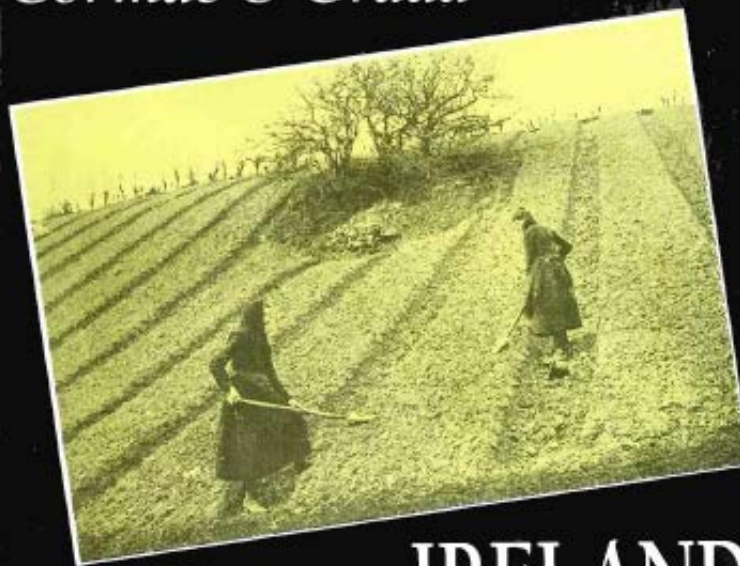
Cormac Ó Gráda



IRELAND

BEFORE AND AFTER THE FAMINE

Explorations in economic history, 1800-1925

"...one of the best if not the best book on Irish history for many years"

Economic History Review

New Edition

IRELAND BEFORE AND AFTER THE FAMINE

This new edition of Cormac Ó Gráda's much-praised study expands upon his central arguments about Irish agricultural and demographic developments surrounding the Great Famine. The updated edition provides new statistical and archival information, new appendices and integrated responses to the new research and writing on the subject that has appeared since the publication of the first edition in 1988.

Taken together, the changes and additions do not modify Cormac Ó Gráda's argument, but rather make for a more rounded work. The book questions whether the tragedies of the 1840s were inevitable and whether Ireland was the classic 'Malthusian country' in this sense. Instead, the author sheds new light on the Irish ability to cope with harvest failure before 1845 and looks at the very real advances in the economy before the Great Famine. These suggest that, had the potato blight been delayed for a few decades, the economy would have been in a stronger position to withstand the harvest failures. Without seeking to neglect the poverty and injustice of the pre-Famine regime, this book points to positive developments such as demographical adjustment, economic integration, emigration and improvements in agriculture and communications. The author argues that these features were already changing Ireland and could have gradually lifted it out of the morass.

This book provides essential reading for students of Irish social and economic history from undergraduate level.

Cormac Ó Gráda is Associate Professor of Economics at University College, Dublin

CORMAC Ó GRÁDA

Ireland before and after the Famine

Explorations in economic history, 1800–1925

Second edition

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PREFACE TO THE FIRST EDITION

This is not my attempt at writing *The* (or even *An) Economic History of Nineteenth-century Ireland*. Despite the long gestation period of these pages, their focus is too narrow for that, seldom straying far from issues agricultural and demographic. Instead I offer a series of integrated studies, bearing on aspects of pre- and post-famine history that made Ireland special. The approach is interdisciplinary. I learned my history late, after regular schooling in economics. The book probably reflects this, but I have kept formal economic theorising to a minimum, and the embarrassingly large number of notes shows that I have learned something from the historians.

Cross-references from chapter to chapter are frequent. Still, each originally lived a life of its own for a while in draft form. An earlier version of Chapter 5 was presented to the Conference of Irish and French Historians on Peasants, held in Paris in March 1983. Themes in Chapter 1 were prompted by my participation in a small way in the on-going *New History of Ireland*, while some parts of Chapters 2 and 4 have their origins in my Columbia doctoral thesis and in a presentation to the International Economic History conference in Edinburgh in August 1978. Chapter 3 reflects work in progress for a monograph on the Great Famine. While none of the material here has appeared in print before, parts of Chapters 1, 2, and 4 borrow from work of mine published in *The Journal of European Economic History*, *Hermathena*, *Studia Hibernica*, and *The New History of Ireland*, vol. 5. Besides, in Chapters 1–3 I have used some of the results of joint work with Bob Allen, Phelim Boyle, and Joel Mokyr.

Those interested in Irish economic history tend to be a sociable band, and I value highly that camaraderie. *Aithníonn ciaróg ciaróg eile* (One beetle recognises another). I have probably learned most from Bob Allen, Austin Bourke, Louis Cullen, David Dickson, David Fitzpatrick, Liam Kennedy, John McManus, Joel Mokyr and Peter Solar. The last two especially have been an inspiration over the past decade or so, and have purged me of many errors and foolish notions. I must also thank Phelim Boyle, Mary Daly, Fergus D'Arcy, Michael Edelstein, Paddy Geary, Tim Guinnane, Patrick Honohan, Michael Laffan, Joseph Lee, Moore McDowell, Tim O'Neill, John Sheehan, Brendan Walsh, Sarah Ward-Perkins, and Ron Weir for their comments, clues and suggestions at various stages. Ed Buckmaster drew the map describing pre-Famine population change.

I am grateful to the Bank of Ireland and Allied Irish Banks for access to their nineteenth-century records, and to the Dublin and Belfast Public Record Offices, the Department of Irish Folklore, University College Dublin, and the National Library for permission to quote from material in their possession.

And so 'mo bheannacht leat, a scríbhinn'. Dublin, March 1987

PREFACE TO THE SECOND EDITION

The unexpectedly quick sale of the previous paperback edition offers me the opportunity to tidy up the text and make it more readable and more tempered, to correct some errors, and to take account of some of the literature appearing since 1987. To that end I have thoroughly revised the text, and taken on board some justified criticism from reviewers. I have also added appendices to several chapters. Chapter 1 seemed a good place to reproduce an early Irish reaction to Malthus previously published in *History of Political Economy*. At the end of Chapter 2 I have submitted the Dublin Society county surveys to the treatment previously meted out to Lewis's *Topographical Dictionary*. Chapter 3 contains a new appendix on the spatial distribution of excess mortality during the Great Famine. Chapter 5 includes a good deal of new material on the Irish fertility transition in the late nineteenth and early twentieth century. Taken together, these changes and additions do not modify my earlier arguments much, but I believe that they make for a more rounded work.

Dublin, December 1992

KEY TO FREQUENTLY-CITED JOURNALS

EEH	*Explorations in Economic History*
EHR	*Economic History Review*
ESR	*Economic & Social Review*
IESH	*Irish Economic & Social History*
IHS	*Irish Historical Studies*
JEH	*Journal of Economic History*
JSSISI	*Journal of the Statistical and Social Inquiry Society of Ireland*

CHAPTER 1

Poverty and progress: The pre-Famine economy

The comforts of the upper and middle classes have improved... The state of society is better... The lowest class of all, the mere labourer, is the only one whose advancement is not evident.

Jonathan Pim[1]

Mo mhíle slán do na fataí bána,
Ba shúbhach an áit a bheith in aice leo,
Ba fáilí soineannta iad at tíocht chun láithreach,
Agus iad ag gáirí linn ar cheann an bhoird.

Peatsaí Ó Callanáin[2]

Pre-Famine Ireland has become the classic 'Malthusian country'. Odd, then, that as a source of insights into population and economics Thomas Malthus himself dwelt little on the island next door. Between 1798, when he became a celebrity, and his death in 1834 he never allowed Ireland more than a few passing comments in the different editions of the *Essay on Population* and the *Principles of Political Economy*. It took substantial fees from the fledgling *Edinburgh Review* to get him to produce, anonymously and at speed, two review articles on Irish population in 1808–9. His oral evidence on Ireland before the Emigration Commissioners of 1826 was reluctant, uninspired, and laconic. Malthus, it would seem, was not much interested in Ireland, and this may explain why his only trip there in 1817 was purely a family affair.[3]

Given Ireland's pre-eminent role in Malthusian exegesis, the lack of attention from the great man himself is curious. Still, why Ireland was to become the classic 'Malthusian country' is no mystery. The headlong population growth, the poverty and subdivision, the over-dependence on a single source of food, and the culmination of all these in the Great Famine, would seem ready-made ingredients for a Malthusian tale. Even if the huge rise in population since the mid-eighteenth century was spurred on by a 'gap in famines' for a few decades, surely the series of mini-famines that struck from the turn of

the new century onwards sounded ample warning of impending doom? This is one of the messages of the late Kenneth Connell's classic monograph on Irish population, and it is hardly surprising to find it repeated in the recent outcrop of Malthusian re-interpretation. Pre-Famine Ireland has thus become 'a case study in Malthusian economics', the 'rabbit warren' where poverty and a 'vortex of subdivision' led to the 'ultimate Malthusian catastrophe' of 1846–50. The 'awful remedy' of the Great Famine cruelly 'dramatised the risks of improvident marriage', and marked Irish population trends for a century to come.[4]

1.1 Pre-Famine famines

A basic premise of this way of looking at pre-Famine Ireland is that the potato, staple fare of the impoverished masses, failed often and disastrously – one year in every two or three – before 1845, and that matters were steadily growing worse over time. The poor harvests of 1800–01, 1816–18, 1822 and 1831 particularly stand out, but partial potato scarcities in other years too would seem to add support for this view. For example, in Cork in 1800 dry weather prevented mills from producing flour and meal as substitutes for the scarce potato, leaving the 'lower orders in the city [in] a melancholy and indeed deplorable situation', while in Tipperary farmers were forced 'not to feed [their] young pigs, except one', and not to charge more than 4*s* 4*d* per barrel for potatoes.[5] In 1822 hunger forced the poor of west Mayo to eat the fish-heads discarded by east coast fishermen. In June 1827 draper and schoolmaster Amhlaoimh Ó Súileabháin recorded in his diary how he joined some of his middle-class friends in doling out maize to the poor of Callan in County Kilkenny. Three years later the same poor were again close to '*an gorta gorm* (blue starvation)'. Just a year later the poor of Erris in Mayo were again on the verge of starvation, reportedly reduced to consuming the carcasses of porpoises that had been washed up on the beach. For part of the summer of 1836 islanders off the west coast of Donegal survived largely on periwinkles and seaweed. Again, in July 1842 the young William Thackeray saw women picking nettles and other weeds for food near Naas, within twenty miles of Dublin.[6] Such examples prompt the question: how great was the excess mortality in bad years before 1845?

The calamitous famine of 1740–41 ranks as the eighteenth century's worst by far. If recent attempts to calculate the ensuing excess mortality are worth anything, they imply that the loss then was proportionately even greater than during the Great Famine.[7] Other subsistence crises followed, notably in 1755, 1766, and 1782–83, but their demographic impact is elusive.[8] However, excess mortality from famine and starvation between 1800 and 1845 seems to have been of modest proportions. Precise calculations are impossible, but there are some clues. First, consider the answers of hundreds of witnesses – clergymen, magistrates, and the like – from all over the country to the following question from the Irish Poor Inquiry Commissioners in 1835: 'Are any persons known to have died from actual destitution in your parish within the last three years?' Some replies, to be sure, speak of famine deaths. One such from a Mayo priest told of six persons dying of actual want in his parish in 1831. A Kildare colleague had heard of 'one Kelly, a weaver in Clane, a diffident bashful creature, who is said to have died of starvation'. Several other replies referred to 'strangers' or 'travelling beggars' dying.[9] Yet a content analysis of the replies yields a different picture overall. In Table 1 most of the references under the second heading are to what one witness called 'death inch by inch', deaths due more to enduring privation and hardship than literal starvation or starvation-induced disease at times of crop failure. The Connacht figures reflect the crisis of 1831.[10] Still, the impression overall is of individual deaths from destitution rather than general mortality crises at times of crop failure.

A second source is surgeon William Wilde's account of pre-Famine famines in the 1851 census report. Indeed, this is the stan-

Table 1 *Answers to questionnaire on starvation deaths, 1835–36*
(% in parentheses)

	Leinster	*Connacht*	*Ulster*	*Munster*
No, never	417 (85.1)	121 (76.1)	625 (95.0)	388 (83.3)
Indirectly only, hearsay evidence	62 (12.7)	27 (17.0)	29 (4.4)	57 (13.3)
Yes	11 (2.2)	3 (1.9)	3 (0.5)	9 (2.2)
Yes, but before 1832	0 (0.0)	8 (6.9)	1 (0.2)	4 (1.0)

Source See text

dard source on the subject, generating the longest running quotation in George O'Brien's hastily written but enduring *Economic History of Ireland from the Union to the Famine*.[11] Wilde's technique of producing a long and gruesome litany of earlier famines created an impression, which greatly influenced later accounts, of very few famine-free years after about 1700. Shortages and famine deaths there certainly were, but Wilde's account in the wake of *phytophthora infestans* is worth comparing with his corresponding report for the 1841 census commissioners.

Wilde's analysis of the hundreds of thousands of deaths in the 1830s retrospectively recorded in 1841 by the enumerators with 'statistical nosology' and a 'special report on Dublin City', followed by over two hundred pages of small-type cross-tabulations was thorough and innovative.[12] Under the heading of 'causes of death' Wilde's tabulations record 117 due to famine. The number is an under-estimate, for three obvious reasons. First, few die of starvation in the literal sense during famines; diseases such as dysentery, relapsing fever, typhus, and even food poisoning do the damage first, often when the worst of the food shortage is over. Yet Wilde paid no attention to famine-related causes in the earlier report either. Second, paupers who lived alone and died of hunger left no survivors to tell the tale to the enumerators. Third, one may well imagine some element of stigma in survivors ascribing a death in the family to famine, much as with suicide today. While his record of famine's toll during the 1830s must therefore not be taken literally, a comparison with the numbers attributed to some other given causes of death is still revealing. Against the 117 put down to starvation in the 1830s, there were 7,072 drownings, 197 hangings, 3,508 murders, 1,239 deaths from alcoholic excess, 4,349 from burns. This seems consistent with our story of light pre-Famine subsistence crises.

A third source is Francis Barker and John Cheyne's survey of the 1816–8 famine-related fever epidemics, the most complete contemporary account of early nineteenth-century famines. According to these eminent Dublin medical men excess mortality during that crisis reached about 60,000.[13] This is no more than a careful, informed guess. For what they are worth, the numbers dying – mostly from fever rather than literal starvation – highlight Irish backwardness relative to the rest of the United Kingdom. They also indicate that this, one of the worst, if not the worst, of the earlier crises was trivial compared to 1846–50. More interestingly, perhaps,

Barker and Cheyne's figure also implies that excess mortality was proportionately far less in Ireland during 1816–18 than in some other parts of Europe. The 60,000 deaths were Ireland's share of what John Post has called, with some historic licence, 'the last great subsistence crisis of the western world'. Post's able work records far higher mortality in those years in regions of Italy, Switzerland, Germany, and Austria-Hungary. Barker and Cheyne's guess may also be compared with Thomas Newenham's estimate of 40,000 deaths – about 0.8 per cent of the total population – during the 'two years of scarcity' of 1800–01.[14]

The famine of 1822 was largely confined to the west. For a few months it seemed to threaten hundreds of thousands, but in the end its toll in lives lost was low. Barker, by then General Secretary of the Board of Health, was at pains to stress that 'the mortality ha[d] been inconsiderable'. Professor Tim O'Neill, historian of the 1822 famine, concurs. Barker's officials kept statistics of distress and fever, and had mortality been high the data would surely have been published. The silence of the Board of Health, along with other evidence, leads O'Neill to conclude that 'it is certain that the figure was so small that it was not even mentioned'.[15] The winter and spring of 1831 also brought hard times, especially in Connacht. Conditions were certainly not deteriorating over time in this sense, however. Though distress returned at different times – to Mayo in 1835, to Donegal in 1836–37, to the west generally in 1839 – the period between 1832 and 1845 may well have produced fewer deaths from hunger than any fourteen-year period since 1741. Ironically, had the potato failure of 1845 lasted just one year, it would probably have merited no more than a few paragraphs in the history books. Despite the destruction of almost half the potato crop over wide areas, few deaths from hunger occurred; only in the wake of the much more serious failure of 1846 did the casualties begin to mount. One likely reason for the improvement with time must not be forgotten: the increasing effectiveness of relief measures in the pre-Famine period. As O'Neill concludes in his study of pre-Famine Erris, Ireland's *ultima Thule*:

> A common feature of all these [crises] was the ability of Erris to survive on the brink. Erris did have famine deaths before the Great Famine but these were rare. A complicated system of subsistence had evolved where local, national and English charity combined with public works

> and food ship to get through the difficult months whenever crop failure occurred.[16]

In Erris as elsewhere, increasing population undoubtedly produced greater mass poverty. Yet the link between impoverishment and subsistence crises is not so clear cut. Malthus, of course, included famine as the ultimate weapon in the armoury of positive checks to overpopulation:

> Famine seems to be the last, the most dreadful resource of nature. The vices of mankind are active and able ministers of depopulation. They are the precursors in the great army of destruction; and often finish the dreadful work themselves. But should they fail in this war of extermination, sickly seasons, epidemics, pestilence, and plague, advance in terrific array, and sweep off their thousands and ten thousands. Should success be still incomplete, gigantic inevitable famine stalks in the rear, and with one mighty blow, levels the population with the food of the world.

This extract from the *First Essay* could have been written with the Great Irish Famine in mind! Yet it is reassuring to find that, even in his small output on Ireland, Malthus himself leaves room for a different interpretation, which fits what seems to have happened before 1845 much better. In the first of his two anonymous contributions to the *Edinburgh Review* he produces quite a benign and hopeful prognosis for Ireland's struggle with overpopulation, stressing the power of the preventive check, and explicitly ruling out a catastrophe such as the Great Famine: 'although it is quite certain', he wrote, 'that the population of Ireland cannot continue to increase at its present rate, yet it is as certain that it will not *suddenly* come to a stop'. Though a far higher population might be anticipated in time, in due course 'the habits necessary for an order of things in which the funds for the maintenance of labour are stationary' would ensure that supply would not outstrip demand for labour.[17] The issue, then, is not so much 'Was Malthus Right?' as *which* Malthus fits pre-Famine trends best. Between 1808, when those last-quoted words were written, and the mid-1840s Ireland's population was to rise another 50 per cent. Land hunger and structural unemployment were to intensify the hardships facing the poor. Yet economically and demographically the country was showing some signs too of the preventive check mechanism envisaged by Malthus. Comparing the 1821, 1831, and 1841 censuses fails to tell the full story, because

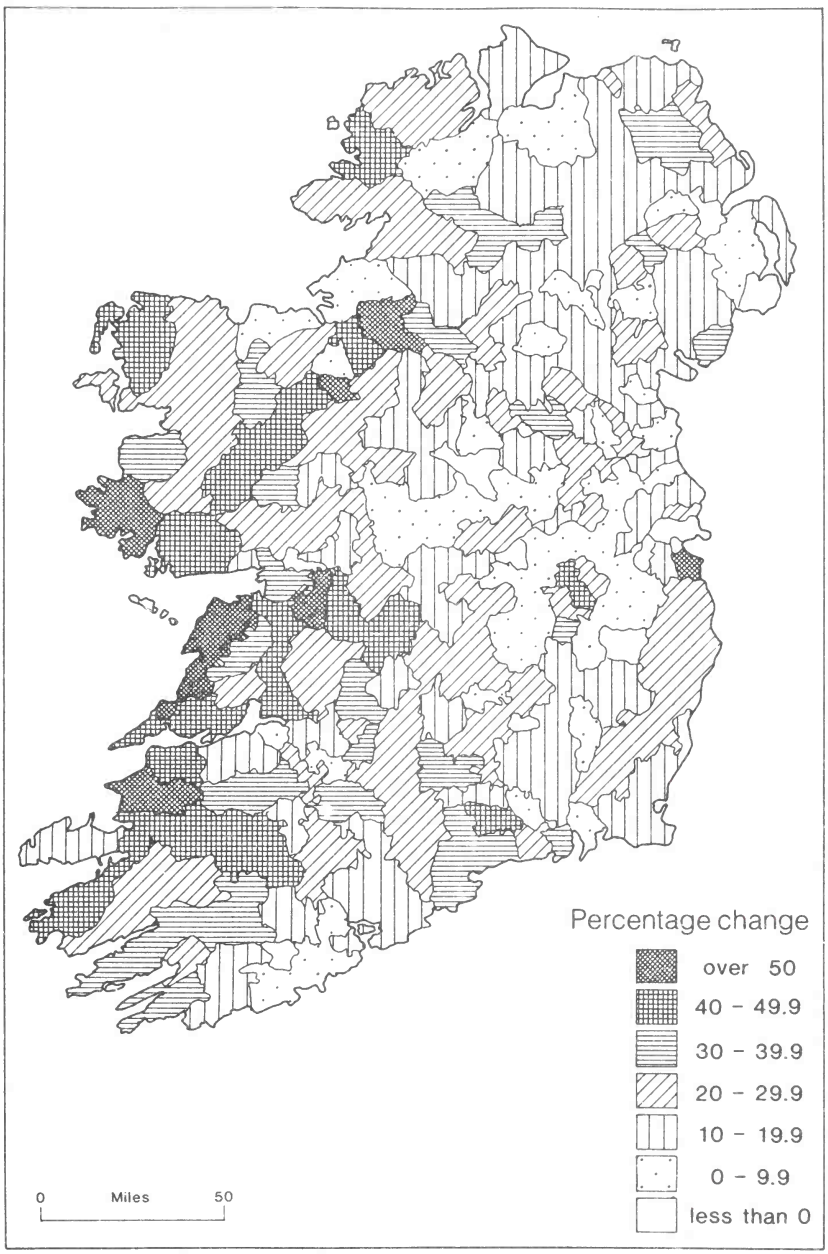


Figure 1 *Population change, 1821–41*

taking the previous two or three pre-censal decades into account reveals a picture of continuous deceleration in population growth between Union and Famine.

Figure 1 describes population growth by barony between 1821 and 1841. Clearly the pattern varied greatly across the island. In an area east of a line linking Waterford, Athenry, and Derry the rate of growth was modest. Worryingly, however, population growth was most vigorous in what must have been the poorest areas, and where the Famine was to prove most murderous. Evidence of a perverse, explosive demographic regime before 1845? While the island as a whole showed signs of demographic adjustment,[18] one plausible reading of the map is that the adjustment was most radical where it was least needed. In this scenario, as explained by Joel Mokyr, 'population grew unrestrained, continuously exacerbating poverty, thus making the resolution of the problem by a catastrophe ultimately inevitable'.[19] This is not the full story, for the following reason. While population growth in the west and south-west was highest in Ireland in 1821–41, it was also highest there before then. Moreover, the drop in those areas seems to have been greater than average.

That is the implication of comparing county population growth rates after 1821 with the estimated growth in house numbers between 1791 and 1821. The latter suggests headlong growth in much of the west before 1821, with annual growth rates above 2 per cent in many counties. But that pace did not persist. In the five fastest-growing counties in 1791–1821 – Galway, Clare, Cavan, Kerry, and Mayo – the increase in house numbers average 2.1 per cent. In 1821–41 that had given way to a rate of population growth of 1.4 per cent. The implied adjustment would be magnified by making some allowance for the probable increase in mean household size before 1821, and for under-enumeration in the 1821 census.[20]

True, it takes some imagination to consider a region with 1.5 per cent population growth in the early nineteenth century as 'adjusting' downwards. But in the conduct of its demographic affairs Ireland was nothing if not different. Presumably the adjustment would have continued in that might-have-been Ireland without the potato blight in the late 1840s.

1.2 The potato

O half-potato on my plate
It is too soon to celebrate
The centenary of '48
Or even '47.
You're boasted to the centre too,
And wet, in soapy soil you grew,
But I am thankful still to you
For hints of history given.

Patrick Kavanagh[21]

In an engaging but somewhat eccentric celebration of its virtues, Jack Weatherford has recently credited the potato with eliminating periodic famines and changing the balance of economic and political power in eighteenth-century Europe, as 'the potato-fed armies of Frederick of Prussia and Catherine of Russia' swept all before them. The Russians' switch to the potato augured in their rise as a world power. Weatherford also claims that during its first two centuries in Europe, potato consumption was largely a middle- and upper-class affair; the masses had little time for this 'curiosity grown in herbal gardens around monasteries and universities'.[22] Such claims will bemuse people familiar only with the potato's place in Irish history.

The chronology of the potato's diffusion in Ireland cannot be precisely documented. From Cuzco in Peru it reached the dinner table of Philip II of Spain in 1565, and spread from Spain to Italy and elsewhere in Europe. In Ireland it was sometimes called *An Spáinneach* in the early days, suggesting that to some unknown Spaniard (rather than to Sir Walter Raleigh) should go the credit for its introduction to Ireland. If indeed the potato reached Ireland directly from Spain, Galway rather than somewhere in the south may have been the point of entry. Potato diffusion continues to be a great topic of historical speculation, but at least we know nonetheless that its earliest victories were in the south: the new root crop was in use in Munster as a seasonal garden root crop, playing the part of cabbage or fresh carrots today, by the early seventeenth century. By about 1660 the fictional peasant alliance of the Rabelaisian classic *Pairlement Chloinne Tomáis* could threaten to boycott their exploiters, the millers, for a year '*acht bheith ag bruith phíse, phónra, phutátaoi agus mheacan; agus leis sin go gcuirfedis na muilteoiridhe don ghorta* (and ... boil peas, beans, potatoes and

parsnips; and thus they would reduce the millers to starvation)'. As keeping quality and yield gradually improved, the potato found favour with rich and poor alike. For the middle classes it was a delicacy, for the poor increasingly a substitute for dairy, cereal and bean-based foods.

When did this process become 'over-specialisation'? Over-specialisation is part of standard pre-Famine historiography. Yet as long as the potato was just one element in the people's food portfolio it must have helped to reduce the risks of famine.[23] Perhaps it was still so in the 1770s, when Arthur Young gave an enthusiastic account of it.[24] As late as 1802 a Kilkenny gentleman might reminisce:

> Before the introduction of a kind called the apple potatoe, the great portion of the sustenance of the poor here, consisted of oaten bread and milk; from April to August barley bread was sometimes used, and in the hilly part of the parish [Fiddown] rye bread: but since the cultivation of apple potatoes has become general, the poor continue to eat them until the new potatoes come in. Before their introduction, the cottagers frequently sowed beans and esculent vegetables, and had little plots somewhat like a small kitchen garden, at the rere of their cabbins, but the apple potatoe has superseded everything of this sort.[25]

Amhlaoimh Ó Súileabháin could also remember a time in Kilkenny 'when every capable tenant farmer had peas and beans until potatoes made them old-fashioned'. In the 1820s, however, 'it [was] rare to see them planted by other than the gentry'. Again, in south Derry the switch to total reliance on the potato, this time from rye, came late enough for Sampson, the Dublin Society's surveyor of the county, to note it in 1802. Another Derry account claimed that neither farmers nor cottiers consumed potatoes between St Patrick's Day and late autumn.[26] Presumably the potato's dominance in the south dates further back. In any case, potato acreage and dependence continued to increase right up to the Famine. By 1845 the crop's share in the tilled acreage was little short of one-third, and about three million people were largely dependent on it for food. Even if Austin Bourke's ingenious estimates of total consumption in a typical pre-Famine year exaggerate a little, they nevertheless describe a reality that is very difficult to properly absorb today.[27]

In retrospect the dangers to both labourer and farmer are only too clear. Twenty-twenty hindsight vision may exaggerate their fool-

hardiness, however: if deaths from starvation were few and far between before 1845, then on the basis of information available to them their specialisation may have been sensible. Clearly the conditional probability of disaster, in the event of near-total potato harvest failure – not to speak of three-time failure – was high. Yet the real issue is the riskiness of the potato itself, compounded by non-storability and non-transportability, as highlighted by Oliver MacDonagh and Joel Mokyr.[28] Unfortunately, the basic data – year-by-year yields – are lacking. Mokyr has attempted to get around the problem by appealing to contemporary French potato and grain yields, and found that potato yields fluctuated more. Perhaps this loads the dice somewhat against the potato, since pre-Famine Irish grain yields may also have been more variable than the French. Yet whatever the potato's vulnerability on this score, it was increased by higher transport and storage costs. That it cost more to store potatoes than grain is shown by the much greater seasonal trough-to-peak rise in potato prices (discussed in Chapter 3). Mokyr argues from pre-Famine evidence that carrying potatoes over even short distances added appreciably to their prices, thereby increasing the risk of famine. One is thus left with conflicting impressions and assertions. Against Charles Trevelyan, who claimed (after the event) that 'wise people' foresaw it all, there was the Irish economist Mountifort Longfield, who reminded a Trinity College audience just over a decade earlier:

> Potatoes appear to be in bad repute among political economists. Some even hint that the poverty of Ireland is in great measure to be attributed to the use of this food. The strongest objection which is urged against the use of potatoes arises from the impossibility of storing them from one year to another. This is undoubtedly a disadvantage, which, however, I think is compensated by the utility of potatoes as a food for cattle. This use, as it were, stores them up for succeeding years . . . Although potatoes cannot be easily hoarded or exported, yet pigs can; and potatoes may be considered as the raw materials of which pigs are manufactured. But whatever be the staple food of the people, if the nation is poor, a dearth will occasionally occur; and if we look at the history of England, or any country at a time when it was as poor as Ireland is now, we shall find that dearths and famines were more frequent there, and more tremendous in their effects than they have been in Ireland during the past thirty years.[29]

Similarly positive claims for the potato were made by the novelist

Maria Edgeworth and Wexford agronomist Martin Doyle. Also emphatic was the land agent Steuart Trench. 'There is no greater fallacy', he wrote of the pre-Famine era, 'than to suppose that the potato at the time was an uncertain crop . . . My turnips were sometimes poor and thin in dry and parching weather; my wheat sometimes smutty, and did not turn out well under the flail; but, if I manured my land well, I was always certain of my potato crop'. On the other hand, James Doyle, Catholic bishop of Kildare and Leighlin, was less enthusiastic; he felt that, should a failure occur, 'famine and pestilence will set in together and rid us probably of a million'. The impressions gained from the literature before 1845 are thus conflicting, though it must be said that the discussion takes on a more sombre hue after about 1825.[30]

An advantage of the potato (compared to, say, the turnip) was that its flexibility as food for both man and beast probably led to some 'over-production' in average years. By May or June when the previous year's stock began to spoil there was usually some buffer stock left over for pigs and hens. Mild crop failures would therefore make for thinner or fewer animals, not famine. By contrast, in underdeveloped countries today the bulk of the output of staple foods goes on human consumption or seed, with livestock typically accounting for 10 per cent or less: but half or less of Irish potato production was destined for human consumption. Nor should the role of potato variety in spreading risk be overlooked. Varieties differed not only in taste, shape and colour, but in use and in planting and growing time. Risk-spreading between varieties could substitute to some unknown extent for risk-spreading between crops. Take the following passage from one of the best of the Dublin Society's statistical surveys, that for County Kilkenny:

> The varieties usually planted here are the *English reds*, the *apple*, and a few *white eyes* for early use: the first are ill-tasted, often wet, or a livid red without, and having a reddish circle within; they are cultivated because they produce good crops with little manure, and sometimes in fallow ground without any; they are rather early, and remarkable for producing no apples, though they blossom; they succeeded the *Turks* and *high-cauled caps*, which grow well in poor ground, and are still continued in some places: the *apple* potatoes were first introduced and planted in this country between forty and fifty years ago, by the late Sir William Fownes; from whence they became general, and are invaluable to the poor, as they will keep longer than any other, by

> which means they will have potatoes all the year round; and they succeed better for being planted late, that is, in the latter end of May, and even in the first week of June; the *great apple* is a variety that some farmers possess: *Barbour's wonders* are large, dry, and early, and fit for cattle; they are planted in many places; their disposition lately to the curl has been noticed: *Wicklow banners* have the good qualities of the last sort, and have been raised by several persons: the *black potatoe* is not known much here... a kind called *coppers* has been tried, and are said to grow too near the surface in a dry season: *pink-eyes* are long, dry, and early: many other varieties are sown, one of the best is the *flat Spanish* ...[31]

Surely a conscious policy of adding and using varieties as insurance is indicated in this passage, written in 1801 or 1802. The point carries less force later, since on the eve of the Famine one variety, the *lumper*, bulked large in the diet of the poor. Ironically, the *lumper*, which proved disastrous against blight in the late 1840s, had been introduced at least in part for its resistance to a plant disease called 'curl'.

In the circumstances was the shift to 'the' potato as foolhardy as all that? At a minimum, the historian must guard against libelling the pre-Famine poor for their rashness, and against being over-critical after the event of the potato's record before 1845. Admittedly, then as now, there were people who argued sensibly that sole reliance on one kind of food in principle is unsound. Yet the potato's pre-blight history made something like the repeated shortfalls in 1845 and succeeding years unprecedented and unimaginable. This is the clear message of Peter Solar's analysis of nineteenth-century crop yield data. Solar's calculations lead to the verdicts that the failures of 1845 and 1848 were 'at the limits of actual experience', and that of 1846 'far out of the range of actual or likely western European experience'. The statistical probability of these failures occurring almost back-to-back was 'very small indeed'. Even the worst medieval famines involved less. In retrospect we may well see the pre-Famine 'potato people' as living on a population time bomb. Yet they, on the basis of their experience before 1845, could have had no inkling of the dangers.[32]

A striking aspect of the remarks about scarcity by Thackeray, Ó Súileabháin, and others quoted earlier, and more in the same vein, is that they so often refer to the summer months. This is a reminder that seasonal shortages and the associated change in dietary regime –

'July an chabáiste '(July of the cabbage)', '*buidhemis brothallach biadh-ghann* (sultry, food-scarce July)', 'the meal months' – must be distinguished from famine in the strict sense. At the same time there is no denying the problem of seasonal scarcity for the rural poor. Evidence presented to the Poor Inquiry suggested that 'the labourer never has any of his conacre potatoes remaining at the period when they become unfit for use; the greater number have used them all at the beginning of April and scarcely one has a potato remaining at the first of May'.[33] This was so even though the durability of the potato seems to have increased over time. In the seventeenth century it was mainly a summer food, but the development of the famous *apple* marked a giant step forward. However, not even the *apple* could keep properly over a twelve-month period, and neither the *cup* nor the *lumper* matched the *apple*'s keeping quality. The result was serious privation for a number of weeks, and sore stomachs for those who tried the new crop too soon.[34]

A final boon of the potato should be remembered: thanks to its high nutritional content the pre-Famine Irish did not suffer much from common scourges of the hungry masses such as scurvy, pellagra, and xerophalthalmia. All these diseases would be rampant during the Great Famine. After the Famine living standards rose, but it is claimed that the nutritional content of the average diet seems to have fallen off.[35]

1.3. Irish poverty

For the Devon Commissioners, who investigated Irish land tenure just before the Famine, the 'sufferings . . . borne by the people with exemplary patience' by Ireland's poor 'were greater than the people of any other country in Europe [had] to sustain'. What Wakefield in 1812 saw as 'human nature degraded to the lowest state of misery', Inglis in 1834 thought 'shocking for humanity to contemplate'.[36] Individual examples of penury and hardship are documented in profusion, in the Poor Inquiry, in the annual reports of the Poor Law Commissioners, and elsewhere.[37] A broader discussion of poverty raises two immediate issues. First, who were the poor? By today's standards a large majority would have qualified, but presumably what is wanted is some kind of contemporary criterion of the 'poverty line'. Any definition referring to conditions on the eve of the

Famine would surely therefore encompass the 3 million 'potato people' or the 2.4 million or so judged by the Poor Inquiry Commissioners in 1836 to be potential claimants on assistance. This is also close to the number dependent on relief in one form or another at the height of the Famine. These bottom two-fifths of the population were the landless or semi-landless, the ragged inhabitants of the smoky 'fourth class' hovels, who rarely failed to shock or impress travellers and observers.[38] Scarcely different were many 'third class' householders, a diverse group accounting for another two-fifths of the population in all.

Second, how poor? This depends somewhat on the measuring rod. The pre-Famine poor seem poorer by some standards (e.g. sugar and tea consumption, housing) than others (e.g. life expectancy, literacy). As Sandberg reminds us, seeking an all-purpose invariable standard of poverty and backwardness may be futile.[39] Contemporaries did not bother much with the obvious candidates – income per head or real wage levels – nor are they all that enlightening in the Irish case. The stock objection against the first is that overlooks income distribution, yet a comparison of income estimates still usefully underlines Ireland's backwardness.

According to Mokyr income per head in Ireland on the eve of the Famine was £10 or so, in Britain over double that. By this criterion alone, Ireland was very poor indeed by European standards.[40] Admittedly the comparison assumes purchasing power parity, though it has been known at least since Ricardo's time that the law of one price must be qualified when comparing economies such as Ireland and Britain. Non-traded goods tend to cost more 'in countries where manufactures flourish'. Several modern studies confirm that the law of one price makes poorer countries seem somewhat poorer than they really are. Measuring the real income gap between underdeveloped and developed economies today by benchmarks other than the official exchange rate – by US factor cost or some other weighting device – nearly always reduces the gap between rich and poor. Thus in a sample of fifteen underdeveloped countries analysed by Maddison, income per head rose from an average of 8.8 per cent of the US 1965 level to 12.6 per cent through such a correction. In ten countries studied by Kravis for 1975 the rise was from 9.3 to 15.4 per cent. Nor is it just very poor countries that 'benefit' from such adjustment. In Maddison's survey French *per capita* income in 1965 rose after adjustment for factor cost from

53.2 to 66.7 per cent of US, and British from 49.9 to 63.4 per cent. Unfortunately, there is no way of knowing, given the state of nineteenth-century national accounts, what correction would be appropriate there. All that can be said is that the direction of the adjustment seems clear, and that most of the gap would survive any adjustment.[41]

The main problem with wage data is not that they apply only to a minority of the poor in pre-Famine Ireland: it is simply that the problems of adjusting available data for seasonality, regional variation, and the cost of living remain to be sorted out. That the wages of casual labour were subject to marked seasonal fluctuation may be seen from the following extracts from Amhlaoimh Ó Súileabháin's Callan diary:

> 16 August 1827: Two shillings [a day] and a glass of whiskey, and meals for reapers; and one shilling and four pence for women binders.
>
> 16 August 1828: Nineteen pence and a glass for a reaper, and two shillings for some at day-break. A reaper could not be had for love or money half an hour later.
>
> 27 July 1830: Men breaking stones at three pence per day.
>
> 31 August 1830: Fifteen pence a day for sickle men, Saturday, yesterday, and today, though welcome, it is high time as far as the poor are concerned.
>
> 12 August 1831: Sickle men today have only a shilling: the calmness of the weather is such that people can wait until the wheat is well ripe, so farmers are in no hurry.
>
> 16 August 1831: Eighteen pence and a glass of whiskey for a reaper today.

Hence the wage data collated by A. L. Bowley from sources such as the Dublin Society statistical surveys, the Poor Inquiry and the Devon Commission must be handled with care. Real wages per hour, if available, would seem the best proxy for living standards. Even in a far from perfect labour market they would still reflect the incomes of the self-sufficient and those paid in kind. However, measures of real wages per hour can give a distorted impression of economic well-being if individuals experience varying amounts of voluntary and (especially) involuntary unemployment, and trade-union power divides the labour force into urban 'insiders' and rural 'outsiders'. In our pre-Famine context these are not trivial problems. How prevalent was seasonal unemployment? Mokyr's estimate based on Poor

Inquiry data suggests a work-year of 140.5 days. Very much in line with this, a correspondent in the *Irish Farmers' Gazette* suggested in 1822:

> The peasantry are generally employed in the spring about six weeks, in digging, planting and sowing for the farmers and cutting his turf; after which they commence their own business of potato tillage, and turf cutting which occupies about three or four weeks more. In the autumn they may be employed about the same length of time, which leaves them about thirty-two or thirty-four weeks of idleness in each year, out which deduct seventy-four days for Sundays, holy days, and bad weather, and the remainder will leave them about 150 days that are idly and often profanely spent, but which under a better system, might be applied to useful and profitable labour.

Seasonal unemployment in agriculture was far greater than in Ireland than in England. So too was the gap between the wages of skilled and unskilled labour in Irish towns and cities.[42]

By many of the other standard criteria the Irish poor were very poor indeed. At the most basic level, seasonal hunger has already been mentioned. To compound the misery, two-fifths of families were crowded into one-roomed cabins and tenements in 1841. Poor attendances at church and school were sometimes explained away by the lack of presentable clothes. Straw often did service for beds and bedding, furniture and windows were rudimentary or lacking, and overcrowding was severe. Tea (or coffee) and sugar, widely consumed by the poor elsewhere in western Europe, were rarities in the homes of the Irish poor. Begging was endemic everywhere.[43] What a Dublin medical man termed the 'extreme misery of a revolting character' soon struck most middle-class visitors to Ireland.[44]

However, if the Irish were abysmally poor by standard criteria, other evidence suggests that the picture of pre-Famine poverty based on such criteria alone is somewhat over-simplified. Not all was gloom and doom. For one thing, the pre-Famine Irish seem to have lived relatively long lives by the standards of the day. Several contemporary observers claimed this. In Aghavea in Fermanagh in the 1830s, for example, despite the evident poverty 'instances of longevity [were] common, which may be ascribed to the general healthiness of the parish', while in Drummully 'they live to a great age'.[45] Such claims may mislead, however, by stressing the unusual. The statistical evidence for longevity is indirect, since civil

registration was not introduced until 1864, and pre-Famine parish registers typically provide few or none of the necessary details about deaths. Still, by projecting the 1841 census population backwards to 1821, suitably corrected and augmented by those who emigrated in the meantime, life expectancy may be inferred from the life table that provides the best fit with the 1821 census. The implied average life span on the eve of the Famine was 37–38 years. That may seem distressingly low by today's standards, but high infant mortality is largely to blame. Those who survived the first year of life could expect to live for another fifty or so. This compares well with the norm elsewhere in Europe at the time. Ireland's high marital fertility and ensuing infant and child deaths make this longevity all the more impressive.[46]

A *caveat* is necessary here, though: the relative longevity may simply reflect the lower resource cost of healthy, monotonous food in Ireland. The easy-to-grow potatoes that reduced mortality below what it would have been on a diet of bread and tea could still have been associated with a lower standard of living.

Nor, to use a welfare criterion currently fashionable in the literature of the 'new' economic history, did poverty prevent the Irish from growing as tall as their neighbours before 1845. The qualitative evidence on this point is mixed. Arthur Young and Adam Smith had waxed lyrical in the 1770s on the strength and good looks of the Irish. On the eve of the Famine Robert Kane produced a few numbers which convinced him that 'when at all well fed, there is no race more perfectly developed, as to physical conformation, than the inhabitants of Ireland'. The astute economist John Bicheno was more equivocal in 1830: 'we thought the common people small in stature, and coarse in their features; but as the children are remarkably pretty, the defects of the parents are probably to be attributed to the smoke and hard living, and to their exposure to the inclemency of the weather'.[47]

Hard data are a better bet. Since height data, especially from military sources, are often available earlier than other more obvious economic indicators, and anthropometric research suggests a connection between a society's well-being and its average height, the temptations are clear.[48] If rather too much has sometimes been claimed for this approach, it can certainly complement more traditional measures, and seems worth trying in the Irish case. One source among many on Irish heights is the continuous service records of the

British Admiralty, which provide numbers comparable to those used elsewhere. Accounts of life on the lower deck suggest that the Admiralty data refer to the lower end of the socio-economic spectrum.[49] Moreover, naval data are easier to handle than military in one respect: selection bias arising from the deliberate exclusion of smaller men is less of a problem, height being of no particular advantage aboard ship. Admittedly there is a problem as regards regional spread: just as British naval recruits came disproportionately from maritime counties south of a line from Bristol to the Wash, the Irish tended to come from Munster, and especially from County Cork. The comparison is limited in this respect. Nevertheless the results of our look at the heights of over 6,000 sailors in service in 1853–54, including 700 Irish, are interesting enough. When heights are regressed on age and a nationality dummy, the Irish turn out to have been slightly taller.[50]

Other data corroborate this finding. Mokyr and I found a similar gap in our analysis of a different sample of men, recruits from the United Kingdom (including Ireland) to the European regiments of the East India Company in the 1770s and during the Napoleonic Wars. The conditions facing men in India were shocking and the pay very low. Why so many took the step is something of a mystery: presumably John Company's forces were the refuge of the desperate and the gullible. (One is reminded of Frederick the Great's quip, 'If my soldiers began to think, not one would remain in my ranks'.) The recruits' occupations were overwhelmingly working-class and their heights (if not their decision to enlist) must, like the sailors', tell us something about the nutritional status of the class whence they sprung. A comparison between the Irish and the British, correcting for the under-representation of smaller men, confirms the Irish advantage. This holds for sub-sets of our sample such as town-dwellers and former white-collar workers such as teachers and clerks. A larger study by Floud, Wachter, and Gregory, based on a sample of recruits to the British army over a longer period, also finds that the pre-Famine Irish were taller than the English, though both were smaller than the Scots. Further evidence in favour of an Irish premium has been adduced by Nicholas and Steckel and by Nicholas and Oxley from data on the heights of convicts bound for New South Wales in the late eighteenth and early nineteenth centuries. Of related interest are the findings of the Army Medical Board on morbidity and mortality in the ranks in Ireland in the 1790s. Their

comparison of men in militia (Irish-born) and the Fencible regiments (British-born) showed the Irish to be far fitter. Age had something to do with it, but the Board stressed too the Irishmen's hardy peasant origins, 'inured by labour in the fields to every vicissitude of climate and season', by contrast with the British soldiers, many of whom were 'mechanics from unhealthy parts of Great Britain and from unwholesome sedentary trades'.[51]

The differences produced by the studies of heights – generally less than half an inch – may seem trivial, but make all the difference in this area. Indeed, a half-inch gap proves too much, if taken strictly as a reflection of the conditions facing the poor in both islands. The point is not to claim that the Irish were better off than the English, simply that their poverty did not deny them adequate and more nutritious food when growing up. A comparison with data assembled by Roderick Floud for other European countries (see Table 2) shows those born in pre-Famine Ireland to have been very near the top of the league. The credit for this must go largely to the potato, the key element in the nutritious though monotonous diet of the Irish poor. But international comparisons also highlight the dangers of auxological inferences. Thus the decline in mean height in parts of the Austrian Empire has prompted John Komlos to surmise that 'by the nineteenth century, or even earlier, the population of lower Austria and Bohemia could have been weakened to such a degree that a demographic crisis similar to the one in mid-nineteenth century Ireland might have occurred'. The irony is that in Ireland itself heights in recruit-supplying populations in those years exceeded the Lower Austrian by over an inch! The outcome has the broader implication of suggesting the need for caution in applying heights as an index of incomes in the past.[52]

Analyses of the pre-Famine Irish diet by Crawford, Mokyr, and Ó Gráda produce results consistent with the height evidence: their monotonous diet provided the Irish with an adequate intake of calories and protein most of the time. For this the potato was largely responsible. Accounts such as the following from Antrim in the 1810s complement the arithmetic:

> This esculent root has fairly superseded farinaceous aliment, and experience has proved beyond contradiction, independent of chemical analysis that this vegetable is highly nutritive . . . Observe the children of the very lowest class, and see how healthy they look, and how free from eruptions on their hand and skin, in comparison with

Table 2 *Estimates of the mean height of some West European populations*
(male heights only, in cm.)

Country	*Date*	*Height*	*Age*
Britain	1853–4	167.8	19–22
Ireland	1853–4	168.0	19–22
Belgium	1880–2	165.5	19–25
Denmark	1852–6	165.3	22
Bavaria	1875	164.6	Conscripts
Italy	1874–6	162.2	20
Netherlands	1865	165.0	19
Norway	1855	168.6	22
Sweden	1840	165.1	21

Source For Ireland and Britain, admiralty data (see text). For the rest, R. Floud, 'The heights of Europeans since 1780: a new source for European economic history', NBER Working Paper No. 1318, April 1984.

> what they were thirty or forty years ago, when a bit of oaten bread was put into their hands in place of a potatoe and salt.[53]

Our earlier discussion of pre-Famine famines may be linked to yet another index of poverty, that proposed by Mokyr in *Why Ireland Starved* and elsewhere. In order to capture both the level and variability of income, Mokyr calls poverty 'the probability of a random individual at a random point in time dropping beneath subsistence'.[54] One may quibble at the notion of 'random individual': the very rich are not going to starve, come what may. But the wider appeal of such a definition should be noted: as historical demographic data become more plentiful, it will be useful for comparative history. Call $P(H)$ the probability of a harvest failure, and $P(D/H)$ the probability of a famine in the event of a harvest failure. Then $P(D \cup H) = P(D/H).P(H)$. Here 'harvest failure' is best interpreted as a serious shortfall, say one-third or one-half of the staple food. Famines of that scale typically spelt disaster in early modern Europe: in a pre-blight world, surely this is the worst that even the most cautious Irish peasant community might have expected. $P(D/H)$ rose with the decline in the poor's living standards, but would have been a function too of relief policy, the degree of commercialisation of the rural economy, the availability of credit, and more generally what Amartya Sen has termed 'exchange entitlements'.[55] To consider H a failure of potato blight dimensions would imply a $P(H)$ of zero and a very high

P(D/H). Our reading of pre-Famine trends suggests that *P(H)* has been exaggerated in the past by historians, despite the theoretical dangers of increasing reliance on a few varieties of potato. Probabilities were built on experience, and in the pre-blight setting the worst that could happen were once-off, often regional failures that struck only some of the crop. The trend in *P(D/H)* is a function of opposing forces. If the poor's command over marketed goods was falling, developments in government and communications to some extent compensated, by providing better insurance against disaster. But given the current state of knowledge I can only surmise that *P(D ∪ H)* was probably small before 1845, if rising somewhat over time.

Illiteracy is yet another common proxy for poverty and backwardness. The logic behind this is two-pronged: either a 'culture of poverty' reduces the demand for formal schooling, or the cost is beyond the reach of the masses. The former was hardly a problem in Ireland, since the eagerness of all for education was legendary: 'I do not know of any part of Ireland so wild that its inhabitants are not anxious, nay eagerly anxious for the education of their children.'[56] That the latter mattered is seen in the heights data discussed above. In the case of both military and criminal data, ability to read and write added half an inch or more to height. Presumably parents who could afford to educate their children also fed them better. There was a widespread ruling-class belief in pre-Famine Ireland that more schooling would be an effective way of civilising the poor, and a great deal of attention was devoted to how state help should be administered. Meanwhile private education, usually secular but sometimes supervised or partly subsidised by the local Catholic priest, was quite widely available, and had already achieved much in the east and north by 1800. The curriculum in these schools was hardly adventurous, but they did quite a good job of teaching the three Rs.

Pre-Famine literacy trends may be gauged from published official sources. The data come in two kinds, schooling attendance estimates, and the literacy survey in the 1841 census. The first two estimates, made in 1808 and 1821, are incomplete in their coverage. The 1808 figure is a grossed-up estimate based on returns from seventeen of twenty-two Established Church dioceses. The 1821 census returns refer to numbers 'on the books' rather than average attendance. The 1821 census has been harshly criticised for sloppiness by Lee; what makes it practically useless for schooling

comparisons is its patchy coverage. The details for two baronies in Kildare were completely omitted in 1821, while the numbers reported for many other areas are implausibly thin. In the County Derry barony of Tyrkeeran, for example, only 160 out of almost 8,000 children of school-going age were reported to be at school. In Demifore, in Westmeath, the ratio was an utterly implausible twenty out of 3,644. Clearly, too, many schools in other baronies – Balrothery and Carlow, for example – were omitted. The 1824 returns, by contrast, were carefully constructed; again, they refer to numbers 'on the books'. The same goes for 1834, but that year's estimate at least allows a guess at the average attendance rate. Thus the 1824, 1834, and 1841 data may be compared, and attendance per thousand population calculated. They indicate a rise from about 5.5 per thousand in 1824 to 5.6 per thousand in 1834 and 6.1 per thousand in 1841.

Literacy data from the census of 1841 (see Table 3) would seem to buttress the schooling statistics. By comparing age-cohorts we can infer trends in rough-and-ready fashion from 'snapshot' data.[57] In aggregate the numbers indicated quite high literacy in Leinster and Ulster, but no remarkable improvement between Union and Famine outside Leinster. This suggests that Ireland's early literacy spurt in the late eighteenth or very early nineteenth century was not sustained.

The crudeness of the numbers need not be laboured. The likelihood of an impressive rise is ruled out by data on teacher numbers: 11,823 in 1824, 14,501 in 1841, an increase which only marginally outstripped the rise in population. Yet those same numbers suggest a cross-section comparison of teacher density, and here Ireland scores quite well. Pre-Famine Ireland had seventeen teachers per 10,000 population. This compares with fourteen in Prussia, and eleven in the Austrian Empire around the same time, while in 1860 the number was only eighteen in the Netherlands and nineteen in France and Belgium.

While the numbers by no means confirm Wakefield's claim that education was 'universal', they show that in Leinster and Ulster at least the situation was not too different from across the water. The pity is that so few public resources were devoted to schooling in the west and south in the pre-Famine era. The regional dimension suggested by the schooling data is important. If illiteracy and poor housing are combined as a guide to regional contrasts, poverty was

Table 3 *School attendance before the famine*

Year	*At School*	*Population (millions)*
1808	'over 200,000'	*c.* 5.0
1821	394,813	7.0
1824	568,964	7.2
1834	633,946	8.0
1841	*c.* 700,000	8.3

Note The 502,950 at school on census day in 1841 are assumed to represent 70 per cent of those on the books.

Table 4 *Percentage illiterate, 1841*

	66–75 years	*26–35 years*
Leinster	51.8	33.5
Munster	67.6	57.1
Ulster	41.4	33.6
Connacht	77.7	67.4

clearly greatest in the far west. Among the very poorest places would have been Kilnamanagh in west Cork (which included the mining village of Allihies), with 91.5 per cent of families living in fourth-class housing, and 73.6 per cent of males illiterate, and Ballinakill in west Galway, with percentages of 93.4 and 82.7. The parish of Newtownards in north County Down was probably one of the most prosperous in the whole country, with 21.1 per cent in single-room housing and only 16.8 per cent of males unable to either read or write. Places such as the Aran Islands (24.1 and 79.3 per cent) and pre-Famine Gaoth Dobhair in west Donegal (62.2 and 89.4 per cent) fit somewhere in the middle, with near total illiteracy but far better housing than the very poorest parishes.

Turning to the census's occupational data, in 1841 Wexford and Wicklow, for example, supported about twice as many boot- and shoe-makers and three times as many carpenters – producers, mainly, of output for local use – as Mayo or Kerry, and boasted literacy rates twice as high. The richest areas probably compared favourably with parts of Britain. At the height of the Great Famine Maurice Colles surveyed the Marquess of Londonderry's estate in north County Down. He reported to his lordship:

> It is well known, indeed I will call it a national fact that the district in which your Lordships estate is situated was one of the few exceptions to the operation of relief works and soup kitchens during the last year, and received no eleemosynary aid from government or public bodies; none in fact except was supplied through private and local charities . . . During the number of years in which I have been occupied in making surveys . . . I can truly affirm that amongst the common run of farmers I never met, except on your Lordships estate, a tenant ready without preparation to produce a bit of cheese, with bread, butter and beer for an unexpected guest. This I met in almost every case where I was drawn into the homesteads of your Lordships tenants. An unwillingness, if they had it, to produce in other districts it is far from my intention to impute.[58]

The district surveyed by Colles included the two small towns of Newtownards and Comber, and their rural hinterland. In the towns only 39 of the 2,187 houses were thatched, while 463 out of 1,863 in the countryside were slated. On Colles's reckoning only six of the 567 houses on the estate had a valuation less than £3, though such houses were 'prevalent throughout Ireland, and that even on some of the best circumstanced properties I have visited'. The prosperity was not founded on big farms – in that respect the Londonderry estate was little better off than the (relatively poor) Grocers' Company estate in north County Derry, surveyed by Colles a few years earlier (see Table 5). The difference is that domestic industry in north Down could exist with or become factory industry, while after 1820 or so tenants on the Grocers' estate were gradually made to rely almost wholly on the land. The case of Armagh is similar: it had the highest population density of all thirty-two counties, and holdings

Table 5 *Some data from two surveys by Maurice Colles*

	Grocers' Company	*Londonderry Estate*
Farms	926	1,811
Horses	477	1,190
Cattle	2,097	4,165
Sheep	419	431
Pigs	690	1,674
Goats	74	209
Valuations < £3 (%)	52	53
Valuations < £20 (%)	88	83

there (as throughout most of Ulster) were small, yet its prosperity could be seen 'even in the countenances of the dogs and cats'.[59]

What are the implications of the discussion so far of standard-of-living proxies and regional contrasts for social conditions in pre-Famine Ireland? There is no denying the abject poverty of the neglected masses, nor the likelihood of impoverishment for a high proportion, perhaps a majority, of the entire population. To that extent traditional accounts relying on the impressions of travel writers such as Kohl, Inglis, and Beaumont are correct. But poverty had strong regional and class components, and the island as a whole was less starvation-prone, less sickly, and less illiterate than often depicted.

1.4 Trends in living standards

Whatever of comparisons across counties and countries, some reduction in the living standards of the poor over time seems likely. Data providing country-wide coverage are preferable to impressionistic quotes, and are available in the form of evidence to the Poor Inquiry. The subjective impoverishment index (SII) devised by Mokyr[60] uses this evidence to the full. The index is a weighted average of individual reports, with values ranging from +2 ('much deteriorated') to −2 ('much improved'). The outcome by province is as follows:

	Number of witnesses	*SII*
Ulster	499	−0.65
Munster	351	−0.22
Connacht	102	−0.62
Leinster	392	−0.27
Total	1,394	−0.43

Worst six		*Best six*	
Mayo	−1.02	Wexford	0.22
Sligo	−0.93	Wicklow	0.22
Louth	−0.91	Kerry	−0.03
Longford	−0.85	Queen's	−0.08
Tyrone	−0.85	Carlow	−0.11
Donegal	−0.83	Meath	−0.15

All provinces recorded a decline, but the provincial picture hides considerable variation between counties. Can this variation be accounted for? Despite the well-known lacunae and inconsistencies in pre-Famine data, they have provided a basis for some useful cliometric work in recent years.[61] In Table 6 below I have regressed SII on census-derived county estimates of industrialisation and population pressure. The industrialisation proxy is extremely crude: the implied contraction in all provinces stems largely from the decline of spinning. The use of counties as units of analysis ignores some of the important intra-county differences highlighted by local historians. Yet the proxy presents a regionally consistent picture; it implies that the cottage textile areas of north Leinster, north Connacht, and west Ulster were worst affected. And our results pack some explanatory punch (Table 6). Broadly speaking the decline in SII was greatest where de-industrialisation was greatest, and not necessarily where suffering was greatest after 1845. The failure of our population pressure variables to affect SII much may come as a surprise. However, population pressure does help explain the variation across counties in 1841 in such proxies for well-being as bad housing and illiteracy. The 1841 census provides the necessary data on those proxies. The result is shown in Table 7. In these regressions the SII fails to explain much of the variation across counties, and the sign on the coefficients are 'wrong'. Our proxy for pressure on the land accounts for nearly half of variation in poverty, defined as above. The data underlying these tables are crude, and the single-equation specifications rough-and-ready. For what they are worth they seem to imply that, while increasing population pressure may not explain the variation in impoverishment across counties in the 1830s, it does explain a good deal of the variation in poverty levels on the eve of the Great Famine. In this sense Malthus ruled the land.

The contrast between the fortunes of the poor – compare the 'bottom forty per cent' singled out for attention by Lindert and Williamson in their study of British living standards during the Industrial Revolution – and those of the rest of the population was noted by Jonathan Pim in 1848. It is reflected in consumption data. Though comprehensive trade data were a casualty of the Act of Union, enough survive to chart trends in the imports of commodities such as tea, sugar, and tobacco. Those commodities tended not to be consumed by the very poor. Since they were not domestically produced to any worthwhile extent, the import statistics, if accurate,

Table 6 *Explaining the variation in SII*

Explanatory Variable	*1*	*2*	*3*	*4*
DIND	0.761	0.796	0.822	0.829
	(0.281)	(0.190)	(0.259)	(0.221)
DCRPP		0.190		
		(0.402)		
DCRPPA	0.00156			
	(0.00103)			
DLVR			0.405	
			(0.828)	
DLVRA				0.00348
				(0.0022)
Constant	−0.294	−0.181	−0.175	−0.287
R^2	0.287	0.285	0.286	0.291
F	7.21	5.78	5.80	7.37

Note DLVR is defined as (Population in 1841-Population in 1821)/(Poor Law Valuation), using half the total value for County Dublin. DCRPP is defined as (Population in 1841-Population in 1821)/(Cropped Area in 1851). DCRPPA and DLVRA use estimates of the agricultural labour force in the numerator. DIND is (Proportion of Families mainly dependent on manufactures and trades in 1841-Proportion of the total labour force in manufacture and trade in 1821).

Table 7 *'Population pressure' and 'living standards'*

	Dependent Variable	
Explanatory Variables	*Housing*	*Proportion Illiterate*
DCRPPA	0.00149	0.555
	(0.00029)	(0.136)
SII	−0.0605	−0.026
	(−0.0423)	(−0.56)
Constant	0.240	0.310
R^2	0.483	0.376
F^2	0.53	8.74

Note 'Housing' is the proportion of families living in fourth-class accommodation in 1841, 'Proportion Illiterate' the proportion of the population aged over 5 who could neither read nor write. Standard errors are given in parentheses.

should track consumption. In fact the tobacco series is distorted by smuggling, but the others are considered reasonably accurate for the

half-century or so before the Great Famine. Even in the case of tobacco, the most proletarian of these commodities, they can be patched up to some extent.

Suppose that the quantity demanded per period of commodity i, Q_i, is captured by:

$$Q_i = Ae^{rt} P_i{}^{\alpha} Y^{\beta} P^{-\alpha-\beta}$$

where P_i is the price of i, Y is money income, P is the general price level, and r is a time-related shift variable. t refers to time and α and β are the price and income elasticities of demand. In terms of proportionate rates of change:

$$q_i = r + \alpha(p_i/p) + \beta(y/p)$$

Suppose that consumption and relative price change are known, and assume plausible income and price elasticities. Then a residual consumption, attributable to some combination of r and income change, may be calculated. Applying this approach to Irish consumption of the goods listed during the pre-Famine decades in each case left a positive residual to be 'explained'. If a drastic change in tastes is ruled out, the result is consistent with the trends in living standards and inequality outlined above.[62]

1.5 Economic change before the Famine

The culmination of half a century of misery and impoverishment for labourers and cottiers in the Great Famine has naturally greatly influenced accounts of the pre-Famine economy. 'Predictors' of the Famine are sought in the pre-Famine setting, and structural weaknesses, institutional factors and, above all, overpopulation, are stressed. This is understandable, but sometimes the story comes to mere Malthusian inference or nationalist rhetoric. This masks the considerable progress that occurred in many sectors of the economy, and the likelihood that a sizable minority of the population benefited from rising incomes between the Union and the Famine.

Some of the improvements – the diffusion of steam power, the mechanisation of spinning, the speeding up of communications – owed much to the Industrial Revolution across the water. The new Arkwright 'gadgets' caught on quickly in Ireland. Though the first spinning jennies were installed in Belfast, in the town workhouse in

1777, the new technology's impact was more spectacular in the south at first. A series of gigantic operations – including Robert Brooke's at Prosperous on the Bog of Allen (a capital of £40,000, 2,500 employees, mainly non-local), John Orr's at Stratford-on-Slaney (£30,000 and 500 imported employees), the Sadleir brothers' enterprise, spread over several locations in and around Cork (£40,000 and 4,000 employees) – attracted great publicity and enjoyed success for a time.[63]

Despite some sensational failures, including those of Brooke (1785) and Sadleir (1801), a hefty tariff prolonged the life of the new cotton industry in the south until the 1820s, by which time output was double its 1790 level. This modest southern success was based largely on coarse cottons and printing; in Ulster meanwhile output grew eightfold, founded instead on finer cloths and bleaching. While the industry was never important by British standards, Irish output being about five to seven per cent of British *c.* 1800 and three per cent *c.* 1820, it deserves more than a footnote. As late as 1810 or so the Irish cotton industry was producing about twice as much in volume terms as its much more famous Flemish counterpart.[64] Decline probably started to set in about then, and was uninterrupted after 1825. It was gradual in the north, where cotton gave way to linen, but headlong in the south. Weavers' earnings tumbled. Around Carrickfergus the price commanded by a length of calico dropped by almost three-quarters between the 1790s and the 1820s. Worst hit of all, perhaps, was the town of Bandon, which boasted many mills and over a thousand handloom weavers at the peak, but where by 1837 'the mills were in ruin and not more than 100 weavers employed'.[65]

The manufacture of woollen cloth – carpets, broadcloths, friezes, blankets – also fell during the pre-Famine period, shrinking to virtually nothing in traditional strongholds such as Kilkenny and Carrick-on-Suir. Changing fashions, arising from the availability of cheaper cotton substitutes, were part of the story, though it was reported in 1837 that 'three-fourths of the frieze generally worn by the peasantry throughout Ireland is now an article of import'. Cottage industry suffered:

> *Is deas is is néata an ball éadaig í mo veistín liath,*
> *Ní cosmhail leis a' mbréid í do dheineadh an bhean ón tsliabh.*[66]

Factory employment in woollens fell too, however, from 1,231 in 1839 to 531 in 1850.

The success of linen was more enduring. Coarse linen had been produced in Ireland since time immemorial, but around 1800 it was a major 'proto-industry' spanning the northern half of the country and isolated parts of west Munster. Competition from cotton and technical improvements in bleaching and spinning gradually undermined the viability of household production after 1800. Cotton's impact was twofold. First, being a good substitute for linen, it kept weavers' wages down. Second, the technical improvements in cotton were gradually being adapted to linen. Hand spinning in linen eventually succumbed in the late 1820s and early 1830s, when wet spinning opened the way for fine-yarn production by machine. Over a score of linen mills had been established by 1835, nearly all of them in the greater Belfast area, and mostly built by former linen bleachers or cotton manufacturers. Employment grew from 3,400 in 1835 to over 17,000 a decade later, but mechanisation did not bring vast increases in the output of yarn. Factory yarn was sold in bulk to merchants who hired out-working weavers on a piece-rate basis. Some independent weavers stuck it out, but throughout most of the country the trend was against the independents, who could afford to buy yarn only in small amounts, selling the finished product themselves.[67]

The localisation which was soon to mark the industry was hardly evident as late as 1820, at least within Ulster. Linen's rural base and water requirements made for dispersion, and the markets of Derry, Cootehill, Drogheda, and Omagh, all outside the famous 'linen triangle' of Belfast-Lurgan-Dungannon, continued to count. All, with the exception of Drogheda, relied largely on their rural hinterland for supplies of cloth. Drogheda's weaving colony, specialising in unbleached 'market linen', thrived between 1780 and 1820: then the absence of bleaching facilities and the town's relative isolation brought crisis and decline.[68] Other areas suffered too, for the centripetal forces that concentrated the bulk of the English cotton industry into one-third of Lancashire and the American industry into Rhode Island and eastern Massachusetts were also at work in Ulster.[69]

The factors making for such specialisation are not yet fully understood. External economies of scale are often mentioned, though they remain something of a will-o'-the-wisp for the historian. Theory predicts that such economies are reaped where the industry, for whatever reason, has a head start to begin with: ancillary activities locate there, producing a competitive advantage which ends up in

centralisation. The cap seems to fit Belfast, which had been the principal textile port since the 1780s, and where there quickly developed the production of looms and shuttles and, later, power machinery. Besides the usual printing, bleaching, and dyeing work to be met with in a textile centre there were 'various manufactories for machinery, iron-forges, and other chymical products ... together employing about a thousand persons'.[70] The local foundries, moreover, soon began to invent and build machinery specifically geared to local conditions.[71]

The outcome was an industrialisation that was highly uneven regionally. Appendix 1.2 attempts to capture the trend across counties. The decline in the south coincided with an industrial revolution around Belfast quite as dramatic and thoroughgoing as anything happening in Preston and Middlesbrough. In the context Rodney Green's criticism of George O'Brien's analysis is worth recalling. Green called O'Brien's 'a highly unsatisfactory work ... strongly southern and protectionist in tone, completely neglecting the problem of reconciling this with the industrial development of the north'.[72] That 'the Union had proved disastrous' was, of course, the main theme of George O'Brien's *Economic History of Ireland from the Union to the Famine*. To today's historian the argument seems far-fetched, since, given the massive secular drop in the prices of Britain's industrial staples, the protectionist wedge provided by pre-Union tariffs would have mattered little in the long run. More substantial tariffs might have reduced unemployment and given Irish industry a respite, as they did a century later, but at a cost in redistribution (if not in efficiency) that was inconceivable in the nineteenth century. Because the final amalgamation of the Irish and British currencies took place at a time of great economic hardship (1825–26) this other element in the Union settlement is also criticised. The argument has a modern ring to it: the ensuing appreciation of Irish money made exports less competitive and deflated the economy. In reality, since most trade was denominated in sterling in any case, the change made little difference, and prices and rents in Ireland quickly adapted to reflect what was in effect a revaluation of the Irish currency.[73]

There was progress too in traditional areas such as banking and inland communication, which transformed those sectors out of all recognition. In the 1790s Ireland had to make do with an unstable currency and banking system, but by 1845 that state of affairs had

given way to a wide network of secure joint-stock banks. Though the Bank of Ireland (created in 1783) sought to block progress by protesting ceaselessly at reductions in its mercantilist privileges, and made substantial monopoly profits for its shareholders decade after decade, it also usefully played the role of quasi-central bank. Besides holding the government's account and being the issuer of what amounted to the national currency, it was also soon taking on the role of lender of last resort.[74] By December 1799 the bank was protecting Beresford's Bank in Dublin against a threatened run, a central banking function that it was to perform several times, always showing the appropriate reluctance, in the following decades.

The new joint-stock banks, it is true, limited their lending to cash credits, overdrafts and short-term loans, and shunned the custom of small-scale depositors. Surviving records show, for instance, that the average opening balance at the Provincial Bank's branch in Birr (then Parsonstown) during its first year was £250 (£10,000 to £20,000 in today's money), while the humblest clients of the bank's Youghal branch were merchants and small traders.[75] The earliest list of account holders at the Bank of Ireland's Sligo branch, founded in 1828, again includes professional people, farmers, agents and Catholic priests. A sample of those who signed the Dublin-based Hibernian Bank's account book up to 1846 reflects that bank's more Catholic, bourgeois clientele:

Merchants	220
Professional	46
Manufacturers, builders	49
Farmers, agents	17
Other	16

The new banks shunned even the lower middle classes. The success of the only bank to court that group, the Agricultural and Commercial Bank, proved ephemeral.[76] The structure of the pre-Famine banking system thus bespoke both commercialisation at one level and mass poverty at another.

To berate pre-Famine banks for failing to provide medium-term capital for industry is to misunderstand the role of banks generally in this era. Banks did not do so in Britain either; their lending was overwhelmingly short term, and industry relied largely on retained profits for accumulation. Industry also needed short-term capital, though, and here the British banks came into their own. In Ireland

too, if the banks were reluctant to provide investment finance, they nonetheless provided a useful service to business and professional interests. Thus in 1844 the Provincial's Birr branch sought accommodation from headquarters in London, standard Provincial practice, for graziers during the 'grass season', for a landed proprietor who had 'lately bought out a great many of his tenants', and for millers who 'because trade [was] dull at present ... wish[ed] as few sales as possible'. The limits of the Provincial's facilities, and the ready availability of alternative outlets, are clearly shown by the Youghal branch's advice to a client 'whose engagements are likely to become permanent ... to procure a loan from some private individual who could be satisfied to receive his interest regularly once or twice a year'. Indeed, the growth of the banking system itself relied largely on Irish capital. In the case of the National Bank, substantial local backing was required before a branch could be set up. The creation of its Castlebar branch is a case in point: in 1836 over £25,000 was raised in County Mayo to start the branch, merchants and publicans accounting for over half of those investors whose professions could be identified.[77]

The removal of convertibility, inflation, and wartime prosperity all contributed to the mushrooming of private banking after 1797. The number of concerns rose from eleven in 1797 to about forty by 1815, but turnover was rapid. The total then dropped, gradually at first, until half the remainder were wiped out in 1820. It was during the next two decades that Ireland's modern banking system evolved. By 1845 the Bank of Ireland's monopoly had been substantially whittled away, and private banking was a thing of the past. Most towns of any size now had their bank.[78]

Taking the long view, it makes as much sense to see the development of joint-stock banking as a symptom of commercialisation as its root cause. Nevertheless circumstances determined the timing of legislation. In the United Kingdom generally there was an era of banking reform. In Ireland the severe crisis of spring 1820, which virtually cleared Munster and Connacht of their banks, bespeaks the difficulties of restoring convertibility after two decades of inflation more than it does the recklessness of the country's small provincial banks. That crisis produced symptoms never again to be witnessed in Ireland: people fainting in queues outside banks, fairs where nothing was bought or sold for the want of a medium of exchange. Yet it was remarkably short-lived – by July the storm had died down. At the

same time the crisis helped the argument of those seeking joint-stock banks, those mainly southern commercial interests who broke the Bank of Ireland's monopoly and forced the legislation that allowed joint-stock banking after 1825. Meanwhile in Ulster the new system had been developing in embryo since the 1800s.[79]

In his account of his travels around Ireland in the late 1800s, Edward Wakefield noted that '[the] miserable inns, execrable chaises, poor horses, and want of stage coaches, evidently shew, that there is little intercourse or communication in the interior of the country'. He had 'journeyed day after day in many parts of Ireland, and scarcely [had] met with a single person on the road'. The lack of travellers and of transport facilities were sure signs of economic backwardness.[80] Nevertheless, Ireland was already passing through a communications revolution of sorts in Wakefield's day. That revolution was quieter than that subsequently associated with the railways, but it produced changes just as impressive. Pre-Famine Ireland was not transformed by a canal revolution *à l'anglaise*, and few of the canals built proved a success. The ill-conceived and disastrous Royal Canal went bankrupt in 1812; a new company, with government aid, extended the link to the Shannon, but the completed line was little used. To the great relief of the directors, the Royal was taken over by the new Midland Great Western Railway in 1845. Even in Ulster canals did not work out well; traffic on the Coalisland was disappointingly light, while the Ulster canal, linking Lough Neagh and Lough Erne, proved an unmitigated disaster. The Grand saw some prosperity in the immediate pre-railway years, yet even then most of its traffic was in heavy and bulky items such as building materials and turf. Competition from another mode was the chief reason for this: 'the carrier trade on the Grand Canal is not very extensive; country dealers in general finding it more convenient to have their goods conveyed by drays, which ply with great regularity on all leading roads, and on fares exceedingly moderate'.[82] The same held for the busy Lagan valley, inland from Belfast, where road carriers vigorously competed with water for business.

The railway made little impact in Ireland before the Famine either. True, rail ventures were mooted very early on; a proposal for a rail link between Limerick and Waterford received parliamentary approval as early as 1825, and Daniel O'Connell was one of those behind a more comprehensive scheme for a Munster and Leinster Railway in the same year. Still, only the Dublin-Kingstown and the

Ulster were started in the 1830s, and the network had reached only sixty-five miles by the eve of the Famine.[84]

Yet this slow diffusion of the latest technology can hardly have counted for much. The pre-Famine half-century saw instead the blossoming of a comprehensive network of road passenger transport, which by 1845 had established a regular service between all towns of any size for about 1*s* 5*d* per mile. The huge concerns of Bianconi and Purcell were only the best known of many; in 1836 users of the network logged a total of 30 million miles. Between 1800 and 1845 travel times on the main routes were cut by a third, frequency of service improved, and the risk of attack by highwaymen dwindled close to zero. The economic savings to the middle and lower-middle class travellers who were the mainstay of the coaches must have been substantial. The rise of coaching rested on improved roads, and grand juries and the Board of Works invested heavily in repairs and construction in these years. The work of Richard Griffith in the south-west brought daily coach services to the Tralee-Cork and Killarney-Cork routes, and reduced the journey time on the latter by two-thirds. Freight traffic benefited too, as carts became bigger and more frequent. A survey of freight movements on the Tralee road at Dromagh in 1838 counted 80,000 loaded carts passing, carrying farm produce, lime, culm, iron and groceries.[85]

Another new technology that had an impact on travel was the steamship. Charles Wye Williams introduced steam for freight purposes year-round in 1824. Finding the investing public sceptical, he and some business friends put £24,000 together to build the first two paddle-steamers to ply the Irish Sea for the dual purpose of carrying freight and passengers. At the outset fares were quite high; the cabin fare from Dublin to Liverpool was a guinea (£1.10). A passage to Greenock in a cabin cost £1.55, and on deck £0.53. However, intense competition reduced prices. Trades developed in fresh eggs, butter and slaughtered meat, and the live cattle trade was made much easier.[86]

De-industrialisation was a key feature, but losses were not across the board and, gauged in terms of employment, it was more a relative than an absolute phenomenon. Brewing, distilling, milling expanded, as did smaller trades such as confectioning and printing. The 10,000 coopers and 4,000 millers recorded in 1841 attest to the progress registered in the food-processing industries. Nor were these industries necessarily technologically laggard; the largest flour

mills in Ireland emulated Manchester's cotton mills. The main wheel of Alexander's Fairbairn-built mill near Carlow produced 140 hp:

> In the two establishments producing flour and oatmeal, there are twenty-two pairs of millstones at constant work; thirteen of which with all the attendant machinery, are driven by one wheel. The concern is able to manufacture annually 60,000 sacks of flour – 'without', as one of the workmen expressed it, 'lighting a candle'... Estimating flour at 60s per sack, and the oatmeal at 30s., we have the concern yielding no less than £195,000 each year.[87]

Whether industrial employment held its own, or declined somewhat, industrial output is likely to have grown between Union and Famine. As explained in Chapter 2, agricultural output grew too, and despite the huge rise in labour input after 1800, labour productivity seems to have kept its level.

Ireland became a more open economy during these decades. As a result of a big expansion in agricultural exports and a steady rise in the trade in textiles and manufactured goods, the ratio of trade to GNP increased significantly between 1800 and 1845. This growth in trade volume presumably increased living standards for textbook gains-from-trade reasons. Moreover, as productivity growth made the price of imported manufactured goods plummet, the terms of trade moved in Ireland's favour. That change alone probably added a few per centage points to the purchasing power of GNP. The same change probably reduced the living standards of workers, however. The loss to redundant weavers is clear-cut and obvious, but most unskilled landless workers suffered. An appeal to a standard trade model shows why. Assume the economy consisted of two sectors, agriculture and industry, both using labour, but land being specific to agriculture and capital to industry. In the left-hand panel of Figure 2 the demand for labour in industry is drawn in the standard way as a decreasing function of the real wage, while agriculture's is drawn from right to left. Initial equilibrium – in 1800, say – is at A, the intersection point of the two labour demand schedules. The right-hand panel shows agriculture's unit cost curve, with the levels of rent per unit of land consistent with a given wage and viability. Initially, the equilibrium rent corresponding to A is at $r(A)$. A rise in the terms of trade, the product of the higher grain prices (due to the Corn Laws) and lower industrial prices (due to the Industrial Revolution), raises the unit cost curve by the same amount. The

effect on labour demand is to shift demand out to a new equilibrium at *B*. Wages thus rise, but by less than the cost of foodstuffs. The outcome for living standards depends on the consumption pattern of workers. Since before 1845 Irish workers spent a very high share, probably over two-thirds, of their income on food, a drop is likely. The implication of greater inequality between the minority with access to land and the landless masses follows.

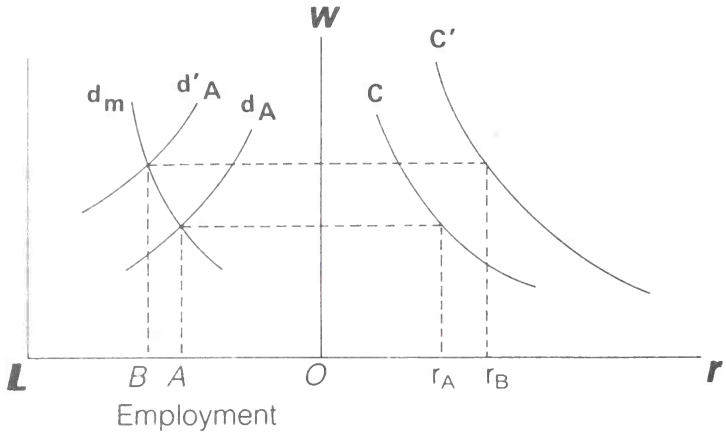


Figure 2 W = *wage, r = rent per unit*

Note that the mechanism producing the greater inequality is not that suggested by Simon Kuznets, who explains the association between economic development and increasing inequality in terms of sectoral differences in income distribution. For Kuznets the outcome was due to development typically causing the shrinkage of agriculture, a sector marked by 'low' inequality, in favour of industry.[88] In pre-Famine Ireland, however, the mechanism seems to have been closer to that posited by Steven Hymer and Steven Resnick, in a classic contribution, for export-led growth in less developed economies in the twentieth century. Hymer and Resnick see international trade as a rather mixed blessing for the LDCs. The improvement in the barter terms of trade that it entails leads to the destruction of traditional cottage industries and pressure on the living standards of the poor.[89]

Other factors worked in the same direction. In the two decades or so before the Famine – to judge from the 1821 and 1841 censuses –

the labour force in agriculture grew by about fifty per cent. In order to prevent wages from falling, productivity growth of about one per cent annually would have been needed – a tall order not met even in contemporary Britain. In order to see this, suppose:

$$Q = AL^{\alpha}e^{\mu t}$$

where Q is agricultural output, L labour input, t, time, and A, μ, and α are constants. Then the condition for $q - l$, the rate of labour productivity growth, to exceed zero is:

$$(\alpha - 1)l + \mu > 0$$

If α and l are both about 0.5, a productivity growth of 25 per cent over the period would have been required. The implication, again, is a dramatic imcrease in inequality. Economic explanations like those suggested, which assume given resource allocations across classes, probably account for most of what was happening. The political dimension of inequality should not be overlooked, though. The poor in pre-Famine Ireland had no political voice of their own, nor were their interests well represented by politicians, who campaigned hardest on middle-class issues such as Catholic emancipation and repeal. Policies which would have increased the command of the very poor over resources, whether over land, education, or skills, or just passage money, were pursued with reluctance or not at all. Who gained in agriculture, then? The common impression that landlords fared poorly after 1815 is belied by landed estate accounts. In reality most estates saw their rentals rise during this period in money terms; the rise in terms of purchasing power was even greater. The scatter of results from surviving estates records given in Table 8 is enough to make the point.[90]

Table 8 *Some evidence on gross landlord income, 1815–45*

Estate	*Period*	*Rent change (£)*
Mohill	1816–28	2,300 to 3,200
Lismore	1821–38	29,454 to 31,452
Fitzwilliam	1815–26	11,525 to 11,491
Downshire	1815–44	55,000 to 72,500
Benn-Walsh	1829–47	3,439 to 5,317
Greville	1828–43	1,704 to 2,335
Garvagh	1831–45	1,950 to 2,750

The outcome is no more than what one would expect in theory: a rise in the terms of trade should increase the income of the export-oriented factor. However, the more dramatic rises here (notably on the Benn-Walsh estate) probably owed more to the easing out of middlemen than to increases in the 'Ricardian' rent. The gauges of living standards discussed earlier suggest that farmers improved their lot too, but there is plenty room for research on the details.

1.6 Conclusion

This chapter has set out to show that the pre-Famine economy, for all its problems and injustices, did not contain the seeds of its own inevitable destruction by famine. Far from being a 'lurking peril',[91] something as grotesque as *phytophthora infestans* was beyond most people's worst nightmares before 1845. Of course, there were exceptions. Bishop Brinkley of Cloyne 'predicted the loss of the potato' and 'calculated mathematically the extent of ruin which was likely to follow', an exercise, he told a friend, which kept him awake all night![92] Yet the likelihood of mass starvation was, in the statistical sense, remote. On the other hand, there was the worrying reality of an expanding population in the west and south virtually unsupported by industry, relying increasingly on the worst variety of the cheapest food, often cultivated on wet bogs and bleak hillsides. In the pre-Famine era the lot of these 'potato people' was helped neither by the middle-class O'Connellite campaign for the repeal of the Union nor by the anti-interventionist politics still popular in Great Britain in the 1840s. Thus there is no room here for Dr Pangloss. The miserable and worsening lot of the bottom third or half of the population is enough to justify descriptions such as 'rural crisis'.[93] Nor in a hypothetical non-blight Ireland after 1845 would the condition of the poor have improved without struggle, dislocation and emigration. This point is taken up again in Chapter 3.

Still, would relief have come in due course without a holocaust of Great Famine dimensions? My own guess is that the plummeting cost of ocean transport after mid-century and the secularly rising demand for labour in both Great Britain and North America would have eased a blight-free Ireland's adjustment problems in the decades after 1850. Between mid-century and 1880 the United States alone absorbed about eight million emigrants from Europe, and other

places many million more. Another million Irish would have been handled with relative ease. Such migrants would most likely have been drawn disproportionately from the ranks of the poor, their departure posing no 'skill drain' threat to those who remained.[94] Politics in Ireland would also have increasingly reflected the aspirations of the poor over time. The potato blight's ravages would thus have been far less deadly a generation later. The Irish were disastrously *unlucky* in the timing of the blight. Surely, then, there is no harm in having attempted to absolve those who relied on the potato before 1845 of suicidal irresponsibility, or in chronicling progress, however uneven, in some sectors in the pre-Famine era?

Appendix 1.1
An early Irish reaction to Malthus

Malthus's well-known concessions to 'moral restraint' in the second edition of the *Essay on Population* are usually put down to the influence of the 'utopian' philosopher William Godwin and the Scandinavian trip of 1799.[95] The possible influence on his thinking of one of his Irish friends, William Parnell, has been overlooked. Sometime in 1798 the youthful Parnell wrote a letter to his brother Henry, in which he reported having attempted to convince Malthus that the prudential check to over-population was much more pervasive than the *Essay*[96] had allowed. The letter[97] anticipates more clearly still the sympathetic attitude to Irish problems articulated by Malthus in *The Edinburgh Review* in 1808 and 1809, though not found in second and later editions of the *Essay*.[98] The letter, undated but postmarked 1798, reads as follows:

Hampstead

Dear Henry

I am much obliged to you for your letters. I am glad you like Malthus's book on population, it does him very great credit, and though it was a received principle of political economy among most men of general information, yet no one had ever written expressly on the subject. I have talked to Malthus about his book, and I think have convinced him that he [is] wrong in supposing that population can only be checked by vice and misery and that no country can be without a class of poor. The fact is that the great check to population is prudence and the spirit among all ranks of preserving their respective situations in society; and Holland is a proof that industry and economy

joined with a spirit of comfort can raise the lowest ranks to a sufficient competency. But these can never exist under an oppressive government, and hence we learn the great merit of liberty in raising a pride and self importance in the people which will make poverty a disgrace and restrain them from imprudent marriages. If you examine different nations you will find that the people breed in exact proportion to the tyranny of the Government.

I have scarcely seen King[99] as he has been forced to be at Ockham and I could not leave Sophia. I saw him in town yesterday and he returns tomorrow. He has turned out what I have long foretold, quite a moral miracle particularly with regard to talents.

You shall hear from me soon. My knee is much better. The change of weather has had some effect on Sophia but I hope it will not continue.

Your affectionate brother
W. Parnell

William and Henry Parnell were the sons of Sir John Parnell,[100] a noted Irish landowner and politician. Henry (1776–1842) was to become an influential monetary economist and Whig politician; he was responsible for securing the family seat of Portarlington for Ricardo in 1819. William (1777–1821) spent most of his life at Avondale, County Wicklow,[101] earning an enduring reputation there as an interested and indulgent landlord. He was briefly MP for County Wicklow and is deemed by one biographer of his more famous grandson to have been 'as radical a theorist as it was possible for an Irish Protestant landlord to be'.[102]

Appendix 1.2
'De-industrialisation' by region

The occupational data in the nineteenth-century censuses offer one way of summarising the decline in industry across countries. Since the quality of reportage varied and the categories varied from census to census, the story that the convey must not be pressed too far. Nevertheless, I think the data in Table A1 are helpful. The numbers are an attempt to capture the percentage of the labour force in 1821, 1841, and 1881 involved in what might loosely be considered industrial occupations. In 1821 this entailed including 'persons chiefly employed in trades, manufactures, and handicrafts', and in 1841 'persons ministering to clothing and lodging, furniture, machinery, etc.' For 1881, I used the percentage of the total labour force in Class V, the 'industrial' class.[103]

The 1821 and 1841 categories differ in that the latter excludes certain occupations such as millers and dealers, included in the former. Adjustment for such anomalies would not alter the overall picture much, however. Thus the 1821 census returned 236,605 people as primarily employed in agriculture in Connacht, 224,165 in 'trades, manufactures, and handicrafts', and another 61,590 in other occupations. The 1841 census listed 0.37 million farmers, labourers, ploughmen and herds in Connacht. The total ministering to clothing and lodging, food processing, dealers, and shopkeepers, a fairly broad representation of those included in 'trades, handicrafts, and manufactures', in 1841 gives 0.17 million, leaving 65,000 others. The resulting percentages in industry are nearly the same as those reported in Table A1.

Appendix 1.3
A note on child mortality before 1845

Some measure of Irish child mortality before the Famine would be useful, since child mortality is often considered another proxy for backwardness and poverty. Unfortunately there is little to go on. Mokyr's pioneering census-based estimates of infant mortality (i.e. the mortality rate in the first year after birth) require enough plausible but unsubstantiated assumptions to be considered tentative. Other potential sources have either not been tried or produce ambiguous results. The latter is true of Revd. Thomas Willis's Dublin data[104] and the burial records quoted by William Wilde in the 1841 census.

Willis's able study of infant and child mortality in St Michan's, one of Dublin's poorest and most densely-populated parishes, on the eve of the Famine suggests that 22.1 per cent of children there died before reaching their first birthday, and that only 67.7 per cent survived their second birthday. The wastage in lives is huge, though not exceptional by the standards of European cities. The trouble with Willis's estimates is that in his mortality-by-age tabulations he made the kind of error that mars the 1841 census tabulations: after providing mortality in age-by-month for Dublin children up to eleven months, he jumped from the category 'eleventh month' to 'second year'. How did he allocate those children who died in the twelfth month? Nevertheless, bearing in mind St Michan's status as one of the city's poorest parishes, Willis's evidence suggests that Mokyr's estimate of infant mortality for Dublin as a whole – 320 per thousand[105] – is on the high side.

The Dublin burial records provided by Wilde are another tempting source. They are an account of weekly burials by age between mid-1839 and mid-1841. The trouble here is that evidently some dead children are

Table A1 Percentage of the labour force in industry, 1821–1881

	1821	1841	1881
Antrim	57.2	48.7	43.2
Carrick	54.7	43.7	—
Belfast	—	57.0	68.2
Armagh	60.7	48.7	43.2
Cavan	45.8	37.4	15.3
Derry	60.1	47.3	34.2
Donegal	52.5	41.8	22.6
Down	57.0	51.2	45.3
Fermanagh	45.1	41.1	19.5
Monaghan	56.1	40.0	17.8
Tyrone	56.2	47.8	26.3
Carlow	21.2	19.8	22.1
Dublin (city)	54.6	39.8	55.1
Dublin (county)	32.7	19.5	29.0
Kildare	23.4	18.5	22.0
Kilkenny (city)	60.3	37.7	—
Kilkenny (county)	17.4	8.2	22.6
King's (Offaly)	26.8	19.8	21.2
Longford	42.5	29.4	18.0
Louth	46.8	28.3	31.5
Drogheda	63.1	48.9	—
Meath	32.7	22.4	20.9
Queen's (Laois)	23.1	19.2	20.4
Westmeath	32.6	24.6	19.9
Wexford	22.9	24.2	22.5
Wicklow	24.2	20.0	22.0
Clare	24.2	23.5	19.1
Cork (city)	40.9	38.2	48.3
Cork (county)	19.4	19.0	22.2
Kerry	26.8	22.4	19.7
Limerick (city)	38.3	27.1	43.9
Limerick (county)	28.0	21.9	20.9
Tipperary 17.8	16.8	22.0	
Waterford (city)	45.7	34.2	50.8
Waterford (county)	14.9	14.4	20.6
Galway (county)	33.9	26.4	16.9
Galway (town)	30.6	35.0	
Leitrim	47.0	37.2	13.5
Mayo	48.8	28.2	13.3
Roscommon	40.4	23.9	15.2
Sligo	46.5	30.7	17.8
Ulster	55.3	45.9	37.1
Leinster	33.6	24.1	29.9
Munster	23.7	20.8	24.3
Connacht	42.9	28.4	15.2

'missing'. Comparing an estimate of the number of children born in, say, 1835 or 1836 with the number of five or six-year old survivors in 1841 implies a far higher number of burials than in the cemeteries reported to Wilde. Again, how the missing deaths are allocated across ages determines our guess at infant mortality. To assume that those who went unrecorded were distributed like those included produces a mortality rate of about 250 per thousand. That is a good deal less than Mokyr's figure.

This note presents an alternative approach to the problem. Its strategy is to focus on the gap in ages between children enumerated at some age *j* in the manuscript forms of the census of 1821 and the brother or sister next in line. The data are available in sufficient numbers from Counties Fermanagh, Meath, and Galway to be worth considering. Then, given some prior notion about the gap in births, a rough-and-ready guess at mortality follows.

Let us look at the question of births first. The pre-Famine birth rate was probably between thirty-five and forty per thousand. Given that the number of married women aged seventeen to forty-five in 1841 was 858,442, a child per three women yearly would give a birth rate of thirty-five per thousand, a child per 2.5 women a birth rate of forty-two per thousand.

An alternative handle on births is given by the 1841 'Tables on Marriage', which represent an attempt at reporting the number of children born by 1841 to women marrying in the 1830s:

1830	3.87	1836	1.99
1831	3.63	1837	1.63
1832	3.32	1838	1.25
1833	3.03	1839	0.88
1834	2.70	1840	0.44
1835	2.35		

Here marriages contracted in 1830 are reported as producing an average of nearly four children by 1841, though the result is based on a younger, more fecund set of women. Most women over thirty five-years would be excluded, having married before 1830.

What does this imply for the average gap in births? If all families were of the same size, a child per three marriages would mean a gap of 3.3 years between births, and so on. Childless and one-child marriages must reduce the gap, however. A gap of about 2.5 years, then, seems reasonable, in the absence of infant and child deaths.

The 1821 census data produce the following results on age gaps:

Age of child	*Number*	*Average gap*
7	487	2.920
8	440	2.968
9	453	3.124
10	509	3.145
11	336	3.208
12	447	3.436
13–14	786	3.215

Calculating gaps at younger and older ages would face the problems of more and more children missing either through emigration or under-enumeration. As they stand the numbers are contaminated somewhat by the well-known phenomenon of age-heaping. Both the recorded number of ten- and twelve-year olds and the 'low' gap at age 13–14 are probably due to this factor. Nevertheless a gap of about three years is indicated, and in general the gap rises with the children's age as expected. What is the implication for child mortality? Against the birth intervals suggested above, these age gaps seem small, implying rather low child mortality in the mainly rural areas supplying the 1821 data. Data such as those from the 1821 and 1841 census just analysed are perhaps weak reeds to build a case on, but they seem to argue tentatively in favour of 'light' child mortality.

Notes

1 Jonathan Pim, *The Condition and Prospects of Ireland* (Dublin, 1848), 36–7.

2 Seán Ó Ceallaigh, *Filíocht na gCallanán* (Dublin, 1967), 8 ('A fond farewell to the white potatoes, it was a joy to be near them, happy they were as they approached us, laughing at us at the head of the table'). The verse is a Galway balladeer's ode to the memory of the white potato in its pre-Famine heyday.

3 T. R. Malthus, 'Newenham and others on the state of Ireland', *Edinburgh Review*, July 1808; *idem*, 'Newenham on the state of Ireland', *Edinburgh Review*, April 1809; both essays are reprinted in B. Semmel (ed.), *Occasional Papers of T. R. Malthus on Ireland, Population, and Political Economy* (New York, 1963), 32–71; Malthus to David Ricardo, 17 August 1817, in P. Sraffa (ed.), *The Works and Correspondence of David Ricardo*, VII (Cambridge, 1952), 174–5; *Select Committee on Emigration* [550] H.C. 1826–7, V, 311–27. Malthus's views are further discussed in C. Ó Gráda, 'Malthus and the pre-Famine economy', in A.E. Murphy (ed.), *Economists and the Irish Economy* (Dublin, 1984), 75-95. See too Appendix 1.1 below.

4 K. H. Connell, *The Population of Ireland, 1750–1845* (Oxford, 1951); *idem*, *Irish Peasant Society* (Oxford, 1968); David Grigg, *Population Growth and Agrarian Change* (Cambridge, 1981), 115–40; J. K. Galbraith, *The Age of*

Uncertainty (New York, 177), 37–8; Nassau William Senior, *Essays, Journals and Conversations relating to Ireland, II* (London, 1868), 2–3; Barbara L. Solow, *The Land Question and the Irish Economy* (Cambridge, Mass., 1971), 196.

5 National Archives, 620/57/49 and 620/57/63. I am grateful to Kevin Whelan for altering me to these references.

6 W. H. King, *Account of the Fisheries in 1822 on the Western Coast of Ireland* (Dublin, 1823), 4–5; Michael McGrath (ed.), *Cinnlae Amhlaoimh Uí Shúileabháin*, vol. I (London, 1936), 78; Timothy P. O'Neill, 'Poverty in Ireland, 1815–45', *Folklife*, XI (1974), 30; *idem*, 'Social history of Erris', paper presented at (Éigse Riocaird Bairéad, Gaoth Sáile, Mayo, 18 June 1983; W.M. Thackeray, 'Irish Sketch Book', in *Collected Works*, 18 (London, 1888), 27.

7 M. Drake, 'The Irish demographic crisis of 1740–1', *Historical Studies VI*, ed. T. W. Moody (London, 1968); S. Daultrey, D. Dickson and C. Ó Gráda, 'Eighteenth-century Irish population: new perspectives from old sources', *Journal of Economic History*, XLI (1981), 626–7.

8 The notion, associated with Connell and Drake, that the half-century or so after 1741 saw a 'gap in famines' is questioned in D. Dickson, 'The gap in famines: a useful myth?', in E.M. Crawford (ed.), *Famine: The Irish Experience* (Edinburgh, 1989), '6–111. See too J. Kelly, 'Scarcity and poor relief in eighteenth-century Ireland: the subsistence crisis of 1782–4', *IHS*, XXVIII (1992), 38–62.

9 Poor Inquiry, Supplement to Appendix A, 21, 64, 118, 359. Joel Mokyr, *Why Ireland Starved: A Quantitative and Analytical History of the Irish Economy 1800–1845* (London 1983; revised edition, 1985) has pioneered the use of the Poor Inquiry evidence along these lines: see *ibid.*, 12, 25–8. For an assessment of the representativeness and reliability of the data see L. A. Clarkson and E. M. Crawford, 'Dietary directions: a topographical survey of Irish diet, 1836', in R. Mitchison and P. Roebuck (eds.), *Economy and Society in Scotland and Ireland 1500–1939* (Edinburgh, 1988), 171–4.

10 The mainly western character of this crisis is also well reflected in Public Record Office (London), HO 100/235/189–211.

11 O'Brien, *Economic History*, 224–32.

12 Wilde's reports are in the *Census of Ireland for the Year 1851*, Part V, *Tables of Death*, I, containing the report, tables of pestilences, and analysis of the tables of deaths, [2087–I], H.C. 1856, XXIX, 261; *Report of the Commissioners Appointed to Take the Census of Ireland for the year 1841*, [504] H.C. 1843, XXIV, 1.

13 F. Barker and J. Cheyne, *An Account of the Rise, Progress and Decline of the Fever Late Epidemical in Ireland* (Dublin, 1821).

14 John D. Post, *The Last Great Subsistence Crisis in the Western World* Baltimore, 1977); T. Newenham, *A Statistical and Historical Inquiry into the Progress and Magnitude of the Population of Ireland* (Dublin, 1805), 131–2. Local accounts of the 1800 potato and grain harvests and the state of the poor imply considerable regional variation in both yields and privation (National Archives, 620/57).

15 PRO, HO 100/206, Barker to Wellesley, 26 September 1822; Timothy P. O'Neill, 'The Famine of 1822' (unpublished M. dissertation, National University of Ireland, 1966), 'Conclusion', 1.

16 O'Neill, 'Poverty and administrative reform in Ireland, 1815-1845', paper presented to the Irish Historical Society, 11 October 1983; *idem*, 'Erris'. I am very grateful to Professor O'Neill for giving me copies of these papers. See too Mrs E. Costello, *Amhráin Muighe Seola* (Dublin, 1923), 23–5, for a song about famine relief in the 1820s. Also Stephen A. Royle, 'Irish famine relief in the early nineteenth century', *IESH*, XI (1984), 44–59, and O'Neill, 'The famine of 1822', on relief in the remote west in 1822.

17 Malthus, *Essay on the Principle of Population* (London, 1798 (1965)), 141;, 'Newenham and others', 42. For references to the literature on Malthus and Ireland, see Mokyr, *Why*, 38–45; Ó Gráda, 'Malthus'.

18 Phelim P. Boyle and C. Ó Gráda, 'Fertility trends, excess mortality and the great Irish famine', *Demography*, 23 (1986), 542–62.

19 *Why*, 43.

20 Dickson, Ó Gráda, and Daultrey, 'Hearth tax, household size and Irish population change, 1672–1821', *Proceedings of the Royal Irish Academy*, 82C(6) (1982), 178; Mokyr and Ó Gráda, 'New developments in Irish population history, 1700–1850', *EHR*, XXVII(4) (1984), 473–88. The role of increasing nuptiality in accelerating population growth earlier is stressed in Newenham, *A Statistical and Historical Inquiry*.

21 From 'Restaurant Reverie' in *The Complete Poems* (Newbridge, 1984), 137.

22 Jack Weatherford, *Indian Givers: How the Indians of the Americas Transformed the World* (New York, 1988), 66–70.

23 Dr Austin Bourke, Ireland's foremost expert on the history of the potato, would have liked to see the fourth centenary of its introduction celebrated in 1990 (communication to author, 20 November 1986)! For more on the diffusion controversy see Thomas P. McIntosh, *The Potato: Its History, Varieties, Culture and Diseases* (Edinburgh, 1927), Ch. 1; R. N. Salaman, *The Influence of the Potato on the Course of Irish History* (Dublin, 1943); *idem*, *The History and Social Influence of the Potato* (Cambridge, 1949), Chs. 11–12; L. M. Cullen, 'Irish history without the potato', *Past and Present*, XI (1968), 72–83; Joel Mokyr, 'Irish history with the potato', *IESH*, VIII (1981), 8–29. Also N. J. A. Williams (ed.), *Pairlement Chloinne Tomáis* (Dublin, 1981), 62–3, 115.

24 Elizabeth Hoffman and Joel Mokyr, 'Peasant, poverty and potatoes: transactions costs in pre-Famine Ireland', in Gary Saxonhouse and Gavin Wright (eds.), *Technique, Spirit and Form in the Making of the Modern Economy: Essays in Honour of William N. Parker* (Greenwich, Conn., 1983), 115–45; Arthur Young, *Tour in Ireland* (Dublin, 1780).

25 William Tighe, *Statistical Survey of County Kilkenny* (Dublin, 1802), 479–80. Hely Dutton (*Statistical Survey of Clare*, 43) listed sixteen varieties being cultivated in Clare in 1808.

26 McGrath (ed.), *Cinnlae*, I, 276; George Vaughan Sampson, *Statistical Survey of the County of Londonderry* (Dublin, 1802), 135; Ordnance Survey Memoir, Dungiven. Also Samuel Lewis, *Topographical Dictionary of Ireland* (London, 1837), entry for County Clare.

27 P. M. A. Bourke, 'The extent of the potato crop in Ireland at the time of the famine', *JSSISI*, XX(3) (1959/60), 1–35 (reprinted in Bourke, *The Visitation of God? The Potato and the Great Irish Famine* (Dublin, 1993)); Mokyr, 'Irish history with the potato', 15–24. Mokyr puts his revised data to use in attempt to explain the pattern of diffusion. But can cross-section 1840s data explain a temporal process spanning two centuries?

28 O. MacDonagh, *The Nineteenth-century Novel* (Dublin, n.d.), 7; Mokyr, 'Uncertainty and prefamine agriculture', in D. Dickson and T. Devine (eds.), *Ireland and Scotland, 1600–1850: Parallels and Contrasts in Economic and Social Development* (Edinburgh, 1983), 89-94.

29 C. Trevelyan, *The Irish Crisis* (London, 1848), 2; M. Longfield, *Lectures on Political Economy* (Dublin, 1834), 249–52. Price seasonality is discussed in Chapter 3. As regards Longfield's storage through pigs, it must be noted that this was a very costly form of storage; pigs conserve only one-fifth or so of the calories they consume.

30 P. Sraffa (ed.), *Ricardo*, IX, 232, 252–3; Robert McKay, *An Anthology of the Potato* (Dublin, 1961), 58; W.S. Trench, *Realities of Irish Life* (London, 1966), 47. For the statement by Dr Doyle and advice on the pre-Famine literature generally my thanks go to Austin Bourke.

31 Tigh, *Kilkenny*, 234–5. A Canadian farmer who aims to preserve heritage seeds and in 1985 grew 110 potato varieties told me in 1986: 'over the years I have noticed that some years a few varieties do well and in other years others do well. I realize that this is only anecdotal evidence but I have been aware of this for several years' (Alex Caron, King County, Ontario, communication to author, 26 February 1986). On the allocation of grain production in less developed countries between man and beast see Raymond F. Hopkins and Donald J. Puchala (eds.), *The Global Political Economy of Food* (Madison, Wisc., 1978), 277. On the *lumper*'s neglected advantages, A. Howden, 'Reports on experiments on the comparative value of different varieties of potato', *Transactions of the Highland and Agricultural Society*, XI (1837).

32 Peter M. Solar, 'The great famine was no ordinary subsistence crisis', in Crawford, *Famine: The Irish Experience*, 114–8.

33 Kevin Danaher, *The Year in Ireland* (Cork, 1972), 163–6; McGrath, *Cinnlae*, I, 83; *Poor Inquiry*, Appendix E, part I, 1.

34 This point is further discussed in Ó Gráda, *Ireland: A New Economic History 1780–1939* (Oxford, 1994), Ch. 4.

35 E. M. Crawford, 'Dearth, diet and disease in Ireland, 1850: a case study of nutritional deficiency', *Medical History*, 32 (1984), 151–61; *idem*, 'Indian meal and pellagra in nineteenth-century Ireland', in J. M. Goldstrom and L.A. Clarkson (eds.), *Irish Population, Economy and Society* (Oxford, 1981), 113–33. See also n. 46 below.

36 *Evidence Taken Before Her Majesty's Commissioners of Inquiry into the State of the Law and Practice in Respect of the Occupation of Land in Ireland* (Devon Commission), 1116; Wakefield, *An Account of Ireland, Statistical and Political*, II (London, 1812), 730; H. D. Inglis, *A Tour of Ireland in the year 1834* (London, 1835), 323. See too J. K. Trimmer, *A Brief Inquiry into the Present State of Agriculture in the South of Ireland* (London, 1809), 7.

37 See e.g. *Poor Inquiry*, Appendix A, and the harrowing catalogue of 'Selection of Cases from Returns of Paupers relieved in the Three Months from 10th January to 'th April, 1844, in Unions in Ireland' in *Tenth Annual Report of the Poor Law Commissioners* (London, 1844), 398–460.

38 Bourke, 'The use of the potato crop in pre-Famine Ireland', *JSSISI*, XXI(6) (1968), 72-96; *Third Report of the Commissioners for Inquiring into the Condition of the Poorer Classes in Ireland*, [43] H.C. 1836, XXX, 5.

39 Lars Sandberg, 'The case of the impoverished sophisticate: human capital and Swedish economic growth before world war I', *JEH*, XXXIX (1979), 225–42.

40 Mokyr, *Why*, 9–11; Paul Bairoch, 'Europe's gross national product, 1800 1975', *JEEH*, 5(2)(1976), 286.

41 R. Dornbusch, 'Purchasing power parity', in J. Eatwell and M. Milgate (eds.), *The New Palgrave Dictionary of Economics* (New York, 1986); A. Maddison, 'A comparison of levels of GDP per capita in developed and developing countries', *JEH*, XLIII(1)(1983), 31, 40.

42 A. L. Bowley, 'The statistics of wages in the United Kingdom over the last hundred years, III: Agricultural wages, Ireland', *Royal Statistical Society Journal*, LXII (1899), 395–40 4; Mokyr, *Why*, 214–6; *Irish Farmers' Gazette*, 17 August 1822; K. D. M. Snell, *Annals of the Labouring Poor: Social Change and Agrarian England 1660–1900* (Cambridge, 1985), Ch. 1. Mokyr presents two sets of estimates, the first of which stems from his income data, the second from evidence collected by the 1835–6 Poor Inquiry. The substantial gap between them must stem in part from the computing error explained in the revised edition of *Why*, xi.

43 *Census 1841*, 436; de Latocnaye, *A Walking Tour of Ireland* (Dublin, 1917), 17 Thackeray, 'Sketchbook', 80, 106, 306.

44 Poor Inquiry, App. C, Part II.

45 A. Day and P. McWilliams (eds.), *The Ordnance Survey Memoirs of Ireland, Parishes of Fermanagh: 1* (Belfast, 1991), 22, 37.

46 Boyle and Ó Gráda, 'Fertility trends'. The point about fertility is Joel Mokyr's.

47 Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations* (Oxford, 1976), 171; R. Kane, *The Industrial Resources of Ireland* (Dublin, 1845), 400; J. Bicheno, *Ireland and its Economy* (London, 1830), 37. For a defence of heights as a proxy for health and welfare, see R. W. Fogel, 'Nutrition and the decline of mortality since 1700: some preliminary findings', NBER Working Paper Series, No. 1402.

48 R. Steckel, 'Heights and per capita income', *Historical Methods*, XVI (1983).

49 46 Christopher Lloyd, *The British Seaman, 1300–1860: A Social Survey* (London, 1968), 269–71; Eugene L. Rasor, *Reform in the Royal Navy: A Social History of the Lower Deck, 1850 to 1880* (Hamden, Conn., 1976), ', 17, 26–8.

50 Mokyr and Ó Gráda, 'Poor and getting poorer? Irish living standards before the Great Famine', *EHR*, 41 (1988), 209–35.

51 Mokyr and Ó Gráda, 'The heights of Englishmen and Irishmen in the 1770s: evidence from the East India Company', *Eighteenth-century Ireland*, IV (1989), 83-92; *idem*, 'The heights of the British and the Irish c. 1800–1815: evidence from recruits to the East India Company's army', in J. Komlos (ed.), *Anthropometric History* (Chicago, forthcoming); Roderick Floud, Kenneth Wachter, and Annabel Gregory, *Height, Health and History: Nutritional Status in the United Kingdom, 1750–1980* (Cambridge, 1990); S. Nicholas and D. Oxley, 'The living standards of women during the industrial revolution 1775–1820', *EHR*, forthcoming; S. Nicholas and R. Steckel, 'Heights and living standards of English workers during the early years of industrialization, 1770–1815', *JEH*, 51 (1991), '37–57. On the Army Medical Board see 'Observations on the Diseases of the Militia and Fencible Regiments of the Irish Establishment . . . to the Army Medical Board, Written in March 1796', cited in Kenneth P. Ferguson, 'The Army in Ireland from the Restoration to the Act of Union' (unpublished Ph.D. dissertation, Trinity College, Dublin, 1983), 95.

52 Komlos, 'Stature and nutrition in the Habsburg monarchy: the standard of

living and economic development in the eighteenth century', *American Historical Review*, 90(5) (1985). Compare H. Brinkman, J. W. Drukker, and B. Slot, 'Height and income: a new method for the estimation of historical national income series', *EEH*, 25(1) (1988), 227–64; Steckel, 'Heights and per capita income'. Irish heights before the Famine are further discussed in Ó Gráda, 'The heights of Clonmel prisoners 1845-9: some dietary implications', *IESH*, XVIII (1991), 24–33.

53 Crawford, 'Subsistence crises and famines in Ireland: a nutritionist's views', in Crawford, *Famines*, 198–219; Mokyr, *Why Ireland Starved*, 8–9; Ó Gráda, *Ireland*, Ch. 4; W. Shaw Mason, *A Statistical Account or Parochial Survey of Ireland* I, 1 (Dublin, 1814) (account of Dunaghy, Antrim, by W. Mayne), 257.

54 Mokyr, *Why*, 15–6; idem, 'Industrialization and poverty in Ireland and the Netherlands: some notes towards a comparative case study', *Journal of Interdisciplinary History*, X(3) (1980), 429–59.

55 A. Sen, *Poverty and Famines* (Oxford, 1981). For instance, it seems a safe guess that *P(D/H)* increased with the changes in relief policy associated with Sir John Russell's Whig administration after July 1846. See Chapter 3 below.

56 Wakefield, *Ireland*, II, 397–8.

57 Mokyr and Ó Gráda, 'Poor and getting poorer?'.

58 PRONI, T1536/4.

59 PRONI, T1556/4; TT2204/2; Royal College of Physicians (Dublin), Kirkpatrick Ms. '4 (letter from Thomas Mills, M.D. to Michael Mills, Loughbrickland, County Down, August 1805).

60 Mokyr, *Why*, 12; also Mokyr and Ó Gráda, 'Poor and getting poorer?'.

61 Mokyr, *Why*; Eric Almquist, 'Pre-famine Ireland and the theory of European proto-industrialization: evidence from the 1841 census', *JEH*, XXXIX(3) (1979), 699–718; Patrick McGregor, 'The impact of the blight upon the pre-Famine rural economy of Ireland', *ESR*, XV (1984), 289–304.

62 Pim, *Condition*, 38–9; P. Lindert and J. G. Williamson, 'English workers' living standards during the industrial revolution: a new look', *EHR*, XXXVI (1983), 1–25; Mokyr and Ó Gráda, 'Poor and getting poorer?'.

63 J. Monaghan, 'The rise and fall of the Belfast cotton industry', *IHS*, 3 (1942–3); E. R. R. Green, *The Lagan Valley: A Local History of the Industrial Revolution* (London, 1949), '5–111; David Dickson, 'Aspects of the rise and fall of the Irish cotton industry', in L. M. Cullen and T. C. Smout (eds.), *Comparative Aspects*, 100–16.

64 Compare Dickson, 'Aspects', 105, 108, and Joel Mokyr, *Industrialization in the Low Countries, 1795–1850* (New Haven, 1976), 28–36. Admittedly the Irish industry had a head start.

65 Samuel McSkimmin, *The History and Antiquities of Carrickfergus* (Belfast, 1909), 358–9; Lewis, *Topographical Dictionary* I, 179.

66 George O'Brien, *Economic History*, 297–308; L.A. Clarkson, 'The Carrick-on Suir woollen industry in the eighteenth century', *IESH*, XVI (1989), 23–41; Séamus Ó Duillearga (ed.), *Leabhar Sheáin Í Chonaill* (Dublin, 1977), 380 ('My grey waistcoat is neat and pretty, not like the tweed made by the woman from the mountain').

67 Conrad Gill, *The Rise of the Irish Linen Industry* (Oxford, 1925); William H. Crawford, *Domestic Industry in Ireland* (Dublin, 1973); *idem*, 'The evolution

of the linen trade in Ulster before industrialisation', *IESH*, XV (1988), 32 53; Green, *The Lagan Valley*; Eric L. Almquist, 'Mayo and Beyond: Land, Domestic Industry and Rural Transformation in the Irish West, 1790–1900' (unpublished Ph.D. dissertation, Boston University, 1977), Ch. 4.

68 John Fitzgerald, 'The organisation of the Drogheda economy, 1780–1820' (unpublished MA dissertation, National University of Ireland, 1972).

69 D. A. Farnie, *The English Cotton Industry and the World Market, 1815–1896* (Oxford, 1979), 45–77; J. S. Hekman, 'The product cycle and New England textiles', *Quarterly Journal of Economics*, 94 (1980), 697–717; Ó Gráda, *New Economic History*, Ch. 13.

70 Lewis, *Topographical Dictionary*, I, 194–5. On scale economies and 'insignificant historical events' see W. Brian Arthur, 'Competing technologies and economic prediction', *Options* (Vienna), April 1984, 10–3, and 'Industry Location Patterns and the Importance of History' (unpublished discussion paper, Stanford University, March 1986).

71 W. E. Coe, *The Engineering Industry of the North of Ireland* (Newton Abbot, 1969), Chs. 1–5.

72 Green, *Lagan Valley*, 176.

73 George O'Brien, 'The last years of the Irish currency', *Economic History*, 2 (1927).

74 F. G. Hall, *the Bank of Ireland* (Dublin and Oxford, 1949); Charles Munn, The emergence of central banking in Ireland: the Bank of Ireland, 1814–1845', *IESH*, X (1983), 19–32; P. Ollerenshaw, *Banking in Nineteenth-century Ireland* (Manchester, 1989); G. L. S. Barrow, *The Emergence of the Irish Banking System* (Dublin, 1973); Ó Gráda, *Ireland*, Ch. 3.

75 This paragraph draws on the archives of the Bank of Ireland and Allied Irish Banks. My thanks to Terry Forsyth (Bank of Ireland) and A. J. Lambkin (AIB) for allowing me to consult the archives.

76 Barrow, *Emergence*, 108–20, and 'Justice for Thomas Mooney', *Dublin Historical Record*, XXIV (1970), 173–88.

77 AIB archive, records of the Parsonstown (Birr) and Youghal branches of the Pronvincial Bank; Bank of Ireland archives, records of the Castlebar National branch.

78 Barrow, *Emergence*, 215–21.

79 *Dublin Evening Post*, 1820 (*passim*); Barrow *Emergence*, 17–23; Eoin O'Kelly, *The Old Private Banks of Munster* (Cork, 1959), 23–9, 158–60.

80 E. G. Wakefield, *Ireland Statistical and Political* (London, 1812), I, 667–8.

81 W. A. McCutcheon, *The Canals of Northern Ireland* (Newton Abbot, 1965), 62 85, '8–119; V. T. H. and D. R. Delany, *The Canals of the South of Ireland* (Newton Abbot, 1966); V. T. H. Delany, *The Grand Canal of Ireland* (Newton Abbot, 1973); Ruth Delany, *A Celebration of 250 Years of Ireland's Inland Waterways* (Belfast, 1988).

82 NLI, Ms. 10,736.

83 Thomas G. Ferris, 'The Ulster Railway' (unpublished MA dissertation, Queen's University Belfast, 1979), 20.

84 PRONI, D207/27/39, Massareene Papers, D. L. Ross to Lord Oriel, 28 January 1828 (quoted in Ferris, 'The Ulster Railway', 24). More generally see J. Lee, 'An economic history of early Irish railways' (MA dissertation, National University

of Ireland, 1965). W. A. Thomas, *The Stock Exchanges of Ireland* (Liverpool, 1986), Ch. 6, is useful on investment in the first railway venture.

85 Drummond Commission, Second Report, 40–1; Seán: Lúing, 'Richard Griffith and the roads of Kerry', *Journal of the Kerry Historical and Archaeological Society*, 8 (1975), 89–113, and (1976), 92–124.

86 Select Committee on the State of the Poor in Ireland, evidence of Charles Wye Williams, Q. 3110–81; David B. McNeill, *Irish Passenger Steamship Services* (Newton Abbot, 1969 and 1971); I, 1-28, and II, 11-9, 34–8; Lewis, *Topographical Dictionary*, entry for Cork; *Gore's General Advertiser*, 'The cattle trade', 8 January 1829. I owe the last reference to Peter Solar.

87 Mr and Mrs S.C. Hall, *Ireland* I, (London, 1845), 404–7. See too Lewis, *Topographical Dictionary*, entries for Cork, Ennis, Mallow, Navan, Enniscorthy, Gorey, even Cahirciveen.

88 Simon Kuznets, 'Economic growth and income inequality', *American Economic Review*, 45(1) (1955), 1–28.

89 Stephen Hymer and Stephen Resnick, 'A model of an agrarian economy with non-agrarian activities', *American Economic Review*, 59 (1969), 493–516.

90 James S. Donnelly, 'The journals of Sir John Benn Walsh', *Journal of the Cork Archaeological and Historical Society*, LXXXI (1975), 89; William A. Maguire, *The Downshire Estates* (Oxford, 1974), 39; Almquist, 'Mayo and Beyond', 126–38; NLI, Mss. 6077–81 (Fitzwilliam, Wicklow), 6915, 6923, 6969 (Lismore estate), 1740 (O'Callaghan, Shanbally), 1756 (Trant, Tipperary), 12792–805 (Mohill, Leitrim); PRONI, D1606/7A/34, 48 (Gosford, Armagh), D623/C/4/1, 10 (Abercorn, Strabane part), D3531/12/2 (Shirley, Monaghan); Kevin O'Neill, *Family and Farm*, 51–7 (Hodson and Garvagh estates, Cavan).

91 J.K. Galbraith, *The Age of Uncertainty* (New York, 1977), 37.

92 Communication from Austin Bourke. See too L. M. Cullen, *Life in Ireland* (London, 1968), 142.

93 Cullen, *Life in Ireland*, Ch. 6.

94 Compare Mokyr and Ó Gráda, 'Emigration and poverty in pre-Famine Ireland', *EEH*, 19 (1982), 360–84. On Great Britain's ability to absorb Irish immigrants before the Famine see J. G. Williamson, *Coping with City Growth During the British Industrial Revolution* (Cambridge, 1990), Ch. 6.

95 E.g., William Petersen, *Malthus* (Cambridge, Mass., 1979), 48–50.

96 Malthus, *Essay on the Principle of Population* (Pelican edn.) (Harmondsworth, 1970), 86–103.

97 To be found in the Congleton papers, Southampton University Library, K57.

98 Semmel, *Occasional Papers of T. R. Malthus*, 33–70; Patricia James, *Population Malthus* (London, 1979), 142–59; Ó Gráda, 'Malthus and the pre-Famine Economy'.

99 Lord Peter King, author of *Thoughts on the Restriction of Payments in Specie in the Banks of England and Ireland* (London, 1803); succeeded to the family estate at Ockham, Surrey, in 1793.

100 Sophia was their younger sister.

101 Future seat of his grandson, the nationalist political leader Charles Stuart Parnell (F. S. L. Lyons, *Charles Stuart Parnell* (London, 1977), 20).

102 Roy Foster, *Parnell* (Harvester, 1976), 16. Foster's claim exaggerates, however. Both Owenite John Scott Vandeleur of Ralahine and socialist utilitarian

William Thompson of Cork were far more radical than William Parnell.

103 The 1821 and 1841 data form the basis of maps in my *Éire Roimh an nGorta: An Saol Eacnamaíoch* (Dublin, 1985), 46–7, and 'Population, poverty and agriculture', in W. E. Vaughan (ed.), *A New History of Ireland*, V (Oxford, 1989), 133–4.

104 Thomas Willis, *Facts Concerning the Social and Sanitary Condition of the Working Classes of Dublin* (Dublin, 1845).

105 94 Mokyr, *Why*, 37–8.

CHAPTER 2

Agriculture before and after the Famine

If England had the five talents confided to her stewardship, let her not taunt Ireland, to whom none has been entrusted, that who has not made usurious interest.

J.E. Bicheno[1]

For several decades after the Great Famine farming provided work for more than half of Ireland's occupied population, and accounted for one-third or more of national output and, along with linen, the bulk of merchandise exports. On the eve of the Famine agriculture's role was even more dominant. Hence George O'Brien's truism that 'the land and its industries occupied such a prominent place in Irish life that a history of Irish agriculture would be of necessity something not very far removed from an economic – and indeed a political – history of Ireland'.[2] Too often, though, research on nineteenth-century Irish agricultural history (not least O'Brien's) has been dominated by just one part of the story, the politics of land tenure. Even when the more economic and technical aspects of farming are considered, the discussion is still usually nested in some controversy about the land issue. Revisionist work has changed the verdict, but not the main focus of attention. Landlords, whether 'rack-renting' or 'great', still claim more than their share of attention at the expense of those who managed and worked the fields. As a result the intricacies of the various Land Acts are better understood than, say, livestock quality or the diffusion of certain possibly key process innovations on the farm.

Across the Irish Sea the story of eighteenth- and nineteenth-century Irish agriculture is told instead largely in term of leading 'improvers' and technical and organisational change. This will hardly do in the Irish case, for although Ireland too had its Arthur Youngs and Alderman Mechis and John Lawes's, and some of the contemporary trappings of the 'age of improvement' – a hundred local agricultural societies by 1845, for example, and a small agricultural

press replete with examples from the Lothians of Scotland – their impact was less, and they have been largely forgotten. More to the point, the goals and achievements of the ordinary Irish farmer and farm worker have attracted little attention. Few, however, have had a good word for them. Outside observers tended to see them as a lazy and ignorant mass, and apologists as too oppressed to function effectively. But work on the humdrum details of farming practice and technique has been neglected. While studies of rent movements and outlays on improvements by particular landlords are plentiful, issues such as changes in crop yields, carcass weights, and seed requirements, or the pattern of innovation diffusion, remain almost a blank.

A definitive account of efficiency and productivity change on the land, crucial aspects of the economic history of Irish agriculture, cannot be given at this stage, and attempts at comprehensiveness would therefore be premature. Yet Ireland is not alone in this. The authors of a well-known American survey admit that 'much of American history is not ready for textbook treatment', and more disarmingly that 'much can never be unravelled from the extant materials'.[3] So consoled, let us explore some aspects of Irish farming before and after the Famine.

2.1 Pre-famine productivity

How backward was nineteenth-century Irish agriculture? To contemporaries, for whom British agriculture was a convenient yardstick, pre-Famine backwardness was often defined in terms of one country's chronological lead over the other. Thus a Cork clergyman-farmer noted in 1837 that 'it is now a common saying that we are a century behind England'. Not too disappointing, if one credits Arthur Young's throwaway remark of half a century earlier that Irish tillage was five hundred years behind England's most advanced areas.[4] The search for further evidence along these lines leads only to confusion, however. In the 1820s, according to a French reporter, Irish farming implements were three hundred years out of date, but to the English agronomist Henry Thompson Irish farming methods before the famine had gone unchanged 'from the time of Conn of the Hundred Battles or Niall and his train of hostage kings'.[5] Later the comparison, again invariably unfavourable or

damning, tended to be with Denmark.[6] Yet if this definition of backwardness is defined instead in terms of low productivity, how much is there to explain? How should performance on the farm between the 1840s and the 1920s be assessed? These are some of the issues discussed here and in Chapter 5.

Ireland before the Famine was almost a 'statistical dark age' in most respects, agriculture included. Contemporary guides are few and often unreliable. Still, several rough-and-ready estimates of pre-Famine output have been pieced together, with the help of sources such as the 1841 census, the Poor Inquiry of 1835–36, and informed guesses at pre-Famine crop acreages. The estimate in Table 9 is based largely on that by Peter Solar.[7] The 1841 census provides the necessary estimates of livestock numbers, but guesses at productivity in the livestock sector rely on a range of unrelated sources: here I have used Solar's estimates in preference to my own earlier numbers (which were very similar). The estimates of potato, flax, and hay output are the same as Solar's.[8] Overall, the estimates of tillage output rely heavily on the pioneering work of Austin Bourke, which implies a small drop in cereal output in the immediate wake of the

Table 9 *Irish agricultural output, 1840–45*

CROPS	(£m.)
Wheat	4.2
Oats	7.4
Barley	1.7
Flax	1.1
Potatoes	8.8
Hay	0.3
Other (5%)	1.2
Subtotal	24.7
Livestock	
Cattle	4.4
Butter & Milk	5.8
Pigs	3.5
Sheep	1.0
Wool	0.4
Eggs	0.9
Other (5%)	0.8
Subtotal	17.0
Total	41.7

Table 10 *Estimated acreage under grain and potatoes*

Crop	*1845*	*1847*	*1849*
Oats	2,500	2,201	2,061
Wheat	700	744	688
Barley	300	333	352
Potatoes	2,187	284	719
Total	5,687	3,562	3,820

Note The 1845 estimate of the acreage under potatoes is taken from Joel Mokyr, 'Irish History with the potato', *IESH*, VIII (1981), 12. The other 1845 estimates are from Bourke, 'The potato', Appendix 4.

Famine (Table 10). Note that while Bourke's estimates envisage a fall in aggregate acreage, they assume a rise in the barley and wheat acreages in the wake of the potato failure.[9]

Now the hard quantitative evidence for such famine-induced shifts is lacking, since the official statistics begin only in 1847. Indeed, Solar argues that Bourke underestimates the blight-induced shift out of potatoes into grain,[10] and therefore that his guesses at the 1845 grain acreage are too high. Here I stick with Bourke's numbers, though with some misgivings. In support of Bourke, many qualitative accounts, particularly from the west, indicate a decline in tillage in 1847. Thus in the Poor Law Unions of Ballinrobe, Westport and Castlebar, 'many fields and patches that might have been advantageously sown, [were] left bare', while in neighbouring Ballina Union 'the extent of arable land which has been left uncultivated and producing nothing but weeds, cannot fail but excite the attention of anybody who visits this country'. In the area around Clifden 'the non-cultivation of the land [was] plainly observable', and around Kilrush 'about six thousand notices to quit have been served and all the lands under ejectment are literally bare of stock and produce'. Meanwhile in west Wicklow 'half the country [was] left untilled', and in Sligo 'excepting among the landlords and strong farmers ... the lands lie *status quo*, choked with weeds'. Among small farmers 'the animus is also wanting, for they calculated that a grain crop after the rates and rent have been paid, cannot maintain them'. On the Greville estate in Cavan 'in the Spring of 1847 the energies of the people were so paralysed by the sufferings through which they had passed & under which they were then labouring that the cultivation

of the land was not only neglected but in many parts ceased'.[11] The evidence is not all one way, however. In Wexford and parts of Waterford the acreage under wheat was reported to be up and, in general, tillage with horses was less affected than spade cultivation. In September 1847 the *Farmers' Gazette* reported 'wheat crops never before so extensive in culture' and 'oats, never so extensively cultivated, except in the case of small farmers, who have become as a class almost extinct, whose holdings are, in many instances, lying waste'. Yet allowing for the eastern, strong-farmer perspective of the *Gazette*, some slight falling-off in aggregate grain acreage is plausible.[12] Another reason for sticking with the higher grain acreage, spelt out in detail elsewhere, is that those collecting the 1847 statistics were unexperienced, and therefore likely to overlook some tilled land.[13]

Theory too seems to support something like Bourke's estimates. Though the blight-induced drop in potato cultivation must have caused many of those smallholders still in business to shift in desperation to cereals and turnips, other forces worked in the opposite direction. First, death and emigration reduced the numbers in agriculture after 1845, and hunger must have cut the productivity of those remaining. Second, most grain was not grown for smallholder consumption but for sale off the farm by both smaller and larger landholders. As argued in more detail in Chapter 4, the effect of the potato failure was to increase the wage that the farmer had to pay in order to acquire productive workers. Thus men were 'ready and willing to work for their own sustenance and that of their families, for such moderate wages as shall enable them to live *at present prices*'. Before 1845 these were potato wages: now the minimum wage must reflect the higher 'sustenance' costs entailed by a grain-based diet. Since the increase in labour costs caused by the change in diet far exceeded the rise in grain prices, in principle farmers should have been inclined to grow less grain and hire fewer men. As the pamphleteer John Stanley predicted in a perceptive comment to the Lord Lieutenant in the early stages of the Famine:

> The great body of the rural population produce their own food. Now, affording employment other than as heretofore, must, in the ratio you afford it, increase wages. It is manifest that Irish farmers, from want of capital, could not pay a serious advance in wages, not could they carry out production, with a high rate of wages even by the system existing. Should any measure tend to considerably raise wages, I submit, there

> are good reasons to believe, that it would diminish production; and hence we are only at the beginning of a train of difficulties. Again money wages does [sic] not enter into the calculation of Irish farmers, commonly operating. If labourers should get money wages elsewhere they might prefer it, to the old system of payments, and the danger becomes visible of decreasing products . . . One shilling a day may not feed the people, yet it may deeply decrease production of food in Ireland![14]

The numbers in Table 9 prompt a few comments. First, they raise a question about the pre-eminence of the potato, at least in terms of output share. The staple food of more than one-third of the population turns out to have accounted for only-one fifth of output. This is our earlier distinction between mean holding size and the proportion of land in farms above a certain size in another guise. While the outcome confirms the potato's importance relative to anywhere else, it is the massive role of tillage crops generally that is most striking. Admittedly, the potato formed a higher proportion of gross agricultural production, since a higher proportion of the crop was absorbed as intermediate output.

Second, there is little scope in these numbers for the pre-Famine switch to pasture emphasised by some writers, notably Raymond Crotty.[15] Tillage items were still contributing over three-fifths of total output in the early 1840s. This marks a prodigious change from earlier centuries, for, although Table 2.1 hides the fact, Irish agriculture had traditionally been largely pastoral. Late eighteenth-century population growth and parliamentary bounties had given a strong boost to corn, however. In the pre-Famine decades buoyant demand in Britain greatly increased the acreage under the plough and spade, and the decline of domestic industry added to it. Scattered evidence of consolidation and shifts to pasture before 1845, and of associated peasant resistance, are not hard to find. Nevertheless tillage arguably accounted for an increasing proportion of output from the 1780s until very close to the Famine, so that Table 2.1 is a snapshot of what was the culmination of a very long-drawn-out process. A corollary was a landscape very different from that of Ireland today. 'The view presented by the country in the months of July and August', according to one account from the 1830s, 'is an interwoven patchwork of potatoes, wheat, barley, and so little intervention of meadow and pasture, that one is surprised how the inhabitants contrive to maintain their cows, horses, and

sheep'. In his diary Amhlaoimh Ó Súileabháin wrote of the summer scene around Callan being '*chomh glas le geabhar* (as green as corn grass)'. Even in 'Meath of the pastures', east of Navan 'most of the land [was] under tillage, and toward the western border of the country . . . nearly if not altogether so'. Hyperbolic licence apart, contemporary micro-data tell the same story.[16]

Third, the outcome suggests how highly commercialised Irish agriculture had become on the eve of the Famine. Although comprehensive Irish trade data were no longer kept after economic union in 1825–26, it is safe to assume that the bulk of the livestock and up to a quarter of the grain, and therefore a quarter of all output, was being exported in the 1830s and early 1840s. Two-fifths of even the oat crop were being marketed on the eve of the Famine, and Bourke's calculations[17] imply that a quarter of the grain output was being exported. To assume in addition that half of all livestock was being shipped out – hardly an extravagant claim – would mean that exports accounted for a quarter of all output.[18] The potato, mainstay of the poor smallholder, was the subsistence crop *par excellence*, yet the better varieties and qualities were sold in quantity in town and city markets throughout the year. Perhaps three-fifths of all agricultural output, then, was being marketed. This squares rather poorly with the once-popular view of an insulated subsistence-bent agricultural sector in the pre-Famine period. Still, the degree of commercialisation undoubtedly had a regional and social aspect, being lowest in the west, where farms were smallest and dependence on the potato greatest, and among agricultural labourers, who had little use for money, partly because they were poor, partly because they paid their conacre rent mostly in labour. Yet the demand for these workers' labour was market-derived.[19]

Estimates of acreage and employment totals underpin the productivity calculations in Table 11. The Irish census of 1841 reports 453,000 adult male farmers and 1,105,258 adult male labourers and servants in agriculture. Ploughmen, gardeners, graziers, herds, etc. bring the total employed on the land to just below 1.6 million. Since some of these were part-timers, to assume an agricultural labour force of 1.6 million for 1840–45 surely takes care of an any increase occurring over these years.[20] Agricultural land accounted for fifteen million acres. When coupled with British data these numbers yield the figures in Table 11.[21]

The 'backwardness' of pre-Famine agriculture is now seen in

Table 11 *Agricultural output and productivity in Ireland and Great Britain c. 1845*

	Ireland	*England*
1 Output (£ million)	40–43	120
2 Acreage (million)	15	30
3 Employment (labour)	1.6	2.0
4 1/2	2.5–2.8	4.0
5 1/3	24–26	60

clearer focus. Allowing for the lower price obtaining in Ireland, British superiority in terms of labour productivity was still more than two to one. This may be compared with O'Brien and Keyder's estimate putting Britain's advantage over France around this time at 1.8 to one.[22] The gap in land productivity was much narrower before 1845. In value terms the use of a common price level would remove much of the disparity between the two islands.

As Table 12 shows, in the 1840s Irish tillage output per acre was high by contemporary standards, being as high only in places long

Table 12 *Nineteenth-century crop yields (cwt. per acre)*

	Wheat	*Barley*	*Oats*
England, 1830–60	14.9	15.4	12.9
Ireland, 1845	12.5	18.0	13.0
Britain, 1884–87	16.6	15.9	13.1
Ireland 1884–7	14.9	15.1	13.1
France, 1862	9.5	9.5	8.9
France, 1892	10.1	9.4	8.6
Italy, 1870–74	3.7–9.0	–	–
Germany, *c.* 1800	9.2	8.8	4.0
N. Europe, *c.* 1800	7.2	6.0	4.4

Sources England, 1830–60, Germany and Northern Europe *c.* 1800, and Italy, papers presented to the session on agricultural productivity, Seventh International Economic History conference, Edinburgh, August 1978, by B. Holderness, G. Chorley, and G. Porisini, respectively; France, 1862 and 1892, Patrick O'Brien, D. Heath and C. Keyder, 'Agriculture in Britain and France 1815–1914', *JEEH*, 6 (1977), 365; Ireland, 1845, P. M. A. Bourke, 'The average yields of food crops in Ireland on the eve of the great famine', *Journal of the Department of Agriculture*, 66 (1969), 3-16; Ireland and Britain 1884–7, Mitchell and Deane, *British Historical Statistics*, 90–3.

celebrated for 'improvement' and convertible husbandry. How Irish yields reached such levels is discussed below. Enough to mention here that high Irish yields were in part the product of a soil-cleansing root crop, the potato, and spade cultivation. Nitrogen requirements were assured by animal manures and grasses, as in Britain, and by large doses of seaweed and sea sand. Even street dung fetched a price: the 'sweeping of John Street' in Kilkenny city was worth £4 a year in 1802.[23] But these data are also a reminder that yields per acre in themselves are hardly an infallible index of prosperity.

The gap in output per worker is a better measure of relative backwardness, and clearly, had output per acre in Ireland and Britain been identical most of that gap would have remained. Table 11 prompts a check as to how the labour productivity gap before the Famine, £30 to £40 per worker, might be explained in terms of resource endowments. A list of factors accounting for Britain's big lead might include the following:

1. Perhaps the most obvious point is that the Irish land-labour ratio was only slightly more than half the British. On less than heroic assumptions about the output elasticity of land, the standard Cobb-Douglas production function implies that Britain's output on the Irish land-labour ratio would have been considerably lower. Given a land output elasticity of 0.4, a halving of the land-labour ratio would have cut British output by 24 per cent; an elasticity of 0.3 would have reduced it by 19 per cent. Something like one-third of the initial gap in output per man is thus accounted for.

2. If the land labour ratio in Ireland was clearly lower, contemporary evidence is divided on the question of soil quality. Among pre-Famine observers, Young and Wakefield rated Irish soil fertility high, but Bicheno gave good reasons for a more pessimistic view. The evidence of such observers, however careful, is almost inevitably biased. They travelled the main roads, and therefore the low-lying, more fertile areas. In the circumstances it is perhaps better to rely on the evidence of modern soil maps. Since inherent fertility is what is at stake, it is probably not too farfetched that the balance shown in Table 13 will not have changed too drastically in the interim.[24] Thus, for example, while 47 per cent of Britain's total area today consists of 'prime land suitable for intensive farming, horticulture', only 30 per cent of Irish land is considered capable of either high-yielding tillage or pasture.

If the comparison carries, it suggests that the value of output per

acre of a given quality in Ireland could well have reached British levels on the eve of the Famine. But supposing that one-sixth more of Irish land was of first rather than of third quality, how would output have been affected? The elasticity of output to soil quality in the 1840s is not known, but let us suppose that the output difference is captured by the difference between the rent on good tillage and low-grade land, say £0.50 per acre. Output then would have been worth £(14)(0.17)(0.50) million or £1.28 million more. So soil quality differences do not explain much: this would have come to only £0.7 more per worker.

Table 13 *Soil quality in Britain and Ireland*

Class	*Britain*	*Ireland*
1	46.8	30.1
2	9.9	9.9
3	19.8	32.9
4	15.9	10.0
5	6.8	16.6
6	0.2	0.4

3. The difference in agricultural prices due to transport costs has already been mentioned. Output mixes differed too, giving rise to a potential index number problem. For instance, potatoes cost more than twice as much in Britain as in Ireland, and for that reason alone, presumably, Irish weights would give a bigger price gap than British. However, no satisfactory estimate of British output by category exists for this period. Deane and Cole's numbers are based on tax assessments, and McCulloch's 1846 estimate for England and Wales is based on too great a confusion between production and value added to be of much use. But the price data given in Table 14 suggest that an adjustment of ten per cent or so is in order.[25]

4. Besides the items in Table 9 Irish agriculturalists produced about £2 million of turf annually, and some of them also were part-time fishermen and textile workers.

Supposing that British agriculture operated under the constraints just mentioned – less land per worker, poorer soils, lower prices – how much lower would output per man have been? I suggest the allowances in Table 15.

Table 14 Some agricultural prices in Ireland and Britain, c. 1840–45

	Ireland	Britain
Wheat (*s.* per cwt)	10.6	12.65
Oats (*s.* per cwt)	6.4	7.5
Barley (*s.* per cwt)	7.0	8.3
Potatoes (£ per ton)	1.33	2.9
Wool (*d.* per lb)	13.1	13.3
Butter (*s.* per cwt)	86.8	91.3
Cattle (£ per head)	11.1	12.0

Source Solar, 'Growth and Distribution', 67–8, 364; A. H. John, 'Statistical Appendix', in Mingay, *Agrarian History of England and Wales, 1750–1850*, (Cambridge, 1989), 975–1007, 1046. Conversions from bushels to cwt. follow Mitchell & Deane, *British Historical Statistics*, 90.

Table 15 *'Accounting' for the productivity gap*

Constraint	*Drop in output per worker (£)*
Lower prices	6
Lower land-labour ratio	10 to 13
Lower land quality	1
Total	17 to 20

Half the gap in Table 11 is thus quickly accounted for. Several other factors stand out, though no attempt is made to gauge their relative confidence here. First, Ireland suffered from the handicaps of poorer inland communications (despite the progress reported in Chapter 1) and a poor supply of capital, physical and human. The parish of Gaoth Dobhair in west Donegal, where, it was claimed in 1837, there was no wheel car, no coach, no resident gentry, a single plough, thirty rakes and sixteen barrows, where the roads and bridges were 'few and barely passable', and where there was only one 'very primitive corn mill . . . and none superior to it within thirty miles', highlights the lack of physical capital. Though certainly not typical of the island as a whole, Gaoth Dobhair could be matched almost anywhere along the western seaboard, and even outside such areas isolation was a common excuse for backwardness.[26]

Next, turning to the labour force, Irish literacy and educational

levels were lower than British, even if (as we have seen) not sensationally so. However, lower human capital levels in turn may have reduced the input of complementary capital inputs.[27] A further possible influence frequently mentioned in literary sources is the impact of inadequate diet on the productivity of the labour force. Some of the force of this argument lies in the fact that the potato, though good food while it lasted, was often in short supply during the summer months when the demand for agricultural labour was keen. Reports from those parts of Britain employing seasonal Irish labour, and impressionistic remarks about the qualities of Irish and British workers in Britain, point in the same direction. The wage differential faced by Irish workers has been explained in this way also, though it is clearly far from the whole story. However, recent analyses of Irish diet before the Famine imply adequate nutritional intake.[28]

Finally, the data leave some room too for those 'institutional' factors stressed by the traditional literature – insecurity of tenure and insecurity of property generally. Recent research, it is true, de-emphasises such factors. Perhaps, then, what our numbers indicate is that the lower Irish productivity can be accounted for in rather straightforward economic fashion without recourse to old psychological arguments about the 'habits of the Irish' and so forth? Our numbers support the reinterpretation of some peasant behavioural responses formerly often seen as the product of 'indolence' and incompetence, and prompt the rationalisation of others in economic terms. Examples include the lazy-bed (i.e. the broad raised ridges used for potato cultivation in Ireland) and the spade: anachronistic to outside observers, they made sense because draught animals and heavy ploughs were a luxury not geared to small farms, small fields and soils that were often wet and rocky.[29] Marked regional variation in cultivation techniques and tillage implements is another example of methods which seem at first sight to reflect conservatism but (at least to some extent) may simply show a determination to get the most of what capital there was to hand. Horatio Townsend's verdict on the average Irish cultivator may thus have been not too far from the mark:

> A thorough knowledge of the Irish occupier's means, and an inspection of his domestic premises, would not only remove all feeling of surprise for the inferiority of his crops, but would procure

> for him great credit for the amount of valuable produce which under such circumstances he is able to elicit. The skilful British farmer will indeed see here much to condemn, and little to approve; yet all things considered, the wonder is not why our common farmers are not better but why they are not worse.

If British agriculture seems a harsh measuring rod with which to gauge Irish agricultural productivity, two recent studies show Irish farm productivity, input for input, did not lag far behind Scottish or Belgian.[30] As evidence against negative stereotyping of Irish agriculturalists, these are important contributions. At the same time, they are also a reminder of the deeper problem facing agriculture and the economy in general on the eve of the Famine: too much labour, not enough capital, not enough land.

2.2 Pre-Famine productivity growth

Townsend's claim, cited above, that Irish agriculture was poor not because it was inefficient but because of poor production possibilities should not be pushed too far, since neither land quality nor the land-labour ratio was exogenous in the long run. Dutch polders, Israeli fruit farms, and Oklahoma or Sahel dustbowls merely highlight what man on occasion can do to what economist David Ricardo, sometime M.P. for the rotten borough of Portarlington, called 'the original and indestructible powers of the soil'. In the Irish case soil erosion is hardly an issue, but if it is asserted that population pressure improves soil quality, modern soil surveys should tell against pre-Famine Ireland, the rural population having fallen relative to Britain in the interim. A more telling argument is that a low land-labour ratio may have been as much a result as a cause of 'backwardness'. Particularly in view of post-famine demographic developments, it is tempting to hypothesise that much of pre-Famine Ireland found itself caught in what development economists call a 'low-level equilibrium trap', with labour immobile and an inadequate surplus for accumulation being generated by or channelled into agricultural activity.[31] Progress in the pre-Famine era seems likely, however.

Data problems, as we have seen, are serious enough on the eve of the Famine; they rule out detailed calculations for an earlier date. Nevertheless, it can be shown that, despite persistent poverty and

hardship, agriculture was far from stagnant before 1845. This, as already noted, follows from the considerable increase in output implied by population and trade data. Between the Union and the Famine the number of bellies to be fed in Ireland rose from 5 million to 8.5 million. Food exports (see Table 16) rose too. While the most spectacular increase was in grain, meat exports rose impressively. The rise in livestock exports reported in Table 16 far outmatched the decline in the provision trade; meat exports on the eve of the Famine were probably double their 1800 level.[32]

Table 16 *Some Irish agricultural export data*

(a) Irish corn exports to Britain, 1802–45

Year	*Quarters*
1802	461,371
1815	821,192
1825	2,203,962
1835	2,679,438
1845	3,251,907

(b) Livestock exports, 1790–1846

Year	*Swine*	*Sheep*	*Oxen*
1790	5,185	–	19,457
1826	73,912	62,929	57,427
1832	145,917	90,622	92,000
1835	376,191	125,452	98,150
1846	480,827	259,257	186,483

By 1845 exports were providing enough food for over two million people. Then, unless Irish living standards dropped significantly, prompting a big decline in food intake, the crudest political arithmetic indicates that output nearly doubled in the interim. Admittedly this 'quick and nasty' way of estimating agricultural output change asks a lot of the reader's credulity. That it is a 'state of the art' gambit often used in quest of a measure of past agricultural productivity change is small consolation.[33] Still, if the doubling in agricultural output in the interim is ambitious, more conservative assessments of output growth are also considered below.

Suppose, first, that output doubled between 1800 and 1845 while the agricultural labour force rose by 90 per cent. This allows for some reallocation of labour from other sectors to agriculture in the interim (the increase in population was only 70 per cent). Then, some combination of technical change and capital accumulation must have contributed significantly to prevent the law of diminishing returns from cutting output per worker. Even an eighty per cent rise in output would imply a significant rise in productivity from non-labour sources over the period. These claims are based on the identity:

$$\delta Q^*/Q^* = \delta Q/Q - R - \beta.\delta OI/OI - \alpha.\delta L/L$$

where $\delta Q^*/Q$ is the output growth that would have occurred without accumulation or technical change, $\delta Q/Q$ is actual output growth, $\delta L/L$ is posited change in labour input, $\delta OI/OI$ is the change in other inputs, α and β are factor shares, and R is 'unexplained' productivity change. The residual R is equated with productivity change, though, strictly speaking, it absorbs misspecifications of inputs (the omission of human capital, for example) and outputs (failure to adjust for product quality changes or external economies). Still, the smaller the residual the less scope left for such factors, so that a sizable residual may be considered a 'plus' in a loose sense. Table 17 applies the identity. The first part assumed that output doubled between the Union and the Great Famine. The range assumed for α is surely not too low: if too high, a larger part of output growth would be unaccounted for. The first row states that (90)(0.6) or 54 per cent of the increase in output was due to labour alone. Then [100 – (90)(0.6)] or 46 per cent of the rise was due to $[R + \beta.\delta OI/OI]$. This implies an annual rate of productivity growth attributable to accumulation and technical change of over 0.8 per cent between 1800 and 1845. *Ceteris paribus*, a doubling of labour output would still have left 40 per cent for other factors to explain, or 0.75 per cent annually. That these numbers must not be taken literally hardly needs to be stressed. Still, they may be compared to the 0.5 per cent recently proposed by Allen for English agriculture over the same period for R alone.[34] The second part of Table 17 assumes an 80 per cent increase in output, and that still leaves substantial productivity growth to account for. Even a 70 per cent increase in output, coupled with a 90 per cent increase in labour input, yields 0.3–0.5

Table 17 *'Guesses' at productivity change in Irish agriculture, 1800–45*

	δL	α	δQ^*	$R + \beta.\delta OI$
$\delta Q = 100$:	90	0.6	54	46
	80	0.6	48	52
	100	0.6	60	40
	100	0.5	50	50
$\delta Q = 80$:	80	0.6	48	32
	80	0.5	40	40
	90	0.6	54	26
$\delta Q = 70$:	80	0.6	48	22
	80	0.5	40	30
	90	0.6	54	16
	90	0.5	45	25

per cent to $[R + \beta.\delta OI/OI]$.

Both contemporaries and historians, implicitly or explicitly, have often taken the rise in exports to Britain as a proxy for the rise in tillage or in output.[35] But surely some of the rise in exports was at the expense of domestic consumption? The doubling of output between the Union and the Famine implies more or less constant food consumption per head in the interim in Ireland. Given the likely trends in living standards outlined in Chapter 1, that seems too high. A 60 per cent rise in output would imply – using estimated population in 1800 (five million) as numeraire and allowing for exports – a drastic drop of $[5/5 - (8 - 2)/8.5](5/5)$ or about 30 per cent in average consumption. That follows from two-thirds of the extra output being absorbed by exports by 1845. Now some fall in the living standards of the poor, a group with a high income elasticity of demand for foodstuffs, is plausible, but surely the case for such a drop in average food consumption is less cogent. After all, the evidence in Chapter 1 is of an improvement in the lot of those further up the socio-economic scale, and though their income elasticity of demand was lower, their share in total food consumption was still significant.[36] The 10 per cent drop in food consumption implied by an 80 per cent rise in output is thus more plausible. Positing an output increase of 70 per cent between 1800 and 1845, or a decline of almost one fifth, i.e. $(6.5/8.5 - 1)$, in food intake, is probably on the cautious side.

Hard evidence on the trend in composition of agricultural output is elusive. While, particularly from the 1830s, there is much mention

of larger farmers laying the land down to grass, claims that both the acreage and the productivity of land under grain were increasing are plentiful.[37] When the focus of attention is switched from travellers' accounts of potato patches to farm and estate accounts and printed discussions of farming, such an outcome becomes less puzzling. Alongside the continuing squalor and poverty of cottier agriculture, signs of progress are evident. The county statistical surveys of the Dublin Society, which refer mainly to the 1800s, the 1810s, and the 1820s, bear this out. Excerpts describing the state of farming are reproduced in Appendix 2.1. Another witness to this is the county summaries in Samuel Lewis's *Topographical Dictionary* (1837). Though laced with 'improving' jargon, the *Dictionary* is based on local information, and reflects what was happening on the ground as regards farming technique and equipment. Relevant extracts from each county in Ireland are summarised in Appendix 2.3. While the reports are certainly not unanimous, their overall gist is hardly stasis. Such reports are also supported by evidence in the *Quarterly Journal of Agriculture* in the 1820s and 1830s. All these sources highlight improvements in livestock and crop quality, and in rotations and farm equipment. And, while they confirm the dominance of the spade for the cottier, they show too that farmers and the gentry relied mainly on ploughs and harrows.

Comparing the evidence on crop yields provided by Arthur Young (1776–78), the Dublin Society (1801–26), and Wakefield (1809–10) with the earliest official data also rules out the likelihood of agricultural stagnation in the interim.[38] More than a generation ago agricultural historian Slicher van Bath noticed that Arthur Young's Irish yield data were high enough to place Irish agriculture in the 'advanced' category. But how reliable are Young's numbers? Reliable enough, probably, since in Ireland as elsewhere he seems to have taken great pains to report the outcome of average rather than best-practice husbandry. From his very first informant, the steward at Lutrellstown, he sought details on 'the general state of husbandry in the county of Dublin'. On his journey north, 'Mr. Jebb gave [him] . . . particulars of the common husbandry, which, upon reading over to several intelligent farmers, they found little reason to correct'. And so it continued: even when prevailed upon to note the achievements of some improving farmer, Young almost invariably also sought information on the typical practices of the district.[39]

On his English tours Young has been accused of exaggerating

somewhat by highlighting the achievements of the 'improvers' who entertained him. Even there the criticism is unfair; he draws a clear distinction between his elaborate (and sometimes tedious) accounts of the feats of experimenting farmers, and his assessments of the common-or-garden kind. His yields data typically refer to the latter. Such bias seems even less of a problem in the Irish case, where Young's focus is not on individual farms but on whole districts. True, in his day Ireland's grain acreage was still low, and thus to be found on the better land with good access to fertilizer. To some extent, then, a comparison of yields flatters Irish farming relative to English in the 1770s. However, any bias in this sense would simply mean a greater true rise in yield per acre, adjusting for land quality, between the 1770s and the 1840s.[40]

Like Young's, the Dublin Society and Wakefield data are impressionistic and probably sometimes unrepresentative. They should not be rejected out of hand for that reason. The best of the Dublin Society surveys, which are usually also those which report yield per acre, easily match in quality the contemporary reports of the British Board of Agriculture. And if Wakefield seems occasionally to have confused weights and measures, and included a few suspiciously high yields, overall he took good care to report representative evidence. The results are reported in Tables 18 and 19.

Table 18 *Estimates of Irish grain yields, 1770s–1840s*

	(*bushels per statute acre*)		
Source	*Wheat*	*Barley*	*Oats*
Young	21.0	34.7	34.6
Dublin Society	22.1	35.4	37.3
Wakefield	23.4	39.7	43.0
Agricultural Statistics	26.2	42.0	39.3

Note The estimates are fully explained in Allen and Gráda,'On the road again'.

Table 19 *Crop ratios in England (Young) and Ireland (Wakefield)*

Young			
Southern	10.3	9.0	7.8
Northern	9.9	9.2	8.0
Eastern	9.2	9.1	8.9
Wakefield	9.9	12.4	8.6

Why the high and rising yields? Greater efficiency must have something to do with it. However, labour being much cheaper in Ireland, more intensive tillage must also have been partly responsible. Better weeding, deeper digging, more spade-work, higher seeding rates – all could have led to higher output per acre. Historians often infer agricultural progress from land yields, but the problem is that this assumes a fixed-coefficients Leontief technology in agriculture. However, something close to fixed coefficients might be defended as follows. More workers, *ceteris paribus*, will certainly shift the output mix from pasture to tillage and thus increase aggregate output. Within tillage, though, the law of diminishing returns may assert itself much more quickly. Thus the leap in grain acreage before the Famine could have been due in large part to cheap labour, and the simultaneously high and rising grain yields to the diffusion of new knowledge and better farm management. This approach finds explicit precedent in the classic work of Parker and Klein on nineteenth-century American grain yields, where it is taken as axiomatic that 'at a given level of mechanical techniques . . . the operations of the soil-plowing, sowing and harrowing – use labour in a relatively fixed proportion to the areas under cultivation'.[41] It is also implicit in Peter Solar's impressive comparative assessment of Scottish and Irish farming around mid-century. Following Patrick Chorley, Solar argues:

> Labour intensity is one explanation of these high returns, but recent work by Chorley suggests another, First, it is necessary to recognise that Irish yields, like English and Scottish, were high by European standards. Mid-century Irish yields were 10–40 per cent higher than the figures Chorley gives for north-western Europe around 1800, and two to three times higher than his estimates of European yields c. 1800. Chorley argues quite persuasively that the increase in north European yields, and by implication the earlier increase in British yields, was due primarily to improved nitrogen supplies resulting from the generalisation of leguminous crops. Labour does enter the story, for cultivation of root crops cleaned and prepared the soil, and liming and marling prevented valuable nutrients from being leached away. However, the major change was apparently managerial.[42]

The approach finds some support in the literature of development economics. There it is shown that the well-known relationship between farm size and the value of output per acre does not generally translate into one between farm size and physical crop

yields, and the labour output elasticities in production function studies are typically quite small.[43] Thus the 'high' Irish yields both in the 1770s and in the 1840s can hardly be accounted for by different labour intensities. However, the rise over time may in part be due to this factor.

A little simulation can add some insight here. Suppose that labour input in tillage farming rose by 60–100 per cent and land under tillage and other inputs by 40–50 per cent. The occupational shift implied by the upper bound is, as noted earlier, too massive to be plausible. The lower bound allows for occupational shift, but reflects the likely growth of population from 1810 or so, when Wakefield was doing his rounds and the Dublin Society in full stride. Given such ball-park estimates, how sensitive are output and yield per acre to assumptions about the elasticity of substitution (μ) and factor share (α)? The Cobb-Douglas ($\mu = 1$) and constant-elasticity-of-substitution (for μ of 0.5 and 0.25) production functions produce the outcome reported in Table 20 for initial values of 100 for L (labour), R (other inputs) and Q (output). Constant returns to scale and zero technical change are assumed.

Table 20 *Cobb-Douglas and CES production functions*

	Assumed rise in inputs		*Increase in output*	
μ	L	R	$\alpha = 0.5$	$\alpha = 0.4$
1	100	50	15.5	12.2
1	80	50	9.5	7.6
1	100	40	19.5	15.3
1	60	40	6.9	5.5
0.5	100	50	14.3	11.1
0.5	80	50	9.1	7.1
0.5	100	40	17.6	13.6
0.5	60	40	6.7	5.3
0.25	100	50	12.2	9.2
0.25	80	50	8.2	6.3
0.25	100	40	14.2	10.7
0.25	80	40	6.2	4.8

Even on low values of μ a doubling of labour inputs (taken alone) would have increased yields considerably. For example, with

$\mu = 0.25$ and $\alpha = 0.4$ doubling L would have increased yields by over 15 per cent. Any accompanying increase in land would have reduced them, however, and Table 20 captures the combined effect. If a μ of unity described the aggregate farm sector, in grain production μ was presumably less. The low income of farm labour indicates a low value of α: applying an income of, say, £12 to the 1.6 million male labourers and their dependents accounts for less than half of agricultural income. Factor input increase on such assumptions accounted perhaps one-third to one-half the recorded rise in yields.

The history of post-famine yields would seem at first sight to negate this claim. Indeed, Bourke has attributed the decline in yields recorded by the official agricultural statistics after 1847 to the fall in labour input.[44] This worked indirectly: the switch out of labour-intensive potatoes meant that the soil was less well prepared for grain crops. While Bourke's mechanism is plausible, it is not a clean test of the effect of labour inputs on yields, since the decline in potato acreage was in large part due to the blight. Had the blight not struck, surely grain cultivation in the early 1850s would have been more potato-intensive. A fairer test, then, would compare yields in two later periods. I present below the result of comparing oat yields across counties in 1857–59 and 1870–72. The choice of period was dictated by census dates: the 1861 and 1871 censuses contain comparable occupational data. I opted for 1857–59 yield data to avoid the dampening effect of the agricultural crisis of 1859–64: 1870–72 were unexceptional years. Between these dates the average yield across counties (unweighted) rose by slightly over 3 per cent, while land input dropped by over 18 per cent and labour input by almost 12 per cent. An ordinary least squares regression across counties produced no strong association between labour input and yield:

$$Y = 0.0576 + 0.0199\,Labour + 0.12242\,Land$$
$$R^2\,(adjusted) = -0.044$$

Arthur Young also provides data on French grain yields. Comparing the Irish with the English and the French suggests that Irish yields were already 'high' in Young's time, and continued to grow, while French yields stagnated. The irony is that while both Young and Wakefield were scathing in their comments about Irish farming methods, their numbers belie their criticisms. unlike Young,

Wakefield provides national estimates of yield ratios, and these are reported along with Young's English averages in Table 19. Wakefield's is near ten-to-one for wheat, it exceeds that for barley, and the figure for oats is 8.6 to one. Like the yield per acre data, these numbers are all very respectable by the standards of the day.[45] Moreover, Wakefield also provides the raw material for a check on one of Young's most basic accusations, that in Ireland 'all is under the old system, exploded by good farmers, of sowing wheat upon a fallow, and succeeding it with as many crops of spring corn as the soil will bear'. The rotations suggested by Wakefield's data are 'modern'. Wheat and barley almost routinely followed potatoes, while oats were sown after a variety of other crops. By Wakefield's time at least, the role of the fallow in Ireland was secondary.[46]

Pre-famine farmers were receptive to improved livestock and grain seed and potato varieties. They were 'stubborn' or laggard when it came to turnips and artificial grasses, as the propagandists of improvement repeatedly pointed out. However, the impressive yield performance suggests that the Irish had every right to spurn these hallmarks of improvement *à l'anglaise*. The key is that Irish climate and soil produced a great deal of grass naturally, increasing the marginal cost of the artificial version. Pomponius Mela had noted Ireland's advantage in this respect in classical times and Boate in 1652 noted the 'natural aptness for grass, the which, in most places, it produceth very good and plentiful of itself, or with very little help'.[47] Even Arthur Young noticed 'the great quantity of spontaneous white clover (trifolium repens) in almost all the fields, which much exceeds anything we know in England'.[48] The Dublin Society surveys provide ample evidence also, albeit sometimes reluctantly, for this claim. John Dubourdieu's account of County Down, after noting that 'the propensity of the soil for grass is so great that any field left to itself in heart, from manure and judicious tillage, immediately produces grass of the best kind', continued:

> While we are celebrating the fertility of our isle, let us not ungratefully pass by the white clover (trifolium repens), the never failing attendant on good farming, and which, in spite of the very worst of management, often clothes in winter our fields with green, or in summer enamels them with its fragrant flowers.

In his survey of Galway Hely Dutton makes the same point:

> The natural grasses are the same in general produced in every part of

> Ireland, in similar soils and situations. A bountiful Providence provides the seeds, and the constant feeding keeps it good, otherwise it might be anything else; the grazier takes no pains; he neither drains, sows hay seed, nor destroys weeds.

In his able survey of Wicklow Robert Fraser listed sixteen natural grasses, noting that he gathered specimens 'of these and many other grasses and plants in this summer, too numerous to be inserted'. Hard data would be better, but surely such evidence as there is suggests that artificial grasses would have been no pot of gold.[49]

If the Irish were slow to sow grass seeds, their enthusiasm for the potato knew no parallels in Europe. The potato caught on more in Ireland probably because it grew so easily there relative to substitutes. Climate, temperature, daylight and soil were all geared to good potato crops. In France pre-blight potato yields were only slightly more than half the Irish norm: they averaged 3.1 tons per acre in 1839–44.[50] 'In regard to the introduction of turnips', admitted the energetic Ulster land agent William Blacker, 'the opinion of even experienced farmers is much divided'. Many of his own tenants preferred the potato, and Blacker did not insist that on turnips but left it to the tenants 'to follow their own inclinations after making trial of each'.[51] But when the blight struck, desperate farmers even in the remotest areas needed no prompting to grow turnips. In 1847 in the backward and starving Union of Castlebar there were 803 acres under potatoes and 2,071 under turnips, 'sown in despair, as the food of man, not cattle'.[52]

Other signs of pre-Famine progress in farming exist. The vogue for market house building bespeaks greater commercialisation and competition. Over seventy market houses were built in the province of Ulster alone between 1800 and 1845.[53] There was also a great deal of land surveying, sometimes followed by striping and squaring of land and, much more rarely, by drainage. County agricultural societies sprung up all over the island. Of dubious worth, perhaps, as far as increasing productivity was concerned, such developments nevertheless reflected a wider dynamism.[54] Finally, backwardness has always been associated with potato conacre, yet at least in part this was an adaptation which blossomed with the shift towards corn-growing during the Revolutionary and Napoleonic Wars, and faded away with the Famine.[55]

It is time to take stock. First, our productivity calculations and the

yield estimates, together with a fair amount of qualitative evidence, seem to rule out stagnation in the pre-Famine half-century. Yet much of the evidence is flimsy and inferential. Further research, focusing on farm accounts, output quality shifts and consumption patterns might lead us back towards a more traditional assessment which highlighted stagnation more. Nor does our estimate of pre-Famine output deny the image of a 'ramshackle, ill-balanced agricultural system',[56] in the sense that the huge grain output was dependent on the corn laws and low-cost labour, and therefore ultimately on the potato. The corn law of 1815 protected Irish producers, though the spread of the benefits was uneven. Landlords and farmers who sublet gained, while labourers and smallholders, who had to pay higher rents as a result, and were relatively heavy consumers of food, probably lost out. Daniel O'Connell may have had such a scenario in mind when he complained melodramatically about 'landlords' venison [being] sweetened with widows' tears' as an outcome of the corn laws. Yet there was much truth too in Peel's claim that 'if there be any part of the United Kingdom which is to suffer by the withdrawal of protection ... it was Ireland'.[57] Table 21 also suggests that the outcome of agricultural change after the Union was highly inegalitarian. The conacre labourers who spent perhaps fifty or sixty days of the year cultivating and harvesting their potato ground spent the rest of the year (when not without work) contributing to Ireland's peculiar agricultural revolution by doing some farmer's work for a pittance.[58] This kind of agricultural progress, in its implications for income shares, was uneven development with a vengeance. On the eve of the Famine the distribution of holdings much have looked something like Table 21. This table represents a compromise between the flawed data prepared by the Census Commissioners in 1841 and the information being collected for poor law purposes around the same time.[59] By implication access to land was

Table 21 *The distribution of farmland* c. 1845

	Number (thousands)	*Mean acreage*
Wealthy farmers	50	80
'Strong' farmers	100	50
Family farmers	200	20
Poor farmers	250	5
Cottiers, labourers	1,000	1

highly unequal, and inequality in pre-Famine Irish agriculture matched that found in many underdeveloped countries today.

However, as I have argued in Chapter 1, the potato-based system may have been the logical answer from the vantage point of the 1820s or 1830s, since the Great Famine could not reasonably have been predicted from trends and fluctuations in farm output. Before 1845, largely unaided by government agency, the potato sustained an economy in the throes of demographic and economic adjustment. It is thus important not to overlook the real achievements of the system, and see its fragility in perspective. In its last years the system bore the burden of a declining cottage industry, and by the 1830s, as was widely recognised at the time, further long and painful adjustment was in prospect. If Table 21 is near the truth, it also implies that three-fifths of the land was in the hands of 150,000 farmers with substantial holdings. Most of them were probably like those observed by Dubourdieu in County Down in the early 1810s: 'sharp and clever in their dealings, as may be expected from the close population of the country, the constant intercourse, and continual making of bargains, as well as their regular attendance at markets and fairs'.[60]

The juxtaposition of agricultural backwardness and the massive mortality of the Great Famine, as if the potato blight were just a catalyst occasioning a catastrophe inevitable in any case, was a cornerstone of the dogmatic version of political economy articulated and popularised by Nassau Senior, Charles Trevelyan, and others (see Chapter 3). By and large, historians have succumbed to their version of events. Without wishing to gloss over the injustices and problems besetting Irish agriculture, I would argue instead that the blight made Irish agriculture seem more vulnerable and unhealthy than might have been plausibly judged *a priori*.

2.3 Agricultural productivity and the Famine

Recent work confirms the traditional view that excess deaths during the Famine numbered about one million (see Chapter 3). The immediate impact on aggregate agricultural output may be gauged from the Marquess of Landsdowne's claim that the failure of the 1846 harvest alone had been 'equivalent to the absolute destruction of 1,500,000 acres' of produce worth £15 million. Worse was to come

in 1847 and 1848. The acreage under potatoes, which exceeded two million in 1845, dropped to just over one million in 1846, 0.3 million in 1847, and 0.7 million in 1848. Tillage recovered during the next few years but was never again to reach anything like its pre-Famine norm.[61]

From 1847 on, data on livestock, crop acreages and yields, and the numbers of holdings were collected annually by the Irish Registrar General. Those data form the basis for the estimates of £42.4 million suggested by Solar for 1856–60, and £42.8 suggested by Turner for 1855–59. A striking implication of all estimates is a marked decline in the proportion of output due to tillage. Solar has put the contribution of tillage at £15.7 million (37 per cent) and that of livestock at £26.7 million (63 per cent).[62] Combining Table 9 and Solar's estimate for 1856–60 also implies decline in constant terms in the interim. The decline was 16.8 per cent using base-year prices or 22.6 per cent using end-year prices. Since the male agricultural labour force fell by slightly more – from about 1.6 million in 1840–45 to somewhat over 1.1 million in the late 1850s – the data belie the notion that 'a removal of 25 per cent of the labour force in poor countries will not reduce agricultural production'.[63] Admittedly the Great Famine is not a 'clean' test of this claim, since the blight reduced both the labour supply and the land endowment. Farmers could no longer rely on the potato crop in the same way, so they grew fewer potatoes, despite higher prices. But for the deterioration in quality to explain all the decline in output would have required an implausibly large reduction in land 'efficiency units'. The data thus do not disprove the view that the pre-Famine labour force was fully occupied at least part of the year, though productivity at the margin may have been very low. Further evidence along these lines is the marked seasonal variation in rural wage levels before the Famine, and the tendency towards labour shortages during the harvest period.

Labour productivity rose and land productivity dropped slightly in the wake of the Famine. The output estimates also confirm the common view that non-landlord incomes rose impressively in money terms. However, the same estimates leave little scope for a rise in total factor productivity change (on which more in Chapter 4) between the 1840s and the 1850s. The most plausible reason for this is the blight-induced decline in the fertility of the soil.

Appendix 2.1
The Dublin Society county surveys and the state of agriculture c. 1800–1825

In 1800 the Dublin Society embarked on a scheme of county surveys, modelled on the Board of Agriculture's County Reports and John Sinclair's *Statistical Account of Scotland*. Much later, Robert Fraser (who would complete two surveys and leave a third unfinished) claimed credit for the idea. Fraser allegedly induced old political rivals, John Foster and Lord Castlereagh, to briefly set aside their differences in order to get a vote to finance the scheme through the Irish Parliament. One of the last acts of the College Green Parliament was to fund the venture to the tune of £1,500, and between 1801 and 1832 twenty-three surveys were published. Another, Charles O'Brien's incomplete account of Kerry, has been rediscovered and edited by Moyles and de Brún. Notes gathered for two more, for counties Louth and Tipperary, survive. Isaac Weld, author of the lively survey of Roscommon, also embarked on surveys of neighbouring Longford and Westmeath, though it is doubtful whether he ever finished them.[64] In terms of quality and range, the Society's surveys are a mixed bag, and Clark and Meenan exaggerate somewhat in claiming that they *give* 'for the most part a fairly complete and accurate picture of the state of agriculture throughout Ireland at the period and represent an undertaking of considerable importance in the history of Irish agriculture'.[65]

The enthusiasm of leading members of the Society for the surveys did not last, and six of nine early volunteers (including Richard Edgeworth, who had volunteered for Longford)[66] failed to deliver their reports. The Society thereafter relied mainly on paid authors, who received £80 per completed manuscript.[67] Several of the early reports were rushed jobs; one author, James McParlan, 'surveyed' four western counties (Donegal, Mayo, Sligo, and Leitrim) in less than one year (1802–02), while another, Charles Coote, covered four midland and northern counties (Laois, Offaly, Monaghan, and Cavan) in little more than a year (1801–02). The Society admitted in 1802 that 'many' of the surveys were 'very defective' and required 'much amendment'.[68] The surveys by Coote and McParlan are of rather poor quality (Coote's 1804 survey of Armagh is better), but 1802 also saw the publication of Tighe's masterly survey of Kilkenny and Dubourdieu's well-known work on County Down. Coote claimed that the whole project was threatened in 1803–04 by 'illiberal jealousies',[69] but further volumes continued to be published, and their average quality improved.

I set out below evidence on agricultural improvement, or the lack of it, from all twenty-three published surveys, and the unfinished surveys of Kerry, Louth, and Tipperary.[70] Any assessment based on such evidence must be cautious. Though most of the surveys refer to the 1800s, the series

stretches over a three-decade period. They do not constitute twenty-five independent views of the state of Irish agriculture; indeed, comparing the excerpts from different surveys by any one author suggests common biases, and apparent regional differences must to some extent reflect differences in authors' subjective judgements. Impressions are nearly always qualitative, and they refer to the diffusion of techniques (or the lack of it) rather than productivity change.

Nevertheless, surely there is more to the general positive tenor of these accounts than the rhetoric of improvement. Though some reports deny it, the majority indicate some progress in livestock strains, cultivation techniques, and farm equipment. Slowest to change seem to have been the western counties (but note Hely Dutton on Galway and Clare). The main agents of change were, not surprisingly, those endowed with considerable capital (e.g. Mayo, Cavan, Dublin).

Laois (Queen's) (1801) Ploughs . . . very ill chosen, and badly constructed . . . but many implements of improved agriculture now introduced . . . This country [Maryborough barony], for many miles around, is indeed the most rich and luxuriant landscape that can be conceived; unquestionably for such an extent, no part of Ireland is so highly improved, and I doubt, can it be equalled, certainly not surpassed in England (Coote, 1801: 93, 103).
Offaly (King's) (1801) Their tillage has not been considerable, and till lately, little more of each species of grain sowed than answered home consumption; latter years has induced many to till, and they now sow a great quantity of barley, which supplies two very extensive distilleries in this barony [Clonlisk]. Their course of crops commences with turnips, which gives their sheep green food all the winter; next potatoes and wheat; barley and oats are the last crops, with which their ground is again let out to grass . . . [In Garrycastle] their wretched mode of tillage is with a two-horse plough, and this district more generally in possession of small farmers; indeed, agriculture is not the favourite pursuit. The country abounds with linen manufactures (Coote, 1801: 44, 101).
Monaghan (1801) Until within these few years, there was not one improved implement of husbandry in the country, and but very few at this day . . . The farms being so small, wheel cars are little required . . . [In Cremourne] the small farmers are seldom without a little clover . . . I never saw such ill proportioned or misshapen bulls, which until they are exchanged for a better kind, there can be no chance of improving the breed . . . [In Monaghan barony] their pasture is very rich, and in letting out their ground, they sow white clover with the grass seeds: by the encreasing sale of clover seed every year in the town of Monaghan, it is evident they are more attentive to this valuable herbage . . . The breed of cattle is not much improved (Coote, 1801: 61, 70, 73, 163).
Wicklow (1801) For these last twenty years, capital in Ireland has been

gradually, and of late years rapidly, accumulating, amongst the agricultural part of the community. A great extension of cultivation has in consequence taken place. The high price of every kind of produced has stimulated industry, and, notwithstanding the distractions, which for these last three years have taken place, there has never been a period when more assiduous exertion has appeared among all classes, particularly amongst the lower classes of farmers, in cultivating their lands . . . In the county of Wicklow, I found it universally remarked that the *mode of cultivation* has, of late years, also improved. Farmers now seldom crop their lands without manuring either with marle or with lime (Fraser, 1801: 123–4).

Kerry (*1801*) As for Borecole, Cabbage, Rape, Carrots, Vetches &c, the common farmers scarce know what they are, nor have they been ever grown for feeding cattle, even by men of fortune . . . The natural breed of black cattle in this County . . . is nearly lost. An idea of improving it made the people introduce the large bull, and this mixt breed has not in general answered expectation . . . Artificial grasses are generally not cultivated in this County (O'Brien, 1801 (in Moyles and de Brún, 1968: 90, 92, 96)).

Donegal (*1802*) In the champaign parts the cattle are of a somewhat superior description; although I cannot say, that either pains in improving the breed, or the quality of pasture, contributes to any superior degree of perfection (McParlan, 1802: 48).

Mayo (*1802*) Agriculture is still in a very backward state, and in no very great progress of improvement, except by the Marquis of Sligo, Col. Browne of Castlemagarret, and three or four more . . . Throughout all the baronies I have observed no new machine or implement of husbandry . . . The breed in [Clanmorris] barony is very much improved. It is grown a system to take every pain in the improvement of sheep and neat cattle; and for many years back English breeds have been gradually coming into this country . . . [In Kilmain] cattle of every kind are . . . in a high state of improvement, and every care is taken in continuing this improvement . . . In the barony of Carra not only the gentlemen make use of [clover and artificial grasses], but even the poor have got into the practice and knowledge of the great benefit arising from laying down their fields with grass seeds (McParlan, 1802: 23, 36, 44, 45, 56).

Leitrim (*1802*) The extent of agriculture in Leitrim is very limited, either in potatoes or in grain, except what is done by one gentleman, Mr. Irwin of Drimsilla . . . By the introduction of English cattle for many years into Ireland, the breed is so far improved as to emulate those of England (McParlan, 1802: 26, 35).

Cavan (*1802*) [In Tullagha] in agriculture they are extremely deficient, and were it not for Mr. Grission's improvements, which are well executed, this part of the country would shew little emanation from its rude and primeval state of nature (Coote, 1802: 124).

Dublin (*1802*) Rapid improvements are now taking place, because men of

fortune and liberal education have at length turned their thoughts to the plough . . . It is not an easy matter to ascertain the average produce of each kind of grain from the acre; it was formerly, I believe, estimated at 6 barrels of wheat of 20 stone each; 10 barrels of oats of 14 stones each; and 9 barrels of barley of 16 stones each; but I am convinced that, from the great extension of the potatoe culture, and in some places clover, the average has been raised to 8 barrels of wheat; 12 barrels of barley; and 14 barrels of oats (Dutton, 1802: 25, 26).

Down (1802) We shall find the [the middle class, the possessors of from twenty to fifty acres] to be a fine body of men, whether considered in point of understanding or morals; sharp and clever in their dealings, as may be expected from the close population of the country, the constant intercourse, and continual making of bargains, as well as their regular attendance on markets and fairs, which are held in every town, and which are resorted to for amusement and society, as well as for business. It is not, therefore, in this country that we are to look for the rural simplicity of the pastoral ages; . . . and that their habits of industry are even increasing must be apparent to every observer, from the increasing comforts, both in their habitations and dress (Dubourdieu, 1802: 43–4).

Kilkenny (1802) Agriculture is upon the whole, in a worse state . . . than in some of the adjoining counties. [M]any gentlemen and some intelligent farmers have adopted practices founded on better principles . . . Change of seed is a circumstance much attended to by farmers, who procure grain not only from their neighbours but sometimes from England . . . Heavier [ploughs] were formerly used than what are in general worked at present . . . The breed of sheep is rapidly improving in this part of the country . . . (Tighe, 1802: 177, 178, 193, 293).

Tyrone (1802) Except about Strabane and Omagh, very little attention is paid to laying down with grass-seeds . . . A plough got some years ago from Collon, one from Lord Longford in the county of Westmeath, and one from Midlothian in Scotland (all at rash), are beginning to open the eyes of the neighbouring farmers . . . About twenty years ago, very few wheel-cars were to be met with . . . now every farmer of any note is possessed with one or more (McEvoy, 40, 46, 48).

Derry (1802) Among the cattle not yet long enough introduced to be counted ours, we have some fine large well-shaped cows, chiefly from Fermanagh and Roscommon (Sampson, 206).

Armagh (1804) [The] new system [of husbandry] is scarcely heard of here, and except by a few very experimental gentry, has not been attempted . . . The common ill-constructed Irish plough and harrow . . . are in general use . . . There is not one threshing machine in the county . . . In the black cattle, the defects, and also the beauties of the native breed are occasionally seen. Hitherto there have been but small pains taken to improve them . . . The cultivation of artificial grasses, which have been recommended, is treated of

in the last section of the preceding chapter under the heading of 'Crops not commonly cultivated to any extent' (Coote, 1804: 172, 220, 225).

Sligo (*1802*) In general the mode of cultivation is in every respect the same in this county as in most of the others of the kingdom . . . It is very astonishing how slow the advancement is in this country of green, white, and after crops, and of house feeding . . . (Breed of cattle) very much improved, and improving every day . . . This vast increase in the quantity and export of butter is chiefly owing to an improvement in the manner of making it up . . . (McParlan, 1802: 14, 16, 24, 31).

Meath (*1802*) I know of no class of men in society of greater hindrance to agricultural improvement than the class of farmers who hold from two to ten acres of land . . . The farmers who hold from fifty to one hundred acres are a very sober industrious body of men . . . Those from one to three hundred live comfortably, pay close and constant attention to the business, stand continually over their men, and improve their ground by gravel, ditch scourings, draining, &c. but seldom plant quicks or trees on their ditches . . . The farmer and grazier, holding from three to six hundred acres is the man whose ground is in the most perfect state of improvement . . . What may be justly termed improved husbandry, with few exceptions, is almost quite unknown in this country . . . Drills are coming fast into practice for potatoe planting . . . Some attention for many years back has been paid by individuals to the breed of black cattle . . . (Thomson, 1802:82–4, 139, 184, 297).

Kildare (*1807*) Except in a few instances where some have ventured out of the beaten track, the agriculture is in the same state as for the last century . . . Potatoes are universally cultivated, mostly hitherto with the spade, which is now giving way to the plough and drill . . . drilled potato cultivation is advancing with rapid strides . . . Some few spirited gentlemen have introduced the Scotch and Leicester ploughs; they are gaining ground . . . The neat stock (of cattle) already in our possession are the best adapted to soil, climate, and Irish treatment, and better answer to the wants of the country . . . (Rawson, 1807: 4, 7–8, 106).

Wexford (*1807*) The cultivation of this county is allowed on all hands to have been much improved within these last twenty or twenty-five years past, and particularly in the baronies of Forth and Bargie. The improvement consists chiefly in the general introduction of clover and grass seeds, with which they now universally lay down their grounds after a moderate cropping with grain, between which crops of grain, in Forth and Bargie, they interpose beans; but still they too frequently take two crops of white corn, and even sometimes three crops running, without any intermediate green or pulse crops (Fraser, 1801: 52).

Clare (*1808*) Formerly the preparation of wheat was always a fallow . . . but the great extension of the potatoe culture, and a happy rise in rents, have in some measure assisted the abolition . . . The practice of ploughing with only two horses and oxen (still a driver) has been adopted within a few years by

many . . . A few of the old Irish breed may be seen in mountainous situations; they are usually black or of a rusty brown, with large reflected horns, and large bellies, good milkers, and very hardy; but, as improvement takes place in these mountains, the breed keeps pace with it; and you will frequently see at fairs very neat cattle (I mean cows) the property of poor people . . . Sheep have been greatly improved in their shape by the introduction of Leicestershire rams, but materially injured in the quality of their wool (Dutton, 1808: 33, 51, 86, 89).

Louth (1808)[71] Only summary replies to a questionnaire circulated by the intended author, D. A. Beaufort, survive. They indicate that livestock breeding was 'little attended to'. However, the cultivation of clover was 'very general', and crop yields were high.

Cork (1810) The Scotch swing plough now very much used in the neighbourhood of Cork and some other places . . . In very stony and rugged soils, which is frequent in the west of the county, [the common plough of this country] is less objectionable . . . The general management has much improved, particularly in the neighbourhood of Cork . . . The general improvement of the roads . . . has introduced the wheel car into all the better parts of the county . . . [In Fermoy] the defects of the old system are daily giving place to better modes, and that improvement is advancing with rapid steps . . . Upon the whole, the agriculture of [Carbery] is in a state of advancement. Among the common farmers, clover, almost unknown twenty years ago, is very frequently cultivated, though in small patches, for summer soiling. Grass seeds are sowed by many, and often saved for sale. The potatoe crops are frequently good, and, where most carefully cultivated, hardly inferior to those of any other part. Eight, ten, and twelve tons are sometimes produced from an acre . . . The tillage of [Kinalea and Kerricurrihy] is daily experiencing advancement both in quantity and quality, the latter depending much upon the nature and circumstances of the tenure . . . Sand was here formerly, as it still is in many other places, carried on horses' backs, in bags containing about two hundred weight. It is now universally drawn in one horse carts, that carry from five to six hundred . . . This barony [Muskerry] has been greatly improved within the last forty years . . . Though much is still to be learned by the common agriculturalist, much, and that of prime importance, has been attained . . . The agriculture of [Carbery] is in a state of advancement. Among the common farmers clover, almost unknown twenty years ago, is very frequently cultivated, though in small patches for summer soiling. Grass seeds are sowed by many, and often saved for sale . . . Among gentlemen farmers the improvement has been still greater (Townsend, 1810: 191, 209, 219, 350–1, 543, 549, 651–2, 6a).

Antrim (1812): Varieties of wheat are every day appearing . . . Since the cultivation of clover has encreased so much in the southern parts of this county, clover lea is often the preparation for oats . . . The introduction of the potato oat within the last ten or twelve years has caused a considerable

change in the quantity sown of the other species . . . There is a great change of opinion respecting the preparation necessary for flax . . . In the breed of swine there has been a great change for the better since the beginning of this century . . . (Dubourdieu, 1812: 166, 175, 176, 189, 340).

Galway (*1824*) There have been few improvements made in agriculture until very lately, indeed until Farming Societies were established, and they are still too much confined to the demesnes of men of fortune . . . The improvement in the breed of sheep has been most rapid. When I first came to Ballinasloe, having always heard so much of Connacht sheep, I was not a little surprised at seeing such multitudes with thick legs, booted with coarse wool down to their heels, and such a bushy wig of coarse wool on their heads, that you could scarcely perceive their eyes; at present they have nearly all disappeared, and given place to a fine breed, not to be equalled by the general stock of long-wooled sheep in England; this must be imputed to the introduction of Leicester rams (Dutton, 1824: 70, 115–6).

Roscommon (*1832*) That tillage has been very considerably extended during latter years in the county of Roscommon, and that a much greater quantity of food is now raised than at any former period, will scarcely admit of doubt. But the general system of agriculture, excepting on the land held by wealthy individuals, remains still in a very imperfect state, and the smaller farms are cultivated in a manner at once slovenly and wasteful (Weld, 1832: 654).

Tipperary (*1833*): The better kinds of farmer usually denominated the middle classes seem also to have a more improved state of agriculture – their ploughing seems better done – good horses and tackling – and greater attention paid to it in general, thus for some years clover and vetches and varieties of grass seeds are cultivated. Iron has supplemented timber in the formation of the plough and the commonest car has iron wheels and iron axles (Cooke, 1833).[72]

Appendix 2.2
Evidence from the country entries in Samuel Lewis's *Topographical Dictionary of Ireland (1837)*

Antrim A considerable portion formerly employed as grazing pastures is now under tillage . . . Great improvement has of late years been made in the agricultural implements, by introducing the best Scotch and English modes of construction . . . The breed of cattle has been very much improved within the last few years, particularly in the more fertile districts . . . The long-legged flat-sided hogs formerly reared have been superseded by the best English breeds.

Armagh The state of agriculture in modern times has very much improved;

gentlemen and large farmers have introduced all the improved agricultural implements, with the practice of drainage, irrigation, and rotation of crops. Mangel-wurzel, turnips, clover, and all other green crops are now generally cultivated even on the smallest farms.

Carlow Agriculture is in as highly improved a state here as in any other part of Ireland . . . Wheat of a superior quality is grown in every part . . . Turnips are everywhere cultivated by the gentry and large farmers; but the small farmers are generally averse to the culture of green crops . . . The pastures are remarkably good . . . the dairy farmers pay great attention to the breed of milch cows.

Cavan Agriculture is very little improved . . . Green crops are seldom or ever grown, except of the nobility and gentry . . . the iron plough has been generally substituted for spade labour . . . Into the mountain districts, however, neither the plough nor wheel car has yet found its way . . . The breed of pig has been much improved.

Clare Great improvements have been made upon the old rude implements of agriculture . . . The Scotch plough is generally used . . . the breed of swine has been greatly improved, the small short-eared pig now being universal. The breed of horses has also undergone improvement.

Cork The tillage, except on the demesnes of resident gentlemen, presents rather unfavourable features . . . [T]he Scotch plough has been introduced by the gentry and wealthy farmers in the neighbourhood of Cork and other places . . . The cattle of the south and south-west are small, seldom weight more than 3.5 cwts.; formerly they were all black, but at present the breed is mixed, and of various colours; they generally yield abundance of milk.

Donegal In Boylagh and Bannagh much land is now under cultivation, though formerly scarcely sufficient was tilled to supply the inhabitants with potato and grain. [Here] turnips, vetches, mangel-wurzel and other green crops are common . . . The angular harrow is becoming very general, and all other kinds of agricultural implements are gradually improving . . . The breed of pigs has also been greatly improved.

Down The great attention to tillage has brought the land to a high state of agricultural improvement . . . Artificial grasses are general; clover in frequent cultivation, particularly the white. Draining is extensively and judiciously practised . . . The system of burning and paring is practised only in the mountainous parts . . . Threshing machines are in general use.

Dublin Considerable improvement has taken place in the system of agriculture by the more extensive introduction of green crops and improved drainage, and by the extension of tillage up the mountains.

Fermanagh The old car with solid wood wheels has given way to the light cart with spoke wheels, and the slide car is rarely used, except in the most mountainous districts to bring turf down the precipitous roads . . . almost every sort of stock known in this kingdom is to be found here in a day's journey, but so crossed as to defy the possibility of distinguishing the

original breeds . . . The horses are bad.

Galway The small farmers or cottiers till almost exclusively with the spade. Crops of every kind on the lands of cottiers are generally carefully weeded . . . . Agriculture as a system is in a backward state, except in the neighbourhood of Ballinasloe, Tuam, Hollymount, and Gort, where the rotation of green crop systems has been introduced . . . In most of the eastern portion of the country the iron plough and light angular harrow are generally used . . . the old wooden plough is retained in many places . . . One-horse carts with spoke wheels are so general that the old solid wooden wheeled car is now seldom seen, and the slide car never . . . In Connemara, Iar-Connaught, and Joyces Country, wheeled vehicles are almost unknown.

Kildare In general the county is fertile and well cultivated . . . The Scotch plough is general . . . Great improvement has been made in the breed of cattle.

Kilkenny The use of oxen in the plough seems to be rather increasing, though the proportion is very small in comparison with horses . . . the attention paid to the breeding of cattle is inferior to that of the adjoining counties of Carlow and Waterford . . . Pigs have been greatly improved . . . In all the minor departments of rural economy, except the rearing of poultry, the farmers are very deficient.

King's (*Offaly*) The generality of the small farmers do not venture on the green crop system, except in the barony of Warrenstown where a regular rotation crop in general. Red and white clover are found on most farms; the former, with rye grass, answers bog land extremely well . . . Much has been done to improve the breed of horned cattle . . . The breed of sheep has also been much improved . . . Asses are mostly kept by the poor people, and mules are common with the small farmers . . . The Scotch plough and the angular harrow are everywhere used, except in the mountain districts and by the poorer farmers . . .

Kerry Agriculture is in a backward state . . . wheeled carriages were little known but their use is now becoming general . . . From the introduction of the improved kinds of cattle from Great Britain, the country now possesses the long-horned Leicester, the Hereford, the Holderness, and the Devon breeds: the common cattle of the country are partly of the long, partly of the short horned . . .

Leitrim The old heavy wooden plough is generally used in the low country, while in the mountain districts the land is chiefly cultivated by the loy . . . In the southern parts of the country, and generally in the fertile districts, great improvements have been made in the breed of (horned cattle) . . . A light and useful one-horse cart has everywhere superseded the old solid wheel and slide car.

Limerick The wheat crops are everywhere very heavy . . . The tillage, except on large farms . . . is generally conducted in a slovenly manner . . . The agricultural implements are generally of the newest and most improved

construction . . . [T]he old Irish car is quite banished, expect among the very poorest people.

Londonderry The principal artificial grass is clover, to which the annual and perennial ray are sometimes added: these seeds are generally sown as the last crop of a course, but the common farmers seldom sow anything, trusting to the prowess of the soil and the humidity of the climate to restore the herbage . . . The breeds of cattle of every kind are much improved by judicious crossing . . . All the improved agricultural implements are in general use . . .

Longford The practice of laying down land with grass or clover seeds is gaining ground every year . . . Agricultural implements are of an inferior description, except with the gentry and wealthier farmers; one-horse carts of excellent description are universal . . .

Louth Altogether an agricultural county . . . The agricultural implements are of the most improved kinds, except in the mountainous districts . . . Irrigation and draining are better understood here than in any of the adjoining counties.

Meath Considerable benefit is thought to arise from a change of seed even between neighbouring baronies . . . The quantity of land applied to green crops and artificial grasses is comparatively small, in consequence of the vast grasses of the most productive kind . . .

Monaghan Great improvements have been made within the last few years in almost every department of agriculture, both as to the treatment of the land and the implements . . .

Queen's (*Laois*) The implements and carriages employed in rural economy are generally of the most improved description . . . All the improved breeds of English cattle have been introduced into the county . . .

Mayo Paring and burning is very prevalent . . . The old and clumsy agricultural implements are rapidly giving way to those of a more general description . . . Yet still the cottiers' implements are mostly limited to the spade and sickle, and the manure is carried to the field and the produce to market in wicker panniers on horses' backs or on the shoulders of women.

Roscommon Although tillage has in later years have been greatly extended, yet the general system of agriculture . . . is still in a very backward state. . . The superiority of both cattle and soil in this county is attributable both to the excellence of the soil and attention of the breeder . . .

Sligo Tillage has increased rapidly . . . A pair of horses abreast and driven by the ploughman is now often seen . . . The favourite breed of cattle is a cross between the Durham and the native cow . . . [E]qual attention is paid to the breed of sheep . . .

Tipperary Agricultural implements and carriages of improved construction are every year coming into more general use . . . in many parts, a mode of draining water off pasture lands, called pipe-draining, has been introduced from Limerick . . . In some parts of the Ormonds, and on the lands of the gentry, the most improved systems of green cropping are practised.

Tyrone Agriculture has made rapid advances in recent years, particularly in the eastern districts . . . The mode formerly general here of allowing the land to rest for a few years . . . is no longer practiced except by the poorest class of farmers . . . In no other county in Ireland has there been a greater improvement in the breed of cattle than in the low country of Tyrone.
Waterford Clover is becoming very general . . . The most improved implements and carriages are now in general use . . . those [pigs] in general demand are of the best description . . .
Westmeath The resident gentry and large farmers have adopted the system of green crops; the most improved implements are in general use . . . Much attention is paid to the breeding of every kind of cattle.
Wexford In the interior . . . the farmers depend in general upon artificial grasses . . . Under all their various natural disadvantages, the lands of this county, by incessant industry and superior skill, are generally kept in an excellent state unknown in many other parts of Ireland . . . The farmers are by no means so attentive to the breed of cattle as in many other counties.
Wicklow Cultivation has for many years been rapidly extending up the more improvable mountains . . . Tillage is the chief object of husbandry . . . Marl and limestone are used very extensively . . . The agricultural implements are of the ordinary improved construction, and the carriages one-horse cars.

Notes

1 J. Bicheno, *Ireland and Its Economy*, (London, 1830), 7.

2 George O'Brien, 'Introduction' to E. J. Riordan, *Modern Irish Trade and Industry* (Dublin, 1921), xi.

3 Lance Davis *et al.*, *An Economists' History of the United States* (New York, 1972), 369.

4 T. W. Freeman, *Ireland: An Historical Geography* (Manchester, 1956), 60; Arthur Young, *Tour in Ireland*, II (Dublin, 1780), 75. See also O'Brien, *Economic History*, 27–41.

5 H. S. Thompson, *Ireland in 1839 and 1868* (London, 1870), 29.

6 Horace Plunkett, *Ireland in the New Century* (Dublin, 1904), 50–1, 131; J. Beddy, 'A comparison of the principal economic features of Éire and Denmark', *JSSISI*, 17 (1943–44), 189–220; Hans Staehle, 'Statistical notes on the economic history of Irish agriculture, 1847–1913', *JSSISI*, 18 (1950–51), 444–71; R. D. Crotty, *Irish Agricultural Production* (Cork, 1966); Kevin O'Rourke, 'Winners & losers in the international growth stakes: Denmark & Ireland, 1870–1930' (typescript, 1991).

7 P. M. Solar, 'Growth and distribution in Irish agriculture before the Famine' (unpublished Ph.D. dissertation, Stanford University, 1987), Ch. 9.

8 I use £0.3 million instead of £0.2 million for hay, the correct number on Scolar's assumptions. Solar's hay price of £2.2 per ton is based on the *Belfast Newsletter*. Other sources indicate a higher price. Citing *Purdon's Almanac*, the Cowper Commission (*Report of R.C. on Land Law (Ireland) Act, 1881*,

H.C. 1886/7, App. C) reports a price of £4 for 1840, £2.75 for 1846, and an average of £3.7 for 1856–60. The average weekly price on the Smithfield (Dublin) hay and straw market between April 1843 and April 1846 was £2.9 per ton.

9 Bourke, 'The Potato, Blight, Weather and the Irish Famine' (unpublished Ph.D. dissertation, National University of Ireland, 1965), Appendix 4. J.R. McCulloch 'after much inquiry and consideration' gives estimates of 2.5 miliion, 0.45 million, and 0.4 million acres for oats, wheat and barley *idem*, *Descriptive and Statistical Account of the British Empire*, 3rd edn. (London, 1847), 571. My estimates of grain output are Solar's, adjusted to allow for Bourke's higher acreages.

10 Solar, 'Growth and distribution in Irish agriculture Before the Famine', Ch. 9.

11 IUP Famine Series, II, 54, 74, 139, 169; vii, 143–4, 392–3, 398, 480, 552; David Thomson and Moyra McGusty (eds.), *The Irish Diaries of Elizabeth Smith* (Oxford, 1980), 157; *Fifty-seventh Report of the Deputy Keeper of the Public Records of Ireland*, 468. For more in the same vein from west Cork, Kilkenny, and Mayo, John Mitchel, *The History of Ireland*, II (Dublin, n.d.), 419.

12 *Farmers' Gazette*, 4 September 1847.

13 Ó Gráda, 'Slices of Irish agricultural history', *Proceedings of the Agricultural Economics Society of Ireland*, forthcoming. The enumerators also probably overlooked some livestock.

14 John Stanley, letter to Lord Lieutenant, National Archives, 1a/50/45; IUP Famine Series, II, 240.

15 Crotty, *Irish Agricultural Production*, Ch. 2; Foster, *Modern Ireland*, 318.

16 Mr and Mrs S. C. Hall, *Ireland*, I, 406; H. Townsend, 'On the improvement of Irish agriculture', *Quarterly Journal of Agriculture*, I(iii) (1829), 314; McGrath (ed.), *Cinnlae*, III, 40; Lewis, *Topographical Dictionary*, 360; Royal Dublin Society, Barrington farm accounts, Fassaroe, County Wicklow.

17 Bourke, 'The Potato', Appendix 4; *idem*, 'The Irish grain trade', *IHS*, XX (1976), 156–69.

18 The figures for the proportion of oats marketed is based on Bourke, 'The potato', and 'Third Report of the Selection Commission on Agricultural Distress', H.C. 1836 (VIII), part II, 507–45. The latter source reports the sale of oats in Irish markets at 410,000 tons. The marketed share given in the text assumes that this is something of an underestimate, and allows for some increase in the marketed production of oats between 1835 and the early 1840s.

19 The importance of Irish grain to Britain was noted in Peter Solar, 'Agricultural productivity and economic development in Ireland and Scotland in the early nineteenth century', in Devine and Dickson, *Ireland and Scotland*, 71–88, and Brinley Thomas, 'Food supply in the United Kingdom during the industrial revolution', in Joel Mokyr (ed.), *The Economics of the Industrial Revolution* (Totowa, N.J., 1985). If pre-Famine Ireland supplied only a small proportion of Britain's total requirements, it was then perhaps its biggest supplier of grain. Hence the kernel of truth in the Halls' claim (*Ireland*, I, 406) that Ireland was the 'granary' of Great Britain during this period. Compare B. R. Mitchell and P. Deane, *Abstract of British Historical Statistics* (Cambridge, 1962), '3–102, and Bourke, 'The grain trade'.

20 1841 Census, 440.

21 P. Deane and W. A. Cole, *British Economic Growth* (Cambridge, 1967), 166–67, report income from agriculture, forestry and fishing at £99.9 million in 1841 and at £106.5 million in 1851. R. C. Allen ('Agriculture during the industrial revolution') has put the value of English agricultural output in 1850, measured in 1815 prices, at £135 million. Allowing for the significant drop in the prices of virtually all agricultural commodities in 1815–50 means that output in current prices cannot have been worth much more than £100 million. Solar ('Agricultural productivity', 73) has put the value of Scottish agricultural output in the mid-1850s at £16 million. These numbers underpin the estimate of British output in Table 11 – £120 million in the early 1840s. On the difficulties of estimating British agricultural output before the 1860s, when official data become available, see C. H. Feinstein, *National Income and Expenditure of the United Kingdom, 1855–1965* (Cambridge, 1972), 41–2; B.A. Holderness, 'Prices, productivity and output', in G. E. Mingay (ed.), *The Agrarian History of England and Wales, 1750–1850*, VI (Cambridge, 1989), 84–189.

22 Patrick K. O'Brien and C. Keyder, *Economic Growth in Britain and France, 1780–1914: Two Paths to the Twentieth Century* (London, 1978), 109–13.

23 Tighe, *Kilkenny*, 402.

24 Compare O'Brien and Keyder, *Britain and France*, 109–13; An Foras Talúntais, *General Soil Map of Ireland* (Dublin, 1969); M. J. Gardiner and P. Ryan, 'A new generalised soil map of Ireland and its land use interpretation', *Irish Journal of Agricultural Research*, VIII (1969), 95–109.

25 See J. R. McCulloch, *A Descriptive and Statistical Account of the British Empire*, 549–50, whose total of £141.6 million includes £13 million for 'meadow and grass for work and pleasure horses' and £9.1 million for clover, and fails to deduct for intermediate grain and potato inputs. On comparing prices, Ó Gráda, 'Irish agricultural output', and A. H. John, 'British agricultural statistics, 1750–1850', in Mingay (ed.), *The Agrarian History of England and Wales*, 972–1107.

26 Lord George Hill, *Facts from Gweedore* (Dublin, 1846); Liam Kennedy, 'Regional specialization, railway development and Irish agriculture in the nineteenth century', in Goldstrom and Clarkson, *Irish Population*, 173–93.

27 On the importance of human capital in explaining the international variation in incomes today, N. G. Mankiw, D. Romer, and D. N. Weil, 'A contribution to the empirics of economic growth', *Quarterly Journal of Economics*, CVII(2) (1992), 407–38.

28 The following complaint from a County Limerick farmer (*Poor Inquiry*, App. E, 27) is an interesting case in point: 'A labourer of mine has a severe affliction of the bowels annually at the season when he begins to eat young potatoes. He suffers so much that it considerably lessens his strength, and indeed I am so well aware of it that I never give him as much hard work to do then as I do at any other season of the year. None of the labourers are so strong when they first begin to eat young potatoes as at any other season, and it is commonly remarked among themselves. They also know that the white potato, commonly grown for its prolific and hardy qualities, is not such strong food, nor as supporting as the 'cup' potatoes'. Such comments could be multiplied. See e.g. 'D', 'On the agriculture of County Kerry', 318–9; Kevin Danaher, *The Year in Ireland* (Dublin, 1972), 163–6; W. Bence Jones, *The Life's Work of a Landlord who Tried to do his Duty* (London, 1880), 31; R. N. Salaman, *The History and Social Influence of the Potato* (Cambridge, 1949), 284–8; *Royal Commission*

on Labour, H.C. (1893–4), XXXVIII, 340. For a sceptical appraisal, Mokyr, *Why Ireland Starved*, 223–6; Ó Gráda, *New Economic history*, Ch. 4.

29 This is in line with the drift of recent work in development economics. See T. W. Schultz, *Transforming Traditional Agriculture* (New Haven, Conn., 1964), 36–52; J. W. Mellor, *Agriculture in Economic Development* (Ithaca, NY, 1966), 133–54. For an example nearer home see John Hunter, *The Making of the Crofter Community, 1814–1900* (Edinburgh, 1973), 115–6, and A. J. Youngson, *After the Forty-Five: the Economic Impact on the Scottish Highlands* (Edinburgh, 1973), 191–3. See too Bourke, 'The potato', 127–37, for a fine analysis along these lines. Also 'Martin Doyle', *Hints Originally Intended for the Small Farmers of Wexford, but Suited to the Circumstances of Most Parts of Ireland* (Dublin, 1829), 29; C. Ó Danachair, 'The use of the spade in Ireland', in Alan Gaily and Alexander Fenton (eds.), *The Spade in Northern and Atlantic Europe* (Belfast, 1970); A. T. Lucas, 'Paring and burning in Ireland', in Gailey and Fenton, *The Spade*; *Report of the Committee of the Board of Agriculture Appointed to Extract Information . . Concerning the Culture and Use of the Potato* (London, 1795), 24.

30 Solar, 'Agricultural productivity and economic development in Ireland and Scotland'; Solar and Martine Goossens, 'Agricultural productivity in Belgium and Ireland in the early nineteenth century', in B. Campbell and M. Overton (eds.), *Land, Labour and Livestock: Historical Studies in European Agricultural Productivity* (Manchester, 1991), 364–84.

31 S. H. Cousens, 'The regional variation in population changes in Ireland, 1861–1881', *EHR*, XVII, 301–21; J. G. Williamson, 'Regional inequality and the process of national development: a description of patterns', *Economic Development and Cultural Change*, XIII (1964–65), 1–82.

32 L. M. Cullen, *Anglo-Irish Trade, 1660–1800* (Manchester, 1960), 70; R. D. Crotty, *Irish Agricultural Production*, 266–7; Peter M. Solar, 'The agricultural trade statistics in the Irish railway commissioners' report', *IESH*, VI (1979), 24–40.

33 Compare the estimates given by Crafts and Thomas in J. Mokyr (ed.), *The Economics of the Industrial Revolution*, 145, 159; Eric L. Jones, 'Agriculture, 1700–1780' in Roderick Floud and D. N. McCloskey (eds.), *Economic History of Britain since 1700* (Cambridge, 1981), 67–8; E. A. Wrigley, 'Urban growth and agricultural change: England and the continent in the early modern period', *Journal of Interdisciplinary History*, XV (1985), 683–728.

34 R. C. Allen, 'Agriculture during the industrial revolution', in Floud and McCloskey, *Economic History of Britain* (2nd edn.), forthcoming.

35 *Thom's Irish Almanac* (Dublin, 1845), 190; Donnelly, *Land and People*, 30–3.

36 The following extract from the Grand Canal Company's report to its shareholders in April 1841 is opposite here 'Another important fact connected with the subject arises out of the decided change which has taken place in the previous habits of a large portion of the People of this country, which by enabling the poor to become purchasers and consumers of flour, oatmeal, etc. to a much greater extent than formerly, has undoubtedly the effect of decreasing the quantity of corn brought up in certain districts for the purpose of exportation and which was in many instances conveyed by canal. We cannot doubt however that the general improvements of the country consequent upon this important change, and the extension of both trade and agriculture arising out of it will speedily make good any deficiency arising from a cause

otherwise so much to be rejoiced at' (cited in Ruth Delany, *The Grand Canal of Ireland* (Newton Abbot, 1973), 164).

37 Lewis, *Topographical Dictionary*, e.g. entries for Antrim and Wicklow; Hall & Hall, *Ireland*, I, 406; *Report of the S.C. on Agriculture*, H.C. 1833 (V), 204, 236, 494; *Third Report of the S. C. on Agricultural Distress*, H.C. 1838 (VIII), I, 81, vol. 2, 262, 279, 324. The last reference is to the evidence of Armagh estate agent William Blacker, who insisted that 'you cannot draw a conclusion that the farmer is getting worse from the quantity exported from this country'. Also Connell, *Population of Ireland*, 114–7, and McCulloch, *Descriptive and Statistical Account*, 529–30.

38 This and the following two paragraphs follow R. C. Allen and C. Ó Gráda, 'On the road again with Arthur Young: English, Irish and French agriculture during the industrial revolution', *JEH*, 38 (1988), 3–116.

39 B. Slicher van Bath, *European Yield Ratios* (Wageningen, 1963); Young, *Tour in Ireland*, ed. A. W. Hutton (London, 1892), I, 2, 22, 37, 86–7, II, 38–9, and *passim*.

40 Compare the arbitrary dismissal of Young in M. K. Bennett, 'British wheat yield per acre for seven centuries', *Economic History*, (1937), 12–29, and the more careful appraisal in Michael Turner, 'Agricultural productivity in England in the eighteenth century: evidence from crop yields', *EHR*, XXX(4) (1982), 38–9.

41 William N. Parker and Judith L. Klein, 'Productivity growth in grain production in the United States, 1840–60 and 1900–10', in Peter Temin (ed.), *New Economic History* (Harmondsworth, 1973), 83.

42 Solar, 'Agricultural productivity and economic development', 76; Patrick Chorley, 'The agricultural revolution in northern Europe, 1750–1800: nitrogen, legumes, and crop productivity', *EHR*, XXXIV (1981), 71–93.

43 E.g. Robert A. Berry and William R. Cline, *Agricultural Structure and Productivity in Developing Countries* (Baltimore, 1979), 225; Krishna Bharadwaj, *Production Conditions in Indian Agriculture* (Cambridge, 1974), 92.

44 Bourke, 'The average yield of food crops'.

45 Compare B. Slicher van Bath, *The Agrarian History of Western Europe* (London, 1963), 330–3.

46 Wakefield, *Ireland*, 368–426, and Young, *Tour*, II, 21. Mokyr, 'Irish history with the potato', 12n, contains a tabular analysis of Wakefield's data.

47 Cited in McCulloch, *Descriptive and Statistical Account*, 531.

48 Young, *Tour*, II, 49–50. For a modern, illustrated account of natural grasses in Ireland, see P. L. Ó Curraoin, *Féara agus Bánta na hÉireann* (Dublin, 1991).

49 Dubourdieu, *Down*, 137; Hely Dutton, *Statistical Survey of the County of Galway* (Dublin, 1824), 128; Robert Fraser, *General View of the Agriculture and Mineralogy, Present State and Circumstances of the County Wicklow* (Dublin, 1807), 178.

50 Compare W. G. Burton, *The Potato: A Survey of Its History and of Factors Influencing Its Yield, Nutritional Value, Quality and Storage* (Wageningen, 1966), Ch. 3; Bourke, 'the average yield of food crops'; B. R. Mitchell, *European Historical Statistics* (London, 1975), 199, 240.

51 PRONI, D1606, 18 January 1836.

52 *Agricultural Statistics 1847*, 5.

53 C. E. B. Brett, *Court Houses and Market Houses in the Province of Ulster* (Belfast, 1973).

54 Donnelly, *Land and People*, 52–72; William Greig, *General Report on the Gosford Estates in County Armagh 1821*, ed. F. M. L. Thompson and David Tierney (Belfast, 1976); National Archives, '78/2/4/1 (General report of the Midleton estate surveyor, 1846); Trinity College Dublin, Mun/V/Series 78/46–61 (Descriptive survey and valuation of the T.C.D. Estates); NLI, Ms. 3829 (Lord Clement's instructions, 1839); PRONI 2204/2 (Maurice Colles's survey of the Grocers' Company estates in Derry, 1839).

55 On conacre see Michael Beames, 'Cottiers and conacre in pre-Famine Ireland', *Journal of Peasant Studies*, 2 (1974–5), 352–4.

56 R. B. McDowell, 'Ireland on the eve of the famine', in R. D. Edwards and T. D. Williams (eds.), *The Great Famine* (Dublin, 1956), 10.

57 O'Connell and Peel cited in Ó Gráda, 'Poverty, population, and agriculture', in W. E. Vaughan (ed.), *New History of Ireland*, V (Oxford, 1989), 133. For a CGE analysis of the issue, see Kevin O'Rourke, 'The impact of the repeal of the Corn Laws on Ireland' (mimeo, University College, Dublin, 1992).

58 See Tighe, *Kilkenny*, 218–9.

59 On the former, P. M. A. Bourke, 'The agricultural statistics of the 1841 census of Ireland: a critical review', *EHR*, XVIII (1965), 376–91; on the latter, P. McGregor, 'The labour market and the distribution of land in pre-Famine Ireland', *EEH*, 29(4) (1992), 477–93.

60 Dubourdieu, *Down*, 43.

61 Mokyr, 'Irish History with the potato'; Mitchell and Deane, *British Historical Statistics*, 80–1.

62 Solar, 'Growth', 360; Turner, 'Agricultural output and productivity in post-famine Ireland', in Campbell and Overton (eds.), *Land, Labour and Livestock*, 410–38. Turner and Solar differ radically in their estimates of the decline in tillage's share. The divergence is another reminder of the uncertainty surrounding our output estimates.

63 Schultz, *Transforming Traditional Agriculture*, 53–70. The 1851 census (p. 634) gives 383,931 farmers and 717,680 labourers and servants (male) aged over fifteen years. Other categories – ploughmen, herds, etc. – bring the total in agriculture up to over 1.2 million. In 1861 the numbers were 413,309, 372,425 and about 70,000 others, though presumably a good number of those registered as general labourers in 1861 – 346,816 in all – were farm labourers. Using Solar's grain estimates gives reductions of 10.3 per cent (base-year prices) and 17.3 per cent (end-year prices).

64 Weld, *Roscommon*, 176.

65 Robert Fraser, *Report of the County Surveys, and the Best Means for the Further Encouragement of the Fisheries of Ireland* (London, 1818); Clark, *Royal Dublin Society* (Dublin, 1957); M. G. Moyles and P. de Brun, 'Charles O'Brien's Agricultural Survey of Kerry, 1800', *Journal of the Kerry Archaeological and Historical Society*, I (1968), 73–99, and II (1969), 108–32; D. Clark and J. Meenan, *Royal Dublin Society*, 22; J.G. Rhynehart, 'The Irish County Surveys', *The Irish Book*, II (1958), 58–60. Two of the surveys, those for Armagh and Tyrone, have been recently re-published.

66 Though Edgeworth had apparently finished his survey by 1806, only to be held

back by the lack of an appropriate map of the county. See C. C. Ellison, 'Materials for the Dublin Society Agricultural Survey of County Louth', *County Louth Historical and Archaeological Society Journal* (1974), 121.

67 *Proceedings of the Dublin Society*, 1799–1800 (Annex on Premiums), 27; 1801–02, 6; 1802–03, 81, 101, 124. The *Proceedings* record the Society's purchase of Sinclair's *Statistical Account* in February 1800.

68 Preface to Hely Dutton, *Observations on Mr. Archer's Statistical Survey of the County of Dublin* (Dublin, 1802).

69 Coote, *Statistical Survey of the County Armagh*, vii.

70 Authors' names are appended. Full citations for the published surveys are given in Mokyr, *Why Ireland Starved*; sources for those not published are provided in footnotes.

71 Ellison, 'Materials for the Dublin Society Agricultural Survey', 121–31, 187–94, 304–9.

72 J. Lalor Cooke, 'Notes towards a projected survey of Tipperary', NLI, Ms. 8146/22.

CHAPTER 3

The Famine: incidence and ideology

> The most strenuous efforts which human sagacity, ingenuity and foresight could at the time devise were put into requisition ... The various social changes forced into action at that period [were] the means most fitted ultimately to ameliorate the social condition of the inhabitants.
>
> Sir William Wilde

> My grandmother was born in a field in the bad times, Bridget Barry from Inagh. They were evicted and I suppose the poor mother was frightened, and she had the baby at the corner of a wall in the field. I often heard them saying that.
>
> 83-year-old Clareman, 1992[1]

The Great Famine stands out in Irish and European history both for its timing and its context. Famines like it had long disappeared from western Europe by the mid-nineteenth century; in England there had been nothing comparable since Tudor times, and the last of France's great subsistence crises had occurred towards the end of Louis XIV's reign.[2] Geography added to the anomaly: Ireland in the 1840s formed part of the most industrialised, if not the richest, nation in the world, the United Kingdom. The Act of Union of 1800, which created the United Kingdom of Great Britain and Ireland, had led to legislative and monetary integration, but the Great Famine was a reminder of how little (if at all) the gap in living standards between the two islands had narrowed as a result.

The historiography of the Famine in Ireland itself has been muted, having produced curiously little serious research until very recently. A glance through back numbers of the most likely periodical outlets for such work tells the story well. *Irish Historical Studies* is now over five decades old, but so far it has carried only half a dozen contributions on famine-related topics, and two of those were written by 'non-academic' historian Austin Bourke. The record of *Irish Economic and Social History* is no better; it has failed to carry a

single piece on the Famine since it first appeared in 1974. Equally surprising and perhaps less excusable, the recent multi-authored *Milestones in Irish History* offered essays on such textbook topics as the battle of Clontarf, the Flight of the Earls, and the act of Union, but nothing on the Great Famine.[3]

Most of what little work there was until a few years ago had been at pains to debunk the accounts of 'the political commentator, the ballad singer and unknown maker of folk-tales'.[4] So too, apparently, had the orthodoxy of the third-level classroom, with traditionalist appraisals that even hinted at culprits or villains from across the Irish Sea being given short shrift. From this anti-populist perspective the orthodox interpretation was doubly reassuring. On the one hand, 'emotive' nationalist propagandists such as Young Irelander John Mitchel and Fenian Jeremiah O'Donovan Rossa were deemed guilty of distorting the impact of the crisis in the past. Not only did they over-simplify its causes and exaggerate its toll, they also failed to see the Famine for what it was: a mere catalyst of changes that were on the way in any case. On the other hand, the anti-populist view held that such mortality as occurred was the inevitable and unavoidable consequence of economic backwardness.

Shattering dangerous myths about the past is the historian's main social responsibility. In Ireland, where popular history is an odd brew of myth and reality, there is still plenty for her (or him) to do. Perhaps, then, a dose of cold revisionism was necessary to purge the locals of a simplistic and hysterical *Our Boys* view of the Famine as a 'dastardly British plot'? The connection between '*ochón, ochón*' popular history and nationalist resistance is, after all, real. It was the IRA leader Ernie O'Malley who wrote of the 1916 Rising: 'In the evening I was in a whirl; my mind jumped from a snatch of a song to a remembered page of economic history'.[5] Correcting populist-nationalist misconceptions about historical grievances has been the unifying theme of revisionist Irish economic history for the last few decades. But when it comes to the Famine have Irish historians not let their 'generosity and restraint'[6] run away with them? On the evidence, there is at least an argument to put forward. Students of other famines seeking comparative insights may be impressed by the lack of Irish emotion or outrage, but they will quickly note too that themes central to mainstream famine history research have until recently been ignored in Irish work. So, for example, the basic point in Amartya Sen's *Poverty and Famines* (1981), that starvation is not

the product of food shortfall *only* but a function of a market solution to unjust property rights, was made (if not in so many words) by contemporaries in Ireland during the famine, but has found no echo in the 'serious' Irish literature. Again, Ambirajan's classic treatments of government policy towards Indian famines in the nineteenth century leave little doubt but that the constraints imposed by ideology on the state bureaucracy added to mass starvation, but Irish historians tend to be silent or apologetic on that issue also.[7]

Such a sanitised and apologetic approach to the Famine influenced Edwards and Williams' classic *The Great Famine: Essays in Irish History*. The key essays in that early exercise in history-writing by committee – those on emigration, politics, medicine, and poor law relief – provided a largely administrative perspective on the Famine. By failing to produce a comprehensive history the authors in effect left it to 'popular' historian Cecil Woodham-Smith to fill the void a few years later. Woodham-Smith's enduring best-seller has its faults: it errs on several details, its understanding of the economic context is weak, and its interpretation of motives and events sometimes cavalier. Still, looking back, it certainly deserved better than the chilly and delayed welcome accorded by the historical establishment, represented by the late F. S. L. Lyons, in *Irish Historical Studies* in 1965. Deriding Woodham-Smith for her populism, she was wrong, Lyons claimed, to criticise government outside its contemporary context; horrific depictions of the tragedy were all very well, but one must turn elsewhere 'for the reason why'. Third-level students were asked to join in the fun of debunking Woodham-Smith; those taking an honours history degree at University College, Dublin, in 1963 were invited to write an essay on '*The Great Hunger* is a great novel'. Orthodoxy continued in that vein. Robert Kee's graphic and 'emotive' television history met with a worse fate than Woodham-Smith in 1980: a leading Dublin academic roundly criticised it for lending succour to terrorism. The same cautious approach to the Famine pervaded accounts such as those by Daly and Foster in the 1980s. The role of government, Daly has written, should 'perhaps be seen in a more sympathetic light than it is generally regarded', since 'it does not appear appropriate to pronounce in an unduly critical fashion on the limitations of previous generations'. The Treasury is absolved of any wrongdoing with the reflection that 'greater sympathy with the Irish case would [not] have automatically guaranteed a dramatically reduced mortality'. Daly

also castigated poor Woodham-Smith for painting a 'highly dramatic and emotive picture' of the crisis. Much in the same vein, Foster has excused governmental inactivity by an appeal to their ignorance of the facts. Clearly the famine remains a sensitive subject for Irish historians. Until the late 1980s, for less hidebound assessments one had to turn to outside scholars such as Mokyr and Donnelly.[8] Mokyr contrasted Treasury parsimony during the Famine with readiness to spend tens of millions on military adventure in the Crimea a few years later, while Donnelly gave the Swiftian indignation of John Mitchel, whose ghost Irish historians still seek to exorcise, the benefit of the doubt, and dealt levelheadedly (if critically) even with British historian A. J. P. Taylor's accusation of genocide. Only now, with the one hundred and fiftieth anniversary of the Great Famine fast approaching, are Irish historians giving this complex tragedy its due attention, with research networks, conferences, and promised research volumes the order of the day.

Why have Irish historians until quite recently tended to shun famine research? Why have outside historians such as Donnelly, Mokyr, and O'Neill been less guarded in their assessments? Part of the answer may be simply that Irish historians are a rather conservative bunch. There are no Irish E. P. Thompsons or Eugene Genoveses. But the considerable rhetorical challenge posed by 'emotive' traditional accounts must also be a deterrent. Attempts at balance always risk being interpreted as making excuses. The Famine remains a sensitive subject, and perhaps that is why its social and economic history remains largely unwritten.

In this chapter I first provide a quick narrative of the main events (3.1). I then deal with the issue of excess mortality. I show that the Famine was a graver and more protracted affair than some recent revisionist popularisation would admit (3.2). Third, an analysis of seasonal price movements attempts to come to grips with a theme frequently urged by those charged with relief during the crisis: the notion that unfettered competitive markets offered the best solution to the high prices induced by scarcity. For many contemporary critics of policy this faith in the market amounted to an open season for hoarders and speculators of all sorts. The data used in my search for hoarding during the crisis are far from ideal, but the outcome of a simple test tentatively suggests that such hoarding was not responsible for the massive mortality of those years (3.3). If the free-market solution did not work, what, then, was the problem? An obvious

topic for consideration is the role of food availability and entitlements, as recently canvassed by Sen. My own analysis of food supply during the famine finds that while Sen's approach contains useful insights for the Irish case, the problem in Ireland in the late 1840s differed from that highlighted in the most striking of his twentieth-century case studies (3.4). Next, the part of ideology in influencing policy – an issue on which the current orthodoxy has been perhaps unduly soft – is reassessed (3.5). Finally, one remote part of Ireland, the islands of Aran, is discussed as a possible guide to the fate of nineteenth-century rural Ireland in the absence of *phytophthora infestans*. Aran, it emerges, escaped lightly during the Famine, because it seems to have been spared the worst of the fungus. Aran's fate is interesting, since the mass mortality of these years has been invoked to paint a very fatalistic picture of the country's prospects before 1845 (3.6).

3.1 Chronology

The outlines of the tragedy are well known.[9] *Phytophthora infestans* was first noted in Ireland in early September 1845, having made its way westward from Belgium through England. The disease caused the potato crop to rot in the ground and omit an unpleasant stench. The first onslaught of the blight turned out to be most serious in the east of Ireland, certain pockets in the extreme west seeming to have escaped virtually scot-free. A special crop return by the constabulary implied an overall shortfall of less than one-half in 1845–46. The blight baffled contemporary scientific expertise. One expert correctly diagnosed the mould on diseased potato tubers as a 'vampire' fungus, but most influential botanists declared it a kind of dry rot. However, since no cure for such fungi would be forthcoming until the 1880s, inaccurate diagnosis did not count for much.

In the following year (1846) the blight's conquest was almost complete, and the real beginnings of the Famine date from autumn of that year. By late 1846 famine conditions were widespread. Nature played another cruel trick with the hopes of those dependent on the potato in 1847. Because of the scarcity of seed and the signals given by the failures of 1845 and 1846, the acreage planted in 1847 was small. Yields per acre turned out to generous, however, encouraging people to revert to planting a bigger acreage in 1848. But in 1848,

the crop failed disastrously once more. In effect, therefore, we are talking of four years of poor potato harvests.

Deaths began to mount in late 1846, and graphic accounts of the crisis soon reached London papers such as *The Illustrated London News* and *The Times*. By spring 1847 the price of potatoes had reached four times their pre-blight norm. Grain prices rose too, though less dramatically. Deaths became commonplace. As is generally the case with famines, literal starvation claimed relatively few deaths, dysentery and typhoid fever being the main killers. The incidence of dietary-deficiency diseases such as scurvy and xerophthalmia, previously uncommon in Ireland, also soared.

Tragic and horrific scenes ensued, particularly in the south and west: mass graves, corpses gnawed by rats, hunger marches, roadside deaths, the dying left unassisted for fear of contagion. Crimes against property rocketed, and were severely dealt with. Some landed proprietors acquitted themselves well, committing time and money to relief. Others evicted without compunction. The very real difficulties facing all landlords partly account for, though they hardly excuse, the vast number of evictions carried out in the wake of the Famine. The official count is well over 200,000 people between 1849 and 1854, and that excludes those who voluntarily surrendered possession in exchange for a relief entitlement or subsidised emigration.

Like pre-Famine poverty, the Famine had an important regional dimension. Mapping the proportion of the population on food rations at the height of the crisis by poor law union produces a striking pattern. East of a line linking Wexford and Sligo the proportion on relief rarely exceeded one-third. To the west of that line recourse to the soup kitchen was much greater, exceeding four-fifths in much of Mayo and Galway. The regional dimension is also captured in school attendance figures. The following are the numbers (in thousands) on the rolls in the four provinces at the end of September 1846–68 and 1850:

Province	*1846*	*1847*	*1848*	*1850*
Ulster	149	133	155	151
Munster	126	108	141	150
Leinster	123	114	130	138
Connacht	54	42	74	63
Total	452	397	501	503

The decline in 1847 was greatest in Munster and Connacht, the worst-hit provinces. Numbers rose most in the same provinces in 1848 simply because the British Relief Association used the schools to distribute its food aid for children.[10]

Ministers hoped that the high prices in 1846 would encourage Irish merchants to purchase and mill foreign grain. That happened eventually; by summer 1847, prices had fallen back considerably. By then the crisis was almost over in some areas but, as we shall see, in others (for example, in Clare and Mayo) it was to persist into 1849.

3.2 Famine death and migration

> The time will come when we shall know what the amount of mortality has been, and though you may groan, and try to keep the truth down, it shall be known, and the time will come when the public and the world will be able to estimate, at its proper value, your management of the affairs of Ireland.
>
> Lord George Bentinck, 1847

One element in the tendency to 'write down' the Famine has been either (a) to eschew measurement of excess mortality altogether, or (b) to venture cautious, conservative guesses. The traditional estimates of a million or more deaths, Woodham-Smith ventures 1.5 million, gives way in revisionist accounts to ones of 0.8 million or even 0.5 million.[11] What is in a number? Surely a careful guess is a useful yardstick by which to measure the effectiveness of policy. While a really accurate estimate is out of the question, two independently derived estimates by Mokyr and by Boyle and Ó Gráda suggest one million excess deaths, or over one-ninth of the population.

These estimates exclude 'averted births', i.e. the difference between the number of actual births and that which would have occurred in a hypothetical 'blight-free' Ireland in the late 1840s. Mokyr reckons the toll of the 'unborn' to have been substantial. Parish register data from County Clare, one of the worst hit counties, provides a hint: the number of births recorded in 1847–49 in a sample of seventeen parishes was less than two-thirds the 1844–6 total.[12]

Mokyr's numbers also highlight the regional contrasts in fortunes. According to his data the toll ranged from about one-hundredth of the population in Carlow and Wexford to over one-quarter in Mayo and Roscommon. While not implausible, these estimates rely on rather questionable migration data, and so should be taken only as rough indicators (see Appendix 3.1). For instance, some of Mokyr's calculations produce negative excess mortality during the Famine years in Dublin, a finding hardly supported by the Dublin burial statistics reported in the 1841 and 1851 censuses. The burials are reported at 13,516 for June 1839-June 1841, and at 91,511 during the decade July 1841–July 1851. Assuming no change in the proportion of unreported burials – probably a generous assumption – and allowing for population growth, the numbers still indicate smallish but positive excess mortality in the metropolis.[13] Other evidence, such as the records of the Rotunda Hospital, also show that not even Dublin was not immune from the ravages of the Famine. Neo-natal and maternal mortality rose, and the Master was moved to note the crisis in the ward-book, adding that some of the women attended by Rotunda staff in their own homes 'rapidly sunk with all the symptoms of fever upon them'. Parish registers show a drop in the number of baptisms and marriages. The impact of the crisis on Dublin may also be seen in the increase in workhouse admissions, and in the rise in the proportions of very young and rural women admitted to the Westmoreland Lock Hospital (which catered largely for syphilitic prostitutes) during the Famine. The rising share of young girls in the Lock's intake (that of girls aged 16 years or less rose from 3.1 per cent in 1842–45 to 6.7 per cent in 1847–48), and the drop in the mean age of patients (by 8 or 9 months) tell their own story. The share of Munster and Connachtwomen in the Lock's intake rose from 1.5 per cent in 1842–45 to 10.6 per cent in 1847–50, a reflection of the inflow of hungry and desperate country people into the metropolis.[14]

Who perished from the Famine? Karl Marx's quip that 'it killed

poor devils only' is a crucial part of the answer, though it ignores the high death rates of groups in constant contact with the poor, in particular medical men and clergy. Two other aspects of this massive mortality are worth examining. One broached by neither Cousens nor Mokyr is its relative impact by age and sex. Were the aged and the very young disproportionately at risk, as a west Cork rector suggested at the time? Or did aspects of relief policy, such as task work and the infamous Gregory clause (which made small farmers and cottiers, though not their families, ineligible for relief) put males at greater risk? Or might attempts at increasing families' earning potential through giving more of the available food to the breadwinner have affected the odds?

Such issues are often raised in historical studies of crisis and famine mortality, with differing results. In the case of epidemics the picture is clear enough. Smallpox can be shown to have affected the young disproportionately, while cholera was more likely to attack the old. In the Irish cholera outbreak of 1849 children of six years or younger accounted for less than 10 per cent of those hit. The Black Death is usually thought to have claimed more males and more young people. With subsistence crises the record varies. During the subsistence crises of the seventeenth century in France's Beauvaisis, the elderly were apparently most starvation-prone. Turning to more recent times, Chowdury and Chen suggest that it was the youngest and the very old who suffered most in the Bangladesh famine of 1974. In the Indian state of Maharashtra in the early 1970s it was likewise, but Sen's analysis of the Bengali famine of 1943–44 shows that excess mortality there was a straightforward multiple of normal mortality.[15]

Local data on deaths during the Great Famine, collected on the spot, are rare. The detailed statistics for five west Cork parishes (stretching west from Drimoleague to Goleen), recently rediscovered by Patrick Hickey, are therefore quite valuable. Besides indicating a death rate of nearly one-fifth between September 1846 and September 1847 in this notorious famine blackspot, they imply that men and children under fifteen were the most likely victims.[16] Boyle and Ó Gráda's estimates of the incidence of aggregate mortality by sex and age rely instead on indirect evidence, and upon a range of assumptions about the structure of population and emigration between 1821 and 1841. How they were derived has been fully explained elsewhere. The results are as follows (Table 22). In terms

of absolute numbers there were slightly more excess deaths among males than females. However, the differential is so small and sensitive to the assumed sex composition of the emigrant outflow that not much should be made of it. As for the incidence by age, it turns out that Famine mortality can be represented in terms of earlier, non-crisis mortality by means of a simple linear transformation of age-specific death rates. The Famine almost doubled the death rate for all ages during 1846–51. In this respect the Famine toll mirrored that of the Bengali famine as described by Sen.

Another aspect of Famine mortality worth more attention is its long drawn-out nature. Taking the period 1846–51 as a unit is a necessary step in calculating excess deaths but hardly an excuse for overlooking the intensity of the crisis as reflected in the trend of mortality during these years. That excess mortality was low in the first year after the potato failure has already been noted. The trend in weekly workhouse deaths charted in Figure 3 is the best guide available to crisis mortality over time. The series suffers from two opposing biases. Since workhouse capacity was presumably more of a constraint in 1846–48 than later, deaths early on are probably under-represented. The system may also have been forced to handle a rising proportion of dying people over time. However, total population was obviously falling over the period, and our series makes no attempt to account for this. Figure 3 confirms our story of light excess mortality in the wake of the 1845 potato failure. Nevertheless, by the summer of 1846, even before the failure of the new crop was known, it is clear that the previous year's poor harvest was having an effect. The steep rise in late 1846 is to be expected; more striking is how slow the weekly death rate was to drop. This is interesting in view of the common tendency to discuss other aspects of the Famine as if it was all over by 1848. The Irish University Press collection of parliamentary papers for all intents and purposes does not go beyond 1848, while Father John O'Rourke's account stops in 1847. Figure 3 suggests that the Famine was a more protracted disaster than usually depicted. The murderous winters of 1846–47 and 1848–49 are well captured. Some of the 1849 deaths were caused by cholera, but since the starving were disproportionately cholera-prone, this does not greatly distort matters. Significantly the winter peaks of 1849–50 and 1850–51 equalled that of 1847–48, and were still double those of the following winters. Here again, the Bengali famine of 1943–44 mirrored the Irish version. Estimates of

excess mortality in Bengal are highly sensitive to the period covered, and Sen shows that excess deaths lasted several years after an official 'end' to the crisis had been declared. The continuing mortality, in turn, is an indictment of the official eagerness in both instances to announce the crisis over and try and forget about it. In the Irish case this was reflected in the unfortunate decision, put into effect as early as autumn 1847, to pass the entire burden of relief over to the Irish poor law system.

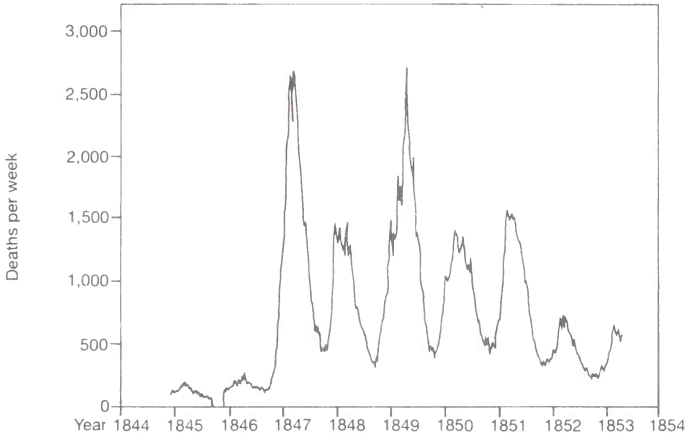


Figure 3 *Deaths in workhouses, Ireland, 1845–53*

The seasonality highlighted in Figure 3 was also a feature of 'normal' mortality in Ireland before the Famine; in Dublin in 1839–41, for example, reported burials in November-April were 40 per cent higher than in May–October. But the seasonality of the 1846–51 period was clearly more marked, summer sickness giving way to winter deaths.

Broadly speaking, excess mortality was high in 1849 and 1850 where it had been high in 1847 and 1848. But in areas lightly touched by the potato failure deaths were probably close to normal again by 1849. The basis for these statements, William Wilde's Tables of Deaths, must be handled with due caution, since presumably the data for earlier years are less complete than those for 1849 or 1850.

Table 22 *Excess deaths during Famine years, by age and sex (in 1,000s)*

	Males		*Females*	
	Excess	*Av. number*	*Excess*	*Av. number*
Age-groups	*deaths*	*in population*	*deaths*	*in population*
0–4	146 (29)	508 (14)	139 (29)	491 (13)
5–9	95 (18)	471 (12)	92 (20)	455 (12)
10–59	204 (40)	2,526 (68)	191 (40)	2,659 (69)
60 +	66 (13)	211 (6)	52 (11)	234 (6)
Total	511 (100)	3,716 (100)	474 (100)	3,839 (100)

Source Boyle and Ó Gráda, 'Fertility trends', 555. Percentages in parentheses.

Table 23 *Pseudo-death rates by province, 1845–50*

Province	*1845*	*1846*	*1847*	*1848*	*1849*	*1850*
Leinster	12.7	17.2	31.3	27.6	34.0	25.0
Munster	10.9	16.3	36.8	32.6	40.5	35.1
Ulster	9.2	13.4	28.3	20.9	21.0	15.5
Connacht	8.4	14.3	33.5	34.5	39.5	23.5

Source Deaths as reported in British Parliamentary Papers, 1856 (XXX); population is assumed to have grown at its 1830s rate in 1841-45, and then to have declined at a constant rate between 1845 and 1851.

Nonetheless some regionally consistent patterns emerge (Table 23). In Leinster, Munster, and Connacht the excess deaths were still high in 1849: the pseudo-death rates in these provinces were still their 1846 levels. In Ulster, though, 1849 was less serious, and the rate in 1850 was nearly down to that in 1846. It is an exaggeration to claim, as Woodham-Smith has done, that 1849 was the worst of the Famine years. Yet the bleak picture painted by Wilde's tabulations and workhouse data cannot be ignored. The story of continuing crisis is lent graphic support by the pleas for financial aid in the spring of 1849 from some western priests to Archbishop Murray of Dublin. This is how William Flannelly, curate in Clifden, made his case for a few pounds in April 1849:

> I can assure your grace that a mile of the public road cannot be travelled without meeting a dead body, as the poor are houseless, and

> daily turned out of the poor house whenever they exhibit any symptom of sickness. There is not a hut without fever and dysentery, the sure precursors of cholera, which I fear is the next ordeal through which the poor Irish must pass. And how could it be otherwise, when there is no medical aid of any sort in this wild and extensive district and when the poor are obliged to live on 1/2 lb. of Indian meal every 24 hours. I have known men to be willing to work for a whole day for 2 pints of meal, and could not obtain work even on that low wages if wages it could be called.[17]

By this time the public works and the soup kitchens were things of the past, and donor fatigue had set in. Relief, made 'less eligible' by the Gregory Clause (on which more later), was the responsibility of local poor law administrations. A message from the parish priest of Bangor Erris, in the Mullet peninsula, explains the result:

> Our misery at the present day is not much, if any, inferior to that what it had been, even at the worst time – for the outdoor relief is in great measure an empty name – to our able-bodied poor it is denied until brought to the last stages of exhaustion, and even if then admitted, the quantity given is not more than half that allowed by law. Our distance from the workhouse is another of our grievances, the parish being in part about 26 miles from it, and yet notwithstanding the distance, some unfortunate fathers and mothers each carrying a child or two, had in the depth of winter to stand *three* reviews lest they should be too heavy in flesh for outdoor relief, and it not infrequently happened that some after being rejected as not qualified for relief, have been found dead along the ditches in their attempt to reach their homes.[18]

Finally a report from Ballyhaunis, again in Mayo, on how the Gregory clause went to work is worth citing:

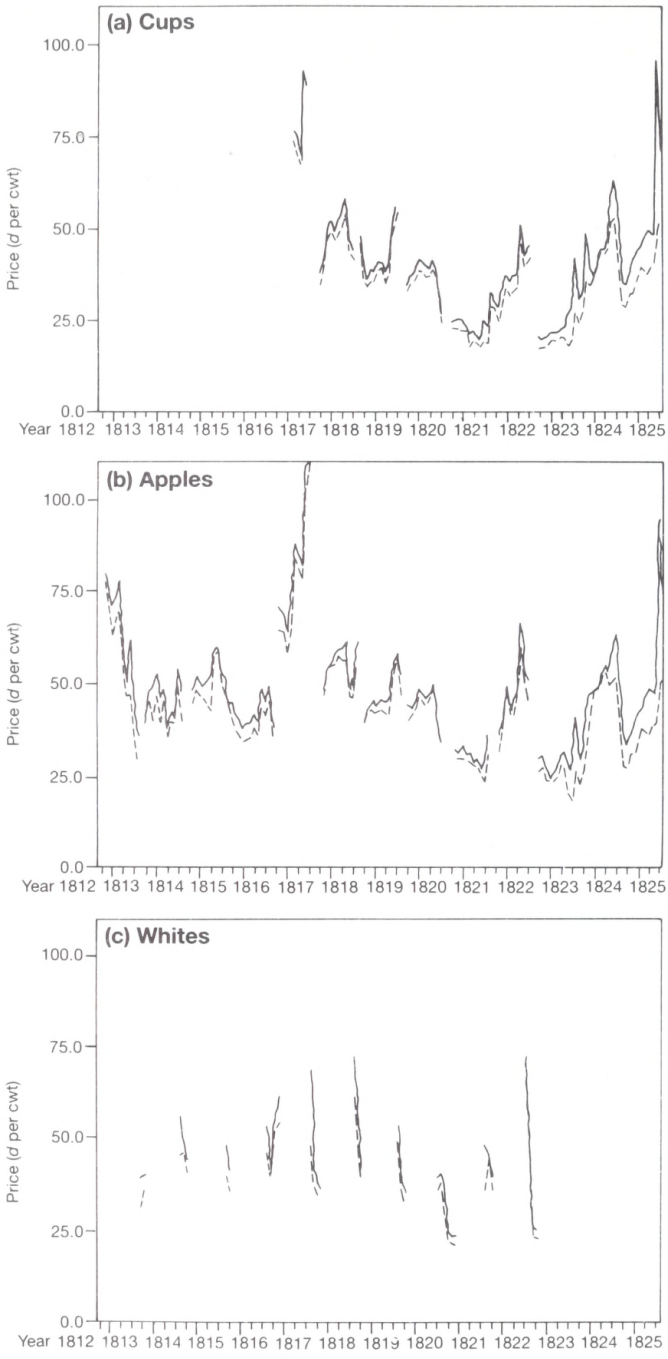
> I can assure you that at no period of the distress was [aid] required more than at the present time, when the poor landholders, who struggled this time back, are now in a most wretched state without food or seed and still they are not giving up their land lest (as they say) they would never have their own fireside again: I am certain that more in my parish will die of starvation from this time to the next harvest than died for the last three years. A poor woman was found dead the other day by the ditch at Coolnaclea in my parish, of starvation . . . If outdoor relief is not immediately given to the landholders and able bodied, the consequences I fear will be awful.[19]

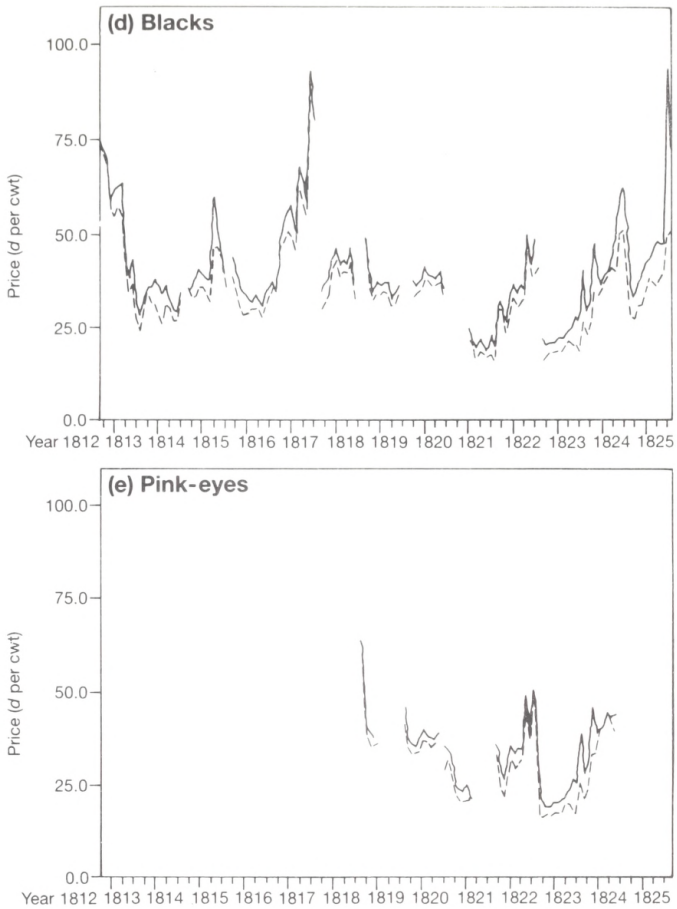
The Great Famine had in effect been officially 'declared' over more than a year before these letters were written. It *was* over in 1849 in

the sense that food prices had fallen, and that maize (Indian meal) in particular was cheap. But if data on deaths are the bottom line, the crisis did not end even then.

3.3. Potato prices before and after 1845

During the Famine export prohibition of grain, controls on distilling and large-scale public distribution of corn were resisted as solutions to famine. This was because government spokesmen and officials had learnt their Adam Smith well. Competition between merchants, their argument went, would quickly lead to speculators getting their fingers burnt, while to yield to popular demands would only ruin the legitimate trade in grain. Only in the remote west was there a danger of 'petty local speculators [holding] back supplies for the purpose of afterwards insisting on exorbitant and famine prices'.[20] Was this sensible? In theory, it is true, speculation should have been self-defeating in time, for to hoard food *now* only guarantees a greater supply than otherwise *later*. Under standard textbook conditions it can be shown that allowing buyers and sellers to determine consumption allocation over time would be the best policy in Paretian terms. The trouble is with the *now*. As Viscount Claiborne (later Lord Salisbury) stressed in a related context, anticipating a memorable quip by Keynes, 'in the long run supply and demand [might] square themselves, [but] human life was short, and men could not subsist without food beyond a few days'.[21] In practice how do speculators fare during famines? Denying them some return on their activities would accentuate both scarcities and surpluses. But like the poor at the mercy of price rises, famine researchers have a lot of trouble in sorting out speculative 'bubbles' from movements caused by genuine market 'fundamentals'. Salim Rashid, for instance, had made a plausible case based on qualitative evidence for the existence of artificial scarcities based on panic or ignorance during famines, citing evidence from Britain during the 1790s and the Indian subcontinent over a long time span. Convincing statistical tests for hoarding are rare, but a study of the rice market during the Bangladeshi famine of 1974 indicates that prices reflected rather poorly the perceived state of the crop. Even the possibility of such bubbles should make the steadfast application of *laissez-faire* principles to a market in food a questionable policy.[22] Was the Irish

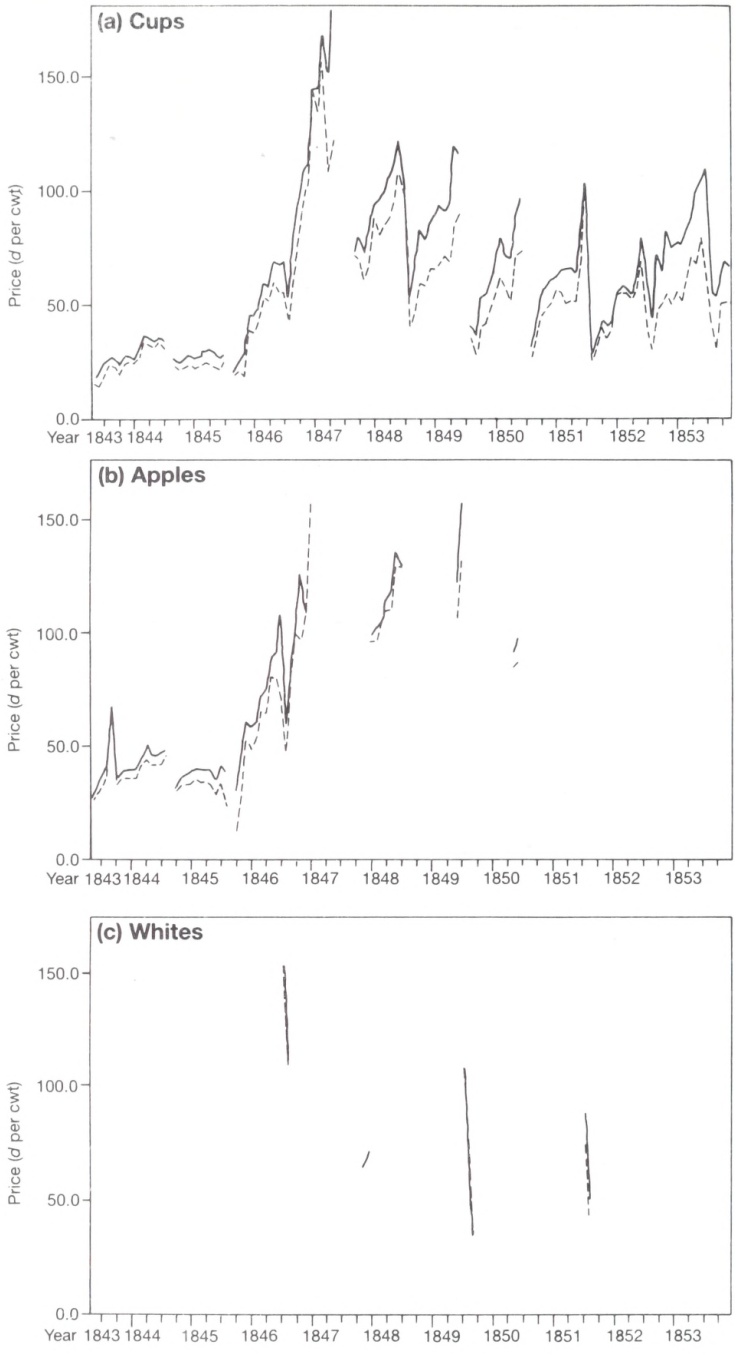

(a) Cups
(b) Apples
(c) Whites
Price (d per cwt)
100.0
75.0
50.0
25.0
0.0
Year 1812 1813 1814 1815 1816 1817 1818 1819 1820 1821 1822 1823 1824 1825

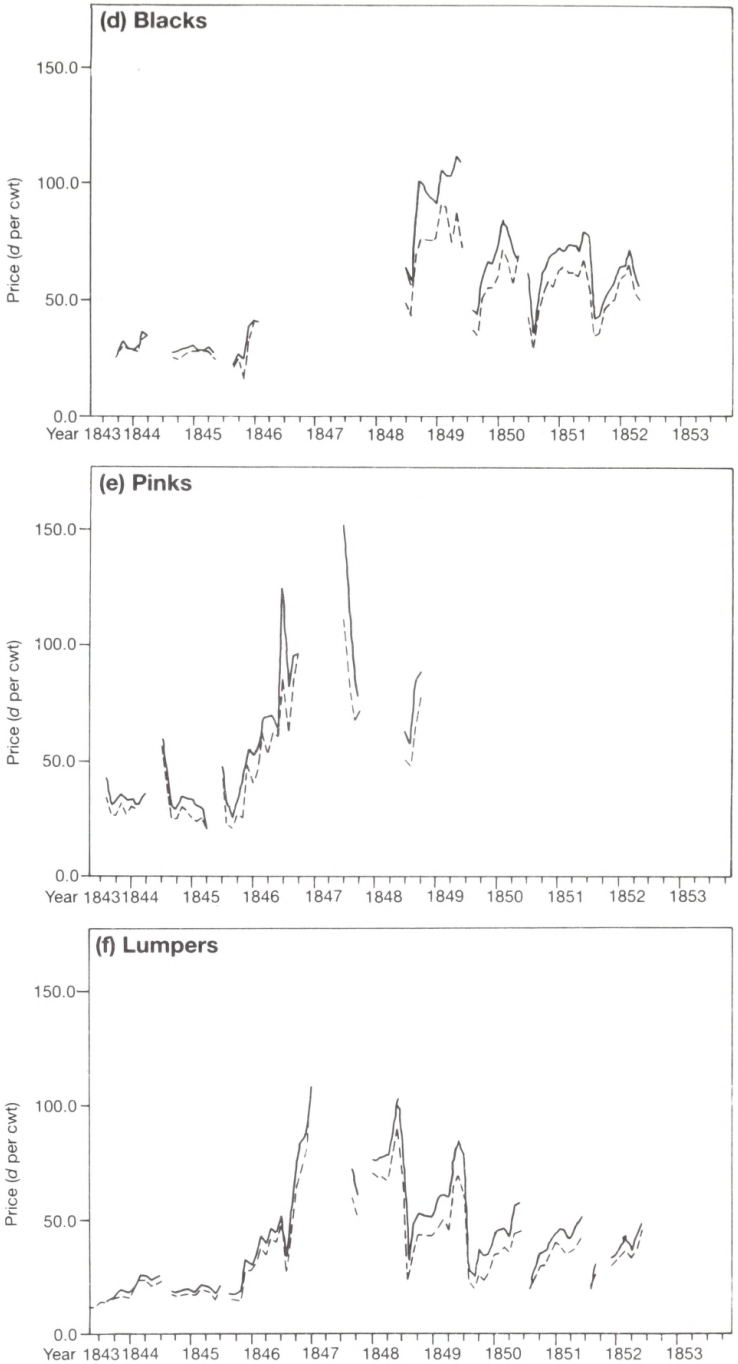


Minimum and maximum potato prices, by variety, Dublin market

Figure 4 *1812–25*

Figure 5 [*overleaf*] *1843–53*


(a) Cups
Price (d per cwt)
150.0
100.0
50.0
0.0
Year 1843 1844 1845 1846 1847 1848 1849 1850 1851 1852 1853
(b) Apples
Price (d per cwt)
150.0
100.0
50.0
0.0
Year 1843 1844 1845 1846 1847 1848 1849 1850 1851 1852 1853
(c) Whites
Price (d per cwt)
150.0
100.0
50.0
0.0
Year 1843 1844 1845 1846 1847 1848 1849 1850 1851 1852 1853


(d) Blacks
(e) Pinks
(f) Lumpers
Price (d per cwt)
150.0
100.0
50.0
0.0
Year 1843 1844 1845 1846 1847 1848 1849 1850 1851 1852 1853

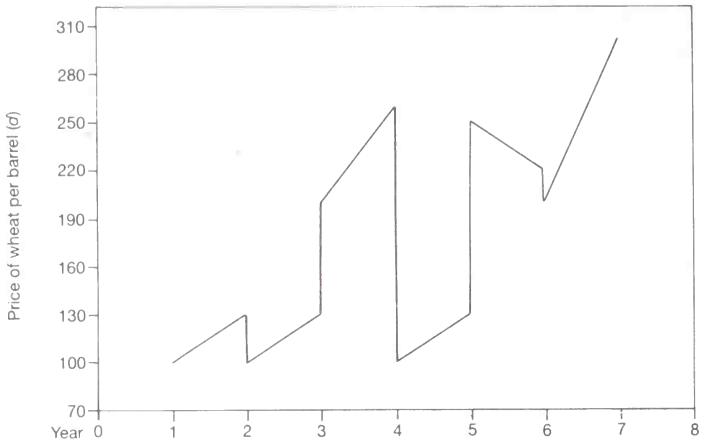
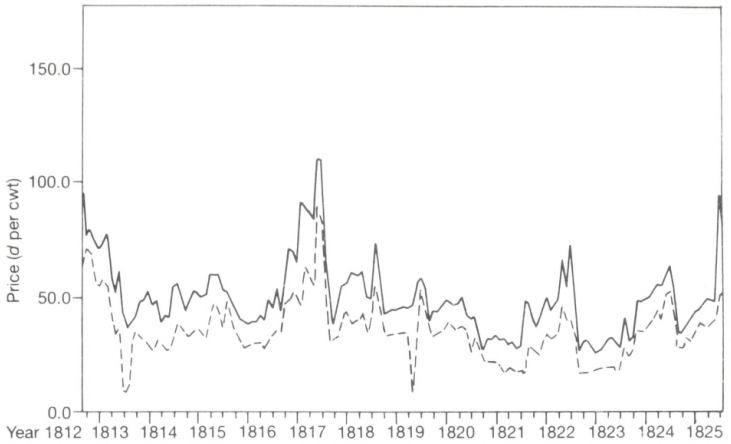


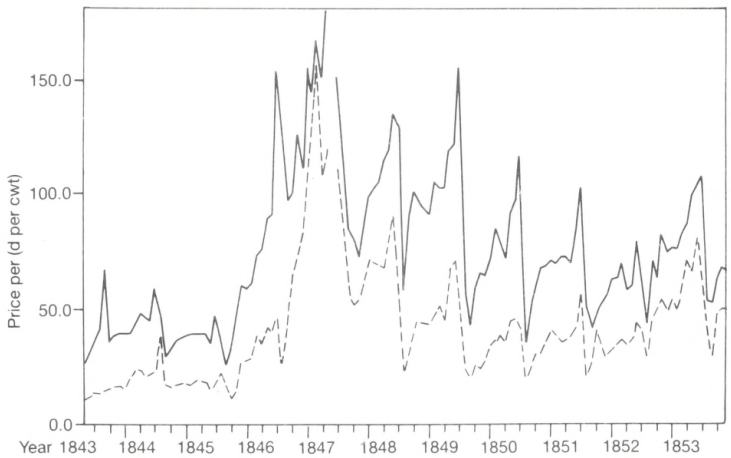
Figure 6 *Wheat prices: hypothetical seasonality patterns*

famine exacerbated by erratic price movements, the outcome of fear and hoarding? No definitive answer can be given to this difficult question here, but there are some leads.

The following discussion is based on the analysis of Dublin weekly wholesale potato price data as reported in the *Irish Farmers' Journal and Weekly Intelligencer* (1816–25) and the *Irish Farmers Gazette* (1843–54), and monthly Dublin wheat prices over a longer period (1785–1838). Obviously price quotations from the west would have been preferable: the Dublin data have the advantage of accessibility and continuous coverage. Typically data are given for three of four potato varieties in each week's issue. In the first period the varieties traded were cups, apples, whites, blacks, and pink-eyes; their price histories are reported in Figure 4. In the second lumpers and kemps are also included. The data for 1843–54 are the basis for Figure 5. In all cases the solid and dotted lines represent lower and upper price quotations.

Clearly whites were a highly seasonal crop in the first period. Blacks were typically cheaper than either cups or apples, while pink-eyes were not reported before the autumn of 1819. Kemps, which came on the market in late 1819, are recorded as blacks. The data highlight bad years. The crisis of 1816–18 (already noted in Ch. 1) which was particularly serious in Dublin, meant prices twice the





Minimum and maximum potato prices, Dublin market

Figure 7 *1812–25*

Figure 8 *1843–53*

norm. Scarcities are also indicated in the early 1810s, in 1823 and in 1825. But, above all, the graphs show that the Famine years were much worse than anything recorded earlier.

In a study of grain prices in early modern England McCloskey and Nash have argued that price seasonality can be used to infer storage costs and, in a rough-and-ready way, the rate of interest.[23] This follows from the premise that those who store must in equilibrium cover the opportunity cost of tied-up funds and the loss from wastage during the storage period. A saw-tooth seasonality pattern is suggested, low autumn prices giving way gradually to a maximum before the new harvest comes in. McCloskey and Nash's summary results would seem to confirm such a pattern. Their calculation, based on over a thousand pairs of prices, suggests an average monthly increase in late medieval England of over 2 percent, though with high variance. Should the increase be the same for all months and years? If the capital cost of the crop stored is what matters most, and the opportunity cost of capital remains constant, the same proportionate price increases per month would be expected in good and bad years, but if fixed costs such as buildings and security bulk large, then the increases should be less sensitive to the price of the crop. Seasonality in a well-functioning market would thus mean at most proportionate increases in prices: the quality of the harvest is irrelevant. McCloskey and Nash's argument then suggests this inference: strong deviations away from the established seasonality pattern suggest speculation or 'bubbles'. Such 'bubbles' are often associated in popular reaction or memory with famine conditions, whether due to popular panic or merchant hoarding. A simple illustration may help here. In terms of Figure 3.4, the hypothetical price rises in years 1–4 are all thirty per cent. However, in years 5 and 6 price movements are at least consistent with hoarding and insufficient storage or panic selling early in the season. Of course, more complex seasonal movements might well be imagined.

The popular hatred in Ireland for the 'gombeenman' – rural and small-town traders-cum-moneylenders – probably dates from Famine times.[24] That they charged high prices is obvious; that some of them extorted monopoly prices is likely, though not proven. But did they increase their monopoly exploitation in hard times? Certainly the scope for such extortion was realised by policy-makers at the time, and claims that merchants were unfairly raising prices were common.[25]

Testing for such blips in crisis times, with limited data of questionable quality, is difficult. The test outlined by Ravallion for the Bangladeshi famine of 1974 hypothesises that forecasts of future crop loss should not affect current prices independent of realised future prices. The crop report data required for such a test are not available for the case at hand, but series of weekly or monthly price data would seem a rough-and-ready second-best way of seeking such blips. In particular, speculative bubbles at the onset of a poor harvest might be sought in relatively *low* trough-to-peak rises, the bubble having forced a high base price. An 'advantage' of the potato in this context is that it could not be stored from year to year, so that, if there are no bubbles, each year's data, provide an independent measure of storage cost. In Figures 7 and 8 the maximum and minimum monthly prices quoted for potatoes in Dublin in 1813–25 and 1844–53 are plotted. While displaying lots of spikes, the earlier data nevertheless do reflect the kind of saw-tooth pattern predicted. The mean price rise between mid-September and mid-December was about 15 per cent. However, the rise was erratic, as Table 24 shows.[26]

Typically, the rise from trough to peak was one-fifth or more, but with considerable variation from month to month and year to year. Applying the McCloskey-Nash criterion to potato prices suggests that the rate of interest facing (and paid to) potato merchants in pre-Famine Ireland was enormous. Indeed, the result is a warning that the method must be used with caution, because using a longer series of Dublin grain prices suggests quite a different picture. Between 1785 and 1810 the average annual rises from trough to peak were 13.3 per cent for oats and 13.9 per cent for wheat; between 1811 and 1838, 11.1 and 14.1 per cent.[27] Presumably grain and speculators faced the same risk-adjusted interest charges. The more marked rise in potato prices thus reflects higher storage charges and risk premia, pure and simple.

Turning to the Famine proper, let us concentrate on the seasonality displayed by the series with the best coverage, that for cups. Strikingly, the seasonality is more regular but hardly more marked during the Famine years than earlier. Seasonality varies too much from year to year for strong inferences, but focusing on the movement between October and June-July seems to tell us something. Thus between 1814–15 and 1824–25 the average rise was 28.8 per cent, while in 1843–44, 1844–45, 1851–52 and 1852–53 it

Table 24 *Percentage change in potato prices (a) October to June–July and (b) mid-September to mid-December, 1812–53*

	(a)	*(b)*	
1812	−55	−9	−13
1813	−13	18	22
1814		18	
1815	−3	−32	−26
1816	81	92	92
1817	18	32	26
1818	21	−27	−25
1819	−8	13	6
1820	−21	−27	−25
1821	48	−18	−9
1822	6	19	20
1823	95	62	11
1824	62	3	11
1843	67	−4	−4
1844	8	4	6
1851	19	25	17
1852	36	−6	4
1853		122	29
Average	22	18	14
1845	158	90	105
1846	167	102	23
1847	56	15	7
1848	52	39	26
1849	82	80	68
1850	70	13	53
Average	98	57	47

averaged 32.4 per cent (Table 24). However, between 1845–46 and 1850–51 the average rose to almost 100 per cent. This hardly supports the notion of hoarding; on the contrary, if anything it suggests that potatoes were being brought to market 'too quickly'. Now these data refer to Dublin only, whether their message holds in areas more directly affected must await the availability of data from the south and west. Meanwhile, allowing the market for potatoes to operate freely seems not to have had the consequences feared by

some in the late 1840s.

Finally, the numbers are a reminder of the permanent resource cost of the Famine. Prices did not drop back to their previous levels, partly a reflection of higher production costs, but mainly of lower average yields. Before the Famine oatmeal cost five to six times as much as potatoes, weight for weight. In 1849–50 oatmeal, containing twice the food value, was not much more than double the price of potatoes. Farmers who had plenty of potatoes apparently preferred to sell them, 'living with their servants, on oaten and Indian meal'.[28]

3.4 Food shortage and entitlements

That famines stem from shortfalls in the supply of food might seem tautological. However, a generalised food shortage is not a necessary condition of mass starvation. In a work that focuses primarily on famine in the modern Third World Sen has argued that typically the fundamental reason for mass starvation is not an aggregate shortage of food. The paradox arises from poor people's inability to purchase what food was available. Those without food lack the funds, and the authorities lack the will to transfer the food to them through political means, relying instead on market forces. In such circumstances some groups – traders, farmers whose output remains intact, employers of labour – may stand to gain from famine conditions. Thus 'market forces can be seen as operating *through* a system of legal relations (ownership rights, contractual obligations, legal exchanges, etc.). The law stands between food availability and food entitlement. Starvation deaths can reflect legality with a vengeance'.[29] Sen's framework was originally inspired by a context far removed from Ireland in the 1840s, the Great Bengali famine of the 1940s. The victims of the Bengali famine were far less likely to have been peasants than urban artisans and labourers, who paid for their food in money. Moreover that famine was *not* caused by a natural disaster like the potato blight. The Bengali case prompted Sen to examine other modern famines in Ethiopia, the Sahel and Bangladesh. These were indeed prompted by harvest failures, but the striking conclusion that starvation was due not to inadequate food but to the poor's inability to command enough food to live on, held firm.[30] What is the relevance of Sen's model to Ireland in the 1840s and

earlier? Certainly there are loose anticipations of his argument in contemporary Irish sources. During the famine of 1816–18 high food prices pointed to scarcity as the problem, but the *Irish Farmers Journal*, admittedly an interested party, dwelt on 'the want of employment as the chief cause' of the distress. In 1812, it pointed out, similarly high prices had caused no problems, while in the summer of 1817 a substantial drop in prices would do no good as long as unemployment persisted. Thus 'the difficulties evidently proceed not from absolute want of food but from the want of means to purchase it'.[31] The Irish famine of 1822 was seen in the same light; a parliamentary committee reported at the time that it was due less to the shortage of food 'than from the want of adequate means of purchasing it'.[32] But the potato's failure in 1846–48 meant the destruction of about thirty million tons or five million acres, enough to feed almost five million daily for three years. There is thus no question but that food supply was drastically cut. But was there still enough, suitably divided out, to feed everybody? How much grain or other food would it have taken to feed those without potatoes in 1847 or 1848?

In Arthur Young's day feeding eight people on potatoes would have taken an Irish acre, but 'to feed on wheat those eight persons would require eight quarters, or two Irish acres, which at present imply two more for fallow, or four in all'. Young's assumption that the fallow yielded no calories is questionable, but less than two decades later a committee of the Board of Agriculture also proposed a food production ratio of about two to one.[33] Such rather crude assessments are consistent with modern calculations based on dietary requirements. According to Burton, the potato today no longer outstrips grain in food production efficiency, but that finding is based on assumed yields of twenty-five and four metric tons per hectare respectively.[34] On the basis of pre-Famine yields, and assuming no change in relative calorific quality in the interim, the potato's advantage would have been of the order of two to one. About three million acres of grain would therefore have been required annually to make up the shortfall in production in potatoes after 1845. It was not grown; indeed, the destruction of the potato probably induced (for reasons explained in Chapter 2) a decline in grain production. Comparing Bourke's acreage estimates with those in the agricultural statistics of 1847-49 implies little change in barley or wheat production but a fall in the acreage under oats from 2.5 million to 2.1

million.[35]

Yet the notion that the Famine was not due to an aggregate shortage of food was common in Ireland. When the first agricultural census of 1847 showed the value of gross tillage produce at £45 million, the *Evening Mail* (no radical journal) was quick to point out that

> enough (wheat, oats, barley, bere, rye, and beans) has been gathered in the past harvest to feed double the number of people actually existing in Ireland for a period of twelve months. But this is only a small fragment of the marvel; there were . . . green crops enough to feed 4,000,000 of human beings; and all this is exclusive of the stock of cattle, sheep, pigs and poultry . . .

This is true in the following sense: if a quarter of grain per capita was enough to hold body and soul together, then 3 three million acres under grain provided potentially enough food for everyone. Whence the populist inference that most of the food which 'would have saved every human being in the country from famine was shipped to England to pay rents and the salaries of bailiffs, police, and an army of officials', leading to the verdict that 'famine' is a mere euphemism for what happened.[36] Another reading of the figures, still in the spirit of Sen, is less nationalist in its implications: by showing more generosity to their labourers Irish landlords and farmers could have alleviated the misery.

Yet such interpretations are too simplistic in two respects. First, trade data show (Table 25) that Ireland switched from being a substantial exporter to being a net importer of grain during the Famine years. In 1846–48 net grain export were about 0.7 million tons below the level of the early 1840s. Ireland, for decades a large-scale exporter of grain, imported massively during the Famine.[37] But the populist case is not all wrong here. Donnelly makes a cogent case for the view that a temporary embargo on exports in late 1846 or early 1847, while foreign supplies were being obtained, would have saved lives. However, the notion that an export prohibition would have solved the problem of food shortfall over the longer haul is an exaggeration.

Second, the calculations above assume away the likely effects of redistribution on production, and make no allowance for seed and animal requirements. It is too much to hope that a reallocation or requisitioning of available domestically-grown food in 1846–47

Table 25 *The grain trade during the famine (1,000 tons)*

Year	UK imports	Irish imports
1840	700	−294
1841	646	−377
1842	694	−313
1843	271	−465
1844	502	−394
1845	392	−485
1846	766	−87
1847	1,869	743
1848	1,308	123
Average 1840–45	534	−388
Average 1846–48	1,314	+290

would have produced no cutbacks in grain output in 1847–48 or later. Simple political arithmetic thus suggests that famine could probably not have been avoided on Ireland's own resources. In this sense, the Malthusian emphasis on food supply is not misplaced. Nonetheless, the lack of generosity from the rest of the United Kingdom guaranteed the outcome. So, ultimately, starvation was in part at least due to how politics limited entitlements.

The Gregory clause which removed relief entitlements from those holding more than a quarter of an acre of land, also lends itself to interpretation along Sen's lines. Tellingly, only two Irish members voted against the clause in the House of Commons.[38] By depriving those on relief of the prospect of supplementary income from the land, this measure, and the clearances inspired by it, were probably directly responsible for thousands of deaths. While some landlords and farmers connived with their tenants at obtaining relief without surrendering possession, more had no compunction about using the Gregory clause as a mechanism for clearing their estates, and many areas showed 'strong marks of the march of the enemy [from] the multitude of ruined cottages or cabins'. In Carrick-on-Shannon a local official who would 'give no opinion on the propriety or expediency of this step' admitted that it gave rise to a situation that could not be coped with locally.[39]

Finally, it is unlikely that any significant group in Ireland gained during the Famine. In this sense too the Famine differed from the typical scenario described by Sen. In a world where starvation is the

outcome purely (or even mainly) of an entitlement shift, losses and gains are necessarily part of something close to a zero-sum setting. In Ireland landlords (a large minority of whom were bankrupted) and the landless (of whom a majority perished or emigrated) and the near landless were the obvious losers. But who gained? Commercial grain producers can hardly have gained either. Their prices were determined by world markets rather than by local famine conditions. Though the price of corn rose in 1846–47, the high prices were not maintained nor did they match the rise in potato prices. Moreover, the destruction of the potato undermined the chosen rotation of tillage farmers, and forced them to pay their workers a higher efficiency wage. During the Famine a bare subsistence on oatmeal cost much more than a belly-full of potatoes had cost a few years earlier. For grain farmers the Famine, far from being a godsend, spurred the shift from a grain-based to a livestock agriculture. The acreage under grain dropped from 3.3 million acres in 1847 to 2.7 million in 1854. Only to those specialising in cattle, and therefore employing little labour, can the crisis have been a boon, since the price of their main input land, fell. But such farmers were few in Ireland in the 1840s.

3.5 Policy and ideology

No government, Whig, Tory, or Repeal, could have insulated the Irish poor against the effects of the potato blight. The massive shock inflicted on the rural economy could not have been met, even with the best will in the world, without some excess mortality. In any assessment of the role of politics and ideology, that point must not be forgotten. In *Economic Thought and the Irish Question* Professor Collison Black has shown that the analysis of those classical economists who wrote most about Ireland amounted to much more than 'merely a policy of *laissez-faire*'. His survey reveals instances of support for some far-reaching remedies, including public investment in a railway network, state-supported emigration schemes, and more funding for education. In this sense Black's findings could be interpreted as evidence against those who 'regard the Classical conception of the functions of the state as sufficiently characterised by Carlyle's phrase, 'anarchy plus the constable', or by Lasalle's simile of the night watchman'.[40]

Yet as Black also admits – and this is surely much more to the point – the impact of economists on public opinion and on economic policy, through their parliamentary spokesmen and the media, was certainly against government intervention in Ireland. The message to be distilled from the work of luminaries such as Senior, Martineau, or McCulloch, was that public help for Ireland would prove counter-productive. It would stifle private enterprise and private charity, produce corruption rather than 'real jobs' and increase idleness. And so the notion grew that *laissez-faire* was the best cure for poverty 'unshackled industry left to seek its own reward is the best relief for distress ... to give one man a right without exertion, one the labour and the capital of another, is to subvert the fundamental law of property on which all property depends ...'[41]

This was the fashionable brand of economics learnt by those responsible for famine relief, including the energetic but dogmatic Charles Trevelyan, permanent under-secretary at the Treasury. In the British context it had much going for it. It put an end to many monopolistic privileges, and promoted economic growth. In Ireland in the 1840s 'sound political economy' was dangerous stuff. By captivating leading members of the Whig administration that came to power in July 1846 it influenced and constrained policy during the height of the Famine. Lord John Russell at its head and his Chancellor of the Exchequer, Charles Wood, were certainly not immune.[42] A nice example of Russell's style is his riposte to Daniel O'Connell's warning of impending disaster in the summer of 1846:

> We have been informed from various parts of England and Scotland that there is the greatest difficulty in getting in the harvest from the absence of Irish labourers who, when they come over to those districts, usually earn good and even high wages at this season. The inference has been that they found employment in their own country.[43]

Russell was less dogmatic than some of his Whig colleagues, but during the Famine the belief that the Famine was 'a visitation of God', that free markets would cure the shortages caused by the blight, and that public relief risked perpetuating the problem, were constantly aired. *Private* charity and *local* responsibility for funding famine relief were also stressed and insisted on, a reflection of an attitude to property rights rooted in political economy. Thus one of the Whigs'

earliest measures was to cut the government's pound-for-pound support for local relief contributions by half.[44]

According to this view, government had no obligations towards those in need, though some local responsibility on the part of the rich was admitted. And so in late 1846 and early 1847, when deputations from Ireland began to make representations in Whitehall, they were presented 'not with relief . . . but with extracts from the fifth chapter of the fourth book of Adam Smith's *Wealth of Nations*'.[45] Smith's belief in the virtues of the market during famines underlay the government's refusal to intervene in the grain trade. The rest of political economy's message was broadcast incessantly by the infant *Economist* ('it is no man's business to provide for another') and by able controversialists such as Henry Brougham and Nassau Senior. In the House of Lords the voluble Brougham warned early on that the Irish were 'too sanguine in their hopes when encouraged, and too confident in their own delusions once deluded', adding pre-emptively that 'nothing could be worse for Ireland herself than that . . . the whole empire should contribute to the removal of a temporary misfortune which no human agency had brought upon Ireland'. The ever abrasive Brougham was soon reminding ministers of cases 'when it was more difficult to do nothing than to do something, although the trying to do something were almost certain mischief'.[46]

Nassau Senior was a distinguished economist, and in the 1830s and 1840s one of the most influential intellectuals in the United Kingdom. He had previously written on Ireland; indeed, his 1843 article on the Irish question in *The Edinburgh Review* was all but a Whig manifesto, cleared by most of the shadow Cabinet. Senior's public pronouncements during the Famine amounted to little more than a catalogue of the abuses of relief administrators and recipients. In a masterpiece of distortion published in the *Edinburgh* in 1849 he presented relief as the *problem*, and bluntly refused to suggest any other cure: 'we are not sure that this is a question which an objector to outdoor relief for such a population is bound to answer'. In private Senior went further. Apparently an erstwhile believer in government investment in railways as a weapon in the 'war against poverty', it was he who confessed to Benjamin Jowett (later the celebrated Master of Balliol College) that a million deaths 'would scarcely be enough to do much good'. That aside to Jowett has become deservedly famous, but less known is the comment in the same vein to his friend Alexis

de Tocqueville:

> We are to have committees in each House on the Irish poor laws. They will contain illustrations valuable to a political economist. Experiments are made in that country on so large a scale, and pushed to their extreme consequences with such a disregard to the sufferings which they inflict, that they give us results as precious as those of Majendie.[47]

No hint here of Senior's own back-room role in designing and defending these 'experiments'! Both Senior and Brougham belonged to the 'hard left' of Whigdom, but far more decent men let the dismal science get the better of their humanity. This was hardly the ideal time for John Stuart Mill to announce that 'no one has a right to bring creatures into life, to be supported by other people', or for the Limerick Whig landlord Monteagle to fret about the 'idleness of the Irish people, of their reliance on others, their mendicant propensities'.[48] The belief that things should be 'let take their natural course' soon gained 'a philosophical colour, and many intellectuals, even of superior minds, seem to have steeled their hearts to the sufferings of the people of Ireland, justifying it to themselves by thinking it would be going contrary to the provisions of nature'.[49] The novelist Maria Edgeworth, a long-time fan of political economy, caught the mentality of Nassau Senior and the others very well, though her comments to Richard Jones (successor to Malthus at the East India College in Haileybury) were probably closer to the bone than she knew:

> To leave all the misery consequent upon improvidence and ignorance, to say nothing of imprudence and vice, to their own *reward* (anglice *punishment*) and to refuse any relief by charity to those who were perishing and perhaps before the very eyes of the anti-charitable . . . in their death-struggle, would require a heart of iron – a nature from which the natural instinct of sympathy or pity have been expelled or destroyed.[50]

The final irony is that when these ideologues played fast and loose with people's lives they did so not out of genocidal intent – far from it – but from a commitment to their own vision of a better world. Even the unlovely Senior's eagerness to sacrifice hundreds of thousands of Irishmen and Irishwomen was for the greater good of both survivors and 'all that makes England worth living in'.[51]

While economists tended to rationalise inactivity, ministers nevertheless felt bound to act. The political conjuncture was hardly

auspicious for those in want, however. During the worst of the crisis a divided Irish representation, weakened by O'Connell's failing health, faced a minority Whig administration bent on making Irish landlords (mainly Tories, of course) pay for the damage, and headed by people who had little faith in intervention as a solution.[52] It was also a period of financial and economic trouble on world markets.[53] What of the policies actually pursued? O'Neill and Donnelly give clear accounts of the succession of attempts to cope with the crisis. The less ideologically constrained policies of the Peel administration (autumn 1845 to summer 1846) were popular in Ireland and are widely rated a success by historians, but the challenge faced in that first famine year was less serious too. The new Whig ministry first expanded the public works (October 1846 to spring 1847) started by Peel, then tried the famous soup kitchens (spring 1847 to September 1847), and finally shifted responsibility to the amended Irish poor law. At all stages policy was guided by the principles of local financing and 'less eligibility'. Local financing entitled eliciting local contributions by both carrot (matching funds from London) and stick (legal remedies), less eligibility erring on the side of caution (i.e. death) in doling out relief.[54] While calculating the minimum cost of reducing famine deaths by a given amount is hardly possible, it is clear that the policies actually pursued failed, even subject to the chosen budgetary constraint. Not only was aid ungenerous, the criteria used in distributing it were hardly geared to greatest need. In terms of the notation of earlier discussion of vulnerability, ideological constraints undoubtedly increased what we called in Chapter 1 the conditional probability of disaster, $P(D/H)$, during the Great Famine.

Whitehall insisted from the outset that the costs of dealing with the crisis be met mainly by local taxpayers. In the west of Ireland this determination to offer aid 'in exact proportion to local contributions" had disastrous results. Landholders refused to pay rates, and while the poor law commissioners and local poor law guardians played cat-and-mouse the poor died. In Castlebar in January 1847 workhouse paupers were going without breakfast for 'the want of funds', patients were kept in bed for the lack of turf, and the coffin contractor was refusing to supply coffins. Guardians at Ballina workhouse soon began to refuse applicants from Erris, Cahirciveen was rejecting applicants owing to 'a scarcity of provisions', and the difficulties of the Clifden workhouse were a boon to local creditors

who were 'charging an exorbitant rate for the goods they supply'. One macabre incident from the south-west, recounted by Patrick Hickey, highlights the uselessness of relying on local funding. When a rate-collector found no answer at the home of one Patrick Regan of Rosbinn he pushed the door open, only to find the 'rate-payer' and his wife on the point of death. Their son had been dead for five days.[55] The principle of local funding, despite its obvious and oft-repeated implications for mass mortality, was never fully abandoned during the Famine.

Local responsibility also explains the massive clearances by Irish landlords, who between 1849 and 1854 alone put over a quarter of a million people on the roadside. The poor rate fell largely on landowners, directly or indirectly. Those who, like the ruthless Lord Sligo, felt 'under the necessity of ejecting or being ejected', evicted one-tenth of the entire population of County Clare and only slightly lower proportions in counties Galway and Kerry during the same period.[56]

Many cases where a less doctrinaire line might have saved lives might be cited from the parliamentary record and newspapers. The official response in 1847–48 to Patrick Dawson, Catholic priest in Carrick-on-Shannon, County Leitrim, is one telling example. Again and again, since local funds had completely dried up, Father Dawson pleaded 'most respectfully, but most earnestly' to the poor law commissioners and the Lord Lieutenant in Dublin for a 'trifling" loan for his area; each time he was curtly reminded of local obligations. Not even a last-ditch claim that the annual valuation of the Union would be insufficient to feed the poor made an impression. There can be no question here of officials 'not knowing' what was happening in Leitrim. The local Poor Law Inspector, caught in the cross-fire between Dawson and Dublin, apologised for the turbulent priest's 'unreasonableness and importunity'. The inspector had reason to eat his words two months later when he and a colleague were forced to pay out of their pockets for a coffin. It was for a Kilmore woman they had found dead by the roadside 'with five children around her'.[57]

The rate-in-aid imposed in 1849 on the more prosperous parts of Ireland was another application of the principle of 'local responsibility'. The controversy provoked by this tax was out of all proportion to what the sums raised – about £0.5 million – could have done to stop the continuing mortality. Yet while the landlords of Ulster deserved little sympathy for not wanting to help the poor of

Connacht and Munster, their claim that 'Ireland [was] an integral part of the United Kingdom, and that Ulster has no relations with Connaught which are not equally shared by any other division of the British Empire' had a broader validity. In Westminster Lord John Russell's rationale for passing the buck to Ireland was that it had been under-taxed since the Union, but, even if true – 1849 was hardly the time to force it to make amends. Even George Nicholls, inspirer and historian of the Irish Poor Law, later admitted as much.[58]

Nor was the money spent during the Famine sensibly distributed. The policy of limiting outdoor relief in 1846–47 to those on public works and paying them by task not only bred corruption and waste: it was less likely to help those who needed help most. In famine conditions the effect of food intake on productivity is paramount. Piece rates discriminated against the hungry, and healthy workers equipped with wheelbarrows and crowbars might earn two to three times as much as the weaker. An unrealistically low 'ordinary' wage, delays in payment and the policy of setting a low standard wet-time rate combined to progressively debilitate the poor. Soon the Chancellor of the Exchequer was being forced to concede in the Commons that 'crowds flock to the works who are unable from weakness to perform their task, who faint and die upon the works . . . who a few months ago, could earn enough to procure themselves subsistence'. By January-February 1847, with 500,000 on the books, relief officials were already impressing on London the wisdom of providing food instead of work, and Trevelyan was being reassured that 'it is now beyond a spirit of idleness and unwillingness to work; there is a *physical* incapability'. Many, it seems, chose the public works because they were unable for the work which would have gained them much higher pay from farmers. By showing up on the works instead and shivering through the day they won their 8*d* or 10*d*.[59] The soup kitchens which replaced the public works were a great deal more economical and, however demeaningly, tackled the problem of starvation head on. At its peak in early July 1847 the new system was providing food for over 3 million people; through it, ventured Trevelyan, 'the famine was stayed'. The truth of the matter is that the soup scheme was wound down in September 1847 before its effectiveness could be properly assessed. Whether continuing it for the following winter would have prevented the massive mortality that ensued (see Figure 3) is impossible to determine.[60]

The net public outlay? Between 1846 and 1853 Whitehall spent

£7 million on famine relief, while Ireland through poor rates and landlord borrowings spent over £8 million.[61] The comparison rather flatters Whitehall, since much of what ended up being given was originally granted as a loan only, thereby hindering its effectiveness as famine relief. Thus the Board of Works, in their assessments of proposals for their 'reproductiveness', routinely turned down applications of help from the neediest areas. An exasperated Kilrush relief committee questioned the Board's right to quibble with 'very urgent applications [from] the cess payers and the rate payers who hereinafter will be called to reimburse the government in a portion of the outlay'.[62] Still, Edwards and Williams seemed awe-struck in 1956 by 'the scale of the actual outlay to meet the famine', while Daly maintains that 'it remains difficult to conclusively argue that greater sympathy with the Irish case would have guaranteed a dramatically reduced mortality'. By what yardstick? Spread out over a five-year period, the sums sanctioned by Westminster amounted to only about 0.3 per cent of United Kingdom GNP annually. Both Mokyr and Donnelly have contrasted what they consider the government's lack of generosity during the Famine with its readiness to spend nearly £70 million a few years later on 'an utterly futile adventure in the Crimea'. This guns versus butter comparison is neither fanciful nor anachronistic, because critics of government policy at the time argued likewise. In late 1846 the leader of the Tory opposition, Lord George Bentinck, was reminding Parliament (with some exaggeration, it is true) that a country that had spent £100 million annually for three years fighting Napoleon should not be 'downhearted' about providing properly for Ireland. For Edward Twistleton, the increasingly disillusioned dispenser of Irish Poor Law relief, 'the comparatively trifling sum with which it is necessary for this country to spare itself the deep disgrace of permitting any of our miserable fellow subjects to die of starvation' was nothing compared to 'the expenses of the Coffre War'. Twistleton knew his facts, if anybody did: surely his protest should assuage Daly's doubts. Again, when Daniel O'Connell in late 1846 wanted the government to grant Ireland £30 million to £40 million to 'ransack the world for food and buy it at any price', he pointed to the £20 million that had been given to West Indian slave-owners a few years earlier to compensate them for emancipation.[63] The O'Connell-Mokyr-Donnelly analogies are a reminder that if poverty was bound to be the death warrant of many after mid-1846, a more generous government might have prevented

the deaths of hundreds of thousands more.[64]

It is instructive to compare the public parsimony of the 1840s with the sums lavished on Ireland only a few decades later for the relief of what were minor crises by comparison. Harvest failures and bad weather continued to cause 'exceptional and acute distress' in parts of the remote west in 1880–83, 1890–91, 1894–95, and even as recently as 1904–95. Between 1880 and 1905 over £4 million was provided in grants and loans out of the public purse, and £2.6 million was concentrated on just ten Poor Law Unions along the western seaboard. This takes no account of the moneys spent on light railways and other 'reproductive' schemes, investments which were geared towards eliminating the root cause of the distress. Such outlays exceeded £3 million in the same period. Government support for far more viable mainline routes had been proposed by Bentinck and others in 1846–47, but their plans had been laughed out of Parliament by the Whigs. Nor should government help for development schemes fostered by the Irish Agricultural Organisation Society and the creation of the Congested Districts Board in the 1890s and after be forgotten, for they are also part of the story. While some of the extra generosity in this later period was due to economic growth, attitudes, individuals and ideology surely played their part. The legacy of the Famine years through its impact on public opinion must have counted for something. So must the democratisation of politics. Politicians both in Ireland and in Britain were forced to focus more on the plight of the Irish poor in the 1880s than in the 1840s. If only *phytophthora infestans* had waited on Gladstone, Balfour and William O'Brien![65] In the end, then, though the crisis would have posed problems for even the most sympathetic of administrations, it would be wrong to deny the power of ideas a role in increasing net mortality.

3.6 The Aran Islands

It has become fashionable to argue that the Famine did not cause but merely accelerated many of the post-1850 changes highlighted by Irish economic and social historians. Thus (as noted in Chapter 2) the shift towards pasture has been pushed back to 1815 or so by Crotty and Foster, and hallmarks of demographic adjustment such as lower fertility and emigration have also been traced to the pre-

Famine decades. The pre-Famine commercialisation of economic life and the reform of estate management have also been stressed. Other changes attributed to the Famine are seen as due, in part at least, to separate tough contemporary developments, notably the building of a railway network and cheaper ocean transport.[66] Nevertheless, the impact of the Famine should not be underestimated.

It would be nice to have a control, somewhere in Ireland that the potato blight did not reach, or let off lightly, in the late 1840s. Let us end this chapter with a district that, curiously enough, goes some way towards fitting the bill, the three islands of Aran off the coast of County Galway. On the eve of the Famine Aran was one of the poorest and most isolated places in Ireland. Its people, mostly (85 per cent) illiterate, lived in one- and two-room cabins on a diet consisting almost exclusively of potatoes and fish. The islands' population had risen from 3,079 in 1821 to 3,521 in 1841. Surely Aran was as likely a candidate for Malthusian retribution as anywhere else in the country?[67] Yet on the islands themselves the tradition remains that they came off lightly in 1846–48, and poet-antiquarian Samuel Ferguson drew attention to the fact as long ago as 1853: 'the islanders have had the singular good fortune never to have been visited by the potato blight; never to have had a death by destitution, and never to have sent a pauper to the poor house'.[68] Other evidence is consistent with this. Famine graves, very numerous on the mainland, seem to be absent on Aran.[69] Moreover, turning to contemporary bureaucratic evidence, the total advance, under the soup kitchen legislation for relief purposes per head was less than in any other electoral district of Galway Poor Law Union, and the maximum number of public food rations at any stage was less than in all but one, Ballinacourty (see Table 26).[70]

Still, there is an implausible ring to Ferguson's claim that Aran escaped completely from the blight that had crossed Europe like a brush fire in the summer of 1845. Indeed, evidence in the Relief Commission papers contradict it. Several reports in late 1845 refer to damage from potato blight in Aran, and one dated 2 December estimates overall losses to be one-third on the 'large island', about one quarter on the 'middle island', with only the 'south island' escaping scot-free. Now the country-wide loss was put at 40 per cent in 1845, so Aran escaped relatively lightly. But it is hard to believe that the blight passed it by completely in the destruction of 1846–48. Perhaps, however, freak weather conditions again spared

Table 26 *Famine relief in Galway*

	1841 Population	*Max. no. given food in any one day*
Galway	32,511	22,009
Annaghdown	4,941	3,765
Aran	3,521	1,538
Athenry	1,770	1,629
Ballinacourty	3,407	1,136
Claregalway	3,873	2,966
Killanin	11,501	8,952
Lackagh	3,753	3,361
Moycullen	7,343	6,610
Oranmore	4,486	2,792
Oughterard	10,601	10,921
Stradbally	1,264	757

Source IUP Famine Series, III, 322.

it the worst of *phytophthora infestans*.

Not that this was an idyllic period for the islanders: life on Aran even in normal years was bleak, and after 1846 immigration from the mainland seems to have put further pressure on meagre resources. That hardship is reflected in the pleas of Aran's parish priest, who was forced to act as a one-man relief committee. He wrote to the Relief Commissioners:

> I have now to state to you, that in order to rescue the wretched inhabitants of Aran from starvation, there is no alternative left me, in regard to their salvation, but to desire them to leave this desperate and forlorn place . . .
>
> I have the honour to state in compliance with your desires that the Islands of Arran County of Galway contain a population of four thousand souls, who are at present in extreme distress, without food or employment by public works up to this period and situated thirty miles from Galway. There is no gentleman save myself and one lay person, who generously subscribed fifty pounds towards the relief of the destitute. And for my part, I have left myself penniless in the vain endeavour to relieve the most destitute of this vast population, the people themselves are too poor to entitle themselves of the donations of government, so that the unfortunate Islanders, packed I may say on a barren rock, must inevitably perish, unless promptly relieved from this melancholy doom by the timely interposition of government or some other charitable source.[71]

Yet Father Harley may have been driven here less by literal famine than by a desire to obtain something for Aran from the big city. During the Famine years potatoes, blight or no blight, continued to be the mainstay of the islanders. The picture given by the *Agricultural Statistics* is summarised in Tables 27 and 28.

Table 27 *Acreage under potatoes and turnips in some Galway electoral districts, 1847–1848*

	Potatoes		*Turnips*	
	1847	*1848*	*1847*	*1848*
Annaghdown	116	754	78	368
Aran	457	723	1	1
Athenry	84	143	95	75
Ballymacourty	146	516	174	206
Claney	161	324	147	114
Galway (part of)	408	1413	232	222
Killanin	472	706	165	135

Table 28 *Agriculture in Aran, 1847–51*

	1847	1848	1851
Potatoes (acres)	457	723	564
Grain (acres)	173	138	128
Turnips (acres)	1	1	–
Cattle	725	664	816
Pigs	373	437	447
Goats	116	132	347
Poultry	1,487	1,008	1,004
Horses	185	185	139
Donkeys	88	34	88
Sheep	2,785	2,040	1,494
Stockholders	449	432	391

In Aran the potato acreage rose less in 1848 than elsewhere, and surely this was because the 1847 shortfall was less serious there. The 'refusal' of the islanders to bother with turnip-growing in the late 1840s may be explained in the same way. Like other coastal populations they presumably had recourse to fish, seaweed, and the eggs of seabirds. Tradition has it that fish were plentiful during the Famine

years, and one piece of boastful but telling apocrypha tells of shoals of fish coming into Loch an Charra, like manna from heaven, to be caught by hand. There were rabbits too: a few years later William Wilde (wearing his antiquarian hat) pleaded with the people not to ruin the prehistoric fort of Dun Aengus 'for the paltry advantage of catching a few rabbits'.[72]

An important point: the islands' population dropped only marginally in the 1840s, less than that of any other Galway barony except Clonmacowen, which contained a large workhouse by 1851. A quick comparison with other Irish islands may be of interest. While Aran's population dropped from 3,521 to 3,333 (or by 9.5 percent) between 1841 and 1851, that of other islands off the Galway coast fell by almost 25 per cent. Numbers on Achill (in Mayo) fell by over 22 per cent, on Cape Clear (in Cork) by 22 per cent, and on Valentia and the Blaskets (in Kerry) by 15 and 29 per cent. Only islands off the coast of Donegal, always less dependent on the potato and already linked to the outside world through seasonal migration, fared better.[73] Numbers on Aran continued to decline, though slowly. In 1881 the population was 3,163, in 1926 it was down to 2,157. Here, as in most of Ireland, the numbers reached in the 1840s could not be maintained in comfort in the long run. But Aran's way was by no means demographic adjustment through 'inevitable' deaths. The history of traditional, poverty-stricken Aran provides a clue to that counterfactual will-o-the-wisp, an Ireland spared from the potato blight in the 1840s.

3.7 Conclusion

The historiographical orthodoxy described at the start of this chapter tends to view the Great Famine as both unavoidable and inevitable. I have described it instead as the tragic outcome of three factors: an ecological accident that could not have been predicted, an ideology ill-geared to saving lives and, of course, mass poverty. The role of sheer bad luck is important: Ireland's ability to cope with a potato failure would have been far greater a few decades later, and the political will, and the political pressure, to spend more money to save lives greater too. Meanwhile, the shock of the blight's onslaught in the 1840s and the unprecedented nature of the food shortage would have challenged even the most generous of governments. If

this post-revisionist interpretation of events of the 1840s comes closer to the traditional story, it also keeps its distance from the wilder populist interpretations mentioned earlier. Food availability *was* a problem; *nobody* wanted the extirpation of the Irish as a race.

Appendix 3.1
The regional dimension once again

We refer to the Irish, Finnish, or Bengali famines, but all these famines had a very marked regional dimension. In Finland, where the data are good, there was a strong correlation across regions between the harvest shortfall and excess mortality; inland regions were particularly hurt. As we have seen, the incidence of the Irish Famine was also highly uneven regionally, though no county in Ireland was spared.[74]

The regional variation in Irish famine mortality requires further analysis. So far only Mokyr has used this variation to discover 'to what extent the impact of the famine was related to prefamine poverty, to the degree of dependence on potatoes, to occupational structure, and so on'.[75] Critics of Mokyr's ploy in *Why Ireland Starved* of using the country's 32 counties as hypothetical time-series observations can hardly object to the use of cross-section analysis in attempting to pinpoint factors associated with high mortality during the Famine. But Mokyr's econometric analysis has thrown up some surprises. Most baffling of all is that his own revised estimates of potato acreage per head on the eve of the Famine (or, alternatively, the percentage of all agricultural land under potatoes) 'fail to show any significance in any specification'. Mokyr surmises that this puzzling outcome may be due the overwhelming dependence on the potato throughout Ireland.[76] Yet in parts of Ulster at least, it is widely believed that lower dependence on the potato meant lower excess mortality. Perhaps part of the problem is that potato *production* is a poor proxy for potato *consumption*, since it ignores the extent to which potatoes were traded across counties. Counties such as Down and Louth exported considerable quantities of potatoes even before the Famine and, probably more important, Dublin was a substantial net importer of potatoes. Areas of west Cork and south Kerry which had exported potatoes coastwise to Cork city before 1846 were doubly hit by the blight. Kaukiainen's analysis of regional mortality in Finland is instructive here: relative harvest failure explains more of the excess mortality than harvest per capita.[77] That point must not be pressed too far, because of all agricultural commodities in Ireland in the 1840s potatoes were perhaps the most expensive to transport.[78] A further reason for omitting County Dublin from the analysis altogether is that a substantial proportion of those who died in Dublin probably had moved there during

the crisis. In institutional terms, Dublin was better served than rural areas, and institutional deaths there are likely to inflate Dublin's share of excess mortality.

Another variable without predictive punch in Mokyr's analysis is agricultural rent per head. Mokyr gives two reasons for including it. First, following Cousens and Almquist, he suggests that it reflects population pressure. This would be so, however, only if the variation in rents reflected demand for land, but the variation might equally have reflected land quality and accessibility.[79] Second, since Irish landlords bore much of the brunt of relief during the Famine, Mokyr proposes rent as a proxy for taxable capacity during the Famine. However, a glance at Mokyr's data suggests a problem here; they put rent per head on the eve of the Famine at £3.5 in Meath and £2.3 in Carlow, both eastern counties, but at only £1.1 in Clare and £0.9 in Mayo. Other likely explanatory variables produce surprises too. The degree of urbanisation, for example, turns out to be *positively* associated with excess mortality, though most students of nineteenth-century Ireland would associate urbanisation with higher living standards and reduced dependence on the potato, both as a source of income and the staple food. The coefficient on the rural industry variable is quite sensitive to the county estimates of mortality chosen. Farm size does not work well either.[80] Income per head, however, has the correct sign, as do other variables such as literacy, livestock per head, and housing quality, which might be expected to be close proxies for income per head.

Sympathy for Mokyr's approach, tinged with some bemusement at these results, prompts another look. Reverting to our earlier discussion of mortality, perhaps one reason for some of these puzzling results is poor county estimates of excess mortality? In the following econometric exercise, instead of Mokyr's county estimates of famine mortality, I tried two that draw on Cousens' work:[81] first, one based on the evidence of the 1851 census commissioners (Revised Excess Mortality, or REM), and second, one based on deaths in institutions (REM2). Both use Cousens' data divided by 1841 population. Now Mokyr effectively demolishes the 1851 census 'Tables of Death' as a source for aggregate mortality. Still, I believe that as a measure of county *shares* the results are less easily dismissed. True, Cousens makes no allowance for variation in normal mortality rates across counties, but such variation was too small to affect the outcome much.[82] The main advantage of Cousens' numbers is that they do not rely on (defective) emigration data. At the very least, REM and REM2 seemed worth trying, though results based on them must be regarded as tentative. I will also use Mokyr's revised income per head data instead of those used in 'The Deadly Fungus',[83] and add a few more explanatory variables as candidates. Percentage population growth on the eve of the Famine (or 1821–41) and the land-labour ratio may be interpreted as population pressure variables: the latter was highlighted in *Why Ireland Starved*. A related potential influence

on mortality variation is the trend on living standards on the eve of the Famine. Mokyr's Subjective Impoverishment Index (SII), discussed in Chapter 1, is worth trying in this context. (Note, however, that this variable is scaled inversely.) Finally, I try a potato consumption variable that makes some allowance for potatoes fed to pigs: where the coefficient on the potato consumption variable in Table A3.1 is asterisked, one-tenth of an acre per pig enumerated in 1841 has been deducted from Mokyr's county totals.

As Mokyr notes,[84] weighted least squares should be used to avoid a heteroskedastic error structure. All observations here have been weighted by county population totals in 1841. Unless otherwise noted, all variables are as defined in Mokyr's 'Deadly Fungus' study.

The results are presented in Table A2 Regressions 1–4 show that the first of revised Cousens-based estimates of county mortality, REM, responds better to Mokyr's independent variables than his own mortality estimates (EDF7 is used here). Since REM quickly emerged as a more consistent variable than REM2, the results presented rely on REM. Overall, they 'make more sense' than those invoked in Mokyr's study. In particular, the degree of potato dependence on the eve of the Famine (POTPC) now makes a difference, producing a coefficient that is both statistically significant and sizeable. Besides, since netting out for pig consumption improves the goodness of fit, all results rely on a corrected potato consumption variable. County Dublin is omitted throughout, and this solves another puzzle: urbanisation now no longer counts. Reassuringly, Mokyr's revised income estimates work well throughout. As in Mokyr's study, domestic industry (defined here as Z2) shielded people from death during the Famine. Domestic industry played a different role in contemporary Flanders; there a crisis in the linen industry *intensified* the problems caused by the failure of the potato crop.[85]

There are still some surprises. For example, the positive sign on SII's coefficient (Equations 12–14) suggests that counties suffering a greater decline in living standards before the Famine suffered less during the Famine itself. The apparent paradox here is resolved by noting that the variation in SII is largely a reflection of the decline of domestic industry hitting much of Ireland after 1815 or so.[86] More disappointing is the failure of two income proxies, the literacy rate and housing quality, to perform as effectively as the income variable (Equations. 16–17). Not only do they explain less of the mortality variation, they reduce considerably the potato acreage coefficient. The land-labour ratio, here (Equations 10–11, 13–4) defined crudely as total area divided by total population, explains hardly any of the excess mortality either. A more 'careful' definition in terms of area adjusted for quality by multiplying by rent per acre, worked no better. Finally, the results (Equations 19, 21–23) suggest that faster population growth *before* the Famine was not associated with proportionately greater excess mortality *during* the crisis.

Table A3 gives some idea of the impact of the most important variables. The numbers are elasticities of REM with respect to potato dependence (defined as potato acreage per capita), income per capita (as defined by Mokyr in *Why Ireland Starved*), and Z2 (defined as the proportion of total rural male and female workers employed in textile production in 1841). The most striking elasticities are those with respect to income; they imply that, holding other measurable factors constant, a 1 per cent difference in income between counties produced a difference of 2 per cent or more in excess mortality. The other elasticities may be interpreted analogously.

The tentative nature of the results in Tables A2 and A3 need not be laboured. Still, it is clear that an estimate of county mortality based on responses to the 1851 census performs 'better' on several counts than one that relies on estimates of county emigration. But the results also imply a story subtler than the usual 'vulgar' Malthusian version. In particular, neither the land-labour ratio nor previous population growth explain much of the mortality variation across counties during the Famine.

Purists may well object that the unit of analysis used in the above regression analysis, the county, is too large. Counties, after all, are administrative units, and their boundaries were not determined by economics or the intensity of potato cultivation. It would be nice to be able to run regressions on baronial data, or to design afresh convenient county units. But few of the comparative micro-studies implied by such objections have been carried out so far.[87] Local, largely non-quantitative, studies of the Famine are plentiful, but they have been carried out *in vacuo*. Aimed largely at local non-specialist audiences, they lack comparative perspective and analytical sophistication.

True, county-level comparisons gloss over potentially telling local variations. Thus even though clearly western areas suffered most, folk memory (sometimes complemented by censal data) points to pockets (parishes, districts, even townlands) in the west where mortality was light. The remote Aran Islands, discussed above, provides one striking case, another example is the Poor Law Union of Killarney.[88] Aran's relatively easy passage during the Famine is somewhat baffling, though plentiful fish, an isolation that spared it from typhoid fever, and an escape from the worst ravages of potato blight may all be part of the answer. Public charity counted for little in Aran, but in Foley's useful study of Killarney Poor Law Union, the local poor law guardians and their officials have been given most of the credit for the relatively low mortality there. They may well deserve the accolade, but only comparative work can tell us how typical they were, and how much their industry mattered in saving lives. Grant's study of relief in Ulster[89] uses the contrasting experiences of County Cavan, which was badly-hit, and County Donegal, which escaped lightly, to argue for 'the ability of competent leadership to counteract a serious famine crisis'. Still, as Grant has pointed out, focusing on local relief as the *deus ex machina* begs

Table A2 *Explaining county mortality rates*

Regression Results		*(t-statistics in parentheses)*		
	(1)	*(2)*	*(3)*	*(4)*
Dependent Variable	*REM*	*REM2*	*EDF7*	*EDF8*
Constant	0.124	0.021	0.078	0.078
	(5.80)	(1.26)	(5.50)	(5.39)
Income	−0.010	−0.001	−0.007	−0.007
per head	(−4.83)	(−0.60)	(−5.20)	(−5.07)
Potatoes	0.069	0.060	0.009	0.010
per head	(1.37)	(1.55)	(0.27)	(0.29)
R^2	.433	.115	.406	.40

	(5)	*(6)*	*(7)*	*(8)*	*(9)*
Dependent Variable	*REM*	*REM*	*REM*	*REM*	*EDF7*
Constant	0.131	0.121	0.174	0.124	0.070
	(6.13)	(5.97)	(7.18)	(6.49)	(4.85)
Income	−0.012	−0.012	−0.015	−0.013	−0.006
per head	(−4.96)	(−5.43)	(−7.59)	(−6.11)	(−3.89)
Potatoes	0.087	0.160	0.114	0.152	0.035
per head	(1.73)	(2.86)	(2.09)	(2.84)	(0.86)
Urban	0.052	−0.026	–	–	−0.062
	(1.53)	(−0.57)			(−1.89)
Z2	–	–	−0.097	–	–
			(-3.08)		
R^2	.468	.544	.661	.555	.438

	(10)	*(11)*	*(12)*	*(13)*
Dependent Variable	*REM*	*EDF7*	*REM*	*REM*
Constant	0.182	0.096	0.187	0.192
	(8.67)	(4.88)	(7.91)	(9.29)
Income	−0.17	−0.009	−0.017	−0.018
per head	(−9.46)	(−5.45)	(−8.30)	(−10.00)
Potatoes	0.088	−0.011	0.123	0.098
per head	(1.86)	(−0.24)	(2.38)	(2.15)
Land-labour	0.16×10^7	0.10×10^7	–	0.15×10^7
ratio (*)	(3.24)	(2.30)	(3.04)	
Z2	−0.094	−0.022	−0.076	−0.078
	(−3.46)	(−0.87)	(−2.44)	(−2.85)
SII	–	–	0.016	0.013
			(2.11)	(1.90)
R^2	.749	.423	.699	.772

	(14)	*(15)*	*(16)*	*(17)*
Dependent Variable	*REM*	*REM*	*REM*	*REM*
Constant	0.194	−0.008	0.107	0.172
	(4.78)	(−0.41)	(3.66)	(7.28)
Income	−0.016	–	–	−0.021
per head	(−7.28)			(−5.26)
Literacy	–	–	−0.205	–
rate			(−3.78)	
Percentage	−0.021	–	–	–
small farms	(−0.62)			
Potato acreage	0.108	0.049	0.053	0.170
per capita	(1.93)	(0.72)	(0.68)	(2.62)
Rural	−0.091	−0.021	−0.021	−0.064
industry	(−2.76)	(−0.60)	(−0.52)	(−1.71)
Housing	–	0.170	–	–
quality		(5.35)		
Rent	–	–	–	0.014
per head				(1.52)
R^2	.653	.484	.304	.676

	(18)	*(19)*	*(20)*	*(21)*	*(22)*
Dependent Variable	*REM*	*REM*	*REM*	*REM*	*REM*
Constant	0.131	0.174	0.189	0.184	0.192
	(7.54)	(7.18)	(8.90)	(7.57)	(9.29)
Income	−0.015	−0.015	−0.018	−0.017	−0.20
per head	(−7.55)	(−7.59)	(−9.70)	(−8.03)	(−8.51)
Potato acreage	0.147	0.114	0.102	0.126	0.098
per capita	(2.82)	(2.09)	(2.19)	(2.41)	(2.15)
Rural industry	–	−0.097	−0.075	−0.074	−0.078
		(−3.08)	(−2.71)	(−2.31)	(−2.85)
SII	–	–	0.012	0.015	0.013
			(1.69)	(1.92)	(1.90)
Land-labour	0.15×10^7	–	0.14×10^7	–	0.14×10^7
ratio	(2.85)		(3.02)		(3.04)
Pop. change	×0.001	–	−0.0005	−0.0005	–
	1821–41	(−1.46)		(−0.70)	(−0.58)
R^2	.661	.661	.767	.692	.772

Table A3 *Some excess mortality elasticities*

Elasticity	Eq.(12)	Eq.(14)	Eq.(15)	Eq.(7)
Income	−2.6	−2.5	−2.9	−2.0
Potatoes	0.4	0.4	0.6	0.5
Z2	−0.2	−0.2	−0.2	–

the question, since the efficacy of relief (and government donations-in-aid) was tied to local funds, and those funds were inversely correlated with need.[90]

Appendix 3.2
The regional spread of potato prices 1840–46

A good deal is made in the literature of the gluts and famines occurring simultaneously due to the high cost of transporting potatoes. Most of the discussion is qualitative, though Hoffman and Mokyr have produced some fascinating statistical evidence, based largely on the Poor Inquiry. One neglected source of data – a list of the lowest prices paid for potatoes in over 400 markets between 1840 and 1846 – suggests considerable integration in those years. Regressing prices in year t on prices in year t-1 over the period (i.e. $P_t = a + bP_{t-1}$) produces the results given in Table A4. Given the likelihood of errors and rounding in the data and changes in the varieties and quality of potatoes marketed from year to year, the results seem to suggest that what differences there were between towns due to transport costs were pretty constant year-to-year. This indicates that either there were no regional shortages or, more plausibly, considerable arbitraging in the years in question. Hardly surprisingly, 1845–46 produces the weakest result.

Table A4 *Year-to-year variation in potato prices in 401 Irish towns*

Period	*a*	*b*	R^2
1840–41	0.889 (11.28)	0.651 (25.1)	0.61
1841–42	0.712 (6.56)	0.767 (20.3)	0.51
1842–43	1.104 (9.01)	0.475 (11.5)	0.25
1843–44	1.003 (11.50)	0.630 (18.6)	0.46
1844–45	0.980 (12.16)	0.677 (22.2)	0.55
1845–46	2.221 (11.92)	0.666 (10.0)	0.20

Note t-statistics in parentheses, 401 observations

Notes

1 Junior Crehan, traditional musician, on RTE1, August 1992.

2 E. A. Wrigley and R. Schofield, *The Population History of England 1541–1871* (London, 1981), 328–33; M. Lachiver, *Les Années de misère: La famine au temps du Grand Roi 1680–1720* (Paris, 1991).

3 Liam de Paor (ed.), *Milestones in Irish History* (Middleton, Mass., 1986). A

collection of Austin Bourke's pioneering studies, *The Visitation of God? The Potato and the Great Irish Famine*, was published by Lilliput Press in 1993.

4 R. D. Edwards and T. D. Williams (eds.), *The Great Famine: Studies in Irish History* (Dublin, 1956), viii.

5 *Our Boys* was a patriotic monthly for schoolboys, produced by the Irish Christian Brothers. Ernie O'Malley is quoted in Peter Gibbon, 'Colonialism and the great starvation in Ireland 1845–49', *Race & Class*, XVII (1975), 138.

6 The phrase is Cecil Woodham Smith's. See her *Great Hunger: Ireland, 1845–9* (London, 1962), 75–6.

7 A. Sen, *Poverty and Famines: An Essay on Entitlement & Deprivation* (Oxford, 1981); S. Ambirajan, 'Political economy and Indian famines', *Journal of South Asian Studies*, 1 (1971), 20–8; *idem*, 'Malthusian population theory and Indian famine policy in the nineteenth century', *Population Studies*, 30 (1976), 5–14; *idem*, *Classical Political Economy and British Policy in India* (Cambridge, 1978).

8 Edwards and Williams, *The Great Famine; C. Woodham-Smith, The Great Hunger*; Robert Kee, *Ireland* (London, 1980); M. Daly, *The Famine in Ireland* (Dundalk, 1986); R. Foster, *Modern Ireland* (London, 1988); J. S. Donnelly, chs. 12–9 of W. E. Vaughan (ed.), *A New History of Ireland*, V (Oxford, 1989). For more on Edwards-Williams and Woodham-Smith see C. Ó Gráda, 'Making history in Ireland in the 1940s and 1950s: The Saga of *The Great Famine*', *The Irish Review*, no. 12 (1992), 87–107.

9 Daly, *Great Famine*; C. Ó Gráda, *The Great Irish Famine* (London, 1989).

10 *Report of the Commissioners of National Education in Ireland*, 1847–50.

11 E.g. Green, 'Agriculture' and McArthur, 'Medical history of the famine', in Edwards and Williams, *Great Famine*, 126, 312; Daly, *Economic History of Ireland Since 1800*, 20–1; Garvin, *Evolution*, 54; Foster, *Modern Ireland*, 324.

12 Mokyr, 'The deadly fungus: The statement about Clare is based on data for the following parishes: Clareabbey, Corofin, Cratloe, Ennis, Ennistymon, Kilmaley, Kilmurry, Kilrush, Liscannor, Miltown Milbay, Newmarket, O'Callaghan's Mills, Parteen, Quin, Ruan, Sixmilebridge, and Tulla. The data were assembled under the supervision of the late Iognáid Ó Cléirigh.

13 Mokyr, 'The deadly fungus: an econometric investigation into the short-term demographic impact of the Irish famine, 1846–1851', *Research in Population Economics*, II (1980), 237–77; P. P. Boyle and C. Ó Gráda, 'Fertility trends'. Both Mokyr and Boyle-Ó Gráda invoke emigration data that leave something to be desired. To the extent that migrants escaped enumeration, the estimates exaggerate mortality. Against this, the migration data are mostly gross, while Boyle and Ó Gráda make no allowance for mortality of famine emigrants en route. The pioneering works in this area are S. H. Cousens, 'The regional variation in mortality during the great Irish famine', *PRIA*, 63C (1963), 127–49; and 'Regional death rates in Ireland during the great famine', *Population Studies*, 14 (1960), 55–74. In Appendix 3.1 below, it is argued that S. H. Cousens' alternative estimates of county mortality are a better guide to the proportional impact of the Famine by region.

14 Ó Gráda, 'Glimpses from the Rotunda' and 'The Famine in Dublin City' (typescripts, 1992); Royal College of Physicians of Ireland, Lock Hospital registry.

15 Compare L. Dechêne and J. C. Robert, 'Le choléra de 1832 dans le bas Canada: mesure des inégalités devant la mort', in Henri Charbonneau and André Larose

(eds.), *The Great Mortalities: Methodological Studies in Demographic Crises in the Past* (Liége, 1981), 229–56; Report of the Commissioners of Health, Ireland, on the Epidemics of 1846 to 1852, H.C. 1852–3 (1562), XLI, 29; M. F. and T. H. Hollingsworth, 'Plague mortality rates by age and sex in the parish of St. Botolph with Bishopsgate, London, 1603', *Population Studies*, 25 (1971); A. K. M. Choudury and L. C. Chen, *The Dynamics of Contemporary Famine* (Dacca, 1977); Pierre Goubert, *Cent Mille Provinciaux au XVIIe Siècle: Beauvais et le Beauvaisis de 1600 à 1730* (Paris, 1968); Elizabeth Oughton, 'The Maharashtra Droughts of 1970–3: an analysis of scarcity', *Oxford Bulletin of Economics and Statistics*, 44 (1982), 169; Sen, *Poverty and Famines*, 210–4; S. C. Watkins and J. Menken, 'Famines in historical perspective', *Population and Development Review*, 11 (1985), 647–76.

16 Patrick Hickey, 'Mortality and emigration in five parishes in the union of Skibereen, 1846–7', in C. Buttimer, G. O'Brien and P. O'Flanagan (eds.), *Cork: History and Society* (forthcoming).

17 Dublin Diocesan Archives, Archbishop Murray Papers, Flannelly to Murray, 6 April 1849. The persistence of the famine is also stressed in Cousens, 'Regional death rates', and in Daly, *The Famine*, 114. See too W. S. Trench, *Realities of Irish Life* (London (1868) 1966), 58–9.

18 Woodham-Smith, *Great Hunger*, 377; Murray papers, Reily to Murray, 15 March 1849.

19 Murray Papers, Eugene Coyne to Murray, 9 March 1849.

20 Hansard, vol. 89, 28–9.

21 Hansard, 3rd ser., vol. 189, 809–10, 2 August 1867, cited in Ambirajan, *Classical Political Economy*, 273.

22 S. Rashid, 'The policy of *laissez-faire* during scarcities', *Economic Journal*, 90 (1980), 493–503; Martin Ravallion, 'The performance of rice markets in Bangladesh during the 1974 famine', *Economic Journal*, 95 (1985), 21–2.

23 D. N. McCloskey and J. Nash, 'Corn at interest: the extent and cost of grain storage in medieval England', *AER*, 74(1) (1984), 174–87. For an earlier articulation of the idea see Holbrook Working, 'The theory of the price of storage', *AER*, 39 (1949), 1254–62.

24 See C. Ó Gráda, 'Soláthar creidmheasa don ísealaicme in Éirinn san 19ú aois', *Central Bank of Ireland Quarterly Bulletin*, (1974), 120–35; T. A. Boylan and T. P. Foley, *Political Economy and Colonial Ireland* (London, 1992), 98. These traders figure prominently in two famine novels, William Carleton's *Black Prophet* (Dublin, 1847) and Liam O'Flaherty's *House of Gold* (London, 1933).

25 E.g. R. D. C. Black, *Economic Thought and the Irish Question, 1817–1870* (Cambridge, 1960), 119n.; National Archives, 1A–50–69, Captain Hutcheson on 'huxters' in Leitir Mór, County Galway.

26 The data refer to the wholesale price of the cup variety. The final two columns refer to 'low' and 'high' prices.

27 Based on data in NLI Ms. 4168, 'Register showing prices and quantities of corn, meal, and flour sold at Dublin markets, 1785–1839'.

28 IUP Famine Series, VIII, 427–8.

29 Sen, *Poverty and Famines* (Oxford, 1981), 160. See too J. Drèze and A. Sen, *Hunger and Public Action* (Oxford, 1990).

30 For further analysis along these lines see John Seaman and Julius Holt, 'Markets and famines in the Third World', *Disasters*, 4(3) (1980), 283–97; Louise A. Tilly, 'Food entitlement, famine and conflict', *Journal of Interdisciplinary History*, XIV(2) (1980), 333–49; Mohiuddin Alamgir, *Famine in South Asia: The Political Economy of Mass Starvation* (Cambridge, Mass., 1980); Ajit Kumar Ghose, 'Food supply and starvation: a study of famines with reference to the Indian subcontinent', *Oxford Economic Papers*, XX (1986), 368–88. In a review of Joel Mokyr's *Why Ireland Starved* (in *JEH*, XLIV (1984), 839–40) Barbara Solow points to the challenge that Sen's work poses for analysis of the Irish Famine.

31 *IFJ*, 9 August 1817.

32 O'Rourke, *The Great Famine*, 32. As Sen notes, economist David Ricardo made the same point about Ireland in 1822. See A. Sen, 'Food, Economics and Entitlements', WIDER Working Paper No. 1, Helsinki, February 1986, 14–5.

33 Young, *Tour*, II, 46; *Report of the Committee of the Board of Agriculture Appointed to Extract Information from the County Reports . . Concerning the Use and Culture of Potatoes* (London, 1795), 73–4.

34 Burton, *The Potato*, 181.

35 Bourke, 'The Potato', Appendix 4.

36 T. Shea, 'The minute book of the Ballineen Agricultural Society, 1845–47', *Journal of the Cork Historical & Archaeological Society*, ser. 2, LI(173) (1946), 58; John Mitchel, *The History of Ireland from the Treaty of Limerick to the Present Time* 3rd ed. (Dublin, n.d.), II, Ch. 26.

37 Bourke, 'The Irish grain trade'.

38 Hansard, ser. 3, vol. '1, 29 March 1847, 585–94.

39 IUP, Famine Series, III, 12 February 1848, 726; Hickey, 'Four peninsular parishes', 491–2.

40 Black, *Economic Thought*; Lionel Robbins, *The Theory of Economic Policy in English Classical Economics* (London, 1952), 34.

41 NLI, Monteagle Papers, Thomas Spring Rice to George Ensor, 15 January 1837 (cited in T. P. O'Neill, 'The State, Poverty and Distress in Ireland 1815–45', unpublished Ph.D. dissertation, N.U.I., 1971, 209). More generally, Boylan and Foley, *Political Economy and Colonial Ireland.*

42 Trevelyan is the main villain of the piece in Cecil Woodham-Smith's *The Great Hunger*. His dogmatism, his ignorance of Irish affairs and his weaknesses as an administrator are well known (see Jennifer Hart, 'Sir Charles Trevelyan at the treasury', *English Historical Review*, LXXV (1960), '2–110), but in the final analysis Trevelyan was a civil servant carrying out the policies of Russell and Wood. Without them, his enthusiasm would have arguably been wasted. Compare Austin Bourke, 'Apologia for a dead civil servant', *Irish Times*, 5–6 May 1977.

43 Woodham-Smith, *Great Hunger*, 87; Maurice O'Connell (ed.), *The Correspondence of Daniel O'Connell*, VII (Dublin, 1980), 84.

44 John Prest, *Lord John Russell* (London, 1972), 239. For a sophisticated analysis of Tory and Whig thinking on the issues see Peter Gray, 'Potatoes and providence: British government responses to the Great Famine', *IESH*, forthcoming.

45 Hansard, 3rd ser., vol. 77, 83. See also Christine Kinealy, 'The Irish Poor Law, 1838–1862 (Ph.D. thesis, Trinity College, Dublin, 1984), 131. Edmund

Burke's *Thoughts and Details on Scarcity* (London, 1800) enjoyed a similar vogue.

46 Hansard, 3rd ser., vol. 89, January–February 1847, 54, 1329–30; see also *The Economist*, 23 September 1848, 1075, for more in the same vein.

47 S. Leone Levi, *Nassau W. Senior, 1794–1864* (New York, 1970), 132–43; British Library, Addl. Mss. 34623, f. 622 (Senior's correspondence in the early 1840s with Macvey Napier, editor of the *Edinburgh Review*); Senior,'Relief of distress in Ireland, 1847 and 1848', in *Essays, Journals and Conversations Relating to Ireland*, I (London, 1868), 195–264; Senior to Monteagle, cited in Black, *Economic Thought*, 113; Woodham-Smith, *Great Hunger*, 373–6; M.C. Simpson (ed.), *Correspondence and Conversations of Alexis de Tocqueville with Nassau William Senior from 1834 to 1859*, I (London, 1872), 52; *The Economist, 1843–1943: A Centenary Volume* (London, 1943), 39. Majendie had worked with Senior on the Poor Law Report of 1834.

48 *The Times*, 25 March 1847; Mill, *Principles of Political Economy*, Book II, Ch. XII(2) (London, 1871, originally published in 1848), 445. David Fitzpatrick has chided me for overlooking Monteagle's support for subsidised emigration, and his belief that 'the Famine can never be met from the resources of the Country alone where it exists' (Fitzpatrick, 'Was Ireland special?', *Historical Journal*, 33(1) (1990), 174).

49 Twistleton, cited in Hansard, ser. 3, vol. 105, 300.

50 NLI, Ms. 22822. In the same vein is G. Poulett Scrope's attack on Whately, *Reply to the Speech of the Archbishop of Dublin, Delivered in the House of Lords* (London, 1847), especially pp. 8, 18, 40.

51 Senior, *Journals*, I, 264.

52 Supporters of the Whigs among the landlords, such as Lords Monteagle and Bessborough, tried to shift the burden from landed property.

53 A. Gayer, W. Rostow, and A. Schwartz, *The Growth and Fluctuations of the British Economy, 1790–1850* (Oxford, 1953), II, 611–6; R. Dornbusch and J. Frenkel, 'The gold standard crisis of 1847', *Journal of International Economics*, 16 (1984), 1–27.

54 T. P. O'Neill, 'The organisation and administration of relief', in Edwards and Williams, *The Great Famine*; Donnelly, 'The administration of relief' and 'The soup kitchens', in Vaughan, *New History of Ireland*, V, Chs. XIV XVI.

55 IUP Famine Series, I, 'Copies of extracts of correspondence relating to the state of union workhouses in Ireland', 1–62; Hickey, 'Four peninsular parishes', 374.

56 Donnelly, in Vaughan, *New History*, 337–8. Also NLI, Ms. 8717, correspondence of Robert French of Monivea, 1847; Micheál Ó Cíosáin, *Cnoc an Fhómhair*, 180–6. There are some well known cases of landlords going bankrupt in the struggle to help their stricken tenants, but Donnelly's numbers surely suggest that tough, no-nonsense landlords were the norm.

57 IUP Famine Series, II, 461–2; III, 12 February 1848.

58 George Nicholls, *History of the Irish Poor Law* (London, 1856), 356; Newry board of Guardians resolution, 24 February 1849, facsimile no. 16 in PRONI, *The Great Famine* (Belfast, 1968); Woodham-Smith, *Great Hunger*, 379–80; Kinealy, 'The Irish Poor Law', 235–43; James Grant, 'The great famine and the poor law in Ulster: the rate-in-aid issue of 1849', *IHS*, XXVII (1990), 30–47.

59 Donnelly, in Vaughan, *New History*, 299–304; Hansard, 3rd ser., vol. 89,

Jan-February 1847; IUP Famine Series, vol. 7, 537 (Captain Burgoyne to Trevelyan, 23 February 1847); Patrick McGregor, 'The impact of the blight upon the pre-famine rural economy of Ireland', *ESR*, 15(4) (1984), 289–303.

60 Woodham-Smith, *Great Hunger*, 296.

61 Donnelly, 'The administration of relief', 328–9.

62 NA, 1A-50–45, 23 March 1846. On the operation of the Board of Works see A. R. G. Griffiths, 'The Irish Board of Works in the famine years', *Historical Journal*, XIII(4) (1970), 634–52; on the issue of Poor Law Guardians being pressed to repay advances, Kinealy, 'The Irish Poor Law', 135-140.

63 Hickey, 'Four Peninsular Parishes', 378. On the generous terms granted to the slave-owners, R.W. Fogel and S. Engerman, 'Philanthropy at bargain prices: notes on the economics of gradual emancipation', *Journal of Legal Studies*, 3 (1974), 377–401.

64 Edwards and Williams, xi; Daly, *Famine*, 114; Mokyr, *Why Ireland*, 292; Donnelly, 'Administration of relief, 1847–51', 329; O'Rourke, *History of the Famine*, 339; Select Committee on the Irish Poor Law, House of Lords, 1849 (182) XVI, 947. A character in Thomas Murphy's play *Famine* (Dublin, 1984), 58, makes the same point: 'If it was need for a war against the Afghans . . . Maybe economics can only survive to cater for the catastrophe of war.' The relevant GNP figures are given in R. Floud and D. N. McCloskey (eds.), *New Economic History of Britain*, I (Cambridge, 1981), 136.

65 T. P. O'Neill, 'The food crisis of the 1890s', in Crawford, *Famine*, 176 197; Royal Commission on Congestion in Ireland, 'Memorandum on the Financial Aspect of the Relief of Distress in Ireland', 1907. I am grateful to Tim O'Neill for showing me this document for impressing on me the comparison between government ideology in the 1840s and later.

66 Crotty, *Irish Agricultural Production*, Ch. 2; Foster, *Modern Ireland*, 318; J. M. Goldstrom, 'Irish agriculture and the Great Famine', in Goldstrom and Clarkson, *Irish Population*, 155–71; Donnelly, *Cork*, 52–72.

67 1821 Census, 322; 1841 Census, 374–5; Stephen Royle, 'The economy and society of the Aran Islands, County Galway, in the early nineteenth century', *Irish Geography*, 16 (1983), 36–52.

68 Antoine Powell, *Stair Oileán Árann* (Dublin, 1984), 59–60; personal communications from Antoine Powell and Tim Robinson. According to Seán Ó Giolláin, a fine *seanchaí* from Fearann a' Choirce, 'things were not so bad in Aran. To be sure, news came in of the plght of people outside. A few arrived full of tales of woe. But nobody died ere, as far as I know, from hunger. Many other things killed them [from a recording made by Tim Robinson c. 1976, my translation]; Samuel Ferguson, as quoted in S. A. Royle, 'Irish famine relief in the early nineteenth century: the 1822 famine on the Aran Islands', *IESH*, XI (1984), 56.

69 Tim Robinson, personal communication.

70 IUP Famine Series, VIII, 322.

71 NA, 1A–50–69, Harley to Routh, February 1847. Also IFC Ms. 1069/327–9, (answer to 1945 famine questionnaire from Kilronan).

72 Robinson, personal communication, and *idem*, *Stones of Aran* (London, 1984).

73 Hickey, 'Four Peninsular Parishes', 603, suggests that islanders in his region

were less affected than mainlanders, partly because of the fishing but partly too because crop loss from blight was less serious.

74 Sen, *Poverty and Famines*, 203–6; Mokyr, 'Deadly Fungus'; Lefgren, 'The Finnish Famine'; Kaukiainen, 'Harvest fluctuations', 245–6.

75 Mokyr, Deadly Fungus', 238.

76 'Deadly fungus', 268.

77 Kaukiainen, 'Harvest fluctuations', 245–6.

78 See Hoffman and Mokyr, 'Peasants, poverty and potatoes'.

79 And Liam Kennedy and Patrick McGregor have argued, in an unpublished paper, that rent per actre, adjusted for land quality, varied little across counties on the eve of the Famine.

80 Mokyr, 'Deadly fungus', 268.

81 Cousens, 'Regional death rates', 67.

82 The coefficient of variation across counties is only 0.09 (mean = 22.5, standard deviation = 2.0)

83 Mokyr, *Why Ireland Starved* (1985 ed.), 10; *idem* 'Deadly fungus'.

84 'Deadly fungus', 255.

85 Mokyr, *Why Ireland Starved*, 2nd edn.; Mokyr, 'Deadly fungus'; Jacquemyns, 'La crise économique'.

86 Mokyr and Ó Gráda, 'Poor and getting poorer?', 212–3.

87 Patrick Hickey's 'A Study of Four Peninsular Parishes in Cork, 1796–1855' (MA dissertation, National University of Ireland, 1980) is a rare example.

88 Kieran Foley, 'The Killarney Poor Law Guardians and the Famine 1845–52' (unpublished MA dissertation, NUI 1987).

89 James Grant, 'The Great Famine in the Province of Ulster – The Mechanism of Relief' (unpublished Ph.D. thesis, Queen's University Belfast, 1986), abstract in *IESH*, XIV (1987), 85–6; 'The Great Famine and the poor law in Ulster'.

90 Grant, 'The Great Famine in the Province of Ulster', 448.

CHAPTER 4

Of bullocks and men: agricultural change after the Famine

> You and Robert both know what my opinions are, the estate is not fitted for agriculture but stock, and never lose sight of that.
>
> Galway landlord, 1847[1]

> Although Ireland, almost in every part where the industry of husbandry applieth itself thereto, bringeth good corn plentifully, nevertheless hath it a more natural aptness for grass.
>
> Gerald Boate, 1652[2]

Between the 1850s and the 1920s Irish agriculture underwent a transformation which can have had few parallels at the time. One curious indication of the change is that the farmyard hen and duck were contributing more to agricultural value added in 1908 than wheat, oats and potatoes combined, crops which in the early 1840s had accounted for almost half total output. The change was accompanied by a dramatic fall in the numbers working on the land, and by marked shifts in regional specialisation in both livestock and crop production. But, most historians argue, it brought little sustained increase in the aggregate value of farm output. This failure of output to grow despite auspicious demand conditions across the Irish Sea has often been bemoaned.[3]

However, analysed in terms of productivity growth, the performance of Irish agriculture between the Famine and the 1920s was quite impressive. Though output per worker remained low throughout by the standard of neighbouring Britain, the gap narrowed over time, and total factor productivity growth was higher than Britain's and on a par with Japan's and the United States'.[4] This is shown in the following pages.

Table 29 presents a new output estimate for 1876, along with the official one for 1908. By combining the official figure of £57 million for the value of the Irish Free State's output in 1926–27 with that of Northern Ireland's output in 1925, valued at Free State prices, an

estimate of £72.6 million is obtained for the island as a whole in the mid-1920s. The result is also given in Table 29.[5] We thus have data for three arguably distinct sub-periods in the history of post-famine agriculture. The period 1854–76 might be considered one of 'post-famine adjustment'. The traditional view that agricultural progress in this period was smothered by tenurial restrictions is no longer popular. Nowadays these years are seen as ones of prosperity and innovation: approaching it from three quite different perspectives, Vaughan, Solow and Crotty have depicted it as the Indian summer of landlordism in Ireland.[6] The period 1876–1908 roughly encompasses the Land War and the so-called 'agricultural depression', while 1908–26 marked the almost universal transition to peasant proprietorship. Despite the shakiness of some of the assumptions underlying them, the data invite calculations for each sub-period, and comparisons between the results. When these are combined with estimates of the labour force on the land, landlord income, the capital stock in agriculture, and changes in agricultural prices and the cost of living, some idea is obtained of the trends in labour and total factor productivity, and in living standards during the post-famine decades.

The main results are given in Table 30. They hardly support the claim that output, after allowing for price change, failed to increase over the period as a whole, though they do indicate that it continued to fall till the 1870s at least, and that it took eighty years to reach its pre-famine level once more. The results confirm accounts of a continuous rise in non-landlord incomes after the Famine. Curiously, though, the rise in real terms in 1876–1908 seems to have been greater than in 1854–76. It thus seems that the lion's share of the pre-Land War gains was reaped in the immediate post-famine decade. This becomes plausible when it is remembered that the post-famine decades were years when livestock prices rose faster than tillage prices, benefiting landlord more than farmer or labourer. It also emerges that for the Irish farmer of the late Victorian era there was no real sustained 'Great Depression'. Almost three decades ago Fletcher laid the ghost of the same 'Great Depression' in so far as the majority of British farmers were concerned.[7] With no problem of turning cold, heavy land over to grass to contend with, and having won substantial reductions in his rent in the wake of the Land War, it would have been surprising indeed to have found the Irish farmer not prospering. This does not exclude the presence of some trying

years – after all, a particularly bad patch in the late 1870s and early 1880s sparked off and fuelled the Land War – but the data suggest worthwhile improvement over the period taken as a whole.[8]

The estimates in Tables 29 and 30 refer to 'gross value added' in the agricultural sector, so they do not allow for the inputs of fertilizers and feeding-stuffs bought off the farm. Such inputs increased over time. Allowing for this, Table 30 suggests that labour productivity rose by about 0.8–0.9 per cent annually between the 1850s and 1920s, and total factor productivity at a rate of 0.6 per cent.[9] How do these numbers emerge in perspective? Total factor productivity growth turns out to have been a good deal higher than that recently calculated for Britain over a similar period, and also higher than that calculated for the United States for 1840–1900. Kelley and Williamson have proposed similar rates for Japanese agriculture at the time. Overall the Irish results are reassuring enough, indeed, striking in the light of historiographical tradition. Moreover the differences between the 1854–76 and 1876–1908 sub periods raise doubts about the strong emphasis in the work of Crotty and Solow on a turning point (for the worse) in the fortunes of Irish agriculture around the 1870s. My calculations suggest an annual total factor productivity growth of about 0.5 per cent in both periods.

The results bear out neither the more optimistic assessments of pre-1876 development, nor the doleful depiction of agricultural conditions before and after the Land War. Almost certainly the sharp rise in estimated total factor productivity after 1908 owes something to the conservatism of the official estimate of output in that year – in which case the Land War period emerges more impressively – but they may also be due in part to the impressive gains noted elsewhere, which are associated with the diffusion of twentieth-century farm technology and the external economies which that brought in train. These numbers, though rough and tentative, prompt a reassessment of some of the reasons offered in the literature for what has passed for a 'poor performance' in the post-famine period.

4.1 The land question

This used to be by far the most popular and resilient explanation of agricultural backwardness. Its largely apologetic character is now recognised, but there is no harm in reviewing the argument from an

Table 29 *Irish agricultural output at current prices in 1876, 1908 and 1928 (£ million)*

	1876	1908	1928
Crops			
Wheat	0.9	0.3	0.2
Oats	2.6	1.4	1.3
Barley	1.2	0.8	0.9
Flax	1.7	0.4	0.1
Potatoes	3.2	1.9	6.2
Hay	0.8	0.8	0.3
Other	0.6	0.9	2.9
Subtotal	11.0	6.5	11.7
Livestock			
Cattle	11.3	11.0	17.8
Milk, etc.	10.6	10.7	15.7
Pigs	5.5	5.9	10.1
Sheep	3.6	2.2	3.4
Wool	0.9	0.4	0.8
Eggs	2.1	4.1	8.9
Other	1.9	1.8	4.3
Subtotal	35.7	39.1	60.8
Total	46.7	45.6	72.8

Table 30 *Changes in agricultural income and productivity, 1854–1926*

	1854	*1876*	*1908*	*1926*
Output (£ million)	46.7	47.5	45.6	72.6
Labour force (million)	1.15	0.9	0.81	0.684
Rent (£ million)	10	12	(8)	(8)
Non-landlord income per head (£)	31.7	39.4	46.4	96.2
Labour productivity	100	121	151	199
Total factor productivity	100	113	134	177
Output (constant prices)	100	95	107	119
Capital's share	0.06	0.07	0.08	0.10

economic perspective. Much of the controversy revolves around the issue of rent determination. In popular accounts pre-dating the 'revisionism' of William Vaughan and Barbara Solow, landlords typically 'rackrented', that is, squeezed the full Ricardian rent out of

the hapless tenant on threat of eviction, and sometimes all or the lion's share of the return on tenant investment outlays in addition.[10] The pursuit of this policy, it is argued, explains the large number of recorded evictions.

From an economic historian's perspective it is worth noting that the optimal eviction rate for efficiency was not necessarily zero. To have kept incompetent tenants who paid little or no rent, while others who could pay remained landless, could only have reduced rent and output. In this revisionist view, associated especially with Raymond Crotty and Barbara Solow, the 'bad' landlord was the indulgent proprietor who chose not to exercise his property rights fully. Both Crotty and Solow imply that rents not squeezed out of the tenantry are most likely to have been dissipated in bad management and idleness, and the former's sombre view of Irish agricultural trends since the Land War is entirely predicated on the absence of some mechanism, be it landlord or land tax, that would prevent rent dissipation.[11] Crotty and Solow here echo the claims of Cork landlord William Bence Jones, who believed that tenants in bad years should be reduced to 'the utmost exertion and economy'. The widely-disliked and atypical 'Billy Jones' thought rents which made 'constant steady exertion almost compulsory' the only way to transcend the 'education, habits and ideas . . . of a semi-barbarous people . . . the average Irish peasant has no desire for progress or civilisation'.[12] In the case of a troublesome or incompetent tenant who encumbered a property the revisionist case surely makes sense. But in general the main consequence of lower rents may merely have been redistribution – poorer landlords, richer tenants – since there is no theoretical presumption that lower output would automatically have followed the demise of landlordism. Lazy tenants could have let some or all of their holdings to the more industrious. Or they could have used up their increased welfare on a hefty rise in leisure, leaving their money income net of rent much the same as before. The post-Land War record belies this, however.

Rent levels are closely linked to the next issue, insecurity of tenure. The notion that 'a good landlord is as good as a good lease' pervades the traditional literature. In general, leasehold problems have been exaggerated, for several reasons. First, tenancy-at-will was never as prevalent in the Irish case as the criticism implies. Even as late as 1870 two-fifths of all holdings over £15 valuation (or over twenty-five to thirty acres) and almost two-thirds of all holdings over

£50 valuation were held on lease or freehold. The problem was potentially greatest, then, on smallholdings, where by 1870 five-sixths of holdings were tenancies at will.[13] Yet even there institutional arrangements, formal and informal, sometimes mitigated the dangers of under-investment in cases where fixed investment on the part of farmers stood to benefit agriculture. For instance, an eighteenth-century law protected those who sought to plant trees on their holdings as an investment, while more generally tenant-right arrangements provided some guarantee against insecurity.[14] Finally, an insolvent or greedy landlord might occasionally succeed in creaming off his tenants' returns and deter them from further ventures. But to assume that landlords as a group could continually do so is quite a different matter: only gross irrationality could have enabled them to get away with that. The notion that the absence, or presence only in attenuated form, of tenant right outside Ulster before 1870 could have made a difference rests on a confusion as to what 'Ulster custom' really was.

Unlike English tenant right, the Ulster version was mainly – some would say exclusively – about the right of outgoing tenants to charge for occupancy. In England tenant right was rarely worth more than two or three years' rent, but in Ulster it was often sold for fifteen or twenty times the rent. Still, though, the right to dispose of landed property was the key, a by-product of the system was a mechanism for realising the value of unexhausted improvements, an aspect stressed by the economist John Stuart Mill. Surely, the argument went, if tenants could not recover the full value of unexhausted improvements on relinquishing a holding, and landlords under-invested for fear of tenants' 'overusing' the investment and then leaving, agriculture suffered as a result? Under tenant right, by contrast, the incentive to run a property down would disappear, since the tenant would bear the cost of any abuse himself. The Land Act of 1870 may be viewed, then, as motivated in part at least by efficiency considerations. The testable implications of the 'efficiency' view are clear enough. If optimal investments required such a change, then relatively more landlord and tenant investment might be expected in the rest of Ireland than in Ulster, where the benefits of tenant right had long been available.[15]

Unfortunately direct evidence on the most straightforward test, the trend in tenant investment, is lacking. The annual agricultural statistics provide the material for an indirect test, though, for

although yield and stock levels in different areas may have differed for climatic and other reasons at any point in time, rises in stocks and yields should follow tenant investment. The efficiency hypothesis is thus consistent with a disproportionate jump in yields and stock numbers outside the north in the wake of the Land Act.

No marked variation that could be attributed to tenurial change can be detected in the agriculture statistics. Ulster, the 'control' province, seems to have responded to the legislation much like the country as a whole. Another way of showing this is to regress the Connacht-Ulster and Munster-Ulster grain yield ratios on time over the period 1870–1917. The results are:

	Constant	*Time coefficient*	R^2
a) *Connacht-Ulster*			
Oats	1.140	−0.001	0.09
	(0.047)	(0.001)	
Barley	0.958	−0.000	0.00
	(0.093)	(0.001)	
Wheat	0.763	0.002	0.07
	(0.084)	(0.001)	
b) *Munster-Leinster*			
Oats	0.921	0.002	0.12
	(0.087)	(0.001)	
Barley	1.101	−0.001	0.02
	(0.089)	(0.001)	
Wheat	0.773	0.002	0.15
	(0.074)	(0.001)	

Note Standard errors in parentheses

Table 31 tells a similar story over a shorter time period. Qualitative evidence on greater tenant investment in the southern provinces after 1870 is lacking. The earliest firm quantitative evidence to hand appears in the census reports of 1901 and 1911: it concerns farm outhouses (Table 32). Since these data (Tables 31 and 32) indicate no worthwhile difference between Ulster and the other provinces either, the revisionist hypothesis that under-investment, if such there was, was equally serious in all parts of Ireland, cannot be rejected.

Comprehensive data on landlord investment before and after the Act are not available, either. However, official returns of the sums

Table 31 *Percentage change in yield and stock data, 1861–70 to 1872–81*

	Ulster	*Connacht*	*Ireland*
Wheat	6.0	23.0	18.7
Oats	11.5	11.4	10.7
Barley	8.4	9.5	6.7
Potatoes	−0.6	0.7	−1.9
Horses over two years	−6.7	−12.9	−9.4
Cattle	10.8	18.6	14.8
Sheep	5.0	1.6	0.0
Pigs	6.0	8.6	1.1

Table 32 *Number of outhouses and farmsteadings, per holding, adjusted for value of holding, 1901 and 1911*

Province	*£4–£10*	*£10–£15*	*£15–£20*	*£20–£30*
(a) 1901				
Leinster	3 33	4 45	5 26	6 03
Munster	3 22	4 09	4 68	5 31
Ulster	3 40	4 56	5 42	6 47
Connacht	2 76	3 54	4 06	4 33
(b) 1911				
Leinster	3 23	4 29	4 95	5 83
Munster	3 47	4 44	4 96	5 53
Ulster	3 49	4 68	5 55	6 55
Connacht	2 99	3 73	4 13	4 41

loaned to proprietors under the various Land Improvement Acts may be taken as a fair proxy, since such loans probably accounted for a substantial share of all worthwhile landlord investment at the time.[16] Data on landlord borrowing from government for investment purposes lend little support to the efficiency hypothesis, either. The investment share of the northern counties rose from 15.6 per cent in the 1850s to 18 per cent in the 1860s, and then fell to 16 per cent in the 1870s; their share in the number of projects supported fell from 14 per cent in the 1860s to 13 per cent in the 1870s. Such trivial changes prove nothing (see Table 33).

Why is the outcome so disappointing for the efficiency hypothesis? In part because the Ulster vs. 'the Rest' dichotomy has been exaggerated both by contemporaries and by historians. Tenant

Table 33 *Loans issued under the various Land Improvement Acts, 1852–81 (£)*

	1852–60	*1860–70*	*1870–81*
North	40,162	107,457	199,870
Midlands and East	93,672	220,215	487,502
West	50,666	124,559	258,310
South	72,455	146,288	302,175
Total	256,955	598,519	1,247,857

Source Calculated from reports of the Commissioners of Public Works for 1852, 1870, 1881. In these reports 'North' includes Ulster minus Cavan and Monaghan.

right was recognised by many landlords outside Ulster, if in a less thoroughgoing form, while others 'winked at' or fought in vain against deals between outgoing and incoming tenants.[17] A second reason is that such a mechanism was not so urgently required. Even with the massive emigration of the post-famine period, farms rarely changed hands outside the family, being passed on instead from father to son or son-in-law. The hypothesis that would so closely link the increase in emigration with an increasing need for 'free sale' fails to take account of the family character of the emigration.[18] In sum the supply of tenant right was greater, and the necessity (i.e. demand) for it less outside Ulster before the Gladstonian reforms than these arguments suggest.

Those traditional historians who took an anti-landlord stance sought to indict landlordism on both political and economic grounds. Like the neo-abolitionist historians of U.S. slavery, they let their indignation sometimes get the better of them. Hardly surprising, then, that early revisionist work in this area went 'soft' on landlords. Two decades on, the neo-revisionist message seems to be that Irish democracy achieved its victory over landlordism at a very low cost indeed.

4.2 'Indolence'

Between the early seventeenth century, when Ireland was deemed 'the sluggishest, nastiest, rudest, least painful and industrious of all civil countries', and the Great Famine the rural Irish were the butt of

ever louder criticism from outside observers of their work habits. To fill a whole paper with colourful contemporary quotations would be an easy task.[19] After the Famine the stereotype hardly changed, and many later accounts imply a labour supply schedule that was backward-bending above some undefined, but low, level of income.

Horace Plunkett, high priest of the rural co-operative movement, wrote in exasperation of farmers confining their energies to 'opening and closing gates', while his friend Robert Gibson pleaded with others to trade their winter mornings in bed for an alleged 50 per cent return on their capital. But probably the high point in neurosis about the problem was reached in the 1870s when A. H. Herbert, proprietor of a large estate near Killarney, was 'wont to visit his tenants ... beg a brush, and with his own hand proceed to sweep down offensive cobwebs. On the top of a hill with an opera-glass, at four or five in the morning, he would turn out to see which of his tenants made the earliest start, while to the laggards he would forward a bundle of nightcaps'. Less dramatically, the Scottish 'agricultural commission' which surveyed Irish agriculture fleetingly, though at first hand, in 1906 reported seeing 'good land going to waste for want of energy on the part of farmers'. Particularly in the south, they noted, 'waste and neglect [were] much in evidence'.[20]

Certainly those, like Gookin in the seventeenth century, Cropper in the nineteenth, and McLysaght and Bulfin in the early twentieth,[21] who questioned the charge of 'indolence' were a small minority. The temptation to go along with the (irrefutable) hypothesis that the lazy Irish were simply maximising their utility is considerable. Of course, the traffic in impressions and quotations was not all one way. The evidence from those directly involved in farming, particularly farm labourers, tells a different tale. Throughout the post-famine period analysed here labourers – admittedly, like their bosses, inveterate complainers – seemed to protest more, in verse and in prose, against the physical demands of their daily work than their pay or food. Personal reminiscences tell the same story. A small sampling of such (usually neglected) evidence may not come amiss:[22]

> The cows and all the animals would be stalled in then about the 15th of November, and I should be threshing oats from the time I'd ate my breakfast until I'd ate my dinner, and then I'd clean out the houses with a pike and shovel and spread sand under 'em, I'd draw up the oaten straw in *bearts* with a rope, four *bearts* to the cows and two to

> the calves, one to eat and one for a bed. I'd get the supper then and carry a lantern and a candle and hang it up in the barn and start threshing then until ten o'clock with a flail, and come in then and go to bed, and be up again then at five in the morning.
>
> About six in the morning, from then until seven in the evening, these were our hours. In some houses it might be till eight or nine. When you got back to the house, then, you might be put doing something else. That's how it was. There was no work harder than spring harrowing, because the ground was very wet and the weather cold and hard. You were exhausted in the evening after a day's harrowing, and after a week of it you could scarcely walk because, you see, you'd feel yourself always sinking in the clay.
>
> Paddy, get up. The clock is alright if yer goin' for a train, it wouldn't pay us to go be the clock. . . The worst feature was the constant nag of jobs waiting to be done, for ever and ever, it was a circle, and a vicious one at that, a wheel without a spoke of time missing.
>
> Do bhí allas im' léine, is is tréan mar do shilfeadh mo ghrua
> Is mo dhá ghéigín chaola ag pléascadh le hiomarca dua
> Deargadh mo phíopa ní bhfaighinn i mbun ná i mbarr
> Is nárbh é an tinpinní tuillte, céad díth air, ba dheacair é dh'fháilt.
>
> Brón go deo ort a ghrian!
> An raibh tú raibh ar aimsir?
> Dá gcaitheá bliain le Seán Ó Briain
> Ghabhfá ar chúl na ngleannta.

The issue cannot be decided by another battle of quotations,[23] but some other considerations suggest that the nineteenth-century Irish agriculturalist was not quite as bad as he was painted. The first is methodological: the increasing reluctance of economic historians and anthropologists to explain observed differences in behaviour simply in terms of 'taste'. This is a reminder not to overlook the role of factors such as limited markets and low prices, poor factor endowments, or institutional constraints in influencing labour intensiveness. In the light of such currents perhaps the onus is on those who would argue that the Irish were exceptionally lazy to prove their point. 'Idleness', in other words, cannot be taken simply as revealed preference for 'laziness'. Perhaps contemporary observers of Irish farming sometimes mistook seasonal lulls in agricultural activity or even a lack of strength or stamina for laziness, and switches to more profitable, if less arduous, forms of production

(e.g. from dairying to grazing, or from tillage to pasture) as part of the unending quest for leisure.[24]

Second, high agricultural yields suggest that when hard work really counted for something it was forthcoming. 'The crops are large: the utmost pains are taken to cultivate them; and the industry and care the people display in the business, contradicts entirely the charge of inherent and inconquerable idleness,' claimed the economist John Bicheno in 1830.[25] Crop yields dropped after the Famine but, given the low capital inputs and, for grain crops, land of different quality and an unfavourable climate, remained impressive enough by the standards of the day.

Third, total factor productivity comparisons between Irish agriculture, on the one hand, and Scottish and Belgian on the other, return a surprisingly benign verdict on the former; making due allowance for Irish resources, Irish farmers in mid-century did not disgrace themselves.[26] Claims such as Nassau Senior's that 'the land of Ireland does not return a fourth, perhaps not an eighth, of what might be obtained from it by fair industry and competent skill'[27] quickly lose their plausibility. Farmers' reluctance to remove offending manure heaps, cobwebs and even weeds, if bad for tourism and the gentry's sensibilities, probably only marginally affected output. The proverbial pig in the parlour or the dung-heap half obscuring the doorway were no harm if the dairy was kept clean – as indeed it must have been while Irish butter continued to command a price on home and foreign markets.

Take the case of common weeds, a perennial cause of criticism and target of extermination campaigns from the Registrar General's office in the post-famine decades and from the Department of Agriculture and Technical Instruction (DATI) after the turn of the century. It was claimed, rather dramatically, in 1872 that weeds were costing Irish farmers as much as £1.5 million to £3 million annually – or 3 to 6 per cent of total output. Naturally enough, proper data on the problem are hard to come by. Official weed statistics were collected, however, between 1853 and 1856: they imply that over 5 million acres in Ireland were then 'generally free from weeds' and another 5 million 'partially attended to'. Since the total acreage under crops, including meadow and clover, was then less than 6 million, it is difficult to see from the aggregate data – even if the statistics exaggerate somewhat – how further weed control would have much improved the quality of farm produce or crop

yields. Throughout most of Leinster and east Munster, and in Galway and Roscommon, there was more land reportedly weed-free in 1854 than under all crops, and everywhere weed-free and 'partially attended to' land exceeded the cropped acreage.[28] Generally the ratio of weed-free to cropped acreage was lowest in the north and west, where yields were also lowest. This should not be taken to mean that farmers in those areas were greater idlers than the rest, however, since soil and climatic disadvantages almost certainly reduced their marginal return from weed control. Ireland may still have been under-weeded, if only for the following reason: in the absence of control, graziers and others relatively unconcerned with weeds could frustrate the efforts of tillage farmers to keep their crops clean. But even that much is far from obvious, since the cost of greater weed control to the grazier may well have exceeded the gain to the arable farmer from such activity. In sum, given the paucity of data, suffice it to note that, first, the problem seems not to have been too serious in the 1850s at least, and, second, that anything like the complete removal of weeds in a damp climate such as Ireland's is unlikely to have been an optimal strategy.

Table 34 *Weeds and cropped acreage, 1854 (1,000 acres)*

	Weed-free	*Partly weeded*	*Extent under crops*
Leinster	1,948.6	1,309.5	1,665.6
Munster	1,336.0	1,305.5	1,379.0
Ulster	1,226.3	1,289.9	1,811.5
Connacht	605.2	864.4	714.5

Source *Agricultural Statistics*, 1854.

Yet there is some hard evidence too in favour of the hypothesis that the Irish worked less hard than their English or Scottish counterparts. Using 1850 and 1860 data based on replies from farmers, Gregory Clark has recently inferred how long it took Irish and British farm workers to perform a few standard farming tasks by comparing pay rates by task and by the day: the comparison suggests that the Irish on average applied themselves less intensively to the task at hand. Now this does not prove that the Irish were lazier – perhaps their ploughs and scythes and flails were not quite as good, perhaps they were less well fed, or perhaps simply they spread certain tasks such as ploughing and reaping over a longer period than

their neighbours – but it opens up the prospect of resolving the issue in due course with further data.[29]

4.3 Diffusion of innovation

> They came to Emo buying hay and roots, to see the Grunters, to view the field that Father had dressed with some new-fangled contraption called basic slag.
>
> Shan Bullock[30]

That the Irish farmer was unresponsive to relative price changes during the nineteenth century is readily refuted by the evidence. Estimated supply elasticities of some of the main items marketed by farmers in the post-famine period suggest 'rational' behaviour, roughly on a par with that of farmers elsewhere at the time.[31] The characterisation of the Irish farmer as 'an innocent, simple being, unable to take care of his own interests or make a bargain for himself' may be discounted at this level at least. But could technological conservatism, the result of excessive risk aversion or ignorance, have inordinately delayed the diffusion of new machines and process innovations, and thus have hampered productivity growth? Research in the area has hardly proceeded beyond the anecdotal remark.

One recent study of the diffusion of process innovations, that of the milk separator, suggests a creditable performance. After a hesitant start the number of creameries rose rapidly during the 1890s, and on the whole it is likely that the innovation had spread as far as was viable in the Irish context by 1910. By then somewhat less than half the total milk supply was being processed in creameries. In lush dairying areas such as the Golden Vale the switch to the new technique was almost complete, but in poorer places such as Clare and west Connacht, where land quality dictated a lower cattle density, traditional methods persisted. In such areas 'a community of those small holders of only two or three cows each would be slow to launch into an enterprise meaning an expenditure of two or three thousand pounds', indeed, it was sometimes stated that over-eagerness to set up creameries was more of a problem than a reluctance to do so. In the wake of some failures a writer in the *Farmers' Gazette* mused that 'it would have been better to have had too few of them than too many'. In sum, the creamery seems to have caught on where the commercial opportunities were present. Perhaps special

factors had some influence here, for other process innovations lacked their coterie of country gentlemen and priests, enthusiasts for rural co-operation, to help them along. Arguably, however, amateurs influenced the organisational form more than the extent of the diffusion. Barbara Solow's claim that 'the introduction of modern techniques, especially in dairying, never occurred at all' is absurd.[32]

The speed with which a humbler innovation, the Champion variety of potato, spread throughout the island is well known.[33] Introduced from Scotland in the late 1870s, prolific and rich in flavour, the Champion was given a great boost by the near total failure of older varieties such as the Rock in 1879. Already the single most important variety in 1880, it had swept the board a few years later, and retained its dominance till the 1910s. Indeed, as late as 1917 it was still the most common variety, and accounted for 45 per cent of the acreage under potatoes. Regional variations in the rise and fall of the Champion can be documented from the agricultural statistics. The new variety caught on first in the market gardens around Dublin and Cork, where it had won three-quarters of the acreage in 1880. In that year the remoter parts of the west had hardly been touched – 4 per cent of the acreage in Erris, 6 per cent around Dungloe, 7 per cent around Clifden – but by 1883 the Champion was being more widely sown along the western seaboard than it was nationally. Its rapid diffusion is proof, if proof be needed, that the farmer was eager to change when he had little or nothing to lose.

The later record of the Champion is less clear. Several accounts suggest that its fertility and reliability began to wane around the turn of the century. Yet, despite persistent coaxing from the DATI and others, most of the country's farmers continued to place their trust in Champion seeds. Only in the north and east did a dramatic switch to the new varieties such as the Up-to-date occur. An instance of entrepreneurial incompetence in the poorer parts? Some qualitative accounts suggest as much. However, yield data do not support the view that those countries which stuck by the Champion suffered through relatively lower yields. After 1890 the province of Connacht remained loyal while Ulster switched to new varieties. Yet the Connacht-Ulster yield ratio regressed on time (1890–1914) gives:

$$Y_C/Y_U = 0.926 - 0.0027T$$
$$(2.29) - (0.00)$$

$R^2 = 0.00$, *t-statistics in parentheses*

An important reason for the 'failure' to switch in the west and south seems to have been that the main new varieties were less appetising than the Champion. As James Robinson put it in 1890, 'there appears to be something in the Champion that, potato for potato, makes it more satisfying as a staple article of food than any other variety . . . it is essentially a variety thoroughly suited for conditions under which the potato is a large constituent of the people's food'. That explains why a 1921 Irish farming manual counselled western farmers that 'while the Champion should be maintained for table use, more prolific varieties should also be grown'.[34] The east and north forsook it because the opportunity cost of not doing so – losing the British and urban markets where round potatoes with deep eyes such as the Champion commanded a lower price than varieties more suited to the frying pan or the chip pan – was greater. Thus while farmers in the exporting areas opted for the Champion like the rest in the early 1880s for its blight-resistant qualities, they switched almost as soon as alternatives became available.

Resistance to change was thus far from universal. On the other hand, the flail, the spade and the reaping hook, all archaic survivals suggesting farmer inertia, have been used within living memory.[35] How widespread was their persistence? Were they used by the typical farmer in some specially circumstanced areas or merely by the old and particularly backward? Can their survival be rationalised in terms of relative factor costs, as with the sickle in much of nineteenth-century England, and the caschrom in highland Scotland? The historians of material folk culture have so far not addressed these problems, and the lack of hard data is too serious for the economic historian to make any definitive pronouncements. What is quite clear is that the early decades of this century saw an unprecedented degree of mechanisation in Irish agriculture. Oral reminiscences usefully capture the initial scepticism towards, and then the great popular interest in, the new technologies:

> Steam threshers did not come to this locality until about thirty years ago, and the first one that came . . . had to be removed from haggard to haggard with horses. It was a steam engine but did not haul, it only worked the mill. Small farmers were usually afraid to put their horses to haul it from place to place. It was only big haggards that employed it, so me and my equals had to thresh our own little handfuls with our capaleens. Our day came too when Hurley bought a set that could haul itself. . . The old men used to say when they used to see it travelling the

> road, 'That'll never come in this boreen anyway.' But it wasn't long until it was going in every boreen where there was corn to be threshed.
>
> You'd hear an old fellow saying, 'What's the world coming to at all, what will they invent next?' And some other fellow would start about the old prophecies about yokes going the road without a horse pulling them ... People would come to the haggard to see the thresher working, and the children coming home from school would come in and stay looking at it for hours. You'd hear some of them imitating it afterwards – they'd be puffing with their mouths like the engine, and they'd make a humming sound like the drum.[36]

The agricultural statistics give a firmer impression of the transformation on the farm (Table 35).

Table 35 *Farm machinery stock, 1908–28.*

	1908	*1912*	*1929*
Potato sprayers (hand)	29,698	59,783	86,122
Do. (machine)	688	2,773	2,593
Harrows	185,342	204,270	252,951
Gas, oil and steam engines	402	1,542	3,010
Reapers and mowers	61,056	96,766	106,472
Self-binders	6,210	9,394	17,558

The number of tractors on Irish farms jumped from seventy in 1917 to almost 800 in 1929. In general, though, such data do not prove that Irish farmers were good entrepreneurs. Studies of diffusions such as that of the reaper and binder, the potato sprayer, the threshing machine and the tractor are both feasible and overdue. The early history of the adoption of the mechanical mower and reaper, for instance, has yet to be researched, but considering that a machine could cut several acres in a day, and about fifty to a hundred acres in a season, official 1917 data seem to suggest that, given a reasonable distribution across farms, diffusion had gone quite far enough in this case at least (Table 36).

Finally, the earliest Irish experiments with the new Bordeaux mixture against potato blight were carried out at the Albert College in 1890. Forty years later it was proudly claimed that potato-spraying was practised more widely and successfully in Ireland than anywhere else.[37] There is some circumstantial evidence for rapid

Table 36 *Reaper and mower diffusion* c. *1917*

Farm size (acres)	*Acres of corn/hay per mower/reaper*
Less than 30	25.4
30–50	12.6
50–100	15.0
Over 1,000	27.1

Source The Output of Agriculture in Saorstat Eireann, 1925–26 (Dublin, 1929).

diffusion here: sales of bluestone and prepared anti-blight mixes rocketed in the late 1890s, and bluestone was being applied on the Great Blasket by 1900 at the latest.[38] Diffusion soon made for bigger yields: output per acre in the 1900s was almost 20 per cent more than in the 1880s and 1890s. Why, then, the repeated complaints from the Congested Districts Board in the interim that their offer of hand sprayers at bargain prices were being sniffed at by a recalcitrant peasantry?[39] Part of the answer must be that at the outset the machines easily broke down and were difficult and expensive to service, so that in the remote west at least caution may have been the best policy. But the Board was also disregarding the rather strange 'intermediate technology' developed by west-of-Ireland smallholders during the 1890s and 1900s, and apparently in wide use then. The playwright John Synge came across the new method in the wilds of Erris, and describes with glee an elderly woman spraying her potato patch with an old broom dipped in bluestone solution as evidence of how quick people were to try out promising new methods.[40] The initially slow diffusion of hand sprayers, their number grew from seven per hundred acres of potatoes in 1908 to nine in 1917, and then jumped to twenty-three in 1926 should thus not be equated automatically with farmer pigheadedness.

4.4 Ageing and the brain drain

Crotty and Lee have suggested that a steep rise in the proportion of elderly farmers in the labour force impeded modernisation after the Famine.[41] The hypothesis that a preponderance of older men (and women) should have led to misallocation is plausible, and censal

data (see Tables 37 and 38) seem to support it. The proportion of farmers aged sixty-five years and up increased steeply between 1861 and 1926. In neighbouring countries at the time the trend seems to have been far less marked or, as in England and Wales, absent.[42] Increasing life expectancy and emigration cannot account for the discrepancy, especially after 1900. Thankfully, the true explanation for most of this 'ageing' is quite straightforward. It is that both in 1911 and in 1926 a great number of farmers exaggerated their age on the census form in the hope of – or because they were – benefitting from the provisions of the Old Age Pensions Act, introduced in 1908. This is confirmed by some cross-section data in the 1926 census (see Table 38). Since the pension involved a means test, the poorer farmers had a greater incentive to lie, and hence the greater 'ageing' on smaller holdings!

Table 37 *Age of Irish farmers, 1861–1926 (%)*

			Men and women		*Women only*	
Year	*45+*	*55+*	*65+*	*45+*	*55+*	*65+*
1861	54.8	33.1	13.2	4.2	2.7	1.0
1871	59.2	38.6	16.1	5.5	3.8	2.0
1881	65.3	–	21.8	10.1	–	3.6
1891	68.4	–	21.7	13.0	–	4.6
1901	68.4	–	22.8	14.5	–	5.2
1911	71.4	–	32.7	12.6	–	7.3
1926	80.0	53.0	30.2	16.0	12.7	8.3

Table 38 *Irish farmers' ages by farm size, 1926*

Farm size (acres)	*Farmers 65+*	*Farmers 55+*	*Women 65+*	*Women 55+*
1–4	42.6	63.1	16.2	22.4
5–9	37.7	59.2	11.9	16.6
10–14	33.3	55.4	9.6	13.9
15–29	30.3	53.6	8.0	11.9
30–49	27.6	50.8	6.8	11.0
50–99	19.9	49.8	6.5	11.0
100–99	18.6	48.7	6.1	10.9
200+	18.1	49.1	6.0	10.9

Another explanation of the supposedly low productivity growth in Irish agriculture is the post-famine exodus to Britain, America and farther afield. It was repeatedly claimed that emigration took away 'the fairest and the bravest', 'the bone and sinew' of the country, leaving behind the over-cautious, the elderly and the incompetent. The agrarian activist Lawrence Ginnell put the argument forcefully in 1907:

> Alarming as is the decline in numbers, the decline in efficiency is greater still ... While the physically and mentally healthy and energetic emigrate, the physically and mentally inefficient and dependent stay at home – some for want of courage, and some because they would not be admitted into a new country .. Hospitals and lunatic asylums [in Ireland] are constantly being enlarged ...[43]

It is at best an unproved hypothesis. It seems to rest in part at least on a confusion between rates and levels, for though Irish farming in the wake of the Great Famine and after may have been hurt by heavy emigration, the rate of emigration fell slowly thereafter (but with a big blip in the 1880s). Of itself this should have reduced any resultant constraint on productivity over time. This does not dispose of the issue, since in theory at least the exodus could have reduced living standards and labour productivity throughout the period: there may have been a 'brain drain' effect. A priori what is the more likely outcome? Theory provides no clear-cut answer. In so far as people who were relatively productive in agriculture earned incomes related to their specific complementarities with respect to other inputs, there is some presumption that they would stay. Professional sport provides an analogy: 'superstars' are on average less mobile than mere journeymen. But if these same people had a comparative advantage in whatever they turned their hand to abroad, the presumption against them leaving no longer holds. However, since the majority of first-generation Irish emigrants took ordinary labouring jobs in urban centres, the point is worth making.

Perhaps empirical work will resolve the issue one day. Meanwhile one admittedly crude test for the presence of a 'brain drain', the analysis by age cohort of literacy patterns from decade to decade, lends it little support. Emigrants who could read and write had probably received some formal schooling and so had at least a rudimentary command of productivity-increasing skills. Therefore if the 'best' of each generation left a reduction in the literacy level of

what remained of a particular age cohort might be expected. Table 39 provides the results of a simple exercise for a spread of counties. The results, as far as they go, are negative; what is surprising is how closely the later data match the earlier.

Table 39 *The 'brain drain': an age-cohort analysis*

(Selected counties, 1851–71)

(a) Percentage of the population aged 15–29 in 1851 and 25–39 in 1861 who could neither read nor write

	1851				*1861*			
	15–19		*20–29*		*25–29*		*30–39*	
	M	*F*	*M*	*F*	*M*	*F*	*M*	*F*
Leitrim	35.8	42.5	30.4	44.5	25.9	34.1	28.6	41.7
Mayo	61.1	72.3	57.2	75.4	49.9	68.1	54.0	75.4
Donegal	44.2	49.5	42.3	52.7	38.9	47.4	40.9	53.4
Longford	34.6	37.6	27.1	35.4	25.6	29.9	25.3	34.2
Tyrone	27.4	27.5	22.1	27.3	22.1	25.7	23.7	28.6
Kerry	51.0	63.5	46.5	67.9	41.9	58.0	42.7	64.6

(b) *Proportion illiterate in selected age-cohorts, 1861 and 1871*

	Men		*Women*	
	1861 (10–29)	*1871 (20–39)*	*1861 (10–29)*	*1871 (20–39)*
County:				
Kerry	39.2	35.7	47.8	47.4
Longford	24.9	21.8	26.5	23.7
Tyrone	22.1	19.1	25.0	23.0
Donegal	39.7	36.6	46.2	45 1

Source Calculated from the censuses of population, 1851–71.

4.5 Conclusion

The historiography of post-famine agriculture has dwelt overlong on factors which 'make and keep Irish farming backward'.[44] I have argued that some of those factors were of secondary importance, and hardly put Irish farmers at a disadvantage. This does not exclude the

possibility that in some other respects the same farmers faced special problems. Special positive influences should not be forgotten, either, however. An increasingly literate and healthier labour force must have counted for something, as must the improvement in communications. Certainly the post-famine decades saw marked changes in regional specialisation. Pig farming concentrated more on the west and south-west, and sheep numbers grew in Connacht, Ulster, Kerry and south Leinster while they declined elsewhere. Most impressive, and far more far-reaching than anything occurring in Britain at the time, were the shifts in cattle herds, which are captured in Table 40. The impressive jump in the coefficient of variation provides a good shorthand summary of the trend. While the share of cows in the total declined, the midlands concentrated more and more on fattening and the west on supplying stores.[45] Average farm size grew, increasing the scope for economies of scale from the innovations of the 'second agricultural revolution'.

Finally, the increasing role of governmental and government-supported agencies was probably a benign influence. Though I have not attempted to carry out cost-benefit analyses, I suspect that support for bodies such as the Department of Agriculture and Technical Instruction, the Congested Districts Board and the Irish Agricultural Organisation Society was not money wasted in the pre-1925 period. Such bodies mobilised volunteer support, collected and produced statistical data of high quality, standardised and improved the quality of output, accelerated the diffusion of information about techniques, protected farmers from unscrupulous traders, and improved educational skills throughout the countryside.[46]

Appendix 4.1
On the 'cost' of negotiating rent cuts after 1881

Irish farmers took up with alacrity the opportunities offered to them by the land legislation of 1881 and after. The 1881 Land Act created special courts to decide between landlord and tenant claims as to what constituted a 'fair' rent. What the courts sought to impose was not an 'economic' rent but something less, in recognition of the tenants' shared ownership of the land. However, the courts' judgements were not based on any clear formula, and inevitably many landlords were left unhappy with what was deemed 'fair'.

Table 40 *Regional specialisation in livestock farming (cows and heifers)*

	Cattle aged 2 years or more per hundred cows and heifers			Cattle under 2 years per hundred cows and heifers		
	1854	*1874*	*1904*	*1854*	*1874*	*1904*
Carlow	54.0	80.5	117.7	110.3	171.2	195.9
Dublin	76.9	162.3	181.2	87.1	110.6	117.5
Kildare	207.9	315.9	414.5	177.6	215.5	270.5
Kilkenny	29.3	52.0	70.8	85.0	147.1	179.8
Laois	68.0	115.2	124.0	97.1	151.6	195.8
Longford	42.5	69.7	94.5	93.8	139.1	183.1
Louth	81.7	143.8	164.2	140.2	177.9	198.5
Meath	352.0	635.4	810.8	225.7	275.0	308.2
Offaly	107.3	172.5	188.3	119.8	176.4	213.8
Westme	126.8	266.2	330.4	166.8	243.6	310.2
Wexford	35.7	50.7	92.7	103.9	144.3	187.2
Wicklow	52.3	71.4	95.6	100.2	132.0	164.1
Clare	47.0	69.5	55.6	88.2	140.6	163.2
Cork	22.0	22.0	28.2	63.8	88.7	110.0
Kerry	29.1	26.3	25.7	60.9	70.9	102.0
Limerick	22.0	22.8	31.6	58.0	87.1	97.2
Tipperary	42.4	59.4	71.4	78.3	130.4	160.3
Waterford	23.4	27.2	53.2	68.5	99.4	135.3
Antrim	33.6	38.8	26.6	80.9	111.6	114.2
Armagh	20.4	37.7	34.5	74.8	121.8	157.2
Cavan	24.6	34.8	34.3	79.9	111.5	130.5
Derry	34.6	36.2	37.2	86.1	112.9	141.3
Donegal	40.2	51.7	37.5	86.9	102.7	136.3
Down	24.1	32.9	39.4	90.4	128.3	158.7
Fermanagh	27.0	36.3	33.2	70.4	93.1	111.1
Monaghan	16.9	33.4	34.9	83.1	124.6	142.4
Tyrone	23.1	28.2	25.6	76.3	104.3	134.3
Galway	140.8	157.5	131.1	119.5	135.6	182.7
Leitrim	27.8	39.6	34.9	72.5	97.3	119.8
Mayo	88.1	93.5	89.4	90.7	99.6	152.6
Roscommon	96.2	93.3	91.6	102.0	138.7	181.4
Sligo	49.5	58.0	55.7	84.1	113.3	159.5
Mean	64.6	94.8	114.2	97.6	134.3	167.0
S.D.	66.3	117.7	150.0	20.2	44.3	51.9
c.v.	1.03	1.24	1.31	0.21	0.33	0.31

All tenants had the right to apply to have their rents settled for a fifteen-year term, hence the saying that Ireland lived 'under a regime of lawsuits lasting fifteen years, and renewable for ever'. Alternatively landlord and tenant might register out-of-court settlements with the Land Commission with the same effect. The average reduction in percentage terms obtained from the courts exceeded that granted by landlords out of court. This is true at both aggregate and individual estate level, yet a sizable minority of tenants accepted out-of-court settlements. There are several possible reasons. One obvious consideration is the cost associated with the court procedure, making litigation not worth while for the smallest tenants. Second, information from some estates suggests that tenants sometimes preferred the security of a deal with the landlord to risking the judgement of the court. One might expect a risk-averse tenantry to trade off a larger expected decline in rent against a smaller variance in the decline. On the Mercers' estate, for instance, the average out-of-court settlement was a reduction of 18.9 per cent with a standard deviation of 5.8 per cent, while for court settlements the figures were 21.6 and 8.7 per cent. Other examples might be given, though the picture is by no means uniform. Third, landlords were in a strong position with tenants in arrears, and so could force them to settle out of court. Finally, it is likely that some tenants who settled out of court did so because they were paying low rents to begin with, and preferred a more personal and informal relationship with their landlord than that implied by third-party decisions.

Tenants and landlords unsatisfied with court decisions had a remedy: they could appeal to the Land Commission for a review. They frequently did so, to the great annoyance of those who saw the procedure as a waste of time and money to all concerned. 'The changes made in the fair rents fixed are on the whole small; and the expenses incurred are greatly in excess of the pecuniary advantages resulting from them': so judged the Morley committee in 1898. According to the Fry Commission of 1894:

> [T]he rents fixed by the Subcommissioners in the 19,655 cases subject to rehearing amounted to £431,398; the net result of the rehearings was to increase this amount by £1,282, or only 0.2 per cent . . . The rehearings must have cost the parties at least £250,000 and this vast expenditure was incurred, in the case of nine-tenths of the cases. . . in order to subject the decision of the Court, two of the three members of which are agricultural experts, who themselves inspect the holding, to be reviewed by another court, no member of which inspects the holding, and no member of which need be an agricultural expert.

The thrust of the argument is rather misleading. The evidence against it is to be found in the appendix to the Fry Commission's report. This contains

data on 31,013 cases, of which the bulk – 24,867 – were withdrawn, struck out or rejected. However, in the 3,136 cases in which landlord appeals resulted in a changed rent the net rent increase was £8,008.62, while in the 1,982 cases in which tenant appeals resulted in a change the net *reduction* was £7,997.18. These sums, taken together, must be regarded as the annual return to plaintiffs on outlays spent on litigation. If one assumes that court costs were £5 on average, then we have an annual return of £(8,008.82 + 7,997.18) on an outlay of £(31,013)(5). That comes to 10.3 per cent.

Litigation, the data suggest, was not such a risky business. Only in 117 cases did a landlord's appeal result in a reduced rent; only in 36 did a tenant's result in an increased rent: thus the worst that could happen to a plaintiff in 99.5 per cent of the cases was that the original judgement would be upheld. The private return to litigation was thus respectable. In the wider sense one must bear in mind the running costs of the appeal procedure and the cost to the losers, and remember that the judgements of the appeal tribunal probably had an impact too on out-of-court settlements. The costs were the *faux frais* of recognition of 'dual ownership' in law.

Appendix 4.2
A note on the output estimates

Solow's earlier calculations have been used for many items,[47] and her estimate of value added and mine differ little. However, our estimates for several individual items differ considerably, for reasons explained below.

Potatoes. An output ratio of 1:3 was used for 1876, and the 1908 price was used rather than the market price quoted in the parliamentary papers.

Butter and milk. A milk yield of 385 gallons is assumed, and the deductions made for mortality, dry cows and calf and pig feed are as in *Agricultural Output, 1908*. Butter output has been estimated on the assumption that three gallons of milk produced a pound of butter. Milk consumption at the rate of fifteen gallons per person is assumed.

Pigs. An average pork output of 1.5 cwt per pig was allowed. This agrees well with Professor Thomas Baldwin's guess that in 1874 'about as many pigs are annually sold in Ireland as the country contains at the time of taking the government returns'.[48]

Cattle. My calculations follow the method used elsewhere for 1854.[49]

Michael Turner has recently provided a continuous output series covering the period from 1850–55 to 1906–13.[50] He estimates output valued at current prices to have risen from £41.6 million in 1850–5 to £47.0 million in 1866–75, and then to have fallen to £44.6 million in 1876–85, while agricultural prices moved from 67 to 94 and 97 (base 1900 = 100) over the

same period. Thus his results also rule out the possibility of any sustained rise in real agricultural value added in the interim. Between 1876–85 and 1906–13, however, Turner has the value of output rising from £44.6 million to £51.5 million, while his index of agricultural prices rises from 97 to 113.7.

Notes

1 National Library of Ireland, Ms. 5717, letter from Robert French, Monivea, to his son (and estate agent).

2 Gerard Boate, *Ireland's Naturall History* (London, 1652).

3 Most notably, perhaps, by Barbara L. Solow. See her *Land Question and the Irish Economy, 1870–1903* (Cambridge, Mass., 1971), 170–2, 195–204; also *idem*, review of Devine and Dickson (eds.), *Journal of Economic History*, XLIV (3)) (1984), 852, where it is argued, 'There has been extraordinarily little change in the volume and structure of Irish agriculture since the early nineteenth century. Hardly a brilliant success story'. Raymond D. Crotty's classic *Irish Agricultural Production* (Cork, 1966) also highlights agriculture's failure to expand.

4 Compare A. C. Kelley and J. G. Williamson, *Lessons from Japanese Economic Development* (Chicago, 1974), 181; R. Gallman, 'Changes in total United States factor productivity in the nineteenth century', *Agricultural History*, 46 (1972), 191–210; C. Ó Gráda, 'Agricultural decline, 1860–1914', in R. Floud and D. N. McCloskey (eds.), *An Economic History of Britain since 1700: 1860 to the 1970s* (Cambridge, 1981), 176–9.

5 Department of Agriculture and Technical Instruction, *The Agricultural Output of Ireland, 1908* (Dublin, 1912); *Agricultural Output of Northern Ireland*, 1924–5 (Belfast, 1928); *The Output of Agriculture in Saorstát (ireann 1925/6* (Dublin, 1929). Details in appendix. For more on comparing the two agricultures, Ó Gráda, 'Irish agriculture north and south since 1900', in B. M. S. Campbell and M. Overton (eds.), *Land, Labour and Livestock: Historical Studies in European Agricultural Productivity* (Manchester, 1991), 439–56.

6 Solow, *Land Question*, Ch. 3; Crotty, *Irish Agricultural Production*, Ch. 2; W. E. Vaughan, 'Landlord and tenant relations in Ireland between the Famine and the Land War', in L. M. Cullen and T. C. Smout (eds.), *Comparative Aspects of Scottish and Irish Economic and Social History* (Edinburgh, 1977), 216–26.

7 T. W. Fletcher, 'The Great Depression in English agriculture, 1873–96', *Economic History Review*, XIII (2) (1960–1); see also P. J. Perry, 'Where was the 'Great Agricultural Depression'?: a geography of bankruptcy in late Victorian England and Wales', *Agricultural History Review*, XX (1972).

8 This suggests an analogy with the post-Napoleonic period, where a few bad years make people forget the broader trend.

9 Michael Turner's 'Agricultural output and productivity in post-famine Ireland' (in Campbell and Overton, *Land, Labour and Livestock*, 410–38) implies somewhat slower productivity growth over a shorter period, 1850–1910, but his output data probably underestimate growth in the 1850s and 1860s. See the exchange between Turner and W. E. Vaughan in *IESH*, XVII (1990), 62–78.

10 Traditional and modern views are well explained in W.E. Vaughan, *Landlords and Tenants in Ireland, 1848–1904* (Dublin, 1984).

11 Solow, *Land Question*, 50–88; Crotty, *Irish Agricultural Production*, 84–107.

12 Bence Jones, 'What can be done for Ireland?', *Macmillan's Magazine*, XLIII (December 1880), 125, 138 (as cited in Cressida Annesley, 'The Land War in West Cork: the Boycott of William Bence Jones' (unpublished dissertation, University of York, 1992), 19–20.

13 *Returns showing the Number of Agricultural Holdings in Ireland, and the tenure under which they are held by the Occupier* [c. 32], H.C. 1870, lvi.

14 E. McCracken, *Irish Woods since Tudor Times* (Newton Abbot, 1971), 31–2; E. D. Steele, *Irish Land and British Politics: Tenant Right and Nationality, 1865–1870* (Cambridge, 1974), 8–10, 20–2.

15 J. M. Guttman, 'The economics of tenant rights in nineteenth-century Ireland', *Economic Inquiry*, 18 (1980), 408–24.

16 C. Ó Gráda, 'The investment behaviour of Irish landlords, 1850–1880: some preliminary estimates', *Agricultural History Review*, 23 (1975), 139–55. In herunpublished dissertation ('The Land War in West Cork', 28, fn 144) Cressida Annesley points to an error in my computation of William Bence Jones' ratio of spending to receipts ('The investment behaviour', 153). The true ratio was closer to 30 than to my 10 per cent. However, as Annesley notes, much of Bence Jones' expenditure was on the demesne, not on tenant farms.

17 *Report of the Commissioners of Inquiry into the Working of the Landlord and Tenant (Ireland) Act, 1870 and the Acts amending the same* (c. 2779), H. C. 1881, XVIII, 7-9; Steele, *Irish Land and British Politics* (Cambridge, 1974), 19–22.

18 E.g. *Commission on Emigration and Other Population Problems* (Dublin, 1956), 122–3.

19 See, for example, G. O'Brien (ed.), *Advertisements for Ireland* (Dublin, 1925), 43, 58; C. H. Hull (ed.), *The Economic Writings of Sir William Petty* (London, 1899), 201–2; H. L. Lindsay, 'On the agriculture of the County of Armagh', *Quarterly Journal of Agriculture*, 7 (1836), 62–3; N. W. Senior, *Journals, Essays, and Conversations relating to Ireland* (London, 1868), I, 22–31; Thackeray, *Sketchbook*, 43, 75, 123.

20 Horace Plunkett, *Ireland in the New Century* (Dublin, 1904), 43; *Irish Farmers' Gazette*, 6 October 1906; Finlay Dun, *Landlords and Tenants in Ireland* (London, 1881), 80–1; *Report of the Scottish Commission on Agriculture to Ireland* (Edinburgh, 1906), 34.

21 V. Gookin, as cited in E. McLysaght, *Irish Life in the Seventeenth Century* (Dublin, 1950), 39; Liam Bulfin, *Rambles in Eirinn* (Dublin, 1906), 182; E. McLysaght, *Changing Times* (Dublin, 1978), 26. Quaker philanthropist James Cropper's belief that 'these notions of the incurable indolence of the Irish which are entertained by many benevolent and well-disposed persons, are rapidly giving way' was formed on a trip to Ireland in 1825 (see his *Present State of Ireland* (Liverpool, 1825), 12).

22 The first and fourth are taken from the archives of the Irish Folklore Commission; the third from P. Kavanagh, *The Green Fool* (1971 edition, Harmondsworth), 125–6; the second from a Radio na Gaeltachta programme on migrant workers, 1976 (my translation); the fifth from *An Claidheamh Solais*,

28 March 1903. In the fourth and fifth, farm labourers rail against the physical demands of fieldwork in the summer months.

23 Compare S. de Canio, *Agriculture in the Post-Bellum South: The Economics of Production and Supply* (Cambridge, Mass., 1974), 16–121.

24 J. Meenan, 'Minority Report', Commission on Emigration, 376; R. Kane, *Industrial Resources*, 301–2.

25 Bicheno in 1830. E. Bicheno, *Ireland and its Economy*, 20–1.

26 P. M. Solar, 'Agricultural Productivity and Economic Development in Ireland and Scotland in the Early Nineteenth Century', in Devine and Dickson, *Scotland and Ireland*, 70–88; P. M. Solar and M. Goossens, 'Belgian and Irish Agriculture in 1840–5', in B. Campbell and M. Overton (eds.), *Land, Labour and Livestock* (Manchester, 1991), 364–84.

27 Senior, *Journals*, I, 32.

28 *Returns of Agricultural Produce in Ireland in the Year 1853*, H. C. (1854–5), XLVII, vii, 223; *Returns . . . Year 1854*, H.C. (1856), LIII, xxi–iii, 225.

29 G. Clark, 'Productivity growth without technical change in European agriculture: a reply to Komlos', *JEH*, XLIX (1989), 979–91; C. Ó Gráda, *Ireland: A New Economic History*, Ch. 13.

30 Shan Bullock, *After Sixty Years* (London, n.d.), 131.

31 T. Barrington, 'A review of Irish agricultural prices', *Journal of the Statistical and Social Inquiry Society of Ireland*, 15 (1927), 269–80; H. Staehle,'Statistical Notes'; C. Ó Gráda, 'Supply responsiveness in nineteenth-century Irish agriculture', *EHR*, 28 (1975), 312–7. See also Lee, *Modernisation*, 10–11.

32 C. Ó Gráda, 'The beginnings of the Irish creamery system,1880–1914', *EHR*, 30 (1977), 284–305; Solow, *Land Question*, 198. A related issue, much discussed but still not resolved, is the failure of Irish farmers to maintain milk supplies during the winter months in these years. Critics held that this gave the Danes an advantage on British markets; in defence of Irish farmers, Ireland's moist climate gave them a comparative advantage in the choice they adopted, allowing their cows to graze outdoors for most of the year.

33 The following three paragraphs are based on data culled from *Agricultural Statistics*, 1880 to 1917; *Department of Agriculture and Technical Instruction Journal*, 1889–1913, especially 11 (1910–11), 311–12; 8 (1907–08), 256; 13 (1912–13), 766; *Extracts from Reports on the Potato Crop*, 1890, made for the Irish Land Commission, H.C. (1890–1) LXIII; *Report from the Select Committee on the Potato Crop*, H.C. (1880) XII; R. N. Salaman, *Potato Varieties* (Cambridge, 1928).

34 *Extracts from Reports*, 52; Joseph Hanly, *Mixed Farming: A Practical Text Book on Irish Agriculture* (Dublin, 1921), 168. A Galway schoolboy put the Champion first in the following list of late potato varieties sown locally in 1938: Champions, Arran Banners, Arran Chief, Tolers, Dutches [sic] of Cornwall, Shamrocks, Scotch Triumphs, Red Champions, Main Crop, Gladstones, Hen a Comb (i.e. Honeycomb), Protestants, The Railways, and Up to Dates (Martin Reilly, Barnaderg, IFC, S. 28B). I am grateful to Criostóir MacCárthaigh for this reference.

35 E. E. Evans, *Irish Folk Ways* (London, 1939); T. P. O'Neill, *Life and Tradition in Rural Ireland* (London, 1977).

36 Irish Folklore Commission, vol. 462, 282–6; vol. 38, 179–80; vol. 1174, 371–3; vol. 1158, 480–2. See too Jonathan Bell and Mervyn Watson, *Irish Farming 1750–1900* (Edinburgh, 1986), Chs. 9–11.

37 Department of Agriculture, *Potato Blight and its Prevention*, (Dublin, 1934), 4.

38 Evidence from the account books of a Dingle merchant.

39 E.g. *DATJ*, 11 (1910–11), 311.

40 John Millington Synge, *In Wicklow, West Kerry and Connemara* (Dublin, 1919), 214; Congested Districts Board, *Tenth Annual Report*, 14–15; J. Maguire, *Come Day, Go Day, God Send Sunday* (London, 1971), 29; *Reports on Recent Experiments in Checking Potato Disease*, H.C. (1892) LXIV, 51–73.

41 Crotty, *Irish Agricultural Production*, 106–7; Lee, *Modernization*, 10–1.

42 Comparison of data on individuals from the 1901 and 1911 manuscript returns produces some hilarious results. See also Tomás de Bhaldraithe (ed.), *Seanchas Thomás Laighléis* (Dublin, 1978), 61; Henry Robinson, *Further Memories of Irish Life* (London, 1924), frontispiece; A. Birrell, *Beyond Redress* (London, 1939), 210–11. Genuine ageing was a more serious problem in the post-1926 period. See R. C. Geary, 'Variability in Irish agricultural statistics on small and medium sized farms in an Irish county', *JSSISI*, 20 (1956–57), 2–32; J. Scully, *Agriculture in the West of Ireland* (Dublin, 1971).

43 Lawrence Ginnell, *Land and Liberty* (Dublin, 1907), 30.

44 Quoted in Moritz Bonn, *Modern Ireland and Her Agrarian Problem* (Dublin, 1906), 58.

45 Department of Agriculture, *Agricultural Statistics, 1847–1926* (Dublin, 1930), xviii; John O'Donovan, *The Economic History of Livestock in Ireland* (Cork, 1939), Ch. II; Edith H. Whetham, 'The changing cattle enterprise of England and Wales, 1870–1910', *Geographical Journal*, 129 (3) (1963), 378–400.

46 On these activities see W. L. Micks, *History of the Congested Districts Board* (Dublin, 1925); annual reports of the Congested Districts Board, the Irish Agricultural Organization Society and DATI.

47 Solow, *Land Question*, 171, 213–17.

48 Thomas Baldwin, *Introduction to Irish Farming* (Dublin, 1874), 87.

49 Ó Gráda, 'Agricultural Output'.

50 Michael Turner, 'Towards an agricultural price index for Ireland, 1850–1914', *Economic and Social Review*, 18 (1987); *idem*, 'Agricultural output and productivity in post-famine Ireland', in B. M. S. Campbell and Mark Overton (eds.), *Land, Labour and Livestock: Historical Studies in European Agricultural Productivity* (Manchester, 1991), 410–28.

CHAPTER 5

Inheritance, emigration and fertility after the Famine

Son. When we were small boys an' we sitting there at that table, who always used to be given the white loaf, an' who used to get the strong cake?

Mother. Sure, ye were only the same to me as two lambs that would be on the same hill, only one o' ye being a bit stronger like than the other.

T. C. Murray, *Birthright.*

Subdivision of farms in Ireland is not so much the consequence of laws of equal inheritance – it sprang rather from the fact that but for the soil the father had nothing which he could leave his children.

Moritz Bonn, 1907.[1]

In impoverished societies such as pre-Famine Ireland, the prevalence of early marriages may be plausibly linked to the lack of parental control. Poverty meant that most people were forced to become economically independent at an early age and that parents had little property or capital to pass on to their children. Weak parental control over siblings reaching adulthood is a plausible corollary. But what of parents with holdings of land, an important group in both pre- and post-famine Ireland? Here the method of transferring claims to landed property from the old generation to the new is central.

The case of fisherman and small farmer Muiris Ó Catháin, born on the Great Blasket island off the west coast of Kerry *c.* 1870, illustrates a pattern familiar to students of Irish social history. Muiris's great-grandfather had moved across the sound to the island about a century earlier, obtaining a holding large enough to keep ten cows. He prospered and built up a herd of two to three hundred sheep. His son, Paddy, inherited the property; a brother moved to neighbouring Inis Tuaiscirt and settled there. Paddy subdivided the land, giving Muiris's father two-fifths (or 'the grass of four cows'); an uncle got three-tenths, and the remainder was divided up between two aunts.

Of his father's inheritance, Muiris in turn got three-eighths, and two brothers who remained on the island three-eighths and a quarter each. Such subdivision, which left Muiris and men of his generation only a fraction each of their ancestors' holdings, could last only as long as the islanders had recourse to sea-fishing and accepted a low standard of living. That system of partible inheritance was common in Ireland before the Famine. It lasted longer in the Blaskets than elsewhere; emigration or definitive celibacy were the preferred choices in most of Ireland after the Famine.[2]

The scholarly literature about farm inheritance customs is a burgeoning and cosmopolitan one. Much of it focuses on spatial contrasts. French historian Le Roy Ladurie's introduction to the work of Jean Yver is a well-known example: it highlights the difference between a *préciput* or patrilineal impartible inheritance zone in the south of France and one of automatic impartible inheritance in the west.[3] Spatial variations in succession regimes have also been examined at a more micro level for parts of Italy, Germany, and France and their implications for social and demographic change canvassed. Further afield, Alston and Schapiro have tried to explain the coexistence of primogeniture (i.e. all the land going to the eldest son) in the colonial American south and multigeniture in the north.[4]

In Ireland it seems more natural to focus on the shift from partible to impartible as a temporal, not a spatial phenomenon. The former, popularly associated with the pre-Famine era, is seen variously as a cause and effect of 'backwardness' and poverty, and ultimately of mass starvation. Malthusian pressures before the Famine, a passive *seigneurie*, and possibly also a reduction in optimal holding size, dictated sub-division. The partitioning effect on the landscape was captured by the first Ordnance Survey Maps and contemporary estate surveys.[5] In his *Descriptive & Statistical Account* economist J. R. McCulloch describes the process thus:

> The practice of subdividing small farms was still on the increase ... 'One great obstacle to improvement', says Mr Ross, 'and which is too general in Ireland, is their notion of the equal and unalienable right of all their children to the inheritance of their father's property, whether land or goods. This opinion, so just and reasonable in theory but so ruinous and absurd in practice, is interwoven in such a manner in the constitution of their minds, that it is next to impossible to eracdicate it. In spite of every argument, the smaller Irish occupiers continue to divide their farms among their children, and these divide on, till

> division is no longer practicable; and in the course of two or three generations, the most thriving family must necessarily go to ruin.' . . . The extent to which their ruinous practice has been carried on is such as sometimes almost to exceed belief. Dr Kelly, late Catholic Archbishop of Tuam, stated, in his evidence before the Committee of 1830 on the 'State of Ireland', that he knew a farm in his neighbourhood which was originally leased, on the partnership system, to about twenty families, and he afterwards recollected to have seen sixty families living on the same farm, an augmentation that grew naturally out of the increase of population. This splitting of the land into minute portions, and the direct dependence of so large a portion of the people on it for subsistence, form the principle obstacle to the improvement of agriculture, and make the condition and prospects of the population exceedingly unfavourable.

The process thus described by McCulloch could not have lasted for ever. The Great Famine of 1846–50, it is argued, merely occasioned or accelerated the switch to impartible inheritance. That explanation is clearly oversimplified. On the one hand, subdivision outlasted the Famine in parts of the west (as Muiris Ó Catháin's case typifies); on the other, impartible inheritance was also encouraged by relative price movements which dictated a shift from tillage to pasture. Moreover, impartible inheritance was common practice on wealthier farms even before the Famine. But the explanation is still useful. By implication the pre-Famine rural family was poor and rudely egalitarian. The change created a more patriarchal regime, often beset by squabbles about the succession. Predictably the new system was sometimes seen as inequitable; it was only because 'family loyalty was stronger than brotherly jealousy' that it could last.[6]

That such a system should produce its share of loveless marriages, class conflict, sibling rivalry, and tension between mothers and daughters-in-law is natural. Those features of the system, familiar to anyone remotely in touch with the Irish countryside, are dear to writers of the Irish literary renaissance. What author could fail to be inspired by the bitter division occasioned by patriarchal decision-making and unfair inheritance patterns? In *Birthright* by Macroom-born playright T. C. Murray, a powerful play set in rural mid-Cork just after the turn of the century, it is the younger of farmer Bat Morrissey's two sons who feels slighted; dedicated to the land but selected by his parents for emigration, the 'hundred or more distinc-

tions' made between him and his brother ultimately prove too much, and the action ends in fratricide.[7] Conflict about succession is also a central theme in Sean O'Faolain's first novel, *A Nest of Simple Folk* (1925). When Judith O'Donnell in the end prevails upon on her dying farmer husband to leave the best land to their youngest son, there are anguished protests from the others. "Was that free farm', urges the family lawyer on their behalf, 'to go over the heads of six brothers and six sisters to their last child, who has never done a stroke of work on the land?' The will breeds resentments that sustain the plot. In Patrick Kavanagh's *The Great Hunger* (1944), by way of contrast, it is the lot of the sons who are forced to stay that is lamented:

> Maguire was faithful unto death
> He stayed with his mother till she died
> At the age of ninety-one.
> She stayed too long
> Wife and mother in one
> When she died
> The knuckle bones were cutting
> The skin of her son's backside
> And he was sixty-five.

Kavanagh's theme of the disadvantaged heir as victim is also taken up in anthropologist Hugh Brody's *Inishkillane*, which is based on field-work in west Clare in the 1960s.[8]

When the dramatic element is discounted, that parental choice regarding property should arouse some rivalry seems natural. Even an absolutely even sharing of the estate – or parental efforts towards that end – might not be interpreted as such by some interested party. But literary sources reinforce the suspicion that the succession stakes were inherently unfair, a price to pay for the continuation of a way of life. In this view of post-famine peasant society inequality begins within the family.

Such a view is also supported by a good deal of research on impartible inheritance elsewhere in Europe. What the practice involved, according to economic demographer Ronald Lee, was the property passing to 'one favoured child, who can marry', the others being forced to move on or find menial employment locally, 'in which case they would marry late or not at all'. Bourdieu's and Goy's detailed investigations into custom in the Béarnais region of

southwest France describe an extremely inegalitarian regime 'which resolutely puts the integrity of the family holding above all else'. Berkner's analysis of eighteenth-century practice around Hanover in Lower Saxony has equally gloomy implications for the lot of all siblings but the heir.[9]

Of the two Irish experts to pay most attention to the issue in practice, historian Kenneth Connell and anthropologist Conrad Arensberg, Connell comes closest to the position just described. In a series of classic papers he claimed that the practice of impartible inheritance (and its associated trappings such as the 'match') made sacrificial victims of all siblings but one. These were 'the men (and the women too, unless they preferred spinsterhood) [who] should be ready to slip down the social scale, beneath their brother to whom the family's land was committed'. So according to Connell, 'family loyalty, even at a personal loss' was a fundamental feature. Arensberg's discussion, based on work in the field in Clare in the 1930s – is more equivocal. In tune with his more harmonious view of rural life, the portioning off of siblings is emphasized, yet the disadvantaged lot of those who 'must travel' is also hinted at: 'It is the very fortunate farmer indeed who can provide for all his sons and daughters so. Usually only the heir and one daughter are married and dowered, the one with the farm, the other with the fortune. All the rest, in the words of Luogh residents, must travel.'[10] Farm inheritance practices would seem to be worth investigating for the light they throw on changing attitudes and living standards in rural Ireland.

5.1 Some probate evidence

Before the Succession Act of 1965 Irish law supported the right of the testator to do exactly what he liked with his property. There was plenty of scope therefore for the kind of outcome predicted above. Only when the farmer died intestate could his issue in law lay claim to a share of the property.[11] Yet, in my view, giving pride of place to this temporal dichotomy between partible-equitable on the one hand and impartible-inequitable on the other is not helpful in the Irish case. The historical record sits more comfortably with the hypothesis that parents by and large tried at all times to be fair to all their children. Sometimes it might mean 'share and share alike';

sometimes, that disadvantaged siblings be granted special treatment. Parents, in other words, would try consciously to mitigate inequality between their offspring. Practical difficulties of interpretation or execution could complicate the outcome, and exceptions blur the picture. But I find it instructive to regard both succession systems as the product, in different circumstances, of a common desire for intrafamilial equity or 'fairness'. The transition from partible to impartible – eased or accelerated by the Famine – may then be interpreted as a reflection of increased opportunities off the land for other siblings, and the differences between the two systems due more to socio-economic circumstances than to culture.

A corollary of this way of looking at things, that the in-fighting usually associated with the post-famine regime was not new, finds some support in recent work on rural crime.[12] Another clear corollary, that even before the Famine impartible inheritance was common among the better-off in the farming community, will not be tested here. Before leaving that period, however, a nice example of such coexistence is worth mentioning. It comes from Elizabeth Smith, busybody wife of a small west Wicklow landlord and useful chronicler of estate and farm life. On the eve of the Great Famine, after one of her frequent rounds of the property, she described one home that she entered as that of a 'thriving man with a wife well deserved of him . . . the daughters of this house are well married, the sons in trades, and the youngest Philip will worthily succeed his father . . .' Not far away, however, she found the Widow Quinn's daughter, who had made a wretched marriage; 'she took a sickly labouring lad who is often laid up, but to whom she has brought seven children. They live in the mother's cowhouse where she had no right to put them and thus settle a whole family of beggars on us, but we did not look after things as we have learned to do now.'[13]

For some insight into the workings of impartible inheritance in Ireland after the Famine I have used the evidence of late nineteenth- and early twentieth century wills and probate records.[14] By the century's end will-making had become quite common, even for small farmers. The selection of that period for analysis therefore guarantees a fair spread across the socioeconomic spectrum. For reasons of availability and convenience the analysis concentrates on wills from Cork and south Ulster. All usable wills for the late 1890s and 1900s were used.

The strategy followed (see Table 4.1) was to compare the value of

estates with the terms laid down in the will. Some of the wills, it is true, were grist to the mill of the 'inequity' view, but the check satisfied me that impartible inheritance *usually* worked in the manner posited at that time. This is a subjective judgment, for who can tell for sure whether what is interpreted as 'fair' on the basis of cold documentary evidence may not have been intended by parents or regarded by resentful siblings as rank favouritism? Matching wills and probate valuations seems a promising way, nevertheless, of checking the relative good fortune of the successor on the land against that of other members of the family.

The wills confirm the view that physical subdivision of estates was rare at this juncture. Curiously enough, it was far more likely to occur on the lands of the very rich than of the poor.[15] If the poor had the will to subdivide they had not the means. Wills also suggest that sibling ranking is no great predictor in the succession stakes. When the father died young, the eldest son almost invariably took over as surrogate father, immediately or on reaching his majority. Examples of the youngest son being left property by default also occur. I quote a case in point, partly in order to illustrate a common will format:

> In the name of God Amen. I Patrick McDonagh of Abbey Loughrea and the parish of Ballinakill being now in full possession of my senses and not knowing how soon God may call me am going to settle my affairs with God and man. I have eight children all of whom are married except the youngest namely John McDonagh and Kate McDonagh. It is my full intention and wish to leave will and bequeath my house furniture land and farm implements and stock horses cows cattle and sheep to my youngest son John McDonagh he to pay my daughter Kate the sum of £80 0s 0d sterling within a reasonable time after my death. Should any of the rest of my children who are married make any claim upon my property or stock after my death I hereby will and bequeath them one shilling each . . .[16]

The elder McDonagh had not long to live, and his last minute preoccupation with the welfare of those not adequately provided for is quite typical. Here is another example:

> My daughter Mary got her fortune at her marriage. I now bequeath her seventy pounds. I have arranged for the advancement in life of my son Luke Lee. I confirm same and bequeath him seventy-five pounds. I bequeath to my son Thomas one hundred pounds. It is my intention during my life to provide for my said daughter and two sons by securing to them benefits to the money above bequeathed to them

> and the said legacy shall abate by the value of such benefits as shall be given in satisfaction of such legacies. And to my son James I advise and bequeath all the property which I may [be] possessed or entitled to not otherwise disposed of in this will or any codicil thereto. In witness whereof I hence hereunto put my hand.[17]

In both these cases the wife had predeceased the man who had made the will. Had she not, doubtless her comforts would also have been catered for. The 'one shilling clause' is a common feature, most usually invoked against previously married or emigrant siblings, though occasionally in bitter, despotic or sectarian fashion against a 'black sheep'. Power of exclusion to executors of minors who later married somebody not deemed suitable is also characteristic. The 'fairness' analysed here is always constrained by such patriarchy.

Probate valuations undoubtedly sometimes underestimated the true value of an estate. Since valuations were the benchmark for charging estate duty, farmers and their representatives were eager for this to happen. Assessment thus might include references to 'weakly' cattle, remote location, and the like, or imply implausibly spartan housing or furniture. Take for instance Martin Downes, a west Clare smallholder, who left his farm at Clongriff 'together with five in calf cows, five yearlings, horse and car, farming implements, household furniture, dairy utensils, together with hay and all farm produce on the land' to his son John in 1899. The probate put the value of the house and humble farm, forty acres at a rent of £4, at £100. However, household goods were valued at £2, and the stock and farm implements at only £30. Compare this with a case such as that of Simon Hickey, a very prosperous (by Irish standards) Cork farmer: his animals were assessed at £1,027, close to their market value, though his household effects were put at only £40. In general livestock and land were less loosely assessed than household goods. On balance the wills are nevertheless a useful proxy for bequeathed wealth.

The will which formed the basis for Tables 41 and 42 are neither numerous enough nor sufficiently representative regionally for definitive inferences, but they illustrate an approach and a new interpretation. Table 41 summarises two aspects of wills of interest here: the role of subdivision and the share of other siblings. Table 42 shows the average number of sons and daughters provided for, at least to some extent, in the wills examined.

Table 41 *Probate values and inheritance terms*

Probate Range (£)	*Mean*	*n*	*Total No. Subdivided*	*Average to sons (£)*	*Average to others (£)*
(a) Cavan district:					
1–199	101	49	5	10	36
200–1600	429	30	9	110	124
b. Cork district:					
1–199	105	24	4	21	78
200–499	332	65	17	97	156
500–1500	818	23	7	332	236

Note Financial provision for wives, daughters, and others is included under 'others'. Annuities are capitalised at ten times their annual value; no account is taken of stock or bed and board. When a property is to be subdivided, or sold and the proceedings split, this is reflected in the totals.

Table 42 *Average number of sons and daughters provided for*

	range (£)	*n*	*Sons*	*Probate Daughters*
a. Cavan:				
	0–199	48	1.38	1.08
	200 +	32	2.12	1.47
b. Cork:				
	0–199	25	1.36	1.40
	200–499	62	1.87	1.50
	500 +	22	2.32	1.32

Three obvious preliminary points need to be remembered. First, some compensation for the financial and psychic costs of caring for elderly relatives and, in many cases, for the funeral and testamentary expenses of the deceased is to be expected. Second, the son who inherited the farm usually had to wait his turn, postponing marriage and receiving a low income in the meantime; sometimes the wait would spoil his marriage prospects entirely.[18] The post-1881 Irish population censuses make a mockery of the model whereby in the words of demographer Ronald Lee 'the property passes to one

favoured child, who can marry', forcing the other children to marry late or not at all. By 1926 one-third of 35–44-year-old farmers remained unmarried, and one-sixth of 55–59 year-olds. Hardly surprisingly, those holding least land were most likely to remain single. Third, transfers *inter vivos*, which are likely to have benefitted those who left, are for the most part not captured by the wills. On all three counts a 'fair' division of the estate would indicate a larger share to the remaining son. Some of the wills that produced Table 41 may still have seemed to favour the successor to the farm. There are examples of the testator leaving all to his eldest son. The overall impression, however, is surely closer to a balanced division of the estate than the lopsided distribution sometimes envisaged. Two or more sons are often bequeathed something. Note, moreover, that in some of the cases listed in Appendix 5.3, and in many more inspected, the 'encumbrances' on the legacy were worth more than the probate value! In these and other cases we suspect that the wills must have reflected the testator's aspirations rather than the eventual outcome, though that does not exclude a 'fair' outcome, either.[19]

5.2 Primogeniture or ultimogeniture?[20]

So far we have been arguing for a greater measure of fairness among siblings than is indicated in the literature. If this was so, *which* son got the farm fared did not matter so much. The choice nevertheless gave rise to rivalry on occasion, and remains an interesting historical puzzle. The common view is that the eldest son was the father's usual choice as heir – '*an mac is sine in áit an athar* (the eldest son in place of the father)'. But we have noted an example of the opposite phenomenon in Patrick McDonagh's will above, and even before the Famine a tendency towards ultimogeniture in rural Ireland was detected by Carleton. According to Peadar O'Donnell, over a century later, 'small farmer areas are the greatest source of emigrants. It is indeed a good thing that the young people there leave home as soon as they grow up, so that leaves the floor free for the youngest son, on whom the task of looking after the parent falls, to marry early'.[21] An unsystematic perusal of the evidence from wills fails to confirm the dominance of primogeniture. An alternative window is provided by the 1911 census forms. Comparing how long middle-aged and elderly farming couples had been married with the

age of their eldest resident son offers a test of succession practice. I found that in selected clusters of district electoral divisions in Munster in 1911 the gaps between marriage duration and son's age were consistent with the first son taking over in a majority of cases. However, the outcome did not support the *dominance* of primogeniture.[22] An approach to the choice of heir which allows for a degree of bargaining between father and son seems better at accounting for the evidence than the patriarchal model. After all, even if the father preferred the first-born son to succeed, the son may simply have chosen not to exercise a customary right when the inheritance was not worth much. In Ireland it was common practice for farmers 'to retain ownership and usually effective control until they die[d], or at least reach[ed] an advanced age', and the eldest son may have found the cost of acquiescence and succession too high. For him, if selected, it was a question of trading off his marriage prospects and independence for control of the homestead in middle or late middle age. The smaller the holding, the greater in theory would have been the incentive to leave. As one of Connell's informants, reporting from Castlerea in County Roscommon put it, 'sometimes they remain against their inclination, but the question of keeping the home and caring for the aged parents compels them to remain.' An added complication might be that the father made no choice until the last minute as a means of keeping his sons on their best behaviour.

If the elder sons regarded succession in terms of such a trade-off, then we should expect the sibling ranking of the successor to be inversely related to the age of the father or mother at marriage. If a farmer married young and had a large family, a younger son stood a better chance of inheriting the holding by default. Data collected from farms located in clusters of district electoral divisions in Clare, Cork, Tipperary-Limerick and Waterford in 1911 allow us to focus on the correlation between either parent's age at marriage, on the one hand, and the gap between duration of the marriage and the age of the eldest resident son, on the other.[23] For Clare the correlation was estimated using age at marriage of both mother and father. Since the outcome proved similar, and since the necessary details were frequently given in the case of widows, only the correlation between the gap and the mother's age at marriage was calculated for the other areas. The result is reported in Table 43.

The correlation coefficients are negative throughout, so the

Table 43 *Correlation between gap and parents' age at marriage*

Area	*Correlation*	*Number of Observations*
Clare (Men)	−.217	433
Clare (Women)	−.225	496
Cork	−.206	221
Tipperary-Limerick	−.311	223
Waterford	−.319	73

results are consistent with our hypothesis. Inferential statements are strictly speaking not permissible, but if Arensberg and Kimball's view of County Clare as typical of the Irish countryside is accepted, then the results have more general implications. Arensberg and Kimball argue that 'the three communities that appear from time to time in the following pages are samples, just as County Clare itself is a sample, a fairly representative mean among the major social and economic conditions in Ireland upon which there was documentation.' If, in this spirit, it is assumed that our data are representative, then a standard statistical test indicates that the hypothesis of a zero population correlation coefficient may be rejected at any conventional degree of confidence. Evidence collected by Liam Kennedy from a different selection of regions corroborates this finding.[24]

A corollary of such a trade-off would be that small farmers had less

Table 44 *Farm size and marital status of farmers' sons, 1926*

Farm size (acres)	*% of farmers' sons aged 25–34 married*	*% of farmers' sons aged 35–44 married*	*% of farmers' sons aged 45–54 married*
1–	7.4	19.8	27.0
5–	7.8	19.4	31.0
10–	6.6	19.3	28.7
15–	5.7	18.5	29.3
30–	4.4	15.8	26.3
50–	4.0	12.5	24.2
100–	3.5	11.7	21.7
200–	3.4	15.6	17.7

Source *1926 Census*, part V (Dublin, 1928), 66–70.

prospect of retaining the services of their elder sons than strong farmers. Thus to the extent that primogeniture was an aspiration on the part of all kinds of farmers, those less well-off were more likely to be disappointed. In the same vein we might posit that small farmers showed less reluctance in handing over control or in permitting the heir designate to marry early. The following data, drawn from the 1926 Irish Free State Census, are at least consistent with such an interpretation.

There remains one group rarely mentioned in wills, and thus possibly hard done by the succession system. These are the siblings who emigrated, and it is to them that we now turn.

5.3 Disinherited emigrants?

Between the Great Famine and the Great Depression emigration accounted for more than half of each rising generation, including hundreds of thousands 'set free' by impartible inheritance. As has been suggested, emigrants were usually either not mentioned in bequests or specifically excluded. This seems to support the view that those who 'must travel' were badly treated by the system. Others have argued, however, that it was those who remained who suffered; Robert Kennedy explains large families in the post-famine era as a form of insurance, increasing the prospect of an heir remaining on.[25] What may be usefully added here about the relative fortunes of those who stayed and those who left?

Let us suppose that the alternative for the 'disinherited' son who was not helped to emigrate was to become a labourer in Ireland. The portion of sons who emigrated may then be regarded as their excess lifetime earnings, appropriately discounted, over the Irish standard. The mid-1870s provide a good starting point, since quite comprehensive wage and price data survive from that period.[26] However, the crude calculations underlying what follows should be taken as no more than suggestive. In the United States, where most of the Irish were destined, money wages were two to three times their Irish level in the mid-1870s. American prices were generally higher too, though some staples (notably meats, flannel, coffee) were cheaper there. Since most emigrants left young, in their late teens or early twenties, a near doubling of the real wage of the typical emigrant, of

£200 to £400 added to the present value of lifetime earnings, is indicated.

Looking forward, between the 1870s and the 1920s Irish agricultural output rose by about one-third, while the labour force dropped by another third. Let us assume for the sake of argument that the implied rise of two-thirds in agricultural income per head was equally spread between the labourers and small and strong farmers alike. Now to turn to the American side, the David-Solar US real wage index[27] doubled over the same half-century, implying some improvement in the lot of the emigrant relative to the stay-at-home. Between the 1850s and the 1870s, however, it would seem to have been a different story. Non-landlord income per head in Ireland grew by at least one-fifth, while real wages in America real wages rose by less than one-tenth. Our conclusion, then, from such rough-and-ready numbers: the relative lot of the emigrant worsened in the pre-1875 period, and steadily improved thereafter. Irish demographic behaviour in the latter period – the dramatic rise in the proportion of those who never married and in mean marriage age – is consistent with this, and we suggest that the 'unfair' treatment of emigrants in wills is a reflection of it also. If these guesses at their extra earnings are in the ball park, the tables in Appendix 5.3 below indicate that, the case of very large estates apart, 'disinherited' sons fared just as well as, if not better than, the inheritors who remained around the turn of the century.

The County Roscommon smallholder who in 1911 ordered that 'my son James Padian shall pay to my eldest son John Padian who lives in the United States the sum of one pound regretting that [he, the father] cannot conscientiously do more for him or take from James Padian what he actually earned himself' is a good case in point. In the rare instance where an entire farm was bequeathed to an emigrant, his return was never taken for granted. Overall the wills indicate that parents who had children abroad sensed that they owed them nothing. Indeed, the sizeable and rising flow of emigrant remittances, in cash and in kind, during these years may bespeak a compensatory intra-familial transfer, an implicit admission by those who emigrated that they had fared relatively well. In the late 1860s it is estimated that two million Irish-born in North America were remitting home about £1 million annually; four decades later a considerably smaller stock of emigrants was sending back over $10 million, or between double and treble the earlier sum in real terms.[28]

One suspects that changes in remittance flows and bequests reflected the altering fortunes of those who left and those who remained, all the time attempting to support 'equitable' outcomes among siblings, though establishing this would require a detailed time series study and more. Meanwhile it is worth mentioning that several aspects of socio-economic stratification in Ireland between Famine and treaty – the high proportion of farmers' sons among traders in the villages and the towns, the almost complete absence of farmers sons among the ranks of labourers in Dublin city, the comfortable socio-economic status of most of the clergy and the rural professional classes – argue in the same direction.[29]

While by no means wishing to deny the tensions occasioned by the intergenerational transmission of wealth, I would maintain that the evidence belies Connell's argument about a firm link between the shift to impartible inheritance and greater inequity. Perhaps those accounts in Lee, Berkner, Goy, *et al.* are also somewhat overdrawn. But, finally, why does Connell seem to have got it wrong? Over-reliance on folklore and anecdotal evidence may be the answer. Such sources are prone to highlight the dramatic and the unusual. Relying on direct, preferably quantitative, evidence seems a better way out. The point arises in other contexts too: for instance, Connell's use of impressionistic evidence prompted him to underestimate the mean age at marriage on the eve of the Famine.[30]

5.4 Migration and fertility

It is over two decades since Kingsley Davis warned social historians against seeing inheritance customs as exogenous determinants of population change in the long run. The relative autonomy of the superstructure in this sphere has its supporters still, however, and customs such as primogeniture and impartible inheritance generally are identified with the Malthusian preventive check and a low rate of natural increase. In France the rule 'one farm, one household; one household, one family' is held by Jacques Dupâquier to have played a crucial role in stemming population growth; in Germany Berkner has allowed custom considerable autonomy in the long run.[31] In Ireland's case it is tempting (and probably simplistic) to link the great reduction in nuptiality between the 1850s and the 1930s to a switch to impartible succession. More interesting, though, is the

coexistence for decades of apparently high fertility levels and what other studies would envisage as a restrictive succession regime.

That Irish fertility remained high after the Famine is universally agreed, though convincing evidence of the trend is elusive. The fruits of one effort at monitoring the trend is spelt out in Appendix 5.1, which reports estimates of the Princeton measure of age-specific marital fertility, I_g, for 1841, 1881, and 1911. I_g is defined as the ratio of the number of legitimate children born to the weighted sum of married women of child-bearing age. The weights used reflect the fertility levels achieved by America's Hutterite community early in this century. For example, married Hutterite women aged 25–9 years bore an average of 0.502 children each year. The age-bands in the Irish censuses do not correspond precisely to those applied to the Hutterite data except in 1881. The Hutterite weights used were the following:

1841		*1881*		*1911*	
Under 17	0.300	15–19	0.300	15–19	0.300
17–25	0.550	20–24	0.550	20–24	0.550
26–35	0.475	25–29	0.502	25–34	0.475
36–45	0.300	30–34	0.447	35–44	0.320
46–54	0.020	35–39	0.406	45–54	0.035
		40–44	0.222		
		45–49	0.061		

The modest rise implied by the data to have taken place between 1841 and 1881 may turn out to be a statistical mirage, given the poor quality of the 1841 enumeration of infants and very young children. The subsequent slow decline – confirmed in independent calculations by David Fitzpatrick[32] – suggests that Ireland was a participant, if a half-hearted one, in the demographic transition mapped out by the Princeton research unit for other European countries. The decline in marital fertility was neither uniform nor universal. Mapping the Princeton measure suggests a high-fertility zone encompassing Connacht and north Munster, a swathe of counties down the middle of the country where I_g ranged from 0.80 to 0.85, and an area including east Ulster, Dublin, and Louth, where fertility was 'light'. The implication that after 1881 at least some of the Irish were not following a 'natural fertility' regime to the letter is interest-

ing, though the concurrent increases in marriage age and celibacy rates were much more significant demographically. Irish fertility levels after the turn of the century remained very high by contemporary European standards. The implied drop in the standard fertility measure, I_g, between the late 1870s and the 1900s was only 5–10 per cent.[33]

Emigration goes some way towards explaining the sustained coexistence of high fertility and impartible inheritance. The regression analysis in Table 45 suggests that the considerable variation in fertility rates across counties is associated with their emigration experience. Inferences about causality from emigration to fertility are perhaps not warranted, since the argument could equally run the other way. And yet it is the failure of Irish fertility to follow a common pattern that is to be explained. As cross-section estimates go, the regression results are not bad. The implied fertility elasticities, calculated at the mean values of the variables, are statistically significant, but low (0.1 to 0.2), meaning that most of those who emigrated were not 'replaced' through higher fertility.[34]

Nineteenth-century American history provides an analogy; there Francis Walker argued that immigration reduced the natural fertility of the native population, substituting 'ready-made' adults from across the seas for the averted births. The high Irish fertility of that period is nowadays often equated with 'backwardness'; perhaps a fuller view, which considers children as pleasant but costly objects, would regard the higher fertility, from a welfare standpoint, as one of the benefits of emigration. In the newspeak of economics the psychic pleasure to the parents and society of bearing the children, knowing full well that they were destined to emigrate, may be approximated by the cost of their upbringing minus emigrant remittances. Alternatively, as Mokyr and I have explained elsewhere, that cost may be equated with the foregone earnings of emigrants in Ireland.[35] The size of this boon will have depended not only on the volume but on the age structure of the emigration. Earlier attempts put it at 1–2 per cent of national income in the immediate pre-Famine years, and 1–3 per cent in the 1950s and 1960s. In the latter period a big dent is made in it by emigrant remittances and emigrant tourism.

In one sense this sum may be regarded as an economic loss to Ireland from emigration. This is how the analogous gain to the United States in the nineteenth century has been interpreted by Uselding and others.[36] However, one can equally admit that 'the

great psychological satisfaction in rearing children normally compensates for such monetary sacrifice as is involved'.[37] In the Irish case, then, emigration allowed the luxuries of both impartible inheritance and large families. The inheritance system is endogenized, partly at least.

Table 45 *Fertility and emigration regressions*

Variables	*(1) FERT81*	*(2) FERT81*	*(3) FERT11*	*(4) FERT11*
EMIG1	222.26	—	235.64	
	(1.51)		(1.50)	
EMIG2	—	988.93	—	1148.40
		(5.33)		(5.53)
PRCATH	119.28	110.46	88.82	78.81
	(3.90)	(3.91)	(2.78)	(3.47)
BIGFARM	−123.69	—	−340.55	−239.67
	(−2.30)		(−5.35)	(−4.90)
DUBLIN	−174.06	−148.46		—
	(−4.55)	(−4.31)		
NONAGR			−70.28	—
			(−1.23)	
Constant	659.89	676.33	716.05	723.02
	(5.94)	(31.30)	(5.75)	(17.87)
R^2	0.822	0.841	0.878	0.939
F	31.16	49.24	49.44	140.38

Note FERT81 and FERT11 are the marital fertility estimates for I_g, as explained in the appendix. EMIG1 is calculated as the cohort depletion of those up to fifteen years of age between 1881 and 1911. EMIG2 is emigration as defined in B. M. Walsh, 'Marriage rates and population pressure: Ireland 1871 and 1911', *EHR*, 23 (1970), 159. T-statistics are given in parentheses. BIGFARM is the proportion of farmers residing on farms of a valuation greater than £15, CATH the Catholic share of the total population, NONAGR the proportion of the labour force engaged in non-agricultural activities in 1911.

5.5 The Marie Stopes correspondence

The thousands of surviving letters received by the English family planning pioneer, Marie Carmichael Stopes, between the 1910s and the 1940s include a significant number from the two Irelands.[38] They provide another window on Ireland's fertility transition in the early decades of this century. Here I draw on the contents of one important set of letters to Stopes from Irish and Scottish

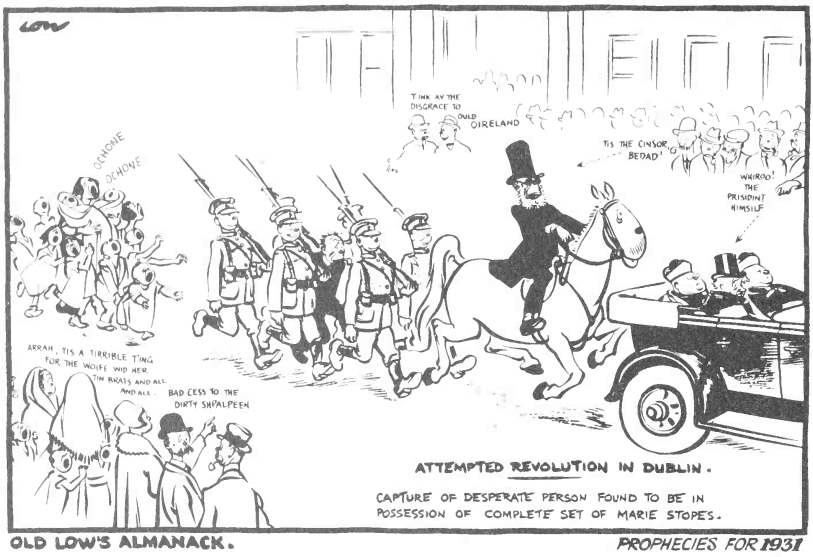


Figure 9 *'Attempted revolution in Dublin', caricature by D. Low,* The Evening Standard, *December 6 1930 (reproduced by permission of* The Evening Standard *and the Solo Literary Agency)*

correspondents, letters prompted by Stopes' *Married Love* and related works, for comparative insight into the fertility transition in both countries.[39] The set contains over one hundred letters from Ireland and twice as many from Scotland (Table 46).

Individually, the letters reflect a wide variety of problems and experiences. Most obviously, they indicate a strong desire for confidentiality in sexual matters, and a widespread ignorance about sexual problems. Some of the letters, a case in point being those from a Ulster schoolteacher who 'simply devoured' *Contraception* (one of Stopes' pamphlets) and read a chapter of *Married Love* every night in bed, finding it 'absorbing', reflect eccentricity and male prurience. Such letters, always from men, generally eschewed the personal histories found in the bulk of letters. Yet most of the letters seem genuine and to-the-point.

The quest for secrecy is represented by the woman from the middle-class Dublin suburb of Blackrock who pleaded that literature about contraception not be sent in wrappers – 'people might open them and misunderstand' – or the young Glasgow woman who wrote because 'I am very ignorant in these things and I don't like to ask any of my friends'. Several letters, both Irish and Scottish, betray a

limited knowledge of the 'facts of life'. Thus in 1938 an elderly Glasgow man wondered, his wife in mind, whether 'there [is] any instance of a woman of 58 conceiving?'. Some years earlier, a man from Oban wrote to ask (allegedly on behalf of a friend) whether merely stimulating a woman's vagina might induce pregnancy. A Glasgow woman desiring 'a little time to adjust [her]self to the new life', and not reassured by her husband's confidence that 'there *may* be no child for some time *naturally*', sought advice about a Vaseline-based concoction. Stopes wisely proposed a pessary instead. A recently-married Belfast woman wanted to know in 1919 whether if she and her husband 'reach[ed] the climax simultaneously would there be any chance of having a child?' Three different correspondents wanted to know if couples could choose the sex of their children. Another wondered whether red-haired men were more highly sexed than others. A 21-one-year-old Offaly woman betrayed such ignorance of the facts of life that Stopes met her request for information about *Married Love* with the advice that she 'should start by reading *The Human Body*'. A well-heeled Scots woman wondered whether horse-riding, appropriately timed, was a safeguard against pregnancy. A belief in quack methods of averting births and inducing abortions (hot baths, Dr Patterson's pills, and so on) is also evident, and on occasion Marie Stopes was not above offering her own eccentric views on a variety of issues unrelated to contraception.

To rely on the Marie Stopes correspondence as a window on the demand for birth control invites some obvious criticisms. Middle-class, literate demand is likely to have been over-represented in such a source.[40] Also problematic are the influence of the activities of rival family planning pioneers and the banning of Stopes' works in the Irish Free State after 1928 on the flow of letters to Stopes. Stopes' virulent anti-Catholicism may have deterred some prospective Irish inquirers. Any general points made on the basis of such a small number of observations must therefore be doubly tentative. Still, the letters are surely a useful guide to the extent that Stopes could be easily contacted through her publishers or the wide range of newspapers and popular periodicals (ranging from *The Railway Gazette* to *John Bull*) to which she contributed articles, advertisements, or news releases. The postal service provided a voice to some of those living far from the early family planning clinics, it guaranteed confidentiality, and was inexpensive. Finally, the Scottish letters provide

a 'control' for statements made about the Irish correspondents. They prompt the following points:

(i) In Ireland men were more likely to write to Stopes than women (58 to 42 per cent), but in Scotland the reverse was true (41 to 59 per cent). However, the women were more likely to seek information on birth control, whereas male queries were more concerned with recurrent sexual problems such as impotence and premature ejaculation. Most of the letters came from 'respectable' married people or from those about to be married. In Ireland, middle- and upper-class people constituted the bulk of the correspondents. Thirty-six of the Irish requests came from such people, as against three from identifiably working-class people. The latter consisted of a soldier in Kilworth camp, a Limerick woman with six children, and a Coleraine woman who wondered in 1943 whether cod liver oil was a safe substitute for olive oil, 'now that olive oil is unavailable". By contrast, of the Scottish correspondents whose socio-economic status could be ascertained, one-third hailed from a poor background.

(ii) Over the period as a whole, the Scots were far more likely to write to Stopes than the Irish. Scotland, with a population only marginally greater than Ireland's in this period, accounted for over two-thirds of the correspondents. There was a marked falling-off in letters from both countries after the mid-1920s. The difference between the two countries was demand- rather than supply-driven.

(iii) People living in Northern Ireland were much more likely to consult Stopes than those living the south of the border. The North, with less than one-third of the South's population, produced one-half of the Irish letters. Moreover, the Southern letters include several in 1919–21 from military gentlemen stationed in Ireland, though not necessarily of Irish birth. Censorship in the South produced no *relative* falling-off in letters. Most of the Irish letters came from counties Antrim, Down, and Dublin, and most of the requests, both North or South, seem to have come from non-Catholics.[41]

(iv) Requests were by no means limited to information about family limitation. Letters of support formed a significant part of the Scottish correspondence, and in both countries many letters dealt with problems such as frigidity, impotence and premature ejaculation. Focusing on such problem letters alone, Irish correspondents were more likely to be male and to seek information not necessarily entailing fertility control.

(v) The letters provide evidence of both the 'spacing' and the 'stopping' strategies discussed above. In both Scotland and Ireland between one-quarter and one-third of the inquiries about contraception show a clear desire for 'spacing'. Many of the 'spacers' sought to avert births in the first year or two of marriage. Typical was the Scotswoman who had read *Married Love* before marriage and 'decided upon contraception for at least a year, wishing to be fully adjusted to each other before bringing a new life into being'. Of course, Marie Stopes herself was a strong advocate of contraception in the early stages of marriage. The other main reasons given for 'spacing' children were the mother's poor health in the wake of a troublesome birth, or straitened circumstances at the time of writing. Whether 'stopping' or 'spacing' was intended is unclear in some cases; thus the range reported above is a lower-bound estimate of 'spacing'.

(vi) Twenty-eight correspondents, twenty-five of them from Scotland, and nearly all of them women, sought information about abortion. It is evident from Claire Davey's analysis of letters from English correspondents that their demand for such information was far greater than from the Irish or Scots. Significantly, nine of the Scottish inquiries came from identifiably poor households, versus six from middle-class households. Several of the inquiries mentioned poverty or ill-health as a factor. One of the Irish requests came in 1923 from a frustrated Englishwoman married to a Corkman. 'Cork', she complained, 'is such an old-fashioned goody-goody place that they would not sell you what you wanted if they thought it was for a wrong purpose'. Her potential source of 'a bottle called Black Mischief' had unfortunately left Cork. Another Irish correspondent was the husband of a young middle-class Carrickfergus woman, who found herself pregnant again, though her first child was only six weeks old. Her husband, a sheath user, wondered if 'something (could) be done to bring on her illness, without injury to her'. Stopes resolutely refused to help in such cases, with two exceptions. In one case, which turned out to be a false alarm, a wealthy Scottish knight sought help for a female friend in distress. He claimed to be 'old enough to be her grandfather'. Stopes suggested that with luck he might find an Edinburgh consultant willing to operate on the premise that the woman's health was in danger. In the other, the request came from a Belfast couple infected with syphilis and a history of defective births. Stopes knew of no doctor 'who would do it for her',

and recommended the quack remedy of hot baths and Epsom salts.

Table 46 *A content analysis of the Stopes correspondence*

Period	*Ireland*			*Scotland*		
	M	F	Total	M	F	Total
1918–21	27	14	41	27	30	58
1922–28	15	19	34	37	72	112
1929–44	14	7	21	27	28	59
Sex of Correspondent						
Male			57			94
Female			41			137
Class						
Middle-class	45	30	75	51	58	109
Working-class	0	2	2	6	27	33
Type of Letter						
BC Information	23	27	50	38	78	122
Other Info.	26	10	36	35	28	64
Support	8	3	11	24	18	46
Spacing	6	8	14	11	26	37
Abortion	2	1	3	5	20	25

5.6 Wills and dowries

Thus far we have focused exclusively on the implications of inheritance practice for the male issue. And, of course, will were mostly male affairs. Land mostly passed from male to male, largely in front of male witnesses. Yet they can also tell us something about women's economic status. Farmers' widows regularly featured as legatees when no son was old enough to take over; when a son got the farm, usually the mother's interests were taken care of. But more interesting is the provision made for daughters. Testators typically made provision for their unmarried daughters.

The dowry or 'fortune' was part of a custom called the 'match', the arranged marriage so well analysed by Kenneth Connell. The following account from County Longford captures its most important features:

> What usually happened was that the boy or his parents sent some person to the girl's parents first to sound them out about the match

> and get their opinion. If the parents were satisfied, then the boy and the girl and the parents, fathers anyway of the boy and girl respectively, would meet, and the man who started the negotiations would be there too. They'd meet in some pub in the town.
>
> The discussion then took place about how much money the girl had and what land, stock, etc. the boy had. The boy's parents and brothers and sisters would be discussed also, whether they expected any of the fortune or not . . . Fifty years ago from £70 to £100 was a good dowry. The dowry was paid on the morning of the marriage, before the ceremony took place. The bridegroom called to the bride's house, before the ceremony.[42]

The cost of the match in terms of romantic bliss are often highlighted in literature and song: '*dá mbeadh spré ag an gcat is deas mar a pógfaí a bhéal* (if the cat had a dowry, her mouth would be quick to be kissed)', or '*ná tréig mé mar gheall ar na bɪaibh* (don't leave me for the sake of the cows)'. To mention a well-known source from real life, Sissy O'Brien of the famous farm by Lough Gur could remember only one marriage 'for love or by the lovers' own choice' in her part of east Limerick. For the rest, 'in those days young girls had nothing to look forward to but a loveless marriage, hard work, poverty, a large family and often a husband who drank'.[43]

In the Longford example just quoted and in many other descriptions the fathers are part of the haggling associated with the match. The sums at stake might be influenced by considerations such as having a priest in the family or the farming skills of the prospective partners. Hence '*is fearr bean ná spré* (a woman beats a dowry)'. Family size also played a role: an only daughter stood a better chance than one of five or six. In the end, though, 'the son of a small farmer would only get a small fortune, and the daughter of a small farmer would only have a small fortune to get'. Or, in Arensberg's words, 'fortune and farm must be roughly equivalent'. In T. C. Murray's comedy '*Sovereign Love*', set in Muskerry in 1908, shrewd farmer Donal Kearney is explicit about the link between dowry and farm: 'The farm is six and fifty acres and there's nine head of cattle – good milking cows, God bless them! – on it. There's a nice warm farmhouse – fit for the best. And now so as to have no two ways about it, I might as well tell ye that I'm expecting two hundred and fifty pounds'. Indeed, the fortune received by the 'favoured' son was often seen as dowry money for one of his sisters. The dowry, then, may be regarded as the cost of entry for the farmer's daughter to another

holding similar to her father's in size. The Tipperary farmer who (as the story goes) was in the habit of summoning his daughter within earshot of a suitor with the shout of 'Come in here, me five hundred!' was signalling both his own wealth and his expectations for his daughter.[44]

Recent historiography paints a bleak picture of the condition of women in post-Famine Ireland. The decline in domestic industry, the shift in farming from tillage to pasture and the decline in the ranks of farm labourers are all seen as injurious to women's bargaining power; the high and rising share of women in the emigrant outflow from rural areas was the result. However, a more benign interpretation of the rise in the female share in emigration, supported by wages trends in America at least, is that the pull exerted by labour markets abroad on women was greater.[45]

What are the implications of these scenarios for the trend in dowry values? One model of the dowry system sees it as analogous to tenant right: the payment is compensation to those who make room for the incomer for assets relinquished. According to this model, a rise in dowry values represents a rise in the value of women's work in the farm household.[46] Alternatively, the dowry might be regarded as a 'ticket' which offers the bride a standard of living consonant with her background and her parents' ambitions. Imagine a world of farmers, half of whom have only sons, the other half daughters. Those with daughters are 'unlucky' in the sense that they must give their daughters dowries in order to marry a farmer's son. Richer farmers pay bigger dowries in order to settle their daughters on farms like their own. Suppose this state of affairs continues until, suddenly, there is a demand for female workers in America. This produces an outflow of farmers' daughters, and the reduced supply means that farmers with sons must accept those who remain as marriage partners for smaller dowries. Ironically, therefore, a drop in the value of the dowry may mean improved times for women. On the other hand, a reduction in the demand for female labour would induce farmers to pay their daughters bigger dowries relative to the value of their properties as a marriage-ticket. This suggests an analysis of the proportion dowries bore to the probate value of wills. Table 47 does so for samples drawn *c.* 1860–78 and *c.* 1900–20. The samples were taken from the will books of Waterford, Cork, Limerick, and Tuam registration districts.[47] Bequests to married women were excluded; when two or more daughters were given different amounts the

largest sum mentioned was used. Given the small number of observations, any interpretation must be regarded as tentative. Nevertheless the tendency for the share of the dowries to decline with an increase in probate value is clear enough. Second, the increase in the mean share over time seems to be due to more smallholders making wills. Most important, the tendency for the will-probate ratio to fall over time holds across size of probate. Table 48 tells the story in another way, by using simple regression analysis to explain the variation in dowry provision by size of probate. The evidence here is that the provision made for daughters dropped relative to probate value in the few decades before the First World War. Women who stayed at home thus seemed to have improved their bargaining position. Is this all that surprising? After all, in the late nineteenth century the welfare of emigrant women seems to have been advancing relative to men, so why should the same not have held for their stay-at-home sisters? Perhaps more comprehensive evidence on marriage settlements and dowries will alter the picture presented here for the period under review. In the long run, however, there is no disputing the gradual disappearance of the dowry as part of the marriage settlement. By the 1950s the low marriage rate in rural Ireland was being blamed in part on farmers being 'often' unwilling to marry girls without a dowry. But that is the point: such farmers remained bachelors.[48]

Table 47 *The trend in dowry shares (number of observations in parentheses)*

Probate value (£)	*Share c.* 1870	Share *c.* 1910
0–100	2.065 (16)	1.535 (41)
101–200	0.641 (23)	0.785 (40)
201–300	0.583 (23)	0.431 (36)
301–450	0.524 (19)	0.353 (23)
451–600	0.468 (31)	0.399 (11)
601–1,000	0.283 (16)	0.265 (12)
Over 1,000	0.275 (27)	0.162 (12)
Total	0.631 (155)	0.729 (175)

Note In the first period the exact probate value is rarely given. Descriptions such as 'under £100', 'under £200', 'under £450', etc. are used instead. In tabulating I used the mean of the appropriate interval.

Table 48 *Regression predictions*

Probate (£)	1870s	1910s
50	115	77
100	126	89
200	148	113
500	211	159
750	262	193
1,000	311	217
3,000	638	368
R^2	0.44	0.28
N		177

Note A quadratic was used for the first equation, a cubic term was added for the second.

A final comment: the two main inferences drawn here from the wills – those of greater intra-familial 'fairness' and a relative improvement in women's lot – may seem to add some cheer to the standard view of post-famine rural life. Still, they should not be interpreted as evidence of an utterly harmonious or idyllic view of those times. If living standards were rising, there is still evidence aplenty against such an interpretation in the simmering tensions between labourer and farmer and in the very uneven division of the spoils of the Land War between strong and small farmer.

Appendix 5.1
Irish marital fertility after the Famine

This appendix is an attempt at providing a rough indication of the course of marital fertility after mid-century. Table A5 presents my estimates of a standard measure of fertility, I_g, for the thirty-two counties. The results, though resting on shaky foundations, are not implausible.

Irish marital fertility trends after the Famine are somewhat of a puzzle. Estimation from censal data is bedeviled by under-recording; information on infant mortality is lacking, and, more generally, there are no civil registration data. However, both infant mortality and under-registration declined over time. Using the number of children under one year or up to four years to calculate the trend in fertility will therefore produce an upward bias. The following procedure has been adopted here. The basis for the numerator in the calculation is the number of recorded children aged up to 4 years;

Table A5 *Calculated i_g, 1841–1911*

	1841	*1881*	*1911*
Carlow	873	811	740
Dublin	649	615	586
Kildare	889	832	686
Kilkenny	858	853	763
King's	867	821	750
Longford	844	856	771
Louth	783	798	727
Meath	862	872	730
Queen's	917	839	758
Westmeath	878	844	713
Wexford	877	824	747
Wicklow	925	822	682
Clare	893	961	858
Cork	858	862	745
Kerry	839	958	923
Limerick	876	872	781
Tipperary	896	862	792
Waterford	1024	835	734
Antrim	820	742	602
Armagh	844	767	694
Cavan	858	834	798
Donegal	894	859	887
Down	863	834	654
Fermanagh	894	822	775
L'derry	874	809	730
Monaghan	830	831	766
Tyrone	882	822	735
Galway	858	891	920
Leitrim	930	913	898
Mayo	866	910	929
Roscommon	875	930	850
Sligo	890	960	908
Average	868	841	769
Coeff. Variation	0.065	0.082	0.112

corrections for mortality and under-recording yield I_g. A drop in mortality from about 250 per thousand in 1841 (300 in Connacht and Munster, 250 in Ulster and Leinster) to 150 (165 and 135) in 1880 and 100 (110 and 90) in

1911 has been assumed. A drop in child under-registration from 10 per cent in 1841 to 7 per cent in 1881 and 5 per cent in 1911 has been supposed. No allowance is made for illegitimacy. For example, the number of enumerated children aged 0–4 in Tipperary in 1841 was 55,190. Tipperary reported 16 married women aged less than 17 in that year, 7,160 aged 17–25, 22,477 aged 26–35, 15,483 aged 36–45, and 9,593 aged 46–55. The numbers produce the following estimate of I_g for Tipperary in 1841:

$$[(0.2)(55190)/(.7)(.9)]$$
$$/[16(.300)+7160(.550)+22477(.475)+15843(.300)+9593(.020)]$$
$$= 17521/19564 = 0.896$$

The 1841 data are the most problematic. In particular, the estimates produced for Dublin by this method seem too low, probably because infant and child mortality was higher than assumed.[49] There are some obvious anomalies. The data indicate no change or even a slight rise in fertility between 1841 and 1881, and a drop in most counties (29 out of 32) thereafter. The results for 1881 and 1911, used in the regressions in Table 45, are consistent across regions and not implausible.

Appendix 5.2
Cohort parity analysis and the irish fertility transition

Recently Paul David and his collaborators have used the fertility returns of the Irish population census of 1911 as a benchmark for their alternative 'cohort parity analysis' (CPA) approach to fertility measurement. As noted above, CPA highlights the importance of distinguishing between 'stopping' and 'spacing' as alternative family limitation strategies.[50]

CPA infers the extent and timing of birth control within marriage from distributions of married women by number of children born. The method has been explained elsewhere, so an outline is enough here. Like the alternative Coale-Henry measure, CPA sets a 'target' population against a 'model' population. Consider a population (or cohort) of women marrying in some defined age-range (e.g. 25–29 years), who have been married for a specified number of years. David *et al.* derive upper- and lower-bound estimates of C, the percentage of 'controllers' in that population, assessed against the benchmark of some population considered to be non-controlling. The lower bound, C_L, is consistent with 'pure stopping', i.e. a sudden and definitive shift towards contraception after some desired parity has been reached. The upper bound, C_U, reflects 'pure spacing', where all controlling couples control from the outset. The extent of control cannot be determined precisely, but the range between C_L and C_U is normally narrow enough for the required insights. By using the 'rural' element reported in the

Table A6 *Lower- and upper-bound estimates of the percentage of 'urban' Irish women controlling* c. *1900–10, using 'rural' Ireland as a model*

	MODEL: 'RURAL' IRELAND				*TARGET: 'URBAN' IRELAND*			
	Age at Marriage							
	<20		*20–24*		*25–29*		*30–34*	
Duration of Marriage (Years)	C_L	C_U	C_L	C_U	C_L	C_U	C_L	C_U
0–4	11.4	27.4	15.7	31.9	21.4	38.7	22.0	29.1
4	20.9	25.5	28.7	34.9	33.0	41.1	30.1	38.7
5–9	16.3	24.6	20.6	30.7	30.4	42.8	31.9	40.3
10–14	12.5	19.7	19.8	29.1	33.7	48.9	34.9	45.6
15–19	9.5	15.5	23.4	40.5	32.6	48.0	37.6	50.9
20–24	10.5	14.1	20.4	31.7	33.4	48.9	—	—
25–29	10.8	14.4	20.2	30.1	—	—	—	—

Note For definitions of C_L and C_U, see text.

Table A7 *Lower- and upper-bound estimates of the percentage of Irish women controlling* c. *1900–10, using 'rural' ireland as a model*

	MODEL: 'RURAL' IRELAND				*TARGET: IRELAND*			
	Age at Marriage							
	<20		*20–24*		*25–29*		*30–34*	
Duration of Marriage (Years)	C_L	C_U	C_L	C_U	C_L	C_U	C_L	C_U
0–4	8.2	10.0	10.0	12.1	7.4	9.3	4.4	5.6
5–9	6.5	9.8	6.6	9.9	6.1	8.6	4.6	5.9
10–14	5.0	7.9	6.0	8.8	6.6	9.6	4.7	6.2
15–19	3.6	5.9	6.7	11.7	6.1	9.0	4.6	6.2
20–24	3.9	5.3	5.5	8.5	5.6	8.2	—	—
25–29	3.8	5.0	4.9	7.3	—	—	—	—

Table A8 *Lower- and upper-bound estimates of the percentage of Scottish women controlling c. 1900–10, using 'rural' Ireland as a model*

	MODEL: 'RURAL' IRELAND				*TARGET: SCOTLAND*			
	Age at Marriage							
	<20		*20–24*		*25–29*		*30–34*	
Duration of Marriage (Years)	C_L	C_U	C_L	C_U	C_L	C_U	C_L	C_U
<1	−100	−100	−100	−100	−100	−100	−100	−100
1–4	−9.7	−15.3	3.8	9.1	22.1	35.9	24.3	39.9
5–9	8.7	13.3	27.1	38.7	44.5	60.8	41.1	56.2
10–14	11.0	18.1	30.3	43.4	44.5	63.6	44.1	66.9
15–19	9.6	15.3	30.7	51.8	41.8	60.6	40.8	62.6
20–24	7.2	10.2	27.9	43.8	39.1	56.3	—	—
25–29	7.5	10.1	26.4	33.3	—	—	—	—

Table A9 *Lower- and upper-bound estimates of the percentage of Scottish women controlling c. 1900–10, using 'urban' Ireland as a model*

	MODEL: 'RURAL' IRELAND				*TARGET: SCOTLAND*			
	Age at Marriage							
	<20		*20–24*		*25–29*		*30–34*	
Duration of Marriage (Years)	C_L	C_U	C_L	C_U	C_L	C_U	C_L	C_U
0–4	−27.0	−58.5	−19.1	−36.5	−6.1	−6.8	−6.2	−12.7
1–4	−30.2	−60.6	−19.9	−36.7	−3.4	−5.5	−2.1	14.5
5–9	−8.8	−14.9	8.0	11.5	19.1	31.4	10.7	26.6
10–14	−1.8	−2.1	12.4	20.1	14.8	28.7	9.4	39.3
15–19	0.1	−0.2	9.2	19.0	12.5	24.2	2.0	29.7
20–24	−3.6	−4.5	8.7	17.7	7.7	14.6	—	—
25–29	−3.6	−5.1	7.2	13.2	—	—	—	—

Irish census of 1911 as a benchmark, David and his co-authors were able to identify a substantial minority of married couples in Irish urban areas practising birth control in 1911. Table A6 and A7 produce a wider range of results, but the pattern suggested by David *et al.* is confirmed. However, the level of aggregation forced on the CPA estimates by the published censal data conceals the fall in Irish marital fertility that was taking place even in rural areas before the turn of the century, and the marked contrasts to be found within the 'model' population.[51]

The Scottish population census of 1911 also contains the information required to apply CPA techniques. That fact and the long tradition of comparisons between Ireland and Scotland prompts an analysis of Scottish and Irish fertility. Taking 'rural Ireland' as the model non-controlling population, it is clear from Tables A8 and A9 that the proportion of controllers in Scotland was already high by 1911. However, one curious puzzle presented by the Scottish comparison concerns marriages of 0–4 years duration. There the Irish seem to have been the controllers! This spurious outcome is easily explained, however. The main reason for it is the much higher incidence of bridal pregnancy (and perhaps pre-marital births) in Scotland. Michael Flinn and his collaborators found that as far back as 1855–69 one-third of a large sample of rural Scottish births were the outcome of bridal pregnancies. The illegitimacy ratio in Scotland was 7 per cent in the 1890s and 1900s,[52] or more than three times as high as in Ireland. In 1911, 28 per cent of 20–24-year-old brides married less than a year were reported as having at least one child; for 25–29-year-old brides the percentage was 16. In Ireland the percentages were 11 and 6. The result raises a doubt about the appropriateness of including marriages of less than one year duration in applications of CPA.

Might a difference in marriage seasonality in the two countries account for the anomaly? Women marrying 9–12 months earlier accounted for only 22.5 per cent of all Irish marriages in the twelve-month period preceding the 1911 census, compared with 26.9 percent of Scottish marriages. Thus even in the absence of pre-marital sex, the average non-controlling Scottish bride of less than a year was more likely to have had a child by census-time. However, this difference in marriage timing was too small to account for the far higher number of children born to these Scottish brides.

Appendix 5.3
A sampler of the will data

The two lists on the following pages give the flavour of the data on which the analysis is based. The terms of the wills, which nearly all refer to farms in the 1890s, are as transcribed in the will books deposited in the National

Archives, and the probate values as in the testamentary index for the relevant year (when they could be located). The first set (1–30) refers to the Cavan Registration District and the second (1–48) to the Cork Registration District.

A. Cavan Registration District

1. Lavey, 1895 (probate value £35). Farm to wife for Thomas, Patrick (eldest) executor.

2. Loughtee, 1883 (£201). Part of the house and £20 to wife. Farm to John. Any money in bank to be divided equally between ten children.

3. Drumeel, 1891 (£73). Farm to William. £100 each to Hannah and Marianne, £5 annually to Margaret as long as she remains in the house. A shilling to Thomas. If William does not come home, farm to Marianne, £200 to Hannah.

4. Cornamuckla, 1892 (£84). £75 to Rose, farm to James if he returns home; otherwise to testator's brother.

5. Ardagh, 1893 (£267). One farm to Mary, the other to Lizzy (no sons, girls are minors).

6. Abbeylara, 1894 (£113). Farm to Thomas, £60 each to Mary and Bridget if they leave home, one shilling each to Patrick, Michael, Catherine (in America), 'in case they at any time return back they can never give any annoyance to the family here who remained by me till death'.

7. Shercock, 1892 (£68). Farm to James, but some fields to Kate.

8. Enniskeen, 1886. Farm (ten acres) to wife for Patrick, £20 each to Bridget and Rose.

9. Cavan, 1894 (£230). Farm to Frederick; if he dies, to George.

10. Glasdrummond, 1890 (£131). Farm to wife and Josiah for joint use, £70 to Margaret (subject to her marrying with the consent of the rector), £20 to John James.

11. Knockbridge, 1892 (£177). Farm to wife 'to give a share to each according to her means'.

12. Urcher, 1894 (£484). Farms equally divided between Hugh and James, 'including land recently purchased from my son Patrick'. Support for wife, £30 for Mary (married) in New York, £3 to Patrick.

13. Commas, 1896 (£306). Farm to David, to support wife and Ann.

14. Killelandrick, 1896 (£27). Farm to Francis, £12 to Patrick, £10 to Rose.

15. Ballintemple, 1896 (£233). Farm to William, £160 to Edward, £50 to Patrick after five years (in United States).

16. Doreagh, 1896 (£235). Farm to wife for son (in Africa), part of bequest to Elizabeth Jane.

17. Drumgoon, 1891 (£35). Farm to James, subject to one shilling each to Robert, John, Margaret, Ann; £3 to Eliza Jane, £5 to William, £5 to David, £20 plus calf to Matilda.

18. Dring, 1894 (£77). Farm (14 acres) to Eugene, one shilling each to seven others.

19. Gowlan (£896). 'Four parts to be made of everything I may die possessed of', one to Moses, the others to wife for daughters.

20. Rathmore, 1891 (£289). Farm to wife in trust for John subject to £10 each to twelve others.

21. Drumlish, 1895 (£96). Farm (20 acres) to Patrick, £40 to Francis, £70 to Mary, three acres plus board for wife.

22. Denn, 1896 (£218). £70 to John (eldest), farm to Hugh, £70 to Patrick, £1 to Owen. Farm to Patrick if Hugh doesn't hold it, and £70 then to Hugh.

23. Ballymahon, 1896. Farm to Francis subject to £100 to Peter, £10 to Michael, £595 to others (priests, grandchildren), residue to Michael.

24. Mullagh, 1894 (£88). 14 acres to Mary as a marriage settlement, 50 acres to Francis (subject to £12 2s 6d yearly to the Irish Land Commission), £10 plus site to Catherine, if she returns from America.

25. Castlerahan, 1896 (£183). Farm to wife for Mary.

26. Tullyboy (£205). Farm to Thomas, £70 to Leander, £30 to John (in America) if he 'should ask it'.

27. Kildrumsheridan, 1895 (£130). Farm to Robert, £40 to William, £20 to Elizabeth, care for wife.

28. Urcher, 1895 (£98). Farm to wife, but if she remarries, 2s 6d to her, £7 to James (eldest) 'providing he emigrates to America or Australia', but 'on no account' is he to get the farm. Farm to Thomas, otherwise Laurence, bound 'to assist in settling their younger sisters'.

29. Cloone, 1894 (£325). Farm to Michael, subject to £150 to Patrick, £100 each to Margaret, Mary Anne, Eliza.

30. Kilnaleck, 1896 (£79). Farm to John, support to wife, £10 to Michael, one shilling each to four daughters.

B. Cork Registration District

1. Drimoleague, 1896 (£218). Farm to Patrick, £100 to Daniel, £100 to Mary.

2. Carrigeen, 1897 (£37). Farm to youngest son, £70 to Margaret.

3. Lisgood, 1897 (£839). £400 to eldest son, rest to second son subject to care and his marriage portion to wife.

4. Clonfert, 1897 (£189?). Farm each to Benjamin and Jeremiah, both to look after wife (turf, potatoes, etc.).

5. Bridgemount, 1885 (£569). Farm to eldest son, room for Patrick (executor), £250 for Catherine.

6. Dooneens, 1895 (£298). Farm held in trust by wife for David until he marries, when he pays Peter £300 and mother £10 yearly plus keep.

7. Glounamuckla, 1894 (£500). Divided between Dennis and Thomas,

latter getting specified land plus 15 cows, horse and car, proper house; former to pay mother £12 a year plus care, £200 each for Hannah and Barth., £100 (in 11 years time) to Daniel.

8. Ballinoriskig, 1895 (£184). Farm to Patrick, £60 to Annie.

9. Newcestown, 1894 (£242). Farm, etc. to parents, £200 to 'beloved wife'.

10. Gurranegoppel (£409). Farm to Batt, £160 to Mary.

11. Gurteen, 1896. £200 plus 2 sheep to Catherine, £40 plus yearling cold to Dennis, 'but it is my further will and desire that Dennis will have more sense in future', remainder to Patrick.

12. Killinadrish, 1891 (£200). Farm to Patrick, £100 to Ellen, care plus £5 per year for wife.

13. Drummin, 1894 (£155). Farm to Daniel (aged 18), £50 plus care for mother, £55 between two younger sisters when 21, £20 to Ellen and £20 each to Norah and Julia now in America in case they demand it on return from America'.

14. Ballyclough, 1894 (£726). Farm to Arthur, £100 each to Thomas, William, and Edward, care plus £5 yearly for wife.

15. Coolgreen, 1898 (£177). Farm, etc. to two sons, 'conjointly and in equal shares), £200 to Margaret 'whenever a suitable opportunity offers for her marriage'.

16. Carriganimid, 1897. Pub and farm to wife to leave to Cornelius, £8 each to Daniel and Patrick.

17. Coolbane, 1898 (£402). Farm, etc. to Thomas, £300 between Mary and Ellen, young colt and donkey and the grass of two yearlings to John 'until he comes of age'.

18. Dunmanway, 1898 (£479). Divided equally between Daniel and Timothy.

19. Lismire, 1883 (£151). Farm to Dennis, £250 plus beds to Honora.

20. Corbally, 1898 (£709). Farm to brother, £340 to wife, £200 to child 'if my wife Julia have issue by me'.

21. Lislee, 1897 (£133). Farm to James, £36 to Daniel, £80 to Catherine, support for wife.

22. Lisquinlan, 1895 (£889). 'Old farm' to Timothy, 'middle farm' plus some other land equally divided between James and Michael; stock, crops shared equally between the three, £200 plus keep for Margaret and Anne, paid by sons.

23. Garryvoe, 1897 (£135). Farm to wife 'for the benefit of my beloved sons, John, Timothy and Maurice.

24. Ballymakeigh, 1897 (£667). Farm to eldest son, Pierce, who is to maintain uncle, £200 to Maurice, £200 to Mary Ellen.

25. Clonard, 1895 (£445). £120 to Daniel, £120 to Margaret, £80 to Ellen, £40 to Richard, rest to William.

26. Ballinagone, 1898 (£349). Farm to Maurice, £200 plus keep to Ellen,

£50 plus keep to mother.

27. Dripsey, 1898 (£854). Farm for wife for 'one of my sons Timothy or Denis', eldest son Barth housed and clothed and always fed at the same table; 'who gets my farm and place shall do as best he can for his sisters and brothers and mother'.

28. Lisaniskey, 1897 (£213). Farm to wife for Michael, £50 to James, £30 to William.

29. Liscahane, 1898 (£7,254). Farm to my wife to be 'divided between my children as it shall seem fit and proper to my wife'.

30. Ahilnane, 1897 (£282). Farm to elder son Denis at age 31, subject to fair provision of executors for other son John and Johanna. Wife to be 'properly dieted and cared for'.

31. Knockroe, 1898 (£376). Farm to John, £40 to Sarah, keep for wife (plus £50 if John marries), keep for Anne and Richard, 'as long as they wish to reside', £50 for Richard, £50 for Anne, £30 for Ellen, £10 for Elizabeth (married).

32. Ballymacshoneen, 1886 (£215). Farm to wife and Daniel, share and share alike, subject to £5 each to Norah and Kay. 'It is my express will and wish that no part of my property should be given to any of my children who have emigrated or left my house to fend for themselves'.

33. Dromtariffe, 1878. Farm at Islandohill to Patrick, £200 to Ellen plus £10 per year. Another son Terry is co-executor.

34. Liscubba, 1890 (£440). Choice of two farms (£30 and £40 rent, held from Reginald Bence-Jones) to John; other to James. Stock, etc. divided between them in equal shares. £170 to Alice, £20 to Mary (married); 'such sums of money to be paid to my younger sons Cornelius, Edward, and Richard as will be equitable and proper for their advancement in life having regard to the value of said farms'. Brothers John and Cornelius to be looked after whoever chooses the better farm; other duties fall on both farms equally.

35. Clonakilty, 1898 (£80). Farm to wife for Cornelius, and to daughter Ellen Casy if Cornelius dies without issue. Should daughter Nellie Daly return from America, a room and an quarter of manured land, provided her husband does not reside with her.

36. Derrileagh, 1883 (£624). Farm with house to Patrick, other to Garrett, stock shared equally. William to get £30 chargeable on Garrett, Patrick to keep John.

37. Castlemaine, 1898 (£290). Farm to wife for William, who is to marry within three years. Then £120 to Lucy. Otherwise wife does as she thinks proper.

38. Coneybeg, 1898 (£71). 'To be divided equally between my three said children'.

39. Cahirkirky, 1882 (£150). 25 acres of leasehold land to Richard plus 4 cows, 2 calves, 4 sheep, and 'what pigs I have'. To John and Jeremiah the

house plus 6 acres, a cow, 2 sheep, a calf, and use of Richard's implements and horse.

40. Killinardrish, 1897 (£261). Farm to John, keep plus £6 per annum for 'dear dear wife'. £160 plus keep for Daniel while unmarried, £40 to Honora.

41. Aglish, 1898 (£301). Farm to Michael, £200 plus £8 a year to Timothy (provided he works on farm), £250 to Nora, keep for wife.

42. Donoughmore, 1897 (£423). Farm to Timothy, £200 to Lizzie plus room and support, £100 to Jeremiah plus £5 yearly for assistance on farm. Timothy to pay debts and 'keep old servant man Michael Callaghan during his life'.

43. Roscarbery, 1897 (£298). To wife to provide for 'all my children . . . should she hand over the farms to any of my sons the said son do give her £200 as a help towards settling down the other members of my family'.

44. Ballyrichard, 1897 (£368). Home farm (52 acres) plus cattle to Thomas, 18 acres plus mare, 10 sheep, 3 heifers to Con, £50 to 'my child Ellen', £200 to Maggie. Thomas to support mother.

45. Pruntus, 1893 (£893). Farm to Mathew, subject to maintenance of testator's sister, and £200 each to Johanna, Bridget, Mary.

46. Kilnamartyra, 1898 (£262). Farm to Daniel, £250 to Hannah, £12 yearly plus keep for wife. Daniel to pay executors £250 in lieu of farm when he marries. Shilling clause.

47. Clondrohid, 1899 (£264). Farm to wife 'to provide for herself and my children in such manner as she and my son John think most prudent'.

48. Lactify, 1895 (£254). Farm to Patrick 9 years from testator's death; £100 to Margaret, £100 each to Michael and Julia if they work the place for 9 years.

Notes

1 T. C. Murray, *The Piper in the Field and Birthright* (Dublin, 1906), 158.

2 Muiris Ó Catháin, *Ar Muir is ar Tír* (Maynooth, 1991), 9–10.

3 E. Le Roy Ladurie, 'Family structures and inheritance customs in sixteenth-century France', in J. Goody., *et al.*, Family and Inheritance: Rural Society in Western Europe 1200–1800 (Cambridge, 1976), 37–70.

4 A. Hermalin and E. van de Walle, 'The civil code and nuptiality: empirical investigation of a hypothesis', in R. D. Lee (ed.), *Population Patterns in the Past* (New York, 1977), 71–112; L. Berkner, 'Inheritance, land tenure and peasant family structures', in Goody *et al.*, 71–95; *idem*, 'Peasant household organization and demographic change in Lower Saxony (1689–1766)', in Lee (ed.), *Population Patterns*, 75–70; J. W. Cole and E. R. Wolf, *The Hidden Frontier: Ecology and Ethnicity in an Alpine Valley* (New York, 1974); J. Goy, 'Permanences et changements: les baronies pyrenéennes aux 18e et 19e siècles', in Cullen and Furet (eds.), *Irlande et France* (Paris, 1982), 139–48; L. Alston and M. Schapiro, 'Inheritance laws across colonies: causes and consequences', *JEH*, XLIV (1984), 277–87.

5 Cf. Devon Commission, Part 1, Appendix 14; P. O'Flanagan, 'Rural change south of the river Bride in Counties Cork and Waterford: the surveyors' evidence, 1716–1851', *Irish Geography*, XV (1982), 51–69; J. H. Andrews, *A Paper Landscape: The Ordnance Survey in Nineteenth Century Ireland* (Cambridge, 1975).

6 K. H. Connell, 'Marriage in Ireland after the famine: the diffusion of the match', *JSSISI*, XIX (1956), 82–103; C. Arensberg and S. Kimball, *Family and Community in Ireland*, 2nd edn. (Cambridge, Mass., 1966), Chs. 7–8.

7 Murray, *The Piper in the Field*.

8 Hugh Brody, *Inishkillane: Change and Decline in the West of Ireland* (London, 1973).

9 Lee, *Population Patterns*, 4; Goy, 'Permanences et changements'; Pierre Bourdieu, 'Célibat et condition paysanne', *Études rurales*, (1962), Nos. 5–6; *idem*, 'Les stratégies matrimoniales dans le système de reproduction', *Annales E.S.C.*, July 1972; Berkner, 'Peasant household organization in Lower Saxony'. For an analysis of the effects of birth order in an Irish urban setting see B. M. Walsh, 'Marital status and birth order in a sample of Dublin males', *Journal of Biosocial Science*, 5(2) (1973), 187–93.

10 K.H. Connell, 'Marriage in Ireland'; *Idem*, 'Peasant marriage in Ireland: its structure and development after the famine', *EHR*, XIV (1962), 76–91; 'Catholicism and marriage in the century following the famine' in *Irish Peasant Society* (Oxford, 1968), 113–2; Arensberg and Kimball, *Family and Community*; Arensberg, *The Irish Countryman* (London, 1937), Ch. 3.

11 J. C. W. Wylie, *Irish Land Law* (Dublin, 1975), chs. 14–15.

12 See D. Fitzpatrick, 'Class, family, and rural unrest in nineteenth-century Ireland', in P. J. Drudy (ed.), *Ireland: Land, Politics and People* (Cambridge, 1982), 37–76.

13 David Thompson and Moya McGusty (eds.), *The Irish Journals of Elizabeth Smith* (Oxford, 1980), 120–2.

14 All the wills and probate material consulted are held in the National Archives, Dublin. They are identified by name, county, and year of probate. Many of the wills analysed date from before tenant purchase. It may seem curious to find neither lawyer not landlord objecting to farmers
bequeathing property which strictly speaking was not theirs to bequeath, but that is another story.

15 Compare Maurice McGuire, 'Rural inheritance in nineteenth-century Ireland', *Dal gCais*, (1984).

16 Will of Patrick McDonagh, Galway, 1911.

17 Will of Luke Lee, Longford, 1915

18 Compare O'Faolain, *A Nest of Simple Folk*, 62: 'Will Leo portion off the girls? What will happen Phil? How can your daughters marry if they are depending on this encumbered bit of land? James will never be able to think of marrying. They will all be impoverished for life. It's a most unusual will. Your husband will never agree to it.'

19 The English Canadian system of inheritance' described by David Gagan for Peel County, Ontario, closely parallels the custom explained here. The Canadian system was a solution to the 'problem of attempting to reconcile the legitimate claims of most, if not all . . . heirs, with [farmers'] unwillingness to liquidate the capital investment represented by real property, their principal form of wealth,

in order to provide settlements for their heirs equitable both in kind and degree'. A big difference, however, is the role of emigration in the Irish system as explained below. David Gagan, 'The indivisibility of land: a micro analysis of the system of inheritance in nineteenth-century Ontario', *JEH*, 36 (1976), 126–41.

20 Much of this section is based on my 'Primogeniture and ultimogeniture in rural Ireland'.

21 William Carleton, *The Party Fight and Funeral* (Cork, 1973), 20; P. O'Donnell, 'De Valera's speech on emigration: a comment', *The Bell*, XVII (1951), 56. See also Earnán de Blaghd, *Trasna na Bóinne* (Dublin, 1957), 11; Brody, *Inishkillane*, 101.

22 Ó Gráda, 'Primogeniture and ultimogeniture'; for corroboration, T. W. Guinnane, 'Intergenerational transfers, emigration, and the rural Irish household system', *EEH*, 29(4) (1992), 470–1.

23 The data are fully explained in Ó Gráda, 'Primogeniture and ultimogeniture'.

24 Arensberg and Kimball, *Family and Community*, xxvii, xiii; Liam Kennedy, 'Farm succession in modern Ireland: elements of a theory of inheritance', *EHR*, XLIV(3) (1991), 487. The standard statistical test is described in J. Johnston, *Econometric Methods* (New York, 1972), 36–7. For $n = 500$, and $R = -0.3$, $t = 7.02$.

25 Robert E. Kennedy, Jr., *The Irish: Emigration, Marriage and Fertility* (Berkeley, CA 1973), 203–4.

26 US Bureau of Statistics, *Labor in Europe and America* (Philadelphia, 1875), 359–61, 376, 739–47, 798–9.

27 Paul A. David and P. M. Solar, 'A bicentenary contribution to the history of the cost of living in America', *Research in Economic History*, II (1977), 1–80.

28 J.F. Maguire, *The Irish in America* (London, 1869), 331–2; US Immigration Commission, *Report*, vol. 2 (Washington, DC, 1911), 427; XXXVII, 273–4. See also Arnold Schrier, *Ireland and American Immigration* (Minneapolis, 1956), Ch. 5. The Immigration Commissioners' estimate may be conservative insofar as it assumes that the Irish remitted less per head than other United Kingdom emigrants.

29 Mary E. Daly, 'Social structure of the Dublin working class, 1871–1911', *IHS*, XXIII (1982), 121–33.

30 Compare Michael Drake, 'Marriage and population growth in Ireland, 1750 1845', *EHR*, XVI (1963), 301–13.

31 K. Davis, 'The theory of change and response in demographic history', *Population Index*, 29 (1963), 345–66; J. Dupâquier, 'De l'animal à l'homme: le mécanisme autorégulateur des populations traditionelles', *Review de l'Institut de Sociologie*, No. 2 (1972), 177–211; Berkner, 'Peasant household organization'. Also Gary D. Libecap and G. Alter, 'Agricultural productivity, partible inheritance, and the demographic response to rural poverty: an examination of the Spanish southwest', *EEH*, 19 (1982), 184–200.

32 Fitzpatrick, 'The Study of Irish Population 1871-1911', paper delivered at the Irish Economic and Social History Society Conference, Cork, 1977.

33 For more on the Irish fertility transition, C. Ó Gráda, 'New evidence on the fertility transition in Ireland 1880–1911', *Demography*, 28(4) (1991), 535 48. The estimates reported in Appendix 5.1 differ somewhat from those given in this paper and in the first edition of this book. See too C. Ó Gráda and N. Duffy,

'Fertility Control in Ireland and Scotland *c.* 1880–1930: Some New Findings' in S. J. Connolly, R. A. Houston and R. J. Morris, *Conflict, Identity and Economic Development: Ireland and Scotland 1600–1939* (forthcoming).

34 Consider an elasticity of 0.2. A 10 per cent increase the emigration rate would have produced 4,000-5,000 more emigrants a year, while a 2 per cent increase in the number of births would have produced about 2,500 more children. Livi-Bacci argues that emigration allowed nineteenth-century Italians to maintain high fertility. Knodel's parallel study of Germany suggests that the association between high fertility and emigration is due to both being caused by 'backwardness'. Massimo Livi-Bacci, *A History of Italian Fertility during the Last Two Centuries* (Princeton, 1976), 269,276; John Knodel, *The Decline of German Fertility* (Princeton, 1973), 222.

35 W. S. Thompson and P. K. Whelpton, *Population Trends in the United States* (New York, 1933); Mokyr and Ó Gráda, 'Emigration and poverty in pre-famine Ireland', *EEH*, 19 (1982), 360–84.

36 Paul Uselding, 'Conjectural estimates of gross human capital inflow to the American economy, 1790–1860', *EEH*, 11 (1971), 49-61; Larry Neal and Paul Uselding, 'Immigration, a neglected source of American economic growth, 1790 1912', *Oxford Economic Papers*, XXIV (1972), 68–88.

37 Commission on Emigration and Other Population Problems, *Report* (Dublin, 1956), 140.

38 Marie Carmichael Stopes (1880–1958), author of *Married Love*, *Enduring Passion*, and many other popular works, controversial publicist for contraception and the eugenics movement. Through her journalism, clinics, and libel actions, Stopes was perhaps more responsible than anyone else for breaking the taboo against public discussion of fertility control in Britain. For more on Stopes and her correspondence see Ruth Hall, *Marie Stopes, A Biography* (London, 1976); June Rose, *Marie Stopes and the Sexual Revolution* (London, 1992); Lesley A. Hall, 'The Stopes Collection in the Contemporary Medical Archives Centre at the Wellcome Institute for the History of Medicine', *Society for the Social History of Medicine Bulletin*, no. 32 (1983), 51–2, and *idem*, *Hidden Anxieties: Male Sexuality 1900–1950* (Cambridge, 1991).

39 The letters are to be found in the Contemporary Medical Archive Collection, Wellcome Institute, London, ML Series, Folios A1-A259. Names and precise references have been avoided to maintain anonymity. For an earlier study based on another set of correspondence, using a much larger sample of letters for insight into birth-control methods practised in interwar Britain, see Claire Davey, 'Birth control in Britain during the interwar years', *Journal of Family History*, 13(3) (1988), 329–45.

40 Compare Davey, 'Birth Control', 336.

41 The records of the Belfast Stopes clinic (Contemporary Medical Archive Collection, Wellcome Institute, MCS/C22) support this; cf. Stopes' remark to the resident nurse in a letter of 13 February 1942 ('I am very glad that you have had a Roman Catholic woman with many children. In the end I hope the Roman Catholics will come to your clinic freely'). The clinic closed in 1946 when hospitals and individual doctors began to provide family planning services. For more on the Belfast clinic see Greta Jones, 'Birth control in an Irish context: The Marie Stopes Clinic in Belfast', *Social History of Medicine*, 1992.

42 Connell, 'Peasant marriage'; IFC, Ms. 1480/472–3.

43 Mary Carbery, *The Farm by Lough Gur* (London, 1937), 47.

44 IFC, Ms. 1481/146; Arensberg, *The Irish Countryman*, 77; T.C. Murray, *'Sovereign Love'* in *Spring and Other Plays* (Dublin, 1917), 20–1; Joseph Brady, *The Big Sycamore* (Dublin, 1958), 172.

45 Joseph Lee, 'Women and the Church since the Famine', in Margaret McCurtain and Donnchadh Ó Corráin (eds.), *Women in Irish Society: The Historical Dimension* (Dublin, 1979), 37–8; Hasia Diner, *Erin's Daughters in America* (Baltimore, 1983), Ch. 1; Robert E. Kennedy, *The Irish: Emigration, Marriage, Fertility* (Berkeley, CA, 1973), 84. Between 1851 and 1881 County Clare, for example, lost slightly more males than females, but in the following three decades it lost 66.6 per cent of its 15-24 year-old males and 69.6 per cent of its 15-24-year-old females. In Mayo in the latter period the percentages were 65.9 and 71.

46 Joanna Bourke, 'The best of all home rulers': the economic power of women in Ireland, 1880–1914', *IESH*, XVIII (1991), 39.

47 The sample is based on an exhaustive search of the will books. Waterford contributed only to the first period, Tuam only to the second. Cork and Limerick produced data for both periods. The greater preponderance of small wills in the later period is in large part due to Tuam.

48 Commission on Emigration, *Report*, 82.

49 For some details on mortality in working-class Dublin at this stage see Ó Gráda, 'Dublin's pre-famine demography', and sources cited there.

50 David and Sanderson, 'Measuring Marital fertility control with CPA', *Population Index*, 54(4); David *et al.*, 'Cohort parity Analysis: statistical estimates of the extent of fertility control', *Demography*, 25(2) (1988), 163–88.

51 David Fitzpatrick, 'The Study of Irish Population, 1841–1921'; Ó Gráda, 'Did Irish Catholics?'.

52 Flinn *et al.*, *Scottish Population History*, 359, 350–1; Ó Gráda and Duffy, 'Fertility control in Ireland and Scotland'.