OXFORD

TOP INCOMES OVER THE 20TH CENTURY

A Contrast Between Continental European and English-Speaking Countries

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12

Long-Term Trends in Top Income Shares in Ireland

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12.1 INTRODUCTION

As earlier chapters have highlighted, there has been an upsurge of interest in rich countries in the incomes of those at the top of the income distribution. Evidence for some countries, notably the US and the UK, has fuelled a general perception that those at the top have done particularly well in the last quarter century or so, with the remuneration of top executives a source of particular comment. From an analytic point of view, a key contribution has been the use of data from income tax records to investigate these trends over the long term, notably Piketty (2001), Piketty and Saez (2003), and Atkinson (2005) for France, the US, and the UK respectively. This has encouraged others to exploit the potential of data from this source, and in that spirit this chapter uses this type of information to look for the first time at long-run trends in top income groups in Ireland from the 1920s up to the end of the twentieth century.

The serious problems in using and interpreting data from income tax records have been long recognised, as discussed in earlier chapters. What is reported will depend on how income is defined in the tax code, and both this and the tax unit may change over time. Income from different sources may well be treated differently, reported incomes are affected by tax avoidance in response to the way the tax code is framed, and people may not report honestly in order to evade tax—probably the single most important factor undermining confidence in the use of income tax data in some countries. These are issues that cannot be ignored, but on the other hand other sources of income data also have their problems and tax data have some important advantages, particularly in looking at top income shares. Household surveys for example are subject to response bias and mis-measurement of incomes, and they have particular problems in capturing the top of the income distribution. As in many other countries, for Ireland tax data are in any case 'the only game in town' for studying income shares in the long term since representative national household survey data only became available from the 1970s.

The chapter is structured as follows: Section 12.2 describes the information available for Ireland from income tax records; Section 12.3 details how the estimates of top income shares are derived from this information, and how the methodological issues that arise are addressed; Section 12.4 presents the key results, showing how the estimated shares have evolved over time; Section 12.5 discusses these trends, both in terms of their robustness from a measurement perspective and their substantive interpretation; Finally, Section 12.6 summarizes the conclusions and points to the many remaining gaps in our knowledge.

12.2 INCOME TAX DATA ON TOP INCOMES FOR IRELAND

Up until 1922, the entire island of Ireland formed part of the United Kingdom of Britain and Ireland. At that date, the island was divided into 'the Irish Free State', comprising 26 out of a total of 32 counties, and 'Northern Ireland', each with their own parliament but with the Free State in large measure independent of Britain. Its remaining tenuous links ties with Britain were broken in 1949 when the Republic of Ireland was formally established, but financially the state was in effect a separate unit from 1922. The first Annual Report of the Revenue Commissioners for the new state (which for convenience we will simply call 'Ireland' from here on) was published in 1924, for the financial year 1923–24—the tax year at that point, and for many years subsequently, ran from April to the following March. The material it presented included figures derived from the administration of what was then called super-tax, a special tax levied on incomes in excess of £2000 per annum.[1] (The currency of the new state remained linked one-for-one with Sterling for many years, up to the end of the 1970s.)

Super-tax became surtax at the end of the 1920s, levied on incomes in excess of £1500 per annum from the early 1930s, and similar figures in relation to surtax were presented in the Annual Reports of the Revenue Commissioners up until the mid-1950s. The figures given are the numbers assessed for super/surtax categorized by income range, and the total income assessed in each of those categories—to illustrate, Table 12.1 reproduces the figures published in relation to 1936–37. The relevant table was then dropped from the Annual Reports of the Revenue Commissioners (with the Reports from 1957–58 up to 1963–64 not presenting it). It was re-instated in the Annual Report from 1964–65 (at which stage surtax applied to incomes in excess of £3000), and then presented each year up to 1973–74, at which point surtax itself was phased out. The number of tax units covered by the published tables ranges from 1519 in 1923–24 to 7381 in 1954–55, 4897 in 1964–65 and 8675 in 1973–74.[2] Note that surtax was charged on income in the

[1] Note that it may be possible to derive estimates for the period before 1921–22 from tax statistics published by the United Kingdom authorities, but these would relate to the island of Ireland as a whole and not allow the series we present here to be extended.

[2] Note that most of the Annual Reports provide figures covering the previous five years, and the figures published for any year changed from one Report to the next as further information was processed, so we have used the last figures published for each year—for example, the 1944–45 figures are taken from the Report for the year ended March 1951.

Table 12.1 Sur tax payers classified by income ranges, Ireland 1936–37

Class	Total number of assessments	Total incomes assessed £
Over £1,500 and not over £2,000	860	1,496,366
Over £2,000 and not over £3,000	772	1,844,250
Over £3,000 and not over £4,000	272	909,890
Over £4,000 and not over £5,000	140	610,993
Over £5,000 and not over £6,000	99	534,455
Over £6,000 and not over £8,000	87	589,141
Over £8,000 and not over £10,000	46	403,314
Over £10,000 and not over £20,000	45	627,742
Over £20,000	22	1,658,101
Total	2,343	8,674,352

Source: *Fourteenth Annual Report of the Revenue Commissioners*, Year ended 31 March 1937, Table 126, p. 177.

previous year up to the early 1960s, when introduction of PAYE meant that tax was charged on current rather than previous year's income (except for income from self-employment, which was taxed on a previous year basis right up to the 1990s).

These super-tax or surtax figures relate only to the very top of the income distribution, covering less than half of one percent on all tax units. In addition, however, some very valuable figures were collated and published in connection with the production of the first official national accounts figures for Ireland, covering much more of the income distribution and relating to the years 1938 and 1943 only. These were presented in the White Paper on National Income and Expenditure that contained the first official Irish national accounts estimates (Minister for Finance 1946). The estimation of national accounts aggregates relied primarily on the income approach, and for this purpose information available to the Revenue Commissioners was recognized as a key resource. This served as the basis for the estimation of aggregate earned income other than income from agriculture of persons earning more than £150 per year, and of all income from dividends and rent. Since the basic records were not centralized or mechanized, this involved work in each income tax district to extract figures from individual records. Crucially for present purposes, it was also decided that information on personal income classified by income range would be produced.[3]

The figures this produced for 1938 and 1943 are shown in Table 12.2. A number of features should be noted. The figures relate to income other than that from agriculture, forestry and fishing, and to those with (such) incomes over £150 per year. The figures for incomes over £1500 were derived from surtax statistics, while those in the £150–1500 range seem to have relied on income tax information and on regular and special statistical enquiries into wages in industry, with such enquiries also providing the basis for estimates of the aggregate income of

[3] The nature of this exercise has been discussed in a paper by Linehan and Lucey (2000). They note that Revenue staff had to return to individual assessments to produce these tabulations, that extensive use of overtime was needed, and that the Revenue found the exercise to be a very disruptive one and were reluctant to repeat it.

Table 12.2 Personal income classified by income ranges, Ireland 1938 and 1943

	1938	1943	1938	1943
	Number		Aggregate income £ million	
Not exceeding £150	Not known		52.7	69.1
Over £150 and not over £200	46,452	53,364	8.2	9.4
Over £200 and not over £250	38,504	49,778	8.7	11.1
Over £250 and not over £300	22,635	28,482	6.2	7.7
Over £300 and not over £400	20,536	24,364	7.1	8.4
Over £400 and not over £500	10,447	12,272	4.6	5.4
Over £500 and not over £750	12,034	15,255	7.2	9.2
Over £750 and not over £1,000	4,318	5,659	3.7	4.8
Over £1,000 and not over £1,500	3,165	4,486	3.8	5.4
Over £1,500 and not over £2,000	1,170	1,840	2.0	3.2
Over £2,000 and not over £200	1,751	2,692	6.1	8.9
Over £10,000	79	109	1.8	1.7
Income from agriculture, forestry and fishing			39.3	84.6
Total personal income			151.4	228.9

Source: *National Income and Expenditure 1938–1944*, Minister for Finance 1946; table: 6, p. 18.

those below £150. The accompanying text and notes state that it was not possible to classify agricultural incomes by size, but that most such incomes were probably under £150 per year. A total of over 160,000 incomes are classified in the figures for 1938, at a time when the total number at work was about 1.2 million. Only about 4,600 out of this total were in the surtax net, with incomes above £1500. So for these two years and these two only, over the period from 1922 to 1973 where we otherwise have to rely on the surtax series, we will be able to estimate the shares of a much wider range of top income groups.

While the final published figures based on surtax relate to 1973–74, an entirely new series of figures was initiated in the Annual Report of the Revenue Commissioners for 1976, derived from the administration of general income tax (with which surtax had by then been integrated). The numbers covered were now very much larger, amounting to almost 750,000 tax units in the first set published, relating to 1974–75. These figures have been continued in subsequent years, with the amount of detail presented increasing in more recent years, notably since the late 1980s when the figures were hived off to a separate Statistical Report rather than the Annual Report itself. By 2000–01, the details presented took 18 tables (compared with the single table published for surtax in earlier years) and the number of tax units covered exceeded 1.7 million. Table 12.3 shows an example of the key figures for current purposes, relating to the year 2000. Unfortunately, the much wider coverage in the income tax statistics compared with those from surtax comes at a price when we are most interested in the very top. This is because the income range categories employed in presenting the income tax figures are much broader. In the last year that surtax figures were published, the top income range showing incomes over £10,000 per annum contained only about 1500 tax units. The same top income range

Table 12.3 Income tax payers classified by income ranges, Ireland 2000

Lower income IR£	Upper income IR£	Number of tax units	Total income IR£ m.
0	3,000	218,063	307.55
3,000	4,000	63,458	222.92
4,000	5,000	65,547	294.61
5,000	6,000	58,984	324.12
6,000	7,000	59,215	385.12
7,000	8,000	63,377	475.79
8,000	9,000	64,925	551.75
9,000	10,000	66,303	630.18
10,000	12,500	148,394	1666.19
12,500	15,000	132,676	1819.07
15,000	17,500	102,385	1659.09
17,500	20,000	85,418	1598.23
20,000	25,000	124,102	2773.45
25,000	30,000	89,947	2459.56
30,000	35,000	58,024	1874.35
35,000	40,000	37,645	1405.55
40,000	50,000	41,917	1860.96
50,000	60,000	20,273	1103.65
60,000	75,000	13,080	866.04
75,000	100,000	7,777	664.54
100,000	—	9,146	1779.011
Total		1,530,656	24721.75

Source: *Statistical Report of the Revenue Commissioners*, year ended 31 December 2002: table IDS8, p. 81.

was used initially when the income tax statistics were introduced, but this has not kept pace with incomes subsequently so that by 2000 a total of over 11,000 tax units were in the top category. As we shall see, this constrains our ability to distinguish income groups at the very top.

The definition of income used in these statistics should be noted. In the figures based on income tax from the mid-1970s, the income concept on which tax units are categorized is referred to as 'total income'. This is the total income of taxpayers from all sources 'as estimated in accordance with the provisions of the Income Tax Acts'. It is thus net of such items as capital allowances, allowable interest paid, losses, allowable expenses, retirement annuities, and superannuation contributions. In more recent years, as well as 'total income', figures have also been published using a concept referred to as 'gross income', which includes all those items except superannuation contributions. These are available for the years from 1989–90 onwards (commencing in the Statistical Report for 1991); for consistency with the figures available up to that date we focus most of our attention here on 'total income', though we look below at whether it makes any difference if 'gross income' is used instead. The definition underlying the surtax statistics is less clear but seems likely to be similar to 'total income'. (Since the figures produced for 1938 and 1943 in the national accounts exercise rely on income tax and surtax for the top of the distribution, the income concept employed there seems also to be similar.)

12.3 USING IRISH INCOME TAX DATA TO ESTIMATE TOP INCOME SHARES

We now describe how this information is used to produce estimates of top income shares for Ireland from 1922 to 2000. To do so we must tackle the methodological issues discussed in Chapter 2:

1. In terms of recipients the tax data cover only those with incomes over a threshold or likely to have some tax liability, so we need to derive control totals for the total number of tax units in the population; we must then use these to convert the number of tax units in different income ranges in the tax data into percentages of all income recipients in the population;
2. The incomes reported in the tax data will only be a sub-set of total income accruing to households, again because some income recipients are not covered but also not all income accruing to those in the tax data may necessarily be covered; so we need to derive control totals for total income, and then use these to convert the income accruing to those in different ranges in the tax data into percentages of total income; and finally,
3. We need to interpolate/extrapolate to arrive at the shares for the specific groups of interest, for example the top 1%.

Focusing first on the total number of income recipients, in the Irish case the unit of tax for surtax and income tax purposes throughout most of the period was the single adult or married couple with dependent children if any. From the 1980s married persons could submit separate returns if they so wished (though their total tax liability would not be affected), but only a relatively small number do so. We treat the single adult or married couple with dependent children as the unit throughout for the purpose of our estimates, and thus require a control total for the aggregate number of such units in the population as a whole (rather than the total appearing in the tax statistics).

We can derive this directly for each year in which there was a Census of Population, by taking the total number of adults (aged 18 or over) and subtracting the total number of married women. With the Census carried out only every five or ten years, we then have to interpolate to produce figures for intercensal years. We do so by taking the total number of tax units for each Census year and simply using linear interpolation to arrive at figures for the other years.[4] The number of tax units in each year which this produces is shown in Table 12.4A.

To estimate shares in total income we also need a control total for aggregate income. As discussed in earlier chapters one way to do so is to estimate the income of those not covered in the tax statistics, coming as close as possible to the

[4] There was no Census of Population between 1911 and 1926, so to derive the number of tax units for 1922–25 inclusive we assume the year-to-year change was the same as that between the Census of 1926 and that of 1936.

Table 12.4A Control totals for number of tax units, Ireland 1922–2000

Year	Total tax units	Year	Total tax units
1922	1,494,898	1961	1,317,780
1923	1,499,323	1962	1,320,531
1924	1,503,748	1963	1,323,282
1925	1,508,173	1964	1,326,032
1926	1,512,598	1965	1,328,783
1927	1,517,023	1966	1,331,534
1928	1,521,448	1967	1,336,702
1929	1,525,873	1968	1,341,869
1930	1,530,298	1969	1,347,037
1931	1,534,723	1970	1,352,204
1932	1,539,147	1971	1,357,372
1933	1,543,572	1972	1,377,099
1934	1,547,997	1973	1,396,825
1935	1,552,422	1974	1,416,552
1936	1,556,847	1975	1,436,279
1937	1,553,822	1976	1,456,005
1938	1,550,797	1977	1,475,732
1939	1,547,773	1978	1,495,458
1940	1,544,748	1979	1,515,185
1941	1,541,723	1980	1,554,631
1942	1,538,698	1981	1,594,077
1943	1,535,673	1982	1,606,670
1944	1,532,649	1983	1,619,264
1945	1,529,624	1984	1,631,857
1946	1,526,599	1985	1,644,451
1947	1,519,608	1986	1,657,044
1948	1,512,617	1987	1,668,307
1949	1,505,625	1988	1,679,570
1950	1,498,634	1989	1,690,834
1951	1,491,643	1990	1,702,097
1952	1,474,257	1991	1,713,360
1953	1,456,870	1992	1,745,193
1954	1,439,484	1993	1,777,026
1955	1,422,098	1994	1,808,860
1956	1,404,712	1995	1,840,693
1957	1,387,325	1996	1,872,526
1958	1,369,939	1997	1,923,468
1959	1,352,553	1998	1,974,411
1960	1,335,166	1999	2,025,353
		2000	2,076,295

Source: Tax units estimated from Census of Population as described in text.

same definition of income, and add this to the reported incomes of those who are covered. While this would have some attractions for recent years when most of the population is within the tax net, it would be a very different proposition for 50 or 60 years ago when only a small minority was covered. The alternative is to take aggregate personal sector income as estimated in the national accounts, and subtract certain elements in order to align it more closely with incomes as they would be reported in the tax statistics. There are significant differences in the definition and coverage of income in the national accounts versus income tax statistics, most obviously in that national accounts personal sector income includes not only individuals but also non-profit institutions such as charities and life assurance funds. In addition, some national accounts income attributable to households is not included in the tax base, such as in the Irish case employers' social security contributions and imputed rent of owner-occupiers. The national accounts figures are not independent of the income tax ones, since the latter are one of the sources used in deriving the national accounts estimates in the first place, but reconciling the two is often difficult. This is certainly the case for Ireland, where the National Accounts do not disaggregate personal sector income into household and non-household components even for the most recent years.

A particularly important consideration in the current context is producing figures for Ireland that, insofar as possible, are reasonably comparable with the figures presented for other countries in the other chapters of this volume. We therefore seek to follow the approach adopted in producing estimates for the US and Canada (Chapters 5 and 6). Where available, we take aggregate income of the personal sector, and subtract transfers paid by the state to households, and social insurance contributions paid by employers. We then take 80% of that figure, to take account of other elements of personal sector income not included in incomes returned for tax, and use this as control total for income in deriving top income shares. This control total for each year is shown in Table 12.4B.

This procedure is straightforward over the years for which official national accounts estimates are available for Ireland. This is the case for years from 1938 onwards (though some approximation is required to derive the required control total for the years 1939–43). However, prior to 1938 no official national income data were produced, and thus no official series on national income, much less personal sector income, exists. Estimates of national income for certain years from 1926 to 1938 were produced in the late 1930s by Duncan (1939, 1940); while these have been criticized by subsequent scholars (see Kennedy et al. 1988; O'Rourke 1995), no alternative series has been produced. For each of the years 1922–37 we therefore had to first estimate national income, by amending Duncan's estimates in the light of subsequent studies and then interpolating the years he did not cover. We then derive from those national income figures estimates of total personal sector income and then of the lower control total we are seeking for current purposes. The figures for 1922–37 shown in Table 12.4B are estimated in this manner, as described in more detail in Appendix 12B. They clearly have to be taken as rough approximations, without placing much confidence in the pattern from year to year, but do allow us to push back the series another fifteen years and get some sense of what the level of top income shares might have been in the 1920s.

With the tax data showing numbers of taxpayers classified by income range and their total income, we then use the control totals for tax units and income to convert these into shares, of all tax units and of total income respectively.[5] The

[5] In doing so we take into account the fact that the surtax figures for the 1920s, 1930s, 1940s, and 1950s actually relate to incomes in the previous year.

Table 12.4B Control totals for income, Ireland 1922–2000

	Aggregate personal sector income £m.	Income Control Total (80% of personal sector transfers employers' social insurance) £m
1922	146.50	116.00
1923	147.00	116.42
1924	148.00	117.22
1925	148.50	117.61
1926	149.60	118.48
1927	151.00	119.59
1928	152.50	120.78
1929	153.76	121.78
1930	146.00	115.63
1931	133.37	105.63
1932	129.00	102.17
1933	125.52	99.41
1934	132.00	104.54
1935	138.00	109.30
1936	145.92	115.57
1937	152.00	120.38
1938	165.70	122.72
1939	175.00	129.68
1940	192.00	143.12
1941	207.00	154.56
1942	230.00	172.80
1943	253.00	190.80
1944	263.60	200.12
1945	286.00	217.19
1946	297.70	226.41
1947	308.10	233.00
1948	326.70	246.68
1949	340.40	253.61
1950	356.50	267.25
1951	387.70	290.26
1952	417.50	305.70
1953	442.60	327.68
1954	445.40	329.44
1955	470.80	348.80
1956	473.90	349.44
1957	495.40	363.92
1958	501.90	369.28
1959	533.40	393.68
1960	602.87	431.62
1961	653.82	468.92
1962	707.47	508.77
1963	746.35	535.15
1964	853.73	613.63
1965	905.24	648.18
1966	965.64	687.58
1967	1,034.27	732.01

(*contd.*)

Table 12.4B (*Contd.*)

	Aggregate personal sector income £m.	Income Control Total (80% of personal sector transfers employers' social insurance) £m
1968	1,169.78	821.53
1969	1,326.57	926.72
1970	1,528.01	1061.78
1971	1,761.67	1221.71
1972	2,118.58	1474.54
1973	2,600.50	1799.30
1974	3,057.95	2064.27
1975	3,987.07	2649.90
1976	4,718.69	3115.98
1977	5,627.76	3742.94
1978	6,647.60	4445.68
1979	7,812.30	5220.98
1980	9,495.08	6260.72
1981	11,709.38	7648.13
1982	13,125.84	8256.13
1983	14,477.43	9024.18
1984	16,024.35	9985.49
1985	17,081.60	10578.02
1986	18,241.42	11251.02
1987	19,421.66	12027.68
1988	20,698.32	12930.34
1989	22,204.71	14133.70
1990	23,528.68	15013.66
1991	24,932.83	15723.66
1992	26,303.53	16578.91
1993	28,644.34	18117.64
1994	29,679.42	18696.83
1995	31,954.14	20105.18
1996	34,436.87	21782.64
1997	38,055.83	24140.37
1998	42,718.51	27406.17
1999	48,029.29	31092.15
2000	54,266.96	35382.31

Source: Personal sector income, transfers and employers social insurance contributions from *National Income and Expenditure*, various issues, for 1938 and from 1944 onwards; for earlier years see text and Appendix 1.

numbers in a particular income range will vary from one year to the next, and the boundaries of those ranges will also change over time, which means that interpolation then has to be used in order to arrive at estimates of income shares for a specific group such as the top 1% or 10%. The standard practice in analysis focusing on the top of the income distribution, as discussed in earlier chapters (see Appendix 5C), has been to assume that the distribution is Pareto in form, and here we interpolate within closed ranges making that assumption. (An alternative approach is based on placing upper and lower bounds on the Lorenz curve, as discussed in Atkinson 2004 and Chapter 2 this volume.)

Ideally, we would like to be able to produce estimates for the top 10%, top 1%, top 0.5%, and top 0.1% of tax units, on which recent studies and the contributions to this volume have focused where possible. It turns out that, given the nature of the published tax data, we are only able to do so reliably for the two years 1938 and 1943, covered by the special exercise associated with the first Irish national accounts. For the years before that and from 1944 to 1973 where we have to rely on sur-tax data, only the very top shares can be estimated—the top 0.1% and occasionally the top 0.5%—because so few tax units were covered by those statistics. For the later years from 1975 when we rely on data from the income tax statistics, on the other hand, we can estimate the share of the top 10%, top 1%, and often the top 0.5%, but the open-ended income range at the top generally contains much more than 0.1% of all tax units. One can extrapolate into the open range, again assuming a Pareto distribution, and this is done by, for example, Piketty (2001, 2003) and Piketty and Saez (2003). Here we do so to produce estimates for the share of the top 0.5% for several years in the 1990s when the open-ended range in the published statistics contained marginally more than 0.5%, and also to estimate the share of the top 1% for most of the period from 1975 to 1989. We do not do so when the open-ended range contains a group much larger than the one of interest—for example, we do not extrapolate to arrive at an estimate for the share of the top 0.1% when we have already had to do so to estimate the share of the top 0.5%.

12.4 ESTIMATES OF TOP INCOME SHARES FOR IRELAND

Having described the data and methods employed, we now present our estimates of top income shares for Ireland from 1922 to 2000, shown in Table 12.5. Where available, estimates of the share going to the top 10%, top 1%, top 0.5%, and top

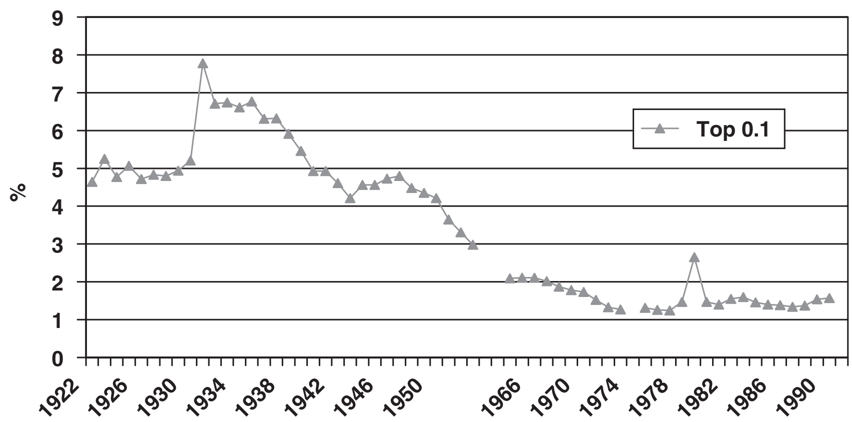

Figure 12.1 Share of top 0.1% in total income Ireland, 1922–90

Source: Table 12.5.

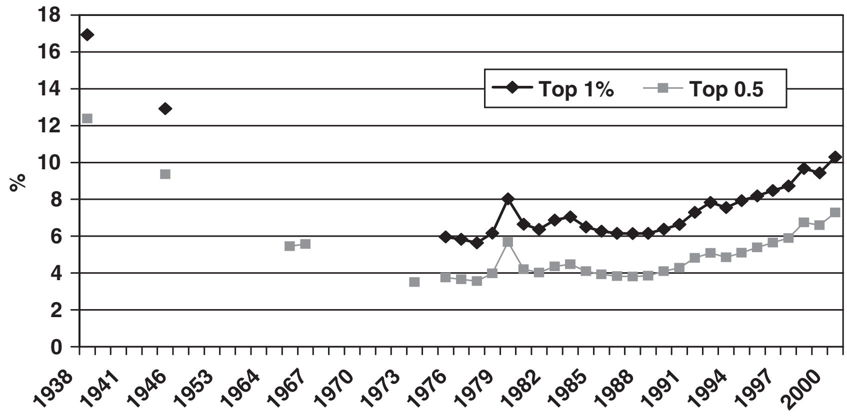

Figure 12.2 Shares of top 1% and top 0.5% in total income, Ireland 1938–2000

Source: Table 12.5.

0.1% are presented. Figure 12.1 graphs the share of the top 0.1% from 1922 to 1990, while Figure 12.2 graphs the shares of the top 0.5% and top 1% from 1938 to 2000—the different time-periods reflecting their differing availability.

Over the period from 1922 all the way up to 1973, since we have to rely in most years on the sur-tax figures we can estimate only the share going to the very top, the top 0.1%. The share of this small group is estimated to have been 4.6% in 1922. We then see it fluctuating between that figure and about 5% through the 1920s. This share rose sharply in the early 1930s, peaking at 7.8% in 1931 and staying well over 6% until 1938–39 when it fell sharply. It was below 5% by the early 1940s, showed some very modest increase from 1944 to 1946–47, and subsequently fell substantially to reach about 3% by the early/mid-1950s. With a gap in the data series until 1964 we see it at about 2% by that date, continuing to fall until the early 1970s when it was as low as 1.3%. We then have estimates for the top 0.1% derived from the income tax statistics until 1990, albeit with extrapolation into the open range often required. We see that the long-term decline in the share of this group did not continue, with a modest increase to about 1.6% by 1990 (and a peak in 1979 when it hit 2.6% but then fell back immediately).

Throughout the entire period from 1922 to 1973 we can produce estimates for broader income groups at the top only for 1938 and 1943, because of the special exercise carried out in connection with the first national accounts. We see from Table 11.5 that in 1938 these show almost half of the income control total going to the top 10% of tax units. About 17% was going to the top 1%, while the top 0.5% is estimated to have had about 10%. (The estimate for the share of the top 0.1% derived from this source is very close to that derived from the sur-tax statistics, which is not surprising since those statistics were the key source for this part of

Table 12.5 Shares of top income groups, Ireland 1922–2000

	Income Groups			
	Top 10%	Top 1%	Top 0.5%	Top 0.1%
	% of total income			
1922				4.64
1923				5.25
1924				4.77
1925				5.07
1926				4.72
1927				4.83
1928				4.80
1929				4.94
1930				5.21
1931				7.78
1932				6.71
1933				6.74
1934				6.61
1935				6.77
1936				6.31
1937				6.32
1938				5.91
1938b	47.61	16.93	12.38	5.95
1939				5.46
1940				4.93
1941				4.93
1942				4.61
1943				4.21
1943b	35.68	12.92	9.36	4.00
1944				4.56
1945				4.56
1946				4.73
1947				4.80
1948				4.48
1949				4.35
1950				4.21
1951				3.65
1952				3.31
1953				2.98
1954				
1955				
1956				
1957				
1958				
1959				
1960				
1961				
1962				
1963				
1964				2.09
1965			5.46	2.11

(*contd.*)

Table 12.5 (*Contd.*)

	Income Groups			
	Top 10%	Top 1%	Top 0.5%	Top 0.1%
1966			5.57	2.11
1967				2.02
1968				1.87
1969				1.78
1970				1.73
1971				1.52
1972				1.33
1973			3.51	1.27
1974				
1975	28.62	5.96	3.76	1.31*
1976	27.96	5.83	3.66	1.26
1977	27.29	5.64	3.56	1.24*
1978	28.20	6.16	3.98	1.47*
1979	31.32	8.03	5.68	2.65*
1980	31.50	6.65	4.21	1.47*
1981	30.85	6.37	4.02	1.40
1982	32.57	6.87	4.36	1.55*
1983	33.29	7.05	4.48	1.60*
1984	31.57	6.50	4.10	1.46*
1985	31.28	6.27	3.93	1.40*
1986	31.03	6.15	3.83	1.38
1987	31.16	6.14	3.81	1.34*
1988	30.51	6.15	3.85	1.37*
1989	30.52	6.38	4.10	1.54*
1990	31.05	6.64	4.28	1.57*
1991	32.46	7.30	4.82*	
1992	34.00	7.83	5.09*	
1993	33.39	7.55	4.85*	
1994	34.84	7.93	5.10*	
1995	35.33	8.19	5.39	
1996	35.55	8.48	5.65	
1997	35.51	8.73	5.90	
1998	35.89	9.67	6.75	
1999	34.93	9.44	6.60	
2000	36.07	10.30	7.28*	

Note: * indicates based on extrapolation into top open income category in published statistics.
Sources: Derived from: (1) Income control totals from Table 12.4B; (2) Number of tax units control totals from Table 12.4A; (3) Distribution of tax units by total income range from: (a) 1922–53 and 1964–73 *Sur-tax Statistics*; 1938b and 1943b from Table 12.2. (b) 1975–2000 *Income Tax Statistics*. Full details on these sources are given in the Appendices.

the distribution in the national accounts exercise.) By 1943, this had changed quite markedly. The share of the top 10% was down to 36%, that of the top 1% was down to 13%, and the share of the top 0.5% had also declined by 4 percentage points—with the top 0.1% also having fallen sharply over this period. This period, for which we happen to have a broader distributional picture, is obviously a very particular one with 1943 being in the middle of the Second World War, which although Ireland remained neutral still had very a substantial economic impact—issues to which we return in the next section.

After 1943, apart from the top 0.1% the sur-tax figures allow us to estimate shares for the top 0.5% only for a few years in the mid-1960s and for 1973. The pattern is once again a very marked decline from 1943, from a share of over 9% down to about 3.5% by 1973. The figures available for the mid-1960s suggest that this share had reached about 5.5% by that point, once again suggesting that the decline took place throughout the period.

Once the income tax figures become available, we then have estimates from the mid-1970s all the way to 2000 for the shares of the top 10%, top 1% and top 0.5%.[6] Compared with 1943, by 1975 the share of the top 1% had fallen from 13% to 6%, consistent with the decline in the shares of the top 0.5% and 0.1%. The share of the top 10% had also fallen, though much more modestly in proportionate terms, from 36% to 29%.

From 1975 up to 1990 the share of the top 0.5% was about 3.5–4.5% and that of the top 1% about 6–7% of total income, with the exception of 1979 when (like the top 0.1%) they saw a once-off jump. The share of the top 10% fluctuated in the 28–33% range. In the 1990s, however, there was a substantial increase in the shares of the top 0.5%, top 1% and top 10%. By 2000 the share of the top 0.5% had risen to over 7%; that of the top 1% had risen to over 10%; and the share of the top 10% was up to 36%. In proportionate terms this represents a much sharper rise the higher one goes up the distribution, with the percentage increase from 1990 to 2000 being 16% for the top 10%, 55% for the top 1%, and 70% for the top 0.5%.

So the figures we have derived from published tax statistics on top income shares for Ireland show some quite dramatic trends over the period from the foundation of the State: we explore these further in the next section.

12.5 INTERPRETATION AND RELIABILITY

Having described the trends in top income shares implied by Irish tax data, we now come to the questions of interpretation and reliability. What causal forces could have produced such dramatic changes in top income shares over time? Can we in fact believe that these changes actually took place, or does the nature of the underlying data fatally undermine our confidence in the measured trends as a reflection of reality?

The studies for other countries presented in this volume of course pay considerable attention to these fundamental issues. In doing so they have the advantage, compared with Ireland, of having additional data on the composition of top

[6] For the top 0.5% extrapolation into the open range was required for some years in the 1990s and for 2000.

incomes by source and how that evolved over time, going back to the first half of the twentieth century. Piketty (Chapter 3, this volume) is thus able to show in the French case that the very pronounced fall in top income shares up to the late 1940s reflected a fall in income from capital, in particular in the form of dividends, and links these to shocks in the form of inflation, bankruptcies and physical destruction. Similarly Piketty and Saez (Chapter 5, this volume) are able to show that in the US shocks to capital incomes during the depression and the Second World War played the major role in the sharp fall in the share of top income groups. Across the US, Canada, France, and the UK the similarity in the scale of the fall in top income shares between about 1914 and mid-century is indeed striking. However the exact timing of that fall differs across these countries, and one is left searching for specific shocks operating in varying ways during the World Wars and the intervening Great Depression but leading to a similar overall trend.

Adding Ireland as an observation adds to the complexity. After stability in the 1920s we see a substantial rise in the share of income going to the very top in the early-to-mid 1930s, as the Depression hit. This was followed by a decline in top income shares from the late 1930s to the mid-1940s, similar to that in the other countries listed above. But Ireland differs from those countries in many respects. Ireland was a predominantly agricultural country at the time, unlike the industrial leaders others have studied, and was not a participant in the Second World War. There was no nationalization, and Ireland was less affected by the Depression of the 1930s than countries relying more heavily on industry, trade and finance—though it was deeply affected by the 'Economic War' with Britain during the 1930s, when exports of Irish agricultural output to Britain were very severely restricted and subject to duties, and when retaliatory duties were placed on imports from Britain.[7] In addition, the Irish government pursued a more broadly based protectionist strategy from the early 1930s, via a range of tariffs and quotas. The result was a squeeze on farm incomes but a rapid increase in domestic industrial production during the period from 1932 to 1938.[8] This may have contributed to the sharp increase in the share of income going to the top 0.1%, but that is highly speculative—and the level of uncertainty about the level of national income and how it evolved over that period has to be emphasized once again.

The comparison between 1938 and 1943 can be made with somewhat greater confidence, since official national income figures were produced and we can go beyond the share of the top 0.1%. The sharp fall in top income shares observed between these two years could perhaps be associated with the operation of wage and price controls and unavailability of raw materials during the Second World War, both of which may well have reduced profits (see, for example, O'Grada 1997).

[7] This stemmed from a dispute about annuity payments in relation to loans made for land purchase, which the Irish government stopped paying to Britain when the government changed in 1932.

[8] See for example Kennedy et al. 1988: chap. 2 and O'Rourke 1995.

Unfortunately, a detailed decomposition of top incomes by source is not possible with the data available for Ireland for that period. However, the role of income from agriculture versus other incomes bears some consideration. The figures on incomes by income range for 1938 and 1943 produced in the course of the first national accounts exercise did not in fact allocate income from agriculture across the income categories—total income from agriculture is simply given separately. The national accounts exercise states that 'It has not been possible to classify agricultural incomes by size . . . In any case, most personal incomes from agriculture alone, even at the present time of comparative prosperity, are probably in the under £150 class' (Minister for Finance 1946: 20). A footnote to the table does state however that 'an appreciable number of farmers (if only a minute proportion of the large total) are in the "over £150" income class' (Minister for Finance 1946: table 6, p. 18, n. a). Since £150 is close to the bottom cut-off for the top decile at that time, it is worth trying to make some assessment of the sensitivity of the results to alternative assumptions about incomes from agriculture at the top.

About half the workforce was in agriculture at the time, and while 26% of total personal income came from agriculture in 1938 this had risen to 37% by 1943. It is interesting first to exclude agricultural income from the income control total and recalculate the shares going to top groups in non-agricultural income instead. Shares of top income groups in non-agricultural income are of course higher in both years, but also more stable: the share of the top 1%, for example, falls from 23%% to 20.5%, compared with the decline from 17% to 13% seen in Table 12.5. This greater stability is because agricultural income doubled between 1938 and 1943, with none of that increase accruing to the top income groups in Table 12.5 but with the income control total being affected. So the rise in agricultural income accounts for about half the measured reduction in our estimates of top income shares, which may be misleading if some agricultural income does in fact accrue to the top of the distribution.

It is clearly unsatisfactory to have to focus on non-agricultural incomes, and it would be preferable to include them both in the control total and in the incomes of those at the top. Suppose we assume that 10% of farmers and 25% of farm income were actually in the income categories over £150—which is probably too high—and that they were distributed across those income categories in the same way as the non-agricultural tax cases and income shown in Table 12.2. This has very little impact on the estimated top income shares for 1938, with for example that of the top 1% increasing only from 17% to 17.3%. In 1943 the impact is slightly greater because farm incomes were so much higher, with the share of the top 1% now rising from 13% to 13.6%. As a consequence, the fall in the top income shares between 1938 and 1943 is slightly less, but the difference is marginal. So including agricultural incomes would mean that the decline in top income shares between 1938 and 1943 was slightly less than shown in Table 12.5 but a substantial decline in top income shares is still seen over the period. Agricultural incomes were only brought comprehensively into the tax net from the 1970s, but would have been on a downward trend as a proportion of total income through the 1950s and 1960s.

From 1943 to the early 1970s we have only fragmentary information but the share of the top 0.1% is seen to decline substantially, followed by a period of stability in this and other top income shares up until the late 1980s/early 1990s. One of the features highlighted by Piketty for other countries during this period, namely sustained high marginal income tax rates from mid-century, certainly does apply to the Irish case. The top marginal income tax rate in the Irish case was 75–80% from the 1930s up to the mid-1970s, then came down to 60%. What is striking in the Irish case is that top income shares do not appear responsive to dramatically different conditions in terms of economic activity. The Irish economy was stagnant in the 1950s, with mass emigration, followed by an opening up to external trade and investment in the 1960s, buoyant economic growth following EEC membership in 1973, a fiscal crisis and slow growth for much of the 1980s, followed by a faltering recovery in the late 1980s.

However the decade of the 1990s saw a marked increase in top income shares as reflected in the income tax statistics, and certainly from the mid-1990s this was in a rapidly changing economic context, with economic growth reaching unprecedented levels in the era of the Celtic Tiger. (The top marginal income tax rate had also come down further, reaching 42% in 2001.) Over this period there is some information available with the published statistics on the composition of top incomes, and also figures based on what the Revenue Commissioners refer to as 'Gross Income' as well as the 'Total Income' figures which were the only ones published for earlier periods and on which we base all our estimates in Table 12.5. While 'total' income is after employee superannuation contributions have been deducted, gross income includes those contributions and is a more comprehensive measure (though still net of for example capital allowances, losses, interest paid and allowable expenses). So we look in Table 12.6 at top income shares estimated from gross income statistics from 1989–90 on (with the income control totals unchanged), to see if that makes any difference to levels or trends when compared with the estimates based on 'total income' presented earlier in Table 12.5. We see that top income shares in gross income are higher, with for example in 1989 the top 1% having 6.4% with total income but 7.2% with gross income. By the end of the decade the gap had widened, with the top 1% having 10.3% with total income but almost 12% with gross income. So the trend over the 1990s is similar with each income measure but the increase in top income shares is more pronounced when the categorization based on 'gross income' is employed.

Turning then to the composition of top incomes, information was published during this period on the breakdown by income range of specific types of taxpayer and on their total income by range.[9] The way in which these groups are defined makes an overall picture of income composition quite difficult to disentangle, because they do not represent an exhaustive and exclusive set—there are overlaps between the groups, with for example 'proprietary directors' being included with the self-employed in some tables but distributed among Schedule D and Schedule E in others. However, as explained in Appendix 12C it is possible to derive a useful

[9] This is available both for 'Gross income' and 'Total income'; here we focus on gross income.

Table 12.6 Top income shares estimated from 'gross incomes', Ireland 1989/90–2000

	Income groups		
	Top 10%	Top 1%	Top 0.5%
1989	33.15	7.15	4.67
1990	34.12	7.59	4.95*
1991	35.53	8.27	5.46*
1992	37.12	8.74	5.70*
1993	36.50	8.48*	
1994	37.60	8.82*	
1995	37.81	9.17	6.14*
1996	37.83	9.58	6.54
1997	38.00	10.14	7.06
1998	38.49	11.18	8.00*
1999	37.75	11.06	7.91
2000	38.79	11.82	8.50*

Source: See Appendix 12A; * = extrapolated into open range.

categorization with some effort, arriving at a three-way breakdown into: (1) self-employed including proprietary directors; (2) those with mainly unearned income taxed under Schedule D; and (3) those with mainly earned income taxed by PAYE under Schedule E. In each case we can either read off or derive the numbers in each income range and their total income from the published figures. Table 12.7 shows the importance of each group in the top, open-ended income category in 1989–90 vs. 2000. The proportion of all the cases in the tax statistics falling into the top range was not of course identical in the two years but it turns out to be quite close at 0.6% vs. 0.8%, so a direct comparison of composition is illuminating.

We see that the self-employed (including proprietary directors accounted for 54% of those in the top income category in 1989–90, when they had average incomes very similar to the overall mean for that category and thus also accounted for about 54% of the total income accruing to it. Those relying mainly on unearned income were a much smaller group, accounting for only 10% of the top category, but had very much higher incomes on average and thus accounted for 18% of the top group's income. Those with earned incomes paying PAYE accounted for 36% of the cases in the top category but had mean incomes below the other two groups and thus had only 28% of the top category's income.

By 2000, the picture was rather different. We see that the self-employed now account for a substantially higher proportion, 69%, of the cases in the top income category. In addition, their average income is now above the overall average for the top category, so they have even more of the total income at almost three-quarters. By contrast, unearned income is much less important, accounting for less than 4% of the cases in the top income category and a similar share of its total income. PAYE payers have also declined in importance, accounting for less than one-quarter of the income of the top group. So the dramatic increase in the measured share of the top income groups in Ireland over the 1990s was

Table 12.7 Composition of top incomes, Ireland 1989/90 and 2000

	Income groups			
	Self-employed including proprietary directors	Mainly unearned income under Schedule D	Mainly PAYE under Schedule E	All in top category
1989–90: Top income category > £50,000				
% of top income category cases	53.7%	10.0%	36.3%	100% (0.6% of all cases in tax statistics)
Average income	£86,733	£156,387	£65,575	£86,011
% of total income of top category	54.2%	18.2%%	27.7%	100% (5.0% of total income in tax statistics)
2000: Top income category > €150,000				
% of top income category cases	69.3%	3.6%	27.1%	100% (0.8% of all cases in tax statistics
Average income	€335,216	€345,251	€270,660	€318,058
% of total income of top category	73.0%	3.9%	23.1%	100% (10% of total income in tax statistics)

Source: See Appendix 12C.

accompanied by a substantial shift in its composition. The link between these patterns in the income tax statistics and macroeconomic developments including changes in factor shares would clearly merit detailed investigation.

However, while the search for plausible causal explanations and supporting evidence is a priority, one cannot duck the obvious issue in relation to these findings, for Ireland as elsewhere. Can we believe data from tax records as a broadly accurate reflection of reality, or are they so polluted by attempts by the wealthy to evade and avoid tax that they cannot be relied on? This has of course not been ignored in other studies. Piketty (Chapter 3, this volume) for example goes to some length to offer reassurance based on in-depth analysis of the data for France, arguing that tax evasion by the rich is if anything likely to have been more pronounced in earlier years. Similarly Piketty and Saez look in depth at the US data (Chapter 5, this volume), and seek to show that the measurement and taxation of capital gains is not the driving force behind the observed trends. However, this has to be a key challenge for anyone using this source. The similarity in trend across countries offers some comfort here, though in more recent times it is possible that there has been an increasing capacity to move wealth offshore shared across the countries studied. In the Irish case, one would certainly be concerned that changes in the reporting of top incomes to the tax authorities may have played a significant role in the last decade as tax administration has tightened significantly. There have been a variety of high profile public investigations into tax evasion, there has been a sequence of tax amnesties followed by more stringent investigation and application of the tax code. As a result it is commonly believed that reporting behaviour has changed since the late 1980s, though this is by its nature hard to assess. In addition, lower tax rates combined with the availability of various tax avoidance schemes also reduce the incentive to evade—indeed, some recent data from the Revenue Commissioners show that some of the very top income tax filers legitimately paid zero income tax.

It may be useful to employ the 'shares within shares' approach, for example what share of the income of the top 10% goes to the top 1% or what share of the top 1% goes to the top 0.1%, since that will not be affected by the overall control total for income. We can only do this for 1938, 1943 and the years from 1975

Table 12.8 Share of top income groups in top incomes, Ireland 1938–2000

	Share of Top 1% as Percentage of Share of Top 10%	Share of Top 0.5% as Percentage of Share of Top 1%	Share of Top 0.1% as Percentage of Share of Top 1%	Share of Top 0.1% as Percentage of Share of Top 0.5%
1938	35.56	73.10	35.14	49.05
1943	36.21	72.26	30.93	42.80
1975	20.82	63.08	21.97	34.83
1976	20.86	62.77	21.81	34.75
1977	20.65	63.17	22.14	35.06
1978	21.84	64.60	23.79	36.83
1979	25.64	70.70	32.98	46.64
1980	21.11	63.27	22.12	34.97
1981	20.63	63.08	21.89	34.70
1982	21.11	63.46	22.43	35.35
1983	21.18	63.56	22.76	35.80
1984	20.59	63.05	22.47	35.64
1985	20.06	62.60	22.39	35.77
1986	20.00	62.00	22.00	35.50
1987	19.71	62.00	21.82	35.20
1988	20.14	62.72	22.40	35.71
1989	20.89	64.37	24.14	37.51
1990	21.38	64.53	23.61	36.59
1991	22.48	66.08		
1992	23.01	65.08		
1993	22.61	64.28		
1994	22.76	64.27		
1995	23.19	65.80		
1996	23.86	66.58		
1997	24.60	67.60		
1998	26.96	69.79		
1999	27.03	69.87		
2000	28.56	70.68		

onwards. Table 12.8 shows that the share of the top 1% or top 0.5% in the total accruing to the top 10% was much higher in the 1930s and 1940s than in 1975. Stability in these shares is then seen until 1989, except for the outlier year of 1979. From 1990 these 'shares within shares' rose, particularly from the mid-1990s, so that the top 1% accounted for 20% of the income of the top 10% at the start of the decade but for 29% by the end of it. The share of the top 0.1% can be tracked only up to 1990, which is most unfortunate given what happened after that date to the shares of the top 0.5% and top 1%, but it was broadly stable between 1975 and 1990 as a proportion of the income of the top 1% or top 0.5%.

12.6 CONCLUSIONS

This chapter has sought to exploit data from income tax records to track changes over time in the shares of top income groups in Ireland. Like the other contributions to this volume, the primary purpose has been to provide a new series on trends in income inequality at the top. Such estimates for Ireland are interesting not only domestically but also comparatively, since Ireland was a predominantly agricultural country in the 1920s when our estimates begin, with industrialization only picking up pace in the 1960s, and with convergence towards the levels of average income seen in the richer countries only coming about in the 1990s—and then very rapidly. Against this background it is very interesting to see top income shares apparently rising in the early 1930s, declining sharply from before the Second World War to the early 1970s, followed by a period of stability, and with a sharp up-turn in these shares in the 1990s. While trying to tease out the underlying factors at work in producing the measured trends, a priority also has to be investigating their reliability in terms of the reporting of incomes to the tax authorities. By its nature that is difficult to do, but this source of data is absolutely critical if we are to capture and understand long-term trends in top income shares.

APPENDIX 12A: SOURCES FOR INCOME TAX AND SUR-TAX DATA, IRELAND 1938–2000

The sources for the income tax data 1922–2000 are listed in Table 12A.1. The sources for the data on gross incomes 1989–2000 are listed in Table 12A.2.

APPENDIX 12B: NATIONAL INCOME IN THE 1920S AND 1930S

As explained in Section 12.2, official national accounts figures are available for Ireland only for years from 1938 onwards (though some approximation is

Table 12A.1 Source of income data used in deriving 'total' income shares Ireland 1922–2000

Year	Source
1922	1st Annual Report of the Revenue Commissioners, Year ended 31 March 1924: table 87, p. 85
1923	2nd Annual Report of the Revenue Commissioners, Year ended 31 March 1925: table 99, p. 98
1924	3rd Annual Report of the Revenue Commissioners, Year ended 31 March 1926: table 94, p. 96
1925	4th Annual Report of the Revenue Commissioners, Year ended 31 March 1927: table 92, p. 95
1926	5th Annual Report of the Revenue Commissioners, Year ended 31 March 1928: table 92, p. 94
1927	6th Annual Report of the Revenue Commissioners, Year ended 31 March 1929: table 92, p. 100
1928	7th Annual Report of the Revenue Commissioners, Year ended 31 March 1931: table 93, p. 107
1929	8th Annual Report of the Revenue Commissioners, Year ended 31 March 1931: table 93, p. 107
1930	9th Annual Report of the Revenue Commissioners, Year ended 31 March 1932: table 98, p. 113
1931	10th Annual Report of the Revenue Commissioners, Year ended 31 March 1933: table 117, p. 141
1932	16th Annual Report of the Revenue Commissioners, Year ended 31 March 1939: table 124, p. 193
1933	17th Annual Report of the Revenue Commissioners, Year ended 31 March 1940: table 87, p. 144
1934	18th Annual Report of the Revenue Commissioners, Year ended 31 March 1941: table 82, p. 124
1935	19th Annual Report of the Revenue Commissioners, Year ended 31 March 1942: table 82, p. 127
1936	20th Annual Report of the Revenue Commissioners, Year ended 31 March 1943: table 82, p. 127
1937	21st Annual Report of the Revenue Commissioners, Year ended 31 March 1944: table 81, p. 119
1938(a)	22nd Annual Report of the Revenue Commissioners, Year ended 31 March 1945: table 81, p. 111
1938(b)	Minister for Finance (1946). National Income and Expenditure 1938–1944, Stationery Office: Dublin, Table 6, page 18
1939	23rd Annual Report of the Revenue Commissioners, Year ended 31 March 1946: table 81, p. 119
1940	24th Annual Report of the Revenue Commissioners, Year ended 31 March 1947: table 81, p. 123
1941	25th Annual Report of the Revenue Commissioners, Year ended 31 March 1948: table 77, p. 111
1942	26th Annual Report of the Revenue Commissioners, Year ended 31 March 1949: table 77, p. 109
1943(a)	27th Annual Report of the Revenue Commissioners, Year ended 31 March 1950: table 77, p. 111
1943(b)	Minister for Finance (1946). National Income and Expenditure 1938–1944, Stationery Office: Dublin, Table 6, p. 18
1944	28th Annual Report of the Revenue Commissioners, Year ended 31 March 1951: table 77, p. 118
1945	29th Annual Report of the Revenue Commissioners, Year ended 31 March 1952: table 77, p. 118

(*contd.*)

Table 12A.1 (*Contd.*)

Year	Source
1946	30th Annual Report of the Revenue Commissioners, Year ended 31 March 1953: table 80, p. 119
1947	31th Annual Report of the Revenue Commissioners, Year ended 31 March 1954: table 80, p. 119
1948	32nd Annual Report of the Revenue Commissioners, Year ended 31 March 1955: table 79, p. 119
1949	33rd Annual Report of the Revenue Commissioners, Year ended 31 March 1956: table 79, p. 121
1950	33rd Annual Report of the Revenue Commissioners, Year ended 31 March 1956: table 79, p. 121
1951	33rd Annual Report of the Revenue Commissioners, Year ended 31 March 1956: table 79, p. 121
1952	33rd Annual Report of the Revenue Commissioners, Year ended 31 March 1956: table 79, p. 121
1953	33rd Annual Report of the Revenue Commissioners, Year ended 31 March 1956: table 79, p. 121
1954–63	Data on taxpayers by income range not published
1964	42th Annual Report of the Revenue Commissioners, Year ended 31 March 1965: table 73, p. 144
1965	43th Annual Report of the Revenue Commissioners, Year ended 31 March 1966: table 74, p. 151
1966	44th Annual Report of the Revenue Commissioners, Year ended 31 March 1967: table 75, p. 156
1967	45th Annual Report of the Revenue Commissioners, Year ended 31 March 1968: table 76, p. 152
1968	46th Annual Report of the Revenue Commissioners, Year ended 31 March 1969: table 76, p. 152
1969	47th Annual Report of the Revenue Commissioners, Year ended 31 March 1970: table 77, p. 152
1970	48th Annual Report of the Revenue Commissioners, Year ended 31 March 1971: table 85, p. 164–5
1971	49th Annual Report of the Revenue Commissioners, Year ended 31 March 1972: table 85, p. 164–5
1972	50th Annual Report of the Revenue Commissioners, Year ended 31 March 1973: table 85, p. 162–3
1973	51st Annual Report of the Revenue Commissioners, Year ended 31 March 1974: table 82, p. 162–3
1974	Data on taxpayers by income range not published
1975	54th Annual Report of the Revenue Commissioners, Year ended 31 December 1976: table 90, pp. 166–7
1976	55th Annual Report of the Revenue Commissioners, Year ended 31 December 1977: table 82, p. 130–31
1977	56th Annual Report of the Revenue Commissioners, Year ended 31 December 1978: table 84, p. 132–3
1978	57th Annual Report of the Revenue Commissioners, Year ended 31 December 1979: table 82, p. 142–3
1979	58th Annual Report of the Revenue Commissioners, Year ended 31 December 1980: table 83, p. 138–9
1980	59th Annual Report of the Revenue Commissioners, Year ended 31 December 1981: table 84, p. 144–5

1981	60th Annual Report of the Revenue Commissioners, Year ended 31 December 1982: table 80, p. 142–3
1982	61th Annual Report of the Revenue Commissioners, Year ended 31 December 1983: table 81, p. 152–3
1983	63rd Annual Report of the Revenue Commissioners, Year ended 31 December 1985: table 91, p. 160–1
1984	64th Annual Report of the Revenue Commissioners, Year ended 31 December 1986: table 86, p. 160–1
1985	65th Annual Report of the Revenue Commissioners, Year ended 31 December 1987: table 86, p. 150–1
1986	66th Annual Report of the Revenue Commissioners, Year ended 31 December 1988: table 86, p. 150–1
1987	Statistical Report of the Revenue Commissioners, Year ended 31 December 1989: table 66, p. 85–6
1988	Statistical Report of the Revenue Commissioners, Year ended 31 December 1990: table 36, p. 70–1
1989	Statistical Report of the Revenue Commissioners, Year ended 31 December 1991: table 43, p. 80–1
1990	Statistical Report of the Revenue Commissioners, Year ended 31 December 1992: table 43, p. 80–1
1991	Statistical Report of the Revenue Commissioners, Year ended 31 December 1993: table 44, p. 84–5
1992	Statistical Report of the Revenue Commissioners, Year ended 31 December 1994: table IDS7, p. 82
1993	Statistical Report of the Revenue Commissioners, Year ended 31 December 1995: table IDS7, p. 86
1994	Statistical Report of the Revenue Commissioners, Year ended 31 December 1996: table IDS7, p. 76
1995	Statistical Report of the Revenue Commissioners, Year ended 31 December 1997: table IDS8, p. 76–7
1996	Statistical Report of the Revenue Commissioners, Year ended 31 December 1998: table IDS8, p. 76–7
1997	Statistical Report of the Revenue Commissioners, Year ended 31 December 1999, Table IDS8, pages 76–77
1998	Statistical Report of the Revenue Commissioners, Year ended 31 December 2000: table IDS8, p. 77
1999	Statistical Report of the Revenue Commissioners, Year ended 31 December 2001: table IDS8, p. 81
2000	Statistical Report of the Revenue Commissioners, Year ended 31 December 2002: table IDS8, p. 81

required to derive the required control total for the years 1939–43). Prior to 1938 no official national income data was produced, and thus no official series on national income, much less personal sector income, exists. This appendix describes how we estimated national income for each of the years 1922–37, amending the estimates of Duncan (1940*a*, *b*) in the light of subsequent studies, and then interpolating or extrapolating for the years he did not cover.

Duncan (1940*b*) presented the following estimated indices for national income in money terms, 'general prices', and 'real income' for selected years from 1926 to 1940 (see Table 12A.3).

Table12A.2 Source of income data used in deriving 'gross' income shares, Ireland 1989–2000

Year	Source
1989	Statistical Report of the Revenue Commissioners, Year ended 31 December 1991: table 37, p. 72–3
1990	Statistical Report of the Revenue Commissioners, Year ended 31 December 1992: table 37, p. 72–3
1991	Statistical Report of the Revenue Commissioners, Year ended 31 December 1993: table 38, p. 76–7
1992	Statistical Report of the Revenue Commissioners, Year ended 31 December 1994: table IDS1, p. 75
1993	Statistical Report of the Revenue Commissioners, Year ended 31 December 1995: table IDS1, p. 79
1994	Statistical Report of the Revenue Commissioners, Year ended 31 December 1996: table IDS1, p. 69
1995	Statistical Report of the Revenue Commissioners, Year ended 31 December 1997: table IDS1, p. 69
1996	Statistical Report of the Revenue Commissioners, Year ended 31 December 1998: table IDS1, p. 69
1997	Statistical Report of the Revenue Commissioners, Year ended 31 December 1999: table IDS1, p. 68
1998	Statistical Report of the Revenue Commissioners, Year ended 31 December 2000: table IDS1, p. 77
1999	Statistical Report of the Revenue Commissioners, Year ended 31 December 2001: table IDS1, p. 72
2000	Statistical Report of the Revenue Commissioners, Year ended 31 December 2002: table IDS1, p. 81

The pattern of real income growth this suggests is that real GNP grew by about 17% between 1926 and 1938; Kennedy et al. (1988) regarded this as 'plausible enough', but questioned the distribution of that growth across the period (see Kennedy et al. 1988: 53–4, n. 22). Whereas Duncan's figures show real income growing by almost 15% between 1926 and 1931 and only 3% between 1931 and 1936, Kennedy et al. suggest that growth from 1931 to 1936 was probably about 10%, with the increase from 1926 to 1931 correspondingly reduced—which would bring it down to about 6.7%. We have recalculated Duncan's indices for money incomes on this basis, maintaining the price trends he estimated. We then

Table 12A.3 Estimated indices for national income in money terms, 'general prices', and 'real income'

	1926	1929	1931	1933	1936	1938
Money income	95	100	91	83	95	100
General prices	103	100	87	83	87	93
Real income	92	100	105	100	109	108

Note: Indices 1929=100.

Source: Duncan 1940*b*: 141.

took the official national accounts figure for national income in 1938 from the first official national accounts described in the text, and derived national income in nominal terms by applying the index we calculated to this base. This produced national income figures for the selected years for which Duncan made estimates, and we interpolated to fill in the gaps (1927, 1928, 1930, 1032, 1934, and 1935). Since we wished to push the series back to 1922 we also extrapolated back from 1926 to that date, for want of an alternative applying the same annual growth rate as that we estimated in the manner just described from 1926 to 1929.

It is worth comparing the figures this produces with those presented for 1920 by Feinstein in his seminal work which derived estimates of national income and related statistics for the UK from 1855 to 1965 (1972, 1976). Feinstein's estimates cover the UK up to 1920 and Great Britain and Northern Ireland from 1921 onwards, but for 1920 he gives figures for both, so the implied estimates for 'Southern Ireland' can be derived. (I am grateful to Tony Atkinson for bringing this to my attention.) These are that GNP in the South was between £176 million and £240 million depending on whether the income or expenditure approach is used, with a 'compromise' figure of £200 million (see Feinstein 1976 Tables 1, 2 and 4). These are substantially higher than the figure of £146 million for 1922 we have derived here. However, Feinstein's figures for Great Britain and Northern Ireland show a very sharp decline in national income there between 1920 and 1922, with GNP in the latter year only 73% of the 1920 figure. A decline of this order of magnitude in the South, applied to Feinstein's 'compromise' figure for 1920, would produce a figure for 1922 very close to the one being used here. Applied to his lower income based estimate it would produce a lower figure. Given the very specific uncertainties surrounding the 1920–22 period the most that can probably be said is that the national income figures used here are not obviously inconsistent with Feinstein's estimates for 1920.

We then used these national income figures to derive estimates for the income control total we wanted to employ in producing income shares—namely 80% of personal sector income having subtracted transfers and employers social insurance contributions. With no estimates of the components available before the official national accounts began, we simply rely on the relationships that held in 1938, the first year for which they are available. We take personal sector income less transfers and social insurance as a proportion of national income in 1938, apply that proportion to our national income estimates for each year from 1922–37, and take 80% of that figure as our income control total in deriving the income control totals shown in Table 12.4 and the income shares in Table 12.5. The extent of the simplifying assumptions required to produce these estimates, and the uncertainty surrounding the national income figures underlying them, must be emphasized.

APPENDIX 12C: COMPARING THE COMPOSITION OF TOP INCOMES IN 1989–90 AND 2000

In the *Statistical Report of the Revenue Commissioners for 2002*, presenting income tax distribution figures for 1999–2000, the total number of taxpayers above €150,000 is 13,702 and among these the following groups are distinguished in separate tables:

1.	Self-employed including proprietary directors total above €150,000 = 9984Table	IDS2
2.	Mainly earned income assessed under Schedule D total above €150,000 = 5677	IDS3
3.	Mainly unearned income assessed under Schedule D total above €150,000 = 490	IDS4
4.	Mainly PAYE income assessed under Schedule E total above €150,000 = 7535	IDS5
5.	Mainly PAYE income assessed under Schedule E excluding proprietary directors on Schedule E total above €150,000 = 3718	IDS6
6.	Proprietary directors total above €150,000 = 5577	IDS7

However, these are not exhaustive and exclusive categories, with proprietary directors included in 1, 2, and 4, and with 2 included in 1.

Total taxpayers are 2+3+4
[5677+490+7535] = 13,702

Most proprietary directors are in 4, with a minority in 2, but we can calculate how many proprietary directors are in 4 by subtracting 5: [7536–3718] = 3817. We can then calculate how many must be in 2 by subtracting the number in 4 from the total number of prop directors 6: [5577–3817] = 1760. So we can derive 2 excluding proprietary directors =7 as [5677–1760] = 3917. We can also categorize total taxpayers as:

7.	Schedule D excluding proprietary directors	3917
3.	Schedule D mainly unearned income	490
5.	Schedule E excluding proprietary directors	3718
6.	Proprietary directors	5577

but there is no table showing the distribution of 7 across income ranges. We can derive the number of self-employed excluding proprietary directors as 1–6: [9984–5577] = 4407. This is 7 plus unearned under Schedule D 3 so includes latter, so an alternative breakdown of total taxpayers is:

1 self-employed including prop directors and unearned Schedule D	9984
[=self-employed excluding proprietary directors (3917) + proprietary directors	(5577)
+ unearned under Schedule D (490)]	
5 PAYE under E excluding proprietary directors	3718

but since we have details in a separate table on 3 unearned under Schedule D, we can also break those out and distinguish 3 groups of interest:

8. Self-employed including proprietary directors but excluding mainly unearned incomes	9494
[=1–3, 9984–490]	

3.	Mainly unearned incomes	490
5.	PAYE excluding proprietary directors	3718

We can see the actual income distribution, total income by range etc. for the second and third of these groups directly in the IDS Tables 4 and 6 respectively. For the first group, we have to calculate these from the table IDS2 for all self-employed including unearned under Schedule D by subtracting the latter—i.e., by subtracting IDS Table 3 from Table 2.

In 1989–90, category 5 is not separately distinguished in a table of its own; however, one can derive 8 self-employed including proprietary directors but excluding mainly unearned income as above, and then derive 5 by deducting the other two groups (or equivalently group 1) from the overall total in IDS Table 1.

REFERENCES

Atkinson, A. B. (2005). 'Top incomes in the UK over the 20th century', *Journal of the Royal Statistical Society*, 168(2): 325–43.

Duncan, G. A. (1939). 'The Social Income of the Irish Free State, 1926–38', *Journal of the Statistical and Social Inquiry Society of Ireland* (94th Session, 1940–41), 16: 1–16.

—— (1940). 'The Social Income of Eire, 1938–40', *Journal of the Statistical and Social Inquiry Society of Ireland* (94th Session, 1940–41), 16: 140–1.

Feinstein, C. H. (1972). *National Income, Expenditure and Output of the U.K., 1855–1965*, vol. 6, Studies in the National Income and Expenditure of the United Kingdom. Cambridge: Cambridge University Press.

—— (1976). *Statistical Tables of National Income, Expenditure and Output of the U.K., 1855–1965*. Cambridge: Department of Applied Economics, University of Cambridge and the Royal Economic Society, Cambridge University Press.

Kennedy, K. A. (1994). *Irish National Accounts for the 19th and 20th Centuries* (ESRI Memorandum Series 187). Dublin: ESRI.

—— Giblin, T., and McHugh, D. (1988). *The Economic Development of Ireland in the Twentieth Century*. London: Routledge.

Linehan, T. and Lucey, M. (2000). 'The Compilation of the First Official Set of Irish National Accounts, 1938–44'. Paper for Historical National Accounts Group for Ireland, ESRI, Dublin, 28 January.

Minister for Finance (1946). *National Income and Expenditure 1938–1944*. Dublin: Stationery Office.

O'Grada, C. (1997). *A Rocky Road: The Irish Economy Since the 1920s*. Manchester: Manchester University Press.

O'Rourke, K. (1995). 'The Costs of International Economic Disintegration: Ireland in the 1930s', *Research in Economic History*, 15: 215–59.

Piketty, T. (2001). *Les hauts revenus en France au 20eme siècle—Inégalités et redistributions, 1901–1998*. Paris: Editions Grasset.

—— (2003). 'Income Inequality in France, 1901–1998', *Journal of Political Economy*, 111: 1004–42.

—— Saez, E. (2003). 'Income Inequality in the United States, 1913–1998', *Quarterly Journal of Economics*, 118: 1–39.

Revenue Commissioners (various years from 1945). *Annual Reports of the Revenue Commissioners*. Dublin: Stationery Office.

—— (various years from 1988). *Statistical Report of the Revenue Commissioners*. Dublin: Stationery Office.

Saez, E. and Piketty, T. (2003). 'The Evolution of High Incomes in Canada, 1920–2000'. Working Paper 9607. Cambridge, MA: NBER.