

AN EXPENDITURE ESTIMATE OF
IRISH GDP (AT MARKET PRICES)
IN 1907

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AN EXPENDITURE ESTIMATE OF IRISH GDP (AT MARKET PRICES) IN 1907*

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This article fundamentally challenges the notion that Ireland was a peripheral or underdeveloped economy relative to other European economies at the beginning of this century. Through an empirical investigation of consumer expenditure in Ireland in 1907, a new estimate of Irish GDP has been generated which is compatible with Feinstein's consumer expenditure estimates for the UK. From this it is possible to estimate Ireland's GDP per capita in 1907, and compare Ireland's relative level of per capita income to that of the UK; it is then possible to place Ireland in Maddison's league table for a number of advanced capitalist economies. This clearly places Ireland among the more advanced economies in the world. The article concludes that Ireland's improving relative position between 1850 and 1907 was achieved by favourable trade conditions and a growth in trade, a growth in productivity, an atypical fall in population, and wage convergence with the UK and the USA. The conclusion suggests that free trade and Ireland's close trading relationship with the UK, had brought significant benefits to the Irish economy between 1850 and 1907.

Introduction

The elusive quest to gain national income figures for Ireland during the nineteenth and early twentieth centuries is still very much in its infancy. For the latter period, only O'Grada (1994) has published an estimate of £135 million for 1914 largely using output data, while Cullen (1995) has produced an unpublished income based estimate of £142 million. Feinstein arrived indirectly at an estimate of £129 million for Irish GDP in 1907; he estimated that Ireland accounted for roughly 6% of UK gross domestic product at constant factor cost in 1907. When this is adjusted to GDP at market prices it raises the estimate to £139 million. However, this estimate for Ireland was merely a by-product of an attempt to establish a figure for GB by removing all the items in the weights and indicators which were incorporated into the UK estimates in order to cover Ireland. He stated categorically 'that this is not the same as an attempt to estimate directly the real output of Ireland'; he goes on to point out that the items used to generate a UK estimate are not necessarily 'the most accurate measures available for the Irish component' (Mitchell, p. 833, Feinstein, 1972, p. 212).

Our objective in this paper is to produce an estimate specifically for Ireland using Irish data, while following Feinstein's method so that the outcome is compatible with the Historical National Accounts of other countries. In the following section (Method and Composition) we will provide an outline of the methodology and framework, and in the section after this (An Outline of the Estimate), a detailed breakdown of the calculations are provided. The calculations are followed by a section which details some of our own thoughts on sections where some degree of over or under-estimation is possible. Finally in the conclusion we will place the implications of the estimate in a wider context. There is sufficient evidence in the estimate to suggest that Ireland's

*An earlier version of this paper was presented to the Historical National Accounts Group for Ireland at the ERSI in January 1995. We would like to thank the members of that group for their helpful comments. Professor Cullen also presented an income based estimate for Ireland in 1911 to the same group which has influenced our thinking on certain aspects of this estimate. This should be consulted along with Professor Kennedy's article (1995) for a wider consideration of the historical national accounts of Ireland in this period. We would also like to thank Angus Maddison for some helpful comments.

proportionate share of UK gross domestic product in 1907 was at least 7%. This would imply both that Ireland's national income was higher than all earlier estimates have suggested, and that the figures for UK national income would accordingly also have to be adjusted upwards slightly.

Method and Composition

The estimate outlined in this paper follows the method and format of Feinstein (1972) taking account of some recent corrections to the capital expenditure component. This approach provides a framework which has enabled us to exploit the large amount of work done on the UK national accounts over many decades. For our specific purpose the most important outcomes of this endeavour appear in Prest's pioneering personal expenditure estimates for the UK (published in 1954) and Feinstein's UK GNP estimates (published in 1972).

As far as possible, data relating specifically to Ireland has been used; but when data was not available, we have fallen back on the indirect and less satisfactory method of estimating the Irish proportion of Feinstein's estimate for the UK where we use a default of 6% unless particular circumstances suggest otherwise. In some cases where data was poor (as in the catering estimate for example) we have adjusted Feinstein's estimate of the proportionate share of the 26 southern counties in the early 1920s and thereby derived the 32 county proportion of the UK in 1907.

Estimates for consumers' expenditure in this paper are stronger than those for capital expenditure reflecting the greater availability of data in the former case. Extensive use has been made of the estimate of Irish agricultural output in 1908 and Irish industrial output in 1907. These two sources, combined with import and export data for 1907, provide the basis of our consumer expenditure estimate, which of course accounts for the lion's share of GDP. We have chosen 1907-8 to make our estimate because of the unique availability of these data sources. This is the first opportunity to make an estimate from official sources; decades elapsed before a comparable official data set became available, by which time the 26 counties were no longer part of the United Kingdom. No allowance has been made for revisions to these basic sources even where there seems to be a good case for revising them upwards (O'Grada, 1988, 1994). This builds a conservative bias into our final figure.

For detailed notes on the composition of individual categories and items used in this paper, readers should consult Feinstein (1972); Table 24 (p. T. 61.) contains the format of the UK estimates which we have adopted and followed, while the notes (on p. T. 64) give a detailed breakdown of the composition of each category. The remainder of the UK estimate is published in Mitchell (1988) pp. 831-3, which includes a number of revisions made by Feinstein to his capital expenditure estimates. For greater detail on these revisions to capital expenditure, Feinstein and Pollard should be consulted (1988). Much of Feinstein's work on consumer expenditure is based on the earlier work of Prest, which provides more detail on how individual items were constructed. Accordingly, Prest's work has been extensively used. Allowances for distribution margins, which adjust from producer to market prices, are taken from Feinstein p.15. The various categories of the estimate are summarised in table 1.

Table 1

IRISH GDP 1907 (MARKET PRICES)

	Item	Value Ireland	Value UK	% UK
1	Food	40,000,000	510,000,000	7.84%
2	Drink	14,512,000	171,000,000	8.49%
3	Tobacco	3,392,000	32,800,000	10.34%
4	Housing	9,220,000	201,000,000	4.59%
5	Fuel and Light	7,114,000	74,000,000	9.61%
6	Clothing	15,607,000	162,000,000	9.63%
7	Carriages, Cars and Cycles	700,000	5,000,000	14.00%
8 + 9	Durable Household Goods	6,934,000	68,000,000	10.20%
10	Matches and Cleaning Materials	1,200,000	20,000,000	6.00%
11	Books and Recreational Goods	2,882,000	31,000,000	9.30%
12	Chemists and Other	3,060,000	51,000,000	6.00%
13	Public Travel and Communications	3,985,000	76,000,000	5.24%
14	Vehicle Running costs	1,280,000	16,000,000	8.00%
15	Domestic Service	4,527,000	69,000,000	6.56%
16	Catering	7,865,000	143,000,000	5.50%
17	Other Services	11,055,000	169,000,000	6.54%
18	Adjustment	0,000,000	12,000,000	
19	Total Consumer Expenditure	133,333,000	1,811,000,000	7.36%
20	Public Authorities	8,004,000	163,000,000	
21	Gross Domestic Fixed Capital Formation	7,681,000	176,000,000	4.36%
22	Value of Physical Increases in Stock	£4,993,000	-£7,000,000	
23	Exports less Imports	-1,096,000	18,000,000	
24	GDP at Market Prices	152,915,000	2,152,000,000	7.10%



An Outline Of The Estimate

1. FOOD

Bread, Biscuits and Cereals.

Bread: We have assumed that all bread produced in Ireland was consumed there. The 1907 industrial census returns £1,683,000 for bread produced in Ireland. We have raised this to £2,000,000 to allow for bakeries not included in the census of production. With a DM of 35% this rises to £2,700,000.

Flour and meal produced in 1907 came to £3,621,000. Exports (£66,725) are deducted leaving £3,554,000. It has been assumed that 40% of this either went to bakeries, or was meal which should not come into our calculation (i.e. not for human consumption).¹ After the 40% deduction (£1,422,000) the remaining £2,132,000 was given a DM of 35% which raises the figure to £2,878,000.

For flour imports (£2,652,728) we have also assumed that 40% goes into the baking trade (£1,061,000). The remaining figure has a 26.5% DM added (£422,000) leaving a total for flour imports of £2,014,000. We have added £119,000 (from ag output 1908) for wheat consumed by farmers, to which we have added 10% for milling costs which raises the figure to £131,000.

Total. £5,023,000.

Biscuits, cakes and bread not included above were given a value of £692,000 in the 1907 census, from which exports (£338,000) are deducted leaving £354,000 which, with a DM of 35%, rises to £478,000. Imports of biscuits (£86,038) with a DM of 26.5% rises to £109,000

Total. £587,000.

Other Cereals.

Oatmeal: The Census of Agricultural Output 1908, contains estimates of human consumption as follows. Farmers consume £54,000. The rest of the population £114,000 with a DM of 40% rises to £214,000. Imports oatmeal = £93,326. Assume £25,000 for human consumption with a DM 26.5% rises to £32,000.

Total . £246,000.

Imports of rice, rice flour, sago, sago flour, tapioca, corn food and farina = £111,805 with a DM of 26.5% (£29,628) leaves

Total. £141,000.

Maize; imports = £4,133,876. We allow £400,000 for human consumption. with DM 26.5%. **Total. £506,000.**

Total for Sector = £9,294,000 (10.96% of Prest's figure for UK {£84.79m} p. 74)

Meat, Poultry and Eggs.

Eggs: From ag output 1908. Eggs - £841,000 consumed by farmers. Rural community (excluding farmers) and town population consume £560,000. +DM 40% gives total £784,000

Imports eggs £41,000.+DM 26.5% = £52,000

Total . £1,677,000

Poultry: Farmers consume £190,000 and rural and town population together (excluding farmers) consume £173,000. add DM 40% = £242,000.
Imports £27,180. Assume £14,000 consumed. with a DM 26.5% = £18,000.
Total. £460,000.

Beef: Farmers consume £1,304,000. Rural and town population =£1,802,000 with a DM of 40% (£721,000). £2,523,000.
Beef imports = £149,000.with DM 26.5% rises to £188,000.
Total. £4,015,000.

Bacon and hams: 1907 census of industrial production records £3,478,000 (excluding lard grease tallow). From this deducted exports of bacon ham, sausages (£3,105,610) leaves £372,000. With DM 35% rises to £502,000.
Imports of bacon, ham, sausages, pork, pig heads = £2,409,000 with DM 26.5% = £3,047,000
Add in farmers consumption £188,000.
Total. £3,737,000.

Goats :
Farmers consume £7,000. £3,000 for rural population with a DM of 40% = £4,000
Total. £11,000.

Mutton: Farmers consume £374,000, rural and town population consume £516,000. with DM 40% = £722,000
Mutton imports £124,000. with DM 26.5% = £157,000.
Total . £1,253,000.

Rabbits and Game: We have assumed Ireland accounted for 10% of the UK figure given by Prest (p. 17) yielding a figure of £302,000.

Also add in imports of preserved meat, tongues, coarse meat, provisions and groceries (which includes ham and bacon)=£210,492 with DM 26.5% = £266,000.

Total Meat etc. = £11,715,000. (6.21% Of Prest's figure for UK p. 17)

Fats.

Margarine production minus exports = £68,676 +DM 35%=£93,000
Imports = £100,970 +DM 26.5% = £128,000.
total margarine = £221,000.
Assume lard from cattle and other animals = value of exports so they cancel each other out. Lard from pigs (census of production 1907) = £271,000. with DM 35% = £366,000.
Lard imports = £251,569. DM 26.5% = £318,000.
Total. £905,000.

Fish

1907 industrial census reports £341,000 land with £13,000 added value from fish curing. we allow £400,000 for fish landed to allow for catches not recorded officially.

We allow £400,000 for fresh water fish ²
Total catch = £800,000

From this we deduct exports (£404,000) leaving £396,000 with DM of 40% = £554,000.

Imports = £273,000 with DM 26.5% = £345,000.

Assume Ireland accounted for 5% of the canned fish consumed in UK (£1.25m Prest, p. 33) leaving an Irish figure of £63,000.

Total . £962,000.

Dairy Products

We have not used the census of industrial production for butter as exports exceed production indicating that the latter figure is probably inaccurate for the dairy sector. The census of agricultural output in 1908 estimate that butter, milk, cheese and cream for farmers consumption was valued at £3,167,000. For the remainder of the population the figure was £2,457,000. With a DM of 40% the latter figure rises to £3,440,000.

Imports	butter £361,000.
	cheese £129,000
	condensed milk £40,000
Total	£530,00 +DM 26.5% = £670,000

Total . £7,277,000

Vegetables

From 1908 census of agricultural output we can deduce that the consumption of parsnips, carrots, other green crops and potatoes collectively were £844,000 for farmers, and for the remainder of the population was £777,800. which with a DM of 40% rises to £1,089,000.

Imports of veg =£101,000 with DM of 26.5% = £128,000

Total . £2,061,000.

Fruit.

Fruit £60,900 consumed by farmers, £286,000 by all others which with DM of 40% rises to £400,000.

Imports =£687,440 with DM 26.5% rises to £870,000.

Total . £1,331,000.

Sugar, Cocoa and Confectionery.

Cocoa- Ireland accounted for 9.6% of the UK figure in this period according to estimates of Committee on Irish Finance (p. 202). We have accordingly taken this % from Prest's figure for UK (£13,790,000). Irish figure is therefore £1,323,840.

Sugar. According to same source Ireland accounts for 9.3% of UK refined sugar consumption which was £27,120,000 according to Prest (p. 65). This gives us an Irish figure of £2,522,160.

Sugar confectionery. 1907 industrial census gives sugar confectionery £218,000, deduct Exports (£96,760) =£121,240 +DM 35% = £164,000.
Imports £339,901. +DM 26.5% = £429,975
Total £594,000.

Total Sugar Cocoa etc. £4,440,000.

Tea and Coffee.

Tea consumption in Ireland according to Committee on Irish Finance (p. 202) accounted for 12% of UK consumption in 1905-9. We have therefore taken this quantity from Prest's figure for UK tea consumption in 1907 (£21,100,000) whereby an Irish figure of £2,532,000 is arrived at.

Coffee and Chicory. Same source gives 3.4% for Irish proportion of UK consumption as given by Prest (p. 69) which is £79,000.

Total. £2,611,000.

SUB TOTAL £40,596,000

Other Foods

Prest (p. 73) has added 6% to the UK figure to allow for other foods like honey, treacle, salt, fish-paste, ice cream and secondly to allow for the extra manufacturing costs of foods whose ingredients we have covered in other items. i.e. fruit cakes, meat pies, and fish and chips. While some of the above items were not consumed to any great degree some other considerations arise. The most important of these is that the 1908 estimate of Irish agricultural output assumes that all turnips, beans, peas, and cabbage is 'fed to livestock', and this was clearly not the case. Imports of food items which do not fit into above categories like salt, spices, jams and preserves, syrup, glucose, pickles and sauces etc. amount to at least £290,000, which with a DM of 26.5% rises to £367,000. An additional part of the grain meal imported may also have been used for human consumption. These considerations would offset the lower consumption of some of Prest's items in these categories (like fish paste and fish and chips for example). We have therefore followed Prest and added 6% to the Irish total for food (£2,425,000).

SUB TOTAL 2. £43,021,000

Aerated Waters etc.

Following Feinstein, we have added aerated waters and other non-alcoholic beverages into food. The 1907 census of industrial production gives £408,000 for aerated waters. To this we have added £197,795 (8.95% of 'non alcoholic beverages brewed' in UK which is the same proportion of UK figure as aerated waters) and £20,000 for aerated waters made by bottlers. From this total of £626,000 we deduct exports (£253,000) leaving £373,000 to which is added a DM of 35% = £504,000.
Imports £42,000 with DM 43.5% = £60,000
Total. £564,000

TOTAL FOR FOOD £43,585,000

Adjustment: In order to make an allowance for the quantity of food used in the catering trade and already counted below a deduction must be made. The best estimate that could be gained for this reduction is derived from Feinstein p.47 who computes the cost of food as a proportion of total catering costs for the UK in 1938. This comes to 45% of the catering estimate (or £3,539,000). This is deducted from the existing total for Food.

ADJUSTED TOTAL FOR FOOD £40,046,000

2. DRINK

Beer

The amount of beer consumed in Ireland in standard barrels as documented in the Committee on Irish Finance, 1912, p.202, comes to 2,569,000 for Ireland and for the UK 33786000. The same Committee after a special inquiry by the Board of Customs and Excise have suggested that the true revenue from beer in Ireland should be reduced by 12.28% based on adjustment by the Committee, p.23. This percentage has therefore been deducted from the standard barrels of beer consumed in Ireland given above which produces a new figure for beer consumption of 2,253,527 barrels. Prest's figure for the UK is 33,754,000 and the Irish proportion of this is 6.68%. Assuming no difference in price between Ireland and the UK, the value of Irish expenditure on beer is £7,197,032 (6.68% of £107,740,000).

Spirits

In making our estimate for spirit consumption we have noted the figures provided by the Committee on Irish Finance (London 1912, p.208) which estimated that the amount of spirits consumed in Ireland was 4,849,190 gallons in 1907/8. To put a value on this consumption, we have taken Prest's price per proof gallon of spirits in the UK (p.79) at £1.324. This results in a figure for spirit consumption in Ireland of £6420327. (12.27%).

Wine

The figure for wine is given at 9% of UK consumption in The Committee on Irish Finance, p.202. Prest's figure for UK wine consumption is £9.55m so Irish consumption is £895,500.

The combined total for alcoholic drinks is therefore £14,512,000.

3. TOBACCO

Tobacco was estimated from the data published by the Committee of Irish Finance (BPP. 1913, XXX, Committee on Irish Finance, Appendix, p. 203) from which we deduced that Ireland accounted for 9.28% of UK tobacco consumption. In a footnote the committee pointed out that on the basis of the results of a special inquiry of 1911 Ireland's contribution would have been higher than this. Using this data, Ireland's proportional share of UK consumption would rise to 10.34%. Given that total expenditure on tobacco in the UK was £32.8 million, the Irish share would have been **£3,392,000.**

4. HOUSING

The value of this sector for GB has been estimated through the 'Inhabited House Duty Returns' which was not applied to Ireland. In the absence of these, Prest has used the Schedule A figures for Ireland and made appropriate upward adjustments to take account of undervaluation and a different method of enumeration to GB and arrives at a figure of £4.16 million. He also made an estimate for rates for Ireland with some adjustments which came to £2.64 million, and he arrived at a figure of £0.11 million for water charges from 'Irish Local Taxation Returns'.³ We have taken Prest's total of £6.91 million for these categories. SNA procedure however would include a figure for decoration and upkeep. Feinstein (p. 180) has made an estimate of actual repairs for the UK of £38.5 million. We have assumed that Ireland accounted for 6% of this (£2.31 million) yielding a total figure for housing of **£9,220,000**.⁴

5. FUEL AND LIGHT

The basis for our estimate of this category is turf production, fuel and other miscellaneous imports, and some items listed in the census of industrial production for 1907.

- 5.1 Turf. Our turf estimate is based on that of O'Connor and Guiomard ('Agricultural Output in the Irish Free State Area Before and After Independence', *Irish Economic and Social History*, xii (1985) p. 93.) who estimate that the value of turf cut in Southern Ireland (the 26 counties) was £3.331 million in 1912/13. By taking account of the six remaining Ulster counties and some allowance for distribution we estimate that a conservative estimate for the value of turf consumption was in the region of £4,000,000
- 5.2 Coal. Imports of Coal (£2,837,825) Coke (£25,634) and other fuel (£272,739) came to a total of £3,136,198. We have assumed that 33% of this was used for household use (£1,034,945). Adding a distribution margin of 43.5% leaves a total of £1,485,000.
- 5.3 Gas. We have taken the value of the gas produced in the 1907 census of industrial production and assumed 75% was for household use. Total £725,000.
- 5.4 Petrol and Paraffin. Imports (£433,704) after exports (in effect, immediate re-exports (£40,266), are deducted come to £393,438. Assume 75% is for personal consumption (£295,078) Adding a DM of 43.5% leaves a total of £423,000.
- 5.5 Candles. Imports at (£109,600), 75% assumed for household consumption £82,200, with a DM of 43.5% comes to £117,957. We take half of the soap and candles category in the 1907 Census of Industrial Production (£178,500) with exports (£9,064) deducted and add a DM of 35% which comes to £228,739. Both figures together produce a total for this sector of £347,000
- 5.6 Electricity. We have taken the value produced in the census of production and assumed 75% for household use. Total £134,000.

The total for fuel and light is £7,114,000.

6. CLOTHING

In order to get an estimate for the clothing sector, which contains apparel, boots and shoes, and umbrellas, we work from the gross output of the 1907 Census of Production for this sector, estimating linen (which presents special problems) separately.

In the case of Linen, the Census of Industrial Production does not offer the level of disaggregation that would enable identification of finished goods for consumption. So the gross output figure for linen of £14,093,000 is taken and total linen exports of £12,071,846 deducted. This leaves a balance of £2,021,152. Of this, as documented in the Census of Production, £1,300,000 goes in to further production in the clothing industry so we therefore assume that of the balance of £721,152, 50% goes into final consumption and 50% goes into household linen goods. So £361,000 is taken as final consumption of linen goods.

In the case of clothing, we take the gross output of the Clothing, Handkerchiefs and Millenary figure for the Census of Production and 30% of Woollen and Worsted and the gross output of boots and shoes to give a figure for gross output in the sector of £5,376,000. The equivalent exports of £2,370,217 are deducted leaving a balance of £3,005,783 for final consumption. Adding back in the figure for consumption of linen goods of £360,576 above to this figure produces a figure for the consumption of the sector as a whole in Ireland that derives from Irish production of £3,364,359. With a distribution margin of 35% the figure rises to £4,542,000. 5

To this figure must be added the relevant imports of clothing goods; £7459,019, which with a DM of 43.5% rises to £10,704,000.

This produces a total for the sector of £15,607,000.

7. CARRIAGES, CARS AND CYCLES

For this category, the Census of Industrial Production was not helpful in the Irish case, however production in this sphere was probably fairly limited. We assume conservatively therefore that Irish production is the equivalent of exports so that they cancel each other out. This estimate therefore depended entirely on imports of carriages, cars (jaunting), motor cars, motor cycles and cycles which added together came to £530,858, which, with a DM of 43.5%, amounts to £761,781. Following Prest (p. 141) we have deducted 15% for commercial vehicles leaving a final total of £647,514. A further allowance needs to be made for second-hand vehicles, so we have conservatively raised the total to £700,000.

8 AND 9. DURABLE HOUSEHOLD GOODS.

On the basis of the Census of Industrial Production categories and figures it has been assumed that £900,000 was available for final consumption in this sector. This figure includes the estimate of £360,576 derived from Linen textile outputs, 50% of final consumption, as calculated above. Exports of £421,590 are deducted which leaves £478,410 which, with a DM of 35% raises the total to £645,000.

It has been assumed that 2 million of drapery imports goes into further production (an estimated 1.3m in the clothing sector and the balances in other industries such as ship-building, railways, furniture). This leaves a balance of £2,230,655 of drapery imports for final consumption. All other household goods imports amounts

to £2,151,707. Adding these figures together produces a figure of £4,382,362 which, with a DM of 43.5% comes to £6,289,000.

The total for the sector is £6,934,000.

10. MATCHES AND CLEANING MATERIALS

The 1907 census of industrial production gives insufficient information on these categories for Ireland. Given that this is a small figure and having noted the high level of consumption of other household goods, we have decided conservatively to take 6% of Feinstein's UK total of £20m. This amounted to a figure of £1,200,000.

11. BOOKS AND RECREATIONAL GOODS

This figure is based on books and reading materials with the assumption that recreation goods follows the same proportion of the UK total.

The gross outputs of the Bookbinding, Printing and Publishing sections of the Census of Production were added together which produced a figure of £1,329,000. From this, exports of books and other printed matter which amounted to 17,037 were deducted leaving a total of 1,311,963 which, with a DM of 35%, comes £1,771,150. Imports of books and other printed matter amounted to £145,334 which with a DM of 43.5% rises to £208,554. These categories add to a total of £1,980,000, which is 9.3% of the UK figure of 21.3m given in Prest. Taking 9.3% of as the Irish proportion of the UK would give an Irish figure for recreational goods of £902,100.

The total therefore for this sector is £2,882,000.

12. CHEMISTS AND OTHER

For this category, 6% of Feinstein's estimate of £51m for the UK is taken. This comes to **£3,060,000.**⁶

13. PUBLIC TRAVEL AND COMMUNICATION

The railway passenger receipts for Ireland for 1907 come to 2.2m (Mitchell p.552, 4.52% of the UK total). Moving in line with Prest who reduced the figure by 17% to allow for business traffic, and increasing this figure by 5% to allow for the proportion of excess baggage carried by private passengers produces a figure of £1,917,300. By taking Prest's Irish proportion of UK bus-drivers (5%) produces a figure for this item of £150,000.

The figure for trams is taken from Webb (New Dictionary of Statistics, 1909, p.608). Passenger receipts for trams comes to £545,800 from which 7.5% is deducted for commercial purposes which leaves the total for trams at £504,865.

For taxis and sea-travel a proportion of 5% is assumed in line with the other figures in this section. The total for the UK is £19,200,000 according to Prest, so the proportionate Irish figure is £950,000.

Dealing with communications, Mitchell (p.564) records the number of letters posted in Ireland as amounting to 5.63% of the UK total; similarly, for postcards 4.2%; newspapers/packets 5.52%, parcels 6.66%. Since letters, newspapers and packets are the most important factors, we have taken 5.5% of the UK postal services (£6.184m Prest p.145) as the basis for a proportionate percentage of the UK total. Irish postal services therefore amounted to £340,000. Telephone and telegraph for Ireland taken from the Census of Industrial Production amounts to £122,000. The total therefore for communication services is £462,000. According to Prest (p.145) the total for communication services in the UK is £7.1m and therefore the Irish percentage is 6.75.

The total for this category is therefore £3,985,000.

14. VEHICLE RUNNING COSTS

This estimate is given as an Irish proportion of the UK in line with our figure in category 7, above, but substantially downwards adjusted to 8% to build in a conservative bias. Therefore, 8% of the UK figure of £16m for this category gives a figure of **£1,280,000.**

15. DOMESTIC SERVICE

This figure is derived from the Census of Population and the work of Mona Hearn (1993, pps 48 & 52). We have assumed in line with Hearn that the average imputed value of income in kind of all classes of domestic servant is £15. From various sources (Prest, 1954, p.118) and Hearn's detailed wages statistics for domestic servants) an average domestic servant's wage, also of £15, could be assumed. This gives an average all-round income of £30. This compares with Prests figure of £39 average for UK in 1911. From the Census of Population 1911 the total number of domestic servants is 150912 which multiplied by the wage and imputed income produces a figure of **£4,527,000.**

16. CATERING

This figure is derived from an estimate of Feinstein (T 62) who deduced that the population of the 26 counties spent £11,000,000 on catering in 1920 (or £3.54 per person). Taking this level of expenditure for this sector for the entire population of the island in 1920 (4,361,000) the figure rises to £15,438,000, with Ireland's proportion therefore accounting for about 5.82% of the UK. Building in a slight conservative bias we have reduced this to 5.5% of Feinsteins figure for the UK in 1907 (£143,000,000) leaving an Irish total of **£7,865,000.**

17. OTHER SERVICES.

Most of these figures have been derived by getting an Irish proportion of the UK figure given by Prest.

Betting. It has been assumed that the Irish figure is 7% of the UK figure of £5.2 million given by Prest (p. 159), which comes to **£364,000.**

Entertainment, In the 1911 census, Ireland only accounts for 2.99% of the UK total for the category, Art, Music, Drama, Exhibitions, Games etc. We have therefore taken 3% of the UK figure of £21 million which comes to £630,000.

Sports and Travel Goods. In the absence of data in this sphere the Irish proportion is assumed to be 6% of the UK total of £9.2 million which comes to £552,000.

Life Assurance, Ireland only accounts for 2.45% of the UK census figure in the 'insurance' category. Taking this proportion from Prest's figure of £11.2 million for the UK yields a total for Ireland of £274,000.

Medical and Charity. Charities have been included in this section to correspond with the categories of the 1911 census. From the census, those occupied in hospitals and institutions (not poor law) and benevolent societies has been added to midwives, nurses and subordinate medical services, which collectively accounted for 11,306 people or 6.25% of the UK figure of 180,996. To allow for lower wages and the inputs of the church in this sphere the Irish figure has been assumed to be 5.5% of Prest's figure of £22.2 million for the UK (p. 148) which includes nurses, midwives, voluntary hospitals, drugs, subordinate medical services and charities, leaving an Irish figure of £1,221,000 for these categories.

To provide an estimate for doctors and dentists, the Irish proportion of 7.4% of the physicians and registered practitioners in the UK according to the 1911 census, has been reduced to 7.2% in value terms to allow for slightly lower salaries. This produces a figure of £1,418,000 for this category which, when added to the above, leaves a total for expenditure on medical expenses and charity of £2,639,000, or 6.30% of the UK total.

Funeral Services, Ireland has been assumed to account for 8% of Prest's figure of 6.7 million for the UK, which comes to £536,000.

Private Education. Ireland accounts for 7.3% of the school teachers, masters etc. in the UK according to the 1911 census. We have assumed the ratio of public to private schools in Ireland is the same as in the UK, so that we can take a proportion of Prest's UK figure of 12 million. However, to allow for lower wages and the input of the church we have reduced the Irish proportion to 5% leaving a total for private education of £600,000.

Religion. In the 1911 census Ireland accounts for 12.62% of the UK in the category 'Clergy, Priests, Ministers, etc.'. Taking this percentage which includes only males from Prest's UK figure for religion (£14.7 million) gives an Irish total of £1,855,140. Given that this excludes females who took vows who were equal in number to all the males involved in religious vocations and the church, and the higher level of religious observance and involvement in Ireland relative to the rest of the UK, this figure could be raised conservatively (allowing for much lower female income etc.) to £2,600,000. (17.7% of Prest's UK figure).⁷

Laundry etc. Ireland accounted for 4.83% of the laundry workers/washers etc. in the UK census. Allowing for lower wages we have taken 4.4% of Prest's figure of 10.6 million for the UK, leaving an Irish total of £466,000

Trade Unions. A figure for this item has been taken from Webb (1909, p. 602), which records that in 1907 the income of Irish unions was £21,320, to allow for expenditure in amalgamated British based unions and other expenditure not revealed in this return we have raised this figure to £40,000.

The UK total for these other services as given by Prest amounts to £133,000,000. So far, in this category, the estimates for the items above amount to an Irish proportion of 6.54% of the UK total at £8,701,000 Feinstein's UK total for other services is

£169,000,000. The remaining £36,000,000 for the UK which we have not yet accounted for covers repairs to furniture, clothing, footwear, watches, bicycles etc. and hire of domestic equipment, hair dressing and other miscellaneous services. A lack of data precludes making estimates for these categories, so having established a norm of 6.54% for other services for which data is available, this has been taken as the Irish proportion of the remaining £36 million giving an Irish figure of £2,354,000. This is added to the above comes to a total of £11,055,000 for other services.

18. ADJUSTMENT

Data on tourist expenditure and of Irish residents abroad is non-existent for this period. Later data on the Irish Republic (1953-71 from Consumer Expenditure in the Republic of Ireland, (Mitchell, 1988, p.854) indicates that expenditure by non-residents is significantly higher than expenditure by Irish residents outside the state. It has been assumed therefore that in 1907 more was spent by foreign tourists in Ireland than by Irish people abroad. The negative figure derived from this cancels the small positive allowances for military income in kind etc. Feinstein gives a UK positive balance of £12,000,000. For Ireland, a conservative balance of zero has been assumed for this adjustment.

19. TOTAL CONSUMER EXPENDITURE = £133,333,000

20. PUBLIC AUTHORITIES CURRENT EXPENDITURE ON GOODS AND SERVICES

Feinstein (T 31) gives a figure of 77m for central government current expenditure on goods and services in the UK for 1907. In the Government Finance Accounts the Irish proportion of all UK central government expenditure (which includes all civil government charges, the collection of taxes and the post office) is given at 5.14%. It has been assumed that this roughly coincides with the Irish proportion of the UK central government current expenditure on goods and services which thereby amounts to £3,958,000.

Local authority expenditure in Ireland came to £6,698,000 in 1907 which excludes expenditure out of loans, which was just over £900,000 in that year (Mitchell, 1988, pp. 634-8) which raises total Irish local authority expenditure to £7,598,000. GB total local authority expenditure was £155,770,000. (id pp. 612-631). With a UK figure of £163,368,000, Ireland would have accounted for 4.65% of the UK, and this proportion of Feinstein's UK figure (£87,000,000, T 33) has accordingly been taken for local authority current expenditure on goods and services. This leaves £4,046,000 for Ireland.

Total Public Authorities expenditure is therefore £8,004,000.

21. GROSS DOMESTIC FIXED CAPITAL FORMATION

Agriculture

Feinstein and Pollard's (1988 p.275) assumption that Ireland accounted for 19.75% of the gross stock of farm machinery in the UK has been utilised in this item. Given that Ireland accounted for up to 30% of UK agricultural output and there is "a necessary

relationship between output and equipment" (Feinstein and Pollard, p.277), it is difficult to envisage a situation where Ireland would have accounted for less than 15% of the UK total. Feinstein and Pollard argue that it was in building and improvements to land rather than equipment that Irish agriculture was particularly deficient. Much of unclassified machinery imported (£1,410,365) was probably destined for agriculture, and this, together with other imports of agricultural machinery and home produced machinery, would not make the estimate implausible. The amount of farm machinery being brought in Ireland seems to have been quite high in these years. (O'Grada, 1988). It is therefore assumed conservatively that Ireland was responsible for 15% of UK GDFCF in agriculture (£10.3 million). Ireland therefore accounted for £1.545,000.⁸

Mining and Quarrying

The gross output of mines and quarries in Ireland in the 1907 Census of Production is 258000 pounds and this, as a proportion of the UK gross output of 148026000 (Census of Production, UK p.21) is .174%. This proportion of the UK capital formation in the sector of 9,500,000 is £16,000.

Manufacturing

The estimate for this item is based on taking Irish gross output as a proportion of the UK gross output in the census of production in 1907. UK gross output, less mining and quarrying and less utility services, is 1540289000 and the Irish component is 80m which comes to marginally over 5%. Bielenberg's revision of industrial output (1994) suggests that the Irish gross output figure was roughly a third higher than officially estimated and hence this higher figure has been used as a base. However, allowing for significantly lower levels of productivity per person in Ireland a figure of 4.5% is instead used as our benchmark ratio for ascertaining the Irish proportion of UK industrial capital formation. Feinstein and Pollard's (1988, p.430) estimate for UK industrial capital formation is 37.6 million and proportionately the Irish figure is therefore £1,692,000.

Gas, water and electricity

The figures for this estimate come directly from the UK Census of Production. The total cost of the work done in buildings and plant (including repairs) came to £49,000 for waterworks, £51,000 for gas, and £47,000 for electricity which comes to a total of £147,000. The figure for Britain given in Feinstein and Pollard (1988) is £8.6m.

Distribution and Other Services

This is calculated by taking the respective Irish percentages of UK capital formation in railways (3.52%) and transport and communications (4.6%) above. Biased proportionately for relative size of these components of capital formation, an Irish proportion of UK output at 4.3% is utilised. The UK figure is £13.9 and the Irish figure at 4.3% is therefore £598,000.

Railways

Capital formation in the railways was estimated as a proportion of Feinstein's estimate for UK capital formation using the following approach. A comparison of working expenses is used as a proxy for capital formation. The total working expenses of

railways in the UK from Mitchell (1988, p.547) and Ireland (id, p.552) are calculated. These together resulted in a UK total of £76.7 million. Ireland, with a total of £2.7m, accounted for 3.52%. This ratio was then applied to Feinstein and Pollard's figure (p.430) for capital formation in the UK, £14.6m, which led to the Irish total of £514,000. This figure may be too low given that almost £231,000 of rail plant, engines etc. were imported.

Other Transport and Communications

This figure has been calculated from the 1911 Census of Population. The Irish proportion of the UK total for people employed in transport (excluding rail) is approximately 4.6%. As a proportion of UK capital formation in this category, given in Feinstein and Pollard (p.430) at 38.3m, the figure comes to £1,762,000. This figure appears plausible when allowance is made for local authorities expenditure on highways and bridges which is £1,011,000 (Mitchell, 1988, p.638). It may also be noted from the Census of Production, 1907, that £49,000 was spent on tramways, £106,000 on harbours and docks and £27,000 on canals, landing stages etc.

Public and Social Services

To ascertain this figure we have taken Irish expenditure on local authorities other than out of loans and other than out of capital works in 1907 as a proportion of UK expenditure. (Mitchell p.612, England and Wales, p.626 for Scotland, and p.638 for Ireland). Ireland accounts for 4.93% of the UK expenditure. This proportion of the UK capital formation under this category, as given by Feinstein and Pollard at 12.9m, amounts to £636,000.

Dwellings

It is assumed from the Census that 3,200 houses were built in Ireland in 1907 (1901 at 2536, and 1911 at 3608). In 1907, 121300 houses were built in GB (Mitchell p.390) so this resulted in an UK total of 124500 with Ireland accounting for 2.57% of the UK. The UK figure for capital formation in dwellings in the UK was 30m. So Ireland at 2.57% of this figure accounted for £771,000.

TOTAL

The total figure for capital formation in the Irish economy in 1907 is £7,681,000.

22. VALUE OF PHYSICAL INCREASE IN STOCKS.

According to the procedure followed by Feinstein (1972 p. 202), the items in this category should include a) raw materials, b) finished or partly finished products c) unpaid work in progress on assets which take a long time to yield a dividend. They include all such stocks and work in progress held by trading enterprises, in addition to food and raw material stocks held by government. They also include livestock and growing crops. Feinstein's estimate for the UK for 1907 was minus £16,000,000. The question arises as what extent the changes of Irish stock was subjected to the same forces affecting those in GB? This cannot be answered in a satisfactory fashion at this point given the absence of research in this area. However it is known at least that the agricultural sector (for which data is available) makes a greater proportionate contribution in Ireland than in GB. Between 1907 and 1908 the increase

in the value of Irish cattle, sheep and pigs (taken collectively as a result of increases in stock) was £1,892,551, while the increase in the value of cereals and other crops was £3,600,144; so in agriculture alone the physical increase in the value of stocks was £5,493,000 (Thom's Directory, 1909). This represented a particularly high year because of recovery from a downturn in the previous year.

While there is some evidence⁹ to suggest that Ireland was not as badly affected by the downturn in this area as GB it seems reasonable to deduct £500,000 for any possible decrease in stocks in the industrial and service sector. The value of physical increases in stock is therefore estimated at **£4,993,000**.

23. EXPORTS LESS IMPORTS.

Exports = £60,521,245 Minus Imports £61,617,225 = Minus £1,096,000

24. GDP AT MARKET PRICES = £152,915,000

Overestimation and Underestimation

We will now draw attention to certain aspects of the figure, which could contribute to a certain degree of overestimation and underestimation.

- (1) The British Distribution Margins we have adopted may not have been the same in Ireland. Railway freight costs in general were higher in Ireland. In addition, retail productivity was probably lower in Ireland because of the smaller size of Irish shops which may have raised distribution margins. This suggests that our adoption of the British distribution margins may have yielded a conservative estimate.
- (2) Expenditure estimates tend to be higher than corresponding income estimates. This will account for a part, but not all, of the difference between this estimate and that of O'Grada (Oxford, 1994) and Cullen (ESRI, 1995).
- (3) The food estimate is likely to be too low in view of the conservative nature of the official estimate of agricultural output for 1908.
- (4) The housing figure which we have taken from Prest may be understated because of different practices and procedures of valuation in Ireland.
- (5) The likelihood that the UK Census of Production in 1907 considerably understates Irish industrial production, has a depressing effect on categories (6), (7), (8), (9) and (11). Category (6), Clothing, probably involves the largest underestimation.
- (6) The 6% UK estimates in categories (10) and (12) may be too low in view of the generally higher trend in the estimate as a whole.
- (7) The very high value for physical changes in stock seems incongruous with that of GB. However Irish agriculture was experiencing a recovery. We have little information on stock outside agriculture, so it is possible that if Ireland followed British trends there would be a case for downward adjustment here.

The rise in the value of agricultural stock was partially the consequence of recovery from bad years and was therefore greater than in most years.

- (8) Ireland's abnormal UK proportionate share of cars, carriages and cycles (14%) needs to be accounted for. Firstly, in Ireland there was a higher dependence on private forms of transport, which is also evident from the lower proportionate share we have assigned to Ireland for public travel (5.24%). Another important contributing factor was the passing of Wyndham's Land Act in 1903 which made £100 million available for land purchase in Ireland, which provided a short term windfall for Irish landlords. While much of this became tied up in Ireland's external assets, a certain amount was spent conspicuously on cars and carriages. (see Bence-Jones, pp. 92-118) More significantly for the estimate as a whole, the increased consumption resulting from the act would only be evident in an expenditure estimate, further increasing the disparity between our estimate and that of O'Grada and Cullen.
- (9) Our estimate is for GDP rather than GNP so it excludes net property income from abroad. Ireland would achieve a better relative position to Britain in a GDP estimate as it excludes the income from overseas assets; although Ireland had extensive overseas assets, one would expect that they were somewhat lower than GB's. However any expenditure on the home market of income generated from overseas assets or emigrant's remittances would appear in our estimate anyway. Thus again indirectly our estimate may be more sensitive to Ireland's extensive overseas income than that of Cullen and O'Grada.

The tendency revealed here would suggest an upward revision overall, which may partially offset some inevitable double counting.

Conclusion

We will now place the implications of the estimate in a wider context and compare it to earlier ones, notably the lower estimates of O'Grada, Cullen and Feinstein. Cullen is slightly sceptical about his revised figure of £142 million for 1911, as it would mean exports in 1911 expressed as a percentage of GNP would amount to almost 50%. In order to avoid double counting, he has perhaps been a little over cautious which has possibly deflated certain sections of his estimate (the income of the church and clergy for example seems implausibly low according to Cullen). He surmises that a figure of £150 million (his original figure) seems more probable, as it would bring Irish exports expressed as a percentage of GNP somewhat closer to the European norm. We would obviously support this view.

Cullen points out that 'one of the few certainties of Irish income is that per capita agricultural incomes were about half those of Scotland or England.' This of course would have depressed Ireland's relative position given the greater proportion of the population working in agriculture. However, Cullen points out that industrial incomes were closer; the 1907 census of industrial production returned a 'per capita net output of £102, £98 and £78 for England, Scotland and Ireland respectively', which would have raised Ireland's income relatively. (Cullen, 1995)

O'Grada also provides evidence on industrial wages for 1914; this shows that Irish wages for a range of industrial occupations averaged out at over 69% of those in GB. (O'Grada, 1994, p. 238) Service sector income was also significantly closer to the British norm than in agriculture. He notes that 'in the UK in 1920 output per worker in the tertiary sector was over one third greater than in the rest of the economy, while in 1926 output per worker in the non-traded sector (ie. services plus construction and utilities) of the Irish Free State was over one half greater than that of the agricultural and industrial sectors combined.' Since a higher proportion of the occupied population

worked in industry and services combined, than in agriculture, this would have pushed up Ireland's relative position far above the low level achieved in agriculture in which incomes in Ireland on average were only about half that in GB. This may have pushed Irish per capita income higher than 57% of the British level, which O'Grada has suggested for Ireland on the eve of the war. (O'Grada, pp. 381-2)

Feinstein's indirect estimate of Ireland's GDP in 1907 (£139 million when adjusted to market prices) now needs to be considered. Feinstein's objective was to generate an annual GNP series for the UK which included all Ireland until 1922. While in much of the estimate UK data was used, in a number of sectors weights and indicators were used which were based on GB data for which an allowance or extension was made to incorporate Ireland into the UK estimate. Since our own estimate uses more Irish data, it is more sensitive to differences between Ireland and GB.

In general, there has been a strong tradition of pessimism about Ireland's economic performance and national income which was often based more on supposition than on estimation. Larkin (1967) and Butlin (1968) both produced some rather eccentric estimates for Ireland's national income at the beginning of this century based on faulty assumptions, which confirmed all the pessimism of generations. When Cullen in the mid-1970s produced a tentative estimate for Ireland of £150 million in 1911, which was accepted and published in works by other economists and historians (Lee, pp. 512-14, Kennedy, Giblin and McHugh, p. 12) alarm bells began to ring. Some historians could simply not accept that Ireland's per capita income was even half that of Great Britain at this time. Garvin (a political historian) went so far as to suggest that Cullen's figures were far too high and the real figure was probably only half of the figure given (which would make Ireland's national income in 1911 lower than Mokyr's estimate in the 1840s). At some level there seems to be a popular assumption among Irish nationalists that the Irish economy cannot have done well as long as the yoke of British imperialism persisted in Ireland. Arthur Griffith was an early proponent of this view, and his solution was to advocate protectionism along German lines (Davis, 1979). Ironically however, Germany's performance during this period may have been retarded rather than assisted by protectionism. Conversely, free trade brought major advantages to a small open economy like Ireland, which was closely integrated into the GB economy at a time when the latter was performing better than other European economies. This explains Ireland's relatively high position in a European context (see table 2) Its relatively high standard of living in per capita terms was achieved by expanding trade and diminishing population rather than by industrialisation, which has traditionally been viewed as the principal route to a high standard of living. But countries like Australia and the Netherlands could achieve a relatively high standard of living through trade rather than industrialisation (see table 2); Ireland at a lower level also pursued this route to achieve a higher standard of living. If contemporary statistical data on trade can be trusted, Ireland was trading more per head of population than GB; trade per head was more than double that of Norway, Sweden, Germany or France. (Oldham, p. 183) This may go some way to explaining Ireland's higher GDP per head than both Germany and France on the eve of the First World War (table 2).

The case for a rapid rise in Ireland's standard of living relative to GB during the second half of the nineteenth century has been strongly supported by Williamson (1994), who like Cullen (1995), has emphasised the importance of trade growth and unprecedented levels of emigration from Ireland. Kennedy (1995, pp. 102-4) has also drawn attention to Ireland's falling population during this period, which deviated far from the European norm in the century after the Great Famine and had important implications for the growth of Ireland's per capita income. Trade growth in a free trade regime and declining population have been highlighted by these authors; productivity gains across the economy also need to be emphasised. Overall the evidence presented here fits reasonably well with Williamson's convergence story.

Our own confidence in the argument that Ireland had a higher national income in 1907, a higher per capita income and a higher proportionate share of UK national income than has previously been suggested, has been boosted in particular by our figures for Irish consumer expenditure; for this component (which provides the lion's share of the GDP estimate) we had reasonably good data, which suggested that Ireland's share of UK personal consumption was 7.36% (see table 1). Our GDP estimate for Ireland suggested that Ireland accounted for 7.1% of UK GDP at market prices. This implies that Ireland's GDP per capita was about £35 per annum compared to a figure of £49 for the UK. In other words Ireland's average standard of living was just over 71% of the average standard of living in the UK. This still leaves Ireland as the poorest region in the UK, but it makes Ireland's relative position in a broader European context look more impressive. From the estimates in this article we have concluded that Ireland's GDP per capita was 71% of that in the UK. Taking the UK=100, it is then possible to tabulate Maddison's league table for a number of more advanced countries, incorporating our estimate of Ireland's position relative to the UK (see table 2). Maddison (p. 138) makes a rough assumption that Ireland (the 26 counties which became the Irish Free State) was 54% of average per capita income of the rest of the UK in 1820, 1900, 1912 and 1926-50. This seems unlikely given the high level of wage convergence between 1820 and 1920. It also excludes the more industrial 6 counties which ultimately became Northern Ireland (which accounted for about two thirds of Ireland's industrial output in 1907). It is thus not compatible with our own estimate for the entire island.

Table 2

GDP per Head of Population, 1907 (UK=100)

New Zealand	112
USA	106
Australia	103
UK	100
Switzerland	82
Belgium	80
Canada	77
Netherlands	76
Germany	71
Ireland	71
Austria	70
Denmark	70
France	64
Sweden	60
Italy	46
Spain	44
Norway	40
Finland	37
Japan	27

Source; Maddison, A. *Monitoring the World Economy 1820-1992* (Development Centre of OECD, 1995) pp. 194-9.

It seems probable that the dynamic impact of British demand and the transport revolution on Irish economic performance during the second half of the nineteenth century, and the resulting improvement in Ireland's trade per capita has been underestimated to some extent. This, combined with falling population and rising productivity contributed to a significant improvement in Ireland's economic performance during this period. Britain was still far ahead of the rest of Europe in 1907, and in trading terms, Ireland benefitted from this. Conversely this trade dependence contributed to Ireland's relative fall in the European league table when Britain's performance deteriorated relatively over the remainder of the twentieth

century.(Kennedy, 1992, p. 7) In a small open economy so dependent on trade for expansion, the advent of the protectionist era in the 1920s and 1930s (with the resulting restraints on trade) did much to undermine Ireland's relatively strong position in the European league.

While it is tempting to refine the estimate further, we feel at this point that it would be more useful to publish both the method and the figures and leave the task of refining certain elements of the estimate to others who are more qualified than ourselves. But we think there is sufficient evidence here to suggest that upward revisions in existing estimates of Irish national income are necessary.

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FOOTNOTES

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- 1 Prest (p. 15) notes that 50% to 60% of the flour produced was used in the bakery trade. However, we suspect Ireland had a much lower proportion given the high number of rural households baking their own bread. The census of production gives a figure of £2,305,000 for the cost of raw materials for bread biscuits etc.
 - 2 E. J Riordan (1920) estimates that salmon fisheries alone were worth £300,000 around 1900
 - 3 For details of procedure and sources see Prest, pps. 92-100
 - 4 This is based on the assumption that the Irish housing stock is older and in need of significant repairs. For corroboration of relatively low rent levels in Ireland, see Webb New Dictionary of Statistics, 1909, which gives rents for Belfast, Cork and Dublin. Since 4/5ths of the Irish pop lived outside these larger urban areas one would expect rents to have been relatively even lower.
 - 5 It should be noted that this figure excludes Bielenberg's revisions to the Census of Industrial Production which indicate a very significant underestimation of the output of this sector. O'Grada (1994) also allows for a higher level of industrial output.
 - 6 The Census of Industrial Production and import data proved insufficiently detailed to provide an independent Irish estimate, especially in the key area of medical equipment.
 - 7 The Cullen estimate has been taken into account in this figure but church income will require further detailed research to allow, inter alia, for laypeople working on church business.
 - 8 It is worth noting at this point that much of the capital inputs into Irish agriculture went into physical changes in stock and not into capital formation (see category 22).
 - 9 Ireland seemingly was not as badly affected by this crisis as England. Hall in the History of the Bank of Ireland (pp. 300-

1) notes that a period of tension was encountered in 1907 following a serious crisis in the US where a great number of banks failed. London experienced a heavy drain of gold to the US in particular. Though the directors took the precaution of increasing the Bank's specie holding to prepare for any loss of confidence, this proved quite unnecessary as the Irish banks did not experience any pressure. According to Hall '...The stock exchange prices of British Government securities and commercial shares suffered a serious depression; but even in this sphere the country [Ireland] was not directly involved as Irish industrial stocks remained practically at their original quotations."

