AND COMPETITIVENESS. Several authors have analyzed why the upward relative trend of Irish wages was halted in 1986, but the underlying factors have proved resistant to an agreed econometric explanation. Much of the short-term fluctuation in the relative position is attributable to autonomous exchange rate changes involving sterling and the dollar. Indeed, once these are allowed for, it is hard to identify a statistically significant role for the domestic unemployment rate, let alone the pay bargaining regime. But exchange rate movements are implausible as an underlying cause of the sustained reversal of trend. How much of this should be attributed to the new pay negotiation environment? Despite the inconclusive econometric results, most observers regard the coincidence of timing of the reversal of the deteriorating trend in competitiveness with the new approach to pay bargaining as suggestive that the latter did pay dividends.

A key feature of the agreements was the lowering of the burden of taxation on employees: this was held to be crucial to the moderation of nominal wage claims. Indeed, crudely plotting the overall share of taxation in GNP in figure 3 against the wage competitiveness measure in figure 5 produces a temptingly close fit (not shown). Thus the reductions in tax rates, already discussed above, were an implicit part of the negotiation of each agreement, with government promising income tax “concessions” in return for pay moderation. Along with the rapidly falling top marginal tax rates, mentioned earlier, income tax thresholds were raised sharply in real terms, taking more and more of the lower paid out of the income tax net.

36. An $R^2$ of 0.91 is obtained with just the tax variable, lagged two years ($t$ statistic of 7), and a linear time trend. Here again, however, we need to be cautious: as has been noted, the twenty-six years of data represents only one cycle.
Of course, this was a somewhat Faustian bargain in that the lowering of tax rates had a natural limit influenced by public perceptions of the adequacy of the provision of public services. The time would eventually come when the government would have nothing more to offer in this dimension to buy wage moderation. Indeed, targeted improvements to public services became part of the pay bargains.

Was there a price paid in terms of inequality? Naïve calculations suggest a huge increase in the share of profits in GDP, but, for reasons discussed in the next section relating to the interpretation of the profits of MNCs, it is hard to be precise about the extent to which wage restraint really did shift relative factor shares.\textsuperscript{37} Certainly the boom has brought about a large reduction in absolute income poverty and in nonmonetary measures of deprivation, but there has been no clear trend in relative poverty or in inequality.\textsuperscript{38}

By 1998 there was considerable drift in actual private sector wage rates above what was agreed in the national agreements. The era of wage restraint seemed to be nearing its end. Fortuitously, however, the weakness of the euro between 1999 and 2002 helped keep Irish labor competitive despite accelerating nominal wage increases, as figure 5 showed.

\textit{Structural Rigidities}

Conventional wisdom (repeated in many reports of the OECD and the European Commission) has it that the poor labor market performance of the continental European economies may be partly blamed on rigidities and structural defects in their labor markets. It is widely believed that the interaction of the tax and benefit systems creates serious disincentives to offering and accepting employment. It is thus worth examining whether, aside from the lower tax rates, policy changes of the type advocated by the OECD played a significant role in the transformation of the Irish labor market during the 1990s.

The simplest summary of the impact of the benefit system on work incentives is the replacement ratio, the proportion of the net-of-tax wage income that is replaced by unemployment benefits in various situations.

\textsuperscript{37} Even after excluding MNC profits, the wage share in factor income has been declining since the mid-1990s, but only slightly, for example from 64.7 percent in 1994 to 62.8 percent in 1999 (Lane, 1997).

\textsuperscript{38} Nolan, O'Connell, and Whelan (2000).
The extensive evidence on this topic compiled by the OECD shows that, during the 1970s, the relative generosity of Irish benefits increased from a low initial level, reached a plateau in the mid-1980s, and declined gently thereafter, as figure 3 showed. Ireland is close to the OECD average on this index, above countries like the United States but significantly below the Netherlands and the Scandinavian countries. There was no radical reform of the Irish welfare system during the 1990s to which the dramatic improvement of the labor market can be attributed.

But the interactions between social welfare benefits and net-of-tax earnings from employment are complex and not fully captured by the replacement ratio. Some subtle changes were made to the structure of the Irish entitlements system that increased the incentives to take paid employment. An example is the decision in 1999 to allow those enrolling in back-to-work or training schemes to continue to receive rent and mortgage supplements. Still, such changes were relatively minor and occurred after the unemployment rate had begun to fall rapidly.

Others point to the carrot-and-stick approach taken to encourage job search and participation in education and training programs. OECD data reveal that Ireland moved well up the national rankings on spending on such active labor market policies between 1985 and 1997: this spending rose from 14 percent of average industrial earnings per person unemployed in 1985 to 29 percent in 1997, when only the Netherlands and the Scandinavian countries reported higher figures. This level of spending has proved controversial, and although there is some microeconometric evidence to suggest that the increased emphasis on “back to work” measures did help a little in improving the functioning of the labor market in the 1990s, its role should not be exaggerated.

The disincentive effects of these generous benefits appear small compared with those reported in the international literature—elasticities of duration with respect to benefits of only 0.01—and the largest effects are reported among relatively advantaged unemployed groups, and not the long-term unemployed who constitute such a large proportion of the core unemployment problem in Europe. It is all the more remarkable, then, that the long-term unemployment rate was even more responsive than the overall rate to the employment boom, falling from almost 11 percent in

the late 1980s to just over 1 percent in 2001. Some but not much of this is due to reassigning chronic unemployed persons to out-of-labor-force categories, including work on special ("community employment") schemes.

Where Did All the Jobs Come From?

During the dark days of the long 1980s, pessimists would raise the unanswerable question: Where will all the jobs needed to achieve full employment come from? The lack of a convincing ex ante answer to this question was used to advocate a major expansion of public sector employment. In the event, it was after the emphasis on public sector employment was abandoned that jobs were generated at an unprecedented rate.

Table 5 shows how the employment gain was distributed across sectors. The predominance of the so-called market services sector as a provider of new jobs is striking. This heterogeneous category ranges from financial services (banks, insurance companies, and the like), legal services, and accountancy firms to hotels, catering, restaurants, and pubs. It includes employment in what might be regarded as economic base activities (such as tourism and internationally traded financial services) as well as "induced" activities (such as local commercial services). Employment in the publicly financed health and educational services also increased quite rapidly, but the numbers in core public administration were contained.

Export-driven manufacturing has been a particular strength, with the numbers employed growing against the trend of the OECD countries generally. Most of this expansion occurred in newer industries such as electronics, pharmaceuticals, and medical instrumentation, where foreign-owned firms account for over 90 percent of output (the peculiarities of these industries are discussed in the next section). Employment in traditional industries—which include clothing, textiles, furniture, and utilities, where established Irish firms predominate—was more or less static over the period. But by 2000 manufacturing as a whole accounted for only 18 percent of total employment, of which foreign-owned firms contributed about half. Even if a generous allowance is made for the employment indirectly generated by these firms, their contribution to total employment remains small, whatever their wider contribution to the economy (to which we turn in the next section).
Table 5. Employment Growth by Sector, 1985–2000

<table>
<thead>
<tr>
<th>Sector</th>
<th>Share of 1985 employment</th>
<th>Average annual growth rate of employment</th>
<th>Share of total increase in employment</th>
<th>Share of 2000 employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>15.1</td>
<td>-1.8</td>
<td>-7.3</td>
<td>7.9</td>
</tr>
<tr>
<td>Building and</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>construction</td>
<td>6.6</td>
<td>5.4</td>
<td>16.4</td>
<td>10.2</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>19.8</td>
<td>2.4</td>
<td>15.9</td>
<td>18.0</td>
</tr>
<tr>
<td>Traditional</td>
<td>12.5</td>
<td>0.2</td>
<td>0.6</td>
<td>9.0</td>
</tr>
<tr>
<td>High technology*</td>
<td>7.3</td>
<td>4.6</td>
<td>13.1</td>
<td>9.0</td>
</tr>
<tr>
<td>Market services</td>
<td>36.9</td>
<td>3.8</td>
<td>54.1</td>
<td>42.4</td>
</tr>
<tr>
<td>Nonmarket services*</td>
<td>21.4</td>
<td>2.9</td>
<td>22.4</td>
<td>21.5</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>2.7</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: ESRI database.

* a. Approximated by the chemical and electronics industries.
  b. Includes industries such as health services, education, and public administration.

**Explaining the Employment Miracle**

Ireland’s high labor force elasticity is no mystery, especially when the size and openness of the economy are recalled. High initial unemployment, an exceptional gap between Irish and U.K. unemployment rates, low initial participation rates, and a baby bulge endowed with high educational qualifications entering the labor force ensured that there would be no difficulty in filling a large number of newly created jobs. The difference was that in the 1990s these preconditions were actually used to create an employment miracle.

This miracle owes something to a more cooperative approach among the social partners—labor, management, and government—than had been achieved at any time in the past. The key to this outbreak of harmony was the weakening of the trade union movement by the devastating job losses and soaring unemployment of the early 1980s. Faced with a dismal situation in the mid-1980s, the government decided to adopt a conciliatory approach rather than imitate the confrontational Thatcherite strategy.

42. The availability of labor was one of the attractions to FDI, and its quality influenced which industries were attracted.
Various continental models as well as earlier experience at home influenced the new social partnership approach, which achieved industrial peace as well as moderation in nominal and real wage claims in exchange for tax cuts, social welfare improvements, and a growing list of government commitments on other fronts.

The cuts in income tax rates helped moderate the rate of inflation in wage costs, improved the competitiveness of labor, and created the conditions conducive for investment by domestic and foreign entrepreneurs. This led to the creation of employment on an unprecedented scale, not only in the services sector, but even in the manufacturing sector, where foreign-owned firms led the way, and eventually—very strongly—in the building industry as the boom matured. Some reduction in disincentives to employment arising from the social welfare and tax systems, and an increased emphasis on active labor market measures, helped the labor market to function more smoothly, but these measures were secondary.

**Output Growth and Productivity**

Previous sections have, we hope, managed to explain and interpret much of the essence of the Irish economic miracle of the last fifteen years without mentioning some of the most distinctive elements revealed by even a cursory examination of Irish economic statistics, namely, the extremely high degree of trade openness, the large share of foreign-owned firms in manufacturing, and the high level and recent high growth rate of apparent labor productivity.

All three of these characteristics are interrelated. A very high proportion of Irish trade (over 90 percent of manufacturing exports, and almost 80 percent of all exports) reflects the output of foreign-owned manufacturing enterprises. And the level and growth rate of productivity have been much higher in industries dominated by these firms. This is not, as some skeptics have believed, a mirage; the numbers are correctly recorded. But although productivity has been high and the role of foreign firms important, a simplistic reading of the numbers can greatly overstate their contribution to the Irish boom. This section seeks to explain why this is so, thereby resolving one of the puzzles of the Irish story: how such rapid measured productivity and aggregate output growth could have been achieved during the 1990s.
The Contribution of MNC Production to Trade and Productivity

Ireland was recently rated first in the world in Foreign Policy magazine’s globalization ranking. One aspect of globalization is the ratio of trade (exports plus imports) to GDP, which in 2000 was 173 percent, a figure approached only by Singapore. This particular comparison alerts us to the near-entrepôt character of a segment of MNC manufacturing in Ireland. Probing deeper, we find that a handful of industries, employing just a small fraction of the manufacturing work force (and much less of total employment), accounts for a very large share not only of economy-wide exports but also of imports, output, and profits and makes a disproportionate contribution to measured aggregate productivity.

To take the most extreme case identified in the official statistics, just two dozen enterprises manufacturing goods classified as “other organic basic chemicals” (NACE code 24.14) and employing 4,800 workers, or just 0.3 percent of economy-wide employment, produced over 18 percent of the economy’s total exports in 1999, a sum equivalent to 14 percent of GDP. Even after subtracting the very substantial import component, the value added of this four-digit industry, which produces various pharmaceutical-related chemicals, accounted for 8½ percent of GDP. But what are we to make of an industry where the share of labor in net output is as low as 1.7 percent, and where net output per worker has been as high as $2½ million, or 1.8 million Irish pounds (in 1998)?

Several other industries also display a strikingly low labor share (see the appendix). It is not hard to figure out what is going on when we look at the industries involved: for example, the “other food products” category is dominated by a few large soft-drink concentrate producers; “reproduction of recorded media” includes the manufacture of software packages such as Microsoft Windows. It is not that these are capital-intensive industries—all are estimated to have annual real returns on capital invested in excess of 100 percent. Instead, these are all industries

44. An alternative way of characterizing the impact of the largest MNCs is presented by Keating (2000), who estimates that they directly accounted for 10 billion out of a 1998 GDP of 64 billion Irish pounds, but only for about 3 billion out of a GNP of 53 billion Irish pounds. Whereas GDP at constant factor cost increased by 75 percent between 1990 and 1999, the output of the three sectors dominated by MNCs increased by a factor of 3.7.
45. NACE is the European standard statistical classification of economic activities.
characterized by highly valuable patented products. Most of the research and development that went into producing these goods was conducted in affiliates of these enterprises in other countries, mainly the United States. Much of the profit, however, is located in Ireland, a natural consequence of the low corporate profits tax rate that has prevailed there for such business, one way or another, for the past half-century. Until 1979 the major concession was the exemption of profits derived from exports from corporate and personal income tax. Thereafter, in order to come into compliance with EU requirements of nondiscrimination as between production for the domestic market and that for exports to other EU states, the exemption was replaced by a preferential 10 percent corporate tax rate applied to manufacturing and certain internationally traded services. Recently, this concession came under pressure from the European Commission, leading to a decision to unify the corporate tax rate economy-wide at 12½ percent beginning in 2003.

Ireland’s long-standing and enthusiastic encouragement of inward FDI includes not only low corporate profit tax rates but also an element of grant assistance, freedom to repatriate profits, and an energetic industrial promotion agency. But it is notable that a disproportionate share of the firms attracted by this package has come from industries well placed to take advantage of legitimate tax management within the standard transfer pricing rules.

In effect, since Ireland has by far the lowest standard rate of corporate tax on manufacturing among the advanced economies, these transactions are often booked at transfer prices that have the effect of locating a very high fraction of the enterprise’s global profits in Ireland. The pricing of such specific inputs and outputs, many of them traded with affiliates, although governed by rules established by tax authorities, is somewhat arbitrary. What is clear is that, in many cases, the huge profits recorded by the Irish affiliates have very little to do with the manufacturing activities being conducted in Ireland. The low labor shares in value added should not be interpreted as truly implying high economic productivity of the labor and physical capital employed by the enterprises in Ireland.

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47. Commission of the European Communities (2001). It is perhaps worth remarking here that the U.S. taxpayer does not necessarily bear the incidence of this use of the Irish tax regime by U.S. MNCs, which mainly affects where overseas investment is located.
This is a caveat whose applicability goes far beyond the analysis of sectoral production statistics. The numbers involved are large and have been growing relative to the total economy, and so they affect growth rates as well as levels. As one rough indication of the scale of the problem, aggregate GDP in 1999 would be more than 15 percent lower if the output of just the four industries discussed in the appendix were repriced at "shadow" prices chosen to make the reestimated apparent labor productivity equal to the mean for corresponding industries in other European countries. At these shadow prices, aggregate exports would be 27 percent lower and aggregate industrial production 52 percent lower. The growth rate of GDP would also be lower, as discussed below.

Obviously, this is a very crude adjustment to the data. For one thing, it does not cover all of the industries to which the issue is relevant. On the other hand, it may err on the conservative side by making no allowance for any special attributes of those industries in Ireland, such as the recent vintage of their physical capital and their favorable product mix. Because of the scale and complexity of this transfer pricing issue, it bedevils aggregate economic analysis. Cross-national analyses of output, productivity, profit shares, and geographical trade patterns, for example, are strongly influenced by how transfer pricing is treated.\(^{48}\) Unfortunately, however, this aspect is all too often neglected.

Even after adjustments such as the one offered above, the contribution of MNCs to the economy is very large. For example, just under 50 percent of manufacturing employment is in foreign-owned firms, and even at the low tax rate, corporate tax revenue from manufacturing and internationally traded service companies yields almost 7 percent of total tax revenue. Although direct industrial and service linkages are relatively modest (input-output-based calculations suggest that each manufacturing job is associated with one other job in the economy delivering inputs to the manufacturer),\(^{49}\) it is generally accepted that these firms have, over the years, brought management practices and skills that have since percolated widely throughout the economy. It may also be that reliance on tax incentives, which resulted in self-selection by firms with increasing

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48. That the share of the United States in Irish exports jumped from 11.2 percent in 1997 to 17.2 percent in 2000 was partly due to exchange rate movements, but more importantly to the surge in exports of chemicals, notably including Vintra.

returns to scale, dependent not on physical but on intangible knowledge capital, helped to tilt Irish manufacturing toward higher-growth industries. This, of course, was also a goal of the industrial promotion agencies, which claim success in picking winning industries. Whatever the cause, the indications are that Ireland was already capturing an increased share of the stock of U.S. manufacturing FDI into Europe back in the late 1970s (figure 11). 50

Explicit mention should also be made of the International Financial Service Centre (IFSC) in Dublin. In this rejuvenated and rebuilt zone of what had been a disused part of the capital’s inner-city docklands, firms offering approved international financial services to nonresidents of Ireland enjoyed broadly similar corporate tax concessions, together with relief from property taxes beginning in 1988, until, under pressure from the European Commission, the concessions were withdrawn for new startups after 1999. By 2001 the official figure for employment creation at the IFSC had risen to 11,000, which corresponds to a quarter of total financial sector employment in Ireland. There could, however, be some debate about the extent to which this employment is truly additional, as Irish banks have moved substantial parts of their operations physically into the IFSC, in order to be able to claim the low rate of tax on their nonresident business. On the other hand, the IFSC’s boast of considerable complementary factor employment outside the IFSC itself is not an empty one.

Productivity and Real Income Growth

Recognizing, then, the need for caution in employing unadjusted output figures for productivity analysis, and that data problems have ham-

50. Plotting Ireland’s share of the flow rather than the stock of U.S. outward FDI (as, for example, in Duffy and others, 2001) does tend to make Ireland’s relative performance in attracting FDI in the 1990s look stronger. It is also important to distinguish between manufacturing and total FDI; the latter includes an important element of financial services investment that has greatly increased, especially since 1998. Recorded average flows of inward FDI from all sources were equivalent to 8 percent of domestic fixed capital formation during 1985–95; this is perhaps an underestimate, but it serves to emphasize the intangible nature of the intellectual capital actually being employed. There is little correspondence between the value of FDI flows and the value of real capital formation in Ireland by investing firms. By 2000 the flow had jumped to almost 100 percent of domestic fixed capital formation, much of it in the financial sector and intended for use in outward portfolio investment through the International Financial Service Centre (see text). Finally, the late 1990s also saw a sharp increase in outward FDI.
Figure 11. Ireland's Share of the Stock of U.S. Manufacturing FDI in the European Union, 1966–99

Sources: Bureau of Economic Analysis, direct investment Financial and Operating data, and Balance of Payments and Direct Investment Position data.

1 Two distinctly different series are combined to provide a continuous measure. For 1996–99, data are the percentage of the assets of U.S. firms' foreign affiliates divided by their parent firm's direct investment Financial and Operating data. For 1994–99, data are the cumulative value of U.S. parent firms' investments in their affiliates, from BEA Balance of Payments and Direct Investment Position data. Because these data show a larger stock of FDI in the overlap year, 1994, than in the first series, the combined series shown here takes the level of FDI in 1994 from the first series and, starting with 1995, increases it by the percentage change observed for the second series. * indicates missing observation.

pered the development of a solid body of knowledge in the field, we still need to provide a balanced summary of aggregate income and productivity growth during the boom years. Figure 12 shows three different measures of average living standards during the past twenty-five years: GNP, gross national disposable income (GNDI), and consumption (all per capita). Figure 13 shows three measures of productivity growth (each of which is a measure of output growth divided by the relevant employment figure). Each of the six series tells a distinct part of the story. The use of GNP rather than GDP in figure 12 is important: the difference between them has long been greater in Ireland than in any other industrial country. For most countries it makes little difference which measure is used, and GDP is the market leader. For Ireland, however, unadjusted GDP is arguably too misleading to be used in most contexts, and one or another of the adjusted series is preferable, depending on the context. GDP has been
consistently higher than GNP. This partly reflects the large net interest payments to foreign creditors (resulting from the size of government foreign debt, especially in the 1980s), but more the large share in GDP—reaching as high as 24 percent in 2000 if the IFSC is included, and 20 percent for manufacturing alone—accounted for by the profits of foreign-owned firms operating in Ireland. Growth of GDP has been faster than GNP: by 1½ percentage points on average in the late 1990s.

The second living standards measure, GNDI adjusted for the terms of trade, differs from GNP by adding net current transfers from abroad, mainly from the structural funds of the European Union, as well as by adjusting for terms-of-trade effects, which have tended to be adverse in recent years.  

51. Note, however, that recent years have also seen sizable profit inflows attributable to a growing gross outward flow of FDI.

52. Buffered by international developments common to other oil-importing industrial countries, Ireland’s terms of trade have also displayed a trend weakness since the mid-1980s. Part of this may be attributed to rapid price decline due to the short product cycle characteristic of the computer and software industry. Chain-weighted indexes have not yet
Figure 13. Alternative Measures of Productivity Growth, 1975–2000

Percent a year

Sources: Authors' calculations based on data from Central Statistics Office Ireland, National Income and Expenditure, and ESRI database.
1. All measures are per worker.

Since 1985, growth in personal consumption per capita has been much more moderate than growth in aggregate income. The government absorbed much of the difference and applied it to debt reduction—an approach that tended at first to conceal the extent of the boom from the general public.

For productivity comparisons, figure 13 shows calculations based on GDP per worker and two adjusted measures that exclude all MNC profits. This adjustment is even cruder than the adjustment made in the appendix but is available for a longer period. It is clearly conceptually an overadjustment, but not a large one, and preferable to simply using GNP to correct for the transfer pricing problem, because that does not allow for the complication of the rise and fall in net interest payments on government debt.

been employed to alleviate this problem. A further adjustment, not made here, would add net capital transfers from abroad.

53. With fewer farmers and more women in the labor force, hours worked have declined by 15 percent since the 1980s. Productivity growth is higher when this is taken into account.
But the adjusted figures are less puzzling. For example, the level of adjusted GDP per capita converges on the EU and OECD averages (not shown), rather than overshooting sharply. Depending on the adjustment, Ireland’s ranking falls quite a few notches. Growth in apparent labor productivity, as adjusted, is now within the range exhibited by other countries and by Ireland itself in earlier periods. Nevertheless, it has been sufficient, when applied to the rapidly increasing share of workers in the population, to generate the observed convergence in living standards.

To keep the story simple, we have said little about physical capital formation, because we do not see this as a central part of the story behind the boom. Although (for reasons by now evident) making credible calculations of total factor productivity is problematic, it would be very hard to argue that physical capital formation was a major growth driver. Indeed, having touched 30 percent of GDP in 1979, gross domestic capital formation declined sharply, averaging only 17 percent of GDP during the recovery period 1986–95 (figure 14). Much of the decline was due to the shrinking importance of the public capital program, which fell by almost 4 percentage points of GDP between 1981 and 1990, whereas the recovery in the second half of the 1990s was largely due to a resurgence of investment in housing; the ratios to GNP are, of course, higher. Even in 1996–2000, although high by European standards, Ireland’s investment ratio was well below the figures recorded by the other rapidly expanding economies of the 1990s, in the Far East. Furthermore, less than one-seventh of the total was attributable to manufacturing.

**Lessons and Conclusion**

We have argued that the outstanding performance of the Irish economy in the past decade or so should be interpreted mainly as a delayed structural transformation as the proportion of the population at work outside agriculture, and the productivity of those workers, at last spurted toward the levels long ago achieved in other industrialized countries, while the productivity of the labor force remaining in agriculture also rose. This

54. This figure was boosted by what by all accounts proved to be relatively unproductive public investment, although the modernization of the telephone system and electricity generation capacity, for example, in these years did not go amiss.
Figure 14. Composition of Gross Domestic Capital Formation, 1975–2000

Percent of GDP

![Diagram showing the composition of gross domestic capital formation from 1980 to 1995. The categories include Nonmarket services, Other market services, Manufacturing, Agriculture, Energy, Roads, Building, and Residential.]

Source: Central Statistics Office Ireland, National Income and Expenditure; and ESRI database.

1. Includes industries such as health services, education, and public administration.

interpretation implies that underlying institutional preconditions for reaching this frontier were in place but that its achievement was delayed by macroeconomic policy errors.

Journalistic commentators have sought to identify a single explanation—a secret ingredient in the hare’s diet, such as a particular policy measure or development—that was the key to a turnaround in Irish performance. The arguments of these authors are not without merit, but in our view none of the supposed ingredients bears scrutiny as the unique decisive factor, and as such, a lesson to be applied elsewhere. The various ingredients fall into three categories. First are those that prove on examination to have been simmering away on the back burner for decades. These contributed to the improved performance over the long run and certainly formed an important part of the underlying policy environment, but they did not change much during the period of turnaround, and so they cannot explain the “miracle” of the last decade. Second are ingredients that, although useful, fail in quantitative terms: their direct contribution cannot plausibly account for a major part of the gain in output, although they may have played an important catalytic role at the moment of turn-
around. Third are elements already encompassed in our catch-up characterization: as such we see them not as special ingredients but as the removal of obstacles. The unavoidably mundane conclusion is that all of these ingredients have played their part, and thus that improved economic performance requires a strong policy environment on a broad front.

_Slowly Simmering Ingredients_

The much-vaulted quality of Irish education, contributing to the employability of the young work force, is a key slow burner. The acceleration in the growth of the average educational attainment of the work force dates to the introduction in 1967 of universal access to secondary education free of fees. There is no significant inflection point in the 1980s. Applying the estimated wage gradient to educational attainment suggests that this factor contributed almost 1 percentage point to the annual growth of GNP in the 1980s and 1990s.55

A second factor that has also been steadily at work since the early 1970s is the fall in age dependency, documented above. Almost one-third of the population was under the age of 15 in 1971. As the birth rate belatedly declined toward the European average, this proportion began to fall in the 1980s to about 21 percent in 2001, while the share of the elderly in the population remained unchanged.

Lower age dependency eased pressures on the public finances, while the demographic momentum attributable to the high birth rate of the 1970s contributed to the elasticity of the labor supply. Of course, these demographic trends were not wholly exogenous to the improved employment conditions, as witness the reversal of net emigration. Even the fall in the birth rate could be attributed in part to the rise in women’s educational attainment and labor force participation rates.

We have already explained that tax concessions for exporting manufacturers have become less rather than more generous since the late 1970s. Although unfavorable fiscal and other developments limited their attractiveness until the late 1980s, their continued liberality is obviously an important but slowly simmering element of the environment.

55. Durkan, FitzGerald, and Harmon (1999); Denny, Harmon, and Redmond (1999); Duffy and others (2001).
Other contributors to economic growth, identified in cross-country studies, include the effectiveness of deep underlying institutions such as those related to the rule of law, the quality of public administration, and the depth and efficiency of the financial system. By comparison with many less developed countries, the essentials in this regard were arguably present in Ireland from an early date. For instance, Ireland scores high on most of the subjective indicators of institutional quality employed by growth researchers. As another example, the underlying soundness of the financial system (seen in the literature as a key to sustained growth) is reflected in the fact that, unlike so many other countries, and despite the severity of the long recession, Ireland escaped an extensive banking crisis in the 1970s and the 1980s.\(^56\) An alternative crude, and somewhat quixotic, indicator of the basic efficiency of the public services was their ability to collect well over 40 percent of GNP in tax revenue. Of course, some long-standing institutions had become dysfunctional or sclerotic, and there have been many important institutional changes during the past two decades: our claim here is the limited one that the Ireland of the early 1970s already enjoyed to a reasonable extent what are typically regarded in the growth literature as the underlying institutional essentials. (Obvious exceptions were whatever flaws in political institutions of the 1970s contributed to the policy errors that we have discussed.)

Finally, under this heading can also be mentioned the catchall heading of cultural factors, whose contribution we have no good methodology for measuring. The familiarity to American investors of Ireland’s dominant language and of its legal and administrative systems, as well as its Janus-like orientation to both Europe and North America, may be cited as attractions. But if culture was important, it must have been in its ability to react to changed circumstances. The interaction of culturally determined aptitudes with changing technology is one possibility that has already been mentioned. If working with computer-based or communications-intensive technology is a culturally determined comparative advantage of the Irish, this may help explain the speedy convergence once other barriers were removed. It might also be related to the findings of recent happiness surveys, where Ireland tends to score very high: top of the list, for example, in a 1998 survey of workers from thirty-two countries. Is this cause, or

\(^{56}\) Honohan and Kelly (1997).
effect, of the economic boom? Not evidently the latter: attempts to explain happiness and job satisfaction with objective economic conditions still leave Ireland with the largest positive residual.  

Catalytic Factors

Among the suggested ingredients whose timing is correct, and which thus no doubt contributed to the turnaround and perhaps conveyed a catalytic effect beyond their direct impact on growth, are the flow of EU structural funds, the devaluations of 1986 and 1993, and the revitalized promotion of tourism and inward FDI (including offshore financial services). Each of these elements also could have a flavor of beggar-thy-neighbor about them, making it especially important to know whether they could have been the decisive factors.

Most often cited by external observers is the expansion in EU structural funds starting in 1988. As mentioned above, these came at an extremely opportune time. They helped fund a resumption of public capital spending, which had been pared down as part of the fiscal adjustment. After the austerity of the 1980s, a backlog of socially productive investment projects was available to absorb the funds, and a further benefit of the European Union’s role was to ensure that they were deployed with comparatively little dead weight. They were countercyclical, too, insulating Ireland from the Gulf War recession. The inflow of funds (which still continues, although now running much below the peak) had a demand effect as well as boosting the ability of the infrastructure to sustain the greatly increased level of economic activity. These very substantial transfers are estimated to have lifted the level of Irish GDP on a sustained basis by as much as 4 percent. Although not trivial, this boost is dwarfed by the exceptional growth rates recorded after 1995.

Unlike that of 1993, the devaluation of 1986 was not simply defensive. Its role has also been discussed above. Here again the direct impact can only have been a transitory one, although by generating external demand at a time when the fiscal correction was restoring confidence, it may have

57. Blanchflower and Oswald (2000).
59. Not all the EU inflows have been beneficial. The price support mechanisms of the Common Agricultural Policy represented a large transfer to Ireland but may have long delayed improvements in agricultural efficiency.
had a catalytic effect going beyond the direct contribution to demand and competitiveness.

International tourism and travel receipts did start to rise after 1986 and showed a sustained growth of over 8 percent a year to the end of the century. This development has been generally attributed to airline deregulation,\(^{60}\) measures taken to expand capacity, and a revitalized promotional strategy, although improved price competitiveness should not be forgotten. Here too there has been a lasting and considerable effect, but total receipts come to little more than 4 percent of GNP. The role of inward FDI promotion has also been discussed above. The major new development was in offshore financial services; the claims of some of the participants in industrial promotion that the strategy was decisively reformed at that time on a wider front lack convincing evidence: the indications are that the agencies have been effective and adaptive to changing circumstances throughout the past half century, as indicated by their long history of success in attracting a large share of U.S. outward FDI in manufacturing. Nonetheless, the timing of the employment boom from 1993 onward does coincide with the gathering pace of the U.S. boom and the U.S. appetite for imports, some of which was met from affiliates located in Ireland.

Absent from our list of catalysts is Ireland's commitment to the EU common currency project. As predicted, interest rates converged to low German levels in the runup to the single currency, removing the premium that had been over 5 percent for much of the 1980s. This contributed to a consumption and property boom from 1997 on, but that was a relatively late development and not altogether welcome in its timing. Also missing from our list are radical overhauls of the social welfare system and the legal labor market framework. The social welfare system was always relatively ungenerous by European standards, and the level of employment protection was relatively low.

**Popular Explanations That Did Play a Role**

Two dominant explanations of the recovery have been the corporatist social partnership and the lowering of tax rates. Although these were key

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60. It was, for Europe, an early step in airline deregulation when in 1986 Ryanair was granted a license to operate on the key Dublin-London route, long cartelized by the state-owned airlines of the two countries. Outward tourism and travel expenditure has also grown by over 8 percent in the same period.
ingredients, we prefer to see them as aspects of the removal-of-barriers hypothesis. They were part of the process that ensured that political economy and wage setting got back on a sustainable path.

As discussed, the importance of the social partnership from 1986 on cannot be dismissed. The partnership agreements did reflect a determination to set aside, for the time being, social class antagonism in favor of a joint effort to remove barriers to employment growth. But at the same time, the key precondition for the adoption of these agreements was the widespread recognition that the crisis in the public finances must be resolved and that the key to unemployment reduction could not be found in fiscal expansion. This did require dismantling of encrusted attitudes and behavior on the shop floor, and it likely also benefited from an erosion of wider institutional sclerosis; these might not have been achieved without the lengthy period of malaise in the early 1980s.

Likewise, the income tax rate reductions, which did have a significant effect on the typical worker's after-tax income, sometimes attributed to the partnership process, were evidently part and parcel of the fiscal normalization. Thus our preferred characterization embodies and encompasses these two important policy ingredients, which can be seen as aspects of the wider normalization.

Our conclusion is that there was no single magic ingredient. Many separate factors contributed. Given the already generally market-friendly and outward-looking orientation of long-standing structural policy, together with the emphasis on education spending, removal of the barriers posed by the unsustainable trajectory of debt and taxation in the 1980s was enough to unleash the hare. The initial gap in the employment-population ratio between Ireland and other countries meant that the room for catch-up was large. Some progress toward convergence was already evident in the 1960s, but in the 1990s the rate of catch-up accelerated dramatically as the upward trend of the tax burden was reversed and confidence was restored in the management of the public finances. A favorable conjuncture of external factors and a collective determination not to repeat the errors of the 1970s also helped.

_A Lucky Period for a Regional Economy_

With an economy that amounts to only about 1 percent of either euro-area or U.S. GDP and is extremely open to trade and factor flows, and

with a currency that has mostly been pegged to an external unit, Ireland has many of the characteristics of a relatively small region of a larger economy rather than those we associate with a sovereign country. Viewed as such, its performance during the 1990s was unexceptional by American standards, albeit unmatched in Europe. If Ireland had been a U.S. state, its population growth rate in the 1990s would have ranked twenty-third out of the fifty states—between New Hampshire and Mississippi. No fewer than nine U.S. metropolitan areas with populations over 1 million grew faster than Greater Dublin. To be sure, no other European countries or metropolitan areas achieved Ireland's rates of economic and demographic growth in the 1990s. The percentage increase in employment in Ireland was almost 2.7 times that of the next best performing economy, the Netherlands, and four to five times those of Sweden, Norway, Denmark, and Belgium. This paper does not attempt a comparative assessment of "euroclerosis," but it is relevant to note that the natural increase in the labor force of other European countries is much lower than in Ireland.

Thus our reading of the Irish miracle is that it was essentially a deferred and telescoped process of bringing more of the population into a modern sector that was already close to the production frontier a quarter century ago; however, we do not deny that Ireland has been well placed to benefit from shifting global technology. Already by the 1980s the country's comparative advantage (especially considering the skills and aptitudes of the labor force) and tax policy had disproportionately favored information technology and pharmaceuticals among manufacturing industries: incumbency allowed Ireland to benefit disproportionately from the strong subsequent growth of MNC production in these industries. Then again, a relatively young and rapidly growing English-speaking work force with relatively high educational attainment was the ideal factor of production to be employed in rapidly growing information technology-using activities ranging from software localization through computer-assisted call centers (serving, for example, airline and hotel reservation systems) to more sophisticated financial services. Even worries about the carcinogenic potential of a depleted ozone layer have meant that Ireland's cloudy and damp climate no longer seemed as much of a barrier to the booming tourism industry in which indoor (barroom) activities play a large part.

These factors help explain why net emigration did not just stop, but was reversed.

It has been a lucky period, then, for Ireland, but one during which policymakers and the social partners, shaken into realism by earlier disasters, seized the opportunities that were on offer with greater prudence, realism, and restraint than before. In the fable, the hare did not win its race with the tortoise, and although much has been achieved, Ireland has not assumed economic leadership in any significant industrial sector. The exceptional growth spurt has come to an end, partly through a self-correction as well as because of the global economic slowdown, and it has left Ireland close to, but not yet at, the frontier in income per capita. What remains to be seen is whether the improved performance on a broad front can be maintained in more difficult times and with most of the potential for catch-up exhausted. Given the heightened expectations and the reemerging pressures on current spending, the task of demand management in the slowdown looks particularly challenging.

APPENDIX

Calculating the "Entrepôt Economy"

Four specific industries within Irish manufacturing display the unusual characteristics of the entrepôt economy:63 "other foods" (dominated by cola concentrate manufacturers), pharmaceuticals and related basic chemicals, software reproduction, and computer components. These industries are important employers: together they employed about a fifth of the manufacturing work force, or 3 percent of the total work force, in 1999. But their contribution to industrial output (57 percent) and GDP (15 percent) is vastly disproportionate to their employment levels. Because the relative importance of these industries has been growing, excluding them reveals a very different story so far as output and productivity growth rates are concerned.

More subtly, we can make an adjustment to the output of these industries by excluding that part of their value added that seems to represent the

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63. An entrepôt (from the French for "warehouse") economy is one in which large (relative to GDP) quantities of goods are imported and then reexported, often after minimal or no processing.
return to intangible capital abroad, whether in the form of high profit remittances, royalties, or otherwise. Table A1 illustrates this approach for 1999. We refer to the adjustment as a measure of entrepôt-type output or value added. The upper panel includes royalties and other non-industrial service inputs; these are excluded in the lower panel, which thus refers just to value added. Figure A1 plots estimated entrepôt value added for 1980–99, along with the total profits of MNCs, expressed as a share of GDP. (Ideally the price deflators would also be adjusted, but the information that would allow us to do so is not available.)

This also leads to very sizable changes in measures of the growth of output and productivity. Using the adjusted output figures brings GDP growth down by 2 percentage points—from 8.2 percent to 6.2 percent—
Table A1. Estimated Scope of the Entrepôt Economy in Selected Manufacturing Industries. 1999

<table>
<thead>
<tr>
<th>Item</th>
<th>NACE industry code and representative businesses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15.85, 15.88, 15.89 (cola concentrates)(^a)</td>
</tr>
<tr>
<td>Net output per worker (millions of Irish pounds)</td>
<td>1,015</td>
</tr>
<tr>
<td>Ireland</td>
<td>90</td>
</tr>
<tr>
<td>EU average</td>
<td>2,333</td>
</tr>
<tr>
<td>Employment</td>
<td>2,157</td>
</tr>
<tr>
<td>Estimated entrepôt net output(^c)</td>
<td>2,157</td>
</tr>
<tr>
<td>Millions of Irish pounds</td>
<td>91</td>
</tr>
<tr>
<td>Percent of net output</td>
<td>91</td>
</tr>
<tr>
<td>Value added per worker(^d) (millions of Irish pounds)</td>
<td>499</td>
</tr>
<tr>
<td>Ireland</td>
<td>51</td>
</tr>
<tr>
<td>EU average</td>
<td>1,743</td>
</tr>
<tr>
<td>Employment</td>
<td>1,743</td>
</tr>
<tr>
<td>Estimated entrepôt value added(^c)</td>
<td>781</td>
</tr>
<tr>
<td>Millions of Irish pounds</td>
<td>90</td>
</tr>
<tr>
<td>Percent of value added</td>
<td>90</td>
</tr>
</tbody>
</table>

Memoranda

- Total output (GDP) = £59.7 billion
- Manufacturing output = £33.6 billion
- Total employment = 1.591 million
- Manufacturing employment = 0.248 million


\(a\) Enterprise data are for sectors 15.88 and 15.89.

\(b\) The Census of Industrial Production defines a "local unit" as "an enterprise or part thereof situated in a geographically identifiable place (for example, a factory) and an "enterprise" as "the smallest combination of legal units that is an organisation producing goods or services which benefits from a certain degree of autonomy in decision making" (for example, a firm).

\(c\) Calculated by multiplying per-worker averages of net output (value added) for the European Union by employment statistics for Ireland and then subtracting the results from the reported net output (value added) in Ireland.

\(d\) Value added is less than net output mainly because the former excludes bought-in nonindustrial services such as royalty and license payments, which are visible in those sectors.
during 1995–99. The growth rate of apparent labor productivity in manufacturing falls by almost 5 percentage points—from 8.6 percent to 3.8 percent; for GDP, apparent labor productivity falls by 2 percentage points—from 3.4 percent to 1.4 percent—in these years. Crude though these adjustments are, they are likely to underestimate the effects, inasmuch as they ignore other manufacturing industries also affected, albeit to a lesser extent, and the offshore financial services industry.

65. A discontinuity in aggregate employment statistics in 1997–98 complicates the analysis.
The transformation of the Irish labour market: 1980-2003

Brendan Walsh
Department of Economics
University College, Dublin

(Brendan.m.walsh@ucd.ie)

Statistical and Social Inquiry Society of Ireland

Presidential address

6th May 2004
1. Introduction.

During the 1990s we moved rapidly up the international living standards league tables, to the point where, by some measures, we were among the world leaders at the start of the new millennium. An exceptional feature of this boom was the rate of growth of the numbers employed and the fall in the unemployment rate. Having stagnated for over sixty years, the numbers at work grew at an annual average rate of over three per cent in the 1990s. Employment growth significantly outpaced population growth, so that GNP per person rose much faster than GNP per person at work or productivity.\(^1\) By the start of the new millennium, the unemployment rate had fallen below 4 per cent and all the indicators showed that full employment had been attained.

Even though the period of exceptional growth ended three years ago, the “day of reckoning” that was widely feared during the later phases of the boom has not arrived. There were many warnings that a world recession – especially in the high–tech industries on which we were possibly over-dependent – would have dire repercussions on Ireland. However, Ireland has weathered the slowdown in the growth in the industrialised economies storm surprisingly well. Our GNP growth rate fell from 10.2 per cent in 2000 to virtually zero in 2003 but employment did not collapse and the rise in the unemployment rate has been modest. We are one of the few OECD countries – Austria, the Netherlands, Norway, Switzerland, and the US are the others - whose unemployment rate is now at or below the level recorded in the 1960s.\(^2\)

That the Irish economy should have done so well in the 1990s was surprising, but that much of this out-performance should have been due to the exceptional performance of the labour market was remarkable in view of our failure in the past to generate employment opportunities for the potential growth of the labour force.

No one predicted the explosive growth of the 1990s, although after the fact some commentators interpreted it as a belated and long-overdue convergence on our richer neighbours. The Economic and Social Research Institute’s Medium Term Reviews sounded an optimistic note from 1994 onwards, drawing attention to Ireland’s out-performance of the EU economy before this was widely acknowledged, but their forecasts proved conservative. In 1994 they anticipated that GNP growth would average 4.5 per cent for the rest of the decade; in 1997 they raised this to just over 5 per cent for the period 1995-2004. All of these forecasts were lower than the outcome.\(^3\) Their forecasts of the fall in the unemployment rate proved equally conservative, as may be seen from Figure 1.

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\(^1\)In fact, in terms of productivity growth the 1990s were less impressive than the 1960s. See Table 1, below, and Honohan and Walsh, 2002, and Cassidy, 2004.

\(^2\) In fact, Ireland is the only OECD whose unemployment is now significantly lower than it was in the 1960s. See Nickell, 2004, for a discussion of these trends.

\(^3\) Even as late as 1997 a predicted growth rate of over 8 per cent for the rest of the decade would have lacked credibility. The ESRI authors drew attention to the fact that since 1986 they had nearly always erred on the side of pessimism “though this has not stopped commentators as viewing the ESRI as inveterate optimists” (ESRI, 1997, p. 34)!
Academic studies of the Irish unemployment problem and estimates of the equilibrium or Non-Accelerating Inflation Unemployment Rate (NAIRU) were even more conservative. The consensus was that the bulk of the very high unemployment recorded in the 1980s and early 1990s was “structural” and would not be alleviated by a cyclical recovery. For example, a comparative study of the OECD countries concluded that the equilibrium or natural unemployment rate in Ireland had risen from 9 per cent over the period 1969-79 to 13 per cent in the 1980s (Layard, Nickell, and Jackman, 1991, p. 436). Another estimate, published long after the boom got underway, suggested that although Ireland’s NAIRU had fallen from a peak of 14 per cent in 1990, it was still over 9 per cent in 1999 (McMorrow and Roeger, 2000, Tables 1 and 2). Pessimism about the labour market was reinforced by the fact that during the earlier phases of the boom employment seemed slow to respond to the growth of GNP and the unemployment rate remained stubbornly high. I entitled an article on the Irish labour market published in 1999 “The Persistence of High Unemployment” (Walsh, 1999a).

In this address I look first at some features of the behaviour of the labour market during the boom. Then I explore why employment grew so rapidly and the unemployment rate fell so fast and what changes in labour market structures and institutions might account for the sharp fall in the “equilibrium” unemployment rate.

This topic is worthy of attention in light of the frequent, by now almost ritualistic, declarations that the key to improving the performance of the economies of continental Europe lies in reform of their labour markets. The forces behind Ireland’s success should have lessons for other countries faced with the problem of stubbornly high unemployment.

2. The record

2.1 The transformation – the broad picture.

Table 1 shows growth rates of GNP, employment, and population, and the ratio of non-agricultural employment to the total population over three sub-periods, 1961-1973, 1973-1988, and 1988-2003. While the definition of the last period joins a trough to a near-peak, and a small proportion of the recorded employment growth reflects changes in survey methodology, there is no doubting that over the past fifteen years the Irish economy generated jobs at a world-record-breaking pace. This

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4 For an extended account of Ireland’s economic fortunes since the 1960s, on which this section draws, see Honohan and Walsh, 2002. My interpretation of labour market developments also draws on Walsh (2002).

5 I use GNP as the better measure than GDP of trends in the size of the Irish economy and, especially, in living standards.

6 Any choice of sub-periods is somewhat arbitrary. These correspond approximately to a period of sustained if unspectacular growth, the period of the oil crisis and the fiscal adjustment of the 1980s, and the prolonged recovery and boom of the 1990s.

7 The employment data are derived from the ILO definitions of the labour force in the results of the Labour Force Survey and its successor the Quarterly National Household Survey. The QNHS replaced the annual LFS in the fourth quarter of 1997 and the change in methodology between the two surveys is believed to added some 20,000 to measured employment, comparing 1998 with 1997.
was all the more impressive and unexpected in light of our historical record as a labour-surplus economy where the unemployment rate was held in check only by emigration, low labour force participation rates, and a continued reliance on subsistence farming.

In the 1990s, the ratio of the numbers at work outside agriculture to the total population has risen sharply (Figure 2). This made an important contribution to the sudden and rapid rise in Irish living standards. Figure 3 shows the net flows into key demographic categories over our three sub-periods, which help us understand the dynamics of the rise in the employment/population ratio. During the 1960s and early 1970s non-agricultural employment increased but so too did unemployment and the young dependent population. Things were worse during the 1980s, as the numbers of unemployed and economically inactive adults rose while the level of non-agricultural employment fell. Only the decline in the number of young dependents mitigated these negative trends. In the 1990s, however, apart from a small increase in the population aged over 64, all the dependent categories – those aged under 14, inactive adults, and the unemployed - shrank, while non-agricultural employment grew at an unprecedented rate.

We had no reason to expect such a sudden and dramatic improvement in 1990s. True, the rising birth rate of the 1970s implied that if the country were to “solve its unemployment problem” exceptionally rapid growth in employment would be required. Population and employment projections revealed job-creation requirements that far outstripped any previous employment growth and generated profound pessimism. The question of where so many jobs would come from seemed unanswerable, unless the public sector were to act as an employer of last resort, with unsustainable fiscal implications. The hope generated by the boom of the late 1970s was short-lived and more than dissipated in the protracted recession that followed, during which Ireland’s labour market was one of the worst performing in Europe. The unemployment rate rose from 7 per cent in 1979 to 17 per cent in 1986. The increasing proportion of the unemployed who had been out of work for a year or more pointed to hysteresis and the possibility that the equilibrium unemployment rate was drifting up in tandem with the actual rate. The already-low labour force participation rate fell further and by the end of the decade renewed emigration led to a decline in the population of active age while the numbers of young and old dependents continued to grow.

The picture changed dramatically during the 1990s. As the rate of growth of output recovered, the labour market situation improved, slowly at first but then more rapidly. Between the trough in 1986-87 and 2003 total employment grew by 60 per cent, non-agricultural employment by 80 per cent, and private sector employment even faster. The unemployment fell sharply and net emigration was replaced by immigration in the second half of the 1990s (Figures 4 and 5). The labour market moved from a situation of significant excess supply as late as 1993 to one where excess demand was the problem. Ireland’s success over this period compares favourably with what has been labelled the US “employment miracle” (Krueger and Pischke, 1997).
2.2 Some details

In this section I look in more detail at how the labour market was transformed in the 1990s.

As I have noted, one of the worst features of the high rate of unemployment in the mid-1980s was the preponderance of long-term unemployed in the total – a feature that led to the belief that much of the problem was “structural” and would not respond to an increase in the demand for labour. Even on optimistic assumptions about the growth of output and employment, in 1994 high levels of long-term unemployment were regarded as “virtually unavoidable” and its level was expected to increase over the rest of the decade. But in fact the long-term unemployment rate fell from 9 per cent in 1994 to 1.2 per cent in 2001, even more rapidly than the short-term unemployment (Figure 6). And by 2001 the short-term unemployment rate – often taken as a better indicator of the supply/demand balance in the labour market than the overall unemployment rate – had fallen to 2.5 per cent. This compares favourably with the United States, where there is virtually no long-term unemployment, and an overall unemployment rate of about 5 per cent is often taken to represent “full employment”.

During the early 1990s it was believed that the official unemployment rate – based on the ILO criterion of active job search – excluded many “discouraged workers” who had given up looking for work because they saw no point in searching for what wasn’t there. Since the late 1980s a more comprehensive indicator of labour market slack has been available. This treats as unemployed those who express any interest in, or passive search for, employment. Figure 7 shows the “discouraged worker rate”, measured as the difference between the unemployment rate defined to include all those marginally attached to the labour force and the conventionally-defined rate. This rate fell from 7 per cent of the (broadly defined) labour force in 1993 to 4 per cent in 2001.

The fall in the unemployment rate and rise in the participation rate led to a sharp fall in the proportion of households where no one was working. The proportion of households where there was at least one economically active person - employed or unemployed – and no-one employed fell from 12.6 per cent in 1988, to 9.0 per cent in 1997, to 4.3 per cent in 2001. Not surprisingly, over the same period there was an increase in the proportion of “work-rich” house, that is, with two or more employed members – from 29 to 50 per cent of all households.

In most OECD countries, part-time contracts have contributed more than half of all recent employment growth. The extreme example has been the Netherlands, where women working part-time in the service sector accounted for over half the total increase in employment between 1983 and 1997 (Garibaldi and Mauro, 2002). In contrast, the Irish employment boom was biased towards full-time jobs. If we allocate the total increase in employment – almost 700 thousand jobs – between men and women, full-time and part-time, we see that full-time jobs accounted for over two

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8 O’Connell and Sexton, 1994, p. 27.
9 The erraticness of this series in 1997-98 may reflect the change-over to the QNHS.
thirds of this total (Table 2). While the share of part-time working among women rose from 16.5 to 30.4 per cent, the proportion of these declaring themselves “underemployed” was only 0.7 per cent. The number of men working full-time increased by one third, which is very striking in view of the substantial decline in male employment in most industrialised economies over this period.

I now briefly discuss the development of unemployment rates by (i) age group, (ii) education level, and (iii) region of the country. We shall see that on all of these dimensions the fall in unemployment was fairly evenly shared across sub-groups.

Figure 8 shows employment and unemployment rates classified by educational attainment. The fall in unemployment rates was marked at all educational levels – especially among men. But while the absolute differentials between the education groups fell, the ratio of the rates remained fairly stable. In 2001 the unemployment rate among males with only primary education was still more than five times that among those with third level education. However, the unemployment rate among males with Leaving and Junior Certificate education did fall in relative terms, as well as absolutely.

The fall in the overall unemployment rate reflects both the reduction in age- and education-specific rates and the shift in the structure of the labour force towards demographic groups with lower unemployment rates. (The share of the labour force accounted for by those with only Primary education fell from 25 per cent to 10 per cent.) To allocate the actual decline between these sources, I constructed an “education-standardised” unemployment rate, based on the actual 1988 unemployment rates in each educational group and the 2001 shares of these groups in the labour force, which yields a rate of 12.9 per cent. As the actual unemployment rate declined from 16.7 per cent in 1988 to 6.4 per cent in 2001, 37 per cent of the observed decline might be attributed to the changing education composition of the labour force, and over 63 per cent to the decline in unemployment rates within groups. But this calculation overestimates the contribution of the higher educational attainment to the fall in the unemployment rate because the educational structural of the labour force is endogenous. Had the labour market situation remained as depressed as it had been in the late 1980s, the “brain drain” would have accelerated and the average educational attainment of the labour force would have risen less.

10 These are based on Principal Economic Status rather than ILO definitions. I am grateful to John FitzGerald for providing me with the relevant LFS data.
The trends in employment rates by educational level were mixed. Among males only small changes were recorded within each educational category, showing that the rise in the overall male employment rate was mainly due to the increasing share of groups with high employment rates rather than to the rise in rates within each category. On the other hand, there were large increases in female employment rates within each educational category, which added to the effect of the increased shares of the better-educated groups in the labour force to produce a very large increase in the overall female employment rate.

Using the regional groupings adopted in 1995, Figure 10 shows the evolution of regional unemployment and employment rates during the boom. The unemployment rate fell, and the employment rate rose, in all regions. The fall in Dublin’s unemployment rate is welcome in view of its disadvantaged position at the start of the period. The absolute dispersion in employment and unemployment rates between the regions fell markedly, but the relative dispersion increased somewhat.\textsuperscript{1} I have argued elsewhere that these differentials are not evidence of a regional “problem” but may be plausibly attributed to the different structural characteristics of the regions such as their size and the density of their labour force (Walsh, 1999b). Although the evolution of the regional distribution of economic activity during the boom may have been sub-optimal from several points of view, there is no compelling evidence of increasing regional imbalances in labour market supply-demand balances.

2.3 Where did all the jobs come from?

As already mentioned, it was difficult during the dark days of the 1980s to see where employment growth on the scale needed to make a dent in Ireland’s labour surplus would come from. With the benefit of hindsight, some interesting features of the employment boom may be noted.

First of all, the numbers of at work grew mainly because of the expansion in the numbers working in “real jobs”, that is employment in the open labour market, not dependent on subsidies or taxpayer’s support. To a lesser extent, pressure on the labour market was alleviated by an expansion of special employment schemes and social welfare measures designed to reduce long-term unemployment.

2.3.1 The growth in “real jobs”.

Not all sectors of the economy offered increased employment opportunities during the boom (Figure 11). Employment in agriculture continued its secular decline. Employment in the traditional industrial sectors – clothing, textiles, furniture, and so on - was more or less static over the entire period and declined in recent years. In the early years of the boom, employment in the public sector and in tax-financed public services was held in check.

Strong employment growth in export-driven manufacturing was a particular feature of the boom. This went against the trend of the OECD countries generally, where

\textsuperscript{1} The coefficient of variation of regional unemployment rates rose from 12.3 to 17.6 per cent and of employment rates from 3.4 to 5.3 per cent.
industrial employment declined. Most of the Irish expansion occurred in newer sectors such as electronics, pharmaceuticals, and medical instrumentation where foreign-owned firms account for over 90 per cent of output. However, these sectors were badly affected by the slowdown after 2001, leading to an overall decline in manufacturing jobs. From the peak of 2001, employment has now declined by 9 per cent, with employment in “Optical and Electrical Equipment” declining by over a quarter. At the end of 2003 manufacturing as a whole accounted for only 16 per cent of total employment, compared with almost 20 per cent in the mid-1980s.

Employment in construction has more than doubled since the early 1990s, increasing at the fastest rate of any sector. It now accounts for 11 per cent of all employment, compared with only 7 per cent in the mid-1980s. The expansion reflects a catching-up phase in residential and office accommodation and must be expected to go into reverse over the medium term.

The predominance of “market services” as a provider of new jobs is striking. This heterogeneous category ranges from financial services (banks, insurance companies, etc), legal services, accountancy firms, to hotels, catering, restaurants, pubs, and so on. It includes employment in what might be regarded as ‘economic base’ activities (such as tourism and internationally traded financial services) as well as ‘induced’ activities (such as local commercial services). Employment in the publicly financed health and educational services has also increased quite rapidly, especially in recent years, but the numbers in core public administration have been contained.

There is little prospect of further employment growth in manufacturing or construction over the medium term, so in the future employment is likely to be even more concentrated in the services sector of the economy.

### 2.3.2 Special Employment Schemes and Related Measures

Although public sector employment was held in check during the 1990s, special employment schemes financed from tax revenue and designed to provide work for the long-term unemployed and other hard-to-employ categories played a role in reducing unemployment. The numbers employed on the largest of these schemes – the Community Employment Scheme - rose from about 1 per cent of the labour force in the late 1980s to a peak of 2.8 per cent in 1995, falling back to 2 per cent by 2001 and only 1.5 per cent at present. It has been estimated that about half of those leaving these schemes return to unemployment, so they may be credited with taking about one percentage point off the total unemployment rate, although because many participants churn through the system, interrupting spells of unemployment with spells on schemes, the impact on the long-term unemployment rate has been greater (O’Connell, 2000). Nonetheless, the low short-term unemployment rate suggests that the displacement from long-term to short-term unemployment has not been significant. However, because so few participants in these schemes move on to regular paid employment, they have increasingly been viewed as part of the problem.

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12 These figures are from special tabulations of the QNHS furnished by the Central Statistics Office. They refer to those reported as employed on “government schemes” at the time of the Survey. The flow through the schemes in the course of a year is higher. Many of the supported jobs are part-time.
of structural adjustment rather than part of the solution. With the economy close to full employment, the rationale for large-scale schemes to provide work for the hard-to-employ is questionable. The provision for these schemes was reduced substantially in both 2003 and 2004. To date there is no evidence that this has adversely affected labour market indicators.

The social welfare system was used to encourage some of the unemployed to reclassify as retired or disabled. During the 1980s new inducements were put in place to encourage the older unemployed to change their unemployment allowance into a “pre-retirement allowance” on condition that they withdraw from the labour force. The numbers on this scheme reached 15,000 (about one per cent of the labour force) in the early 1990s but fell to less than 12,000 in 2001. The labour force participation rate among men aged 60-64 – the principal category likely to be affected by these measures – dropped from 61 per cent in 1988 to 55 per cent in 2003 but remains high by EU standards. Some of the reduction may be attributed to changes in the social welfare code, but other factors, such as improved private sector pension provision and the declining number of farmers, have contributed to earlier retirement.

2.4 The fall in “equilibrium” unemployment.

From the perspective of the elusive concept of the “equilibrium” unemployment rate, it is crucial to relate the trend in unemployment to wage and price developments. The economy enjoyed a very favourable constellation of demand side shocks in the late 1990s, as real interest and exchange rates fell and the world economy boomed. These developments would have been expected to push the unemployment rate to a cyclical low, but if the labour market had not changed radically there would have been a marked build-up of inflationary wage and prices pressures. (This is the argument used by European policy makers today when they claim that fiscal and monetary expansion would not be appropriate remedies for the continent’s unemployment problem.) In Ireland, however, the trade-off between inflation and unemployment improved dramatically and the Phillips Curve shifted steadily leftward during the 1990s. Figure 12 compares shows the situation in 1981-1986 and in 1999-2003. While factors like the global subsidence of inflation and the change in the Irish exchange rate regime are the main reasons for the inward movement of the Phillips Curve, it is hard to believe that we could have achieve an unemployment rate below 4 per cent without an explosion of wage inflation had the labour market remained unreformed. Moreover, analysis suggests that the surge in inflation following our entry into the European Monetary Union was more closely linked with exchange rate developments than with labour market conditions (Lane and Honohan, 2003), a view supported by the speed with which it has subsided over the last twelve months even though the unemployment rate remained well below what would have been identified as the NAIRU just a few years earlier. This calls to mind Robert Solow’s remark that

A natural rate that hops around from one triennium to another under the influences of unspecified forces, including past unemployment rates, is not natural at all. (Solow, 1986)

However, it is perhaps possible to shed light on these forces, a task to which I turn.
3. Understanding the transformation.

It is beyond the scope of the present paper to analyse in detail the reasons for Ireland’s exceptional economic performance in the 1990s. My focus is narrower, on the success story of the Irish labour market. In trying to establish the factors that account for the fall in the Irish unemployment rate in the late 1990s, I am conscious of the limits to how much light can be shed on how labour markets in general function by looking at the experience of one country in isolation. More robust inferences require a comparative perspective (see Nickell, 2004, and the studies cited there).

My interpretation is basically that during the 1990s the Irish economy experienced a series of favourable demand-side shocks, emanating from exchange rate and interest rate developments, the global economic boom, and increased mobility of FDI and its increased sensitivity to tax differentials. The dramatic response to these developments was facilitated by a set of favourable supply side developments – an elastic labour supply underpinned by a strong demographic situation, the growing stock of human capital due to rising levels of education attainment in the inflow to the labour force, wage moderation induced by centralised wage bargaining and declining union power, a reduction in the tax wedge on earnings, a fall in the unemployment replacement ratio, and a stricter approach to unemployment benefit claimants.

The juxtaposition of so many favourable demand and supply side developments makes the economic “miracle” relatively understandable!

3.1 Demographic forces.

At the height of the economic crisis of the 1980s it was not uncommon to blame the inexorable rise in Irish unemployment partly on “our young and rapidly growing labour force”. It was claimed that the unemployment rate would have been much lower had the rate of natural increase of the labour force been zero rather than about two percent a year. However, demographic pressures contribute little to understanding the variations in unemployment rates across Europe – high unemployment persists in continental economies where demographic pressures have for long been absent – and it is apparent that the dramatic fall in Ireland’s unemployment rate during the 1990s was not a reflection of reduced demographic pressure. Ironically, as the economy recovered it became popular to include our healthy demographic structure among the explanations of the employment boom – the young and rapidly growing labour force was no longer was seen as part of the problem, but part of the solution! The lesson to be learned is that under favourable macroeconomic conditions, a well-functioning labour market can absorb a rapidly growing labour force into employment. Portugal in the 1970s and Israel in the 1990s, for example, absorbed large and sudden increases in their population into employment and the United States, with its rapidly growing labour force, has

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13 On this last point see Hines, 2003.
maintained a relatively low unemployment rate. Ireland in the 1990s can be added to this list of examples of favourable labour market outcomes.

3.2 Economic Growth, Employment, and Unemployment.

The growth of employment and fall in unemployment were part cause and part effect of the exceptional rate of economic growth recorded in the 1990s. However, let us pose the question: making no allowance for reverse causation, treating the rate of growth of output as exogenous to the labour market, does it account for the growth of employment and the fall in the unemployment rate? The short answer is yes – the link between the growth of output and the growth of employment, and the growth of output and employment and the fall in unemployment seems to have been stable, comparing the 1990s with earlier periods. On the basis of past experience, the exceptional growth spurt after 1993 would have been expected to transform the labour market situation in the manner that was recorded.

I summarise the link between these variables by regressing the rate of change in non-agricultural employment ($Y$) on the GNP growth rate ($X$) – plus a dummy $D$ to allow for the impact of the change in definitions in 1998. This yields the following result for the period 1961-2003 ($t$-ratios in parentheses):

$$Y = -2.30 + 0.46X + 0.19X_1 + 0.32X_2 + 3.76D$$

$$R^2 = 0.80$$
$$D. W. = 1.32$$

There appear to be significant lags in the transmission of GNP growth to employment, as was apparent in the first half of the 1990s. But of most interest to the theme of present paper is that there was no break in this relationship in the 1990s. While this was bad news from the perspective of the growth of productivity and living standards, it was good for the impact of output growth on employment.

A second simple check on the links between economic growth and the labour market is Okun’s Law, which has proved reliable over the decades in tracking the links the growth of output and changes in the unemployment rate. Regressing the change in the unemployment rate ($Y$) on the GNP growth rate ($X$) yields the following result for the period 1961-2003:

$$Y = 1.77 - 0.28X - 0.11X_1$$

$$R^2 = 0.57$$
$$D. W. = 1.71$$

or using a two–year moving average of the GNP growth rate:

$$Y = 1.84 - 0.41X$$

$$R^2 = 0.56$$
$$D. W. = 1.78$$

The differences between the coefficients on GNP growth rate and its lags are not statistically significant. Using a three-year moving average of the GNP growth rate, the following result is obtained:

$$Y = -2.22 + 0.95X + 3.6D$$

$$R^2 = 0.79$$
$$D. W. = 1.22$$
This implies that a GNP growth rate of about 4.5 per cent is needed in the long run to prevent the unemployment rate from rising. Of course, this would be expected to fall as the rate of natural increase of the labour force slows. Figure 13 displays the traditional Okun graph. The statistical results reveal no significant break in the relationship in the late 1990s. The largest single decrease in the unemployment rate (2.8 percentage points) was recorded in 1998 – the year after the change in methodology – but a dummy variable for this year is not highly significant, although it has the expected negative sign. On the other hand, the largest single increase in the unemployment rate was recorded in 1981 - 2.6 percentage points. It might be inferred that it is harder to explain why unemployment rose so rapidly in the early 1980s than why it fell so fast in the late 1990s!

We can think of the Okun approach as implying that GNP growth generates employment growth and employment growth reduces the unemployment rate. The last step in this analysis is summarised by the following results, where $Y$ is the change in the unemployment rate and $X$ the rate of growth of employment (lags and the 1998 Dummy were not significant):

$$Y = 0.90 - 0.42X$$

$R^2 = 0.64$  D. W. = 1.36  

(5.6)    (8.5)

The result suggests that on average over the entire 40-year period employment growth of about 2 per cent was needed to stabilise the unemployment rate. Of greatest relevance to the theme of the present paper, once again, is the finding that there appears to be no structural break in this relationship in the 1990s.

Viewed in the context of the longer-run performance of the Irish economy, given the growth rate of GNP in the 1990s, the increase in employment was not exceptional, and given the growth of employment, fall in unemployment rate was not exceptional. According to this view, the dramatic fall in the Irish unemployment rate in the 1990s was “simply” a reflection of the economy’s exceptional growth rate. None the less, although these regressions are highly significant, the $R^2$ leave plenty of room for excluded variables factors to have played significant roles, even if many of these are difficult to model econometrically.

### 3.3 Wage Moderation and Centralised Wage Bargaining.

Traditionally, overt unemployment in Ireland was kept in check by the operation of the safety value of emigration, and since the Second World War this was predominantly to the United Kingdom. Any incipient widening of the Irish-UK unemployment rate differential was quickly closed by higher outflows. This ensured that the Irish unemployment rate was typically only three or four percentage points above the UK rate average for most of the 1960s and into the 1970s. It can be seen from Figure 14 that the two rates were closely linked and indeed cointegration analysis confirms this (Honohan and Walsh, 2002). However, it is also evident that the historic relationship between Irish and UK unemployment rates broke down in the

15 However, this does not control for the rate of net migration, which was in the past an important mechanism for stabilising unemployment in Ireland.
1980s, most likely due to the collapse in the demand for unskilled workers in construction and manufacturing in the UK. In the second half of the decade the gap between the Irish and UK unemployment rates reached an unprecedented six percentage points. The closure of the traditional safety value of emigration was initially a severe adverse shock to the Irish economy, but I shall argue below that its longer-run repercussions on wage bargaining and domestic employment growth were benign. As recovery got underway in Britain during the Lawson boom, it was to be expected that a pent-up tide of Irish emigrants would flow out. And in fact the initial easing of the Irish labour market situation in the late 1980s came from renewed emigration to the UK and US. However, the rapid fall in unemployment in the late 1990s and the narrowing of the Irish-UK unemployment gap was due to the domestic employment boom rather than to the traditional mechanism of heavy emigration.

My interpretation of the transformation of the Irish labour market during the late 1980s and 1990s is that the widening of the Irish-UK unemployment differential and the unprecedented rise in the Irish unemployment rate brought about a painful internal adjustment and eventually led to a moderation of nominal wage inflation, mediated through a return to centralised wage bargaining. When measured in a common currency, the moderation of the rate of growth in nominal wages relative to our main competitors was further helped – somewhat fortuitously - by the devaluations of 1986 and 1993, and the low level at which the Irish pound entered the European Monetary Union. Wage moderation was reinforced by tax cuts that allowed take-home pay to rise faster than labour costs, and sustained into the 1990s by a very elastic labour supply as reservoirs of under-utilized work effort were drawn into employment.

An elastic labour supply was not a new phenomenon in Ireland, but in earlier periods it had not led to wage moderation. For example, in the first half of the 1980s, despite the rising unemployment rate, wage rates rose relative to our trading partners, and Ireland’s competitive position deteriorated. The trend was, however, sharply reversed after 1986. Figure 15 shows relative hourly earnings in a common currency and in national currencies relative to a weighted average of our trading partners. Both series were rising (that is, showing a loss of competitiveness) until 1986 but this adverse trend was reversed over the period 1986-1997 in national currencies and for a further three years in a common currency. The dips in the common currency series after 1992 and 1997 reveal how devaluations boosted competitiveness, at least temporarily. In Honohan and Walsh, 2002, we showed that deviations of the competitiveness index from its trend are closely associated with the trend in employment.

In addition to exchange rate movements, the key factor to be considered in relation to the behaviour of the competitiveness series is the role of centralized wage bargaining or “social partnership” after 1987. The unprecedented unemployment rate – attributable not only to the economy’s poor performance but also to the exogenous shock of high British unemployment – created a consensus that generalized belt-tightening was needed. The result was a National Wage Agreement followed by four others, negotiated over successive 3-4 year horizons extending from 1988 to 2003,

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16 That is, average hourly earnings, not including employer’s taxes and social charges. Note that this series does not include any adjustment for productivity, which is strongly influenced by sectoral shifts and the growth of the entrepôt industrial sectors.
designed to deliver industrial peace and moderate rates of wage inflation in exchange for reductions in the burden of direct taxation and an increasingly ambitious agenda of social and economic changes.

Admirers of the partnership approach claim that it deserves much of the credit for the exceptional growth in employment in the 1990s. True, the strike rate fell to a much lower level after the new wage bargaining system was launched and by the end of the decade had ceased to be a general problem. However, real wages continued to rise – there was no significant break in trend in the late 1980s, although there was a pause in the mid-1990s (Figure 16). Indeed, once the influence of exchange rate fluctuations are allowed for, it is hard to identify a statistically significant role for the domestic unemployment rate, much less the pay bargaining regime, in the behaviour of the wage series (Curtis and FitzGerald, 1996; Walsh, 2000). Nonetheless, despite the inconclusive econometric results, most observers regard the coincidence of the reversal of the deteriorating trend in competitiveness with the new approach to pay bargaining as suggestive that it did pay dividends, if only by facilitating reductions in taxes on wage earners and the backward shifting of this to employers.¹⁷

In summary, the combination of declining union density (see below) and the return to centralized wage bargaining may plausibly be regarded as factors that tended to offset the upward pressure on wages exerted by unions and to have contributed to the improved trend in Irish relative wage costs during the late 1980s and the first half of the 1990s.

3.4 Structural Labour Market Reforms.

In addition to the change in the wage bargaining system, there were several other structural changes in Irish labour market between the 1980s and the 1990s. For the most part these were in the direction that economists identify as likely to contribute to a lower equilibrium unemployment rate by reducing labour market rigidities. Changes of this type are viewed as the key to reducing continental Europe’s high rate of unemployment¹⁸ and indeed Nickell (2004) concludes they “enable us to understand why some European countries have been able fully to recover from the employment disasters of the early 1980s whereas some have not”. It is hard to imagine more favourable circumstance for implementing such reforms than during the buoyant labour market conditions that prevailed in Ireland in the 1990s.

I turn now to an examination of some salient changes in the structure of the Irish that would be expected to have lowered our equilibrium rate of unemployment.

3.4.1 Union density.

The disastrous labour market trends of the 1980s had hit the Irish trade union movement very hard. Union membership, which had been growing rapidly from the 1960s, peaked in 1980 and then declined steadily. Union density declined even more

¹⁷ We pointed out elsewhere that the correlation between overall share of taxation in GNP with the index of competitiveness is very high (Honohan and Walsh, 2002).
¹⁸ See the OECD Jobs Study (1994) and the Jobs Strategy based on these studies.
rapidly and did not recover, as most of the new jobs created in the booming economy were in union-free workplaces. From a peak of over 60 per cent in the early 1980s, union membership as a percentage of the employed labour force fell to 44 per cent at the end of 1990s. Although we do not have a public/private sector breakdown of these rates, it is likely that membership and density declined more rapidly in the private sector and has become increasingly concentrated in public sector employment.\footnote{In the 1990s, union density increased in Public Administration, and Professional Services and Health and Education, but fell Industry and Construction. These figures have been made available to me by Bill Roche and are taken from the UCD DUES Series.}

Arguably the role of unions was changed by the revival and deepening of a centralized bargaining process that went beyond wages to cover taxation and other aspects of economic policy. A reduction in union power would be expected to ease upward pressure on wage rates and this, combined with greater co-ordination in the exercise of this power, would be expected to lower the equilibrium unemployment rate.

3.4.2 A leaner, meaner social welfare system and a less punitive tax system

The point of departure in Ireland in the 1980s was a social welfare system that was not unduly generous by continental European standards. However, there were serious disincentives and anomalies, as well as a lax attitude towards eligibility for benefits and assistance, and some commentators cited these as reasons for the persistence of high unemployment.

During the 1980s the view gained ground that allowing unemployment assistance to be collected more or less indefinitely without any evidence of active job search contributed to the excess numbers claiming to be unemployed on the Live Register (LR) relative to the ILO measure of unemployment obtained from the Labour Force Survey (LFS). By the mid-1990s this discrepancy had reached 50 per cent, the largest in any OECD country. This prompted the Central Statistics Office in conjunction with the 1996 LFS to conduct a special study of the labour force status of persons on the LR (CSO, 1996). A random sample of one percent of claimants was included in the LFS. Over a quarter of the sample was not located as usual residents at the addresses given. When the LFS questionnaire was administered to the remainder of the sample, only half were classified as ILO unemployed. The other half was divided equally between ILO employed and ILO inactive. As a result of these findings, more stringent tests of the job search criterion were included in the Irish National Employment Action Plan (Department of Enterprise and Employment, 2002). Since September 1998 all those under 25 who have been unemployed for six months are called for interview to assess their suitability for an existing vacancy or training. This approach was subsequently extended to other age groups according to the schedule set out in Table 3. In a review of the Plan the OECD noted that “a surprisingly high share of [claimants] can be dealt with in this fashion: nearly half either failed to attend the interview or refused intervention, and 28 per cent were struck off the rolls. . .” (OECD, 1999, p. 127).
However, reductions in the numbers claiming unemployment benefits do not necessarily translate one-for-one into reductions in the numbers unemployed according to the ILO definition. After all, many of those targeted by the “activation measures” were believed not to be unemployed in the ILO sense because they were not actively seeking employment. The ratio of LR to ILO unemployment peaked (at 260 per cent) in 1999 and fell sharply in 2000 and 2001, although it remains very high among those aged 25 and over, especially women. This suggests that the activation measures were effective in reducing the numbers claiming benefits that were not ILO unemployed.

The dip in the long-term unemployment rate after 1998 might be taken as evidence that these measures had a significant impact (see Figure 6). However, the growth in GNP in the late 1990s was so rapid that it on its own might account for this outcome, as is shown by the regression of the change in LTU (Y) on GNP growth (X) using data for the period 1989 - 2003:

\[
Y = 0.005 - 0.19 X \quad R^2 = 0.52 \quad D. W. = 2.7
\]

\[
(1.6) \quad (4.4)
\]

No structural break after 1997 is evident in this relationship. Although these results are based on just eleven years data, they suggest the need for caution in attributing the fall in LTU to anything other than the exceptional growth spurt.

Higher replacement ratios (that is, the unemployment benefits as a percentage of net income from employment) were blamed for about half the rise in the Irish structural unemployment rate between the 1970s and the mid-1990s (Scarpetta, 1996). These ratios declined sharply during the 1990s. Using an average over four household types and income levels, the OECD reckons that the Irish replacement rate fell from 50 per cent in 1980-87 to 35 per cent in 1999 – by far the largest fall in the OECD area. In several European economies this ratio increased during the 1990s (OECD, 2002; Nickel, 2004). Thus falling replacement ratios may be included among the factors that contributed to Ireland’s success in lowering its unemployment rate.

The tax wedge on labour, that is, the difference between employers’ cost of employing workers and employees’ take home after tax, social welfare deductions and consumption taxes, peaked in Ireland in the late 1980s and fell back during the 1990s. It is now among the lowest in the OECD countries (Nickell, 2004). A narrower measure that excludes consumption taxes declined by 18.3 percentage points between 1996 and 2003 – by far the largest reduction recorded in the OECD, moving Ireland towards the bottom of the league table. This wedge – or least the part of it due to direct taxes on wages – is reflected in the social welfare replacement rate, but its impact is wider than this because higher taxes on labour not only contribute to higher unemployment but also to lower employment by moving

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20 For more details of the behaviour of this ratio by demographic group, see (Walsh, 2003).
21 However, micro-econometric estimates suggest that the effect of the replacement rate on the duration of unemployment is small in Ireland compared with the impacts reported in the international literature (Layte and Callan, 2001).
22 For these data see www.oecd.org/ctp/taxingwages
employers back up their demand curve and individuals back up their supply curves in
combinations that depend on the extent of shifting. The marked fall in these wedges
during the 1990s would therefore be expected to have contributed to Ireland’s
exceptional rate of employment creation.

During the 1990s changes in the income tax system increased the incentives to
accepting paid employment. The marginal income tax rate (including social security
charges) facing an unmarried industrial worker on average wages peaked at an
amazing 68.5 per cent in 1984. By 2002 this had fallen to 46 per cent – by no means
“low” but less of an inducement to evasion and avoidance. The marginal tax rates
facing other categories of workers were initially lower and also declined, although
less dramatically. Many low-paid workers were completely removed from the
income net by progressively raising the tax threshold, which for an unmarried worker
reached half average industrial earnings in 2002. At the same time, the introduction
of “individualization” in the income tax code increased the returns to a second
income earner in a household. Certain benefits such as rent supplements are no
longer withdrawn on taking up employment and child benefits have been increased
and uncoupled from unemployment benefits.

Several other changes in the Irish social welfare code during the 1990s would also be
expected to reduce unemployment and increase willingness to accept job offers. A
“back to work allowance” was introduced in 1993. This permitted the long-term
unemployed to hold on to 75 percent of their social welfare payments in the first year
of employment, 50 per cent in the second, and 25 per cent in the third, thereby
reducing the effective tax rate on employment for the unemployed. At its peak in
2000 there were 39,000 participants in this scheme, but by 2002 numbers had fallen
to 25,000 and further reductions occurred in 2003. Evaluations have shown the
scheme had an impact in terms of reducing the numbers registered as unemployed
and switching them to employment, though it has proved difficult to estimate the
extent of deadweight and displacement in these numbers.23 Another form of in-work
benefit - the Family Income Supplement - was introduced in the 1980s to raise the
take-home pay of those on low earnings. This too reduced the disincentives for the
unemployed to accept job offers.

### 3.4.3 Active labour market policies.

The tightening up of the social welfare system was accompanied by increased
spending on “active labour market policies”. Special employment schemes and other
active labour market initiatives was introduced and spending on them reached 1 per
cent of GDP by the end of the decade. As a percentage of the average industrial wage
per person unemployed, Ireland’s spend on these policies rose from 14 per cent in
1985 to 29 per cent in 1997, when only the Netherlands and the Scandinavian
countries spent more relative to the numbers unemployed (OECD, 2001, Table 1.5).
The most costly measure is the Community Employment Scheme, whose scope and
impact have been discussed above. Though there is some microeconometric evidence
to suggest that the increased emphasis on back to work measures did help to improve

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23 This is based on evaluations commissioned by the Department of Social, Community and Family
Affairs.
the functioning of the labour market in the 1990s, its role should not be exaggerated (Martin, 2000). This expenditure has come under close scrutiny recently and has been significantly reduced and rationalized, without any apparent adverse effect on the aggregate labour market indicators.

3.4.5. Minimum wage legislation.

Not all policy changes went in the direction of greater labour market flexibility. The introduction of a statutory national minimum wage at about 55 per cent of average industrial earnings in 2000 was viewed apprehension by employers and some economists. After all, high minimum wages have been identified as significant factor in the high rates of youth unemployment in France and other continental economies. However, although the minimum wage has recently been increased to keep pace with inflation its effects on employment levels seem to have been small (Nolan, O’Neill, and Williams, 2002). The most likely explanation for this lies in the rapid increase in the absolute and relative earnings of less skilled workers, which has reduced the effective “bite” of the minimum wage.

3.4.6 Summary on structural labour market reforms.

Comparing the Irish labour market at the turn of the millennium with what it had been in the mid-1880s, it is clear that several structural changes had occurred that would be expected – on theoretical grounds and on the basis of international evidence - to reduce the equilibrium unemployment rate. Union density declined and the wage bargaining system became more coordinated. The tax and social welfare systems became considerably more work-friendly in a variety of ways, large and small.24 While no single measure should be singled out as the magic bullet that accounts for the vastly improved performance of the labour market, and estimating the impact of individual changes with any precision is difficult, taken together these measures undoubtedly improved the functioning of the labour market and allowed us to enjoy an unemployment rate of less than 4 per cent without experiencing an explosion of wage inflation.

4. Conclusion

During the 1990s the Irish economy grew at an exceptional rate. A key feature of this rapid growth was the unprecedented employment boom. This reduced the unemployment rate, raised the participation rate, and reversed the outflow of population from the country. The resultant increase in the employment rate played a large part in Ireland’s belated, but very rapid, catch-up in living standards with the leading economies.

In this paper the institutional and structural factors that contributed to the transformation of the Irish economy and labour market have been examined. Once the Irish economy had recovered from the effects of the policy errors of the 1970s and the protracted recession of the 1980s, it responded strongly to several favourable

24 Other factors mentioned in the international literature – such as changes in the degree of employment protection – do not seem very relevant to the Irish story.
external shocks. A very elastic labour supply was converted into rapid employment growth through a reversal of the deteriorating trend in wage competitiveness. Favourable exchange rate developments played their part in this but pride of place is usually given to the modest nominal wage settlements negotiated under the central wage agreements reintroduced in 1987 and there is some evidence to support this view. The unprecedented rise in the unemployment rate in the mid-1980s and the reduced strength of the trade union movement helped create a new sense of realism that prevailed in wage negotiations and in the return to “social partnership”. These in turn were repercussions of the very high rate of unemployment in the UK and the lack of opportunities for Irish emigrants in the wake of the Thatcherite recession. Paradoxically, in view of their eventual impact on Irish wage bargaining, these developments could be regarded as a favourable external shocks.

The exceptional performance of the Irish labour market during the 1990s was not triggered by radical structural reforms, but rather by a series of individually relatively small changes in the right direction. Disincentives to accepting offers of paid employment at prevailing wages were reduced, the administration of the social welfare system made more rigorous, and a plethora of active labour market measures was launched. While these were not sufficiently far-reaching or effective in themselves to account for much of the drop in the unemployment rate and even less of the spectacular rise in employment, they undoubtedly helped maintain the momentum towards lower unemployment created by favourable macroeconomic developments.

The Irish example is important because it shows how an output boom, supported by sensible changes in labour market structures and policies, turned one of Europe’s worst performing labour markets into one of the best in less than a decade. Some of the forces behind the Irish success story could not be implemented by all countries simultaneously due their “beggar-my-neighbour” component. For example, it is not possible for all countries to improve their competitiveness by simultaneous devaluations! But a favourable environment for investment, a low tax burden, moderate growth in wage costs, a cooperative approach to industrial relations, a realistic approach to income maintenance for the unemployed, and incentives to help labour markets adjustments, are policies that played their role in reducing unemployment in Ireland and that other countries might with benefit emulate. These policies do not simply redistribute a given level of economic activities between countries, they have the potential to increase the level of economic growth and welfare in all countries.

References


Figure 1: Unemployment rate: Forecast and outcome

Figure 2: Non-agricultural employment as percentage of total population

Figure 3
Population change by economic status
(Annual averages)
Figure 7:
Discouraged worker unemployment rate

Figure 8a: Unemployment rates by age, 1988 and 2001
Males

Figure 8b: Employment rates by age, 1988 and 2001
Males

Figure 8c: Unemployment rates by age, 1988 and 2001
Females

Figure 8d: Employment rates by age, 1988 and 2001
Females
Figure 11: Structure of employment, 1985 and 2003 (000s)

Figure 12: Unemployment and Inflation, 1981-86 and 1999-2003

Figure 13: Okun's law, 1962-2003
Figure 14: Irish and UK Unemployment Rates, 1962-2003

Table 15:
Indices of relative hourly earnings, 1990 =100

Figure 16:
Index of real earnings, 1982-2003
1985 =100
Table 1: Key statistics for three sub-periods

<table>
<thead>
<tr>
<th>Period</th>
<th>GNP Annual growth</th>
<th>GNP Employment Growth</th>
<th>Labour Productivity</th>
<th>GNP / Hours worked</th>
<th>Population Growth</th>
<th>Non-agricultural employment as % of total population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1961-1973</td>
<td>4.2%</td>
<td>0.1%</td>
<td>4.1%</td>
<td>n. a.</td>
<td>0.1%</td>
<td>1961 23.9%</td>
</tr>
<tr>
<td>1973-1988</td>
<td>3.3%</td>
<td>0.1%</td>
<td>3.2%</td>
<td>n. a.</td>
<td>0.9%</td>
<td>1976 25.6%</td>
</tr>
<tr>
<td>1988-2003</td>
<td>5.7%</td>
<td>3.6%</td>
<td>2.0%</td>
<td>3.1%</td>
<td>0.8%</td>
<td>2003 41.1%</td>
</tr>
</tbody>
</table>

*Average economy-wide hours worked declined from 43.1 a week in 1988 to 37.3 in 2003 – roughly one per cent a year. Some of the fall in hours – perhaps one hour a week – reflects the change of survey methodology in 1997. Data for earlier periods are unavailable.

Table 2: Contribution to employment growth by gender and part-time/full-time, 1988-2003

<table>
<thead>
<tr>
<th>Gender</th>
<th>Full-time</th>
<th>Part-time</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>36.6</td>
<td>6.1</td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>32.0</td>
<td>25.3</td>
<td></td>
</tr>
</tbody>
</table>

Total 100

Note: Average hours worked per week by the employed labour force fell from 43.1 in 1988 to 37.3 in 2003.

Source: Quarterly National Household Survey

Table 3: Schedule of “Activation Measures” under the Irish National Employment Action Plan

<table>
<thead>
<tr>
<th>Age group</th>
<th>Live Register threshold for activation</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 – 19 year olds (pilot)</td>
<td>Six months</td>
<td>Oct 1996</td>
</tr>
<tr>
<td>Under 25 years</td>
<td>Six months</td>
<td>Sept 1998</td>
</tr>
<tr>
<td>25-34 years</td>
<td>Twelve months</td>
<td>May 1999</td>
</tr>
<tr>
<td></td>
<td>Nine months</td>
<td>July 2000</td>
</tr>
<tr>
<td>35-54 years</td>
<td>Twelve months</td>
<td>Feb 2000</td>
</tr>
<tr>
<td></td>
<td>Nine months</td>
<td>July 2000</td>
</tr>
</tbody>
</table>