Urbanization and the Regional Distribution of Population in Post-Famine Ireland[1]

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Introduction

Ireland's unique population history has attracted a great deal of attention. The post-Famine decline in the population – especially in the twenty six counties that now form the Republic – has been studied intensively. The historical process of change in the regional and urban-rural distribution of the population has received less attention, however. The aim of the present paper is to redress this neglect by investigating the dynamics of urbanization and regional population change in Ireland in the century and a half after the Famines of the 1840s, which were a dramatic watershed in the country's history. It is shown that pre-Famine conditions such as the occupational structure and level of urbanization strongly influenced the subsequent growth and development of the Irish regions. In fact, the present regional distribution of the population and pattern of urbanization has been largely inherited from the early nineteenth century, if not earlier, although the primacy of the Dublin region has increased over time. Thus, while Irish demographic history presents numerous well-known anomalies, the process of urbanization and the regional evolution of the population followed readily intelligible patterns that are not without parallels elsewhere in Europe.

[1] An earlier version of this paper was delivered to the British Society for Population Studies annual conference, Dublin, September 7th 1999. I am grateful to Cormac Ó Gráda for helpful comments and to Stephen Hannon for drawing the map.

The development of the population since 1841

The Census of Population of 1841 provides a reliable picture of the demographic situation in Ireland as the population reached its pre-Famine peak. The following decades were to witness an unprecedented decline in the aggregate population and the virtual depopulation of large parts of the country.

Figure 1 (based on the data in *Table 1*) shows the trend in the total, urban[2], and rural populations of Ireland since 1841. The unusual features of Irish demographic history are evident. The decline in the

TABLE 1. Total, Urban and Rural population at Census Dates since 1841 and intercensal annual average growth rates

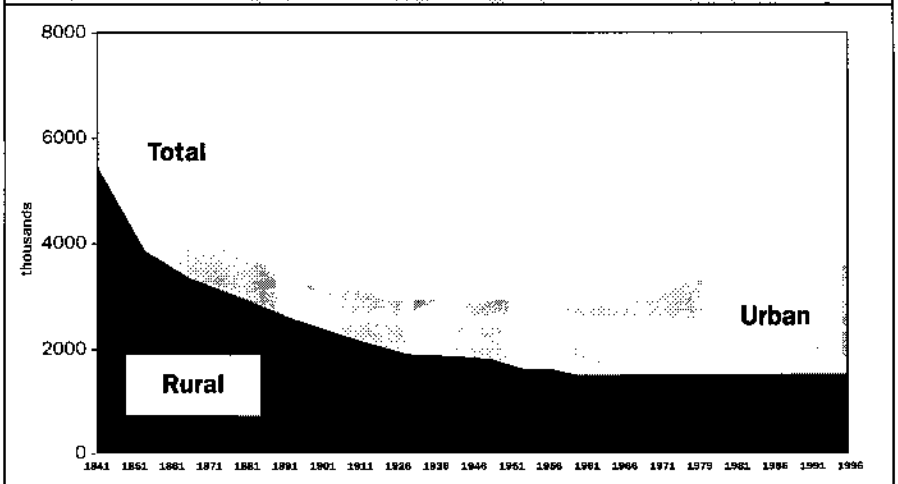
Census date	Urban		Rural		Total	
	Thousands	aagr.	Thousand	aagr.	Thousand	aagr.
1841	1002		5527		6529	
1851	1033	0.3%	4079	-3.0%	5112	-2.4%
1861	895	-1.4%	3507	-1.5%	4402	-1.5%
1871	895	0.0%	3185	-1.0%	4053	-0.8%
1881	898	0.0%	2972	-0.6%	3870	-0.5%
1891	853	-0.5%	2616	-1.3%	3469	-1.1%
1901	887	0.4%	2335	-1.1%	3222	-0.7%
1911	920	0.4%	2220	-0.5%	3140	-0.3%
1926	944	0.2%	2028	-0.6%	2972	-0.4%
1936	1055	1.1%	1913	-0.6%	2968	-0.0%
1946	1112	0.5%	1843	-0.4%	2955	-0.0%
1951	1228	2.0%	1733	-1.2%	2961	0.0%
1956	1285	0.9%	1613	-1.4%	2898	-0.4%
1961	1299	0.2%	1519	-1.2%	2818	-0.6%
1966	1419	1.8%	1465	-0.7%	2884	0.5%
1971	1556	1.9%	1423	-0.6%	2979	0.7%
1979	1873	2.3%	1495	0.6%	3368	1.5%
1981	1915	1.1%	1529	1.1%	3444	1.1%
1986	1997	0.8%	1543	0.2%	3540	0.6%
1991	2011	0.1%	1515	-0.4%	3526	-0.1%
1996	2108	0.9%	1518	0.0%	3626	0.6%

[2] Liberally defined to include all those living in settlements of 1,500 people or more. Some of the growth of the urban population, especially in recent times, is due to the enlargement of the areas defined as urban.

total population after 1841 was without parallel. It continued almost uninterrupted until 1961, by which date the population was only 43 per cent of its 1841 level. This extraordinary outcome was due to the combination of an exceptionally rapid rate of rural population decline *and* a failure to urbanise in the course of the nineteenth century. The economic reasons for this dismal demographic record have been intensively debated but lie beyond the scope of the present paper.

While it has been pointed out that the Irish levels of urbanization and dependence on agriculture in 1841 were broadly consistent with "the predicted European average for a low-income country", the 15 per cent decline in the urban population between 1841 and 1891 was unique among European countries.[3] By the end of the century only one third of the Irish population was in urban areas, compared with over three-quarters of that of England and Wales. However, since the end of the nineteenth century the urban population has increased 2.5 fold. It overtook the rural population in the 1970s. Yet despite this recent spurt

FIGURE 1 - Rural and Urban Population (Twenty six counties)



[3] Frank Geary, "Deindustrialization in Ireland to 1851: some evidence from the census", *Economic History Review*, 1998, LI, 3, p. 528. It should, of course, be borne in mind that the picture is strongly influenced by the fact that following the partition of the island in 1922 the north-east corner remained in the United Kingdom. The urban population of these counties grew significantly in the latter half of the nineteenth century.

of urbanization, the proportion of the Irish population living in 'urban places' remains low by European standards. Even at the end of the twentieth century, the level of urbanization in Ireland is lower than that of any other European Union member state except Portugal.[4]

The rural population asymptoted towards 1.5 million in the 1960s – a reduction of almost three quarters from its 1841 level. It is tempting to regard the massive loss of rural population in the hundred years after 1841 as a correction of population pressure and "overpopulation". However Joel Mokyr has claimed that "by no definition can Ireland [in 1841] be said to have been abnormally overpopulated".[5] None the less, the subsequent fall in the labour/land ratio *was* exceptional. The Commission on Emigration[6] compiled data on the change in rural population per square mile of agricultural land in a number of countries between the mid-nineteenth and the mid-twentieth centuries. The findings are summarised in *Figure 2*. No other country recorded a decline in the density of rural population comparable to that recorded in the twenty six counties of Ireland. This reflects the fact that the steep fall in the Irish rural population did not lead to a reduction in the total area under cultivation. There was however a sharp decline in the acreage of ploughed land and a commensurate increase in that devoted to hay and pasture.[7] Moreover, despite the dramatic decline in rural population density, even in the mid-twentieth century subsistence family farming predominated and the exodus from agriculture continued apace.

The central aim of the present paper is to explore the pattern of post-Famine urbanization and to shed light on the contrasts in regional population histories. What role was played by differing initial conditions, such as the pre-Famine level of urbanization and

[4] A. G. Champion, 1993, "Geographical distribution and urbanization", Chapter 3 of Daniel Noin and Robert Woods, *The Changing Population of Europe*, Oxford: Blackwell Publishers, Table 3.2.

[5] Joel Mokyr, *Why Ireland Starved*, London: George Allen and Unwin, 1985, p. 41.

[6] The *Commission on Emigration and Other Population Problems*, to give it its full title, was established in 1948 and issued its Reports (a Majority Report and two Minority Reports) in 1954.

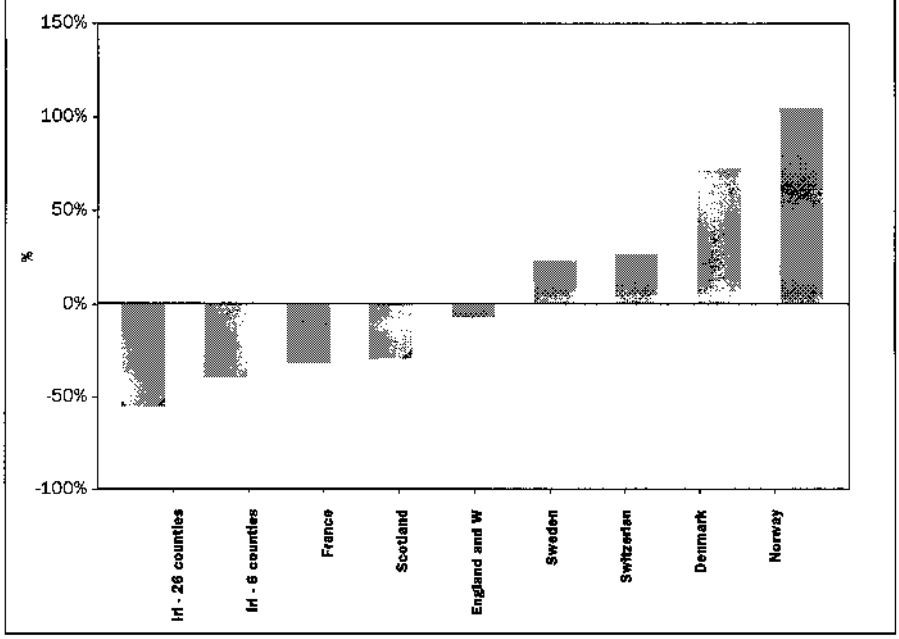
[7] *Ibid.* p. 39.

dependence on agriculture, and what by other factors, such as autonomous changes in the location of economic activity? It is argued that the evidence strongly supports the view that pre-Famine conditions largely dictated the development of the Irish population after the catastrophes of the 1840s.

Regional evolutions

The contrasts in the evolution of population at the regional level over the post-Famine period are striking. At one extreme is Country Leitrim, an exclusively rural county in 1841, that has experienced virtually no urbanization down to the present day. Its population in 1996 was only 16 per cent of its 1841 level and its share of the national population has fallen from 2.4 per cent to 0.7 per cent. Even its share of the national rural population has almost halved – from 2.8 to 1.5 per cent. At the other extreme, Dublin was the only major urban centre in the twenty six counties at the start of the period and still retains its pre-

FIGURE 2 - Change in desity of rural population 1850-1950



eminence. The next largest urban centre – Cork – is only a quarter the size of Dublin. Dublin's share of the national urban population rose from 26 per cent in 1841 to 52 per cent in 1951. It declined to 49 per cent in 1996, but the share of the East region (Dublin *plus* the three contiguous counties) in the national urban total continued to grow and reached 57 per cent in 1996. This makes Ireland second only to Greece among European countries in terms of the dominance of its largest city in the national population.

To study these regional trends more systematically, the rates of change of the population of each of the twenty six[8] counties and eight regions[9] over the period between 1841 and 1996 (the most recent Census year) and between 1841 and 1961 (when the national population reached its lowest point) were calculated. These are shown in *Table 2*. The counties are entered according to the date at which their population stabilized. This information is also displayed in *Map 1*.

The table and map show that with the exception of Dublin all counties continued to lose population well into the twentieth century. The only other counties to touch bottom before the Second World War were Meath, Louth, Wicklow, and Kildare – all contiguous to Dublin (or, in the case of Louth, almost so). Population growth resumed in twelve more counties in the 1960s, and in eight more in the 1970s. Westmeath did not experience population growth until 1991, and it remains to be seen if Leitrim's population has yet reached its nadir. By 1961 only Dublin had surpassed its 1841 population, and by 1996 the only other county to have done so was Kildare. Thus most of the country's area – and not just the rural areas - is much less densely populated today than it was one hundred and fifty years ago.

[8] There are twenty seven observations because Tipperary North and South Ridings are separated.

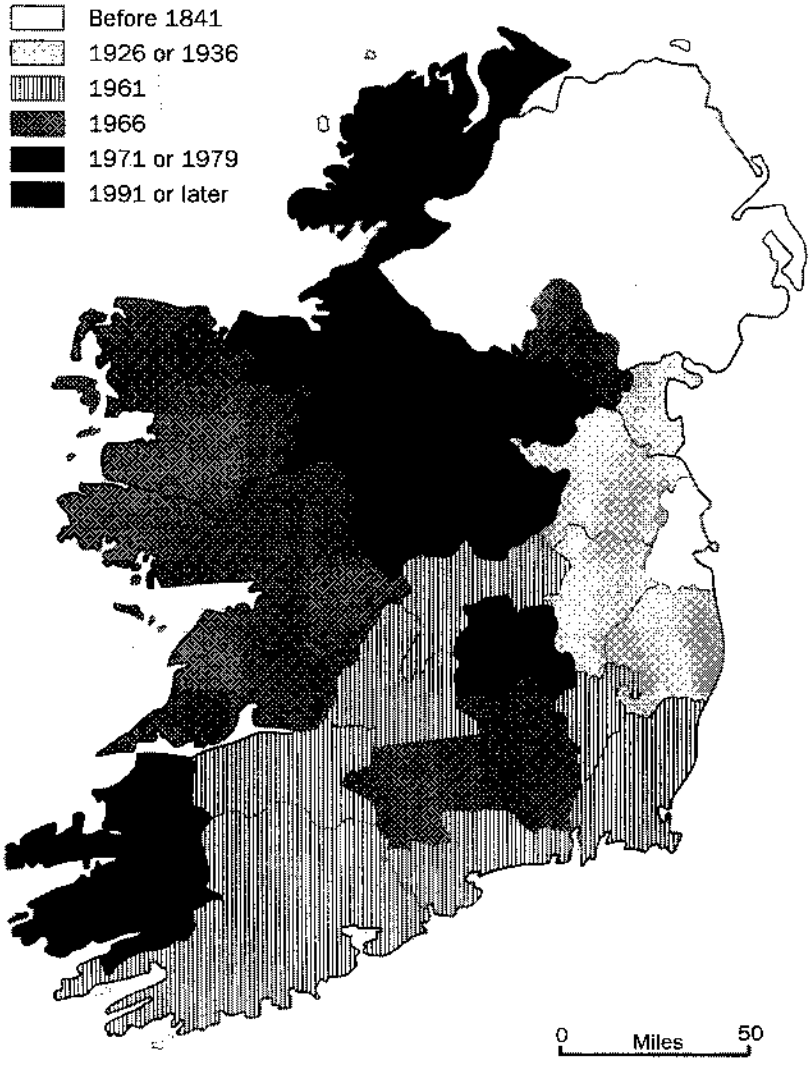
[9] The "Planning Regions" adopted in the 1970s - modified to "Planning Authorities" in the 1990s - are groupings of contiguous counties that have gained some acceptance as a way of thinking about the regions of Ireland. (Tipperary North Riding is allocated to the Mid-West, Tipperary South Riding to the South East). The East Region (Dublin, Kildare, Meath, and Wicklow) is shown as a single region and Dublin and the Mid-East (Kildare, Meath, and Wicklow) separately.

TABLE 2. Regional Poplation Change Since 1841

	Year in which smallest population was recorded	Percentage change 1941-1996	Percentage change 1841-1961
Counties			
Dublin (incl. Co. Borough)	1841	+110.4	+29.6
Louth	1926	-28.1	-47.5
Wicklow	1926	-18.6	-53.6
Kildare	1926	+17.9	-43.7
Meath	1936	-40.3	-64.6
Tipperary, N.R.	1961	-71.2	-73.3
Offaly	1961	-59.7	-64.9
Waterford (incl. Co. Borough)	1961	-51.7	-63.6
Carlow	1961	-51.7	-61.3
Cork (incl. Co. Borough)	1961	-50.8	-61.3
Limerick (incl. Co. Borough)	1961	-50.0	-59.6
Wexford	1961	-48.3	-58.8
Monaghan	1966	-74.4	-76.5
Mayo	1966	-71.3	-68.3
Tipperary, S.R.	1966	-67.8	-70.1
Clare	1966	-67.2	-74.3
Kilkenny	1966	-62.8	-69.5
Galway (incl. Co. Borough)	1966	-57.1	-66.0
Roscommon	1971	-79.5	-76.6
Cavan	1971	-78.2	-76.7
Longford	1971	-73.9	-73.5
Sligo	1971	-69.1	-70.4
Kerry	1971	-57.1	-60.4
Donegal	1971	-56.1	-61.6
Laoighis	1979	-65.5	-70.7
Westmeath	1991	-55.2	-62.6
Leitrim	1996(?)	-83.9	-78.4
Coefficient of variation (%)	***Including Dublin***	***104.6***	***52.0***
	Excluding Dublin	***37.3***	***13.2***
Regions			
North West	1971	-66.7	-68.2
West	1971	-63.8	-67.0
Midlands	1971	-68.3	-70.5
Mid-West	1961	-61.2	-68.1
North East	1966	-65.7	-70.1
South East	1966	-57.5	-65.3
South West	1961	-52.4	-61.1
East	1891	+76.3	+13.7
Coefficient of variation (%)	***Including East***	***102.6***	***47.1***
	Excluding East	***8.4***	***4.4***

Despite the striking regional variations there has been little change in the ranking of the main population centres over the decades. The only change in the ranking of the largest cities and towns (Dublin, Cork, Limerick, Waterford, and Galway) between 1841

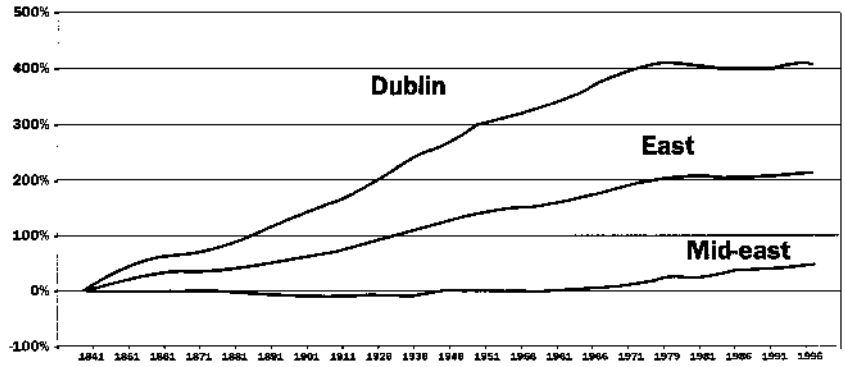
MAP 1. Date at which population low point was reached



and 1996 is that Galway has overtaken Waterford due to its very rapid growth in recent decades. Moreover, the relative variation in the rate of population change outside of the East (Dublin) region is small – over the period 1841-1961 the coefficient of variation is 13 per cent at county level and only 4 per cent at regional level. The following 35 years saw greater variability: the coefficient of variation for the period 1841-1996 rose to 37 per cent for the counties excluding Dublin and to 8 per cent for the regions excluding the East. When the Dublin region is included the relative variation is much higher for both periods. It is evident that the experience of Dublin and the East region has been *sui generis*.

The four panels of *Figure 3* show the cumulative percentage change in the regions' shares since 1841.[10] *Figure 3a* shows that there was a 400 per cent increase in the share of Dublin in the population of the twenty six counties – from 5.7 per cent in 1841 to 29.2 per cent in 1996. At the same time, as we have seen, its share of the national urban population doubled, reinforcing its role as the primal city. After 1961 the share of the contiguous counties of the Mid-East region began to grow. The recent growth of these counties is to a large extent a spillover of the growth of Dublin.

FIGURE 3a - Cumulative Change in Population Share East region



[10] This was calculated as the antilog of the sum of the difference in the log of the ratio of the i^{th} region's population to the national population minus 1.

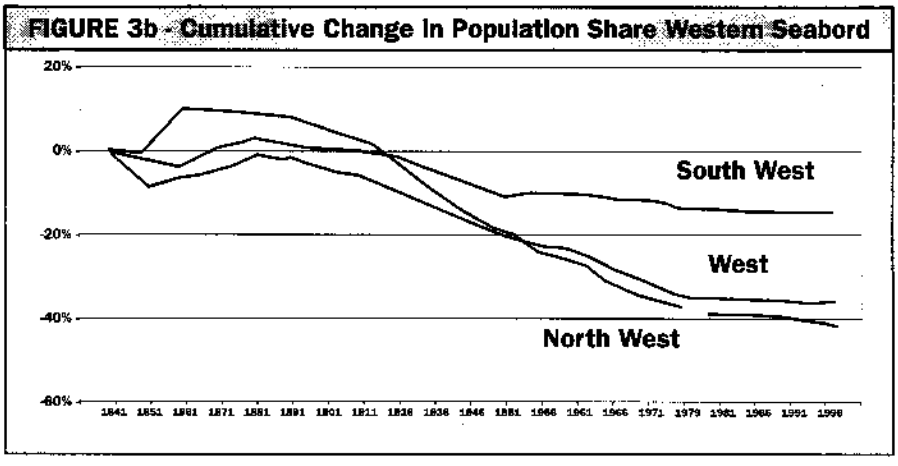


FIGURE 3b - Cumulative Change in Population Share Western Seabord
20%
0%
-20%
-40%
-60%
South West
West
North West
1841 1851 1861 1871 1881 1891 1901 1911 1926 1936 1946 1951 1956 1961 1966 1971 1979 1981 1986 1991 1996

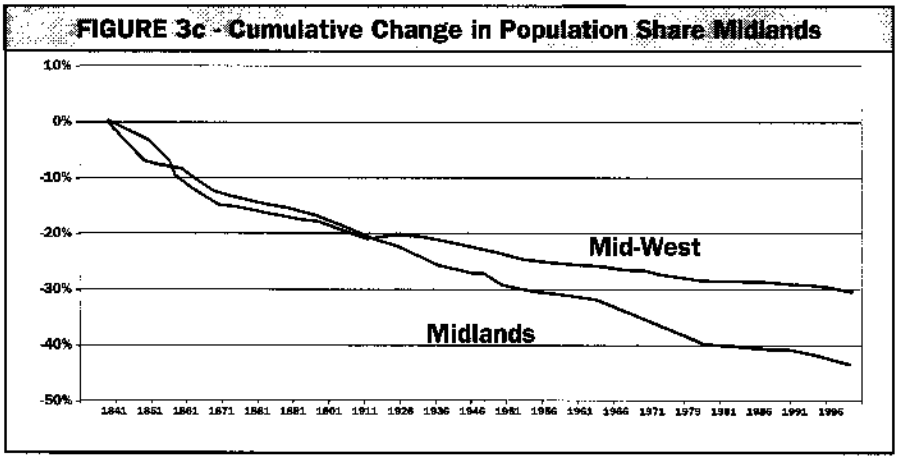


FIGURE 3c - Cumulative Change in Population Share Midlands
10%
0%
-10%
-20%
-30%
-40%
-50%
Mid-West
Midlands
1841 1851 1861 1871 1881 1891 1901 1911 1926 1936 1946 1951 1956 1961 1966 1971 1979 1981 1986 1991 1996

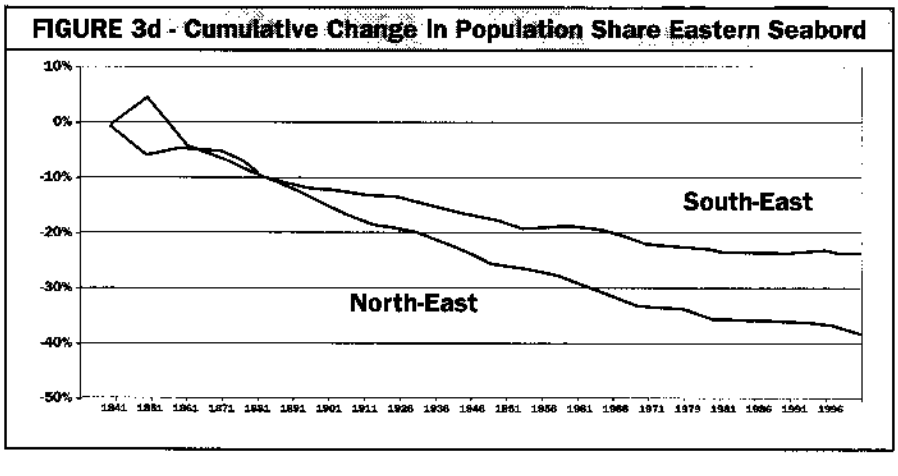


FIGURE 3d - Cumulative Change in Population Share Eastern Seabord
10%
0%
-10%
-20%
-30%
-40%
-50%
South-East
North-East
1841 1851 1861 1871 1881 1891 1901 1911 1926 1936 1946 1951 1956 1961 1966 1971 1979 1981 1986 1991 1996

It is clear from *Figures 3b, 3c, and 3d* that the regions outside the East have continuously lost population share over the years. The only exceptions to this generalisation are the early *gains* recorded in the South-West, West, and North-East. The depopulation of some of the poorest western regions did not get underway until the last quarter of the nineteenth century.[11]

Explaining the pattern of post-Famine population change

Previous research has paid considerable attention to the roles of mass emigration and declining fertility in the post-Famine population adjustment process. Interest has centred on the factors influencing these components of population change rather than on outcomes such as regional variations in the rate of population change.[12] However Verrière has drawn attention to the relatively homogeneous rate of decline in the rural districts, most of which lost about 60 per cent of their initial population over the period 1851-1966.[13]

The decline of population was mainly due to net emigration. While differences in fertility between social groups were significant, they were a relatively minor influence on the regional differentials in rates of population change after the Famine. The varying rates of increase (or decline) across the regions were primarily a reflection of different net migration rates. The rural areas experienced massive outflows of population to Britain and the New World. There was relatively little migration from the countryside to the local towns. Right down to the mid-twentieth century Dublin was the only county to record a net inflow of population from the rest of the country.

In terms of employment opportunities agriculture was a declining sector from the mid-nineteenth century onwards, nowhere more so

[11] The delayed post-Famine adjustment of the western counties is discussed in Brendan M. Walsh, "Marriage rates and population pressure: Ireland 1871 and 1911", *Economic History Review*, 1970, XXIII (1), 148-162.

[12] See Cormac Ó Gráda, *Ireland: a New Economic History 1780-1939*, Oxford: Oxford University Press, 1994 and Timothy W. Guinnane, *The Vanishing Irish*, Princeton, NJ: Princeton University Press, 1997.

[13] Jacques Verrière *La Population de l'Irlande*, Paris: Mouton Éditeur, 1979, p. 109.

than in Ireland where there was a major shift to land-intensive cattle ranching and dairying. The failure of new urban areas to emerge suggests that the degree of a county's dependence on agriculture and the degree of "overcrowding" on arable land before the Famine would help explain its subsequent depopulation, while the growth of the urban population would have been largely confined to existing urban centres. The alternative hypothesis - that the emergence of new, regionally-dispersed employment bases resulted in a radical redistribution of the population – is not consistent with the conventional view of Irish economic history. None the less, it is important to test these alternative explanations in order to establish the importance of "path dependence" in Irish demographic history.

Some simple models of regional population change have been developed to test these alternatives. The influence of initial conditions is represented by the following variables from the 1841 Census.

- AG41 is the proportion of the population dependent on agriculture;
- DENSE41 is density of rural population per acre of arable land;
- URB41 is the proportion of the population resident in towns.

The structure of the pre-Famine labour force and in particular dependence on agricultural occupations (AG41) are expected to be crucial influences on a county's subsequent population history. The level of urbanization (URB41) is in principle a separate aspect of a county's initial structure that could exert a distinct influence on its subsequent demographic evolution. However, the correlation between AG41 and URB41 is high ($r = 0.74$) and this makes it difficult to identify the separate influences of these variables.

In addition several dummy variables were included to gauge the importance of locational factors:

- DUB and EAST are dummy variables taking a value of 1 for Dublin and the counties of the East region, respectively, and zero for other counties. This was used to test the extent to which the growth of

the Dublin region could not be explained in terms of the factors used to account for the experience of the other counties.

- BORDER was used to test the effect of contiguity to the border with Northern Ireland. The hypothesis is that counties that had their 'economic hinterland' cut off by the partition of the country in 1922 would have subsequently grown less rapidly. This variable had a value of one for counties Donegal, Leitrim, Cavan, Monaghan, and Louth, and zero for other counties.
- CB was used to test whether the existence of a major city (i.e. County Borough) in a county in 1841 had an effect over and above that of urbanization *per se*. This dummy variable took on a value of one for Cork, Waterford, Limerick, and Galway, and zero for the other counties.
- COAST was used to test the effect of possession of a coastline.[14] There is some evidence that during and after the Famine counties with access to fishing and sea transport experienced lower mortality, *ceteris paribus*, than landlocked counties.[15] More generally it has been argued that countries are economically penalised by being landlocked.[16]

The ability of these variables - all of which could have been constructed in 1841 – to account for the post-Famine pattern of population change constitutes a test of the hypothesis that path dependence, rather than autonomous developments, is the key influence on the present-day regional distribution of the Irish population.

The following commentary is based on an assessment of the results

[14] Some judgement is required in defining this variable. County Leitrim has a ten-mile strip of coast on which there is no town and was coded 0. Meath, on the other hand, was coded 1 because it has a longer coast with some small towns and borders on the port of Drogheda. The results are not sensitive to these decisions.

[15] Cormac Ó Gráda, *Black '47 and After: The Great Irish Famine in History, Economy, and Memory*, Princeton, NJ: Princeton University Press, 1998.

[16] Jeffrey D. Sachs and Andrew M. Warner, "Fundamental sources of long-run growth", *American Economic Review*, 1997, 87 (2), 184-188.

obtained after some *ad hoc* experimentation. A selection of results is shown in *Table 3*. In all of the specifications tired the coefficient on DENSE41 was positive but not statistically significant. This could be interpreted as support for Mokyr's claim that rural overpopulation was not *per se* at the heart of Ireland's problem in the 1840s. At least the subsequent decline in population does not appear to have been a reflection of agricultural overcrowding – the fact that DENSE41 always appears with a positive coefficient might even be interpreted to suggest that counties supporting intensive agriculture in the pre-Famine period experienced less subsequent depopulation, *ceteris paribus*, than less intensively farmed areas.

Both AG41 and URB41 are highly correlated with the change in population after 1841. When all 26 counties were included in the regression, the results consistently indicate that the relationship is non-linear, with the influence of AG41 becoming less pronounced at very high levels of dependence on agriculture.[17] While multicollinearity makes it difficult to obtain precise estimates, the evidence does suggest that initial levels of urbanization and dependence on agriculture played separate roles in the counties' subsequent population history. The results favour AG41 over URB41, but the margin between them is slight.

Neither the Border nor the County Borough variable yielded promising results. However, there is some evidence of a positive and significant coastal effect, as may be seen from the results report in table 3. The population of counties with a coastline grew more (or declined less) after 1841 than that of the landlocked counties.

The "Dublin effect" is strong and seems to have spread outwards after the 1960s. This is shown by the finding that better results were obtained for 1841-1961 period using the DUB variable, but for the longer 1841-1996 period the EAST variable performed better. Other things equal, Dublin and the three adjacent counties have grown faster than would have been anticipated simply on the basis of their relatively high initial level of urbanization and low dependence on agriculture.

[17] This non-linearity could not be taken care by the popular technique of estimating a log-linear equation because of the negative values of the dependent variable.

While this might be expected on the basis of the restoration of the city's role as a national capital after 1922, the graph in Figure 3a does not suggest that a break occurred at that time. The finding may be interpreted as showing the tendency for late-urbanizing countries to experience the growth of a dominant "primate" city, for reasons that are discussed below.

It should be noted that the inclusion of dummy variables for EAST and/or DUB as well as COAST increases the multicollinearity in the data set. This compounds the difficulties attached to estimating the separate influences of URB41 and AG41. Moreover, there is always

TABLE 3. Population change, 1841-1996

OLS regressions (t-ratio in parentheses)

	Constant	URB41	AG41	$AG41^2$	EAST	DUB	COAST	$\bar{R}^2$
Dependent variable = % change in population 1841-1961								
	841.0	0.62	-24.9	0.17	6.70		5.10	0.97
	(7.5)	(3.1)	(8.3)	(8.20)	(1.5)		(2.1)	
26 counties	437.1	0.15	-13.06	0.083		72.96	7.35	0.98
	(3.2)	(1.0)	(3.4)	(3.0)		(4.2)		
22 counties (exc. East)	-13.34	0.26	-0.82				8.08	0.71
	(0.7)	(1.5)	(3.4)				(4.1)	
Dependent variable = % change in population 1841-1996								
	1113.8	0.88	-31.6	0.21	35.16		6.82	0.98
	(7.0)	(3.1)	(7.4)	(7.2)	(5.5)		(1.97)	
26 counties	1231.3	-0.20	-33.0	0.208		56.5	14.11	0.95
	(3.1)	(0.5)	(3.0)	(2.7)		(1.1)	(2.8)	
22 counties (exc. East)	25.04	0.64	-1.36				12.26	0.82
	(1.0)	(2.7)	(4.1)				(4.6)	

URB41 = percentage of population living in urban areas in 1841
AG41 = proportion in agricultural occupations in 1841
DUB = dummy variable = 1 for Dublin
EAST = dummy variable = 1 for counties now in East region
COAST = dummy variable = 1 if counties has a sea coastline

the suspicion that the results discussed above reflect primarily, if not exclusively, the dominant effect of the growth of the Dublin region. It is therefore of interest to report the results obtained when the relationship is estimated for the counties outside the East region. While reducing the sample size to 22, this greatly eases the problems of non-linearity and multicollinearity that occur with the 26-county sample.

The results obtained when attention is confined to the 22 'non-East' counties are shown in Table 3. It may be seen that by and large they confirm the findings obtained from the larger sample. In general, the coefficients of the regressor remain stable and their statistical significance rises. The increased significance of the COAST variable is striking.

It may therefore be concluded that the initial level of urbanization increased, and initial level of dependence on agriculture decreased, a county's demographic performance over the decades after the Famine and right down to the end of the twentieth century, while the possession of a coastline was a surprisingly important positive influence on development. There is strong evidence of "path dependence" or "hysteresis" in Irish regional population dynamics. The relative fortunes of Irish counties in the century and a half after the Famine were strongly influenced by factors that were known in 1841.

This point can be illustrated directly by relating the level of urbanization in 1996 to that recorded in 1841. *Table 4* shows the results of regressing the (log of) the level of urbanization in 1996 (lnURB96) on the (log of) the level of urbanization in 1841 (lnURB41) and the East and Coast dummy variables. The fit between these variables is very close. While the East region urbanised more rapidly than predicted by its initial level of urbanization, the association between the level of urbanization in 1841 and 1996 is equally close among the non-East counties as it is in the full sample. The possession of a coastline appears to have aided the process of urbanization.

There was, therefore, a high degree of path dependence in the pattern of urbanization and regional population change after 1841. Initial conditions were reinforced rather than broken down by subsequent

trends. This is in marked contrast to the experience of nineteenth century[18] Britain (and the north-east corner of Ireland), where the very rapid growth of new industrial centres dramatically redistributed population between regions in a manner that could not be anticipated by their characteristics at the start of the period.[19] But the pattern of urbanization associated with the British Industrial Revolution was unusual; for most of Europe the modern urban hierarchy was well established by the eighteenth century and industrialization reinforced rather than disrupted it.[20] In this regard the Irish experience - despite the belated urbanization and extraordinary population decline - fits the European rather than the British model.

Several economic models are consistent with the tendency for population growth to be self-reinforcing. The role of scale economies and external economies in the growth process is well-documented. Endogenous growth theory predicts that the rate of population growth is an increasing function of the size of the population and the long-run historical evidence supports this hypothesis.[21]

Finally, the fact that the growth of Dublin has outstripped what would have been predicted even on the basis of its initial pre-eminence as an urban centre shows that the Irish experience also had elements of the 'primate city' model of urbanization that dominates in less developed countries today. The importance of this phenomenon has been attributed

[18] In fact much of the redistribution of population in Britain occurred at an earlier date. The point stands, however, if rephrased to say that the present pattern of urbanization in Britain is not closely related to that obtaining in the mid-eighteenth century.

[19] See David Coleman and John Salt, *The British Population*, Oxford: Oxford University Press, 1992.

[20] Jan De Vries, *European Urbanization 1500-1800*, London: Methuen and Co, 1984. For a study of another country that urbanized late see Luigi De Rosa, "Urbanization and industrialization in Italy (1861-1921)", *Journal of European Economic History*, 17, No. 3 (Winter 1988), pp. 467-90.

[21] For an ambitious essay in this tradition see M. Kremer, 'Population growth and technological change: one million B.C. to 1990,' *Quarterly Journal of Economics*, 1993, 108 (August), 681-716. These ideas have previously been explored in an Irish context by Recent Irish regional population patterns are reviewed in the light of this literature see Gerry Boyle, Tom McCarthy and Jim Walsh, "Regional income differentials and the issue of regional equalisation in Ireland", *Journal of the Statistical and Social Inquiry Society of Ireland*, 1999, XVIII (1), 155-212.

to the fact that the costs of spatial interaction are lower now than in the nineteenth century and earlier when the process of European urbanization was most intense.[22] A very elastic supply of labour from the rural areas to the city was certainly a feature of the Irish economy at the time when its belated urbanization took place. The only constraint on the growth of Dublin was its ability to expand its economic base.

Conclusion

This paper has shown that the changes in the regional distribution of the population of Ireland over the years since 1841 were overwhelmingly a reflection of the depopulation of the rural areas and the growth of the population in existing urban centres. Counties whose population was mainly rural and heavily dependent on agriculture in 1841 have seen both their population and their share of the national population decline steeply since 1841. However, there is some evidence that counties with access to the sea fared somewhat better than landlocked ones.

The fact that today's regional population distribution could have been anticipated on the basis of these initial conditions shows the importance of "path dependence" or "hysteresis" in the Irish population dynamics over the past century and a half. This resembles the process

TABLE 4. Urbanization in 1841 and 1996
OLS regressions (t-ratio in parentheses)
Dependent variable: lnURB96

	Constant	lnURB41	EAST	COAST	$\bar{R}^2$
26 counties	2.32	0.49	0.43	0.16	0.81
	(17.8)	(8.4)	(3.3)	(1.6)	
22 counties	2.19	0.55		0.19	0.82
exc. East	(16.2)	(8.8)		(1.9)	

lnURB96 = log of percentage of population living in urban areas in 1996
lnURB41 = log of percentage of population living in urban areas in 1841
EAST = dummy variable = 1 for four counties now in East region
COAST = dummy variable = 1 if county has a sea coastline

[22] See Diego Puga, "Urbanization patterns: European versus less developed countries", *Journal of regional science*, May 1998, 38 (2), 231-52.

of urbanization in most northern European countries, which of course occurred at an earlier date. However, the Dublin region grew more rapidly than would have been anticipated on the basis of its initial level of urbanization and its share of the national urban population more than doubled. The manner in which Dublin became such a dominant urban centre relative to the national population resembles the experience of the southern European countries in the late nineteenth century and the less developed countries in the twentieth century.

Thus while Irish demographic history presents numerous well-known anomalies, the regional evolution of the population has followed norms and patterns that have been experienced elsewhere.