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IRISH NATIONAL ACCOUNTS FOR THE 19th AND 20th CENTURIES

by

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Introduction

As with many other countries, the range and quality of Irish national accounts data deteriorate the further back in time one goes. The first official national income estimates, published in 1946, began with the year 1938, and official estimates are available for all subsequent years. Partial unofficial accounts had earlier been prepared for a number of years in the interwar period starting in 1926. Prior to 1926, there are only *ad hoc* aggregate estimates for a few years during the nineteenth century and the eve of the First World War. Nevertheless many building bricks needed to compile national income estimates of comparable quality to those published for many other European countries are available from the middle of the nineteenth century on.

Irish economic experience in the last 200 years has been unusual in many respects, though sometimes in ways that are of interest to current European concerns: for example, the whole of Ireland formed part of an economic and monetary union with Great Britain

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[1] I am grateful for valuable advice in the preparation of this paper to Cormac Ó Gráda and Kevin O'Rourke of University College Dublin; Liam Kennedy of Queen's University Belfast; Louis Cullen of Trinity College Dublin; and Frank Geary, University of Ulster at Jordanstown. I would also like to thank the latter and Michael Turner, University of Hull, for making extensive data available to me in advance of publication. The paper has also benefited from the comments of participants at the seminar on historical national accounts at the University of Groningen on 10-11 June 1994, and subsequent written comments from Bart van Ark and Angus Maddison. Of course, I myself am solely responsible for the views, interpretations and errors in the paper.

during the nineteenth century and up to the early 1920s. The most unique feature of Irish historical experience, however, was population decline due to famine and emigration: in 1841 the population of the island was over one-half that of England and Wales and three times that of Scotland, but by 1921 was only one-ninth that of England and Wales and ten per cent less than in Scotland. Yet despite the population decline, or perhaps because of it, Ireland still reached a respectable average standard of living by the early decades of this century.

I have devoted the body of this paper to using the available indicators to illustrate some of the chief trends in Irish economic experience in comparison with other small western European countries. Section 1 considers the most unique feature of the Irish economy, its demographic experience. Section 2 examines the growth of output and income in the nineteenth century and up to the First World War, while Section 3 discusses the growth performance since then. The conclusions are given in Section 4. I have relegated to an appendix the description of the main statistical sources relating to national income.

A clarificatory word is necessary about the use of the terms "Ireland" and the "United Kingdom" (UK). Throughout the nineteenth century the whole of Ireland was part of the UK. Although independence was achieved for the larger part of the island in the early 1920s, the northern part, comprising then nearly 30 per cent of the population of Ireland, remained in the UK. In the interests of clarity and consistency, though at the cost of some anachronisms, I shall reserve the term Ireland for the whole island, designating independent Ireland as "the Republic of Ireland" or "the South", and the remainder as "Northern Ireland" or "the North". The United Kingdom is to be taken throughout the paper as referring to Great Britain (i.e. England, Scotland and Wales) and Northern Ireland except where otherwise specifically indicated. Consistent use of terms and boundaries is important because the population of Ireland in 1841 amounted to nearly one-third that of the contemporary UK (i.e. including all Ireland), but 150 years later the ratio had shrunk to one-twelfth.

1. Demographic Experience

The most striking and unique feature of Irish economic experience in the past 200 years lies in the behaviour of population (Table 1). The climacteric event in Irish demographic history was the Great Famine of 1846-7, when the potato, the staple diet of the cottiers and farm labourers, failed in two successive years 1845 and 1846. In the 100 years or so before the Great Famine the Irish population had more than trebled, a much faster rate than in any of the other small countries in Table 1, and faster even than the rapid rate experienced then in Britain. Indeed since the growth of Irish population slowed markedly in the 20 years or so before the Famine, the growth rate from 1750-1820 was close to 1½ per cent per annum.[1]

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[1] The reasons underlying this rapid growth of population are discussed in many studies: see, for example, Mokyr and Ó Gráda (1984) and the references cited there.

Table 1: Population of Ireland and Selected Small European Countries

	1760	1840	1926	1961	1991
			000's		
Ireland of which	c.2,500	8,178	4,229	4,244	5,118
Republic	c.2,000	6,529	2,972	2,818	3,524
Northern Ireland	c. 500	1,649	1,257	1,425	1,594
Austria	2,778	3,716	6,603	7,087	7,823
Belgium	2,530	4,073	7,844	9,184	10,005
Denmark	820	1,289	3,452	4,610	5,154
Finland	490	1,441	3,339	4,461	5,029
Netherlands	1,960	2,884	7,471	11,639	15,070
Norway	687	1,241	2,763	3,615	4,262
Sweden	1,916	3,139	6,064	7,520	8,617
Switzerland	1,480	2,222	3,932	5,512	6,792

Sources: For Ireland, *Census of Population* and Mokyr and Ó Gráda (1984). The Irish figures under 1840 relate to 1841, and under 1760 to c.1750. For other countries, Maddison (1991) and OECD, *National Accounts, Main Aggregates, Vol. 1, 1960-1992*.

During the course of the Great Famine, up to one million persons died, over 1¼ million emigrated to North America in the six years from 1847 to 1852, and there was also substantial emigration to Britain. Emigration, of course, did not begin with the Famine: in the preceding 30 years about 1½ million persons had left, predominantly to North America and Britain. The post-Famine period witnessed an even greater outflow, when over four million persons emigrated in the period 1852-1921, most of them young, single adults rather than families. Attitudes towards marriage also changed drastically, not solely however due to the Famine but also to changes in land use already in train before the Famine. The age at marriage rose substantially, and significant proportions remained celibate. Since the fertility of marriage remained high, however, the net outcome was a birth rate somewhat above 20 per 1,000, not abnormal in relation to other countries.

As a result of the Famine and subsequent emigration the population of Ireland had almost halved by the early 1920s. The decline was not evenly spread: it was most severe in the western and southern provinces, but had ceased in Northern Ireland by 1900. Consequently, when the country was partitioned in the early 1920s the population of Northern Ireland had fallen by less than a quarter compared with the pre-Famine level, whereas the population of the Republic was more than halved. Subsequently the population of Northern Ireland rose, whereas that of the Republic continued to decline up to 1961, with emigration of more than a further 1 million persons. With improved economic growth since 1961, emigration has been much reduced in the Republic – indeed there was significant net immigration in the 1970s – so that in the last 30 years the population has increased by 25 per cent, a faster rate of increase than in most European countries at this time.

The dramatic change in Ireland's relative scale, as measured by population, over the last 150 years is evident from Table 1. None of the other small European countries shown in the table had a population half the size of the Irish population in 1840, and several were much smaller still. Now, all of them match or greatly exceed the Irish population. To make an extreme comparison: the population of the Netherlands was only one-third that of Ireland in 1840, but is now three times greater.

In the light of this unique demographic experience, the way in which income per capita and other national accounts entities varied over time in Ireland may have a wider interest in analysing the growth of other nations and of regions within these nations. As Becker (1989) remarked "it is well-known in the social sciences that the underlying causes of changes are usually most easily seen from behaviour that deviates far from the norm".

2. Level and Trend of Income per Capita up to 1913

The earliest time for which there are any worthwhile estimates of Irish national income is immediately prior to the Famine. Total national income was of the order of £80m., which puts income per capita in Ireland at 40 per cent of the level in Great Britain, or 42 per cent of the UK level (at modern boundaries). All contemporary commentators highlight the extent of poverty in Ireland at that time, so that it is no surprise that the Irish income level emerges as one of the lowest in Europe (Table 2).

There is no established view as to how total and per capita real income progressed in Ireland in the 50 years or so prior to the Famine. Mokyr and Ó Gráda (1988) examined the available evidence and concluded that "While economic conditions facing the Irish poor probably stagnated or even deteriorated, the population as a whole seems to have been able to hold its own and probably even improve its lot". It is doubtful, however, if there can have been much (if any) rise in average real income: given the large rise in population, this would imply a growth in total real product that would be hard to reconcile with the general historical position. In fact the available sector studies suggest the contrary. Solar (1987) concluded that agricultural output rose much less than population. As regards industry, while Bielenberg (1994) rejects the conventional view that industry was in decline, he does not claim that output was rising as fast as population.

Table 2: Relative Product Per Capita in Ireland and Selected Small European Countries (UK = 100 in all years)

	1820/1840	1913	1990
Ireland	c. 42	54	71
of which			
Republic	n.a.	52	68
Northern Ireland	n.a.	57	77
Austria	72	65	105
Belgium	71	79	103
Denmark	68	73	105
Finland	44	41	102
Netherlands	90	77	100
Norway	59	50	101
Sweden	70	61	107
Greece	n.a.	29	46
Portugal	n.a.	23	53

Sources: Data for 1990 are from OECD *National Accounts, Main Aggregates, Vol. 1, 1960-1992* and are current PPPs based on a 1990 bench mark. The Northern Ireland figure for 1990 is from *Northern Ireland Annual Abstract of Statistics, 1994*. Data for 1820 and 1913 for all countries except Ireland are from Maddison (1992), and relate to GDP per capita at 1985 US relative prices. Under the column 1820/1840, the Irish figure relates to 1841 and for the other countries to 1820, while the Irish figures under 1913 relate to 1911. The sources of the Irish figures for 1841 and 1911 are given in the Appendix.

It is probable at any rate that income per capita in Ireland fell significantly relative to Great Britain in this period. In recent years it has become widely accepted that British growth in this period was much less than was earlier thought: the revisions made by Crafts (1985) and Crafts and Harley (1992) put the growth rate of real GDP per capita from 1801-31 at 0.6 per cent per annum compared with the earlier Deane and Cole (1962) estimate of 1.6 per cent per annum.[1] If then, as is generally held, Irish living standards fell behind those of Britain in this period, it implies that there can have been little or no growth in average incomes in Ireland, and possibly a fall. Perhaps even more important than the average level in Ireland was its distribution, which must have deteriorated markedly in the 50 years or so before the Famine as the numbers on a subsistence standard grew rapidly while rents rose considerably. There was also a significant transfer of income out of the country in the form of rents to absentee landlords and investment income (Cullen, 1979).

When we come to the period from the Famine to World War I, we are confronted with the surprising conclusion that income per capita in Ireland rose faster than in Great Britain or in almost any other European country, even though the growth of the total volume of output was probably one of the lowest in Europe. Most foreign commentators have assumed, probably without giving the matter much thought, that Irish per capita national income rose

[1] See also Crafts (1994).

slowly: for example, the data in Feinstein (1972) and Matthews, Feinstein and Odling-Smee (1982) suggest a lower growth in income per capita in southern Ireland, at least, than in the rest of the UK. However, the best available domestic evidence (Cullen and Smout 1978, Kennedy et al, 1988, Ó Gráda, 1994) puts Irish income per capita on the eve of World War I at about 55-60 per cent of the British level, as compared with 40 per cent in 1841, implying a much faster rise in Ireland than in Britain or in any of the other small countries in Table 2. At this level, Irish per capita incomes around 1913 were more than double those in Portugal and Greece, significantly ahead of Finland and Norway, and not too far behind Sweden.

Average real income per capita rose at an estimated 1.6 per cent per annum from 1841-1911 (Kennedy et al, 1988 and Ó Gráda, 1994). This overstates somewhat the rise for the resident population, because given the wide disparities in income levels in 1841, and the fact that the bulk of the decline in population was concentrated in the poorer half, a significant rise in average income per capita would have emerged even if the remaining population had experienced no rise. It would be wrong to imply, however, that this statistical quirk was the major factor at work, and there is plenty of evidence that living standards rose substantially. O'Rourke (1993) estimates that from 1860 to 1913, the real agricultural wage rose from 61 to 75 per cent of the British level, while the unskilled building wage rose from 58 per cent to 72 per cent. Indeed since the growth rate mentioned above is a measure of deflated GDP, the growth of average real national income per capita may have been somewhat higher: net external factor income flows probably changed in this period from a negative to a positive magnitude, as rent outflows declined and Ireland's position on capital account is thought to have moved from net debtor to net creditor status. Furthermore, the rise in average real national *disposable* income may have been higher still, since emigrants' remittances and government transfers may have increased relatively rapidly over the period.

The rise in living standards took place in the context of a small increase in the volume of total GDP. Given the massive fall in population, the per capita growth rate of 1.6 per cent per annum translates into an overall annual growth rate of only 0.7 per cent. Moreover, since the deflator used in estimating these rates is a general wholesale price index rather than an output price index, they should be understood as measuring trends in real income, not real output which undoubtedly rose more slowly. Irish agricultural prices were much higher in absolute and relative terms at the end of the period than at the beginning. This encouraged specialisation in the production and export of cattle, and the import of wheat, the price of which declined substantially. Taken in conjunction with the price trend of industrial goods, of which Ireland was a net importer, there was a substantial gain in the terms of trade, which raised real income more than the rise in output volume would suggest.

The latter point is particularly evident in the agricultural sector itself. Turner (1990) published annual estimates of agricultural output from 1850 to 1914, which he has since revised. The revised (unpublished) figures show that the volume of agricultural output (as deflated by the geometric average of his agricultural price indexes based on 1850 and 1900) was 15 per cent higher in 1914 than in 1850, whereas the real value of agricultural output was 65 per cent higher (using the general wholesale price index as deflator), or had more than doubled (using Bowley's cost of living index).

As regards industrial output, the conventional view has been that the volume of output also grew slowly, the rapid growth in the North being offset by decline in the South. This view has recently been challenged by Bielenberg (1994), who has made the first comprehensive estimates of the value and volume of industrial output immediately prior to the Famine and for 1907. His figures suggest an average annual growth rate of the total volume of industrial output of 1½ per cent per annum, but these estimates have not yet been subjected to scholarly challenge. However, taking Bielenberg's estimates as they stand, and putting them together with the agricultural estimates of Solar (1987) and Turner (revised), the growth rate of the volume of total goods output from the first half of the 1840s to 1907 works out at 0.4 per cent per annum. It is difficult to make even a guesstimate for the trend in volume of services output, though the general impression is that this sector developed most over this period.

Table 2 also includes tentative figures for relative income per capita in the two parts of Ireland just before the First World

War. The available evidence suggests that income per capita in Northern Ireland was then only about 10 per cent higher than in the South. This is surprising given that the relative gap in favour of the North may have been wider before the Famine, and if so the growth of real income per capita in the South must have been somewhat faster in the period up to World War I. Moreover, the North experienced far stronger manufacturing expansion. While the share of the total labour force engaged in industry in Ireland in 1911 was about one fifth, in the North the figure was 35 per cent, approaching the British level, whereas in the South it was only 13 per cent, a large proportion of which was engaged in processing of food and drink. Consequently the South represents the more anomalous case, in that it reached a respectable standard of living without industrialisation and with little growth of total output.

3. Income per Capita 1913-1990

In the 80 years of so since the First World War, the two parts of Ireland have made much less progress than mainland European countries in converging to British living standards. Table 2 suggests that while there was some catching-up relative to the UK, nevertheless Ireland fell back relative to most continental European countries, many of which have now surpassed British income levels. The growth rate of real income per capita in both parts of Ireland from 1913-1990 was not much higher than from 1840-1913. Since the population decline was eventually arrested and reversed, however, the growth of total income slightly exceeded the growth of income per capita. Consequently there was a considerable acceleration in the growth of total real income.

Table 3: Growth Rates (% p.a.) of Total and Per Capita Real GDP in Ireland and the UK, 1926-1990

	Republic[1]	Northern Ireland[2]	UK
GDP			
1926-38	1.3	0.7	2.4
1938-50	1.1	4.0	1.6
1950-60	1.7	2.6	2.7
1960-73	4.4	3.7	3.2
1973-90	3.5 (2.5)	2.1	1.9
1926-90	2.5 (2.3)	2.6	2.3
Population			
1926-38	-0.1	0.2	0.4
1938-50	0.1	0.5	0.5
1950-60	-0.5	0.4	0.4
1960-73	0.6	0.6	0.5
1973-90	0.8	0.2	0.1
1926-90	0.3	0.4	0.4
GDP per Cap.			
1926-38	1.4	0.6	2.0
1938-50	1.0	3.5	1.1
1950-60	2.2	2.2	2.3
1960-73	3.7	3.1	2.6
1973-90	2.7 (1.7)	1.9	1.8
1926-90	2.3 (2.0)	2.2	1.9

1. Figures in parentheses relate to GNP, which is a more appropriate measure for the Republic in the last 20 years.

2. For Northern Ireland the starting year is 1924.

Sources: The Irish figures are based on the sources and methods described in Table 6.1 of Kennedy et al.(1988). The UK figures are derived from Maddison, (1991) and (1994).

The period spanning the First World War and the early 1920s is a rather grey area as far as knowledge of Irish income trends is concerned, but it is possible to give a clearer picture of the trends since then. These are shown in Table 3 for the two parts of Ireland in comparison to the UK. The most striking feature of the table is that over the whole period from the mid-1920s to 1990, there was so little difference between the three areas in the growth rates of either total or per capita real GDP. This similarity over the whole period, however, conceals significant differences in sub-periods. Up to 1960 the Republic performed badly in growth of total GDP, but because population was stagnant or declining, its performance on GDP per capita, though not good, was less unfavourable. Northern Ireland fared poorly in the interwar period, but experienced boom conditions during World War II. Since 1960, the growth of GDP in the Republic has averaged 4 per cent per annum, well ahead of both Northern Ireland and the UK. Two other factors, however, have limited the impact on income per capita. First, population was now growing more rapidly in the Republic. Second, for reasons mentioned later, GDP is an unsatisfactory indicator for the Republic since the early 1970s, so that when the more appropriate GNP measure is used, the per capita growth rate since 1973 has been similar to both the UK and Northern Ireland.

Since the 1920s the structures of the two economies in Ireland have converged in many important respects – see for instance the sectoral employment shares in Table 4. Indeed, it is ironic that the convergence was greater in some ways than if the two areas had operated in a common political regime. It is doubtful, for instance, whether the sectoral employment shares would now be quite so similar, had the country not been partitioned. If both areas had remained part of the United Kingdom, the dominance of Dublin over Belfast in public services employment would have continued. Equally, an independent united Ireland simply could not have afforded the vast expansion in public services financed by the British exchequer in Northern Ireland, where public sector employment is now 40 per cent or more of the total. Moreover, the industrial development strategy of an independent united Ireland would probably have been shaped differently to build on the larger initial industrial base in the North.

Table 4: Sectoral Employment Shares in the Republic and Northern Ireland 1926 and 1990

	1926		1990	
	Rep.	N.I.	Rep.	N.I.
Agriculture (%)	54	29	15	7
Industry (%)	13	34	28	26
Services (%)	33	37	57	67
Total Employment (000)	1,220	505	1,134	614

Sources: As in Table 5.1 of Kennedy et al. (1988)

At independence, over 90 per cent of the exports of the Republic went to the UK, and these exports were overwhelmingly agricultural. This position continued right up to the 1950s. It is no coincidence that the Republic began to outpace UK growth only when it managed to diversify the destination and commodity composition of its exports, which was associated also with a large rise in the ratio of exports to GNP – see Table 5.

Table 5: Composition of Merchandise Exports of the Republic (%)

	1929	1950	1990
Destination			
UK	92	88	34
Other EC	3	7	41
Rest of World	5	5	25
Total	100	100	100
Commodity			
Food and drink	86	80	22
Manufactures } Other	14	7	69
Other		13	8
Total	100	100	100
Ratio Exports: GNP (factor cost)	29	20	71

Source: *Statistical Abstract of Ireland*

The Republic and the European Union

Finally we consider how far the Republic has converged towards living standards in the European Union (EU) since joining the Community in 1973 at the same time as the UK. Relevant figures are presented in Table 6, which again show how much the interpretation of the Republic's relative performance depends on the indicators used.[1] The picture that emerges is one in which living standards rose less than output growth would suggest, and is the obverse of that depicted earlier for the second half of the nineteenth century.

Table 6: The Republic Relative to the EU

		1973	1992
		EU = 100	
1.	Wages and salaries per worker	73	102
2.	GDP per worker	65	99
3.	GDP per capita	55	77
4.	GNP per capita	55	69
5.	GNDI per capita	57	73
6.	Private consumption per capita	68	69

Source: Mainly from Eurostat, *National Accounts 1970-1992*. The figures are all at current PPP, private consumption being measured in its own specific parity. GNDI means gross national disposable income.

There has been dramatic catching-up in average wages and salaries (Row 1), which appears to have been supported by progress in the standard measure of productivity, GDP per worker (Row 2). However, due to relatively high unemployment, a low labour force participation rate, and a high proportion of the population in the inactive age groups, the ratio of employment to population is much lower in the Republic than in most other EU member states,

[1] A complementary analysis in relation to Ireland alone by Fitz Gerald and Honohan (1994) illustrates a number of the points made here in terms of real growth rates.

except Spain, and has fallen significantly since 1973 due to the enormous rise in unemployment (almost 16 per cent at end-1992). Consequently GDP per capita (Row 3) presents a less favourable picture of the Republic's relative level and its rate of convergence.

Furthermore, the growth of GDP in the Republic since 1973 has depended heavily on government foreign borrowing and inward foreign investment, both of which gave rise to offsetting outflows which have substantially reduced the benefit of higher GDP. Indeed GDP has been artificially inflated to a significant degree by the increasing scale of transfer pricing. For these reasons GNP, which takes account of net external factor flows, is a truer measure of the income impact in the Republic.[1] As shown in Row 4, convergence towards EU levels has been much more muted in terms of GNP per capita. Of course the Republic also benefits from EU transfers which have increased over time. These and other international transfers are included in the measure of gross national disposable income (GNDI) per capita in Row 5, which slightly improves the picture.

However, the heavy burden of dependency and the need to service past borrowing means that tax rates in the Republic are high for a country at its stage of development. Consequently when we look

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[1] The 1993 edition of the *System of National Accounts* concludes that GDP is best regarded as a measure of national production, not income, and that the appropriate corresponding income measure is GNP. It also argues that even to derive a proper measure of GDP, transfer pricing should be excluded. See Intersecretariat Working Group on National Accounts (1993).

at the final indicator in Row 6, private consumption per capita, which Milton Friedman would no doubt regard as the more appropriate measure of average living standards, we find that the Republic has made scarcely any progress in converging towards EU levels![1]

The foregoing figures remind us that, as in the nineteenth century, income distribution issues impinge critically on the interpretation of Irish economic progress. Then the major factor was the growing size and poverty of the cottier and farm labourer classes before the Famine, dependent almost entirely on a potato diet, and their subsequent elimination through death and emigration. Now the major factor is high unemployment, over half of which represents long-term unemployment.

4. Conclusions

On the basis of the admittedly inadequate historical national accounts data available for Ireland, this paper has compared the long-term trends in total and per capita income in Ireland with other small European countries. The picture that emerges is that despite massive population decline in the second half of the nineteenth century, or perhaps because of it, Ireland reached a relatively respectable average standard of living by the early decades of this century. Since then, while there has been some

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[1] To add one final twist to the story, it may well be of course that conventional national accounts seriously *understate* Irish relative living standards through failure to include household services, which may be relatively high in Ireland due to the low participation rate of females in the labour force. For a pioneering exploratory examination of the issues involved, see Fahey (1992).

further catching-up relative to the UK, Irish living standards have fallen behind most west European countries.

Our analysis highlighted the inadequacies of GDP per capita in interpreting long-term trends in Irish living standards. Terms of trade effects can be substantial in such a small open economy, traditionally heavily concentrated in agricultural exports subject to significant short and long-term relative price movements. External factor income flows (rents, investment interest, profit repatriations and interest on government foreign debt) play a significant and varying role in the story. So also do international transfers (emigrants' remittances, British government transfers, and EU transfers). The gap between production and income trends derived from a number of factors. First the whole island was, and part of it still is, a region of a larger richer country. Second, the rate of outward migration was exceptional. And, third, even in the independent South, the degree of reliance on foreign enterprise was unusually large.

A fuller understanding of the Irish experience, which may have wider interest in analysing patterns of national and regional economic growth, would be greatly helped by improved historical national accounts. The Appendix describes the extent and limitations of Irish national accounts data and the main building materials available to improve them. The conclusion is that national income estimates of similar quality to those available for most other European countries could be compiled from the middle of the nineteenth century.

It would be desirable that separate estimates should be made throughout for the Republic and Northern Ireland, not simply because they form separate jurisdictions since the early 1920s, but also because there were major differences in their post-Famine population trends and rates of industrialisation. Associated with the process of developing more systematic national accounts, it would be beneficial also to prepare estimates of total employment, for which there is no consistent series prior to the 1920s.

The earlier analysis above points to the importance in preparing historical national accounts for Ireland of distinguishing carefully the concepts of GDP, GNP, and GNDI (gross national disposable income) and of attempting to provide estimates on external factor income flows and foreign transfers. Furthermore, in estimating real changes it would be important to try to measure terms of trade effects so as to distinguish between trends in real output and trends in real income incorporating these effects. Finally, even the crudest indicators of changes in income distribution would enhance the value of the data: no doubt the same could be said for most countries, but it is especially apposite in a country where a large sub-class expanded rapidly before the Great Famine, only to be decimated by famine and emigration.

APPENDIX: DATA NOTES

Population and Labour Force

Apart from their innate interest, demographic data provide an indispensable foundation for the compilation of national income estimates and for checking the consistency of different estimates. The first official Census of Population was carried out in Ireland in 1821, and since then Censuses have generally been carried out at ten-year intervals to coincide with the British Census. No Irish census was carried out in 1921, 1931 or 1941, but censuses were undertaken for the Republic in 1926, 1936 and 1946 and for Northern Ireland in 1926 and 1937. (The Republic also has additional censuses for 1956, 1966, 1979 and 1986). The Census of 1841 is considered to be the first reliable one, though even here it is held that the population figure of just below 8,200 thousand is a slight underestimate: Lee (1981) puts the figure at 8,400 thousand. For pre-census times, significant research has been undertaken to estimate the population at various dates since the seventeenth century: for a review of this work see Mokyr and Ó Gráda (1984).

Registration of births, marriages and deaths began in 1864, though Ó Gráda (1979) states that the returns are seriously incomplete for the first three to four decades or more. Nevertheless, the births and deaths data can be used to measure more accurately the volume of emigration between censuses and to provide population estimates for the intercensal years. Mitchell (1988) contains an annual series for the population of Ireland as a whole from 1801, and of the Republic and Northern Ireland separately from 1922. Annual estimates for the Republic since 1870 are given in the CSO *Report on Vital Statistics*. Although up to recently the CSO did not publish its implied annual estimate of net emigration, this can be inferred using the births and deaths data, as Hughes (1977) did for the Republic from 1926-76 (the estimates have been updated to 1989 in Sexton et al., 1991).

Aggregate and sectoral employment data are available annually for the Republic from official sources on a consistent basis only since 1951. Prior to then the only complete employment figures are those given in the *Census of Population* reports, and the concepts and classifications have varied somewhat from census to census. Consistent data for a number of years since 1926 are given for the Republic in Kennedy (1971), Tables 1.2 and 1.8, and for Northern Ireland in Kennedy et al. (1988), Table 5.1. Prior to the 1920s there are no consistent series for aggregate employment, the main source from which such data might be derived being the Census of Population, where the concepts vary over time. Frank Geary of the University of Ulster is currently completing a project to put the occupational data for males and females in all censuses from 1841-1911 on a consistent (1968 SIC) basis. Since the data are being compiled on a county basis, it will be possible to have separate series for the Republic and Northern Ireland. Figures for all Ireland for 1841, 1851 and 1911 are summarised here in Table A.1.

Table A.1: Occupations in Ireland, Classified by Industry 1841, 1851 and 1911

	1841	1851	1911
		000	
Agriculture	1,852	1,458	776
Industry of which	1,097	797	401
Mining	8	12	7
Manufacture	1,021	733	333
Construction	68	51	60
Utilities	0	1	2
Services	475	465	418
Not classified	51	80	209
Total occupations	3,476	2,800	1,804
Population	8,175	6,552	4,390

Source: Supplied by Frank Geary, University of Ulster at Jordanstown. The figures classify stated occupations according to the 1968 Standard Industrial Classification.

While these figures represent an important advance, they should not be confused with employment data. For example, according to Geary's figures there were 676,000 occupied in textiles in Ireland in 1841. If this were taken as an indication of industrial activity, then the Irish textile industry would have been nearly as big as the British where 883,000 were engaged in textile manufacture (Bielenberg, 1994). The reality is that Irish textiles were still in the proto-industrial phase, with vast numbers of part-time domestic workers, most of whom probably had little work by 1841. To make the figures meaningful as an indicator of labour input, a major correction to full-time equivalents would be necessary. Given the paucity of hard data, any such correction is bound to be both arbitrary and contentious. Nevertheless, I believe it would be necessary and useful to undertake such an exercise as part of the process of developing more systematic national income estimates. Bringing together the different strands of information would provide valuable consistency checks. Moreover the presentation of specific, though necessarily imperfect, numbers would focus debate and act as a challenge to others to undertake research aimed at improving the quality of the numbers!

National Income: Since Independence

Official national income estimates were first prepared for the Republic in respect of the year 1938, and estimates are available for all subsequent years. Over the years, however, there have been numerous changes in the concepts and coverage of the national income data and in methods of estimation, and not all of these changes have been extended back. From 1960 to date a completely consistent set of data covering all national income and expenditure categories is available. Furthermore from international sources (OECD and EC), PPP estimates comparable to other countries are available since 1960, as also in Summers and Heston (1991) since 1950. For 1938 and 1947-59, many of the changes have been incorporated, but some work is still required to ensure consistency with later figures, while for 1939-46 a fair amount of revision is called for.

For the inter-war period in the Republic, Duncan (1939-40 and 1940-41) has made national income estimates for several years in the period 1926-1940, as has Kiernan (1932-33 and 1933) for 1926.

Kennedy (1971, Table 1.2) linked Duncan's data with the official figures for 1938 to provide a continuous series for GNP at current and constant prices. Later research suggested some problems about Duncan's figures (e.g. Neary and Ó Gráda, 1991). Kennedy et al. (1988) concluded that while Duncan's growth rate for the period 1926-38 is plausible enough, the time pattern of growth within the period is not. O'Rourke (1990) has re-estimated Duncan's figures for 1926, but his resulting GDP estimate of £143.1 million is very close to Duncan's figure of £141.8 million. A complete re-examination of the figures for 1926-38 would be appropriate, which might also aim to fill in the missing years (1927, 1928, 1930 and 1932) – a sizeable project.

For Northern Ireland since the 1920s, it is only to be expected that as a region of a larger country, its national accounts would be less complete. The official data available since 1973 are probably better than for most regions within nations. Estimates are available of GDP at current prices by industry and by type of income as well as estimates for personal disposable income (significantly higher relative to the UK than GDP). A full set of expenditure accounts is not feasible given the unavailability of trade data, the publication of which was discontinued after 1974 because of their unreliability. However official estimates are published for investment in manufacturing and for private consumption expenditure. No overall regional price data are available, so that UK price data must be used to estimate volume trends.

For earlier years, a report of the Northern Ireland Economic Council (1983) provides estimates of GDP at constant prices since 1950; Isles and Cuthbert (1957) give regional income estimates from 1935-36 to 1951-52; and David Johnson of Queen's University Belfast has made estimates for 1924, 1930 and 1935. From these data, it is possible to compile a picture of changes in real income since the mid 1920s, as in Table 3 above. However, a systematic re-examination of the Northern Ireland data over the first 50 years or so of Partition would be valuable.

National Income: Pre-Independence

We now enter an altogether more uncertain era as regards trends in national income. The first period requiring attention is from the immediate pre-World War I situation to the mid-1920s, which has been an under-researched phase. There is little doubt that the First World War had a beneficial effect on the Irish economy, North and South, so much so that Johnson (1985) concludes that "in economic terms, the last years of the Union were the best ones". After the war agricultural prices crashed, both absolutely and relative to consumer prices. The thorough estimates of agricultural output made by O'Connor and Guiomard (1985) for the Republic in 1912-13 and 1924-25 show that while the value of net agricultural output was one-third higher in the latter year, the volume of net output was 13 per cent lower, while the real value (as deflated by the consumer price index) was nearly one-third lower. However, there are no estimates for trends in the intervening years[1], nor any well-developed picture for industry and services. Moreover, the relative level of income per capita North and South immediately before the First World War, and its subsequent trend up to the mid-1920s, is very uncertain. Clearly, this period requires attention.

Louis Cullen of Trinity College Dublin made a widely-used estimate of GNP for Ireland in 1911, putting it at £150 million, or on a per capita basis at 62 per cent of the level in the UK including all Ireland (or 60 per cent of the UK level at post-independence boundaries). The estimate was first cited in Cullen and Smout (1978), but details of its compilation are now available in Cullen (1995, forthcoming). The estimate accords well with that in Feinstein (1972), which was however only an indirect estimate for Ireland, and with the estimate given in Bairoch (1981) for 1913. More recently, Ó Gráda (1994) has reviewed the plausibility of Cullen's estimate and suggests that it should be revised downward to £135 million[2] (or 54 per cent of the UK level on a per capita basis – the level included earlier in Table 2).

Although guesstimates of Irish national income have been made for various dates prior to this, most interest has centred on estimating living standards immediately prior to the Great Famine

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[1] O'Connor and Henry (1995, forthcoming) will partially fill this gap by providing estimates for 1918-19.

[2] However Cullen's estimate receives broad support from the expenditure-based estimate of GNP in 1907 of £154.7 million in Bielenberg and O'Mahony (1995 forthcoming).

of 1846-47. The most fully articulated estimate to date is that of Mokyr (1985) which puts Irish national income at about £80 million, or on a per capita basis around 40 per cent of the level in Great Britain (i.e. 42 per cent of the level in the UK at modern boundaries). A number of economic historians believe that Mokyr's figure lies at the lower end of a range stretching up to £100 million or more, the latter figure implying a per capita level of 50 per cent of that in Great Britain. Prior to the downward revisions of recent years in the growth of British income per capita in the period 1801-1831, referred to above in Section 2, it was possible to rule out the £100 million figure as implausible – given what it would imply for the Irish relative level of income per capita in 1801 on the assumption of no change in Irish real income per capita between 1801 and 1841 (Kennedy et al. 1988, pp. 26-27). Taking the downward revisions on board, however, and retaining the assumption of no change in Irish per capita real income, then the £100 million figure in 1841 would imply that the Irish level was 64 per cent of that in Great Britain in 1801, as against a ratio of 51 per cent using the £80 million figure. Either of these two ratios for 1801 is plausible.

It is possible, however, that the low growth of real income per capita in Britain in the early decades of the nineteenth century suggested by the modern revisions, may force economic historians to contemplate a decline in Irish real income per capita at this time – given that Ireland is thought to have fallen well behind Britain then. Moreover, the expert view seems to be that neither in agriculture nor in industry in Ireland did output rise as much as population, while the pronounced expansion of services seems to have come more in the second half of the nineteenth century. Given the rise in population in Ireland, a fall in average real output per capita of 0.5 per cent per annum from 1801-1841 would still imply a total real output rise of 0.7 per cent per annum – a not inconsiderable growth rate at this time. But if average real income per capita did indeed fall by 0.5 per cent per annum, then a figure of £100 million for Ireland in 1841 would imply an income per capita ratio to Great Britain in 1801 of 78 per cent, as against 64 per cent using the £80 million figure. The latter figure would be plausible, whereas the former would not. I have decided to retain the Mokyr figure of £80 million, pending further research and debate on the matter.[1]

Adjusting the figures of Mokyr and Cullen for comparability, and using British wholesale prices as the deflator, Kennedy et al. (1988) estimated the average annual growth rate of total real income from 1841-1911 at 0.7 per cent, and real income per capita at 1.6 per cent. Ó Gráda (1994) arrives at identical figures, though adjusting on a different basis. These growth rates are

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[1] A new paper on the subject, Johnson and Kennedy (1995 forthcoming) gives a number of cogent reasons for putting the Irish figure in 1841 at about £100 million (or, on a per capita basis, at 50 per cent of the level in Great Britain). It should also be noted that in adjusting UK growth rates for the early nineteenth century in the light of modern revisionist research, Maddison (1987) retained the Deane (1968) *assumption* that Irish per capita output in 1931 was half that in Great Britain. This assumption, however, given Maddison's other figures on trends over the following ten years, would imply that by 1841 the Irish level had fallen to less than 45 per cent of that of Great Britain.

best looked on as measuring real income rather than output volume, with the growth of the latter undoubtedly lower. The price of Irish agricultural produce, the main export, was much higher relative to wholesale and industrial prices in 1913 than immediately before the Famine, so that there was a strong gain in the terms of trade, which augments real income but not real output as conventionally measured.

The above figures are, to say the least, fragile, and there is urgent need to improve on them. Probably the top priority should be to produce well-documented national income estimates for, say, 1841, 1851 and 1911, which would indicate how much of the apparently rapid gain in real income per capita was an immediate post-Famine phenomenon, when the population fell in the five years 1846-1851 by over one-fifth. A more elaborate undertaking would be to produce estimates at ten-year intervals, coinciding probably with the Census of Population dates.

The raw materials for such a project are as good as in most European countries with the exception of the UK. Comprehensive agricultural statistics have been collected officially for each year since 1847. Obviously a good deal of extra work is required to produce figures for value and volume of agricultural output. In fact Turner (1990) has already published estimates of value of agricultural output and associated prices for every year from 1850-1914: although he has had to revise these data in the light of scholarly criticism, the revised figures are now available, though not yet published. Solar (1987) and Ó Gráda (1988) have independently estimated the value of agricultural output immediately before the Famine. As regards industry, the estimates by Bielenberg (1994) of the value and volume of industrial output in 1840-45 and 1907 provide a focal point for further work on this sector. As in other countries even in the modern period, there are less data on the services sector.

Many other data sources could be exploited. For instance, Boyer et al (1993) have been able to derive annual wage series for agricultural and building labourers and for certain skilled trades in Ireland from about the 1850s, using British Board of Trade reports which covered a number of Irish locations. Although official external trade figures ceased after 1826 with the final elimination of tariffs under the Act of Union, a considerable amount of work has been devoted by economic historians to developing series of the principal Irish exports (see, e.g., Solar, 1987). Much less work has been done in relation to imports. This is not the occasion, however, to attempt a comprehensive survey of available material: enough has been said to show that there is a reasonable basis for optimism about the feasibility of providing national income data comparable with other countries in the period since just before the Famine.

At present, the materials are not available to make convincing national income estimates for the first 40 years or so of the nineteenth century, a period complicated by the fact that trends were probably rather different after 1815 following the conclusion of the Napoleonic wars, from the preceding phase when buoyant demand conditions prevailed. It is significant that both Solar (1987) and Bielenberg (1994) who have worked intensively on agriculture and industry, respectively, over this period, and who made output estimates for their respective sectors for the early 1840s, did not attempt similar estimates for any previous dates. Indeed Solar expresses doubt as to whether it will ever be possible to provide earlier estimates of acceptable quality for the value of agricultural output. Certainly a strategy geared to undertaking the more manageable tasks first would suggest according lower priority to the estimation of national income for this period as compared with later periods.

The Way Forward

I have argued in this paper that the preparation of national income estimates for Ireland since 1840, of a quality matching those available for most other European countries, is a feasible undertaking. It will be clear also from the above account that the enterprise could be divided into a number of distinct projects, of varying degrees of complexity. Obviously, the quality of each separate project would be enhanced if the work could proceed under a general co-ordinating framework. A related issue is whether as a first step towards the preparation of national income estimates, or alternatively as a complementary step, the preparation of a volume analogous to Mitchell's *British Historical Statistics* should be encouraged for Ireland. Apart from material dispersed in a wide range of publications, many scholars have assembled various data series at different times which still lie unpublished in their files or in doctoral dissertations, and it would be desirable to bring together all such material of value in an accessible format. In fact, work along those lines has been proceeding at Queen's University Belfast under the two major historical data base projects[1] financed by the UK Economic and Social Research Council (ESRC).

In order to advance work on Irish historical national accounts I convened a meeting at the ESRI on 29 June 1994 with a number of interested Irish economic historians, North and South. I proposed a target to produce in three years time national income estimates for Ireland for at least bench-mark dates at no more than ten-year intervals covering the period from 1840-1960 (so as to link with modern national accounts), and desirably showing separate data for the Republic and Northern Ireland. There was broad agreement that this could be done, subject to certain reservations. Some doubted whether it would be possible in that time span to produce separate data for the Republic and Northern Ireland before 1920. Also the absence of trade data in Ireland for most of the nineteenth century and up to the 1920s made it imperative to approach the task, as far as possible, from all three fronts: income, production and expenditure.

There was general agreement that in order to meet the overall target it would be necessary for at least one person at doctoral

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[1] "An integrated database of Irish historical statistics 1821-1911" and "An integrated database of economic and social statistics for Ireland 1911-1971". Work on the first was scheduled for 1990-93 and on the second for 1993-95.

or post-doctoral level to be dedicated full-time to the task over a period of about three years. Prospects of securing the necessary funding were discussed and will be followed up when the opportunity arises. In the meantime the participants agreed to meet twice a year as an informal Historical National Accounts Group to encourage work in this area, and to strengthen representation on the group through, inter alia, the addition of expertise in the estimation of modern national income accounts. A list of the current members of the group, and their affiliations, is attached as Annex 1. Some members offered to present papers at the second meeting on specific components of the overall task: the programme of this meeting, scheduled for 27 January 1995, is attached as Annex 2.

ANNEX 1

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ANNEX 2

Meeting of Historical National Accounts Group at ESRI 4 Burlington Road, Dublin on Friday, 27 January 1995

Programme

1.00 p.m.	Lunch
2.00	D. Johnson and L. Kennedy: Incomes in Ireland on the Eve of the Great Famine: Viewing and Reviewing the Evidence **Discussant: F. Geary**
2.45	A. Bielenberg and P. O'Mahony: An Expenditure Estimate of Irish GNP (at Market Prices) in 1907 **Discussant: E. Birnie**
3.30	Tea/coffee
3.45	L. Cullen: Irish National Income in 1911 and its Context **Discussant: C. Ó Gráda**
4.30	R. O'Connor and E. Henry: Preliminary Estimates of Agricultural Output in All Ireland and in the Irish Free State Area in 1908 and 1918/19 **Discussant: M. W. Dowling**
5.15	Discussion of future progress
5.30	Close of meeting

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